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

SCAN THE COMPUTER FOR SPYWARE — If you are experiencing slow computer performance, you frequently receive pop-up advertisements, or you are having problems connecting to the Internet, your computer might be infected with spyware. Use an anti-virus program that includes anti-spyware protection (your program may require an upgrade) to scan the computer and remove spyware. For more information, go to **support.dell.com** and search for the keyword *spyware*.

Error Messages

Fill out the "Diagnostics Checklist" on page 153 as you complete these checks.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

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

AUXILIARY DEVICE FAILURE — The touch pad or external mouse may be faulty. For an external mouse, check the cable connection. Enable the **Pointing Device** option in the system setup program (see "Using the System Setup Program" on page 165). If the problem persists, contact Dell (see "Contacting Dell" on page 154).

BAD COMMAND OR FILE NAME — Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct pathname.

CACHE DISABLED DUE TO FAILURE — The primary cache internal to the microprocessor has failed. Contact Dell (see "Contacting Dell" on page 154).

CD DRIVE CONTROLLER FAILURE — The CD drive does not respond to commands from the computer (see "Drive Problems" on page 96).

DATA ERROR — The hard drive cannot read the data (see "Drive Problems" on page 96).

DECREASING AVAILABLE MEMORY — One or more memory modules may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them (see "Memory" on page 134).

DISK C: FAILED INITIALIZATION — The hard drive failed initialization. Run the hard drive tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

DRIVE NOT READY — The operation requires a hard drive in the bay before it can continue. Install a hard drive in the hard drive bay (see "Hard Drive" on page 127).

ERROR READING PCMCIA CARD — The computer cannot identify the ExpressCard. Reinsert the card or try another card (see "Using ExpressCards" on page 73).

EXTENDED MEMORY SIZE HAS CHANGED — The amount of memory recorded in NVRAM does not match the memory installed in the computer. Restart the computer. If the error appears again, contact Dell (see "Contacting Dell" on page 154).

THE FILE BEING COPIED IS TOO LARGE FOR THE DESTINATION DRIVE — The file that you are trying to copy is too large to fit on the disk, or the disk is full. Try copying the file to a different disk or use a larger capacity disk.

A FILENAME CANNOT CONTAIN ANY OF THE FOLLOWING CHARACTERS: \ / : * ? " < > | — Do not use these characters in filenames.

GATE A20 FAILURE — A memory module may be loose. Reinstall the memory modules and, if necessary, replace them (see "Memory" on page 134).

GENERAL FAILURE — The operating system is unable to carry out the command. The message is usually followed by specific information—for example, `Printer out of paper`. Take the appropriate action.

HARD-DISK DRIVE CONFIGURATION ERROR — The computer cannot identify the drive type. Shut down the computer, remove the hard drive (see "Hard Drive" on page 127), and boot the computer from a CD. Then, shut down the computer, reinstall the hard drive, and restart the computer. Run the Hard Disk Drive tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

HARD-DISK DRIVE CONTROLLER FAILURE 0 — The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive (see "Hard Drive" on page 127), and boot the computer from a CD. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

HARD-DISK DRIVE FAILURE — The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive (see "Hard Drive" on page 127), and boot the computer from a CD. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

HARD-DISK DRIVE READ FAILURE — The hard drive may be defective. Shut down the computer, remove the hard drive (see "Hard Drive" on page 127), and boot the computer from a CD. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard-Disk Drive tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

INSERT BOOTABLE MEDIA — The operating system is trying to boot to nonbootable media, such as a floppy disk or CD. Insert bootable media.

INVALID CONFIGURATION INFORMATION-PLEASE RUN SYSTEM SETUP PROGRAM — The system configuration information does not match the hardware configuration. The message is most likely to occur after a memory module is installed. Correct the appropriate options in the system setup program (see "Using the System Setup Program" on page 165).

KEYBOARD CLOCK LINE FAILURE — For external keyboards, check the cable connection. Run the Keyboard Controller test in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

KEYBOARD CONTROLLER FAILURE — For external keyboards, check the cable connection. Restart the computer, and avoid touching the keyboard or the mouse during the boot routine. Run the Keyboard Controller test in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

KEYBOARD DATA LINE FAILURE — For external keyboards, check the cable connection. Run the Keyboard Controller test in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

KEYBOARD STUCK KEY FAILURE — For external keyboards or keypads, check the cable connection. Restart the computer, and avoid touching the keyboard or keys during the boot routine. Run the Stuck Key test in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

LICENSED CONTENT IS NOT ACCESSIBLE IN DELL MEDIADIRECT — Dell MediaDirect™ cannot verify the Digital Rights Management (DRM) restrictions on the file, so the file cannot be played (see "Dell MediaDirect problems" on page 108).

MEMORY ADDRESS LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE —

A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them (see "Memory" on page 134).

MEMORY ALLOCATION ERROR — The software you are attempting to run is conflicting with the operating system, another program, or a utility. Shut down the computer, wait 30 seconds, and then restart it. Try to run the program again. If the error message still appears, see the software documentation.

MEMORY DATA LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE — A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them (see "Memory" on page 134).

MEMORY DOUBLE WORD LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE — A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them (see "Memory" on page 134).

MEMORY ODD/EVEN LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE — A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them (see "Memory" on page 134).

MEMORY WRITE/READ FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE — A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them (see "Memory" on page 134).

NO BOOT DEVICE AVAILABLE — The computer cannot find the hard drive. If the hard drive is your boot device, ensure that the drive is installed, properly seated, and partitioned as a boot device.

NO BOOT SECTOR ON HARD DRIVE — The operating system may be corrupted. Contact Dell (see "Contacting Dell" on page 154).

NO TIMER TICK INTERRUPT — A chip on the system board may be malfunctioning. Run the System Set tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

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

You have too many programs open. Close all windows and open the program that you want to use.

OPERATING SYSTEM NOT FOUND — Reinstall the hard drive (see "Hard Drive" on page 127). If the problem persists, contact Dell (see "Contacting Dell" on page 154).

OPTIONAL ROM BAD CHECKSUM — The optional ROM has failed. Contact Dell (see "Contacting Dell" on page 154).

A REQUIRED .DLL FILE WAS NOT FOUND — The program that you are trying to open is missing an essential file. Remove and then reinstall the program.

1 Click **Start** →**Control Panel**→**Programs**→**Programs and Features**.

2 Select the program you want to remove.

3 Click **Uninstall**.

4 See the program documentation for installation instructions.

SECTOR NOT FOUND — The operating system cannot locate a sector on the hard drive. You may have a defective sector or corrupted FAT on the hard drive. Run the Windows error-checking utility to check the file structure on the hard drive. See Windows Help and Support for instructions (click **Start** →**Help and Support**). If a large number of sectors are defective, back up the data (if possible), and then reformat the hard drive.

SEEK ERROR — The operating system cannot find a specific track on the hard drive.

SHUTDOWN FAILURE — A chip on the system board may be malfunctioning. Run the System Set tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

TIME-OF-DAY CLOCK LOST POWER — System configuration settings are corrupted. Connect your computer to an electrical outlet to charge the battery. If the problem persists, try to restore the data by entering the system setup program, then immediately exit the program (see "Using the System Setup Program" on page 165). If the message reappears, contact Dell (see "Contacting Dell" on page 154).

TIME-OF-DAY CLOCK STOPPED — The reserve battery that supports the system configuration settings may require recharging. Connect your computer to an electrical outlet to charge the battery. If the problem persists, contact Dell (see "Contacting Dell" on page 154).

TIME-OF-DAY NOT SET-PLEASE RUN THE SYSTEM SETUP PROGRAM — The time or date stored in the system setup program does not match the system clock. Correct the settings for the **Date** and **Time** options (see "Using the System Setup Program" on page 165).

TIMER CHIP COUNTER 2 FAILED — A chip on the system board may be malfunctioning. Run the System Set tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

UNEXPECTED INTERRUPT IN PROTECTED MODE — The keyboard controller may be malfunctioning, or a memory module may be loose. Run the System Memory tests and the Keyboard Controller test in the Dell Diagnostics (see "Dell Diagnostics" on page 91).

X:\ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY — Insert a disk into the drive and try again.

WARNING: BATTERY IS CRITICALLY LOW — The battery is running out of charge. Replace the battery, or connect the computer to an electrical outlet; otherwise, activate hibernate mode or shut down the computer.

ExpressCard Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

CHECK THE EXPRESSCARD — Ensure that the ExpressCard is properly inserted into the connector.

CHECK THAT THE CARD IS RECOGNIZED BY WINDOWS — Double-click the **Safely Remove Hardware** icon in the Windows taskbar. Some cards do not support this feature. If the card supports this Windows feature, the card will be listed.

IF YOU HAVE PROBLEMS WITH A DELL-PROVIDED EXPRESSCARD — Contact Dell (see "Contacting Dell" on page 154). Also, for Mobile Broadband (WWAN) ExpressCards, see "Mobile Broadband (Wireless Wide Area Network [WWAN])" on page 110.

IF YOU HAVE PROBLEMS WITH AN EXPRESSCARD NOT PROVIDED BY DELL —

Contact the ExpressCard manufacturer.

IEEE 1394 Device Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

✍ Your computer supports only IEEE 1394a standard.

ENSURE THAT THE CABLE FOR THE IEEE 1394 DEVICE IS PROPERLY INSERTED INTO THE DEVICE AND INTO THE CONNECTOR ON THE COMPUTER

ENSURE THAT THE IEEE 1394 DEVICE IS ENABLED IN SYSTEM SETUP — See "Viewing the System Setup Screen" on page 166.

ENSURE THAT THE IEEE 1394 DEVICE IS RECOGNIZED BY WINDOWS —

1 Click **Start** 🏵→**Control Panel**→**Hardware and Sound**→**Device Manager**.

   ✍ **NOTE:** The **User Account Control** window may appear. If you are an administrator on the computer, click **Continue**; otherwise, contact your administrator to continue the desired action.

   If your IEEE 1394 device is listed, Windows recognizes the device.

IF YOU HAVE PROBLEMS WITH A DELL-PROVIDED IEEE 1394 DEVICE — Contact Dell or the IEEE 1394 device manufacturer (see "Contacting Dell" on page 154).

IF YOU HAVE PROBLEMS WITH AN IEEE 1394 DEVICE NOT PROVIDED BY DELL —

Contact Dell or the IEEE 1394 device manufacturer (see "Contacting Dell" on page 154).

Ensure that the IEEE 1394 device is properly inserted into the connector.

Keyboard Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

Fill out the "Diagnostics Checklist" on page 153 as you perform the various checks.

✍ **NOTE:** Use the integrated keyboard when running the Dell Diagnostics or the system setup program. When you attach an external keyboard, the integrated keyboard remains fully functional.

External Keyboard problems

NOTE: When you attach an external keyboard, the integrated keyboard remains fully functional.

CHECK THE KEYBOARD CABLE — Shut down the computer, disconnect the keyboard cable and check it for damage, and then firmly reconnect the cable.

If you are using a keyboard extension cable, disconnect it and connect the keyboard directly to the computer.

CHECK THE EXTERNAL KEYBOARD —

1   Shut down the computer, wait 1 minute, and then turn it on again.

2   Verify that the numbers, capitals, and scroll lock lights on the keyboard blink during the boot routine.

3   From the Windows desktop, click **Start** →**All Programs**→**Accessories**→ **Notepad**.

4   Type some characters on the external keyboard and verify that they appear on the display.

   If you cannot verify these steps, you may have a defective external keyboard.

TO VERIFY THAT THE PROBLEM IS WITH THE EXTERNAL KEYBOARD, CHECK THE INTEGRATED KEYBOARD —

1   Shut down the computer.

2   Disconnect the external keyboard.

3   Turn on the computer.

4   From the Windows desktop, click **Start** →**All Programs**→**Accessories**→ **Notepad**.

5   Type some characters on the internal keyboard and verify that they appear on the display.

   If the characters appear now, but did not with the external keyboard, you may have a defective external keyboard. Contact Dell (see "Contacting Dell" on page 154).

RUN THE KEYBOARD DIAGNOSTICS TESTS — Run the PC-AT Compatible Keyboards tests in the Dell Diagnostics (see "Dell Diagnostics" on page 91). If the tests indicate a defective external keyboard, contact Dell (see "Contacting Dell" on page 154).

Unexpected characters

D ISABLE THE NUMERIC KEYPAD — Press <Num Lk> to disable the numeric keypad if numbers are displayed instead of letters. Verify that the numbers lock light is not lit.

Lockups and Software Problems

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

The computer does not start

C HECK THE AC ADAPTER — Ensure that the AC adapter 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.

T URN 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 or crashes repeatedly

E ND THE PROGRAM —

1 Press <Crtl><Shift><Esc> simultaneously.

2 Click the **Applications** tab and select the program that is no longer responding.

3 Click **End Task**.

📝 **NOTE:** The chkdsk program may run when you restart the computer. Follow the instructions on the screen.

C HECK THE SOFTWARE DOCUMENTATION — If necessary, uninstall and then reinstall the program. Software usually includes installation instructions in its documentation or on a floppy disk or CD.

A program is designed for an earlier Microsoft® Windows® operating system

RUN THE PROGRAM COMPATIBILITY WIZARD — Program compatibility is a mode in Windows that lets you run programs written for earlier versions of Windows. For more information, search for the keyword *program compatibility wizard* in Windows Help and Support.

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.

Dell MediaDirect problems

CHECK THE DELL MEDIADIRECT HELP FILE FOR INFORMATION — Use the **Help** menu to access Dell MediaDirect Help.

TO PLAY MOVIES WITH DELL MEDIADIRECT, YOU MUST HAVE A DVD DRIVE AND THE DELL DVD PLAYER — If you purchased a DVD drive with your computer, this software should already be installed.

VIDEO QUALITY PROBLEMS — Turn off the **Use Hardware Acceleration** option. This feature takes advantage of the special processing in some graphics cards to reduce processor requirements when playing DVDs and certain types of video files.

CANNOT PLAY SOME MEDIA FILES — Because Dell MediaDirect provides access to media files outside the Windows operating system environment, access to licensed content is restricted. Licensed content is digital content that has Digital Rights Management (DRM) applied to it. The Dell MediaDirect environment cannot verify the DRM restrictions, so the licensed files cannot be played. Licensed music and video files have a lock icon next to them. You can access licensed files in the Windows operating system environment.

ADJUSTING THE COLOR SETTINGS FOR MOVIES THAT CONTAIN SCENES THAT ARE TOO DARK OR TOO BRIGHT — Click **EagleVision** to use a video enhancement technology that detects video content and dynamically adjusts the brightness/contrast/saturation ratios.

NOTICE: You cannot reinstall the Dell MediaDirect feature if you voluntarily reformat the hard drive. Contact Dell for assistance (see "Contacting Dell" on page 154).

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, FLOPPY DISKS, OR CDS

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

SCAN THE COMPUTER FOR SPYWARE — If you are experiencing slow computer performance, you frequently receive pop-up advertisements, or you are having problems connecting to the Internet, your computer might be infected with spyware. Use an anti-virus program that includes anti-spyware protection (your program may require an upgrade) to scan the computer and remove spyware. For more information, go to **support.dell.com** and search for the keyword *spyware*.

RUN THE DELL DIAGNOSTICS — If all tests run successfully, the error condition is related to a software problem (see "Dell Diagnostics" on page 91).

Memory Problems

Fill out the "Diagnostics Checklist" on page 153 as you complete these checks.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

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.

- See the software documentation for minimum memory requirements. If necessary, install additional memory (see "Memory" on page 134).

- Reseat the memory modules to ensure that your computer is successfully communicating with the memory (see "Memory" on page 134).
- Run the Dell Diagnostics (see "Dell Diagnostics" on page 91).

IF YOU EXPERIENCE OTHER MEMORY PROBLEMS —

- Reseat the memory modules to ensure that your computer is successfully communicating with the memory (see "Memory" on page 134).
- Ensure that you are following the memory installation guidelines (see "Memory" on page 134).
- Run the Dell Diagnostics (see "Dell Diagnostics" on page 91).

Network Problems

Fill out the "Diagnostics Checklist" on page 153 as you complete these checks.

⚠️ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

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 jack.

CHECK THE NETWORK LIGHTS ON THE NETWORK CONNECTOR — No light indicates that no network communication exists. Replace the network cable.

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.

Mobile Broadband (Wireless Wide Area Network [WWAN])

📝 **NOTE:** The Dell Mobile Broadband Card Utility user's guide and the Mobile Broadband ExpressCard user's guide are available through Windows Help and Support (click **Start** →**Help and Support**). You can also download the Dell Mobile Broadband Card Utility user's guide from **support.dell.com**.

📝 **NOTE:** The icon appears in the notification area if the computer has a Dell WWAN device installed. Double-click the icon to launch the utility.

ACTIVATE THE MOBILE BROADBAND EXPRESSCARD — You must activate the Mobile Broadband ExpressCard before you can connect to the network. Position the mouse over the [icon] icon in the notification area to verify the status of the connection. If the card is not activated, follow the card activation instructions located within the Dell Mobile Broadband Card Utility. To access the utility, double-click the [icon] icon located in the taskbar, at the lower-right corner of your screen. If your ExpressCard is not a Dell-branded card, see the manufacturer's instructions for your card.

CHECK NETWORK CONNECTION STATUS IN THE DELL MOBILE BROADBAND CARD UTILITY — Double-click the [icon] icon to launch the Dell Mobile Broadband Card Utility. Check the status in the main window:

• **No card detected** — Restart the computer, and launch the Dell Mobile Broadband Card Utility again.

• **Check your WWAN service** — Contact your cellular service provider to verify your plan coverage and supported services.

Power Problems

Fill out the "Diagnostics Checklist" on page 153 as you complete these checks.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

CHECK THE POWER LIGHT — When the power light is lit or blinking, the computer has power. If the power light is blinking, the computer is in Sleep state—press the power button to exit Sleep state. If the light is off, press the power button to turn on the computer.

📝 **NOTE:** For information on Sleep power state, see "Using the Sleep Power State" on page 49.

CHARGE THE BATTERY — The battery charge may be depleted.

1 Reinstall the battery.

2 Use the AC adapter to connect the computer to an electrical outlet.

3 Turn on the computer.

📝 **NOTE:** Battery operating time (the time the battery can hold a charge) decreases over time. Depending on how often the battery is used and the conditions under which it is used, you may need to purchase a new battery during the life of your computer.

CHECK THE BATTERY STATUS LIGHT — If the battery status light flashes amber or is a steady amber, the battery charge is low or depleted. Connect the computer to an electrical outlet.

If the battery status light flashes blue and amber, the battery is too hot to charge. Shut down the computer, disconnect the computer from the electrical outlet, and then let the battery and computer cool to room temperature.

If the battery status light rapidly flashes amber, the battery may be defective. Contact Dell (see "Contacting Dell" on page 154).

CHECK THE BATTERY TEMPERATURE — If the battery temperature is below 0°C (32°F), the computer will not start.

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

CHECK THE AC ADAPTER — Check the AC adapter cable connections. If the AC adapter has a light, ensure that the light is on.

CONNECT THE COMPUTER DIRECTLY TO AN ELECTRICAL OUTLET — Bypass power protection devices, power strips, and extension cables to verify that the computer turns on.

ELIMINATE POSSIBLE INTERFERENCE — Turn off nearby fans, fluorescent lights, halogen lamps, or other appliances.

ADJUST THE POWER PROPERTIES — See "Configuring Power Management Settings" on page 48.

RESEAT THE MEMORY MODULES — If the computer power light turns on, but the display remains blank, reinstall the memory modules (see "Memory" on page 134).

Printer Problems

Fill out the "Diagnostics Checklist" on page 153 as you complete these checks.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

✏ **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.

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 **Start** →**Control Panel**→**Hardware and Sound**→**Printers**.

2 Right-click the printer icon.

3 Click **Properties**, and then click the **Ports** tab. For a parallel printer, ensure that the **Print to the following port(s):** setting is **LPT1 (Printer Port)**. For a USB printer, ensure that the **Print to the following port(s):** setting is **USB**.

REINSTALL THE PRINTER DRIVER — See the printer documentation for instructions.

Scanner Problems

⚠️ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

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

CHECK THE SCANNER DOCUMENTATION — See the scanner documentation for setup and troubleshooting information.

UNLOCK THE SCANNER — Ensure that your scanner is unlocked.

RESTART THE COMPUTER AND TRY THE SCANNER AGAIN

CHECK THE CABLE CONNECTIONS —

- See the scanner documentation for cable connection information.
- Ensure that the scanner cables are securely connected to the scanner and the computer.

VERIFY THAT THE SCANNER IS RECOGNIZED BY MICROSOFT WINDOWS —

Click **Start** →**Control Panel**→**Hardware and Sound**→**Scanners and Cameras**. If your scanner is listed, Windows recognizes the scanner.

REINSTALL THE SCANNER DRIVER — See the scanner documentation for instructions.

Sound and Speaker Problems

Fill out the "Diagnostics Checklist" on page 153 as you complete these checks.

⚠️ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

No sound from integrated speakers

ADJUST THE WINDOWS VOLUME CONTROL — 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. Adjust the volume, bass, or treble controls to eliminate distortion.

ADJUST THE VOLUME USING KEYBOARD SHORTCUTS — Press <Fn><End> to disable (mute) or re-enable the integrated speakers.

REINSTALL THE SOUND (AUDIO) DRIVER — See "Reinstalling Drivers and Utilities" on page 119.

No sound from external speakers

ENSURE THAT THE SUBWOOFER AND THE SPEAKERS ARE TURNED ON — See the setup diagram supplied with the speakers. If your speakers have volume controls, adjust the volume, bass, or treble to eliminate distortion.

ADJUST THE WINDOWS VOLUME CONTROL — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

DISCONNECT HEADPHONES FROM THE HEADPHONE CONNECTOR — Sound from the speakers is automatically disabled when headphones are connected to the 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.

REINSTALL THE AUDIO DRIVER — See "Reinstalling Drivers and Utilities" on page 119.

RUN THE DELL DIAGNOSTICS — See "Dell Diagnostics" on page 91.

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.

No sound from headphones

CHECK THE HEADPHONE CABLE CONNECTION — Ensure that the headphone cable is securely inserted into the headphone connector (see "Back View" on page 34).

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.

Remote Control Problems

APPLICATION DOES NOT RESPOND TO REMOTE CONTROL WITHIN THE SPECIFIED MAXIMUM RANGE

- Check that the battery is placed correctly with the "+" side facing up. Check that the battery is also not weak.
- Point your remote control to the receiver. The receiver is underneath the touch pad of your computer.
- Move the remote control closer to your computer.

REMOTE CONTROL IS STUCK IN THE SLOT

Check that you have not incorrectly stored the remote control into a non-Express Card slot. Contact Dell Technical Support for removing it.

Touch Pad or Mouse Problems

CHECK THE TOUCH PAD SETTINGS —

1 Click **Start** →**Control Panel**→**Hardware and Sound**→**Mouse**.
2 Adjust the settings, as needed.

CHECK THE MOUSE CABLE — Shut down the computer, disconnect the mouse cable and check it for damage, then firmly reconnect the cable.

If you are using a mouse extension cable, disconnect it and connect the mouse directly to the computer.

TO VERIFY THAT THE PROBLEM IS WITH THE MOUSE, CHECK THE TOUCH PAD —

1 Shut down the computer.

2 Disconnect the mouse.

3 Turn on the computer.

4 At the Windows desktop, use the touch pad to move the cursor around, select an icon, and open it.

   If the touch pad operates correctly, the mouse may be defective.

CHECK THE SYSTEM SETUP PROGRAM SETTINGS — Verify that the system setup program lists the correct device for the pointing device option (the computer automatically recognizes a USB mouse without making any setting adjustments).

TEST THE MOUSE CONTROLLER — To test the mouse controller (which affects pointer movement) and the operation of the touch pad or mouse buttons, run the Mouse test in the **Pointing Devices** test group in the "Dell Diagnostics" on page 91.

REINSTALL THE TOUCH PAD DRIVER — See "Reinstalling Drivers and Utilities" on page 119.

Video and Display Problems

Fill out the "Diagnostics Checklist" on page 153 as you complete these checks.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

If the display is blank

📝 **NOTE:** If you are using a program that requires a higher resolution than your computer supports, it is recommended that you attach an external monitor to your computer.

CHECK THE BATTERY — If you are using a battery to power your computer, the battery charge may be depleted. Connect the computer to an electrical outlet using the AC adapter, and then turn on the computer.

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

CHECK THE AC ADAPTER — Check the AC adapter cable connections. If the AC adapter has a light, ensure that the light is on.

CONNECT THE COMPUTER DIRECTLY TO AN ELECTRICAL OUTLET — Bypass power protection devices, power strips, and extension cables to verify that the computer turns on.

ADJUST THE POWER PROPERTIES — Search for the keyword *sleep* in Windows Help and Support.

SWITCH THE VIDEO IMAGE — If your computer is attached to an external monitor, press <Fn><F8> to switch the video image to the display.

If the display is difficult to read

ADJUST THE BRIGHTNESS — Press <Fn> and the up- or down-arrow key.

MOVE THE EXTERNAL SUBWOOFER AWAY FROM THE COMPUTER OR MONITOR — If your external speaker system includes a subwoofer, ensure that the subwoofer is at least 60 cm (2 ft) away from the computer or external monitor.

ELIMINATE POSSIBLE INTERFERENCE — Turn off nearby fans, fluorescent lights, halogen lamps, or other appliances.

ROTATE THE COMPUTER TO FACE A DIFFERENT DIRECTION — Eliminate sunlight glare, which can cause poor picture quality.

ADJUST THE WINDOWS DISPLAY SETTINGS —

1 Click **Start** ⊞→**Control Panel**→**Appearance and Personalization**→**Personalization**→**Display Settings**.

2 Click the area you want to change or click the **Display** icon.

Try different settings for **Resolution** and **Colors**.

RUN THE VIDEO DIAGNOSTICS TESTS — If no error message appears and you still have a display problem, but the display is not completely blank, run the **Video** device group in the "Dell Diagnostics" on page 91, then contact Dell (see "Contacting Dell" on page 154).

SEE "ERROR MESSAGES" — If an error message appears, see "Error Messages" on page 99.

If only part of the display is readable

CONNECT AN EXTERNAL MONITOR —

1 Shut down your computer and connect an external monitor to the computer.

2 Turn on the computer and the monitor, and then adjust the monitor brightness and contrast controls.

If the external monitor works, the computer display or video controller may be defective. Contact Dell (see "Contacting Dell" on page 154).

Drivers

What Is a Driver?

A driver is a program that controls a device such as a printer, mouse, or keyboard. All devices require a driver program.

A driver acts like a translator between the device and any other programs that use the device. Each device has its own set of specialized commands that only its driver recognizes.

Dell ships your computer to you with required drivers already installed—no further installation or configuration is needed.

NOTICE: Your *Drivers and Utilities* media may contain drivers for operating systems that are not on your computer. Ensure that you are installing software appropriate for your operating system.

Many drivers, such as the keyboard driver, come with your Microsoft®
Windows® operating system. You may need to install drivers if you:

• Upgrade your operating system.

• Reinstall your operating system.

• Connect or install a new device.

Identifying Drivers

If you experience a problem with any device, identify whether the driver is the source of your problem and, if necessary, update the driver.

1 Click **Start** , and then right-click **Computer**.

2 Click **Properties**, and then click **Device Manager**.

> **NOTE:** The User Account Control window may appear. If you are an administrator on the computer, click Continue; otherwise, contact your administrator to continue.

Scroll down the list of devices and check for an exclamation point (a circle with a [!]) next to the device name. If an exclamation point is next to the device name, you may need to reinstall the driver or install a new driver (see "Reinstalling Drivers and Utilities" on page 119).

Reinstalling Drivers and Utilities

> **NOTICE:** The Dell Support website at support.dell.com and your *Drivers and Utilities* media provide approved drivers for Dell computers. If you install drivers obtained from other sources, your computer might not work correctly.

Using Windows Device Driver Rollback

If a problem occurs on your computer after you install or update a driver, use Windows Device Driver Rollback to replace the driver with the previously installed version.

1 Click **Start** , and then right-click **Computer**.

2 Click **Properties**, and then click **Device Manager**.

> **NOTE:** The User Account Control window may appear. If you are an administrator on the computer, click Continue; otherwise, contact your administrator to enter the Device Manager.

3 Right-click the device for which the new driver was installed and click **Properties**.

4 Click the **Drivers** tab, and then click **Roll Back Driver**.

If Device Driver Rollback does not resolve the problem, use System Restore (see "Restoring Your Operating System" on page 122) to return your computer to the operating state that existed before you installed the new driver.

Using the Drivers and Utilities Media

If using Device Driver Rollback or System Restore (see "Restoring Your Operating System" on page 122) does not resolve the problem, reinstall the driver from your *Drivers and Utilities* media.

1 With the Windows desktop displayed, insert your *Drivers and Utilities* media.

If this is your first time to use your *Drivers and Utilities* media, continue to step 2. If not, proceed to step 5.

2 When the *Drivers and Utilities* installation program starts, follow the prompts on the screen.

   ✍ **NOTE:** In most cases, the *Drivers and Utilities* program starts running automatically. If it does not, start Windows Explorer, click your media drive directory to display the media contents, and then double-click the autorcd.exe file.

3 When the **InstallShield Wizard Complete** window appears, remove the *Drivers and Utilities* disc and click **Finish** to restart the computer.

4 When you see the Windows desktop, reinsert the *Drivers and Utilities* disc.

5 At the **Welcome Dell System Owner** screen, click **Next**.

   ✍ **NOTE:** The *Drivers and Utilities* program displays drivers only for hardware that came installed in your computer. If you installed additional hardware, the drivers for the new hardware might not be displayed. If those drivers are not displayed, exit the *Drivers and Utilities* program. For drivers information, see the documentation that came with the device.

A message stating that the *Drivers and Utilities* program is detecting hardware in your computer appears.

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

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

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

Manually Reinstalling Drivers

NOTE: If your computer has a Consumer IR port and you are reinstalling a Consumer IR driver, you must first enable the Consumer IR port in the system setup program (see "Using the System Setup Program" on page 165) before continuing with the driver installation (see "Reinstalling Drivers and Utilities" on page 119). For information about components installed on your computer, see "Front View" on page 25.

1 After extracting the driver files to your hard drive, as described in the previous section, click **Start** , and then right-click **Computer**.

2 Click **Properties**, and then click **Device Manager**.

3 Double-click the type of device for which you are installing the driver (for example, **Modems** or **Infrared devices**).

4 Double-click the name of the device for which you are installing the driver.

5 Click **Driver** tab, and then click **Update Driver**.

6 Click **Install from a list or specific location (Advanced)**, and then click **Next**.

7 Click **Browse** and browse to the location to which you previously copied the driver files.

8 When the name of the appropriate driver appears, click **Next**.

9 Click **Finish**, and then restart your computer.

Troubleshooting Software and Hardware Problems

If a device is either not detected during the operating system setup or is detected but incorrectly configured, use Windows Vista Help and Support to resolve the incompatibility:

1 Click **Start** →**Help and Support**.

2 Type hardware troubleshooter in the search field, then press <Enter>.

3 In the search results, select the option that best describes the problem and follow the remaining troubleshooting steps.

Restoring Your Operating System

You can restore your operating system in the following ways:

- Microsoft Windows Vista System Restore returns your computer to an earlier operating state without affecting data files. Use System Restore as the first solution for restoring your operating system and preserving data files. For instructions, see "Using Microsoft Windows System Restore" on page 122.

- If you received *Operating System* media with your computer, you can use it to restore your operating system. However, using the *Operating System* media also deletes all data on the hard drive. Use the media *only* if System Restore did not resolve your operating system problem. For instructions, see "Using the Operating System Media" on page 123.

Using Microsoft Windows System Restore

The Windows operating system provides System Restore to allow you to return your computer to an earlier operating state (without affecting data files) if changes to the hardware, software, or other system settings have left the computer in an undesirable operating state. Any changes that System Restore makes to your computer are completely reversible.

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

NOTE: The procedures in this document were written for the Windows default view, so they may not apply if you set your Dell computer to the Windows Classic view.

1 Click **Start** →**Help and Support**.

2 Type System Restore in the search field, then press <Enter>.

   NOTE: The **User Account Control** window may appear. If you are an administrator on the computer, click **Continue**; otherwise, contact your administrator to continue the desired action.

3 Click **Next** and follow the remaining prompts on the screen.

In the event that System Restore did not resolve the issue, you may undo the last system restore.

Undoing the Last System Restore

![Notice icon] **NOTICE:** Before you undo the last system restore, save and close all open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1   Click **Start** ![Windows icon] →**Help and Support**.

2   Type System Restore in the search field and press <Enter>.

3   Click **Undo my last restoration**, and then click **Next**.

Using the Operating System Media

Before You Begin

If you are considering reinstalling the Windows operating system to correct a problem with a newly installed driver, first try using Windows Device Driver Rollback (see "Using Windows Device Driver Rollback" on page 119). If Device Driver Rollback does not resolve the problem, then use System Restore to return your operating system to the operating state it was in before you installed the new device driver (see "Using Microsoft Windows System Restore" on page 122).

![Notice icon] **NOTICE:** Before performing the installation, back up all data files on your primary hard drive. For conventional hard drive configurations, the primary hard drive is the first drive detected by the computer.

To reinstall Windows, you need the following items:

• Dell™ *Operating System* media

• Dell *Drivers and Utilities* media

![Note icon] **NOTE:** Your *Drivers and Utilities* media contains drivers that were installed during assembly of the computer. Use your *Drivers and Utilities* media to load any required drivers, including the drivers required if your computer has a RAID controller.

Reinstalling Windows

The reinstallation process can take 1 to 2 hours to complete. After you reinstall the operating system, you must also reinstall the device drivers, virus protection program, and other software.

NOTICE: The *Operating System* media provides options for reinstalling Windows. The options can overwrite files and possibly affect programs that are installed on your hard drive. Therefore, do not reinstall Windows unless a Dell technical support representative instructs you to do so.

1 Save and close any open files and exit any open programs.

2 Insert the *Operating System* media.

3 Click **Exit** if the `Install Windows` message appears.

4 Restart the computer.

When the DELL logo appears, press <F12> immediately.

NOTE: 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 and try again.

NOTE: The next steps change the boot sequence for one time only. On the next start-up, the computer boots according to the devices specified in the system setup program.

5 When the boot device list appears, highlight **CD/DVD/CD-RW Drive**, and then press <Enter>.

6 Press any key to **Boot from CD-ROM**.

7 Follow the instructions on the screen to complete the installation.

13

Adding and Replacing 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 125 and "Before Working Inside Your Computer" on page 126.
- You have read the safety information in your Dell *Product Information Guide.*
- 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
- Small plastic scribe
- Flash BIOS update (see the Dell Support website at **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   Save and close any open files and exit any open programs.

2   Click **Start** , click the arrow , and then click **Shut Down**.

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

3   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 at least 8 to 10 seconds until the computer turns off.

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 in the *Product Information Guide*.**

⚠ **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 on 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 electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on the back of the computer).

➡ **NOTICE:** To help prevent damage to the computer, perform the following steps before you begin working inside the computer.

1 Ensure that the work surface is flat and clean to prevent the computer cover from being scratched.

2 Turn off your computer (see "Turning Off Your Computer" on page 125).

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

3 Disconnect any telephone or network cables from the computer.

4 Disconnect your computer and all attached devices from their electrical outlets.

➡ **NOTICE:** To help prevent damage to the system board, you must remove the battery from the battery bay before you service the computer.

➡ **NOTE:** To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

5 Turn the computer over.

6 Slide and click the battery release latch.

7 Slide the battery out of the battery bay.
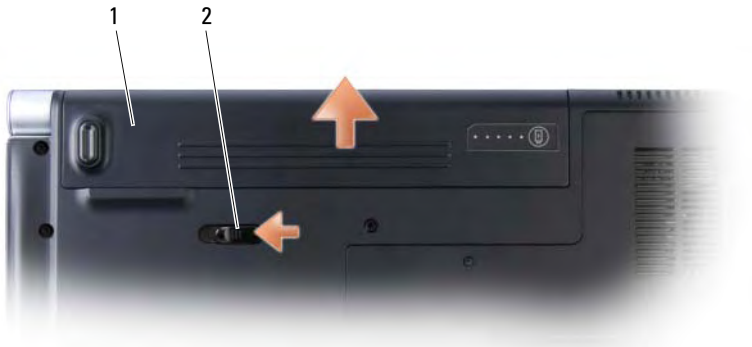
1   battery   2   battery release latch

8 Turn the computer top-side up, open the display, and press the power button to ground the system board.

9 Remove any installed cards from the ExpressCard slot (see "Removing an ExpressCard or Blank" on page 74) and the 8-in-1 memory card reader (see "Removing a Memory Card or Blank" on page 76).

Hard Drive

⚠ **CAUTION: If you remove the hard drive from the computer when the drive is hot, *do not touch* the metal housing of the hard drive.**

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

⊘ **NOTICE:** To prevent data loss, turn off your computer (see "Turning Off Your Computer" on page 125) before removing the hard drive. Do not remove the hard drive while the computer is on or in Sleep state.

⊘ **NOTICE:** Hard drives are extremely fragile. Exercise care when handling the hard drive.

NOTE: Dell does not guarantee compatibility or provide support for hard drives from sources other than Dell.

NOTE: If you are installing a hard drive from a source other than Dell, you need to install an operating system, drivers, and utilities on the new hard drive (see "Restoring Your Operating System" on page 122 and "Reinstalling Drivers and Utilities" on page 119).

Removing the Hard Drive

1 Follow the procedures in "Before You Begin" on page 125.

2 Turn the computer over.

3 Remove the four M3 x 3-mm screws and slide the hard drive away from the bay.

NOTICE: When the hard drive is not in the computer, store it in protective antistatic packaging (see "Protecting Against Electrostatic Discharge" in the *Product Information Guide*).

Replacing the Hard Drive

 1   Remove the new drive from its packaging.

     Save the original packaging for storing or shipping the hard drive.

 ⊜ **NOTICE:** Use firm and even pressure to slide the drive into place. If you use
   excessive force, you may damage the connector.

 2   Slide the hard drive into the bay.

 3   Replace and tighten the four screws on the hard drive.

 4   Install the operating system for your computer, as needed (see "Restoring
     Your Operating System" on page 122).

 5   Install the drivers and utilities for your computer, as needed (see
     "Reinstalling Drivers and Utilities" on page 119).

Returning a Hard Drive to Dell

Return your old hard drive to Dell in its original, or comparable, foam
packaging. Otherwise, the hard drive may be damaged in transit.
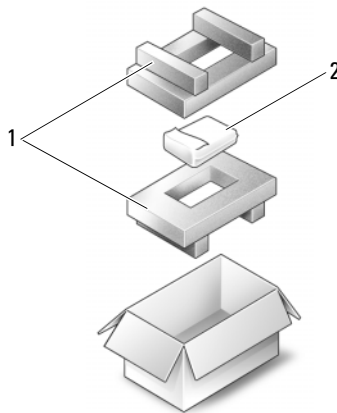
| 1 | foam packaging | 2 | hard drive |

Hinge Covers and Center Control Cover

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

⊘ **NOTICE:** To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on the back of the computer).

⊘ **NOTICE:** To help prevent damage to the system board, you must remove the battery from the battery bay before you begin working inside the computer.

Removing the Hinge Covers and Displacing the Center Control Cover

1   Follow the procedures in "Before You Begin" on page 125.

2   Turn the computer over and remove the three M2 x 3-mm screws that secure the center control cover.

3   Turn the computer top side up, and open the display as far as it will open.

4 Remove the hinge covers from each side of the computer.
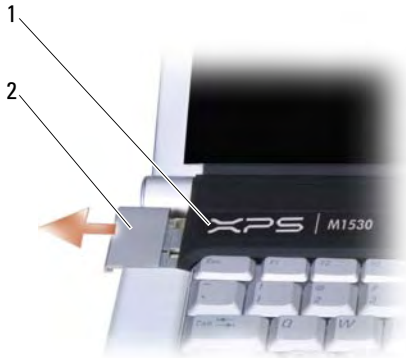
1   center control cover   2   hinge cover (2)

5 Ease the center control cover up with a plastic scribe.

NOTICE: While raising the center control cover ensure that you do not pull hard so as not to damage the data cable connected to the system board.

1   center control cover

Replacing the Hinge Covers and Center Control Cover

1 Snap the center control cover in place.

2 Replace the hinge covers.

3 Turn the computer over and replace the three M2 x 3-mm screws that secure the center control cover to the computer base.

Keyboard

For more information about the keyboard, see "Using the Keyboard and Touchpad" on page 39.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

🔘 **NOTICE:** To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on the back of the computer).

🔘 **NOTICE:** To help prevent damage to the system board, you must remove the battery from the battery bay before you begin working inside the computer.

Removing the Keyboard

1 Follow the procedures in "Before You Begin" on page 125.

2 Remove the Hinge Covers and displace the Center Control Cover (see "Hinge Covers and Center Control Cover" on page 130).

3 Remove the two M2 x 2-mm screws at the top of the keyboard.

🔘 **NOTICE:** The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.

4 Carefully slide the keyboard toward the back of the computer.

⊘ **NOTICE:** Be extremely careful when removing and handling the keyboard. Failure to do so could result in scratching the display panel.

1	M2 x 2-mm screw (2)	2	keyboard
3	keyboard tabs (5)	4	keyboard cable
5	plastic securing bar		

5 Pull up on the plastic bar that secures the keyboard cable to the system board and remove the keyboard.

Replacing the Keyboard

1   Slide the keyboard cable connector into the slot until it clicks and pull down on the plastic bar that secures the keyboard cable connector to the system board.

2   Align the five tabs along the bottom of the keyboard and slide them under the palm rest.

NOTICE: The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.

3   Replace the two M2 x 2-mm screws along the top of the keyboard.

4   Replace the Hinge Covers and the Center Control Cover (see "Replacing the Hinge Covers and Center Control Cover" on page 132).

Memory

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.

You can increase your computer memory by installing memory modules on the system board. See "Specifications" on page 155 for information on the memory supported by your computer. Install only memory modules that are intended for your computer.

NOTE: Memory modules purchased from Dell are covered under your computer warranty.

Your computer has two user-accessible SODIMM sockets that can be accessed from the bottom of the computer.

NOTICE: If you need to install memory modules in two connectors, install a memory module in the connector labeled "DIMM1" before you install a module in the connector labeled "DIMM2."

Removing the Memory Module

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on the back of the computer).

NOTICE: If there is a memory module in DIMM 2, remove it prior to removing the memory module from DIMM 1. Failure to do so could result in damaging both memory modules.

1 Follow the procedures in "Before You Begin" on page 125.

2 Turn the computer over and loosen the four captive screws along with the M2.5 x 5-mm screw. Remove the module cover.
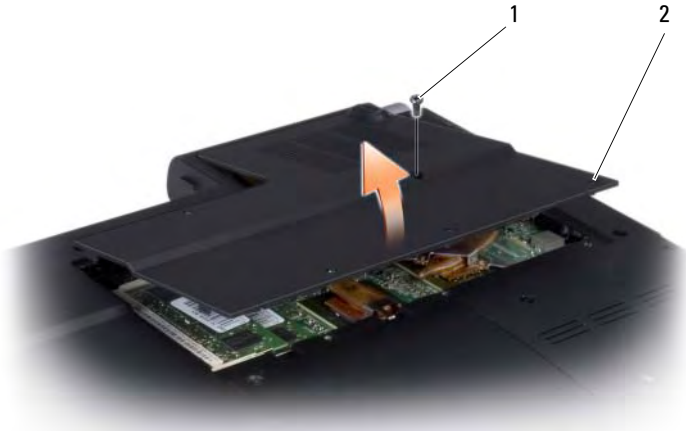
| 1 | M2.5 x 5-mm screw | 2 | captive screws (4) |

⬛ **NOTICE:** To prevent damage to the memory module connector, do not use tools to spread the memory module securing clips.

3 Use your fingertips to carefully spread apart the securing clips on each end of the memory module connector until the module pops up.

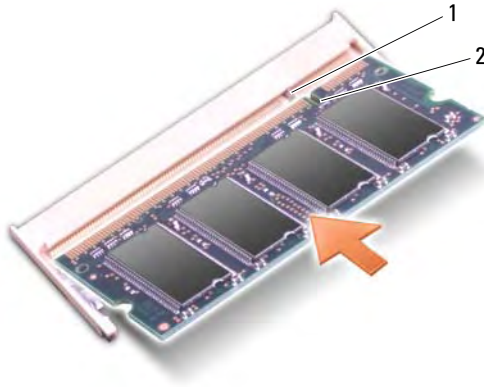**4** Remove the module from the connector.
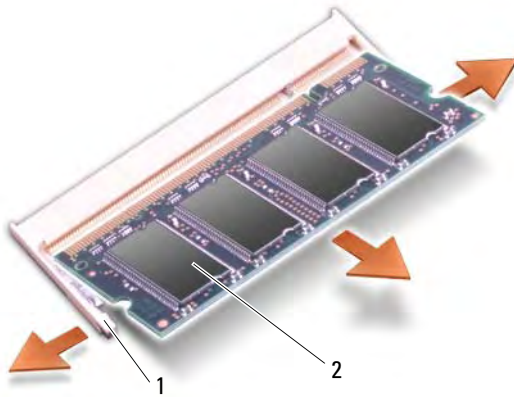
| 1 | securing clips (2) | 2 | memory module |

Replacing the Memory Module

🔘 **NOTICE:** To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on the back of the computer).

  1 Align the notch in the module edge connector with the tab in the connector slot.

  2 Slide the module firmly into the slot at a 45-degree angle, and rotate the module down until it clicks into place. If you do not feel the click, remove the module and reinstall it.

✏ **NOTE:** If the memory module is not installed properly, the computer may not boot. No error message indicates this failure.

1   tab   2   notch

⊘ **NOTICE:** If the cover is difficult to close, remove the module and reinstall it. Forcing the cover to close may damage your computer.

  3   Replace the module cover.

  4   Insert the battery into the battery bay, or connect the AC adapter to your computer and an electrical outlet.

  5   Turn on the computer.

As the computer boots, it detects the additional memory and automatically updates the system configuration information.

To confirm the amount of memory installed in the computer, click **Start** → **Help and Support**→**Dell System Information**.

Subscriber Identity Module

Subscriber Identity Modules (SIM) identify users uniquely through an International Mobile Subscriber Identity.

⚠️ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the _Product Information Guide_.**

📝 **NOTE:** Only Cingular and Vodafone need a SIM. Verizon, Sprint, and Telus do not use SIMs.

 1 Follow the procedures in "Before You Begin" on page 125.

 2 In the battery bay, slide the SIM into the compartment with the cut-off corner of the SIM facing away from the compartment.

| 1 | SIM | 2 | battery bay |

Wireless Mini Cards

⚠️ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the _Product Information Guide_.**

🔴 **NOTICE:** To help prevent damage to the system board, you must remove the battery from the battery bay before you begin working inside the computer.

If you ordered a wireless Mini Card with your computer, the card is already installed. Your computer supports three types of wireless Mini Cards:
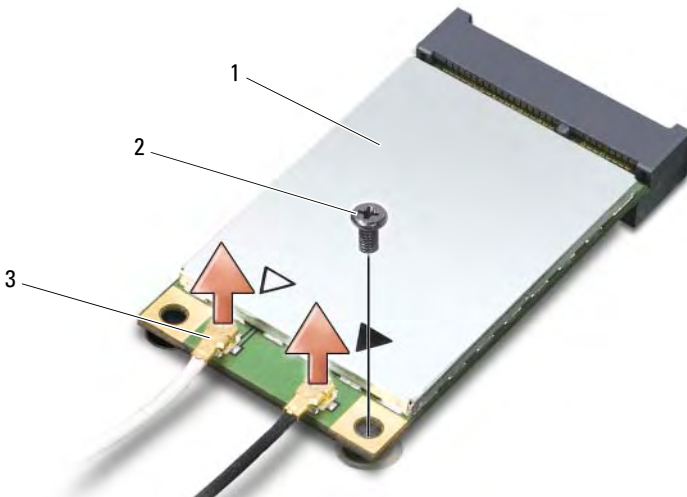
• Wireless Local Area Network (WLAN)

• Ultra Wide Band (UWB)

• Mobile Broadband or Wireless Wide Area Network (WWAN)

Removing a WLAN Card

1 Follow the procedures in "Before You Begin" on page 125.

2 Turn the computer over.

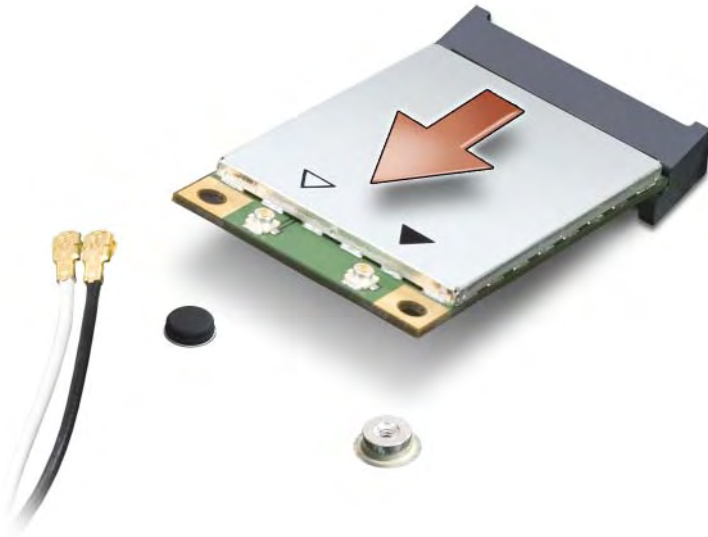**3** Loosen the captive screw on the cover of the Mini Card compartment and remove the cover.
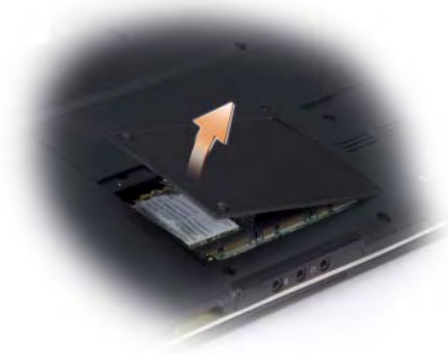
4 Disconnect the antenna cables from the WLAN card.

1 WLAN Card 2 M2 x 3-mm securing screw 3 antenna cable connectors (2)

5 Release the WLAN card by removing the securing screw.

6 Lift the WLAN card out of its system board connector.

Replacing a WLAN Card

⊘ **NOTICE:** The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the card and on the system board, and realign the card.

⊘ **NOTICE:** To avoid damage to the WLAN card, never place cables under the card.

1 Insert the WLAN card connector at a 45-degree angle into the system board connector labeled "WLAN".

2 Press the other end of the WLAN card down into the slot on the system board until the card clicks into place.
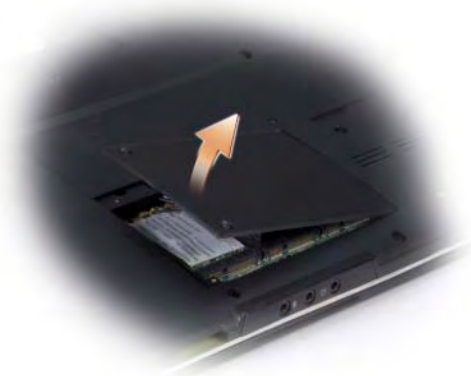
3 Replace the M2 x 3-mm securing screw.

4 Connect the appropriate antenna cables to the WLAN card you are installing:

If the WLAN card has two triangles on the label (white and black), connect the white antenna cable to the connector labeled "main" (white triangle), and connect the black antenna cable to the connector labeled "aux" (black triangle).

If the WLAN card has three triangles on the label (white, black, and gray), connect the white antenna cable to the white triangle, connect the black antenna cable to the black triangle, and connect the gray antenna cable to the gray triangle.

5 Secure unused antenna cables in the protective mylar sleeve.

**6** Replace the cover and tighten the captive screws.

Removing a Mobile Broadband or WWAN Card

NOTE: WWAN is also available on an ExpressCard (see "Using ExpressCards" on page 73).

1 Follow the procedures in "Before You Begin" on page 125.

2 Turn the computer over.

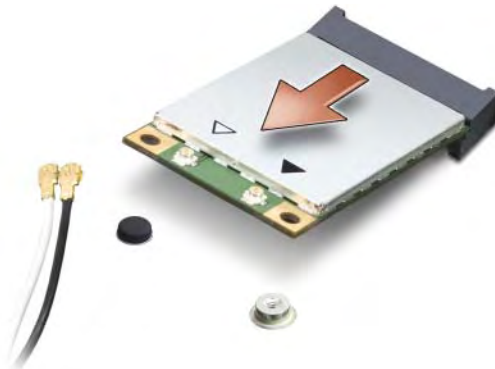**3** Loosen the captive screw on the cover of the Mini Card compartment and remove the cover.

4 Disconnect the two antenna cables from the WWAN card.
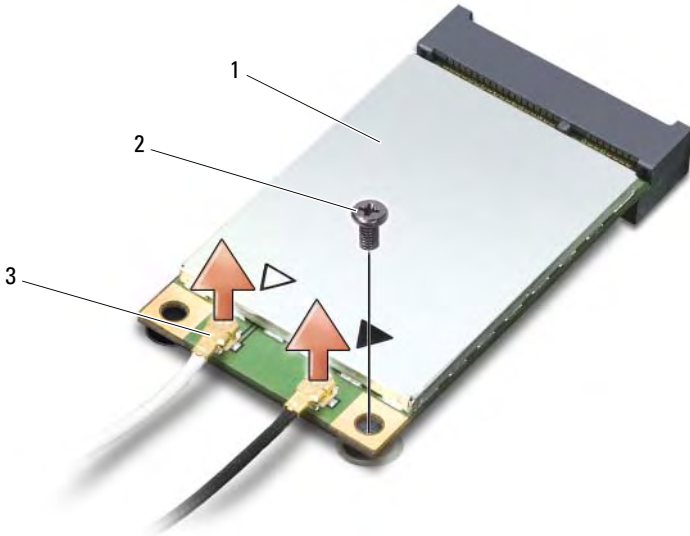
1 WWAN Card 2 M2 x 3-mm securing screw 3 antenna cable connectors (2)

5 Release the WWAN card by removing the securing screw.

6 Lift the WWAN card out of its system board connector.

Replacing a WWAN Card

NOTICE: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the card and on the system board, and realign the card.

NOTICE: To avoid damage to the WWAN card, never place cables under the card.

1   Insert the WWAN card connector at a 45-degree angle into the system board connector labeled "WWAN".

2   Press the other end of the WLAN card down into the slot on the system board until the card clicks into place.

3   Replace the M2 x 3-mm securing screw.

4   Connect the black antenna cable with a gray stripe to the connector labeled "aux" (black triangle) and connect the white antenna cable with a gray stripe to the connector labeled "main" (white triangle).

5   Secure unused antenna cables in the protective mylar sleeve.

6   Replace the cover and tighten the captive screws.

Flash Cache Module

The Flash Cache Module (FCM) is an internal memory card that helps improve the performance of your computer. The FCM card is also known as Intel Turbo Memory and the Intel Flash Cache Logic Chip Mini-card.

NOTE: This card is only compatible with the Microsoft Windows Vista™ operating system.

If you ordered an FCM with your computer, it is already installed.
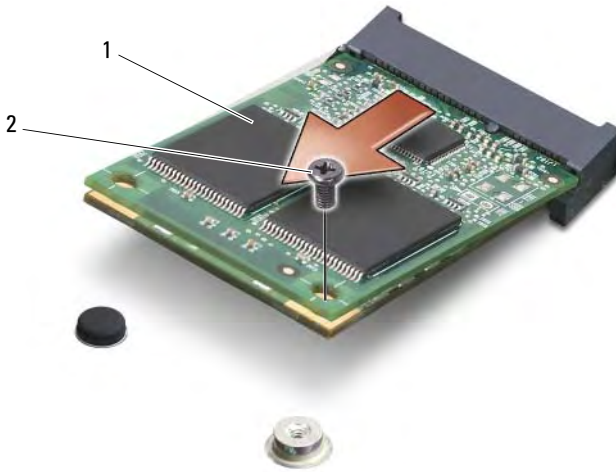
Removing the FCM

1   Follow the procedures in "Before You Begin" on page 125.

2   Turn the computer over and remove the cover on the Mini Card compartment.

3   Ground yourself by touching one of the metal connectors on the back of the computer.

NOTE: If you leave the area, ground yourself again when you return to the computer.

4   Remove the M2 x 3-mm securing screw.

5 Remove the FCM.

1   FCM Card   2   M2 x 3-mm securing screw

Replacing the FCM

NOTICE: Install the FCM in the WWAN or WPAN slot. Do not install an FCM in the WLAN card slot. Doing so may cause damage to your computer.

1 Insert the FCM connector at a 45-degree angle into the system board connector labeled "FCM".

2 Press the other end of the FCM down into the slot on the system board until the card clicks into place.

3 Replace the M2 x 3-mm securing screw.

Internal Card With Bluetooth® Wireless Technology

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the *Product Information Guide*.**

🚫 **NOTICE:** To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on the back of the computer).

🚫 **NOTICE:** To help prevent damage to the system board, you must remove the battery from the battery bay before you begin working inside the computer.

If you ordered a card with Bluetooth wireless technology with your computer, it is already installed.

Removing the Card

1. Follow the procedures in "Before You Begin" on page 125.

2. Remove the hinge covers and displace the center control cover (see "Hinge Covers and Center Control Cover" on page 130).

3. Remove the screw on the top left corner of the card.

4. Disconnect the cable connector from the card to remove the card from the computer.
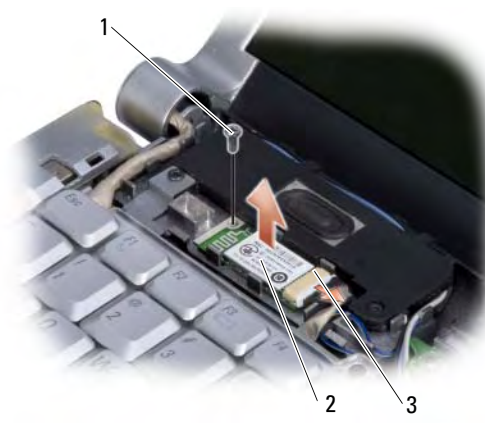
| 1 | screw | 2 | card | 3 | cable connector |

Replacing the Card

1 Replace the card and connect the cable connector to the card.

2 Put back the screw on the top left corner of the card.

3 Replace the Hinge Covers and the Center Control Cover (see "Replacing the Hinge Covers and Center Control Cover" on page 132).

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Traveling With Your Computer

Identifying Your Computer

- Attach a name tag or business card to the computer.
- Write down your Service Tag and store it in a safe place away from the computer or carrying case. Use the Service Tag if you need to report a loss or theft to law enforcement officials and to Dell.
- Create a file on the Microsoft® Windows® desktop called **if_found**. Place information such as your name, address, and phone number in this file.
- Contact your credit card company and ask if it offers coded identification tags.

Packing the Computer

- Remove any external devices attached to the computer and store them in a safe place.
- To make the computer as light as possible, replace any devices installed in the module bay with the Dell TravelLite™ module.
- Fully charge the main battery and any spare batteries that you plan to carry with you.
- Shut down the computer.
- Disconnect the AC adapter.

NOTICE: When the display is closed, extraneous items on the keyboard or palm rest could damage the display.

- Remove any extraneous items, such as paper clips, pens, and paper, from the keyboard and palm rest and close the display.
- Use the optional Dell™ carrying case to pack the computer and its accessories together safely.
- Avoid packing the computer with items such as shaving cream, colognes, perfumes, or food.

NOTICE: If the computer has been exposed to extreme temperatures, allow it to acclimate to room temperature for 1 hour before turning it on.

- Protect the computer, the batteries, and the hard drive from hazards such as extreme temperatures and overexposure to sunlight, dirt, dust, or liquids.

- Pack the computer so that it does not slide around in the trunk of your car or in an overhead storage compartment.

Travel Tips

NOTICE: Do not move the computer while using the optical drive to prevent loss of data.

NOTICE: Do not check the computer as baggage.

- Consider disabling wireless activity on your computer to maximize battery operating time. To disable wireless activity, use the wireless switch (see "Dell Wi-Fi Catcher™ Network Locator" on page 86).

- Consider changing your power management options to maximize battery operating time (see "Configuring Power Management Settings" on page 48).

- If you are traveling internationally, carry proof of ownership—or of your right to use the computer if it is company-owned—to speed your passage through customs. Investigate the customs regulations of the countries you plan to visit, and consider acquiring an international carnet (also known as a *merchandise passport*) from your government.

- Find out what type of electrical outlets are used in the countries you will visit, and have appropriate power adapters.

- Check with your credit card company for information about the kinds of emergency travel assistance it offers to users of portable computers.

Traveling by Air

NOTICE: Do not walk the computer through a metal detector. Send the computer through an X-ray machine or have it hand-inspected.

- Ensure that you have a charged battery available in case you are asked to turn on the computer.

- Prior to entering the airplane, verify that using a computer is permitted. Some airlines forbid the use of electronic devices during flight. All airlines forbid the use of electronic devices during takeoff and landing.