

Dell™ EC280

Owner's Manual

Model EC280

Notes, Notices, and Cautions



NOTE: A NOTE 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.

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Model EC280

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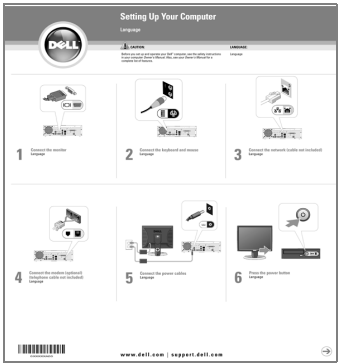
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Finding Information

-  **NOTE:** Some features or media may be optional and may not ship with your computer. Some features or media may not be available in certain countries.
-  **NOTE:** Additional information may ship with your computer.

What Are You Looking For?	Find It Here
• Drivers for my computer • My device documentation	Drivers and Utilities CD (also known as Resource CD) NOTE: The <i>Drivers and Utilities</i> CD may be optional and may not ship with your computer. Readme files may be included on your CD to provide last-minute updates about technical changes to your computer or advanced technical reference material for technicians or experienced users. NOTE: Drivers and documentation updates can be found at support.dell.com. NOTE: You may need to purchase Microsoft Windows separately.
• Warranty information • Safety instructions • Regulatory information • Ergonomics information • End User License Agreement	Dell™ Owner's Manual
• How to set up my computer	Setup Diagram



What Are You Looking For?	Find It Here
• Service Tag and Express Service Code • Microsoft Windows License Label (optional)	Service Tag and Microsoft® Windows® License These labels are located on your computer. • Use the Service Tag to identify your computer when you use support.dell.com or contact support. • Enter the Express Service Code to direct your call when contacting support. 
• Solutions — Troubleshooting hints and tips, articles from technicians, online courses, and frequently asked questions • Community — Online discussion with other Dell customers • Customer Care — Contact information, service call and order status, warranty, and repair information • Service and Support — Service call status, support history, service contract, and online discussions with support • Reference — Computer documentation, details on my computer configuration, product specifications, and white papers • Downloads — Certified drivers, patches, and software updates	Dell Support Website — support.dell.com NOTE: Select your region or business segment to view the appropriate support site. NOTE: The support.dell.com user interface may vary depending on your selections.
• How to use Windows XP • How to work with programs and files • How to personalize my	Windows Help and Support Center 1 Click Start>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 on the screen.

What Are You Looking For?	Find It Here
• How to reinstall my operating system	Operating System CD NOTE: The <i>Operating System</i> CD may be optional and may not ship with your computer. After you reinstall your operating system, use the <i>Drivers and Utilities</i> CD (<i>Resource</i> CD) to reinstall drivers for the devices that came with your computer. Your operating system product key label is located on your computer. NOTE: The color of your CD varies based on the operating system you ordered. NOTE: You may need to purchase Microsoft Windows separately.

Setting Up and Using Your Computer



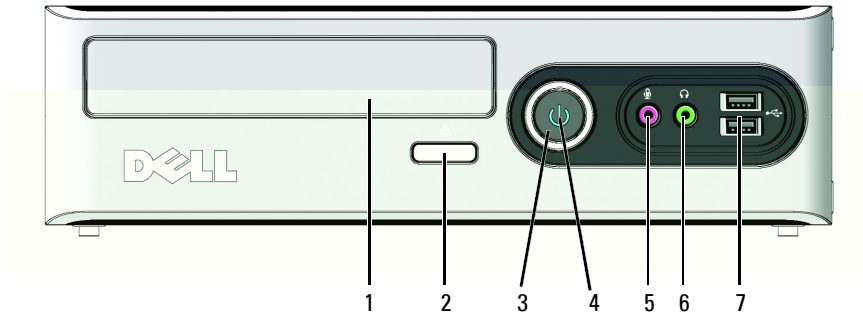
CAUTION: Your computer should only be mounted horizontally. Never mount it vertically.



CAUTION: To ensure adequate cooling, do not block any of the vents.

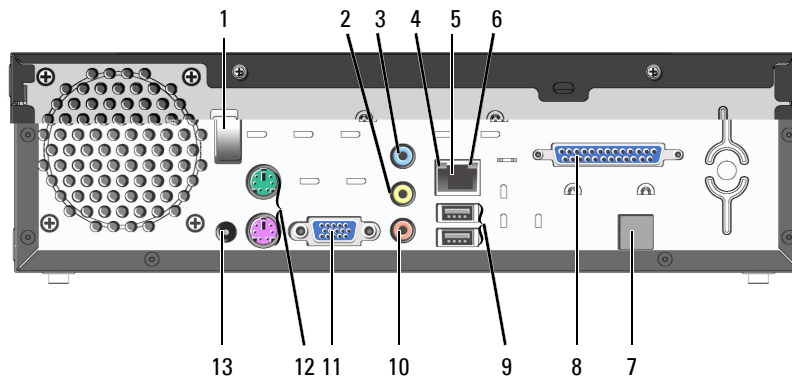
- Ensure that there is a minimum of 2 inches of space between all vents and any object near these vents.
- Keep the vent area clean and dust-free to ensure that the system is adequately ventilated. Use only a dry cloth to clean the vent area to avoid water damage to the system.

Front View of the Computer



1	CD or DVD drive	Type of drive depends on model
2	CD or DVD eject button	Press to eject a disk from the CD or DVD drive.
3	power button	Press to turn on the computer. NOTICE: To avoid losing data, do not use the power button to turn off the computer. Instead, perform an operating system shutdown.
4	power light	The power light indicates when the computer is powered on.
5	microphone connector	Use the microphone connector to attach a personal computer microphone for voice or musical input into a sound or telephony program.
6	line-out/headphone connector	Use the headphone connector to attach headphones and most kinds of speakers.
7	USB 2.0 connectors (2)	Use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras, or for bootable USB devices (see "System Setup Options" on page 55 for more information on booting to a USB device). It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.

Back View of the Computer



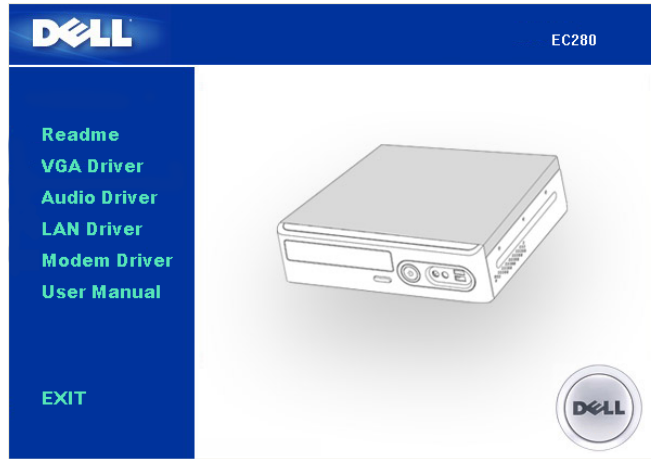
1	cable clip	Use to hold DC-in or other cables.
2	line-out/headphone connector	Use the (green) line-out connector to attach headphones and most speakers with integrated amplifiers.
3	line-in connector	Use the (blue) line-in connector to attach a record/playback device such as a cassette player, CD player, or VCR.
4	link integrity light	- Green — A good connection exists between a 10-Mbps network and the computer. - Orange — A good connection exists between a 100-Mbps network and the computer. - Off — The computer is not detecting a physical connection to the network.

5	network adapter connector	NOTICE: Do not plug a telephone cable into the network connector. Use the network adapter connector to attach your computer to a network or broadband device. Connect one end of a network cable to either a network jack or your network or broadband device, and then connect the other end of the network cable to the network adapter connector on your computer. A click indicates that the network cable has been securely attached. On computers with an additional network connector card, use the connectors on the card and on the back of the computer when setting up multiple network connections (such as a separate intra- and extranet). NOTE: It is recommended that you use Category 5 wiring and connectors for your network. If you must use Category 3 wiring, force the network speed to 10 Mbps to ensure reliable operation.
6	network activity light	Flashes a yellow light when the computer is transmitting or receiving network data. A high volume of network traffic may make this light appear to be in a steady "on" state.
7	modem (optional)	Connect to internet using a dial-up connection.
8	parallel port	Connect compatible printers or scanners here.
9	USB 2.0 connectors (2) (rear quad)	Use the back, rear-quad USB connectors for devices that typically remain connected, such as printers and keyboards. NOTE: It is recommended that you use the front USB connectors for devices that you connect occasionally, such as joysticks, cameras, or bootable USB devices.
10	microphone connector	Use the (pink) microphone connector to attach a personal computer microphone for voice or musical input into a sound or telephony program. On computers with a sound card, use the connector on the card.
11	VGA video connector	If your monitor has a VGA connector, plug it into the VGA connector on the computer.
12	PS-2 connectors	Connect PS-2 keyboard and mouse
13	DC-in connector	Connect the AC adapter.

Installing Drivers for Your Computer

To install drivers:

- 1 Insert *Drivers and Utilities* CD into CD /DVD drive. The installation starts automatically and the installation screen appears.



- 2 Click on **VGA Driver** and follow the instructions to complete installation.
- 3 Click on **Audio Driver** and follow the instructions to complete installation.
- 4 Click on **LAN Driver** and follow the instructions to complete installation.
- 5 If you have a modem, click on **Modem Driver** and follow the instructions to complete installation.
- 6 Once all driver installation is complete, click on **EXIT**.

Setting Up a Printer (USB type)

NOTICE: Complete the operating system setup before you connect a printer to the computer.

See the documentation that came with the printer for setup information, including how to:

- Obtain and install updated drivers
- Connect the printer to the computer
- Load paper and install the toner or ink cartridge

For technical assistance, refer to the printer owner's manual or contact the printer manufacturer.

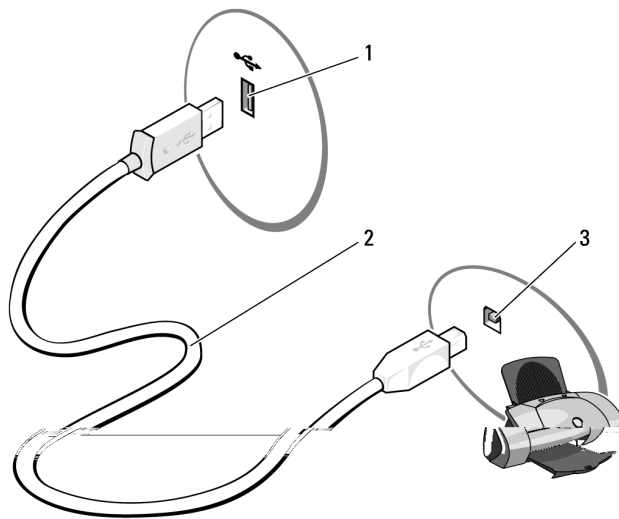
Printer Cable

Your printer connects to your computer with a USB cable. Your printer may not come with a printer cable, so if you purchase a cable separately, ensure that it is compatible with your printer. If you purchased a printer cable at the same time you purchased your computer, the cable may arrive in the computer box.

Connecting a USB Printer

NOTE: You can connect USB devices while the computer is turned on.

- 1 Complete the operating system setup, if you have not already done so.
- 2 Attach the USB printer cable to the USB connectors on the computer and the printer. The USB connectors only fit into the ports when correctly oriented.



1 USB connector on computer 2 USB printer cable 3 USB connector on printer

- 3 Turn on the printer and then turn on the computer. If the **Add New Hardware Wizard** window appears, click **Cancel**.
- 4 Install the printer driver, if necessary. See the documentation that came with your printer.

Connecting to the Internet



NOTE: ISPs and ISP offerings vary by country.

To connect to the Internet, you need a modem or network connection and an Internet service provider (ISP), such as AOL or MSN. Your ISP will offer one or more of the following Internet connection options:

- Dial-up connections that provide Internet access through a telephone line. Dial-up connections are considerably slower than DSL and cable modem connections.
- DSL connections that provide high-speed Internet access through your existing telephone line. With a DSL connection, you can access the Internet and use your telephone on the same line simultaneously.
- Cable modem connections that provide high-speed Internet access through your local cable TV line.

If you are using a dial-up connection, connect a telephone line to the modem connector on your computer and to the telephone wall jack before you set up your Internet connection. If you are using a DSL or cable modem connection, contact your ISP for setup instructions.

Setting Up Your Internet Connection

To set up an Internet connection with a provided ISP desktop shortcut:

- 1 Save and close any open files, and exit any open programs.
- 2 Double-click the ISP icon on the Microsoft® Windows® desktop.
- 3 Follow the instructions on the screen to complete the setup.

If you do not have an ISP icon on your desktop or if you want to set up an Internet connection with a different ISP:

- 1 Save and close any open files, and exit any open programs.
- 2 Click the **Start** button, then click **Internet Explorer**.
The **New Connection Wizard** appears.
- 3 Click **Connect to the Internet**.
- 4 In the next window, click the appropriate option:
 - If you do not have an ISP and want to select one, click **Choose from a list of Internet service providers (ISPs)**.
 - If you have already obtained setup information from your ISP, but you did not receive a setup CD, click **Set up my connection manually**.
 - If you have a CD, click **Use the CD I got from an ISP**.

- 5 Click **Next**.

If you selected **Set up my connection manually**, continue to step 6. Otherwise, follow the instructions on the screen to complete the setup.

 **NOTE:** If you do not know which type of connection to select, contact your ISP.

- 6 Click the appropriate option under **How do you want to connect to the Internet?**, and then click **Next**.
- 7 Use the setup information provided by your ISP to complete the setup.

If you are having problems connecting to the Internet, see "E-Mail, Modem, and Internet Problems" on page 26. If you cannot connect to the Internet but have successfully connected in the past, the ISP might have a service outage. Contact your ISP to check the service status, or try connecting again later.

Playing CDs and DVDs

 **NOTICE:** Do not press down on the CD or DVD tray when you open or close it. Keep the tray closed when you are not using the drive.

 **NOTICE:** Do not move the computer when you are playing CDs or DVDs.

- 1 Press the eject button on the front of the drive.
- 2 Place the disc, label side up in the center of the tray.
- 3 Press the disc into the center of the tray until it clicks into place.



- 4 Press the eject button or gently push in the tray

To format CDs for storing data, to create music CDs, or to copy CDs, see the CD software that came with your computer.

 **NOTE:** Ensure that you follow all copyright laws when you create CDs.

A CD player includes the following basic buttons:

	Play
	Move backward within the current track
	Pause
	Move forward within the current track
	Stop
	Go to the previous track
	Eject
	Go to the next track

A DVD player includes the following basic buttons:

	Stop
	Restart the current chapter
	Play
	Fast forward
	Pause
	Fast reverse
	Advance a single frame while in pause mode
	Go to the next title or chapter
	Continuously play the current title or chapter
	Go to the previous title or chapter
	Eject

For more information on playing CDs or DVDs, click Help on the CD or DVD player (if available).

Adjusting the Volume



NOTE: When the speakers are muted, you do not hear the CD or DVD playing.

- 1 Click the **Start** button, point to **All Programs>Accessories>Entertainment**, and then click **Volume Control**.
- 2 In the **Volume Control** window, click and drag the bar in the **Volume Control** column up or down to increase or decrease the volume.

For more information on volume control options, click **Help** in the **Volume Control** window.

Adjusting the Picture

If an error message notifies you that the current resolution and color depth are using too much memory and preventing DVD playback, adjust the display properties:

- 1 Click the **Start** button, then click **Control Panel**.
- 2 Under **Pick a category**, click **Appearance and Themes**.
- 3 Under **Pick a task...**, click **Change the screen resolution**.
- 4 In the **Display Properties** window, click and drag the bar in **Screen resolution** to change the setting to 800 by 600 pixels.
- 5 Click the drop-down menu under **Color quality**, then click **Medium (16 bit)**.
- 6 Click **OK**.

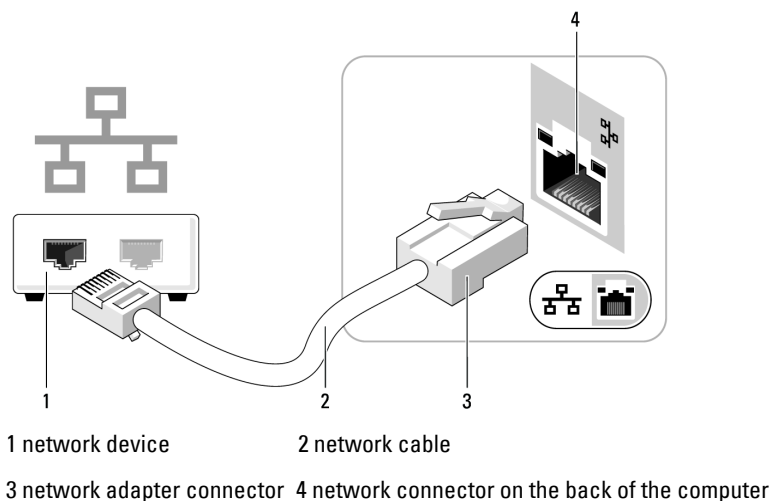
Setting Up a Home and Office Network

Connecting to a Network Adapter

➡ **NOTICE:** Plug the network cable into the network adapter connector on the computer. Do not plug the network cable into the modem connector on the computer.

➡ **NOTICE:** Do not plug a network cable into a telephone wall jack.

- 1 Connect the network cable to the network adapter connector on the back of your computer. Insert the cable until it clicks into place, and then gently pull it to ensure that it is secure.
- 2 Connect the other end of the network cable to a network device.



Network Setup Wizard

The Microsoft® Windows® XP operating system provides a Network Setup Wizard to guide you through the process of sharing files, printers, or an Internet connection between computers in a home or small office.

- 1 Click the **Start** button, point to **All Programs>Accessories>Communications**, and then click **Network Setup Wizard**.
- 2 On the welcome screen, click **Next**.
- 3 Click **Checklist** for creating a network.

🔧 **NOTE:** Selecting the connection method **This computer connects directly to the Internet** enables the integrated firewall provided with Windows XP.

- 4 Complete the checklist and required preparations.
- 5 Return to the **Network Setup Wizard** and follow the instructions on the screen.

Power Management

The Microsoft® Windows® XP power management features can reduce the amount of electricity your computer uses when it is on and you are not using it. You can reduce power to just the monitor or the hard drive, or you can use standby mode or hibernate mode to reduce power to the entire computer. When the computer exits from a power conservation mode, the Windows desktop is restored to the state it was in before it entered the mode.



NOTE: Windows XP Professional includes security and networking features not available in Windows XP Home Edition. When a Windows XP Professional computer is connected to a network, different options related to security and networking appear in certain windows.

Standby Mode

Standby mode conserves power by turning off the display and the hard drive after a time-out. When the computer exits from standby mode, it returns to the operating state it was in before it entered standby mode.

To set standby mode to automatically activate after a defined period of inactivity:

- 1 Click the **Start** button, then click **Control Panel**.
- 2 If **Switch to Category View** appears in the **Control Panel** in the left of the window, click **Switch to Category View**.
- 3 Under **Pick a category**, click **Performance and Maintenance**.
- 4 Under or pick a **Control Panel** icon, click **Power Options**.
- 5 Under the **Power Schemes** tab, change the settings in the drop-down boxes to those that you desire, and then click **OK**.

To immediately activate standby mode without a period of inactivity, click the **Start** button, click **Turn Off Computer**, and then click **Stand by**.

To exit from standby mode, press a key on the keyboard or move the mouse.



NOTICE: If your computer loses power while in standby mode, it may lose data.

Hibernate Mode

Hibernate mode conserves power by copying system data to a reserved area on the hard drive and then completely turning off the computer. When the computer exits from hibernate mode, the desktop is restored to the state it was in before it entered hibernate mode.

To activate hibernate mode:

- 1 Click the **Start** button, then click **Control Panel**.
- 2 Under **Pick a category**, click **Performance and Maintenance**.
- 3 Under or pick a **Control Panel** icon, click **Power Options**.
- 4 Define your hibernate settings on the **Power Schemes** tab, **Advanced** tab, and **Hibernate** tab (see "Power Options Properties" on page 22).

To exit from hibernate mode, press the power button. The computer may take a short time to exit from hibernate mode. Pressing a key on the keyboard or moving the mouse does not bring the computer out of hibernation because the keyboard and the mouse do not function when the computer is in hibernate mode.

Because hibernate mode requires a special file on your hard drive with enough disk space to store the contents of the computer memory, Dell creates an appropriately sized hibernate mode file before shipping the computer to you. If the computer's hard drive becomes corrupted, Windows XP recreates the hibernate file automatically.

Power Options Properties

Define your standby mode settings, hibernate mode settings, and other power settings in the **Power Options Properties** window. To access the **Power Options Properties** window:

- 1 Click the **Start** button, then click **Control Panel**.
- 2 Under **Pick a category**, click **Performance and Maintenance**.
- 3 Under or pick a **Control Panel** icon, click **Power Options**.
- 4 Define your power settings on the **Power Schemes** tab, **Advanced** tab, and **Hibernate** tab.

Power Schemes Tab

Each standard power setting is called a scheme. If you want to select one of the standard Windows schemes installed on your computer, choose a scheme from the **Power schemes** drop-down menu. The settings for each scheme appear in the fields below the scheme name. Each scheme has different settings for starting standby or hibernate mode and for turning off the monitor and hard drive.

The **Power schemes** drop-down menu displays the following schemes:

- **Always On (default)** — If you want to use your computer with no power conservation.
- **Home/Office Desk** — If you use your computer as a home or office computer and you require minimal power conservation.
- **Portable/Laptop** — If your computer is a portable computer that you use for traveling.
- **Presentation** — If you want your computer to run without interruption (using no power conservation).
- **Minimal Power Management** — If you want your computer to run with minimal power conservation.
- **Max Battery** — If your computer is a portable computer and you run your computer from batteries for extended periods of time.

If you want to change the default settings for a scheme, click the drop-down menu in the **Turn off monitor**, **Turn off hard disks**, **System standby**, or **System hibernates** field, and then select a time-out from the displayed list. Changing the time-out for a scheme field permanently changes the default settings for that scheme, unless you click **Save As** and enter a new name for the changed scheme.

 **NOTICE:** If you set the hard drive (hard disk) to time-out before the monitor does, your computer may appear to be locked up. To recover, press any key on the keyboard or click the mouse. To avoid this problem, always set the monitor to time-out before the hard drive.

Advanced Tab

The **Advanced** tab allows you to:

- Place the power options icon  in the Windows taskbar for quick access.
- Set the computer to prompt you for your Windows password before the computer exits from standby mode or hibernate mode.
- Program the power button to activate standby mode, activate hibernate mode, or turn off the computer.

To program these functions, click an option from the corresponding drop-down menu, and then click **OK**.

Hibernate Tab

The **Hibernate** tab allows you to enable hibernate mode. If you want to use the hibernate settings you defined on the Power Schemes tab, click the **Enable hibernate support** check box on the **Hibernate** tab.

For more information on power management options:

- 1** Click the **Start** button, then click **Help and Support**.
- 2** In the **Help and Support** window, click **Performance and maintenance**.
- 3** In the **Performance and maintenance** window, click **Conserving power on your computer**.

Solving Problems

Troubleshooting Tips

Follow these tips when you troubleshoot your computer:

- If you added or removed a part before the problem started, review the installation procedures and ensure that the part is correctly installed.
- If a peripheral device does not work, ensure that the device is properly connected.
- If an error message appears on the screen, write down the exact message. This message may help support personnel diagnose and fix the problem.
- If an error message occurs in a program, see the program's documentation.

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 located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

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 (see "Battery" on page 45). If the battery still does not work properly, contact Dell (see "Contacting Dell" on page 63).

Drive Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

ENSURE THAT MICROSOFT® WINDOWS® RECOGNIZES THE DRIVE — Click the Start button, then click My Computer. If the CD or 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.

TEST THE DRIVE —

- Insert another CD or DVD to eliminate the possibility that the original one is defective.

CLEAN THE DRIVE OR DISK — See "Cleaning Your Computer" on page 61.

CHECK THE CABLE CONNECTIONS

CD and DVD Drive Problems



NOTE: High-speed CD or DVD drive vibration is normal and may cause noise, which does not indicate a defect in the drive or the CD or DVD.



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

ADJUST THE WINDOWS VOLUME CONTROL —

- Click the speaker icon in the lower-right corner of your screen.
- Ensure that the volume is turned up by clicking the slider and dragging it up.
- Ensure that the sound is not muted by clicking any boxes that are checked.

CHECK THE SPEAKERS AND SUBWOOFER — See "Sound and Speaker Problems" on page 34.

Problems writing to a CD/DVD-RW drive

CLOSE OTHER PROGRAMS — The CD/DVD-RW drive must receive a steady stream of data when writing. If the stream is interrupted, an error occurs. Try closing all programs before you write to the CD/DVD-RW.

TURN OFF STANDBY MODE IN WINDOWS BEFORE WRITING TO A CD/DVD-RW DISC —

- 1 Click the **Start** button and click **Control Panel**.
- 2 Under **Pick a Category**, click **Performance and Maintenance**.
- 3 Under or pick a **Control Panel** icon, click **Power Options**.
- 4 From the **Power Schemes** tab, select **Always On**.

Hard Drive Problems

RUN CHECK DISK —

- 1 Click the **Start** button, then click **My Computer**.
- 2 Right-click **Local Disk C:**.
- 3 Click **Properties**.
- 4 Click the **Tools** tab.
- 5 Under **Error-checking**, click **Check Now**.
- 6 Click **Scan for and attempt recovery of bad sectors**.
- 7 Click **Start**.

E-Mail, Modem, and Internet Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.



NOTE: 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 MICROSOFT OUTLOOK® EXPRESS SECURITY SETTINGS — If you cannot open your e-mail attachments:

- 1 In Outlook Express, click **Tools**, click **Options**, and then click **Security**.
- 2 Click **Do not allow attachments** to remove the checkmark.

CHECK THE TELEPHONE LINE CONNECTION —

CHECK THE TELEPHONE JACK —

CONNECT THE MODEM DIRECTLY TO THE TELEPHONE WALL JACK —

USE A DIFFERENT TELEPHONE LINE —

- 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.
- Disconnect the telephone line from the modem and connect it to a telephone. Listen for a dial tone.
- If you have other telephone devices sharing the line, such as an answering machine, fax machine, surge protector, or line splitter, bypass them and use the telephone to connect the modem directly to the telephone wall jack. 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 —

- 1 Click the **Start** button, 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.
If all commands receive responses, the modem is operating properly.

ENSURE THAT YOU ARE CONNECTED TO THE INTERNET — Ensure that you have subscribed to an Internet provider. 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. For help, contact your Internet service provider.

Error Messages

If the message is not listed, see the documentation for the operating system or the program that was running when the message appeared.

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:

- 1 Click the **Start** button, click **Control Panel**, and then click **Add or Remove Programs**.
- 2 Select the program you want to remove.
- 3 Click the **Change or Remove Program** icon.
- 4 See the program documentation for installation instructions.

drive letter : \ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY — The drive cannot read the disk. Insert a disk into the drive and try again.

INSERT BOOTABLE MEDIA — Insert a bootable floppy disk or CD.

NOT ENOUGH MEMORY OR RESOURCES. CLOSE SOME PROGRAMS AND TRY AGAIN —

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, run the program that you want to use first.

OPERATING SYSTEM NOT FOUND — Contact Dell (see "Contacting Dell" on page 63).

Keyboard Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

CHECK THE KEYBOARD CABLE —

- Ensure that the keyboard cable is firmly connected to the computer.
- Shut down the computer (see "Turning Off Your Computer" on page 37), reconnect the keyboard cable as shown on the setup diagram for your computer, and then restart the computer.
- Ensure that the cable is not damaged or frayed and check cable connectors for bent or broken pins. Straighten any bent pins.
- Remove keyboard extension cables and connect the keyboard directly to the computer.

TEST THE KEYBOARD — Connect a properly working keyboard to the computer. Then, try using the keyboard.

Lockups and Software Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

The computer does not start up

ENSURE THAT THE POWER CABLE IS FIRMLY CONNECTED TO THE COMPUTER AND TO THE ELECTRICAL OUTLET

The computer stops responding



NOTICE: You might lose data if you are unable to perform an operating system shutdown.

TURN THE COMPUTER OFF — If 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 restart your computer.

A program stops responding

END THE PROGRAM —

- 1 Press <Ctrl><Shift><Esc> simultaneously.
- 2 Click Applications.
- 3 Click the program that is no longer responding.
- 4 Click End Task.

A program crashes repeatedly



NOTE: Software usually includes installation instructions in its documentation or on a CD.

CHECK THE SOFTWARE DOCUMENTATION — If necessary, uninstall and then reinstall the program.

A program is designed for an earlier Windows operating system

RUN THE PROGRAM COMPATIBILITY WIZARD —

The Program Compatibility Wizard 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 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 restart your computer.

Other software problems

CHECK THE SOFTWARE DOCUMENTATION OR CONTACT THE SOFTWARE MANUFACTURER FOR TROUBLESHOOTING INFORMATION —

- Ensure that the program is compatible with the operating system installed on your computer.
- Ensure that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
- Ensure that the program is installed and configured properly.
- Verify that the device drivers do not conflict with the program.
- If necessary, uninstall and then reinstall the program.

BACK UP YOUR FILES IMMEDIATELY

USE A VIRUS-SCANNING PROGRAM TO CHECK THE HARD DRIVE OR CDS

SAVE AND CLOSE ANY OPEN FILES OR PROGRAMS AND SHUT DOWN YOUR COMPUTER THROUGH THE START MENU

Memory Problems

 **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

IF YOU RECEIVE AN INSUFFICIENT MEMORY MESSAGE —

- Save and close any open files and exit any open programs you are not using to see if that resolves the problem.
- Reseat the memory module (See "Memory" on page 42) to ensure that your computer is successfully communicating with the memory.

IF YOU EXPERIENCE OTHER MEMORY PROBLEMS —

- Reseat the memory module ("Memory" on page 42) to ensure that your computer is successfully communicating with the memory.
- Ensure that you are following the memory installation guidelines ("Memory" on page 42).
- Your computer supports SODIMM DDR1 memory. For more information about the type of memory supported by your computer, see "Memory" on page 42.

Mouse Problems

 **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

CLEAN THE MOUSE — For instructions on cleaning the mouse, see "Mouse" on page 61.

CHECK THE MOUSE CABLE —

- 1 Remove mouse extension cables, if used, and connect the mouse directly to the computer.
- 2 Reconnect the mouse cable as shown in the setup diagram for your computer.

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, reconnect the mouse cable as shown on the on the setup diagram for your computer.
- 4 Start the computer.

TEST THE MOUSE — Connect a properly working mouse to the computer, and try using the mouse.

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.

Network Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

CHECK THE NETWORK CABLE CONNECTOR — Ensure that the network cable is firmly inserted into both the network connector on the back of the computer and the network port or device.

CHECK THE NETWORK LIGHTS ON THE BACK OF THE COMPUTER — If the link integrity light is off, that indicates no network communication exists. Replace the network cable. For a description of network lights, see "Back View of the Computer" on page 12.

RESTART THE COMPUTER AND 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.

Power Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

IF THE POWER LIGHT IS BLINKING GREEN — The computer is in standby mode. Press a key on the keyboard, move the mouse, or press the power button to resume normal operation.

IF THE POWER LIGHT IS OFF — The computer is either turned off or is not receiving power.

- Reseat the power cable into both the power connector on the back of the computer and the electrical outlet.
- 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. Also bypass power protection devices, power strips, and power extension cables to verify that the computer turns on properly.
- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
- Ensure that the main power cable and front panel cable are securely connected to the system board (see "System Board Components" on page 42).

IF THE POWER LIGHT IS STEADY AMBER — A device might be malfunctioning or incorrectly installed.

- Remove and then reinstall the memory modules (see "Memory" on page 42).

IF THE POWER LIGHT IS BLINKING AMBER — The computer is receiving electrical power, but an internal power problem might exist.

- Ensure that the voltage selection switch is set to match the AC power at your location (if applicable).
- Ensure that the processor power cable is securely connected to the system board (see "System Board Components" on page 42).

ELIMINATE INTERFERENCE — Some possible causes of interference are:

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

Printer Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.



NOTE: If you need technical assistance for your printer, contact the printer's manufacturer.

CHECK THE PRINTER DOCUMENTATION — See the printer documentation for setup and troubleshooting information.

ENSURE THAT THE PRINTER IS TURNED ON

CHECK THE PRINTER CABLE CONNECTIONS —

- See the printer documentation for cable connection information.
- Ensure that the printer cables are securely connected to the printer and the computer (see "Setting Up a Printer (USB type)" on page 15).

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, click **Control Panel**, and then click **Printers and Other Hardware**.
- 2 Click **View installed printers or fax printers**.
If the printer is listed, right-click the printer icon.
- 3 Click **Properties**, then click the **Ports** tab. 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.

Sound and Speaker Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

No sound from speakers



NOTE: 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. If you purchased a sound card, ensure that the speakers are connected to the card.

ENSURE THAT THE CORRECT AUDIO SOLUTION IS ENABLED IN THE BIOS SETUP PROGRAM — See "System Setup" on page 54.

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.

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.

No sound from headphones

CHECK THE HEADPHONE CABLE CONNECTION — Ensure that the headphone cable is securely inserted into the headphone connector (see "Front View of the Computer" on page 11).

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.

ENSURE THAT THE CORRECT AUDIO SOLUTION IS ENABLED IN THE BIOS SETUP PROGRAM — See "System Setup" on page 54.

Video and Monitor Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.



NOTE: See the monitor documentation for troubleshooting procedures.

The screen is blank

CHECK THE MONITOR CABLE CONNECTION —

- Ensure that the graphics cable is connected as shown on the setup diagram for your computer.
- If you are using a graphics extension cable and removing the cable solves the problem, the cable is defective.
- Check the connector for bent or broken pins. It is normal for monitor cable connectors to have missing pins.

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.

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

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 ELIMINATE SUNLIGHT GLARE AND POSSIBLE INTERFERENCE

ADJUST THE WINDOWS DISPLAY SETTINGS —

- 1 Click Start, click Control Panel, and then click Appearance and Themes.
- 2 Click Display, then click the Settings tab.
- 3 Try different settings for Screen resolution and Color quality.

Removing and Installing Parts

Before You Begin

This chapter provides procedures for removing and installing the components in your computer.

Unless otherwise noted, each procedure assumes that the following conditions exist:

- You have performed the steps in "Turning Off Your Computer" on page 37 and "Before Working Inside Your Computer" on page 38.
- You have read the safety information in "Safety, Environmental, and Ergonomic Instructions" on page 48.



NOTE: Unless otherwise noted, a component can be replaced or—if purchased separately—installed by performing the removal procedure in reverse order.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- Flash BIOS executable update program on support.dell.com

Turning Off Your Computer



NOTICE: To avoid losing data, save and close any open files and exit any open programs before you turn off your computer.

- 1 Shut down the operating system:
 - a Save and close any open files, exit any open programs, click the **Start** button, and then click **Turn Off Computer**.
 - b In the **Turn off computer** window, click **Turn off**.

The computer turns off after the operating system shutdown process finishes.

- 2 Ensure that the computer and any attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for 4 seconds.

Before Working Inside Your Computer

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



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.



CAUTION: 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 processor by its edges, not by its pins.



NOTICE: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.



NOTICE: 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 the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.



NOTICE: To avoid damaging the computer, perform the following steps before you begin working inside the computer.

- 1 Turn off your computer (see "Turning Off Your Computer" on page 37).



NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network port or device.

- 2 Disconnect any telephone or telecommunication lines from the computer.
- 3 Disconnect your computer and all attached devices from their electrical outlets, and then press the power button to ground the system board.



CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.

- 4 Remove the computer cover (see "Removing the Computer Cover" on page 38).



NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

Removing the Computer Cover



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.



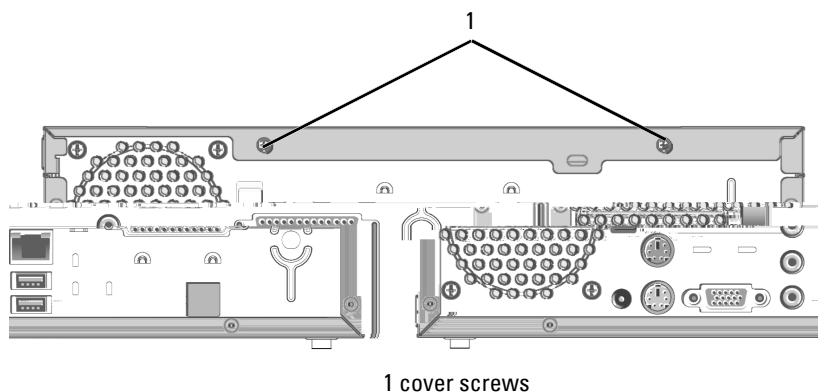
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before removing the cover.

- 1 Follow the procedures in "Before You Begin" on page 37.

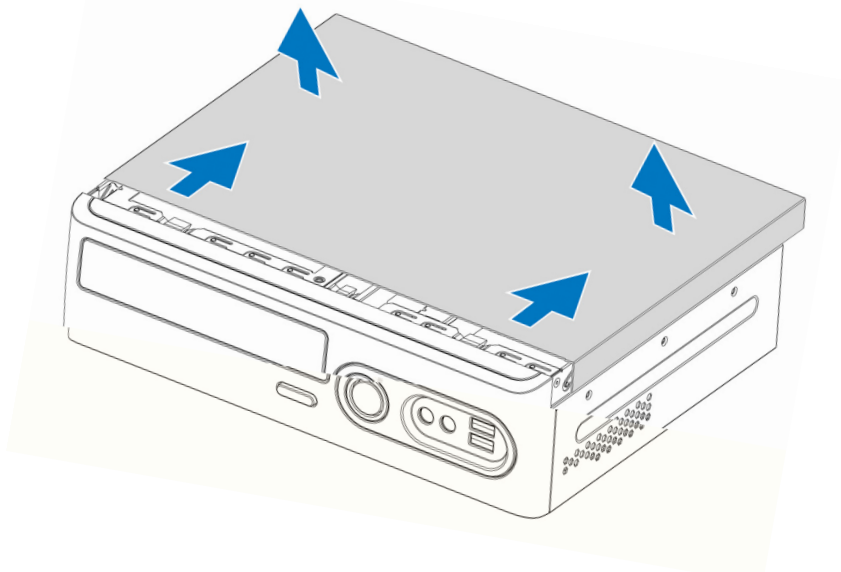


NOTICE: Ensure that sufficient space exists to support the removed cover—at least 30 cm (1 ft) of desktop space.

- ➡ **NOTICE:** Work on a level, protected surface to avoid scratching either the computer or the surface on which it rests.
- 2 Lay your computer horizontally, with the computer cover facing up.
- ➡ **NOTICE:** Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.
- 3 Remove the two screws from the back of the computer, as shown in the following image.



- 4 Slide the cover back about 10mm (2/5"), then lift it off vertically.



- 5 Set the cover aside on a soft nonabrasive surface.

Inside View of Your Computer



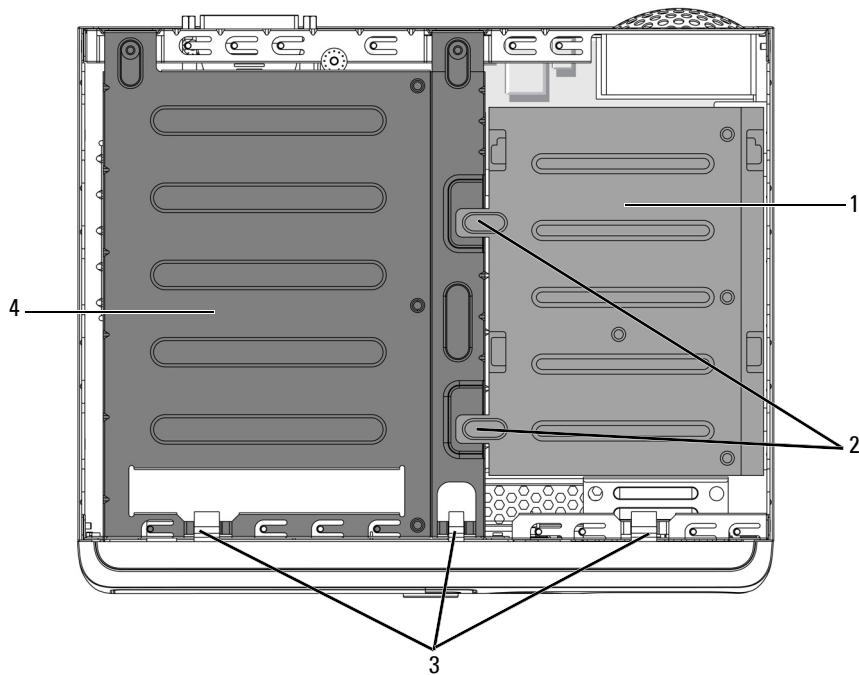
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.



CAUTION: To avoid electrical shock, always unplug your computer from the electrical outlet before removing the computer cover.



NOTICE: Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.



1 drive bay (hard drive)

2 hard drive release screws

3 front panel release clips

4 drive bay (CD/DVD)

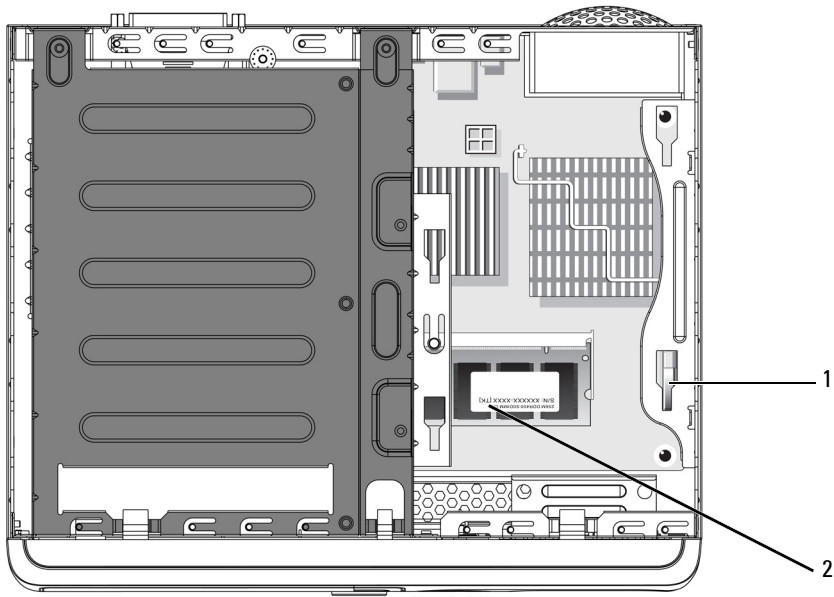
Remove the hard drive bay

- 1 Remove hard drive release screws (2).
- 2 Slide drive bay (hard drive) back about 10mm (2/5").
- 3 Carefully lift hard drive out.



NOTICE: Be careful not to pull too hard, which might cause damage to cables.

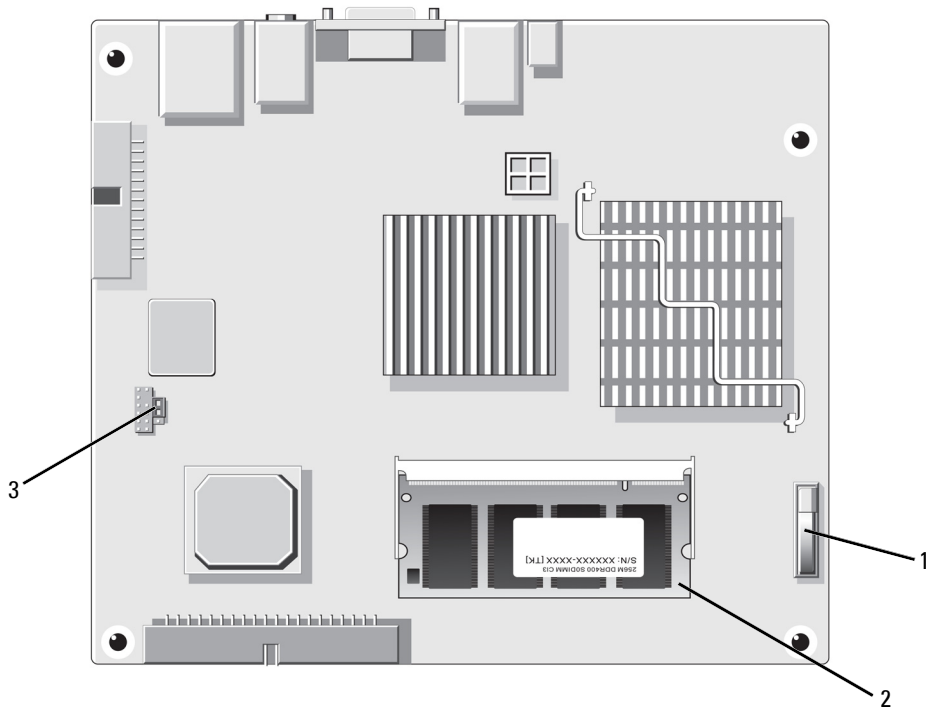
After removing the hard drive, you will have access to the memory module and the battery, as shown in the following image.



1 battery

2 memory module

System Board Components



1 battery

2 memory module

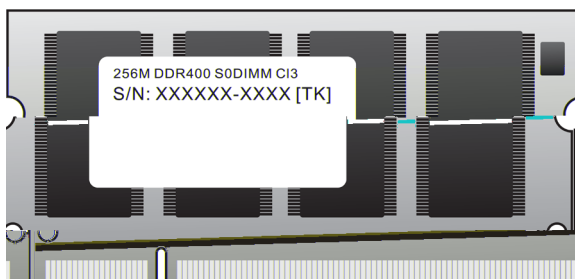
3 reset CMOS jumper (J16)

Memory

Your computer has one memory module installed on the system board. You can increase your computer memory by replacing this with a larger memory module. You must remove the old memory module before replacing with new memory.

Your computer supports SODIMM DDR1 memory. For additional information on the type of memory supported by your computer, see "Specifications" on page 52.

See the label on the module to determine the module's capacity.



➡ **NOTICE:** Do not install ECC or buffered memory modules. Only unbuffered, non-ECC memory is supported.

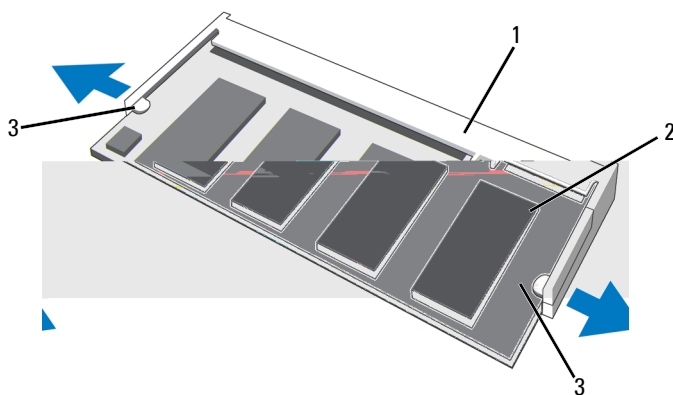
🔧 **NOTE:** Memory purchased from Dell is covered under your computer warranty.

Removing Memory

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

➡ **NOTICE:** To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

- 1 Follow the procedures in "Before You Begin" on page 37.
- 2 Carefully bend out the securing clip at each end of the memory module connector. When both clips are bent out at the same time, the module will pop up slightly.

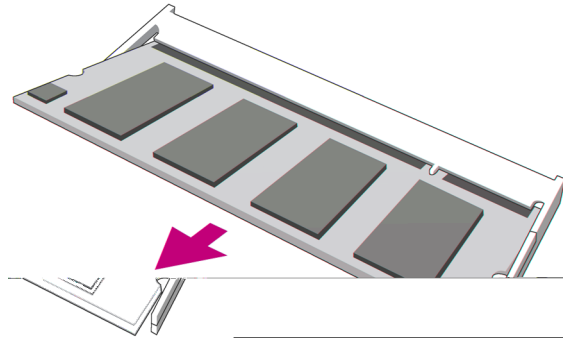


1 connector

2 memory module

3 securing clips (2)

- 3 Pull module back to release.



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

Installing Memory

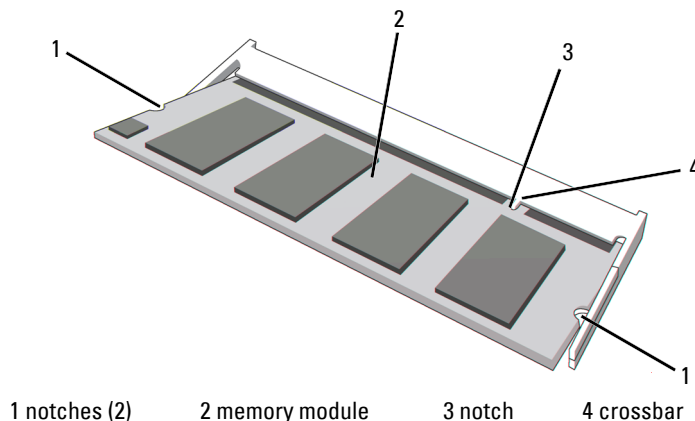


CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.



NOTICE: To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

- 1 Follow the procedures in "Before You Begin" on page 37.
- 2 Carefully bend out the securing clip at each end of the memory module connector.
- 3 Align the notch on the bottom of the module with the crossbar in the connector.



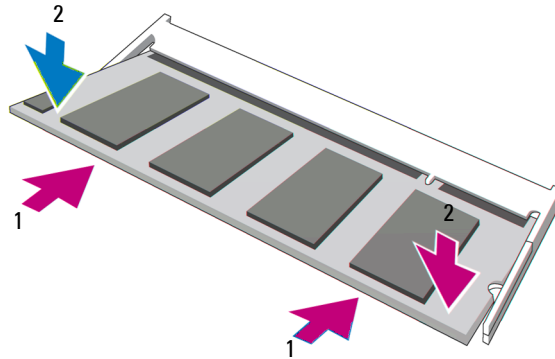
1 notches (2)

2 memory module

3 notch

4 crossbar

- ➡ **NOTICE:** To avoid damage to the memory module, press the module straight down into the connector while you apply equal force to each end of the module.
- 4 Push the module forward into the connector (1), then press down until the module snaps into position (2).
- If you insert the module correctly, the securing clips snap into the notches at each end of the module.



- 5 Replace the computer cover (see "Replacing the Computer Cover" on page 47).

- ➡ **NOTICE:** To connect a network cable, first plug the cable into the network port or device, and then plug it into the computer.
- 6 Connect your computer and devices to electrical outlets, and then turn them on.
- 7 When a message appears stating that memory size has changed, press <F1> to continue.
- 8 Log on to your computer.
- 9 Right-click the **My Computer** icon, then click **Properties**.
- 10 Click the **General** tab.
- 11 To verify that the memory is installed correctly, check the amount of memory (RAM) listed.

Battery

Replacing the Battery

- ⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

 **NOTICE:** To prevent static damage to components inside your computer, discharge static electricity from your body before you touch any of your computer's electronic components. You can do so by touching an unpainted metal surface on the computer chassis.

A coin-cell battery maintains computer configuration, date, and time information. The battery can last several years. If you have to repeatedly reset time and date information after turning on the computer, replace the battery.

 **CAUTION:** A new battery can explode 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.

To replace the battery:

- 1 Record all of the settings in system setup (see "System Setup Options" on page 55) so that you can restore the correct settings in step 8.
- 2 Follow the procedures in "Before You Begin" on page 37.
- 3 Locate the battery socket (see "System Board Components" on page 42).

 **NOTICE:** If you pry the battery out of its socket with a blunt object, be careful not to touch the system board with the object. Ensure that the object is inserted between the battery and the socket before you attempt to pry out the battery. Otherwise, you may damage the system board by prying off the socket or by breaking circuit traces on the system board.

- 4 Remove the battery by carefully prying it out of its socket with your fingers or with a blunt, nonconducting object, such as a plastic screwdriver.
- 5 Insert the new battery into the socket with the side labeled "+" facing the wall of the computer case, and snap the battery into place.
- 6 Replace the computer cover (see "Removing the Computer Cover" on page 38).

 **NOTICE:** To connect a network cable, first plug the cable into the network port or device, and then plug it into the computer.

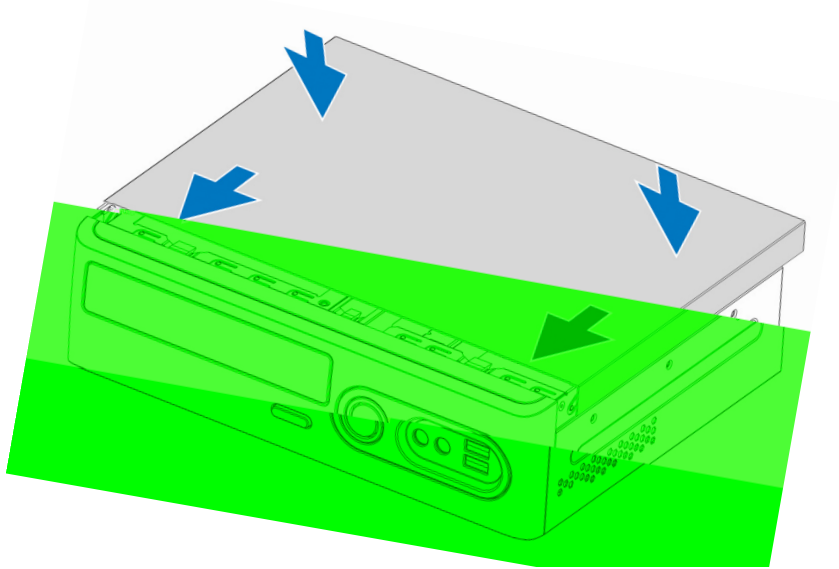
- 7 Connect your computer and devices to electrical outlets, and then turn them on.
- 8 Enter system setup (see "System Setup" on page 54) and restore the settings you recorded in step 1.
- 9 Properly dispose of the old battery. See "Safety, Environmental, and Ergonomic Instructions" on page 48 for battery disposal information.

Replacing the Computer Cover



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

- 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 To replace the cover:
 - a Place the cover on the computer with a gap of about 10mm (2/5") at the front.
 - b Push the cover forward until it is flat against the front bezel.
 - c Replace the two cover screws at the back of the computer.
 - d Ensure that the cover is seated correctly before moving the computer.



NOTICE: To connect a network cable, first plug the cable into the network port or device, and then plug it into the computer.

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

Safety, Environmental, and Ergonomic Instructions

Use the following safety guidelines to help ensure your own personal safety and to help protect your device (computer, port replicator, media base, docking station, and similar devices) and working environment from potential damage.

Safety Instructions

Observe the following safe-handling guidelines to ensure personal safety:

- When setting up the device for work, place it on a level surface.
- Do not attempt to service the device yourself, except as explained in your Dell™ documentation or in instructions otherwise provided to you by Dell. Always follow installation and service instructions closely.
- To help avoid the potential hazard of electric shock, do not connect or disconnect any cables or perform maintenance or reconfiguration of this product during an electrical storm. Do not use your computer during an electrical storm unless all cables have been disconnected and the computer is operating on battery power.
- If your device includes an integrated or optional (PC Card) modem, disconnect the modem cable if an electrical storm is approaching to avoid the remote risk of electric shock from lightning via the telephone line.
- Do not push any objects into air vents or openings of your device. Doing so can cause fire or electric shock by shorting out interior components.
- If your device includes a modem, the cable used with the modem should be manufactured with a minimum wire size of 26 American wire gauge (AWG) and an FCC-compliant RJ-11 modular plug.
- If your device has both a modem RJ-11 connector and a network RJ-45 connector, which look alike, make sure that you insert the telephone cable into the RJ-11 connector, not the RJ-45 connector.
- Keep your device away from radiators and heat sources. Also, do not block cooling vents. Avoid placing loose papers underneath your device; do not place your device in a closed-in wall unit or on a bed, sofa, or rug.
- Do not use your device in a wet environment, for example, near a bath tub, sink, or swimming pool or in a wet basement.

- Do not spill food or liquids on your computer.
- Before you clean your device, disconnect the device from the electrical outlet. Clean your device with a soft cloth dampened with water. Do not use liquid or aerosol cleaners, which may contain flammable substances.
- Ensure that nothing rests on your AC adapter's power cable and that the cable is not located where it can be tripped over or stepped on.
- Do not store your computer in a low-airflow environment, such as a carrying case or a closed briefcase, while the computer is turned on. Restricting airflow can damage the computer or cause a fire.



CAUTION: Handling the cord on this product, or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm. Wash your hands after handling the cord.

Power Safety

- To help prevent electric shock, plug the AC adapter and device power cables into properly grounded power sources. These power cables may be equipped with 3-prong plugs to provide an earth grounding connection. Do not use adapter plugs or remove the grounding prong from the power cable plug. If you use a power extension cable, use the appropriate type, 2-prong or 3-prong, to mate with the AC adapter power cable.
- If you use an extension power cable with your AC adapter, ensure that the total ampere rating of the products plugged in to the extension power cable does not exceed the ampere rating of the extension cable.
- Use only the Dell-provided AC adapter approved for use with this device. Use of another AC adapter may cause a fire or explosion.
- If you are using a multiple-outlet power strip, use caution when plugging the AC adapter's power cable into the power strip. Some power strips may allow you to insert the plug incorrectly. Incorrect insertion of the power plug could result in permanent damage to your device, as well as risk of electric shock and/or fire. Ensure that the ground prong of the power plug is inserted into the mating ground contact of the power strip.
- Before you connect the device to an electrical outlet, check the AC adapter voltage rating to ensure that the required voltage and frequency match the available power source.
- To remove the computer from all power sources, turn the computer off, disconnect the AC adapter from the electrical outlet, and remove any battery installed in the battery bay or module bay.
- Place the AC adapter in a ventilated area, such as a desk top or on the floor, when you use it to run the computer or to charge the battery. Do not cover the AC adapter with papers or other items that will reduce cooling; also, do not use the AC adapter inside a carrying case.
- The AC adapter may become hot during normal operation of your computer. Use care when handling the adapter during or immediately after operation.

Battery Safety



CAUTION: Using an incompatible battery may increase the risk of fire or explosion. Replace the battery only with a compatible battery purchased from Dell that is designed to work with your Dell computer. Do not use a battery from other computers with your computer.

- Do not carry a battery pack in your pocket, purse, or other container where metal objects (such as car keys or paper clips) could short-circuit the battery terminals. The resulting excessive current flow can cause extremely high temperatures and may result in damage to the battery pack or cause fire or burns.
- The battery poses a burn hazard if you handle it improperly. Do not disassemble it. Handle a damaged or leaking battery pack with extreme care. If the battery is damaged, electrolyte may leak from the cells and may cause personal injury.
- Keep the battery away from children.
- Do not store or leave your computer or battery pack near a heat source such as a radiator, fireplace, stove, electric heater, or other heat-generating appliance or otherwise expose it to temperatures in excess of 65°C (149°F). When heated to excessive temperatures, battery cells could explode or vent, posing a risk of fire.
- Dispose of used batteries properly. See Battery Disposal in this document.

Equipment Protection Instructions

Observe the following safe-handling guidelines to prevent damage to your equipment:



NOTICE: When taking the computer from low-temperature conditions into a warmer environment or from high-temperature conditions into a cooler environment, allow the computer to acclimate to room temperature and for any condensation that may have formed to evaporate before turning on power to avoid damage to the computer.

- Protect your device from environmental hazards such as dirt, dust, food, liquids, temperature extremes, and overexposure to sunlight.
- Keep the computer away from direct or excessive moisture and extremely hot or cold temperatures to ensure that the computer is used within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the airflow required for proper ventilation.
- Do not restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so close to each other that they are subject to each other's re-circulated or preheated air.
- Do not operate the computer within a separate enclosure unless adequate intake and exhaust ventilation are provided on the enclosure that adhere to the guidelines listed above.
- Clean the air vents on the front, back, and vented sides of the computer. Lint, dust and other foreign materials can block the vents and restrict the airflow.

- Clean the display with a soft, clean cloth and water. Apply the water to the cloth; then stroke the cloth across the display in one direction, moving from the top of the display to the bottom. Remove moisture from the display quickly and keep the display dry. Long-term exposure to moisture can damage the display. Do not use a commercial window cleaner to clean your display.



CAUTION: When preparing your AC adapter for travel, wrap both of the cords around the adapter in the same direction. Failure to wrap the cords in the correct direction can result in damage to the cords not covered by the adapter warranty. Never use an AC adapter that shows signs of damage or excessive wear.

Appendix

Specifications

Microprocessor

Microprocessor type	Intel Celeron M processor
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Memory

Type	333 MHz SODIMM DDRI
Memory Socket	x1
Memory modules supported	256 MB, 512 MB, or 1 GB non-ECC
Minimum memory	256 MB
Maximum memory	1 GB

Computer Information

Chipset	SisM661GX
DMA channels	six
BIOS chip LPC Flash	4 Mb
NIC	integrated network interface Capable of 10/100 communication

Video

Type	SiS integrated video (DirectX 7.0) Graphics
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Audio

Type	Realtek Alc655 CODEC
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Controllers	
Drives	two PATA controllers supporting two devices
Drives	
Externally accessible	one 3.5-inch drive bay one 5.25-inch drive bay
Available devices	PATA hard drive, CD drive, DVD drive, DVD +/- RW drive, and CD-RW/DVD Combo drive
Connectors	
External connectors:	
Power	DC Jack
Video	15-hole VGA connector
Network adapter	RJ45 connector
USB	two front-panel and two back-panel USB 2.0-compliant connectors
Audio	three connectors for line-in and line-out and microphone; two front-panel connectors for headphones and microphone
System board connectors:	
PATA	40-pin connector
MDC	
Fan	3-pin connector
Internal USB	10-pin connector (supports two USB ports)
Memory modules	200-pin connector for DDR I
Power 12V, 5V	4-pin connector (for HDD & DVD drive power)
Power	24-pin connector
Battery	2-pin socket
Controls and Lights	
Power control	push button
Power light	green light — solid green indicates a power-on state. amber light — blinking amber indicates a sleep mode;

Controls and Lights

Link light	solid yellow light indicates network connection
Link integrity light	orange off — 10 Mb operation orange light — 100 Mb operation

Power

DC adapter:	
Wattage	65 W
Voltage	automatic selection power supplies — 100 to 240 V at 50/60 Hz
Backup battery	3-V CR2032 lithium coin cell

Physical

Height	7.5 cm (2.95 inches)
Width	27.0 cm (10.63 inches)
Depth	22.5 cm (8.86 inches)
Weight	3.6 kg (7.93 lb)

System Setup

Overview

Use system setup as follows:

- To change the system configuration information after you add, change, or remove any hardware in your computer
- To set or change a user-selectable option such as the user password
- To read the current amount of memory or set the type of hard drive installed

Before you use system setup, it is recommended that you write down the system setup screen information for future reference.



NOTICE: Unless you are an expert computer user, do not change the settings for this program. Certain changes can make your computer work incorrectly.

Entering System Setup

- 1 Turn on (or restart) your computer.
- 2 When “Enter Boot Menu” is displayed, press to enter (or <F1> to enter from reinstall), or <F2> to continue.



NOTE: The “Enter Boot Menu” prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it to display, and then press . If you press before you are prompted, this keystroke will be lost.

- 3 If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop, then, shut down your computer (see “Turning Off Your Computer” on page 37) and try again.

System Setup Screen

The system setup screen displays current or changeable configuration information for your computer. Information on the screen is divided into four areas: the menu at the top, the main window, the Item Help field on the right, and key functions listed on the bottom.

Options List — This field appears on the left side of the system setup window. The field is a scrollable list containing features that define the configuration of your computer, including installed hardware, power conservation, and security features.

Scroll up and down the list by using the up- and down-arrow keys. As an option is highlighted, the **Option Field** displays more information about that option and the option’s current and available settings.

Option Field — This field contains information about each option. In this field you can view your current settings and make changes to your settings.
Use the right- and left-arrow keys to highlight an option.
Press <Enter> to make that selection active.

Key Functions — This field appears below the Option Field and lists keys and their functions within the active system setup field.

System Setup Options



NOTE: Depending on your computer and installed devices, the items listed in this section may not appear, or may not appear exactly as listed.

System	
System Info	Lists the computer name, BIOS Version, Service Tag, Express Service Code, (if applicable), and the Asset Tag. None of these fields can be modified.
Processor Info	Identifies the CPU type, processor clock speed, bus speed, L2 cache size, and processor ID.
Memory Info	Lists the type, size, speed, and channel mode (dual or single) of installed memory.
Date/Time	Displays current date and time settings.

System

Boot Sequence	The computer attempts to boot from the sequence of devices specified in this list.
System Info	Lists the computer name, BIOS Version and Service Tag. None of these fields can be modified.

Drives

Primary IDE Master	Identifies, enables and disables the drives attached to the IDE connectors on the system board and lists the capacities for the hard drives.
Primary IDE Slave	Identifies, enables and disables the drives attached to the IDE connectors on the system board and lists the capacities for the hard drives.
SMART Reporting (Off default)	This setting determines whether integrated drive errors are reported or not during system startup.

Onboard Devices

Integrated NIC (On default)	Enables or disables the integrated NIC controller. Settings are Off or On w/ PXE. When the On w/ PXE setting is active, if a boot routine is not available from the network server, the computer attempts to boot from the next device in the boot sequence list.
--------------------------------	---

Video

Graphic Memory Size (32 MB default)	This setting configures the amount of system memory that is reserved for the integrated video controller. The settings are 32 MB, 64 MB, or 128 MB.
--	---

Security

Admin Password (Not Set default)	Displays the current status of your system setup program's password security feature and allows you to verify and assign a new admin password.
System Password (Not Set default)	Displays the current status of the system's password security feature and allows a new system password to be assigned and verified.

Security

Password Changes (Unlocked default)	Determines the interaction between the System password and the Admin password. Locked prevents a user without a valid Admin password from being able to modify the System password. Unlocked allows a user with a valid System password to modify the system password.
--	--

Power Management

AC Recovery (Off default)	Determines how the system responds when AC power is re-applied after a power loss. Off commands the system to stay off when the power is re-applied. You must press the front-panel power button before the system turns on. On commands the system to turn on when the power is re-applied. Last commands the system to return to the last power state the system was in just before it was turned off.
Auto Power On (Off default)	Sets the computer to automatically turn on. Off disables this feature. Everyday turns the computer on every day at the time set in Auto Power Time. Weekdays turns the computer on every day from Monday through Friday at the time set in Auto Power Time. NOTE: This feature does not work if you turn off your computer using the switch on a power strip or surge protector.
Auto Power Time	Sets time to automatically turn on the computer. Time is kept in the standard 12-hour format (hours:minutes). Change the startup time by pressing the right- or left-arrow key to increase or decrease the numbers, or type numbers in both the date and time fields.
Suspend Mode (S3 default)	Sets the computer's suspend mode. The options are S1, a suspend state in which the computer is running in a low-power mode, and S3, a suspend state in which the power is reduced or turned off for many components, however, system memory remains active.

Maintenance

Service Tag	Displays the service tag for your computer.
Load Defaults	Restores system setup options to their factory defaults.

POST Behavior	
POST Hotkeys (Setup & Boot Menu default)	Determines whether the sign-on screen displays a message stating the keystroke sequence that is required to enter the Setup program or the Quickboot feature. Setup & Boot Menu displays both messages (Del=Setup and F11=Boot Menu). Setup displays the setup message only (Del=Setup). Boot Menu displays the Quickboot message only (F11=Boot Menu). None displays no message.

Boot Menu

This feature allows you to change the boot sequence for devices.

Option Settings

- **Bootable Hard Drive** — The computer attempts to boot from the primary hard drive. If no operating system is on the drive, the computer generates an error message.
- **Onboard CD-ROM Drive** — The computer attempts to boot from the CD drive. If no CD is in the drive, or if the CD has no operating system, the computer generates an error message.
- **Integrated NIC** — The computer attempts to boot using the integrated NIC. If integrated NIC is not connected, the computer generates an error message.
- **USB-Device, USB-Floppy, USB-CDROM** — Attach the device to a USB port and restart the computer before selecting the option from the Boot Menu. The computer will attempt to boot from the appropriate USB device. If no operating system is on the appropriate drive or disk, the computer will generate an error message.

 **NOTE:** To boot to a USB device, the device must be bootable. To ensure that a device is bootable, check the device documentation.

Changing Boot Sequence for the Current Boot

You can use this feature, for example, to restart your computer to a USB CD-RW drive.

 **NOTE:** If you are booting to a USB floppy drive, you must first set Diskette Interface to Disabled in system setup (see "System Setup" on page 54).

- 1 If you are booting to a USB device, connect the USB device to a USB connector (see "Front View of the Computer" on page 13).
- 2 Turn on (or restart) your computer.
- 3 When **Del = Setup, F11 = Boot Menu** appears in the upper-right corner of the screen, press <F11>. If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop, then shut down your computer (see "Turning Off Your Computer" on page 37) and try again.
- 4 Press <F2> to continue.

The **Boot Menu** appears, listing all available boot devices.

- 5 Use the arrow keys to select the appropriate device (for the current boot only).



NOTE: To boot to a USB device, the device must be bootable. To ensure that a device is bootable, check the device documentation.

Changing Boot Sequence for Future Boots

- 1 Enter system setup, select **Boot Sequence** from the **System** group (see "System Setup Options" on page 55).
- 2 Press <Enter> to access the menu.



NOTE: Write down your current boot sequence in case you want to restore it.

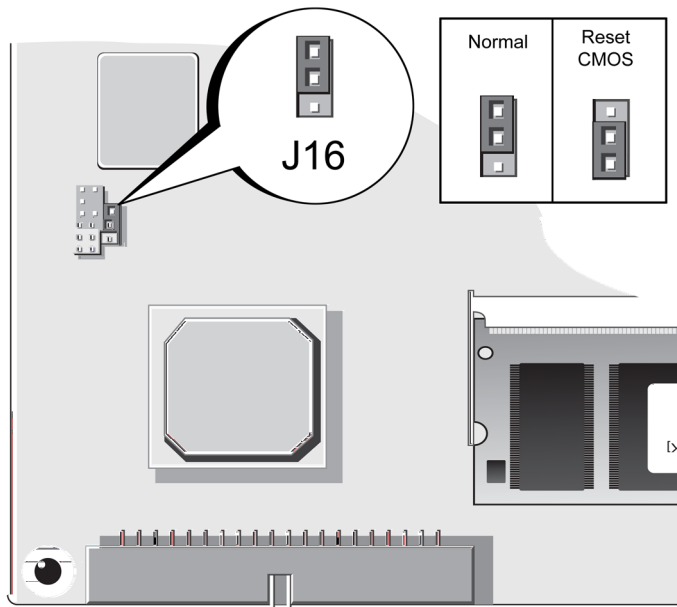
- 3 Press the up- and down-arrow keys to highlight the appropriate **Boot Sequence** option.
- 4 Press the + or - keys to move the option up or down in the boot sequence.
- 5 Press <F10> to **Save** the changes or <Esc> to **Cancel**.

Clearing Forgotten Passwords and CMOS Settings



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

Jumper Location



Clearing CMOS and Password Settings



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions located in "Safety, Environmental, and Ergonomic Instructions" on page 48.

- 1 Follow the procedures in "Before You Begin" on page 37.
- 2 Reset the current CMOS settings:
 - a Locate the 2-pin CMOS jumper (J16) on the system board (see "Jumper Location" on page 60).
 - b Remove the jumper plug from the "Normal" position.
 - c Place the jumper plug in the "Reset CMOS" position and wait approximately five seconds.
 - d Replace the jumper plug in the "Normal" position.
- 3 Replace the computer cover (see "Replacing the Computer Cover" on page 47).



NOTICE: To connect a network cable, first plug the cable into the network port or device, and then plug it into the computer.

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

Cleaning Your Computer



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in "Safety, Environmental, and Ergonomic Instructions" on page 48.

Computer, Keyboard, and Monitor



CAUTION: Before you clean your computer, disconnect the computer from the electrical outlet. Clean your computer with a soft cloth dampened with water. Do not use liquid or aerosol cleaners, which may contain flammable substances.

- Use a can of compressed air to remove dust from between the keys on the keyboard.



NOTICE: To prevent damage to the antiglare coating, do not wipe the display with soap or alcohol.

- To clean your monitor screen, lightly dampen a soft, clean cloth with water. You can also use a special screen-cleaning tissue or solution suitable for the monitor's antistatic coating.
- Wipe the keyboard, computer, and monitor plastics with a soft cleaning cloth moistened with a solution of three parts water and one part dishwashing detergent.

Do not soak the cloth or let water drip inside your computer or keyboard.

Mouse



NOTICE: Disconnect the mouse from the computer before cleaning the mouse

If your screen cursor skips or moves abnormally, clean the mouse.

Cleaning a Non-Optical Mouse

- 1 Clean the outside casing of the mouse with a cloth moistened with a mild cleaning solution.
- 2 Turn the retainer ring on the underside of your mouse counterclockwise, and then remove the ball.
- 3 Wipe the ball with a clean, lint-free cloth.
- 4 Blow carefully into the ball cage or use a can of compressed air to dislodge dust and lint.
- 5 If the rollers inside the ball cage are dirty, clean the rollers with a cotton swab moistened lightly with isopropyl alcohol.
- 6 Recenter the rollers in their channels if they are misaligned. Ensure that fluff from the swab is not left on the rollers.
- 7 Replace the ball and retainer ring, and turn the retainer ring clockwise until it clicks into place.

Cleaning an Optical Mouse

Clean the outside casing of the mouse with a cloth moistened with a mild cleaning solution.

CDs and DVDs

- ➡ **NOTICE:** Always use compressed air to clean the lens in the CD/DVD drive, and follow the instructions that come with the compressed-air product. Never touch the lens in the drive.

If you notice problems, such as skipping, with the playback quality of your CDs or DVDs, try cleaning the discs.

- 1 Hold the disc by its outer edge. You can also touch the inside edge of the center hole.

- ➡ **NOTICE:** To avoid damaging the surface, do not wipe in a circular motion around the disc.

- 2 With a soft, lint-free cloth, gently wipe the bottom of the disc (the unlabeled side) in a straight line from the center to the outer edge of the disc.

For stubborn dirt, try using water or a diluted solution of water and mild soap. You can also purchase commercial products that clean discs and provide some protection from dust, fingerprints, and scratches. Cleaning products for CDs are also safe to use on DVDs.

Contacting Dell

When you need to contact Dell, use the electronic addresses, telephone numbers, and codes provided in the following table. If you need assistance in determining which codes to use, contact a local or international operator.

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-Mail Address	Area Codes, Local Numbers, and Toll-Free Numbers
China (Xiamen)	Technical support website: http://support.dell.com.cn	
Country Code: 86	Technical support BBS: http://bbs.dell.com.cn	
City Code: 592	Email support: http://support.dell.com.cn/email	
	Technical Support Hotline:	400-881-1850
	Customer Care Hotline:	800-858-2060

Glossary

Terms in this Glossary are provided for informational purposes only and may or may not describe features included with your particular computer.

A

AC — alternating current — The form of electricity that powers your computer when you plug the AC adapter power cable in to an electrical outlet.

ACPI — advanced configuration and power interface — A power management specification that enables Microsoft® Windows® operating systems to put a computer in standby or hibernate mode to conserve the amount of electrical power allocated to each device attached to the computer.

AGP — accelerated graphics port — A dedicated graphics port that allows system memory to be used for videorelated tasks. AGP delivers a smooth, true-color video image because of the faster interface between the video circuitry and the computer memory.

AHCI — Advanced Host Controller Interface — An interface for a SATA hard drive Host Controller which allows the storage driver to enable technologies such as Native Command Queuing (NCQ) and hot plug.

ALS — ambient light sensor. antivirus software — A program designed to identify, quarantine, and/or delete viruses from your computer.

ASF — alert standards format — A standard to define a mechanism for reporting hardware and software alerts to a management console. ASF is designed to be platform- and operating system-independent.

B

battery life span — The length of time (years) during which a portable computer battery is able to be depleted and recharged.

battery operating time — The length of time (minutes or hours) that a portable computer battery powers the computer.

BIOS — basic input/output system — A program (or utility) that serves as an interface between the computer hardware and the operating system. Unless you understand what effect these settings have on the computer, do not change them. Also referred to as system setup.

bit — The smallest unit of data interpreted by your computer.

Bluetooth® wireless technology — A wireless technology standard for short-range (9 m [29 feet]) networking devices that allows for enabled devices to automatically recognize each other.

boot sequence — Specifies the order of the devices from which the computer attempts to boot.

bootable CD — A CD that you can use to start your computer. In case your hard drive is damaged or your computer has a virus, ensure that you always have a bootable CD or floppy disk available. Your Drivers and Utilities or ResourceCD is a bootable CD.

bootable disk — A disk that you can use to start your computer. In case your hard drive is damaged or your computer has a virus, ensure that you always have a bootable CD or floppy disk available.

bps — bits per second — The standard unit for measuring data transmission speed.

BTU — British thermal unit — A measurement of heat output.

bus — A communication pathway between the components in your computer.

bus speed — The speed, given in MHz, that indicates how fast a bus can transfer information.

byte — The basic data unit used by your computer. A byte is usually equal to 8 bits.

C

C — Celsius — A temperature measurement scale where 0° is the freezing point and 100° is the boiling point of water.

cache — A special high-speed storage mechanism which can be either a reserved section of main memory or an independent high-speed storage device. The cache enhances the efficiency of many processor operations.

L1 cache — Primary cache stored inside the processor.

L2 cache — Secondary cache which can either be external to the processor or incorporated into the processor architecture.

carnet — An international customs document that facilitates temporary imports into foreign countries. Also known as a merchandise passport.

CD-R — CD recordable — A recordable version of a CD. Data can be recorded only once onto a CD-R. Once recorded, the data cannot be erased or written over.

CD-RW — CD rewritable — A rewritable version of a CD. Data can be written to a CD-RW disc, and then erased and written over (rewritten).

CD-RW drive — A drive that can read CDs and write to CD-RW (rewritable CDs) and CD-R (recordable CDs) discs. You can write to CD-RW discs multiple times, but you can write to CD-R discs only once.

CD-RW/DVD drive — A drive, sometimes referred to as a combo drive, that can read CDs and DVDs and write to CD-RW (rewritable CDs) and CD-R (recordable CDs) discs. You can write to CD-RW discs multiple times, but you can write to CD-R discs only once.

clock speed — The speed, given in MHz, that indicates how fast computer components that are connected to the system bus operate.

COA — Certificate of Authenticity — The Windows alpha-numeric code located on a sticker on your computer. Also referred to as the Product Key or Product ID.

Control Panel — A Windows utility that allows you to modify operating system and hardware settings, such as display settings.

controller — A chip that controls the transfer of data between the processor and memory or between the processor and devices.

CRIMM — continuity rambus in-line memory module — A special module that has no memory chips and is used to fill unused RIMM slots.

cursor — The marker on a display or screen that shows where the next keyboard, touch pad, or mouse action will occur. It often is a blinking solid line, an underline character, or a small arrow.

D

DDR SDRAM — double-data-rate SDRAM — A type of SDRAM that doubles the data burst cycle, improving system performance.

DDR2 SDRAM — double-data-rate 2 SDRAM — A type of DDR SDRAM that uses a 4-bit prefetch and other architectural changes to boost memory speed to over 400 MHz.

device — Hardware such as a disk drive, printer, or keyboard that is installed in or connected to your computer. **device driver** — See driver.

DIMM — dual in-line memory module — A circuit board with memory chips that connects to a memory module on the system board.

DIN connector — A round, six-pin connector that conforms to DIN (Deutsche Industrie-Norm) standards; it is typically used to connect PS/2 keyboard or mouse cable connectors.

disk striping — A technique for spreading data over multiple disk drives. Disk striping can speed up operations that retrieve data from disk storage. Computers that use disk striping generally allow the user to select the data unit size or stripe width.

DMA — direct memory access — A channel that allows certain types of data transfer between RAM and a device to bypass the processor.

docking device — See APR.

DMTF — Distributed Management Task Force — A consortium of hardware and software companies who develop management standards for distributed desktop, network, enterprise, and Internet environments.

domain — A group of computers, programs, and devices on a network that are administered as a unit with common rules and procedures for use by a specific group of users. A user logs on to the domain to gain access to the resources.

DRAM — dynamic random-access memory — Memory that stores information in integrated circuits containing capacitors.

driver — Software that allows the operating system to control a device such as a printer. Many devices do not work properly if the correct driver is not installed in the computer.

DSL — Digital Subscriber Line — A technology that provides a constant, high-speed Internet connection through an analog telephone line.

dual display mode — A display setting that allows you to use a second monitor as an extension of your display. Also referred to as extended display mode.

DVD-R — DVD recordable — A recordable version of a DVD. Data can be recorded only once onto a DVD-R. Once recorded, the data cannot be erased or written over.

DVD+RW — DVD rewritable — A rewritable version of a DVD. Data can be written to a DVD+RW disc, and then erased and written over (rewritten). (DVD+RW technology is different from DVD-RW technology.)

DVD+RW drive — drive that can read DVDs and most CD media and write to DVD+RW (rewritable DVDs) discs.

DVI — digital video interface — A standard for digital transmission between a computer and a digital video display.

E

ECC — error checking and correction — A type of memory that includes special circuitry for testing the accuracy of data as it passes in and out of memory.

ECP — extended capabilities port — A parallel connector design that provides improved bidirectional data transmission. Similar to EPP, ECP uses direct memory access to transfer data and often improves performance.

EIDE — enhanced integrated device electronics — An improved version of the IDE interface for hard drives and CD drives.

EMI — electromagnetic interference — Electrical interference caused by electromagnetic radiation.

ENERGY STAR® — Environmental Protection Agency requirements that decrease the overall consumption of electricity.

EPP — enhanced parallel port — A parallel connector design that provides bidirectional data transmission.

ESD — electrostatic discharge — A rapid discharge of static electricity. ESD can damage integrated circuits found in computer and communications equipment.

expansion card — A circuit board that installs in an expansion slot on the system board in some computers, expanding the capabilities of the computer. Examples include video, modem, and sound cards.

expansion slot — A connector on the system board (in some computers) where you insert an expansion card, connecting it to the system bus.

ExpressCard — A removable I/O card adhering to the PCMCIA standard. Modems and network adapters are common types of ExpressCards. ExpressCards support both the PCI Express and USB 2.0 standard.

Express Service Code — A numeric code located on a sticker on your Dell™ computer. Use the Express Service Code when contacting Dell for assistance. Express Service Code service may not be available in some countries.

extended display mode — A display setting that allows you to use a second monitor as an extension of your display. Also referred to as dual display mode.

extended PC Card — A PC Card that extends beyond the edge of the PC Card slot when installed.

FCC — Federal Communications Commission — A

F

Fahrenheit — A temperature measurement scale where 32° is the freezing point and 212° is the boiling point of water.

FBD — fully-buffered DIMM — A DIMM with DDR2 DRAM chips and an Advanced Memory Buffer (AMB) that speeds communication between the DDR2 SDRAM chips and the system.

Most programs that operate on the Windows operating systems are GUIs.

H

hard drive — A drive that reads and writes data on a hard disk. The terms hard drive and hard disk are often used interchangeably.

heat sink — A metal plate on some processors that helps dissipate heat.

hibernate mode — A power management mode that saves everything in memory to a reserved space on the hard drive and then turns off the computer. When you restart the computer, the memory information that was saved to the hard drive is automatically restored.

HTTP — hypertext transfer protocol — A protocol for exchanging files between computers connected to the Internet.

Hz — hertz — A unit of frequency measurement that equals 1 cycle per second. Computers and electronic devices are often measured in kilohertz (kHz), megahertz (MHz), gigahertz (GHz), or terahertz (THz).

I

IC — integrated circuit — A semiconductor wafer, or chip, on which thousands or millions of tiny electronic components are fabricated for use in computer, audio, and video equipment.

IDE — integrated device electronics — An interface for mass storage devices in which the controller is integrated into the hard drive or CD drive.

IEEE 1394 — Institute of Electrical and Electronics Engineers, Inc. — A high-performance serial bus used to connect IEEE 1394-compatible devices, such as digital cameras and DVD players, to the computer.

infrared sensor — A port that allows you to transfer data between the computer and infrared-compatible devices without using a cable connection.

integrated — Usually refers to components that are physically located on the computer's system board. Also referred to as built-in.

I/O — input/output — An operation or device that enters and extracts data from your computer. Keyboards and printers are I/O devices.

I/O address — An address in RAM that is associated with a specific device (such as a serial connector, parallel connector, or expansion slot) and allows the processor to communicate with that device.

IrDA — Infrared Data Association — The organization that creates international standards for infrared communications.

IRQ — interrupt request — An electronic pathway assigned to a specific device so that the device can communicate with the processor. Each device connection must be assigned an IRQ. Although two devices can share the same IRQ assignment, they cannot operate both devices simultaneously.

ISP — Internet service provider — A company that allows you to access its host server to connect directly to the Internet, send and receive e-mail, and access websites.

The ISP typically provides you with a software package, user name, and access phone numbers for a fee.

K

Kb — kilobit — A unit of data that equals 1024 bits. A measurement of the capacity of memory integrated circuits.

KB — kilobyte — A unit of data that equals 1024 bytes but is often referred to as 1000 bytes.

key combination — A command requiring you to press multiple keys at the same time.

kHz — kilohertz — A measurement of frequency that equals 1000 Hz.

L

LAN — local area network — A computer network covering a small area. A LAN usually is confined to a building or a few nearby buildings. A LAN can be connected to another LAN over any distance through telephone lines and radio waves to form a wide area network (WAN).

LCD — liquid crystal display — The technology used by portable computer and flat-panel displays.

LED — light-emitting diode — An electronic component that emits light to indicate the status of the computer.

local bus — A data bus that provides a fast throughput for devices to the processor.

LPT — line print terminal — The designation for a parallel connection to a printer or other parallel device.

M

Mb — megabit — A measurement of memory chip capacity that equals 1024 Kb.

Mbps — megabits per second — One million bits per second. This measurement is typically used for transmission speeds for networks and modems.

MB — megabyte — A measurement of data storage that equals 1,048,576 bytes. 1 MB equals 1024 KB. When used to refer to hard drive storage, the term is often rounded to 1,000,000 bytes.

MB/sec — megabytes per second — One million bytes per second. This measurement is typically used for data transfer ratings.

media bay — A bay that supports devices such as optical drives, a second battery, or a Dell TravelLite™ module.

memory — A temporary data storage area inside your computer. Because the data in memory is not permanent, it is recommended that you frequently save your files while you are working on them, and always save your files before you shut down the computer. Your computer can contain several different forms of memory, such as RAM, ROM, and video memory. Frequently, the word memory is used as a synonym for RAM.

memory address — A specific location where data is temporarily stored in RAM.

memory mapping — The process by which the computer assigns memory addresses to physical locations at start-up. Devices and software can then identify information that the processor can access.

memory module — A small circuit board containing memory chips, which connects to the system board.

MHz — megahertz — A measure of frequency that equals 1 million cycles per second. The speeds for computer processors, buses, and interfaces are often measured in MHz.

Mini PCI — A standard for integrated peripheral devices with an emphasis on communications such as modems and NICs. A Mini PCI card is a small external card that is functionally equivalent to a standard PCI expansion card.

Mini-Card — A small card designed for integrated peripherals, such as communication NICs. The Mini-Card is functionally equivalent to a standard PCI expansion card.

modem — A device that allows your computer to communicate with other computers over analog telephone lines. Three types of modems include: external, PC Card, and internal. You typically use your modem to connect to the Internet and exchange e-mail.

module bay — See media bay.

ms — millisecond — A measure of time that equals one thousandth of a second. Access times of storage devices are often measured in ms.

N

network adapter — A chip that provides network capabilities. A computer may include a network adapter on its system board, or it may contain a PC Card with an adapter on it. A network adapter is also referred to as a NIC (network interface controller).

NIC — See network adapter.

notification area — The section of the Windows taskbar that contains icons for providing quick access to programs and computer functions, such as the clock, volume control, and print status. Also referred to as system tray.

ns — nanosecond — A measure of time that equals one billionth of a second.

NVRAM — nonvolatile random access memory — A type of memory that stores data when the computer is turned off or loses its external power source. NVRAM is used for maintaining computer configuration information such as date, time, and other system setup options that you can set.

O

optical drive — A drive that uses optical technology to read or write data from CDs, DVDs, or DVD+RWs. Example of optical drives include CD drives, DVD drives, CD-RW drives, and CD-RW/DVD combo drives.

P

parallel connector — An I/O port often used to connect a parallel printer to your computer. Also referred to as an LPT port.

partition — A physical storage area on a hard drive that is assigned to one or more logical storage areas known as logical drives. Each partition can contain multiple logical drives.

PC Card — A removable I/O card adhering to the PCMCIA standard. Modems and network adapters are common types of PC Cards.

PCI — peripheral component interconnect — PCI is a local bus that supports 32- and 64-bit data paths, providing a high-speed data path between the processor and devices such as video, drives, and networks.

PCI Express — A modification to the PCI interface that boosts the data transfer rate between the processor and the devices attached to it. PCI Express can transfer data at speeds from 250 MB/sec to 4 GB/sec. If the PCI Express chip set and the device are capable of different speeds, they will operate at the slower speed.

PCMCIA — Personal Computer Memory Card International Association — The organization that establishes standards for PC Cards.

PIO — programmed input/output — A method of transferring data between two devices through the processor as part of the data path.

pixel — A single point on a display screen. Pixels are arranged in rows and columns to create an image. A video resolution, such as 800 x 600, is expressed as the number of pixels across by the number of pixels up and down.

Plug-and-Play — The ability of the computer to automatically configure devices. Plug and Play provides automatic installation, configuration, and compatibility with existing hardware if the BIOS, operating system, and all devices are Plug and Play compliant.

POST — power-on self-test — Diagnostics programs, loaded automatically by the BIOS, that perform basic tests on the major computer components, such as

memory, hard drives, and video. If no problems are detected during POST, the computer continues the start-up.

processor — A computer chip that interprets and executes program instructions. Sometimes the processor is referred to as the CPU (central processing unit).

PS/2 — personal system/2 — A type of connector for attaching a PS/2-compatible keyboard, mouse, or keypad.

PXE — pre-boot execution environment — A WfM (Wired for Management) standard that allows networked computers that do not have an operating system to be configured and started remotely.

R

RAID — redundant array of independent disks — A method of providing data redundancy. Some common implementations of RAID include RAID 0, RAID 1, RAID 5, RAID 10, and RAID 50.

RAM — random-access memory — The primary temporary storage area for program instructions and data. Any information stored in RAM is lost when you shut down your computer.

readme file — A text file included with a software package or hardware product. Typically, readme files provide installation information and describe new product enhancements or corrections that have not yet been documented.

read-only — Data and/or files you can view but cannot edit or delete. A file can have read-only status if:

- It resides on a physically write-protected floppy disk, CD, or DVD.
- It is located on a network in a directory and the system administrator has assigned rights only to specific individuals.

refresh rate — The frequency, measured in Hz, at which your screen's horizontal lines are recharged (sometimes also referred to as its vertical frequency). The higher the refresh rate, the less video flicker can be seen by the human eye.

resolution — The sharpness and clarity of an image produced by a printer or displayed on a monitor. The higher the resolution, the sharper the image.

RFI — radio frequency interference — Interference that is generated at typical radio frequencies, in the range of 10 kHz to 100,000 MHz. Radio frequencies are at the lower end of the electromagnetic frequency spectrum and are more likely to have interference than the higher frequency radiations, such as infrared and light.

ROM — read-only memory — Memory that stores data and programs that cannot be deleted or written to by the computer. ROM, unlike RAM, retains its contents after you shut down your computer. Some programs essential to the operation of your computer reside in ROM.

RPM — revolutions per minute — The number of rotations that occur per minute. Hard drive speed is often measured in rpm.

RTC — real time clock — Battery-powered clock on the system board that keeps the date and time after you shut down the computer.

RTCST — real-time clock reset — A jumper on the system board of some computers that can often be used for troubleshooting problems.

S

SAS — serial attached SCSI — A faster, serial version of the SCSI interface (as opposed to the original SCSI parallel architecture).

SATA — serial ATA — A faster, serial version of the ATA (IDE) interface.

ScanDisk — A Microsoft utility that checks files, folders, and the hard disk's surface for errors. ScanDisk often runs when you restart the computer after it has stopped responding.

SCSI — small computer system interface — A high-speed interface used to connect devices to a computer, such as hard drives, CD drives, printers, and scanners. The SCSI can connect many devices using a single controller. Each device is accessed by an individual identification number on the SCSI controller bus.

SDRAM — synchronous dynamic random-access memory — A type of DRAM that is synchronized with the optimal clock speed of the processor.

serial connector — An I/O port often used to connect devices such as a handheld digital device or digital camera to your computer.

Service Tag — A bar code label on your computer that identifies your computer when you access Dell Support at support.dell.com or when you call Dell for customer service or technical support.

setup program — A program that is used to install and configure hardware and software. The setup.exe or install.exe program comes with most Windows software packages. Setup program differs from system setup.

shortcut — An icon that provides quick access to frequently used programs, files, folders, and drives. When you place a shortcut on your Windows desktop and double-click the icon, you can open its corresponding folder or file without having to find it first. Shortcut icons do not change the location of files. If you delete a shortcut, the original file is not affected. Also, you can rename a shortcut icon.

smart card — A card that is embedded with a processor and a memory chip. Smart cards can be used to authenticate a user on computers equipped for smart cards.

S/PDIF — Sony/Philips Digital Interface — An audio transfer file format that allows the transfer of audio from one file to another without converting it to and from an analog format, which could degrade the quality of the file.

standby mode — A power management mode that shuts down all unnecessary computer operations to save energy.

Strike Zone™ — Reinforced area of the platform base that protects the hard drive by acting as a dampening device when a computer experiences resonating shock or is dropped (whether the computer is on or off).

surge protectors — Prevent voltage spikes, such as those that may occur during an electrical storm, from entering the computer through the electrical outlet. Surge protectors do not protect against lightning strikes or against brownouts, which occur when the voltage drops more than 20 percent below the normal AC-line voltage level.

Network connections cannot be protected by surge protectors. Always disconnect the network cable from the network connector during electrical storms.

SIM — Subscriber Identity Module. A SIM card contains a microchip that encrypts voice and data transmissions. SIM cards can be used in phones or portable computers.

SVGA — super-video graphics array — A video standard for video cards and controllers. Typical SVGA resolutions are 800 x 600 and 1024 x 768. The number of colors and resolution that a program displays depends on the capabilities of the monitor, the video controller and its drivers, and the amount of video memory installed in the computer.

S-video TV-out — A connector used to attach a TV or digital audio device to the computer.

SXGA — super-extended graphics array — A video standard for video cards and controllers that supports resolutions up to 1280 x 1024.

SXGA+ — super-extended graphics array plus — A video standard for video cards and controllers that supports resolutions up to 1400 x 1050.

system board — The main circuit board in your computer. Also known as the motherboard.

system setup — A utility that serves as an interface between the computer hardware and the operating system. System setup allows you to configure userselectable options in the BIOS, such as date and time or system password. Unless you understand what effect the settings have on the computer, do not change the settings for this program.

T

TAPI — telephony application programming interface — Enables Windows programs to operate with a wide variety of telephony devices, including voice, data, fax, and video.

text editor — A program used to create and edit files that contain only text; for example, Windows Notepad uses a text editor. Text editors do not usually provide word wrap or formatting functionality (the option to underline, change fonts, and so on).

TPM — trusted platform module — A hardware-based security feature that when combined with security software enhances network and computer security by enabling features such as file and e-mail protection.

travel module — A plastic device designed to fit inside the module bay of a portable computer to reduce the weight of the computer.

U

UMA — unified memory allocation — System memory dynamically allocated to video.

UPS — uninterruptible power supply — A backup power source used when the electrical power fails or drops to an unacceptable voltage level. A UPS keeps a computer running for a limited amount of time when there is no electrical power. UPS systems typically provide surge suppression and may also provide voltage regulation. Small UPS systems provide battery power for a few minutes to enable you to shut down your computer.

USB — universal serial bus — A hardware interface for a low-speed device such as a USB-compatible keyboard, mouse, joystick, scanner, set of speakers, printer, broadband devices (DSL and cable modems), imaging devices, or storage devices. Devices are plugged directly in to a 4-pin socket on your computer or in to a multi-port hub that plugs in to your computer. USB devices can be connected and disconnected while the computer is turned on, and they can also be daisy-chained together.

UTP — unshielded twisted pair — Describes a type of cable used in most telephone networks and some computer networks. Pairs of unshielded wires are twisted to protect against electromagnetic interference, rather than relying on a metal sheath around each pair of wires to protect against interference.

UXGA — ultra extended graphics array — A video standard for video cards and controllers that supports resolutions up to 1600 x 1200.

V

video controller — The circuitry on a video card or on the system board (in computers with an integrated video controller) that provides the video capabilities—in combination with the monitor—for your computer.

video memory — Memory that consists of memory chips dedicated to video functions. Video memory is usually faster than system memory. The amount of video memory installed primarily influences the number of colors that a program can display.

video mode — A mode that describes how text and graphics are displayed on a monitor. Graphics-based software, such as Windows operating systems, displays in video modes that can be defined as x horizontal pixels by y vertical pixels by z colors. Character-based software, such as text editors, displays in video modes that can be defined as x columns by y rows of characters.

video resolution — See resolution.

virus — A program that is designed to inconvenience you or to destroy data stored on your computer. A virus program moves from one computer to another through an infected disk, software downloaded from the Internet, or e-mail attachments. When an infected program starts, its embedded virus also starts.

V — volt — The measurement of electric potential or electromotive force. One V appears across a resistance of 1 ohm when a current of 1 ampere flows through that resistance.

W

W — watt — The measurement of electrical power. One W is 1 ampere of current flowing at 1 volt.

WHr — watt-hour — A unit of measure commonly used to indicate the approximate capacity of a battery. For example, a 66-WHr battery can supply 66 W of power for 1 hour or 33 W for 2 hours.

wallpaper — The background pattern or picture on the Windows desktop. Change your wallpaper through the Windows Control Panel. You can also scan in your favorite picture and make it wallpaper.

WLAN — wireless local area network. A series of interconnected computers that communicate with each other over the air waves using access points or wireless routers to provide Internet access.

write-protected — Files or media that cannot be changed. Use write-protection when you want to protect data from being changed or destroyed. To write-protect a 3.5-inch floppy disk, slide its write-protect tab to the open position.

WWAN — wireless wide area network. A wireless highspeed data network using cellular technology and covering a much larger geographic area than WLAN.

WXGA — wide-aspect extended graphics array — A video standard for video cards and controllers that supports resolutions up to 1280 x 800.

X

XGA — extended graphics array — A video standard for video cards and controllers that supports resolutions up to 1024 x 768.

Z

ZIF — zero insertion force — A type of socket or connector that allows a computer chip to be installed or removed with no stress applied to either the chip or its socket.

Zip — A popular data compression format. Files that have been compressed with the Zip format are called Zip files and usually have a filename extension of .zip. A special kind of zipped file is a self-extracting file, which has a filename extension of .exe. You can unzip a self-extracting file by double-clicking it.

Zip drive — A high-capacity floppy drive developed by Iomega Corporation that uses 3.5-inch removable disks called Zip disks. Zip disks are slightly larger than regular floppy disks, about twice as thick, and hold up to 100 MB of data.

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