

Dell™ XPS™ 430

Quick Reference Guide

Model DC01L

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 DC01L

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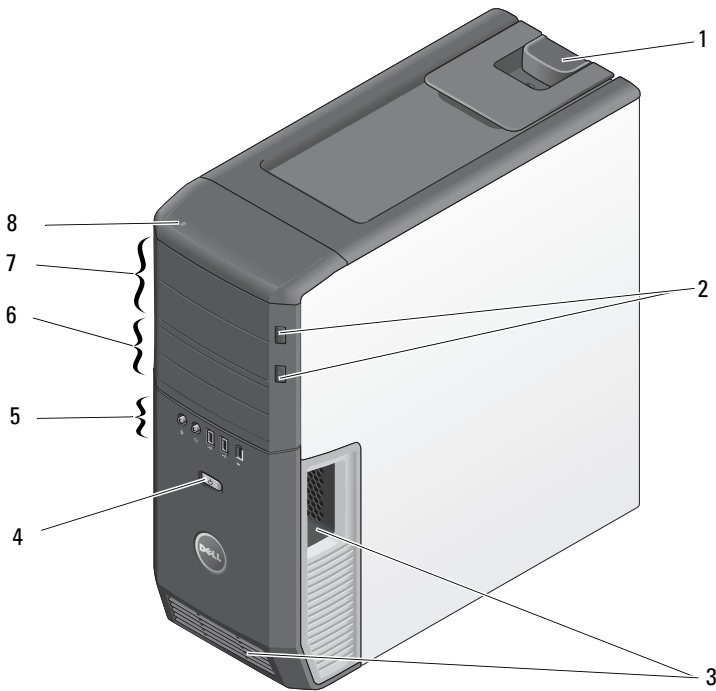
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About Your Computer



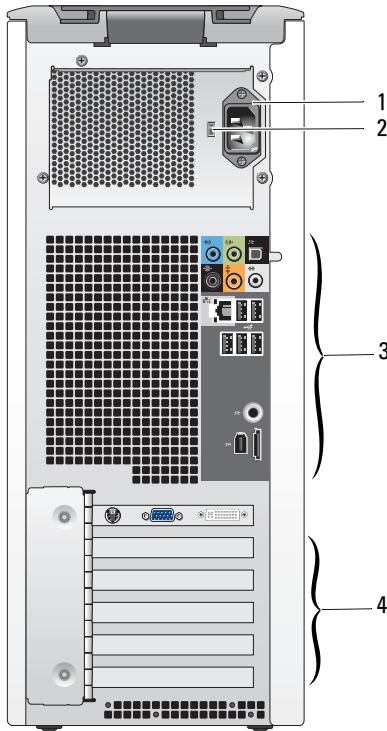
NOTE: For more information about the ports and connectors on your computer, see "Specifications" on page 15.

Front View of the Computer



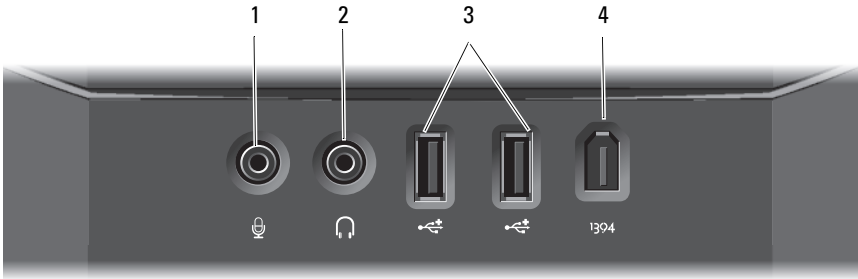
- | | | | |
|---|--------------------------|---|-------------------------------------|
| 1 | cover release latch | 2 | optical drive tray eject button (2) |
| 3 | vents | 4 | power button |
| 5 | front panel connectors | 6 | 3.5-inch flexbays (2) |
| 7 | 5.25-inch drive bays (2) | 8 | hard-drive activity light |

Back View of the Computer



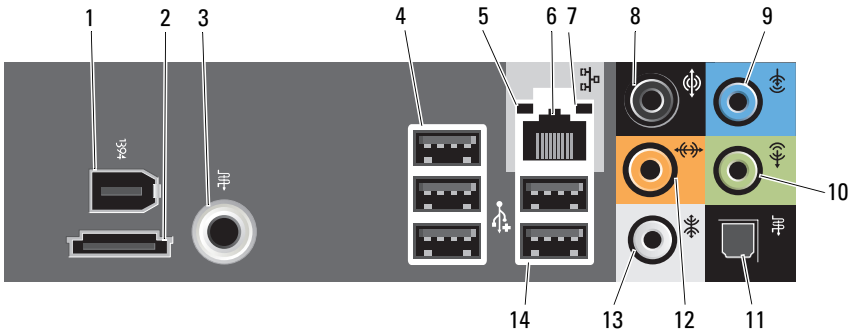
- 1 power connector
- 2 voltage selector switch
- 3 back panel connectors
- 4 card slots

Front Panel Connectors



- | | | | |
|---|------------------------|---|---------------------|
| 1 | microphone connector | 2 | headphone connector |
| 3 | USB 2.0 connectors (2) | 4 | IEEE 1394 connector |

Back Panel Connectors



- | | | | |
|----|-------------------------------|----|--------------------------------|
| 1 | IEEE 1394 connector | 2 | eSATA connector |
| 3 | S/PDIF (RCA) connector | 4 | USB 2.0 connectors (3) |
| 5 | link integrity light | 6 | network adapter connector |
| 7 | network activity light | 8 | surround sound connector |
| 9 | line-in connector | 10 | line-out/headphone connector |
| 11 | S/PDIF (optical) connector | 12 | center/subwoofer LFE connector |
| 13 | side surround sound connector | 14 | USB 2.0 connectors (2) |

Setting Up Your Computer

Safety Instructions

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



CAUTION: Before you begin any of the procedures in this section, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

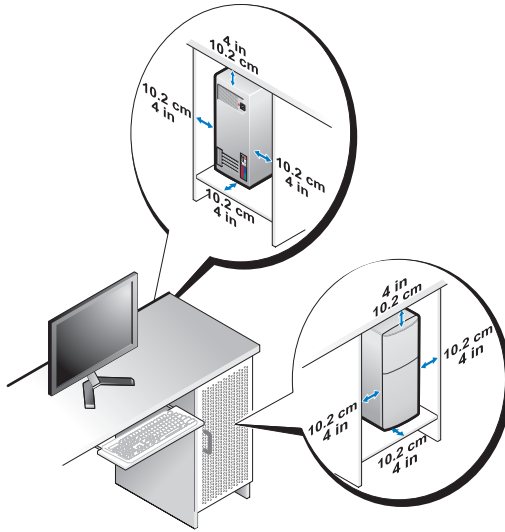
Installing Your Computer in an Enclosure

Installing your computer in an enclosure can restrict the airflow and impact your computer's performance, possibly causing it to overheat. Follow the guidelines below when installing your computer in an enclosure:

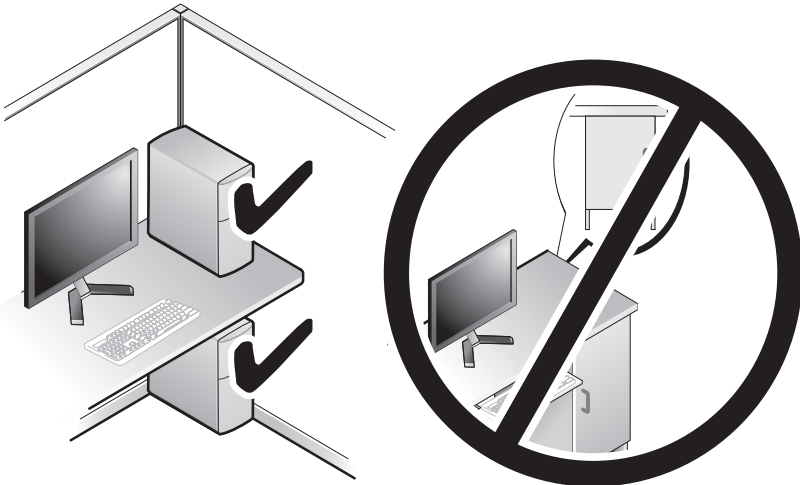


NOTICE: The operating temperature specifications indicated in this manual reflects the maximum ambient operating temperature. The room ambient temperature needs to be a consideration when installing your computer in an enclosure. For example, if the ambient room temperature is at 25°C (77°F), depending on your computer's specifications, you only have 5° to 10°C (9° to 18°F) temperature margin before you reach your computer's maximum operating temperature. For details about your computer's specifications, see "Specifications" on page 15.

- Leave a 10.2 cm (4 in) minimum clearance on all vented sides of the computer to permit the airflow required for proper ventilation.
- If your enclosure has doors, they need to be of a type that allows at least 30 percent airflow through the enclosure (front and back).



- If your computer is installed in a corner on a desk or under a desk, leave at least 5.1 cm (2 in) clearance from the back of the computer to the wall to permit the airflow required for proper ventilation.





NOTICE: Do not install your computer in an enclosure that does not allow airflow. Restricting the airflow impacts your computer's performance, possibly causing it to overheat.

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). Your ISP will offer one or more of the following Internet connection options:

- 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.
- Satellite modem connections that provide high-speed Internet access through a satellite television system.
- Dial-up connections that provide Internet access through a telephone line. Dial-up connections are considerably slower than DSL and cable (or satellite) modem connections.
- Wireless connections that provide Internet access using WiFi, WiMax, or custom wireless technology.


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/satellite modem connection, contact your ISP or cellular telephone service 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, perform the steps in the following section.

 **NOTE:** 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.

 **NOTE:** Have your ISP information ready. If you do not have an ISP, the **Connect to the Internet** wizard can help you get one.


- 1 Save and close any open files, and exit any open programs.
- 2 Click the Windows Vista start button , and click **Control Panel**
- 3 Under **Network and Internet**, click **Connect to the Internet**.
The **Connect to the Internet** window appears.
- 4 Click either **Broadband (PPPoE)** or **Dial-up**, depending on how you want to connect:
 - Choose **Broadband** if you will use a DSL, satellite modem, cable TV modem, or Bluetooth wireless technology connection.
 - Chose **Dial-up** if you will use a dial-up modem or ISDN.

 **NOTE:** If you do not know which type of connection to select, click **Help me choose** or contact your ISP.

- 5 Follow the instructions on the screen and use the setup information provided by your ISP to complete the setup.

Transferring Information to a New Computer

You can use your operating system "wizards" to help you transfer files and other data from one computer to another—for example, from an *old* computer to a *new* computer.

- 1 Click the Windows Vista start button , and then click **Transfer files and settings**→ **Start Windows Easy Transfer**.
- 2 In the **User Account Control** dialog box, click **Continue**.
- 3 Click **Start a new transfer** or **Continue a transfer in progress**.

Follow the instructions provided on the screen by the **Windows Easy Transfer** wizard.

Specifications



NOTE: Offerings may vary by region. For more information regarding the configuration of your computer, click **Start**→ **Help and Support** and select the option to view information about your computer.

Processor

Processor type	Intel® Core™2 Duo Intel Core2 Extreme (dual-core and quad-core processor) Intel Core2 Quad (quad-core processor)
Level 2 (L2) cache	Intel Core2 Duo - 2 MB, 4 MB, or 6 MB Intel Core2 Extreme - 4 MB or 8 MB Intel Core2 Quad - 6 MB, 8 MB, or 12 MB

Memory

Type	dual-channel 1066 and 1333 -MHz DDR3 (non-ECC memory only)
Memory connectors	four
Memory capacities	1 GB or 2 GB
Minimum memory	2 GB
Maximum memory	8 GB (for a 64-bit operating system) 4 GB (for a 32-bit operating system)

Computer Information

Chipset	Intel X48 Express Chipset/ ICH9R
DMA channels	five
Interrupt levels	24
BIOS chip (EEPROM)	8 Mb
System clock	1066/1333 MHz (depending on the processor)

Expansion Bus

Bus type	PCI Express x1, x8, and x16 PCI 32-bit (PCI specification 2.3)
PCI	
connectors	two
connector size	124 pins
connector data width (maximum)	32-bit, version 2.3
Bus speed	33 MHz
PCI Express	
connector	two x1
connector size	36 pins
connector data width (maximum)	1 PCI Express lane
Bus throughput	1 GB/s
PCI Express	
connector	one x16
connector size	164 pins
connector data width (maximum)	16 PCI Express lanes
Bus throughput	32 GB/s
PCI Express	
Connector	one x8 (electrically configured for an x4 card)
Connector size	98 pins
Connector data width (maximum)	8 PCI Express lanes
Bus throughput	4 GB/s

Drives

Externally accessible:	two 3.5-inch flexbays two 5.25-inch drive bays
Internally accessible	two 3.5 HDD bays
Available devices	Serial ATA (SATA) hard drive, memory devices, SATA Blu-ray Disc™ (BD) writer, SATA BD/DVD combo drive, SATA DVD+/-RW drive, SATA DVD drive (2nd drive only), Media Card Reader, and Media Xcelerator™ (optional)

Connectors

External connectors:

Network adapter

Integrated network interface capable of 10/100/1000 Mbps communication.

RJ-45 connector — To attach your computer to a network or broadband device, connect one end of a network cable to either a network port or your network or broadband device. Connect the other end of the network cable to the network adapter connector on the back panel of your computer. A click indicates that the network cable has been securely attached.

NOTE: Do not plug a telephone cable into the network connector.

On computers with a network connector card, use the connector on the card.

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.

Connectors *(continued)*

Audio

HDA 7.1 channel

six connectors for 7.1 support

rear L/R surround connector — Use the black surround connector to attach multichannel-capable speakers. On computers with a sound card, use the connector on the card.

line-in connector — Use the blue line-in connector to attach a record/playback device such as a cassette player, CD player, or VCR. On computers with a sound card, use the connector on the card.

line-out/headphone connector — Use the green line-out connector to attach headphones and most speakers with integrated amplifiers. On computers with a sound card, use the connector on the card.

S/PDIF (optical) connector — Use the S/PDIF optical connector to transmit digital audio without going through an analog audio conversion process. On computers with a sound card, use the connector on the card.

center/subwoofer LFE connector — Use the orange center/subwoofer connector to attach a center speaker or a single subwoofer. On computers with a sound card, use the connector on the card.

The LFE (Low Frequency Effects) Audio channel, found in digital surround sound audio schemes, carries only low frequency information of 80 Hz and below. The LFE channel drives a subwoofer to provide extremely low bass extension. Systems not using subwoofers can shunt the LFE information to the main speakers in the surround sound setup.

Connectors *(continued)*

Audio <i>(continued)</i>	side surround sound connector — Use the gray side surround sound connector to attach multichannel-capable speakers. The side-surround output provides enhanced surround audio for computers with 7.1 speakers. On computers with a sound card, use the connector on the card. S/PDIF (RCA) connector — Connects to external digital stereo speakers.
USB	two front-panel and five back-panel USB 2.0-compliant connectors Use the front USB connectors for devices that you connect occasionally, such as flash memory keys, cameras, or bootable USB devices. It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.
IEEE 1394 (Firewire)	one front-panel and one back-panel 6-pin connector. Use the IEEE 1394 connector for high-speed data devices such as digital video cameras and external storage devices.
eSATA	Use this connector to connect to external SATA storage devices.
System board connectors:	
Serial ATA	five 7-pin connectors
FlexBay	two 2-port USB headers
USB1	1 port USB header
USB2	1 port USB header
Internal S/PDIF	5-pin header
Fan	two 5-pin connectors
PCI	two 124-pin connectors
PCI Express x1	two 36-pin connectors
PCI Express x16	164-pin connector
PCI Express x4/x8	98-pin connector

Controls and Lights

Front of computer:

Power button	push button
Power light	blue light — Blinking blue in sleep state; solid blue for power-on state amber light — The blinking amber indicates a problem with the system board. A solid amber light when the system does not boot indicates that the system board cannot start initialization. This could be a system board or a power supply problem (see "Power Problems" on page 35).
Hard-drive activity light	blue light — A blinking blue light indicates hard-drive activity.

Rear of computer:

Link integrity light (on the integrated network adapter)	green light — A good connection exists between a 10-Mbps network and the computer. orange light — A good connection exists between a 100-Mbps network and the computer. yellow light — A good connection exists between a 1-GB (1000-Mbps) network and the computer. off (no light) — The computer is not detecting a physical connection to the network.
Network activity light (on the integrated network adapter)	yellow blinking light when there is activity on the network; if there is no network activity, the light will be off
Standby power light	AUX_PWR_LED on the system board

Power

DC power supply:

CAUTION: To reduce the risk of fire, electric shock, or injury, do not overload an electrical outlet, power strip, or convenience receptacle. The total ampere rating of all products plugged into an electrical outlet, power strip, or other receptacle should not exceed 80 percent of the branch circuit rating.

Wattage	375/425 W
Voltage (see the safety instructions that shipped with your computer)	115 V to 230 V
Coin cell battery	3-V CR2032 lithium coin cell

Physical

Height	45.03 cm (17.08 in)
Width	187 cm (7.04 in)
Depth	450 cm (17.7 in)
Weight	12.7 kg (28.0 lb)

Environmental

Temperature range:

Operating	0° to 35°C (32° to 95°F)
Storage	-40° to 65°C (-40° to 149°F)
Relative humidity (maximum):	
Operating	10% to 90% (noncondensing)
Storage	5% to 95% (noncondensing)

Environmental (continued)

Maximum vibration (using a random-vibration spectrum that simulates user environment):

Operating 0.9 GRMS

Storage 1.3 GRMS

Maximum shock (measured with hard drive in head-parked position and a 2-ms half-sine pulse):

Operating 122 G

Storage 163 G

Altitude (maximum):

Operating -15.2 to 3048 m (-50 to 10,000 ft)

Storage -15.2 to 10,668 m (-50 to 35,000 ft)

Airborne contaminant level G2 or lower as defined by ISA-S71.04-1985

Optimizing for Greater Performance

Understanding Intel® SpeedStep® Technology

SpeedStep technology controls your computer's processor performance automatically, dynamically adjusting the operating frequency and voltage, according to the task at hand. When an application does not require full performance, significant amounts of power can be saved. Performance is designed to still be responsive, with maximum processor performance being delivered when required, and automatic power savings when possible.

Windows Vista® automatically sets Intel Speedstep technologies in the **Dell Recommended**, **Balanced**, and **Power Saver** power plans. It is disabled in the **High Performance** power plan.

Troubleshooting

Safety Instructions

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



CAUTION: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Troubleshooting Tools

Follow these tips when troubleshooting 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(s).
- If an error message occurs in a program, see the program's documentation.



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.

Beep Codes

Your computer might emit a series of beeps during start-up if the monitor cannot display errors or problems. This series of beeps, called a beep code, identifies a problem. One possible beep code consists of repetitive three short beeps. This beep code tells you that the computer encountered a possible system board failure.

If your computer beeps during start-up:

- 1 Write down the beep code.
- 2 Run the Dell Diagnostics to identify a more serious cause (see "Dell Diagnostics" on page 31).

Code (repetitive short beeps)	Description	Suggested Remedy
1	BIOS checksum failure. Possible system board failure.	Contact Dell. For more information, see "Contacting Dell" on page 54.
2	No memory modules are detected	<ol style="list-style-type: none">1 If you have two or more memory modules installed, remove the modules, reinstall one module (see the <i>Service Manual</i> on the Dell Support website at support.dell.com), and then restart the computer. If the computer starts normally, reinstall an additional module. Continue until you have identified a faulty module or reinstalled all modules without error.2 If available, install good memory of the same type into your computer (see the <i>Service Manual</i> on the Dell Support website at support.dell.com).3 If the problem persists, contact Dell. For more information, see "Contacting Dell" on page 54.
3	Possible system board failure	Contact Dell. For more information, see "Contacting Dell" on page 54.

Code (repetitive short beeps)	Description	Suggested Remedy
4	RAM Read/Write failure	<p>1 Ensure that no special memory module/memory connector placement requirements exist (see the <i>Service Manual</i> on the Dell Support website at support.dell.com).</p> <p>2 Verify that the memory modules that you are installing are compatible with your computer (see the <i>Service Manual</i> on the Dell Support website at support.dell.com).</p> <p>3 If the problem persists, contact Dell (see "Contacting Dell" on page 54).</p>
5	Real time clock failure. Possible battery failure or system board failure.	<p>1 Replace the battery (see the <i>Service Manual</i> on the Dell Support website at support.dell.com).</p> <p>2 If the problem persists, contact Dell (see "Contacting Dell" on page 54).</p>
6	Video BIOS Test Failure	Contact Dell. For more information, see "Contacting Dell" on page 54.
7	CPU cache test failure	Contact Dell. For more information, see "Contacting Dell" on page 54.

System Messages



NOTE: If the message you received is not listed in the table, see the documentation for either the operating system or the program that was running when the message appeared.

Message	Possible Cause	Corrective Action
8042 Gate-A20 error	The keyboard controller failed its test.	If you receive this message after you make changes in the system setup program, enter the system setup program and restore the original value(s).
Address Line Short!	An error in the address decoding circuitry in the memory has occurred.	Reseat the memory modules (see the <i>Service Manual</i> on the Dell Support website at support.dell.com).
C: Drive Error C: Drive Failure	The hard drive is not working or is not configured correctly.	Ensure that the hard drive is installed correctly in the computer and defined correctly in the system setup program (see the <i>Service Manual</i> on the Dell Support website at support.dell.com).
Cache Memory Bad, Do Not Enable Cache	The cache memory is not operating.	See "Contacting Dell" on page 54 for instructions on obtaining technical assistance.
CH-2 Timer Error	An error is occurring on the timer on the system board.	See "Contacting Dell" on page 54 for instructions on obtaining technical assistance.

Message	Possible Cause	Corrective Action
CMOS Battery State Low CMOS Checksum Failure CMOS System Options Not Set CMOS Display Type Mismatch CMOS Memory Size Mismatch CMOS Time and Date Not Set	The system configuration information in the system setup program is incorrect or the battery charge may be low.	Enter the system setup program (see the <i>Service Manual</i> on the Dell Support website at support.dell.com), verify the system configuration, and then restart the computer.
Diskette Boot Failure	Drive A or B is present but has failed the BIOS POST.	Ensure that the drive is installed correctly in the computer and defined correctly in the system setup program (see the <i>Service Manual</i> on the Dell Support website at support.dell.com). Check the interface cable at both ends.
DMA Error DMA 1 Error DMA 2 Error	Error in the DMA controller on the system board.	The keyboard or system board may need to be replaced.
HDD Controller Failure	The BIOS cannot communicate with the hard drive controller.	Ensure that the hard drive is installed correctly in the computer and defined correctly in the system setup program (see the <i>Service Manual</i> on the Dell Support website at support.dell.com). Check the interface cable at both ends.

Message	Possible Cause	Corrective Action
INTR1 Error INTR2 Error	An interrupt channel on the system board failed to POST.	The keyboard or system board may need to be replaced.
Invalid Boot Diskette	The operating system cannot be located on drive A or drive C.	Enter the system setup program (see the <i>Service Manual</i> on the Dell Support website at support.dell.com) and confirm that drive A or drive C is properly identified.
Keyboard Error	The BIOS has detected a stuck key.	Ensure that nothing is resting on the keyboard; if a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
KB/Interface Error	An error occurred with the keyboard connector.	Ensure that nothing is resting on the keyboard; if a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
No ROM Basic	The operating system cannot be located on drive A or drive C.	Enter the system setup program (see the <i>Service Manual</i> on the Dell Support website at support.dell.com) and confirm that drive A or drive C is properly identified.

Dell Diagnostics



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

When to Use Dell Diagnostics

If you experience a problem with your computer, perform the checks in "Solving Problems" on page 35 and run Dell Diagnostics before you contact Dell for technical assistance.



NOTE: Dell Diagnostics work only on Dell computers.

It is recommended that you print these procedures before you begin.

Start Dell Diagnostics from your hard drive or from the *Drivers and Utilities* media.

Starting Dell Diagnostics From Your Hard Drive

- 1 Ensure that the computer is connected to an electrical outlet that is known to be working properly.
- 2 Turn on (or restart) your computer.
- 3 When the DELL™ logo appears, press <F12> immediately. Select **Diagnostics** from the boot menu and press <Enter>.



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: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from the *Drivers and Utilities* media (see "Starting Dell Diagnostics From the Drivers and Utilities Media" on page 32).

- 4 Press any key to start the Dell Diagnostics from the diagnostics utility partition on your hard drive.



NOTE: The Quickboot feature changes the boot sequence for the current boot only. Upon restart, the computer boots according to the boot sequence specified in system setup.

- 5 At the Dell Diagnostics **Main Menu**, left-click with the mouse, or press <Tab> and then <Enter>, to select the test you want to run (see "Dell Diagnostics Main Menu" on page 33).



NOTE: Write down any error codes and problem descriptions exactly as they appear and follow the instructions on the screen.

- 6 After all tests have completed, close the test window to return to the Dell Diagnostics **Main Menu**.
- 7 Close the **Main Menu** window to exit Dell Diagnostics and restart the computer.

Starting Dell Diagnostics From the *Drivers and Utilities Media*

- 1 Insert the *Drivers and Utilities* media.
- 2 Shut down and 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.

- 3 When the boot device list appears, highlight CD/DVD/CD-RW and press <Enter>.
- 4 Select the **Boot from CD-ROM** option from the menu that appears and press <Enter>.
- 5 Type 1 to start the CD menu and press <Enter> to proceed.
- 6 Select **Run the 32 Bit Dell Diagnostics** from the numbered list. If multiple versions are listed, select the version appropriate for your computer.
- 7 When the Dell Diagnostics **Main Menu** appears, select the test you want to run.



NOTE: Write down any error codes and problem descriptions exactly as they appear and follow the instructions on the screen.

Dell Diagnostics Main Menu

- 1 After the Dell Diagnostics loads and the **Main Menu** screen appears, click the button for the option you want.



NOTE: It is recommended that you select **Test System** to run a complete test on your computer.

Option	Function
Test Memory	Run the stand-alone memory test
Test System	Run System Diagnostics
Exit	Exit the Diagnostics

- 2 After you have selected the **Test System** option from the main menu, the following menu appears:



NOTE: It is recommended that you select **Extended Test** from the menu below to run a more thorough check of devices in the computer.

Option	Function
Express Test	Performs a quick test of system devices. The test typically takes 10 to 20 minutes and requires no interaction on your part. Run Express Test first to increase the possibility of tracing the problem quickly.
Extended Test	Performs a thorough check of system devices. The test typically takes an hour or more.
Custom Test	Use to test a specific device or customize the tests to be run.
Symptom Tree	This option allows you to select tests based on a symptom of the problem you are having. This option lists the most common symptoms.
Built in Self Test	Performs a thorough check on all LCD display related functions. Based on the test results a green Passed or red Failed message appears on screen. For items listed in red, note down the error code and problem description and contact Dell.

- 3 If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and see "Contacting Dell" on page 54



NOTE: The Service Tag for your computer is located at the top of each test screen. If you contact Dell, technical support will ask for your Service Tag.

- 4 If you run a test from the **Custom Test or Symptom Tree** option, click the applicable tab described in the following table for more information.


Tab	Function
Results	Displays the results of the test and any error conditions encountered.
Errors	Displays error conditions encountered, error codes, and the problem description.
Help	Describes the test and any requirements for running the test.
Configuration	Displays your hardware configuration for the selected device. NOTE: The Dell Diagnostics obtains configuration information for all devices from system setup, memory, and various internal tests, and it displays the information in the device list in the left pane of the screen. The device list may not display the names of all the components installed on your computer or all devices attached to your computer.
Parameters	Allows you to customize the test, if applicable, by changing the test settings.

- 5 When the tests are complete, close the test screen to return to the **Main Menu** screen. To exit the Dell Diagnostics and restart the computer, close the **Main Menu** screen.
- 6 Remove the Dell *Drivers and Utilities* media.

Troubleshooting Software and Hardware Problems in the Microsoft Windows Vista® Operating System

If a device is either not detected during the operating system setup or is detected but incorrectly configured, you can use the Hardware Troubleshooter to resolve the incompatibility.

To start the Hardware Troubleshooter:

- 1 Click the Windows Vista start button ™, and click **Help and Support**.
- 2 Type `hardware troubleshooter` in the search field and press <Enter> to start the search.
- 3 In the search results, select the option that best describes the problem and follow the remaining troubleshooting steps.

Solving Problems

Power Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

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 the *Service Manual* on the Dell Support website at support.dell.com).

IF THE POWER LIGHT IS STEADY BLUE AND THE COMPUTER IS NOT RESPONDING —

- Ensure that the display is connected and powered on.
- If the display is connected and powered on, see "Beep Codes" on page 25.

IF THE POWER LIGHT IS BLINKING BLUE — 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 STEADY AMBER — a device may be malfunctioning or incorrectly installed.

- Remove and then reinstall the memory modules (see the *Service Manual* on the Dell Support website at support.dell.com).
- Remove and then reinstall any cards (see the *Service Manual* on the Dell Support website at support.dell.com).

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 the *Service Manual* on the Dell Support website at support.dell.com).

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.

Memory Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

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 the *Service Manual* on the Dell Support website at support.dell.com).
- Reseat the memory modules (see the *Service Manual* on the Dell Support website at support.dell.com) to ensure that your computer is successfully communicating with the memory.
- Run the Dell Diagnostics (see "Dell Diagnostics" on page 31).

IF YOU EXPERIENCE OTHER MEMORY PROBLEMS —

- Reseat the memory modules (see the *Service Manual* on the Dell Support website at support.dell.com) to ensure that your computer is successfully communicating with the memory.
- Ensure that you are following the memory installation guidelines (see the *Service Manual* on the Dell Support website at support.dell.com).
- Your computer supports DDR3 memory. For more information about the type of memory supported by your computer, see "Specifications" on page 15.
- Run the Dell Diagnostics (see "Dell Diagnostics" on page 31).

Lockups and Software Problems



CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

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 crashes repeatedly




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

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

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

RUN THE PROGRAM COMPATIBILITY WIZARD —

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

- 1 Click **Start**  → **Control Panel** → **Programs** → Use an older program with this version of Windows.
- 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, FLOPPY DISKS, OR CDS

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

6

Reinstalling Your Operating System

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: The *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 the Windows Vista start button , and right-click **Computer**.
- 2 Click **Properties**→ **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 to see if any device has an exclamation point (a yellow circle with a [!]) on the device icon.

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 40).

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 the Windows Vista start button , and right-click **Computer**.
- 2 Click **Properties**→ **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→ **Roll Back Driver**.

Using the *Drivers and Utilities* media

If using Device Driver Rollback or System Restore ("Restoring Your Operating System" on page 42) does not resolve the problem, then reinstall the driver from the *Drivers and Utilities* media.

- 1 With the Windows desktop displayed, insert the *Drivers and Utilities* media. If this is the first time you are using the *Drivers and Utilities* media, go to step 2. If not, go to step 5.
- 2 When the *Drivers and Utilities* media installation program starts, follow the prompts on the screen.
- 3 When the **InstallShield Wizard Complete** window appears, remove the *Drivers and Utilities* media and click **Finish** to restart the computer.
- 4 When you see the Windows desktop, reinsert the *Drivers and Utilities* media.
- 5 At the **Welcome Dell System Owner** screen, click **Next**.



NOTE: The *Drivers and Utilities* media 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 by the *Drivers and Utilities* media. If those drivers are not displayed, exit the *Drivers and Utilities* media program. For drivers information, see the documentation that came with the device.

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



The drivers that are used by your computer are automatically displayed in the **My Drivers—The Drivers and Utilities media 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, that driver is not required by your operating system.

Manually Reinstalling Drivers

After extracting the driver files to your hard drive as described in the previous section:

- 1 Click the Windows Vista start button , and right-click **Computer**.
- 2 Click **Properties**→ **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 Double-click the type of device for which you are installing the driver (for example, **Audio** or **Video**).
- 4 Double-click the name of the device for which you are installing the driver.
- 5 Click the **Driver** tab→ **Update Driver**→ **Browse my computer for driver software**.
- 6 Click **Browse** and browse to the location to which you previously copied the driver files.
- 7 When the name of the appropriate driver appears, click the name of the driver→ **OK**→ **Next**.
- 8 Click **Finish** and restart your computer.


Restoring Your Operating System


You can restore your operating system in the following ways:

- 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.
- Dell Factory Image Restore returns your hard drive to the operating state it was in when you purchased the computer. This permanently deletes all data on the hard drive and removes any programs installed after you received the computer. Use Dell Factory Image Restore only if System Restore did not resolve your operating system problem.
- If you received an *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.



Using Microsoft Windows System Restore

The Windows operating systems provide a System Restore option which allows 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.

Starting System Restore


- 1 Click Start .
- 2 In the Start Search box, type System Restore and 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:** 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 .
 - 2 In the Start Search box, type System Restore and press <Enter>.
 - 3 Click Undo my last restoration and click Next.

Using Dell Factory Image Restore


 **NOTICE:** Using Dell Factory Image Restore permanently deletes all data on the hard drive and removes any programs or drivers installed after you received your computer. If possible, back up the data before using these options. Use Dell Factory Image Restore only if System Restore did not resolve your operating system problem.

 **NOTE:** Dell Factory Image Restore may not be available in certain countries or on certain computers.

Use Dell Factory Image Restore only as the last method to restore your operating system. This option restores your hard drive to the operating state it was in when you purchased the computer. Any programs or files added since you received your computer—including data files—are permanently deleted from the hard drive. Data files include documents, spreadsheets, e-mail messages, digital photos, music files, and so on. If possible, back up all data before using Factory Image Restore.


Dell Factory Image Restore

- 1 Turn on the computer. When the Dell logo appears, press <F8> several times to access the **Vista Advanced Boot Options** window.
- 2 Select **Repair Your Computer**.
The **System Recovery Options** window appears.
- 3 Select a keyboard layout and click **Next**.
- 4 To access the recovery options, log on as a local user. To access the command prompt, type `administrator` in the User name field, then click **OK**.
- 5 Click **Dell Factory Image Restore**.

 **NOTE:** Depending upon your configuration, you may need to select **Dell Factory Tools**, then **Dell Factory Image Restore**.

The **Dell Factory Image Restore** welcome screen appears.

- 6 Click **Next**.
The **Confirm Data Deletion** screen appears.

 **NOTICE:** If you do not want to proceed with Factory Image Restore, click **Cancel**.

- 7 Click the checkbox to confirm that you want to continue reformatting the hard drive and restoring the system software to the factory condition, then click **Next**.

The restore process begins and may take five or more minutes to complete. A message appears when the operating system and factory-installed applications have been restored to factory condition.

- 8 Click **Finish** to reboot the system.

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 40. 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 43.



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: The Dell *Drivers and Utilities* media contains drivers that were installed during the assembly of the computer. Use the Dell *Drivers and Utilities* media to load any required drivers. Depending on the region from which you ordered your computer, or whether you requested the media, the Dell *Drivers and Utilities* media and *Operating System* media may not ship with your computer.

Reinstalling Windows Vista

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.

- 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 press <Enter>.
- 6 Press any key to **Boot from CD-ROM**.
- 7 Follow the instructions on the screen to complete the installation.

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.

Document/Media/Label	Contents
<p>Service Tag/Express Service Code</p> <p>The Service Tag/Express Service Code is located on your computer.</p>	<ul style="list-style-type: none"> • 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.
<p>Drivers and Utilities Media</p> <p>The <i>Drivers and Utilities</i> media is a CD or DVD that may have shipped with your computer.</p>	<ul style="list-style-type: none"> • A diagnostic program for your computer • Drivers for your computer <p>NOTE: Drivers and documentation updates can be found at support.dell.com.</p> <ul style="list-style-type: none"> • Desktop System Software (DSS) • Readme files <p>NOTE: Readme files may be included on your media to provide last-minute updates about technical changes to your computer or advanced technical-reference material for technicians or experienced users.</p>
<p>Operating System Media</p> <p>The <i>Operating System</i> media is a CD or DVD that may have shipped with your computer.</p>	<p>Reinstall your operating system</p>

Document/Media/Label	Contents
<p>Dell™ Product Information Guide</p> <p>The <i>Dell Product Information Guide</i> is a hardcopy document that may have shipped with your computer. For additional regulatory information, see the Regulatory Compliance Homepage on www.dell.com at the following location: www.dell.com/regulatory_compliance.</p>	<ul style="list-style-type: none"> • Warranty information • Terms and Conditions (U.S. only) • Safety instructions • Regulatory information • Ergonomics information • End User License Agreement
<p>Service Manual</p> <p>The <i>Service Manual</i> for your computer can be found at support.dell.com.</p>	<ul style="list-style-type: none"> • How to remove and replace parts • How to configure system settings • How to troubleshoot and solve problems
<p>Dell Technology Guide</p> <p>The <i>Dell Technology Guide</i> is available at support.dell.com.</p>	<ul style="list-style-type: none"> • About your operating system • Using and maintaining devices • Understanding technologies such as RAID, Internet, Bluetooth® wireless technology, e-mail, networking, and more.
<p>Microsoft® Windows® License Label</p> <p>Your Microsoft Windows License is located on your computer.</p>	<ul style="list-style-type: none"> • Provides your operating system product key.

Getting Help


Obtaining Assistance

 **CAUTION:** If you need to remove the computer cover, first disconnect the computer power and modem cables from all electrical outlets.

If you experience a problem with your computer, you can complete the following steps to diagnose and troubleshoot the problem:

- 1 See "Troubleshooting" on page 25 for information and procedures that pertain to the problem your computer is experiencing.
- 2 See "Dell Diagnostics" on page 31 for procedures on how to run Dell™ Diagnostics.
- 3 Fill out the "Diagnostics Checklist" on page 53.
- 4 Use Dell's extensive suite of online services available at Dell Support (support.dell.com) for help with installation and troubleshooting procedures. See "Online Services" on page 50 for a more extensive list of Dell Support online.
- 5 If the preceding steps have not resolved the problem, see "Contacting Dell" on page 54

 **NOTE:** Call Dell Support from a telephone near or at the computer so that the support staff can assist you with any necessary procedures.

 **NOTE:** Dell's Express Service Code system may not be available in all countries.

When prompted by Dell's automated telephone system, enter your Express Service Code to route the call directly to the proper support personnel. If you do not have an Express Service Code, open the **Dell Accessories** folder, double-click the **Express Service Code** icon, and follow the directions.

For instructions on using the Dell Support, see "Technical Support and Customer Service" on page 50.



NOTE: Some of the following services are not always available in all locations outside the continental U.S. Call your local Dell representative for information on availability.

Technical Support and Customer Service

Dell's support service is available to answer your questions about Dell™ hardware. Our support staff uses computer-based diagnostics to provide fast, accurate answers.

To contact Dell's support service, see "Before You Call" on page 52, and then see the contact information for your region or go to support.dell.com.

Online Services

You can learn about Dell products and services on the following websites:

www.dell.com

www.dell.com/ap (Asian/Pacific countries only)

www.dell.com/jp (Japan only)

www.euro.dell.com (Europe only)

www.dell.com/la (Latin American and Caribbean countries only)

www.dell.ca (Canada only)

You can access Dell Support through the following websites and e-mail addresses:

- Dell Support websites
support.dell.com
support.jp.dell.com (Japan only)
support.euro.dell.com (Europe only)
- Dell Support e-mail addresses
mobile_support@us.dell.com
support@us.dell.com
la-techsupport@dell.com (Latin America and Caribbean countries only)
apsupport@dell.com (Asian/Pacific countries only)

- Dell Marketing and Sales e-mail addresses
apmarketing@dell.com (Asian/Pacific countries only)
sales_canada@dell.com (Canada only)
- Anonymous file transfer protocol (FTP)
ftp.dell.com
Log in as user: `anonymous`, and use your e-mail address as your password.

AutoTech Service

Dell's automated support service—AutoTech—provides recorded answers to the questions most frequently asked by Dell customers about their portable and desktop computers.

When you call AutoTech, use your touch-tone telephone to select the subjects that correspond to your questions. For the telephone number to call for your region, see "Contacting Dell" on page 54

Automated Order-Status Service

To check on the status of any Dell products that you have ordered, you can go to support.dell.com, or you can call the automated order-status service. A recording prompts you for the information needed to locate and report on your order. For the telephone number to call for your region, see "Contacting Dell" on page 54

Problems With Your Order

If you have a problem with your order, such as missing parts, wrong parts, or incorrect billing, contact Dell for customer assistance. Have your invoice or packing slip handy when you call. For the telephone number to call for your region, see "Contacting Dell" on page 54

Product Information

If you need information about additional products available from Dell, or if you would like to place an order, visit the Dell website at www.dell.com. For the telephone number to call for your region or to speak to a sales specialist, see "Contacting Dell" on page 54

Returning Items for Warranty Repair or Credit

Prepare all items being returned, whether for repair or credit, as follows:

- 1 Call Dell to obtain a Return Material Authorization Number, and write it clearly and prominently on the outside of the box.
For the telephone number to call for your region, see "Contacting Dell" on page 54
- 2 Include a copy of the invoice and a letter describing the reason for the return.
- 3 Include a copy of the Diagnostics Checklist (see "Diagnostics Checklist" on page 53), indicating the tests that you have run and any error messages reported by the Dell Diagnostics (see "Dell Diagnostics" on page 31).
- 4 Include any accessories that belong with the item(s) being returned (power cables, software floppy disks, guides, and so on) if the return is for credit.
- 5 Pack the equipment to be returned in the original (or equivalent) packing materials.

You are responsible for paying shipping expenses. You are also responsible for insuring any product returned, and you assume the risk of loss during shipment to Dell. Collect On Delivery (C.O.D.) packages are not accepted.

Returns that are missing any of the preceding requirements will be refused at Dell's receiving dock and returned to you.

Before You Call



NOTE: Have your Express Service Code ready when you call. The code helps Dell's automated-support telephone system direct your call more efficiently. You may also be asked for your Service Tag (located on the back or bottom of your computer).

Remember to fill out the Diagnostics Checklist (see "Diagnostics Checklist" on page 53). If possible, turn on your computer before you call Dell for assistance and call from a telephone at or near the computer. You may be asked to type some commands at the keyboard, relay detailed information during operations, or try other troubleshooting steps possible only at the computer itself. Ensure that the computer documentation is available.

Diagnostics Checklist

Name:

Date:

Address:

Phone number:

Service Tag (bar code on the back or bottom of the computer):

Express Service Code:

Return Material Authorization Number (if provided by Dell support technician):

Operating system and version:

Devices:

Expansion cards:

Are you connected to a network? Yes No

Network, version, and network adapter:

Programs and versions:

See your operating system documentation to determine the contents of the system's start-up files. If the computer is connected to a printer, print each file. Otherwise, record the contents of each file before calling Dell.

Error message, beep code, or diagnostic code:

Description of problem and troubleshooting procedures you performed:

Contacting Dell

For customers in the United States, call 800-WWW-DELL (800-999-3355).



NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

- 1 Visit support.dell.com.
- 2 Verify your country or region in the **Choose A Country/Region** drop-down menu at the bottom of the page.
- 3 Click **Contact Us** on the left side of the page.
- 4 Select the appropriate service or support link based on your need.
- 5 Choose the method of contacting Dell that is convenient for you.

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