Dell™ Dimension™ 900 System

REFERENCE AND TROUBLESHOOTING GUIDE

www.dell.com
support.dell.com

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Safety Instructions

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

NOTICE: Your computer is designed to work only while upright in the stand shipped with it. Do not attempt to place the computer flat on a desktop, and do not set heavy objects, such as a monitor, on top of the computer.

When Using Your Computer System

As you use your computer system, observe the following safety guidelines.

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

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

  Also be sure your monitor and attached devices are electrically rated to operate with the AC power available in your location.
- Before working inside the computer, unplug the system to help prevent electric shock or system board damage. Certain system board components continue to receive power any time the computer is connected to AC power.
- Before disconnecting a device from the computer, disconnect the power cable to your computer and then press the power button to help avoid possible damage to the system board.
- To help prevent electric shock, plug the computer and device power cables into properly grounded power sources. These cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the

grounding prong from a cable. If you must use an extension cable, use a three-wire cable with properly grounded plugs.

- To help protect your computer system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Be sure nothing rests on your computer system's cables and that the cables are not located where they can be stepped on or tripped over.
- Do not spill food or liquids on your computer. If the computer gets wet, refer to "If Your Computer Gets Wet" in Chapter 5.
- Do not push any objects into the openings of your computer. Doing so can cause fire or electric shock by shorting out interior components.
- Keep your computer away from radiators and heat sources. Also, do not block cooling vents. Avoid placing loose papers underneath your computer; do not place your computer in a closed-in wall unit or on a bed, sofa, or rug.

Ergonomic Computing Habits

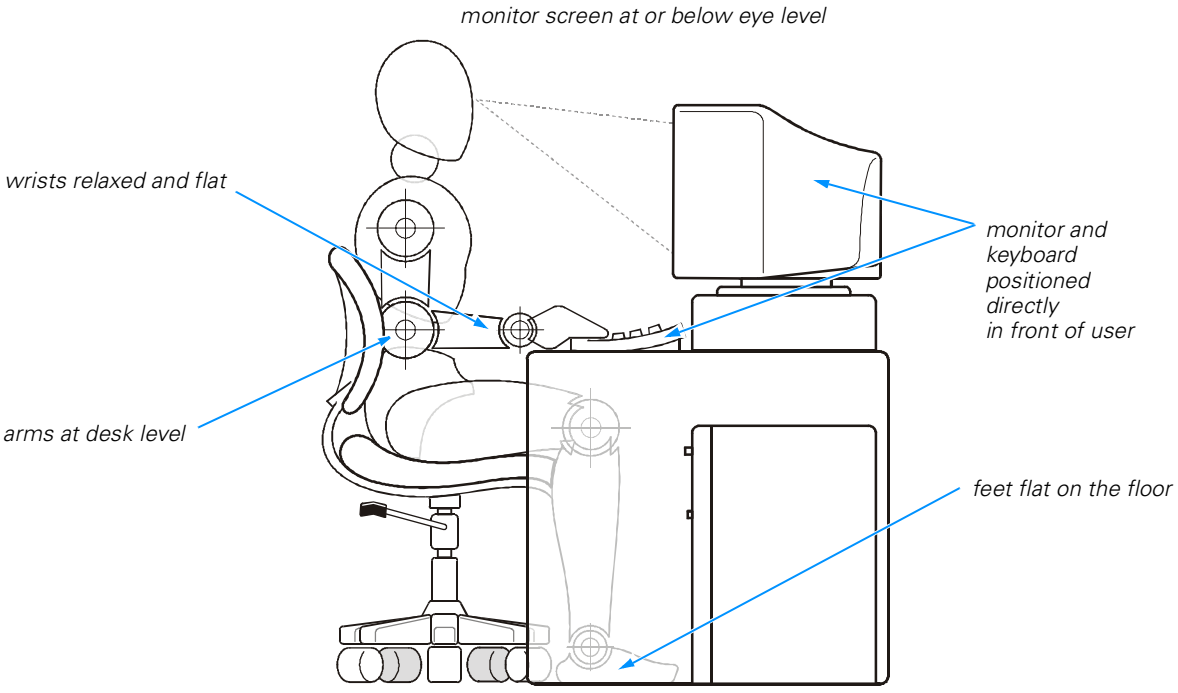
CAUTION: Improper or prolonged keyboard use may result in injury.

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

For comfort and efficiency, observe the following ergonomic guidelines when setting up and using your computer system:

- Position your system so that the monitor and keyboard are directly in front of you as you work. Special shelves are available (from Dell and other sources) to help you correctly position your keyboard.
- Set the monitor at a comfortable viewing distance (usually 510 to 610 millimeters [mm] [20 to 24 inches] from your eyes).
- Make sure the monitor screen is at eye level or slightly lower when you are sitting in front of the monitor.
- Adjust the tilt of the monitor, its contrast and brightness settings, and the lighting around you (such as overhead lights, desk lamps, and the curtains or blinds on nearby windows) to minimize reflections and glare on the monitor screen.
- Use a chair that provides good lower back support.
- Keep your forearms horizontal with your wrists in a neutral, comfortable position while using the keyboard or mouse.
- Always leave space to rest your hands while using the keyboard or mouse.
- Let your upper arms hang naturally at your sides.
- Sit erect, with your feet resting on the floor and your thighs level.

- When sitting, make sure the weight of your legs is on your feet and not on the front of your chair seat. Adjust your chair's height or use a footrest, if necessary, to maintain proper posture.
- Vary your work activities. Try to organize your work so that you do not have to type for extended periods of time. When you stop typing, try to do things that use both hands.



When Working Inside Your Computer

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

NOTICE: Do not attempt to service the computer system yourself, except as explained in this guide and elsewhere in Dell documentation. Always follow installation and service instructions closely.

1. Turn off your computer and all devices.
2. Ground yourself by touching an unpainted metal surface at the back of the computer before touching anything inside your computer.

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

3. Disconnect any devices connected to the computer, including the monitor, from their electrical outlets to reduce the potential for personal injury or shock. Also, disconnect any telephone or telecommunication lines from the computer.

4. Disconnect the power cable to your computer, and then press the power button to ground the system board.

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

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

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

Protecting Against Electrostatic Discharge

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

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

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

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

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

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

Preface

About This Guide

This guide is intended for anyone who uses a Dell Dimension 900 system. It can be used by both first-time and experienced computer users who want to learn about the features and operation of the systems or who want to upgrade their computers. The chapters and appendixes are summarized as follows:

- Chapter 1, "Introduction," provides an overview of the system features and information on preventive maintenance to protect the computer.
- Chapter 2, "Installing Upgrades on the System Board," provides information on performing various upgrades, such as installing additional memory. The chapter includes a basic orientation to internal features of the computer.
- Chapter 3, "Basic Troubleshooting," contains checklists to use before calling Dell for technical assistance.
- Chapter 4, "Software Solutions," has information on reinstalling software.
- Chapter 5, "Checking Inside Your Computer," presents troubleshooting procedures for system components such as expansion cards, memory, and drives.
- Chapter 6, "Getting Help," provides information on obtaining technical assistance. Users who have been unable to resolve problems using the troubleshooting information provided in this guide can refer to this chapter.
- Appendix A, "System Specifications," is supplemental reference material.
- Appendix B, "System Setup Program," describes the system setup program used for checking and changing system configuration data.
- Appendix C, "Beep Codes and System Messages," documents status and error messages generated during system start-up. Included are possible causes and corrective actions.
- Appendix D, "Regulatory Notices," provides regulatory information on the system.

Warranty and Return Policy Information

Dell Computer Corporation ("Dell") manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry-standard practices.

Other Documents You May Need

NOTE: Information updates are sometimes included with your system to describe changes to your system or software. Always read these updates ***before*** *consulting any other documentation because the updates often contain the latest information.*

Besides this *Reference and Troubleshooting Guide*, the following documentation is included with your system:

- The *Getting Started* sheet provides step-by-step instructions for setting up your computer system.
- The *Dell Dimension Systems Setup Guide* describes how to properly set up your operating system and connect a printer.
- The *Dell Dimension 900 System Help* describes the features and operation of your computer. It includes tips on using your computer hardware and answers to commonly asked questions. To open the *Help*, click the **Start** button, point to **Programs—> Dell Documents**, and then click **Dell Dimension Help**. You may also double-click the **Dell Documents** icon on the Windows desktop, click **System Information**, click **System Documentation**, and then click **Dell Dimension Help**.
- Online documentation is included for your computer devices (such as a video or modem card) and for any options you purchase separately from your computer. To access this supplemental documentation, double-click the **Dell Documents** icon on the Windows desktop, click **System Information**, and then click **System Documentation**.
- Operating system documentation.
- Technical information files—sometimes called "readme" files—may be installed on your hard-disk drive to provide last-minute updates about technical changes to your system or reference material intended for experienced users.

Notational Conventions

The following subsections describe notational conventions used in this document.

Notes, Notices, and Cautions

Throughout this guide, blocks of text may be accompanied by an icon and printed in bold type or in italic type. These blocks are notes, notices, and cautions, and they are used as follows:

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

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 potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Typographical Conventions

The following list defines (where appropriate) and illustrates typographical conventions used as visual cues for specific elements of text throughout this document:

- *Interface components* are window titles, button and icon names, menu names and selections, and other options that appear on the monitor screen or display. They are presented in bold.

  Example: Click **OK**.

- *Keycaps* are labels that appear on the keys on a keyboard. They are enclosed in angle brackets.

  Example: <Enter>

- *Key combinations* are series of keys to be pressed simultaneously (unless otherwise indicated) to perform a single function.

  Example: <Ctrl><Alt><Enter>

- *Commands* presented in lowercase bold are for reference purposes only and are not intended to be typed when referenced.

  Example: "Use the **format** command to . . . ."

  In contrast, commands presented in the Courier New font are part of an instruction and intended to be typed.

  Example: "Type `format a:` to format the diskette in drive A."

- *Filenames* and *directory names* are presented in lowercase bold.

  Examples: **autoexec.bat** and **c:\windows**

- *Screen text* is a message or text that you are instructed to type as part of a command (referred to as a *command line*). Screen text is presented in the Courier New font.

  Example: The following message appears on your screen:

  ```
  No boot device available
  ```

  Example: "Type `md c:\programs` and press <Enter>."

- *Variables* are placeholders for which you substitute a value. They are presented in italics.

  Example: DIMM_*x* (where *x* represents the DIMM socket designation)

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CHAPTER 1
Introduction

Dell™ Dimension™ 900 computer systems are high-speed personal computers that include an Intel® Socket 370 Pentium® III microprocessor with Streaming Single Instruction, Multiple Data (SIMD) Extensions or a Celeron™ processor with MMX™ technology. These systems incorporate a high-performance Peripheral Component Interconnect (PCI) design, allowing a wide range of initial configurations and upgrade possibilities.

This chapter provides information about the following topics:

- Major hardware and software features of your computer
- Available upgrades for your computer
- Theft-deterrent features to protect your computer

Hardware Features

Your Dell computer offers the following hardware features:

- An Intel Socket 370 Pentium III processor with Streaming SIMD Extensions or a Celeron processor with MMX technology.

  The **System Information** screen in the system setup program lists the speed of your system's processor. For information on accessing this application program, see Appendix B, "System Setup Program."

- Minimum memory configuration of 64 megabytes (MB) synchronous dynamic random-access memory (SDRAM). You can increase memory up to 512 MB by installing 32-, 64-, 128-, or 256-MB SDRAM dual in-line memory modules (DIMMs) in the two DIMM sockets on the system board.

NOTE: The system memory value reported by the operating system is 1 or 2 MB less than the memory installed because that memory is reserved for video functions. For example, if the computer has 64 MB of system memory, the operating system may report 62 or 63 MB.

The system board includes the following integrated features:

- Integrated Intel 810e video controller with Dynamic Video Memory and 4 MB of SDRAM for display cache.
- Supports two one-third–length 32-bit PCI expansion cards for connecting PCI devices to the PCI bus.

NOTE: PCI expansion-card connector PCI1 (see Figure 2-7) is reserved for use with Dimension 900 system-specific expansion cards available only from Dell (see "Available Upgrades," found later in this chapter). PCI expansion-card connector PCI2 is available for use with any one-third–length commercial PCI card.

- Self-Monitoring and Analysis Reporting Technology II (SMART II) support, which warns you at system start-up if your hard-disk drive has become unreliable.

  Hard-disk drives shipped with these systems are SMART II-compliant.

- Two integrated drive electronics (IDE) interfaces on the PCI bus that support Advanced Technology Attachment (ATA)-33/66 Ultra direct memory access (DMA) hard-disk drives and optical drives, such as CD-ROM drives.

NOTE: Inconsistencies in the manufacturing of CD-ROM media may cause some higher-speed CD-ROM drives to vibrate more than others. Such vibration and associated noise does not indicate a defect in the drive or the CD.

- Full compliance with PCI specification 2.2.
- Full compliance with Advanced Configuration and Power Interface (ACPI) specification 1.0A.
- For systems running the Microsoft® Windows® 98 Second Edition, Windows Millennium Edition (Me), or Windows 2000 operating system, the two high-performance Universal Serial Bus (USB) ports provide a single connection point for multiple USB-compliant devices. You can connect and disconnect these devices while the system is running. For your convenience, a USB port connector is located on the front side of the computer and another USB port connector is located on the back side.

NOTE: If you attach a USB device that was not included in your original system configuration, you may need to install a specific driver for that device to obtain its full functionality. Contact the USB device manufacturer for more information.

- One serial port and one bidirectional parallel port for connecting external devices.
- A Personal System/2 (PS/2)-style keyboard port and a PS/2-compatible mouse port.

Software Features

The following software is included with your Dell computer system:

- The Microsoft Windows 98 Second Edition, Windows 2000, or Windows Me, Windows NT® 4.0 operating system is installed on your hard-disk drive. For more information, see your operating system documentation.

- Virus-scanning software.
- Video drivers designed to support the integrated Intel Direct accelerated graphics port (AGP) Graphics Accelerator (see "Video Drivers" in Chapter 4 for more information). Before changing the resolution, check the monitor documentation to determine the supported resolutions and refresh rates.
- Dell Diagnostics for evaluating the computer's components and devices (see "Running the Dell Diagnostics" in Chapter 3).
- The system setup program for viewing and changing system configuration information (see Appendix B, "System Setup Program").

Available Upgrades

The upgrades Dell offers undergo rigorous testing to ensure proper operation with your computer. You should review "PCI Expansion Card Upgrades" in Chapter 2 to be sure you have the necessary slots or resources available before purchasing such an upgrade.

Dell offers a variety of expansion cards to increase system functionality:

- Fax/modem card
- 10/100–megabit-per-second (Mbps) network card

You can expand your system's memory up to 512 MB by installing additional 168-pin, 100-megahertz (MHz) non-error checking and correction (non-ECC) SDRAM DIMMs in the DIMM sockets on the system board. Purchasing memory upgrades from Dell Spare Parts ensures system compatibility; these upgrades are also covered under your system warranty. See "Adding Memory" in Chapter 2 before purchasing a memory upgrade.

To order any of these upgrades, call Dell.

Padlock Ring

On the back of the computer is a padlock ring (see Figure 1-1) for attaching commercially available theft-deterrent devices.

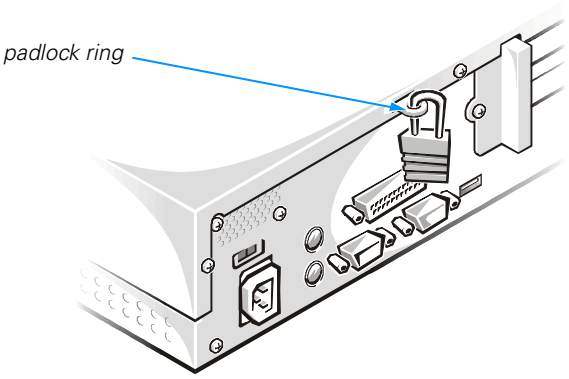


Figure 1-1. Padlock Ring

The padlock ring allows you to secure the computer cover to the chassis with a padlock to prevent unauthorized access to the inside of the computer. To use the padlock ring, insert a commercially available padlock through the ring, and then lock the padlock.

CHAPTER 2
Installing Upgrades on the System Board

This chapter describes how to install expansion cards and system memory. It also tells you how to remove and replace the computer cover and familiarizes you with internal components.

Safety First—For You and Your Computer

Working inside your computer is safe—*if* you observe the following precautions.

CAUTION FOR YOUR PERSONAL SAFETY AND PROTECTION OF YOUR EQUIPMENT

Before working on your computer, perform the following steps:

1. **Turn off your computer and all devices.**
2. **Ground yourself by touching an unpainted metal surface at the back of the computer before touching anything inside your computer.**

   While you work, periodically touch an unpainted metal surface on the computer to dissipate any static electricity that might harm internal components.
3. **Disconnect any devices connected to the computer, including the monitor, from their electrical outlets to reduce the potential for personal injury or shock. Also, disconnect any telephone or telecommunication lines from the computer.**
4. **Disconnect the power cable to your computer, and then press the power button to ground the system board.**

In addition, Dell recommends that you review the safety instructions at the front of this guide.

Installation Guidelines

Keep a static-sensitive component in its antistatic packing material until you are ready to install the component in the computer. Just before unwrapping the antistatic packaging, discharge static electricity from your body.

Make sure you have adequate lighting and a clean work space. If you temporarily disconnect cables or remove expansion cards, note the position of the connectors and slots so that you can reassemble the system correctly. Also note the extra connectors available for upgrades.

Removing and Replacing the Computer Cover

To remove the computer cover, perform the following steps:

1. Observe the "Caution for Your Personal Safety and Protection of Your Equipment" found earlier in this chapter. Also, observe the safety instructions at the front of this guide.

NOTICE: To avoid inadvertently damaging the system board, be sure that you disconnect the computer's power cable from the electrical outlet and from the back of the chassis before removing the computer cover. The system board continues to receive a small amount of power when the system is turned off and attached to an electrical outlet (the system-board power indicator [see Figure 2-4] is on when power is detected).

2. Lift the computer out of its stand.
3. Place the computer in a horizontal position (see Figure 2-1).
4. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.
5. Remove the three screws that secure the cover to the back panel (see Figure 2-1).

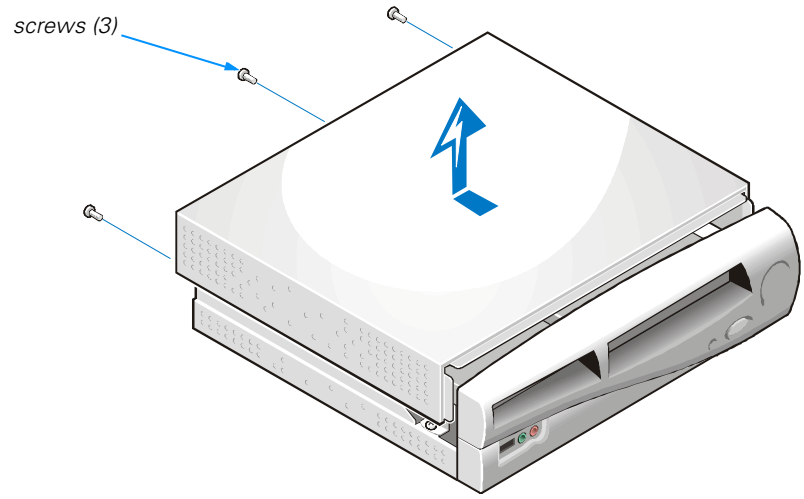


Figure 2-1. Removing the Computer Cover

6. Slide the cover toward the back of the computer about one-half inch.
7. Lift off the cover.

To replace the computer cover, perform the following steps:

1. Check all cable connections, especially those that might have come loose during your work. Fold cables and unused connectors out of the way so that they do not catch on the computer cover or interfere with airflow inside the computer.
2. Check to see that no tools or extra parts (including screws) are left inside the computer.
3. Remove the front bezel by slightly lifting the three bezel tabs (see Figure 2-2) and gently pulling the bezel away from the front panel.

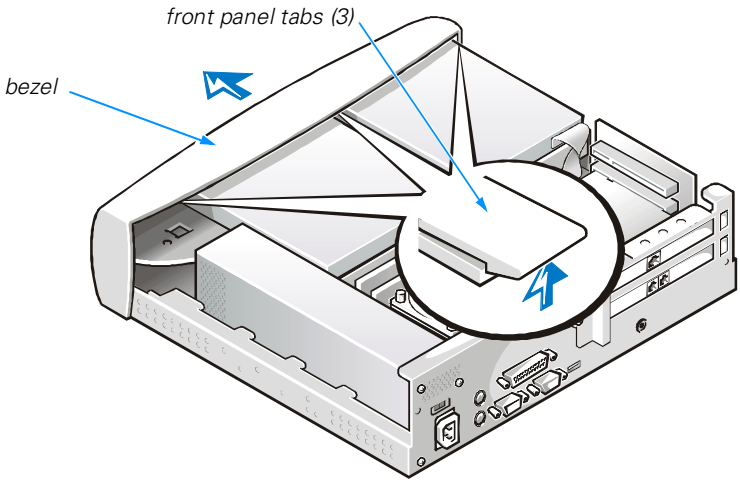


Figure 2-2. Removing the Bezel

4. Place the cover on the computer, and slide it toward the front of the computer.
5. Replace the screws that you removed when you removed the computer cover.
6. If you are using a padlock to secure your system, reinstall the padlock.
7. Replace the bezel.
8. Place the computer in its stand.

CAUTION: Your system is designed to work only in a vertical orientation using the stand shipped with the computer. Do not attempt to operate the system lying flat on a desktop, and do not set heavy objects such as a monitor on top of the computer.

Inside Your Computer

Figure 2-3 shows the computer with its cover removed as an aid in locating internal features and components.

When you look inside your computer, note the *DC power cables* coming from the power supply. These cables supply power to the system board and to internal drives.

The flat ribbon cables are the *interface cables* for internal drives. An interface cable connects a drive to an interface connector on the system board.

The *system board*—the large printed circuit board secured to the left side of the chassis—holds the computer's control circuitry and other electronic components. Some hardware options are installed directly onto the system board.

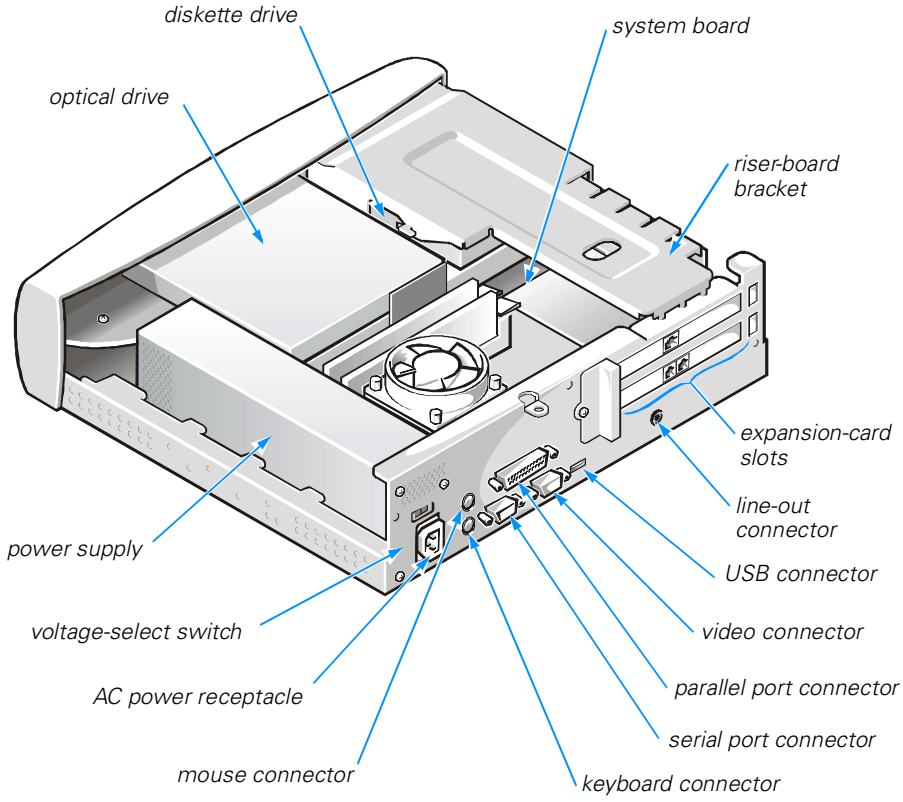


Figure 2-3. Inside the Computer

System Board

Figure 2-4 shows the system board connectors and sockets, and Table 2-1 describes their functions.

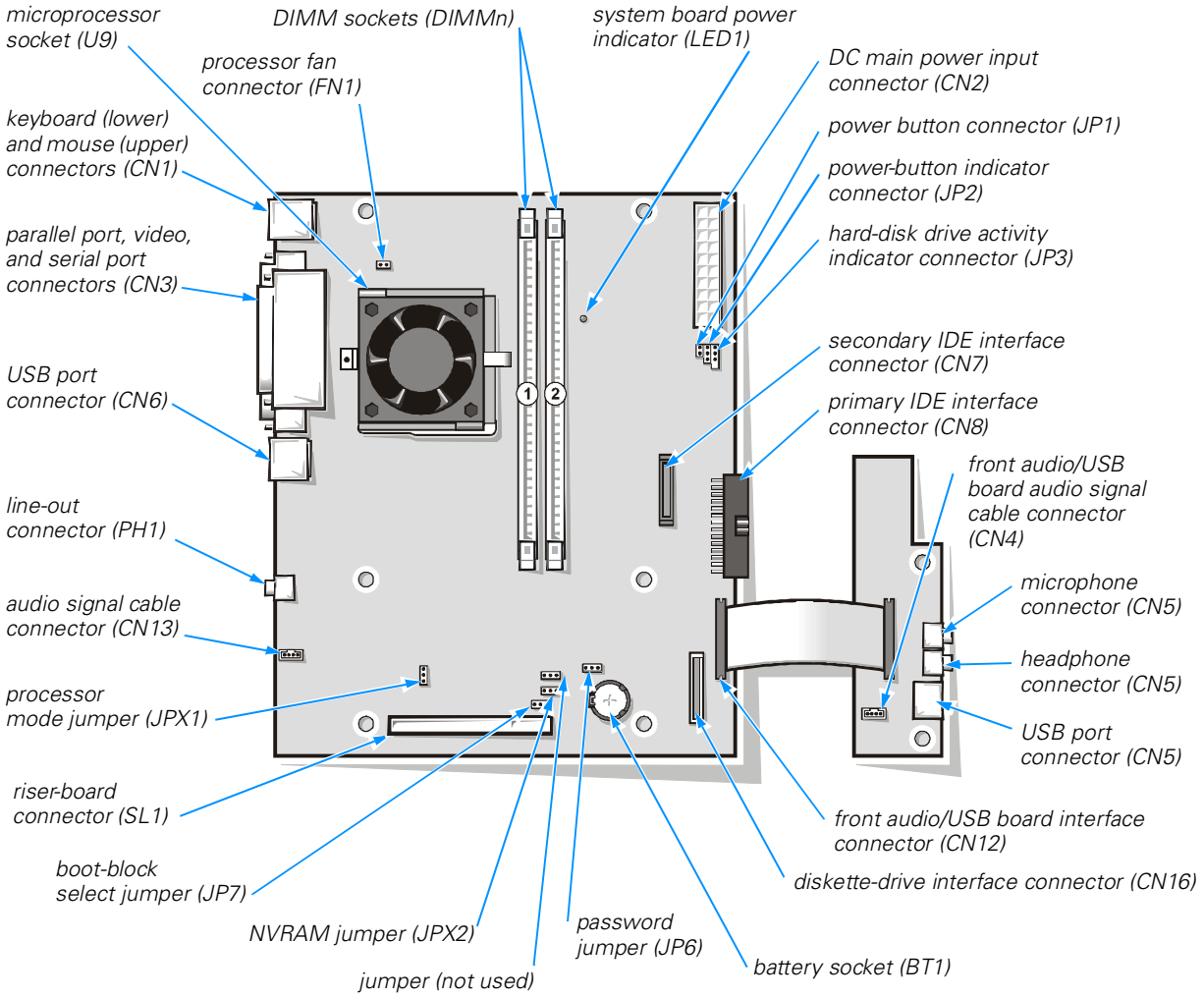


Figure 2-4. System Board Features

Table 2-1. System Board Connectors and Sockets

Connector or Socket	Description
BT1	Battery socket
CN1	Keyboard and mouse connectors
CN2	DC main power input connector
CN3	Parallel port connector (sometimes referred to as *LPT1*), video connector, and serial port connector
CN4	Front audio/USB board audio signal cable connector
CN5	USB port connector, headphone connector, and microphone connector
CN6	USB port connector
CN7	Secondary IDE interface connector for optical drive
CN8	Primary IDE interface connector
CN12	Front audio/USB board interface connector
CN13	Audio signal cable connector
CN16	Diskette-drive interface connector
DIMM*n*	DIMM socket
FN1	Processor fan connector
JP1	Power button connector
JP2	Power-button indicator connector
JP3	Hard-disk drive activity indicator connector
JP6	Password jumper
JP7	Boot-block select jumper
JPX1	Processor mode jumper
JPX2	NVRAM jumper
LED1	System board power indicator
PH1	Line-out connector
SL1	Riser-board connector
U9	Microprocessor socket

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Jumpers

Jumpers are small blocks on the system board with two or more pins emerging from them. Plastic plugs containing a wire fit down over the pins, creating a circuit. To change a jumper setting, pull the plug off its pin(s) and carefully fit it down onto the pin(s) indicated.

NOTICE: Make sure your system is turned off and unplugged from the electrical outlet before you change a jumper setting. Otherwise, damage to your system or unpredictable results may occur.

Password Jumper

Figure 2-4 shows the location of the password jumper (JP6) in your computer. Table 2-2 describes the settings and functions of the password jumper.

Table 2-2. Password Jumper Settings

Jumper Settings	Description
	Enables system password features (default)
	Bypasses system password features

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Processor Mode Jumper

Figure 2-4 shows the location of the processor mode jumper (JPX1) in your computer. Table 2-3 describes the settings and functions of the processor mode jumper settings.

Table 2-3. Processor Mode Jumper Settings

Jumper Settings	Description
	Enables processor normal mode (default). Change this setting only if instructed to by Dell Technical Support.
	Enables processor safe mode

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

NVRAM Jumper

Figure 2-4 shows the location of the nonvolatile random-access memory (NVRAM) jumper (JPX2) in your computer. Table 2-4 describes the settings and functions of the NVRAM jumper settings.

Table 2-4. NVRAM Jumper Settings

Jumper Settings	Description
	Retains current NVRAM settings (default). Change this setting only if instructed to by Dell Technical Support.
	Clears NVRAM

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Boot-Block Select Jumper

Figure 2-4 shows the location of the boot-block select jumper (JP7) in your computer. Table 2-5 describes the settings and functions of the boot-block select jumper.

Table 2-5. Boot-Block Jumper Settings

Jumper Settings	Description
	Normal boot setting (default). Change this setting only if instructed to by Dell Technical Support.
	Boot from top block setting

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Removing and Replacing the Riser-Board Bracket

Certain system board upgrades require that you remove and replace the riser-board bracket. To remove the riser-board bracket, perform the following steps.

CAUTION: Before you remove the computer cover, see "Safety First—For You and Your Computer" found earlier in this chapter.

1. Remove the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found earlier in this chapter.
2. Remove the riser-board screw (see Figure 2-5).
3. Hold the back of the diskette drive with one hand to prevent it from moving as you perform step 4.
4. Slip one finger into the oval opening on top of the riser-board bracket (see Figure 2-5). Then slightly lift the back end of the riser-board bracket and gently pull the riser-board bracket toward the back of the computer until its front tab is free from the front chassis slot and its two side diskette-drive slots are clear of the diskette-drive tabs.

CAUTION: When handling the riser board bracket, always hold it by placing a finger through the oval opening in the bracket (see Figure 2-5). Do not grasp the bracket by its edges, which may be sharp.

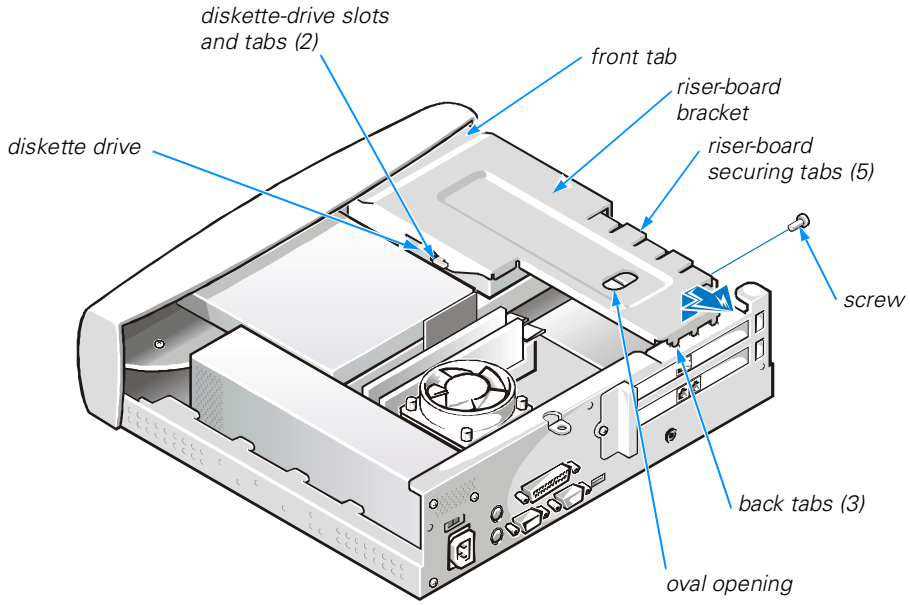


Figure 2-5. Removing the Riser-Board Bracket

To replace the riser-board bracket, perform the following steps:

1. Hold the back of the diskette drive with one hand to prevent it from moving as you perform this process.

2. Slip one finger into the oval opening on top of the riser-board bracket (see Figure 2-5). Then position the riser-board bracket on top of the diskette drive so that the riser-board securing tabs fit over both sides of the riser board and its diskette-drive slots align with the diskette-drive tabs (see Figure 2-5).

CAUTION: When handling the riser board bracket, always hold it by placing a finger through the oval opening in the bracket (see Figure 2-5). Do not grasp the bracket by its edges, which may be sharp.

3. Gently push the riser-board bracket toward the front of the computer until its three back tabs fit into the three slots on the back of the chassis.

4. Replace the riser-board screw (see Figure 2-5).

5. Replace the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found earlier in this chapter.

PCI Expansion Card Upgrades

NOTE: This computer does not support older expansion card technologies, such as Industry-Standard Architecture (ISA) cards.

The riser board accommodates up to two *one-third–length*, 32-bit Peripheral Component Interconnect (PCI) expansion cards. PCI expansion-card connector 1 (PCI1) is reserved for use with Dimension 900 system-specific expansion cards available only from Dell (see "Available Upgrades" in Chapter 1). PCI expansion-card connector 2 (PCI2) is available for use with any one-third–length commercial PCI card.

Figure 2-6 shows a typical one-third–length PCI expansion card. Figure 2-7 shows the two PCI expansion-card connectors on the riser board.

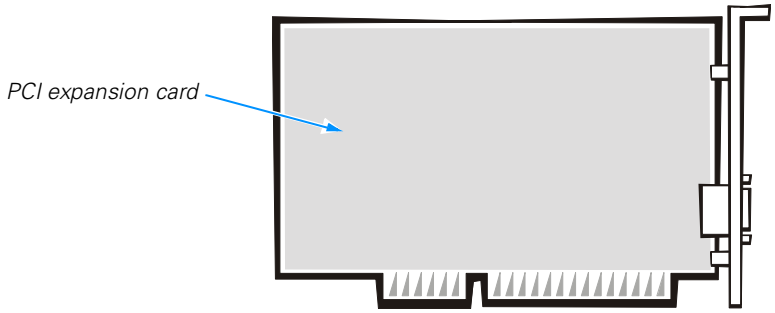


Figure 2-6. PCI Expansion Card

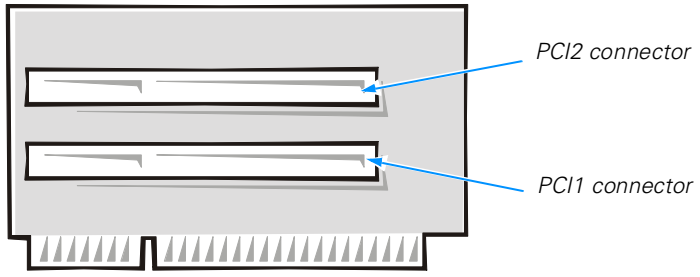


Figure 2-7. Riser Board PCI Expansion-Card Connectors

Make sure that you have a slot available for the type of card you are installing. Also check the Windows 98, Windows Me, or Windows 2000 **Device Manager**, or **Windows NT Diagnostics** for an available interrupt request (IRQ) line that is supported by the card.

To check for an IRQ line in the Microsoft Windows 98 or Windows Me operating system, perform the following steps:

1. Click the **Start** button, point to **Settings**, and click **Control Panel**.
2. Double-click the **System** icon.
3. Click the **Device Manager** tab.
4. Double-click the **Computer** icon to open the **Computer Properties** window and view the **View Resources** tab.

To check for an IRQ line in the Microsoft Windows 2000 operating system, perform the following steps:

1. Click the **Start** button, point to **Settings**, and click **Control Panel**.
2. Double-click the **System** icon.
3. Click the **Hardware** tab.
4. Click **Device Manager**.
5. Click **View**, and then click **Resources by connection**.
6. Double-click **Interrupt request (IRQ)** to view the IRQ assignments.

To check for an IRQ line in the Microsoft Windows NT operating system, start the **Windows NT Diagnostics** in the **Administrative Tools (Common)** folder and view the **Resources** tab.

NOTE: If an IRQ supported by your card is not available, try reassigning resources used by other devices or disabling unused devices.

Installing Expansion Cards

1. Prepare the expansion card for installation as instructed in the documentation that came with the expansion card.

   Check the documentation to make sure the card is configured to work with other devices already installed in your computer.

2. Remove the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found earlier in this chapter.
3. Remove the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found earlier in this chapter.
4. Choose an expansion-card connector for the card.

NOTE: The PCI1 connector (see Figure 2-7) is reserved for use with Dimension 900 system-specific expansion cards available only from Dell (see "Available Upgrades" in Chapter 1). The PCI2 connector is available for use with any one-third–length commercial PCI card.

5. Remove the screw that secures the filler-bracket cap to the back panel of the computer (see Figure 2-8), and remove the filler-bracket cap.

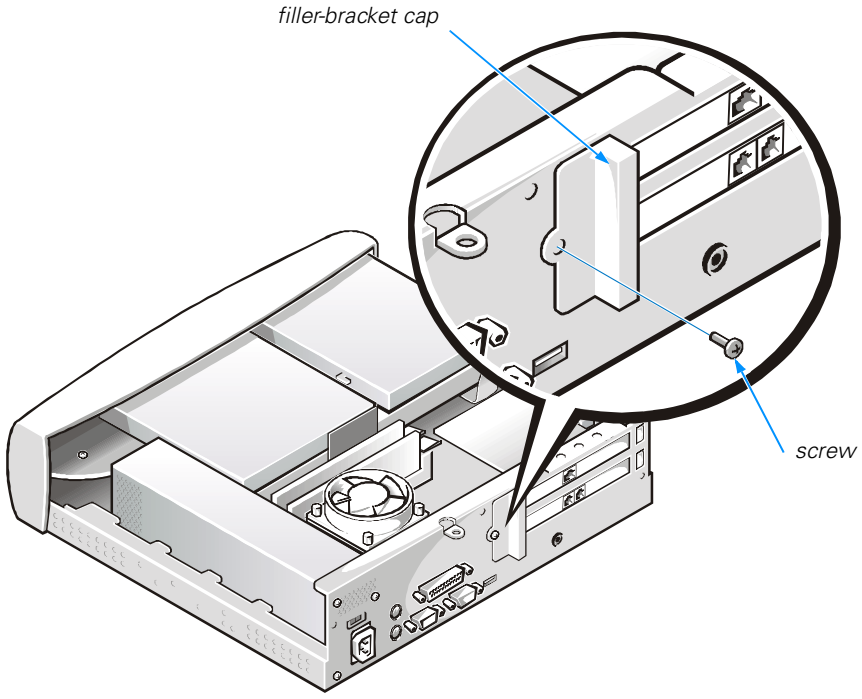


Figure 2-8. Removing the Filler-Bracket Cap

6. Unscrew and remove the metal filler bracket that covers the card-slot opening for the expansion slot you intend to use (see Figure 2-9).

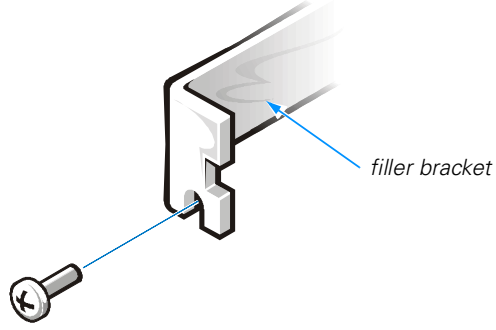


Figure 2-9. Removing the Filler Bracket

NOTICE: Use one hand to support the riser board while installing an expansion card into an expansion-card connector. Otherwise, damage to the riser-board connector or system board may occur.

7. Insert the expansion card firmly into the expansion-card connector.

   A cutout in the card-edge connector aligns with a crossbar in the expansion-card connector. Gently rock the card into the connector until it is fully seated (see Figure 2-10).

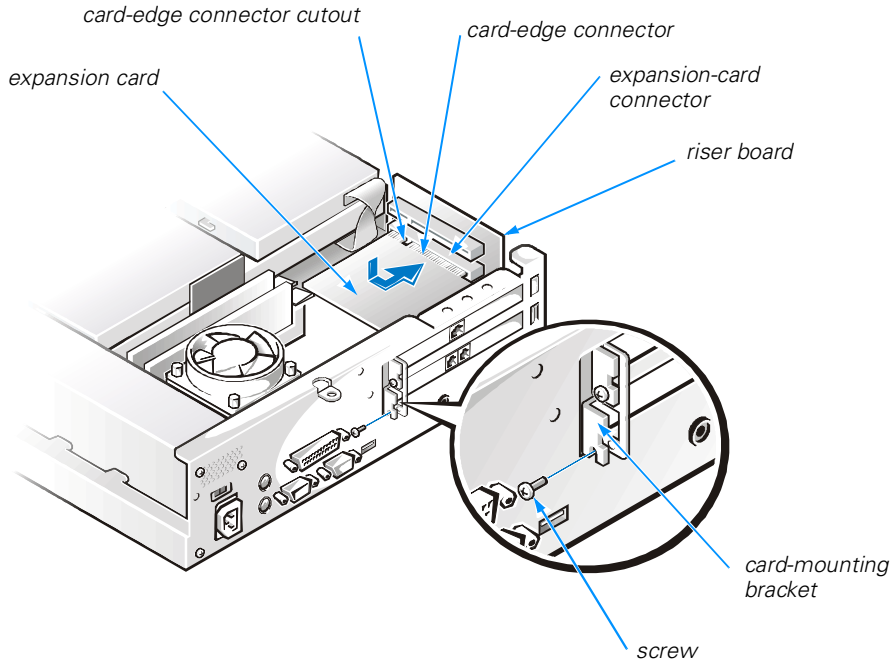


Figure 2-10. Installing an Expansion Card

8. When the card is firmly seated in the connector, secure the card-mounting bracket (see Figure 2-10) with the screw you removed in step 6.

   Make sure that the front of the card-edge connector is completely seated in the expansion-card connector. The bottom of the card-mounting bracket must be inside the card-slot opening, and the top of the bracket must be flush against the bracket mount with the notch aligned with the screw hole in the bracket mount. "Expansion Cards" in Chapter 5 provides more information on correctly seating an expansion card.

9. Replace the filler-bracket cap and screw that you removed in step 5.

10. Connect any cables required for the card as described in the documentation that came with the card.

11. Replace the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found earlier in this chapter.

12. Replace the computer cover.

13. See the documentation that came with the expansion card for information on installing any required drivers for your operating system.

Removing Expansion Cards

1. Remove the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found earlier in this chapter.

2. Remove the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found earlier in this chapter.

3. If necessary, disconnect any cables connected to the card.

4. Remove the screw that secures the filler-bracket cap to the back panel of the computer (see Figure 2-8), and remove the filler-bracket cap.

5. Remove the screw from the card-mounting bracket.

NOTICE: Use one hand to support the riser board while removing an expansion card from an expansion-card connector. Otherwise, damage to the riser-board connector or system board may occur.

6. Grasp the card by its top corners, and ease it out of its connector.

7. If you are removing the card permanently, install a metal filler bracket over the empty card-slot opening in the bracket mount.

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

8. Replace the filler-bracket cap and screw that you removed in step 4.

9. Replace the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found earlier in this chapter.

10. Replace the computer cover, and reconnect your computer and devices to their electrical outlets and turn them on.

Adding Memory

You can increase memory to a maximum of 512 megabytes (MB) by installing combinations of 3.3-volt (V) 32-, 64-, 128-, and 256-MB dual in-line memory modules (DIMMs) in the two DIMM sockets on the system board. This system supports only non-error checking and correction (non-ECC), 100-megahertz (MHz) DIMMs. Purchasing memory upgrades from Dell Spare Parts ensures system compatibility; these upgrades are also covered under your system warranty.

NOTE: Your computer is designed for peak performance with specific DIMMs that are validated through rigorous testing. The system may not recognize other synchronous dynamic random-access memory (SDRAM) DIMMs and may fail power-on self-test (POST).

Installing a DIMM

1. Remove the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found earlier in this chapter.
2. Remove the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found earlier in this chapter.
3. Remove the expansion cards according to the instructions in "Removing Expansion Cards" found earlier in this chapter.
4. Press outward on the plastic securing clips at each end of the DIMM socket to release the clips as shown in step 1 of Figure 2-11.

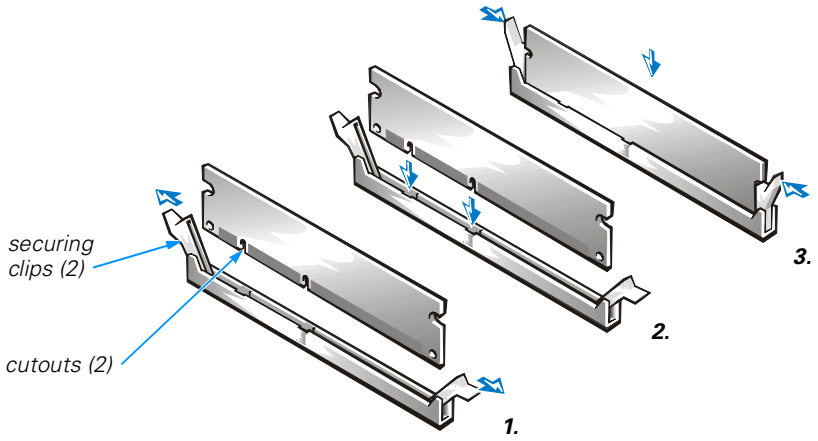


Figure 2-11. Installing a DIMM

5. Orient the DIMM so that the cutouts on its edge connector align with the crossbars in the central groove of the socket.

NOTICE: Do not press near the middle of the DIMM. Doing so could break the module.

6. Insert the DIMM straight down into the socket, making sure that it fits into the vertical guides at each end of the socket.

   Press firmly at each end until the DIMM snaps into place (see step 2 of Figure 2-11).

   If you inserted the DIMM correctly, the securing clips snap into the cutouts at each end of the DIMM (see step 3 of Figure 2-11).

7. Replace the expansion cards, riser-board bracket, and the computer cover, and reconnect your computer and devices to their electrical outlets and turn them on.

8. To enter the system setup program, restart the computer and press <Del> when the blue Dell logo screen appears. Verify that the amount displayed for **Total Memory** on the **System Information** screen is correct.

   If the memory total is incorrect, turn off the computer, and remove computer cover, riser-board bracket, and expansion cards. Then reseat the DIMMs in their sockets, and repeat step 7.

NOTE: The system memory value reported by the operating system is 1 or 2 MB less than the memory installed because that memory is reserved for video functions. For example, if the computer has 64 MB of system memory, the operating system may report 62 or 63 MB.

Removing a DIMM

1. Remove the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found earlier in this chapter.

2. Remove the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found earlier in this chapter.

3. Remove the expansion cards according to the instructions in "Removing Expansion Cards" found earlier in this chapter.

4. Press outward on the plastic securing clips at each end of the DIMM socket until the DIMM disengages from the socket (see Figure 2-12).

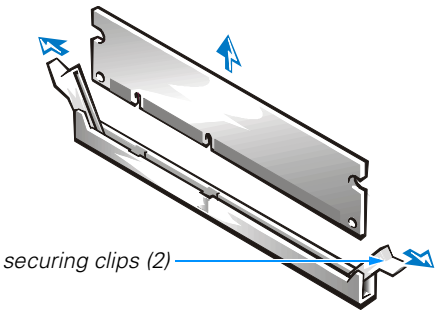


Figure 2-12. Removing a DIMM

5. Replace the expansion cards, riser-board bracket, and the computer cover, and reconnect your computer and devices to their electrical outlets and turn them on.

6. To enter the system setup program, restart the computer system and press <Del> when the blue Dell logo screen appears. Verify that the amount displayed for **Total Memory** on the **System Information** screen is correct.

NOTE: The system memory value reported by the operating system is 1 or 2 MB less than the memory installed because that memory is reserved for video functions. For example, if the computer has 64 MB of system memory, the operating system may report 62 or 63 MB.

Replacing the System Battery

A 3.0-V CR2032 coin-cell battery mounted in a system board socket (see Figure 2-4) maintains system configuration, date, and time information. The battery can last several years.

NOTE: Leave your power strip turned on when the computer is turned off to extend battery life.

If the battery expires, the computer loses the system configuration information whenever it is disconnected from its electrical outlet. If you have to repeatedly reset this information after turning on the computer, replace the battery.

To replace the system battery with another CR2032 coin-cell battery, perform the following steps.

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

1. Make a copy of the screens in the system setup program.

   You will need a written or printed copy of the system configuration information to restore the correct settings later. See Appendix B, "System Setup Program," for instructions.

2. Remove the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found earlier in this chapter.

3. Remove the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found earlier in this chapter.

4. Remove the front bezel by slightly lifting the three bezel tabs (see Figure 2-13), and gently pulling the bezel away from the front panel.

5. Remove the drive shelf screws, and lift the drive shelf approximately one-half inch.

   The drive shelf is attached to the chassis with two screws—one to the right of the optical drive and one to the left of the diskette drive as you face the front of the computer (see Figure 2-13).

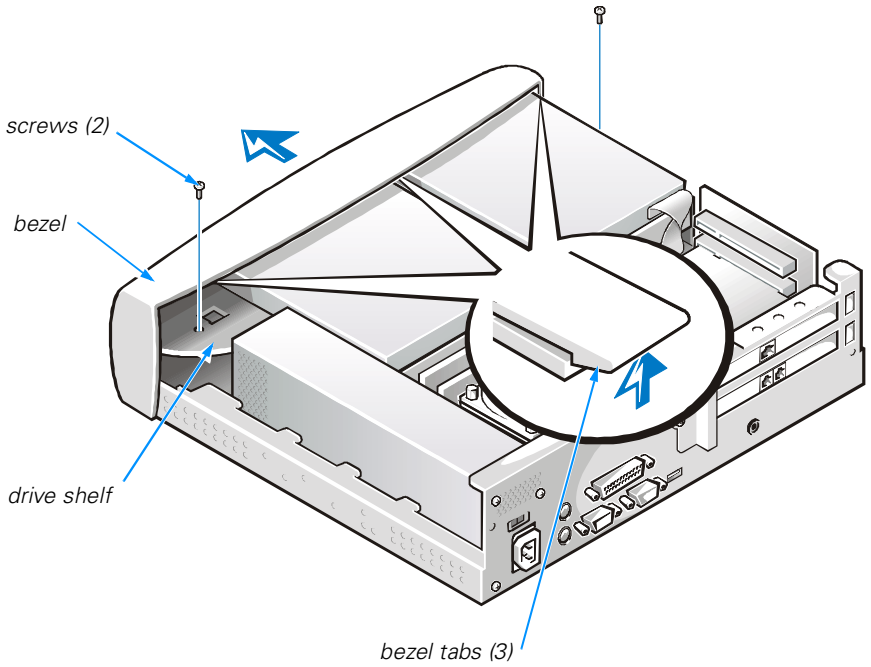


Figure 2-13. Drive Shelf

NOTICE: If you pry out the battery with a blunt object, insert the object between the battery and the socket. Otherwise, you may damage the system board by prying off the socket or by breaking circuit traces on the system board.

6. Locate the battery on the system board (see Figure 2-4), and pry it out of its socket with your fingers or with a blunt, nonconductive object, such as a plastic screwdriver.

NOTICE: Inserting the battery upside-down will damage the system board circuitry.

7. Insert the battery into the socket with the side labeled "+" facing up (see Figure 2-14).

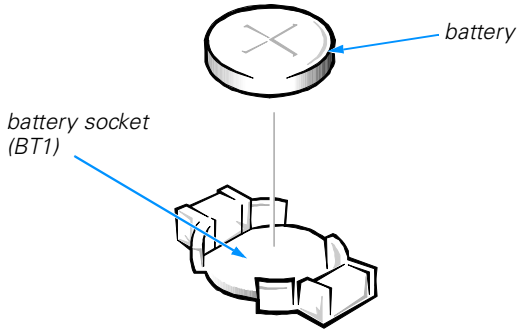


Figure 2-14. System Battery and Battery Socket

8. Lower the drive shelf and replace the two screws that you removed in step 5.
9. Replace the bezel, riser-board bracket, and computer cover, and reconnect your computer and devices to their electrical outlets.
10. Restart the system, press <Del> when the blue Dell logo screen appears to enter the system setup program, and restore the correct settings.

    For instructions, see Appendix B, "System Setup Program."

CHAPTER 3
Basic Troubleshooting

This chapter guides you through some initial checks and procedures that can solve basic computer problems. It can also direct you to the appropriate chapter in this guide for detailed troubleshooting information and procedures to solve more complex problems. You should complete the checks in this chapter before calling Dell for technical assistance; even if these checks do not provide an immediate solution, they can help support technicians diagnose and fix the problem.

NOTE: If your computer is wet or damaged, see "If Your Computer Gets Wet" or "If Your Computer Is Damaged" in Chapter 5.

Backing Up Data Files

You can lose data when a system failure occurs. If your system is behaving erratically, back up your data files immediately.

You do not need to back up Dell-installed driver files for Dell-installed devices. The driver files are preserved on the *Dell Dimension ResourceCD*.

NOTE: In case of warranty replacement of your hard-disk drive, you will receive a blank formatted drive from Dell. You must reinstall application programs and restore data files.

Installing Additional Hardware and Software

If the problem you are experiencing began after you made a change to your computer, such as installing new hardware or software, undo the change if possible.

If the problem is resolved, check any documentation that came with the hardware or software you attempted to install or that describes the change you made. In particular, read any text files (such as **readme.txt**) included with the software package or hardware product; such files contain information updating or supplementing the documentation for the software or hardware. Typically, readme files provide installation information, describe new product enhancements or corrections that have not yet been documented, and list known problems.

If you were trying to install new hardware, double-check configuration settings and available system resources (see "Resolving Software and Hardware Incompatibilities" in Chapter 4). Also make sure you changed the appropriate settings in the system setup program for the system's new hardware configuration (see Appendix B, "System Setup Program").

If you need additional technical assistance on the installation of hardware or software, contact the product manufacturer or the company from whom you purchased the product.

DellWare™ Support

DellWare products are supported by the item's manufacturer. To receive product support information, call 1-800-753-7201.

Checking the Basics

Use the following sections to perform an initial check of your computer system or to isolate a problem.

External Connections

Improperly set switches and controls, loose cables, and improperly connected cables are the most likely sources of problems for your computer system. A quick check of all the switches, controls, and cable connections can easily solve these problems. Usually reseating (disconnecting and then reconnecting) the cables corrects these problems.

NOTE: See the "System Features" section of the Dell Dimension 900 System Help for the location of your computer's external connectors and controls.

To check computer connections, perform the following steps:

1. Turn off the computer, the monitor, and all attached devices.
2. Reseat all power cables connected to the computer, the monitor, and devices and to electrical outlets.
3. Reseat the keyboard (purple) and mouse (green) interface cable connectors in the proper connectors on the back of the computer.
4. Reseat any devices attached to the serial port, parallel port, and Universal Serial Bus (USB) port connectors.

   Each of the serial, parallel, and USB interface cable connectors must be firmly attached to an appropriate connector on the back of the computer as well as to the interface connector on the device. The captive screws on the serial and parallel interface cable connectors must be secure enough to ensure a firm connection.

5. Reseat the video-interface cable connectors (blue) in the video connector on the back of the computer and in the connector on the back of the monitor.

NOTE: On some monitors, the video interface cable is permanently attached.

6. Turn on the computer, the monitor, and all attached devices.

Power

If you are experiencing problems with power to your computer, perform the following tasks:

- Check the computer's and monitor's power indicators. When lit or flashing, the power indicator verifies that the power supply is operating. Whenever the power is on, the fan on the power supply should also spin.
- Plug a device such as a lamp that you know works into the electrical outlet to make sure the power source is OK.
- Plug the computer directly into that working electrical outlet, bypassing any power protection devices, power strips, and extension cables to verify that the system turns on.
- Turn off the computer and any attached devices, and disconnect them from their electrical outlets. Disconnect any devices attached to the computer except for the mouse and the monitor. Reseat the power cable at the back of the computer; then reconnect the computer and monitor to an electrical outlet, making sure that all connections fit tightly together. Turn on the computer system. If the computer boots (starts), turn it off again and reconnect devices one at a time, turning on the system each time to see if the problem returns.
- Turn off the system, and swap the monitor and computer power cables.

Start-Up Routine

NOTE: Most of the checks in Table 3-1 require observation of computer functions and indications, some of which can occur simultaneously. You may need to restart the computer several times to complete all these checks.

Table 3-1. Start-Up Routine Indications

Indication	Action
You hear a series of beeps.	See Table C-1.
A message is displayed on the monitor.	See Table C-2.

Environmental Factors

A number of external factors, including temperature extremes and humidity, magnetic influences, sources of electromagnetic interference (EMI), and poor input power or signal quality, can interfere with the performance of your computer and attached devices. Monitors are especially susceptible to these environmental factors. The following items can adversely affect the performance of a computer system:

- Inadequate ventilation from operating the computer in a confined space, such as a desk enclosure
- Direct sunlight causing the computer to overheat
- Line noise or power drops and surges from electrical outlets due to poor wiring
- Line noises or surges through telephone lines
- High-voltage electrical appliances on the same circuit or operating in close proximity to the computer
- Speakers, especially the subwoofer, or telephone too close to the monitor, generating magnetic fields that distort the display image
- Fluorescent lights or halogen lamps causing display flickering or distortion
- Electrical extension cords and keyboard and mouse extension cables
- Too many devices on a power strip or multiple power strips from one electrical outlet
- Electrical conduits in an adjoining wall or elevators on the other side of the wall
- Large metal beams inside the wall behind the system
- Dust accumulation near the fan or power supply

If removing potential sources of problems does not help, try moving the computer and the monitor.

Monitor

This section lists some basic checks you can do for most monitors. Check the documentation that came with the monitor for fault indications and troubleshooting procedures specific to your monitor. If you purchased the monitor from Dell, you can also find troubleshooting information on Dell's World Wide Web site (**http://support.dell.com**).

If you have no picture, try the following checks:

- Make sure the computer is turned on.
- Make sure the monitor's power button is completely depressed.
- If the monitor's power indicator is lit, adjust contrast and brightness to their maximum settings.
- Verify the electrical outlet by plugging in an appliance that you know works.

- If you have not already done so, plug the monitor directly into an electrical outlet, bypassing any power protection devices, power strips, and extension cables to verify that the monitor turns on.
- If the power indicator is not lit, check for a bad power cable by turning off the system and swapping the monitor and computer power cables.
- Perform the monitor self-test as described in the documentation that came with the monitor.

If the picture quality is poor, perform these checks:

- Rotate the monitor to face a different direction. If the picture changes, see "Environmental Factors" found earlier in this chapter. Monitors are particularly susceptible to EMI, which causes colors to fade and blend.
- If the orientation of the computer affects the display geometry, check the documentation that came with the monitor for information on adjustments.
- Degauss (demagnetize) the monitor as described in the documentation that came with the monitor.
- If you changed the resolution or refresh rate settings of the monitor, return the monitor to its manufacturer's recommended settings (see the monitor documentation).
- Turn off the computer system, and examine the video-interface cable connector for bent, pushed in, broken, or missing pins. Check the documentation that came with your monitor for additional information.

NOTE: Some missing pins may be normal for your monitor; check the documentation that came with the monitor.

- Remove any video extension cables, reseat the monitor's video-interface cable connector, and securely tighten the captive screws. Then reboot the computer system.
- Perform the monitor self-test as described in the documentation that came with the monitor.
- If another monitor or computer is available, try swapping monitors between systems.
- Move the computer and the monitor to another room.

If you completed the basic monitor checks and suspect a problem with the video, perform the following checks:

- Click the **Start** button, point to **Settings**, and click **Control Panel**. Double-click the **Display** icon, and click the **Settings** tab. Try different settings for **Colors** and **Screen area** (Windows 98, Windows Me, and Windows 2000) or **Desktop Area** (Windows NT).

- Change the display type to standard video graphics array (VGA) as follows:

  1. Restart the system.

  2. For Windows 98, Windows Me, and Windows 2000, press <F8> when you see the `Starting Windows ...` message, and then select **Safe Mode** from the boot manager screen.

     For Windows NT, select **Windows NT Workstation 4.0 [VGA Mode]** from the boot manager screen.

- Reinstall the video drivers (see "Video Drivers" in Chapter 4).

Speakers

Perform the following checks for speaker problems:

- Ensure that the speakers are properly connected as shown on the *Getting Started* sheet or as described in the documentation that came with the speakers.
- Reseat all speaker connections and make sure they are inserted fully. Verify that the audio jacks are not bent or broken.
- Verify that the speakers and/or subwoofer are turned on and are connected to a known good power source.
- Turn up the volume knob on the speakers. If the audio is distorted, make sure that the volume is not turned to its maximum setting. Adjust the treble and/or bass if the sound is distorted.
- Turn up the volume by clicking the yellow speaker icon in the Windows taskbar and adjusting the volume setting.
- Turn off the monitor and such devices as fans, fluorescent lights, or halogen lamps to check for interference from those devices.
- Plug the speakers into the headphone jack of the optical drive, make sure the headphone volume control is turned up, and play a music CD.
- Check for conflicts as described in "Resolving Software and Hardware Incompatibilities" in Chapter 4. Then reinstall the audio drivers as described in "Reinstalling Drivers" in Chapter 4.

Modem

NOTICE: Connect the modem to an analog line only. Using a nonanalog line, such as a digital or private branch exchange (PBX) line, will damage the modem.

NOTE: If your modem can dial and connect to one Internet service provider (ISP) or to a fax machine, your modem is functioning properly. For assistance, contact the ISP to which you cannot connect.

If you are experiencing problems with a modem, perform the following checks:

- If you have any other telephone devices plugged into this line, such as answering machines, dedicated fax machines, surge protectors or line splitters, then bypass them and plug the modem cable directly into the telephone connector on the wall.
- Disconnect the cable from the modem and plug it directly into a telephone. Listen for a dial tone.
- Check that the modem cable is connected to the line jack (the jack with a connector-shaped icon) on the modem. Reseat the cable connections.
- Plug a telephone cable into the telephone jack (the jack with a telephone icon) on the modem and listen for a dial tone.
- Try a different cable; if you are using a cable that is 10 feet or more in length, try a shorter one.
- Low connection speeds can be caused by line noise. If you have persistent problems, contact your telephone company to check for data noise and imbalanced lines.
- See "Modem" in Chapter 5 for further troubleshooting information.

Network Cards

In general, network malfunctions may be caused by the following problems:

- Wrong or incorrectly installed network interface controller (NIC) drivers
- Interrupt request (IRQ) conflicts
- Damaged RJ45 connector or patch cable
- Bad hub port connection
- Incorrectly installed or malfunctioning network card

NOTE: If you can connect to the network but are having problems accessing network resources, contact your network administrator.

To troubleshoot a network card, perform the following steps:

1. Run the diagnostics for your network card as described in the documentation that came with the card.

   If the network card is not detected, go to step 2.

   If the network card does not pass all the tests, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

2. Remove the computer cover as described in "Removing and Replacing the Computer Cover" in Chapter 2.

3. Remove the riser-board bracket as described in "Removing and Replacing the Riser-Board Bracket" in Chapter 2.

4. Remove all expansion cards installed in the computer (see "Removing Expansion Cards" in Chapter 2) except the network card to prevent a card that is incorrectly configured from causing an interrupt or input/output (I/O) port resource conflict.

5. Replace the riser-board bracket and computer cover, connect all external cables, and turn on the system.

6. Clear nonvolatile random-access memory (NVRAM) as described in "Clearing NVRAM" in Appendix B.

7. Check the network hardware connections by performing the following steps:

   a. Check the network card connector for physical damage.

   b. Ensure that the cable is inserted properly.

   c. Replace the patch cable or network cable from the wall jack to the computer.

   d. If replacing the patch cable or network cable does not solve the problem, try moving the computer to known good location on the network.

   e. If you still cannot connect to the network, ensure that the right drivers are being used.

If the network card is still not detected, see Chapter 6, "Getting Help," for information on obtaining technical assistance. If the network card is detected, repeat step 1.

Diskette Drives

If you have diskette drive problems, perform the following checks:

- Make sure the diskette is not write-protected if you are trying to copy data to it.
- Try a different diskette in the drive. If the new diskette works, the original one may be defective.
- Check the settings on the **Disk Drives** option of the system setup program as described in Appendix B, "System Setup Program."
- Run the **Diskette** device group as described in "Running the Dell Diagnostics" found later in this chapter.

Optical Drives

If you have problems with an optical drive, such as a CD-ROM drive, perform the following checks.

NOTE: Inconsistencies in the recording of CD-ROM media may cause some higher-speed CD-ROM drives to vibrate more than others. Such vibration and associated noise do not indicate a defect in the drive or the CD. It should be noted that not all media can be read by all drives.

- Double-click the **My Computer** icon, and check to see if the drive is recognized by the system. Most of the common boot-sector viruses cause the optical drive to "disappear." Use virus-scanning software to check for and remove any viruses. If Dell installed Windows 98 or Windows Me on your system, you should already have virus-scanning software.
- Clean the disc with a soft, lint-free cloth and isopropyl alcohol.
- Try another optical media title.
- Enter the system setup program as described in Appendix B, "System Setup Program," and verify that **Device Detection Mode** is set to **Auto** for the appropriate integrated drive electronics (IDE) drive option.
- Run the appropriate tests in the **IDE Devices** device group as described in "Running the Dell Diagnostics" found later in this chapter.

Hard-Disk Drives

If you have hard-disk drive problems, perform the following checks:

- For Windows 98 and Windows Me, run the **ScanDisk** utility by clicking the **Start** button, pointing to **Programs—> Accessories—> System Tools**, and clicking **ScanDisk**.
- For Windows NT, run the error-checking utility by opening the property sheet of the affected volume(s) and clicking **Check Now** in the **Error-checking** section of the **Tools** tab.
- For Windows 2000, perform the following steps:
  1. Double-click the **My Computer** icon located on the Windows desktop.
  2. Click **File**, and then click **Properties**.
  3. Click the **Tools** tab.
  4. Under **Error-checking**, click **Check Now**.
  5. Under **Check disk options**, click **Scan for and attempt recovery of bad sectors**.
  6. Click **Start**.
- Run the appropriate tests in the **IDE Devices** device group as described in "Running the Dell Diagnostics" found later in this chapter.
- Check the settings for the **Disk Drives** option of the system setup program as described in Appendix B, "System Setup Program."

Running the Dell Diagnostics

Whenever a major component or device in your computer system does not function properly, run the Dell Diagnostics provided on the *Dell Dimension ResourceCD* to check your computer's hardware. If you find a problem you cannot solve by yourself,

the diagnostic tests can provide you with important information you will need when talking to Dell's service and support personnel.

NOTICE: Use the Dell Diagnostics to test only your Dell computer system. Using this program with other computers may cause incorrect computer responses or result in error messages.

The Dell Diagnostics provides a series of menus and options from which you choose particular test groups or subtests. You can also control the sequence in which the tests are run. The diagnostic test groups or subtests also have these helpful features:

- Options that let you run tests individually or collectively
- An option that allows you to choose the number of times a test group or subtest is repeated
- The ability to display or print out test results or to save them in a file
- Options to temporarily suspend testing if an error is detected or to terminate testing when an adjustable error limit is reached
- A **Devices** menu category that briefly describes each test and its parameters
- A **Config** menu category that describes the configuration of the devices in the selected device group
- Status messages that inform you whether test groups or subtests were completed successfully
- Error messages that appear if any problems are detected

As long as the microprocessor and the input and output components of your computer system (the monitor, keyboard, optical drive, and diskette drive) are working, you can use the Dell Diagnostics. If you are experienced with computers and know what component(s) you need to test, simply select the appropriate diagnostic test group(s) or subtest(s). If you are unsure about how to begin diagnosing a problem, read the rest of this section.

Starting the Dell Diagnostics

To start the diagnostics, perform the following steps:

1. Turn on (or restart) your system.
2. Enter the system setup program by pressing <Del> when the blue Dell logo appears.

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

   See Appendix B, "System Setup Program," for more information.

3. Change the first bootable device to **IDE CD-ROM** in the **Boot Options** screen.

   Write down the first bootable device option that you are changing (usually **Floppy Disk A:**) so you can change the setting back after you run the diagnostics.

   See Appendix B, "System Setup Program," for more information.

4. Insert the *Dell Dimension ResourceCD* into the optical drive.

5. Press <Esc> to exit and save the system setup program settings.

6. When the boot menu appears on the screen, select the **1. Start computer with CD-ROM support** option and press <Enter>.

7. Verify that the prompt drive letter is the optical drive letter in which you placed the *Dell Dimension ResourceCD* (usually `d:`). If not, type the optical drive letter followed by a colon <:>, and press <Enter>.

NOTE: Press <Shift> and <;> to type the colon <:> character on the Japanese keyboard.

8. Type `dimcdiag` and press <Enter>.

   The **DIAGNOSTICS MENU** appears (see Figure 3-1). The menu allows you to run all or specific diagnostic tests or to exit to the MS-DOS prompt.

NOTE: Before you read the rest of this section, you may want to start the Dell Diagnostics so that you can see it on the screen of your monitor.

9. After running the diagnostics, repeat steps 1 through 3 to reset the first bootable device to its original option (usually **Floppy Disk A:**).

For a quick check of your system, select **Quickly Test All Devices**. This option runs only the subtests that do not require user interaction and that do not take a long time to run. Dell recommends that you choose this option first to increase the odds of tracing the source of the problem quickly. For a thorough check of your system, select **Fully Test All Devices**. To check a particular area of your system, select **Select Devices to Test**.

To select an option from this menu, highlight the option and press <Enter>, or press the key that corresponds to the highlighted letter in the option you choose.

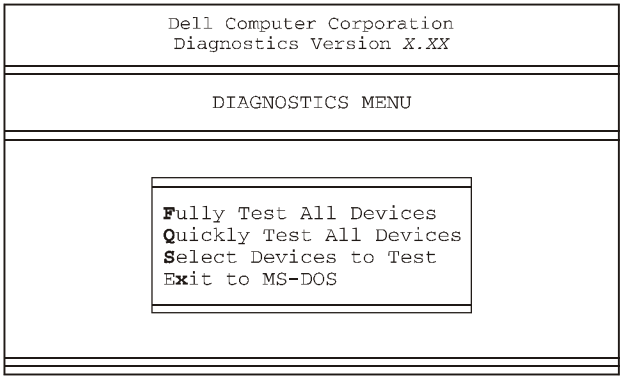


Figure 3-1. Diagnostics Menu

Dell Diagnostics Main Screen

When you select **Select Devices to Test** from the **DIAGNOSTICS MENU**, the main screen of the diagnostics appears (see Figure 3-2). The main screen lists the diagnostic test device groups, lists the devices of the selected device group, and allows you to select options from a menu. From this screen, you can enter two other types of screens.

Information on the main screen of the diagnostics is presented in the following areas:

- Two lines at the top of the screen identify the version number of the Dell Diagnostics.
- On the left side of the screen, the **Device Groups** area lists the diagnostic test groups in the order they will run if you select **All** from the **Run Tests** menu. Press the up- or down-arrow key to highlight a device group.
- On the right side of the screen, the **Devices for Highlighted Group** area lists the devices to be tested for the selected device group.
- Two lines at the bottom of the screen are the menu area. The first line lists the menu options you can select; press the left- or right-arrow key to highlight a menu option. The second line gives information about the option currently highlighted.

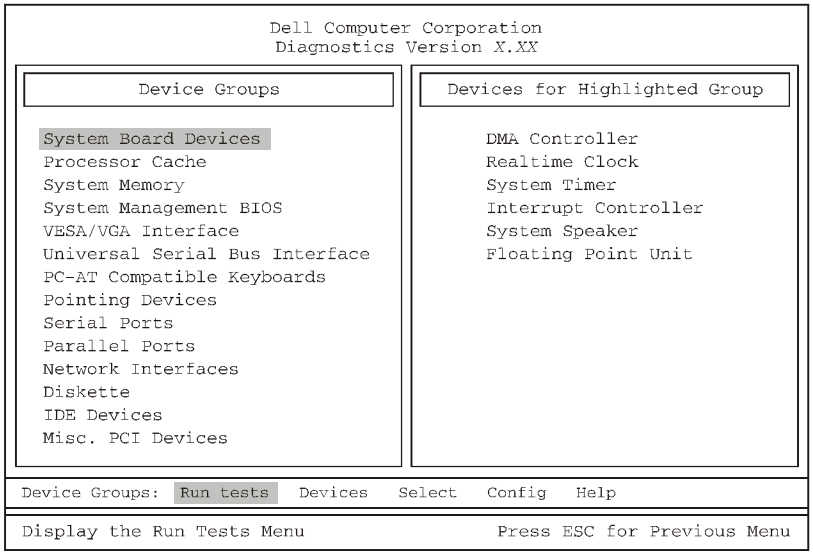


Figure 3-2. Dell Diagnostics Main Screen

Do not be concerned if the **Device Groups** area does not list the names of all the components or devices you know are part of your computer system. For example, you will not see a mouse listed, although you know one is attached to your computer. If you select the **Pointing Devices** device group, **Mouse** is listed under **Devices for Highlighted Group**. Similarly, you can test your printer connection through the **Parallel Ports** device group.

Using the Dell Diagnostics

The online Help in the Dell Diagnostics provides instructions on how to use the program and explains each menu item, test group, subtest, and test and error result. To enter the Help menu, perform the following steps:

1. Highlight **Select Devices to Test** in the **DIAGNOSTICS MENU**.
2. Press <Enter>.
3. Press <h>.

The **Help** menu options are **Menu**, **Keys**, **Device Group**, **Device**, **Test**, and **Versions**. The online Help also provides detailed descriptions of the devices that you are testing. The **Help** options are explained in the following subsections.

Menu

Menu describes the main menu screen area, the device groups, and the different diagnostic menus and commands and provides instructions on how to use them.

Keys

Keys explains the functions of all the keystrokes that can be used in the Dell Diagnostics.

Device Group

Device Group describes the test group that is presently highlighted in the **Device Groups** list on the main menu screen. It also provides reasoning for using some tests.

Device

Device is the educational section of the online Help. It describes the function and purpose of the highlighted device in the **Device Groups** area. For example, the following information appears when you select **Device** for **Diskette** in the **Device Groups** list:

```
Diskette drive A:

The diskette disk drive device reads and writes data to and from
diskettes. Diskettes are flexible recording media, sometimes
contained in hard shells. Diskette recording capacities are
small and access times are slow relative to hard disk drives,
but they provide a convenient means of storing and transferring
data.
```

Test

Test provides a thorough explanation of the subtest highlighted for a selected device group. For example, the following description is provided for the **Diskette Drive Seek Test**:

```
Diskette drive A: - Diskette Drive Seek Test

This test verifies the drive's ability to position its read/
write heads. The test operates in two passes: first, seeking
from the beginning to ending cylinders inclusively, and second,
seeking alternately from the beginning to ending cylinders with
convergence towards the middle.
```

Versions

Versions lists the version numbers of the subtests that are used by the Dell Diagnostics.

CHAPTER 4
Software Solutions

This chapter describes software features and procedures, such as power management features and reinstalling drivers, that can often solve problems with your computer system.

Using the Power Management Features in Windows 98, Windows Me, and Windows 2000

For Windows 98, the power management features of your Dell system can be set through the **Power Management Properties** window. For Windows 2000 and Windows Me, the power management features can be set through the **Power Options Properties** window. If you press <Del> when the computer restarts, your computer's power management features can be set through the system setup program.

To set the power management features in Windows 98, perform the following steps:

1. Click the **Start** button, point to **Settings**, and click **Control Panel**.
2. Double-click the **Power Management** icon.
3. Set the power management features in the **Power Management Properties** window.

To set the power management features in Windows 2000 and Windows Me, perform the following steps:

1. Click the **Start** button, point to **Settings**, and click **Control Panel**.
2. Double-click the **Power Options** icon.
3. Set the power management features in the **Power Options Properties** window.

The **Power Schemes** tab allows you to select the power scheme (**Always On**, **Home/Office Desktop**, or **Portable/Laptop)** and power mode settings for your computer. For Windows 2000 and Windows Me, the following options are available for each power scheme setting:

- **Turn off monitor** — Turns off the monitor so that the system uses less power. You can press any key to turn on the monitor. The Windows desktop is restored exactly as it appeared before the monitor was turned off.
- **Turn off hard disk** — Turns off the hard-disk drive so that the system uses less power. You can press any key to turn on the hard-disk drive. The Windows desktop is restored exactly as it appeared before the hard-disk drive was turned off.
- **System standby** — Turns off the monitor, stops the hard-disk drive, and turns off other internal devices so that the computer uses less power. When the system resumes from standby mode, the Windows desktop is restored exactly as it appeared prior to entering standby mode.

NOTE: The system may take several seconds to resume operation from the power scheme settings.

The **Advanced** tab allows you to display the **Power Management** icon on the Windows 98 taskbar and the **Power Options** icon on the Windows 2000 and Windows Me taskbar. You may also select the option to have a password prompt appear when the system resumes from standby mode. For Windows 2000 and Windows Me, you may set the system to power off or to enter standby mode when you press the power button.

For Windows 2000 and Windows Me, the following additional tabs are included in the **Power Options Properties** window:

- The **Hibernate** tab allows you to enable hibernate mode support and displays available disk space for hibernation.
- The **UPS** tab displays the status of the uninterruptible power supply (UPS), if installed.

Reinstalling Drivers

All of your system's drivers for Dell-installed devices are operative when you receive the system—no further installation or configuration is needed. However, if you ever need to reinstall any of these drivers, the driver files are provided on the *Dell Dimension ResourceCD*.

Device problems can often be corrected by reinstalling the appropriate drivers. Also, hardware manufacturers frequently provide updated drivers that support feature enhancements or that correct problems. Obtain updated drivers for products purchased from Dell at the support section of the Dell World Wide Web site (**http://support.dell.com**).

NOTICE: Drivers available on the Dell Web site have been validated for correct operation on Dell systems. Installing drivers obtained from other sources may cause errors or performance degradation.

Your System's Drivers

The device drivers that can be reinstalled on your system are listed below:

- **Intel Chip Set Update Utility Driver** — Installs Windows device installation files (**.inf**) that tell the operating system how certain chip set components should be configured for proper operation.
- **Intel Security Driver** — Provides a heightened level of security for transmitting data across a network or across the Internet.
- **Intel 810e Video Driver** — Enables the system's video controller to function properly.
- **ADI Audio Driver** — Enables the system's audio controller to produce sound.
- **Other Drivers** — Control devices, such as modem cards or network interface controller (NIC) cards, that may installed on your system. For instructions on how to reinstall these drivers, see the device's documentation by double-clicking the **Dell Documents** icon on the Windows desktop, clicking **System Information**, and then clicking **System Documentation**.

NOTES: If a driver does not appear under a selected operating system on the Dell Dimension ResourceCD, then the driver is not required by that operating system.

If you reinstall Windows 98, you must reinstall the Intel Chip Set Update Utility before you reinstall any other drivers.

Using the Dell Dimension ResourceCD to Reinstall Drivers

NOTICE: The *Dell Dimension ResourceCD* contains drivers for devices that might not be installed in your computer. Do not install device drivers unless you first identify the specific driver intended for the hardware installed in your computer (see "Your System's Drivers," found earlier in this chapter). Installing incorrect drivers might make your computer inoperable.

1. Start the computer's operating system.
2. If you have not initially installed the *Dell Dimension ResourceCD* application program, proceed to the next step. If you have previously installed the application program, proceed to step 6.
3. Insert the *Dell Dimension ResourceCD* into the optical drive.

   The **ResourceCD Installation** application program automatically starts.
4. Follow the instructions on your screen.
5. When the **InstallShield Wizard Complete** window appears, remove the *Dell Dimension ResourceCD* from the optical drive, and then click **Finish** to restart the computer.
6. After the operating system starts, insert the *Dell Dimension ResourceCD* into the optical drive.

   The **Welcome Dell System Owner** screen appears.

7. Click **Next**.
8. Change the language in the **Language** list located in the upper-right corner of the window, if needed.
9. Select the model of your computer in the **System Model** list.
10. Select your computer's operating system in the **Operating System** list.
11. Select the type of device in the **Device Type** list.
12. Select **Drivers** in the **Topic** list.
13. Click the name of the driver that you want to reinstall.

    See "Your System's Drivers," found earlier in this chapter, for a list of drivers that you can reinstall on your computer.
14. Follow the instructions on the screen.

Temporarily Disabling the Virus-Scanning Program

Before you install commercially available software, temporarily disable any virus-scanning program running on your computer. For instructions on temporarily disabling virus protection, see the online documentation provided with your virus-scanning software.

NOTICE: When virus-scanning software is disabled, viruses are not detected on your system.

After you install the software, reenable the virus-scanning program. See the online documentation provided with your virus-scanning software for instructions.

Resolving Software and Hardware Incompatibilities

For a device to operate properly, both the device and its software must be compatible with the operating system.

Windows 98 and Windows Me

Windows 98 and Windows Me interrupt request (IRQ) conflicts occur if a device either is not detected during the Windows 98 or Windows Me Plug and Play setup or is detected but incorrectly configured. To check for conflicts, perform the following steps:

1. Click the **Start** button, point to **Settings**, and click **Control Panel**.
2. In the **Control Panel**, double-click the **System** icon.

3. Click the **Device Manager** tab.
4. In the **Device Manager** list, check for conflicts with other devices.

   Conflicts are indicated by a yellow exclamation point (!) beside the conflicting device or a red X if the device has been disabled.
5. Double-click the malfunctioning device type in the **Device Manager** list.
6. Double-click the icon for the specific device in the expanded list.

   The **Properties** window appears.

   If there is an IRQ conflict, the **Device status** area in the **Properties** window reports what expansion cards or devices are sharing the device's IRQ.
7. Resolve the IRQ conflicts.

You can also use the Windows 98 Hardware Conflict Troubleshooter. To use the troubleshooter, click the **Start** button and click **Help**. Double-click **Troubleshooting** on the **Contents** tab, and then double-click **If you have a hardware conflict**. In Windows Me, double-click **Troubleshooting** in the **What would you like help with?** list, click **Hardware & system device problems**, click **Hardware, memory, & others**, and then click **Hardware Troubleshooter**.

Windows 2000

To check for conflicts on a computer running Windows 2000, perform the following steps:

1. Click the **Start** button, point to **Settings**, and click **Control Panel**.
2. In the **Control Panel**, double-click the **System** icon.
3. Click the **Hardware** tab.
4. Click **Device Manager**.
5. Click **View** and then click **Resources by connection**.
6. Double-click **Interrupt request (IRQ)** to view the IRQ assignments.

   Conflicts are indicated by a yellow exclamation point (!) beside the conflicting device or a red X if the device has been disabled.
7. Double-click the malfunctioning device type in the **Device Manager** list.
8. Double-click the icon for the specific device in the expanded list.

   The **Properties** window appears.

   If there is an IRQ conflict, the **Device status** area in the **Properties** window reports what expansion cards or devices are sharing the device's IRQ.
9. Resolve the IRQ conflicts.

You can also use the Windows 2000 Hardware Conflict Troubleshooter. To use the troubleshooter, click the **Start** button and click **Help**. Double-click **Troubleshooting and Maintenance** on the **Contents** tab, and then double-click **If you have a hardware conflict**.

Windows NT

To check for conflicts on a computer running Windows NT, perform the following steps:

1. Open the **Event Viewer** in the **Administrative Tools (Common)** folder, and check for any relevant event log messages.
2. Start the **Windows NT Diagnostics** from the **Administrative Tools (Common)** folder, and check current resource assignments on the **Resources** tab.
3. Then click the **Services** tab and view the state of **Services and Devices**.

Reinstalling Windows 98

NOTICE: The operating system CD provides options for reinstalling your Windows 98 Second Edition operating system. The options can potentially overwrite files installed by Dell and possibly affect programs installed on your hard-disk drive. Therefore, Dell does not recommend that you reinstall your operating system unless instructed to do so by a Dell technical support representative.

NOTICE: To prevent conflicts with Windows 98, you must disable any virus protection software installed on your system before you reinstall Windows 98.

1. Turn on the computer and enter the system setup program as directed by a Dell technical support representative.
2. In the system setup program **Boot** menu, change the boot sequence so that the CD-ROM or DVD-ROM drive boots first, as directed by a Dell technical support representative. Then place the operating system CD in the CD-ROM or DVD-ROM drive and close the drive tray.
3. Exit the system setup program.

   The system restarts.
4. At the **Welcome** window, click **OK**.
5. Double-click **Refresh Windows OS**.
6. Click **OK**.
7. Click **OK** again.

8. Remove the operating system CD from the CD-ROM or DVD-ROM drive and click **OK** to restart your system.

   The **Getting ready to run Windows for the first time** screen appears.

9. If the mouse tutorial starts, press <Esc> to exit and then press y.

10. Click the regional setting closest to where you live and click **Next**.

11. Click your keyboard layout and click **Next**.

12. In the **User Information** window, type your name and, if applicable, company name, and then click **Next**.

    The **Name** field must be completed; the **Company Name** field is optional.

    The **License Agreement** window appears.

13. Click **I accept the Agreement**, and then click **Next**.

14. Type the Windows product key in the fields provided, and then click **Next**.

    The product key is the bar code number found on the Microsoft Windows label, which is located on the side of your system.

15. In the **Date/Time Properties** window, adjust the date and time properties, click **Apply**, and then click **OK**.

    Windows 98 updates the system settings and restarts your system.

16. When the **Start Wizard** appears, click **Finish**.

    The **Enter Windows Password** window appears. To continue without creating a Windows user name and password, click **OK**. Otherwise, type your user name and password in the appropriate fields and then click **OK**.

17. If you created a Windows user name and password, type your password and click **OK**.

NOTICE: Make sure that you reinstall the Intel Chip Set Update Utility driver before you reinstall any other drivers.

18. Reinstall the appropriate drivers.

19. Reenable your virus protection software.

20. Enter the system setup program as directed by a Dell technical support representative.

21. In the system setup program **Boot** menu, change the boot sequence so that the diskette drive boots first, as directed by a Dell technical support representative. Then, exit the system setup program.

Reinstalling Windows Me

NOTICE: The operating system CD provides options for reinstalling your Windows Me operating system. The options can potentially overwrite files installed by Dell and possibly affect programs installed on your hard drive. Therefore, Dell does not recommend that you reinstall your operating system unless instructed to do so by a Dell technical support representative.

NOTICE: To prevent conflicts with Windows Me, you must disable any virus protection software installed on your system before you reinstall Windows Me.

1. Turn on the computer and enter the system setup program as directed by a Dell technical support representative.
2. In the system setup program **Boot** menu, change the boot sequence so that the CD-ROM or DVD-ROM drive boots first, as directed by a Dell technical support representative. Then place the operating system CD in the CD-ROM or DVD-ROM drive and close the drive tray.
3. Exit the system setup program.
4. Select **Boot From CD-ROM**, and then press <Enter>.

   If you wait too long to make this selection, the computer automatically boots from the hard drive. If this occurs, allow the computer to boot completely, and then restart it and try again.
5. Select **Start Windows Setup from CD-ROM**, and then press <Enter>
6. Press <Enter> again.
7. Select **Continue Setup and replace your current operating system**, and then press <Enter>.
8. Press <Enter> again.

   ScanDisk automatically starts and checks your hard-disk drive.
9. Click **Next** in the **Welcome to Windows Me** window.
10. Select the directory in which Windows resides.

    If **C:\WINDOWS (recommended)** is displayed, select it, and then click **Next**.

    If **C:\WINDOWS.000 (recommended)** is displayed, click **Other**, change `C:\WINDOWS.000` to `C:\WINDOWS`, and then click **Next**.
11. Ensure that **Typical** is selected, and then click **Next**.
12. Specify a computer name, workgroup, and computer description, if desired, and then click **Next**.
13. Select a country in the **Country/Region** window, and then click **Next**.
14. Specify a time zone in the **Establish Time Zone** window, and then click **Next**.

15. Click **Finish**.

    Windows Setup installs necessary files, and then restarts the system.

16. Select **Boot From Hard Drive**, and then press <Enter>.

17. In the **User Information** window, type your name and, if applicable, company name, and then click **Next**.

    The **Name** field must be completed; the **Company Name** field is optional.

    The **License Agreement** window appears.

18. Click **I accept the Agreement**, and then click **Next**.

19. Type the Windows product key in the fields provided, and then click **Next**.

    The product key is the bar code number found on the Microsoft Windows label, which is located on the side of your system.

20. Click **Finish**.

    Windows Setup installs additional files, and then restarts the system.

21. Select **Boot From Hard Drive**, and then press <Enter>.

    Windows Setup installs additional files, and then restarts the system.

22. Select **Boot From Hard Drive**, and then press <Enter>.

23. Enter a password in the **Enter Network Password** window, if desired, and then click **Next**.

24. Remove the *Dell Product Recovery CD* from the CD-ROM or DVD-ROM drive.

25. Enter the system setup program as directed by a Dell technical support representative.

26. In the system setup program **Boot** menu, change the boot sequence so that the diskette drive boots first, as directed by a Dell technical support representative. Then, exit the system setup program.

Reinstalling Windows 2000

1. Insert the operating system CD into the CD-ROM or DVD-ROM drive.

2. Shut down the computer.

3. Start the computer.

4. Press any key when the **Press any key to boot from CD** message appears on the screen.

5. When the **Windows 2000 Setup** screen appears, ensure that the **To setup Win2000 now, press ENTER** option is highlighted. Then press <Enter>.

6. Read the information in the **License Agreement** screen, and then press <F8> to continue.

7. When the **Windows 2000 Professional Setup** screen appears, use the arrow keys to select the Windows 2000 partition option that you want. To continue, press the key specified in the partition option that you chose.

8. When the **Windows 2000 Professional Setup** screen reappears, use the arrow keys to select the type of filing system that you want Windows 2000 to use, and then press <Enter>.

9. Press <Enter> again to restart your computer.

10. Click **Next** when the Welcome to the **Windows 2000 Setup Wizard** screen appears.

11. When the **Regional Settings** screen appears, select the settings for your locale, and then click **Next**.

12. Enter your name and organization in the **Personalize Your Software** screen, and then click **Next**.

13. When prompted, enter the Windows product key, which is printed on the Microsoft label on your computer. Then click **Next**.

14. When the C**omputer Name and Administrator Password** screen appears, enter a name for your computer and a password, if desired. Then click **Next**.

15. Enter the date and time in the **Date and Time Settings** screen, and then click **Next**.

    Windows 2000 now begins to install its components and configure the computer.

16. When the **Completing the Windows 2000 Setup Wizard** screen appears, remove the CD from the drive, and then click **Finish**.

    The computer automatically restarts.

CHAPTER 5
Checking Inside Your Computer

This chapter describes troubleshooting procedures for expansion cards and system memory. Some procedures require you to access the inside of the computer and remove and reinstall components. Procedures are also included for checking a wet or damaged computer.

CAUTION: Before completing any of the procedures in this chapter, be sure to follow the procedures in "Safety First—For You and Your Computer" in Chapter 2.

Expansion Cards

If an error message indicates an expansion-card problem or if an expansion card seems to perform incorrectly or not at all, the problem could be a faulty connection, a conflict with software or other hardware, or a faulty expansion card. If software problems and conflicts have been eliminated, perform the following general steps to troubleshoot expansion cards:

1. Remove the computer cover as described in "Removing and Replacing the Computer Cover" in Chapter 2.
2. Remove the riser-board bracket as described in "Removing and Replacing the Riser-Board Bracket" in Chapter 2.
3. Remove all of the internal and external cables attached to the expansion cards.
4. Remove the expansion cards as described in "Removing Expansion Cards" in Chapter 2. Then reinstall the expansion cards, fully seating the cards in their connectors.

   Figure 5-1 illustrates a correctly seated expansion card, and Figure 5-2 illustrates incorrect expansion-card installations.
5. Reconnect the cable connectors to the appropriate connectors on the expansion cards.
6. Replace the riser-board bracket.
7. Replace the computer cover, connect all external cables, and turn on the system.

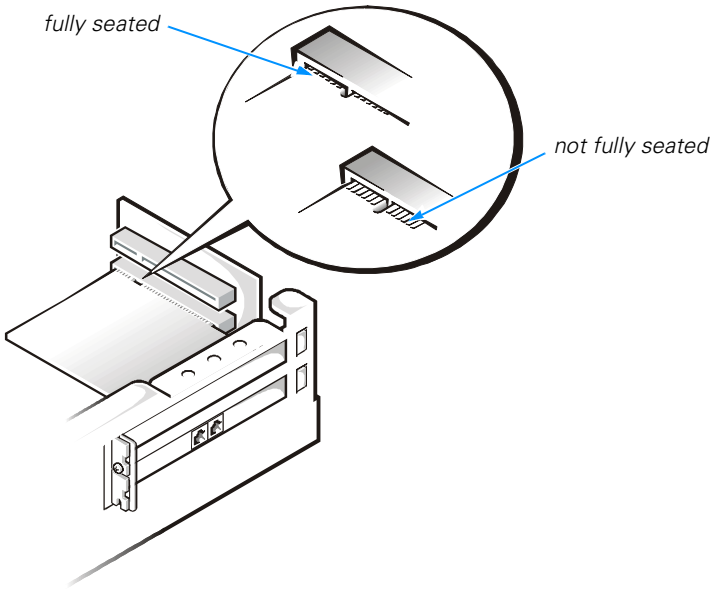


Figure 5-1. Expansion-Card Installation

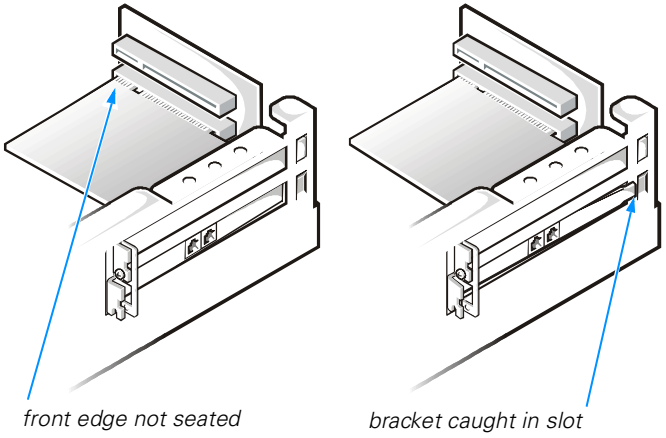


Figure 5-2. Incorrect Expansion-Card Installations

The following subsections provide troubleshooting procedures for some specific types of expansion cards.

Modem

In general, modem malfunctions may be caused by any of the following problems:

- Incorrectly seated modem in the Peripheral Component Interconnect (PCI) slot
- Interrupt request (IRQ) conflicts
- Incorrect drivers installed
- Incorrect software configuration

To troubleshoot a modem card, perform the following steps:

1. Check for modem IRQ conflicts.

   See "Resolving Software and Hardware Incompatibilities" in Chapter 4. Resolve any modem IRQ conflicts, and restart the computer system.

2. Verify the modem configuration as follows:

   a. Click the **Start** button, point to **Settings**, and click **Control Panel**.

   b. In the **Control Panel**, double-click **Modems** for Windows 98, Windows Me, and Windows NT or double-click **Phone and Modem Options** for Windows 2000.

   c. *If there are multiple entries for the same modem*, remove those entries and restart the computer.

      If there are modems listed that are not part of the system configuration, remove them from the list.

      If you are using Windows NT, verify the modem properties and then proceed to step 3.

   d. Click the **Diagnostics** tab.

   e. Highlight the COM port that the modem is using.

   f. Click **More Info** to verify that the system can communicate with the modem. If the modem reports information to the system, the modem is operating properly.

3. Remove the computer cover as described in "Removing and Replacing the Computer Cover" in Chapter 2.

4. Remove the riser-board bracket as described in "Removing and Replacing the Riser-Board Bracket" in Chapter 2.

5. Remove and reinstall the modem, fully seating the card in its connector (see Figure 5-1).

6. Replace the riser-board bracket.

7. Replace the computer cover, connect all external cables, and turn on the system. Enter the system setup program as described in Appendix B, "System Setup Program," and verify that the **Serial Port 1** is set to **Enabled**.

NOTE: If you have persistent problems with low connection speeds, contact your telephone company to check for data noise and imbalanced lines or your Internet service provider (ISP) for information about their service.

Network Cards

In general, network malfunctions may be caused by the following problems:

- Wrong or incorrectly installed network interface controller (NIC) drivers
- IRQ conflicts
- Damaged RJ45 connector or patch cable
- Bad hub port connection
- Incorrectly installed or malfunctioning network card

NOTE: If you can connect to the network but are having problems accessing network resources, contact your network administrator.

To troubleshoot a network card, perform the following steps:

1. Run the diagnostics for your network card as described in the documentation that came with the card.

   If the network card is not detected, go to step 2.

   If the network card does not pass all the tests, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

2. Remove the computer cover as described in "Removing and Replacing the Computer Cover" in Chapter 2.

3. Remove the riser-board bracket as described in "Removing and Replacing the Riser-Board Bracket" in Chapter 2.

4. Remove all expansion cards installed in the computer (see "Removing Expansion Cards" in Chapter 2) except the network card to prevent an incorrectly configured card from causing an interrupt or input/output (I/O) port resource conflict.

5. Replace the riser-board bracket.

6. Replace the computer cover, connect all external cables, and turn on the system.

7. Clear nonvolatile random-access memory (NVRAM) as described in "Clearing NVRAM" in Appendix B.

8. If the network hardware is functional, check the network connections as follows:

   a. Check the network card connector for physical damage.

   b. Ensure that the cable is inserted properly.

c. Replace the patch cable or network cable from the wall jack to the computer.

d. If replacing the patch cable or network cable does not solve the problem, try moving the computer to a known good location on the network.

e. If you still cannot connect to the network, ensure that the right drivers are being used.

9. If the network card is still not detected, see Chapter 6, "Getting Help," for information on obtaining technical assistance. If the network card is detected, repeat step 1.

System Memory

If a random-access memory (RAM) error message appears, troubleshoot the memory by performing the following steps:

1. Turn on the computer and monitor.
2. If you hear a beep code, see Appendix C, "Beep Codes and System Messages."
3. If you received an error message after making changes in the system setup program, restore the original values and restart the system.
4. Enter the system setup program as described in Appendix B, "System Setup Program," and verify **1st Bank**, **2nd Bank**, and **Total Memory** on the **System Information** screen.

   If the memory amount displayed in megabytes (MB) does not match the computer's configuration, reseat the dual in-line memory modules (DIMMs) as described in the next subsection.

NOTE: The system memory value reported by the operating system is 1 or 2 MB less than the memory installed because that memory is reserved for video functions. For example, if the computer has 64 MB of system memory, the operating system may report 62 or 63 MB.

Reseating DIMMs

1. Remove the computer cover as described in "Removing and Replacing the Computer Cover" in Chapter 2.
2. Remove the riser-board bracket as described in "Removing and Replacing the Riser-Board Bracket" in Chapter 2.
3. Remove the expansion cards as described in "Removing Expansion Cards" in Chapter 2.
4. Remove the DIMMs as described in "Removing a DIMM" in Chapter 2.

5. Check the DIMMs and DIMM sockets for broken tabs and damaged connectors.

   If a module is damaged, replace it. If a DIMM socket is damaged, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

6. Reinstall the DIMMs as described in "Installing a DIMM" in Chapter 2.

7. Replace the expansion cards and the riser-board bracket.

8. Replace the computer cover, reconnect the system to an electrical outlet, and turn on the system.

9. Enter the system setup program as described in Appendix B, "System Setup Program," and verify **1st Bank**, **2nd Bank**, and **Total Memory** on the **System Information** screen.

   If the problem still exists and you have a single DIMM, repeat steps 1 through 5, installing the DIMM in a different socket. If you have more than one DIMM, try installing one at a time.

10. If the problem persists, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

If Your Computer Gets Wet

Liquids from spills, splashes, and excessive humidity can damage your computer. If an external device (such as a printer) gets wet, contact the manufacturer of that device for instructions. If your computer gets wet, perform the following steps:

1. Immediately unplug the computer from the electrical outlet.

2. Remove the computer cover as described in "Removing and Replacing the Computer Cover" in Chapter 2.

3. Let the computer dry for at least 24 hours.

NOTICE: Make sure that the computer is thoroughly dry before proceeding.

4. Remove the riser-board bracket as described in "Removing and Replacing the Riser-Board Bracket" in Chapter 2.

5. Remove all expansion cards installed in the computer (see "Removing Expansion Cards" in Chapter 2), and replace the riser-board bracket.

6. Replace the computer cover, reconnect the system to an electrical outlet, and turn on the computer system.

   If the system does not have power, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

7. Turn off the system, and disconnect it from the electrical outlet.

8. Remove the computer cover.

9. Remove the riser-board bracket.

10. Reinstall all the expansion cards you removed in step 5, replace the riser-board bracket, and replace the computer cover.

    See "Installing Expansion Cards" in Chapter 2 for instructions.

11. Insert the *Dell Dimension ResourceCD* into the optical drive.

NOTES: For systems running Windows 98 or Windows Me, also insert the Microsoft Windows 98 Boot Disk or Microsoft Windows Me Boot Disk into the diskette drive.

For systems running Windows NT, also insert the Hard Drive Diagnostics and Utilities diskette included with your computer system or any MS-DOS bootable diskette into the diskette drive.

12. Turn on the computer system.

    If the system does not start, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

13. When the boot screen appears, select **Start Computer with CD-ROM Support.**

14. At the `a:\` prompt, type *x*`:` (where *x* is the drive letter for the optical drive, which is displayed on the line above the `a:\` prompt). Press <Enter>.

15. Type `diags32` and press <Enter>.

    The **DIAGNOSTICS MENU** appears.

16. Type `q` to quickly test your computer system.

    If the tests do not complete successfully, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

If Your Computer Is Damaged

If your computer is dropped or damaged, check it to make sure it still functions properly. If a device attached to the computer is dropped or damaged, contact the manufacturer for technical assistance. To troubleshoot a damaged computer, perform the following steps:

1. Remove the computer cover as described in "Removing and Replacing the Computer Cover" in Chapter 2.

2. Check the connections in the computer.

   Check all power and interface cable connections for the drives. Make sure all cables are securely and properly connected to the system board. Verify that all expansion cards are firmly seated as shown in Figure 5-1 and that all components are properly seated in their connectors and sockets.

3. Replace the computer cover, and reconnect the system to an electrical outlet.

4. Insert the *Dell Dimension ResourceCD* into the optical drive.

NOTES: For systems running Windows 98 or Windows Me, also insert the Microsoft Windows 98 Boot Disk or Microsoft Windows Me Boot Disk into the diskette drive.

For systems running Windows NT, also insert the Hard Drive Diagnostics and Utilities diskette included with your computer system or any MS-DOS bootable diskette into the diskette drive.

5. Turn on the computer system.

   If the system does not start, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

6. When the boot screen appears, select **Start Computer with CD-ROM Support.**

7. At the `a:\` prompt, type *`x:`* (where *`x`* is the drive letter for the optical drive, which is displayed on the line above the `a:\` prompt). Press <Enter>.

8. Type `diags32` and press <Enter>.

   The **DIAGNOSTICS MENU** appears.

9. Type `q` to quickly test your computer system.

   If the tests do not complete successfully, see Chapter 6, "Getting Help," for instructions on obtaining technical assistance.

CHAPTER 6
Getting Help

This chapter describes the tools Dell provides to help you when you have a problem with your computer. It also tells you when and how to call Dell for technical or customer assistance.

Technical Assistance

If you need assistance with a technical problem, perform the following steps:

1. Complete the basic troubleshooting checks described in "Checking the Basics" in Chapter 3.
2. Run the Dell Diagnostics as described in "Running the Dell Diagnostics" in Chapter 3.
3. Make a copy of the Diagnostics Checklist (found later in this chapter), and fill it out.
4. Use Dell's extensive suite of online support services available at Dell's World Wide Web support site (**http://support.dell.com**) for help with installation and troubleshooting procedures.

   For more information, refer to "World Wide Web" found later in this chapter.
5. If the preceding steps have not resolved the problem and you need to talk to a Dell technician, call Dell's technical support service.

   The system information label provides your system's five-character service tag sequence. The label is located on the upper-left corner of the computer.

   For instructions on using the technical support service, refer to "Technical Support Service" and "Before You Call" found later in this chapter.

Help Tools

Dell provides a number of tools to assist you. These tools are described in the following sections.

NOTE: Some of the following tools are not always available in all locations. Please call your local Dell representative for information on availability.

World Wide Web

The Internet is your most powerful tool for obtaining information about your computer and other Dell products. From Dell's World Wide Web home page (**http://www.dell.com**), you can access product information, order status, and technical support.

From Dell's technical support page (**http://support.dell.com**), click one of the following:

Support Your Dell — Enter your service tag and then click **Submit**. The service tag sequence is listed on the system information label. See the *System Help* for the location of the system information label.

From this page you can access a number of tools and information such as system documentation, drivers, and basic input/output (BIOS) updates, and self-diagnostic tools for resolving many computer-related issues by following interactive flowcharts.

Online Knowledge Center — This tool searches the Dell Knowledge Base and Dell Support for answers and related topics.

Dell can be accessed electronically using the following addresses:

- World Wide Web

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

  http://www.dell.com/

  http://www.euro.dell.com (for Europe only)

- Anonymous file transfer protocol (FTP)

  ftp.dell.com/

  Log in as `user: anonymous`, and use your e-mail address as your password.

- Electronic Support Service

  apsupport@dell.com (for Asian/Pacific countries only)

  support@us.dell.com

  support.euro.dell.com (for Europe only)

- Electronic Quote Service

  apmarketing@dell.com (for Asian/Pacific countries only)

  sales@dell.com

- Electronic Information Service

  info@dell.com

Automated Order-Status System

You can call this automated service to check on the status of any Dell products that you have ordered. A recording prompts you for the information needed to locate and report on your order. For the telephone number to call, refer to "Dell Contact Numbers" found later in this chapter.

Technical Support Service

Dell's industry-leading hardware technical-support service is available 24 hours a day, seven days a week, to answer your questions about Dell hardware.

Our technical support staff pride themselves on their track record: more than 90 percent of all problems and questions are taken care of in just one toll-free call, usually in less than 10 minutes. When you call, our experts can refer to records kept on your Dell system to better understand your particular question. Our technical support staff use computer-based diagnostics to provide fast, accurate answers to questions.

To contact Dell's technical support service, first refer to the section titled "Before You Call" and then call the number listed in "Dell Contact Numbers" found later in this chapter.

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 Customer Care telephone number to call, refer to "Dell Contact Numbers" found later in this chapter.

Product Information

If you need information about additional products available from Dell or if you would like to place an order, visit Dell's World Wide Web site at **http://www.dell.com/**. For the telephone number to call to speak to a sales specialist, refer to "Dell Contact Numbers" found later in this chapter.

Returning Items for Warranty Repair or Credit

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

1. Call Dell to obtain an authorization number, and write it clearly and prominently on the outside of the box.

   For the telephone number to call, refer to "Dell Contact Numbers" found later in this chapter.

2. Include a copy of the invoice and a letter describing the reason for the return.

3. Include a copy of the Diagnostics Checklist indicating the tests you have run and any error messages reported by the Dell Diagnostics.

4. Include any accessories that belong with the item(s) being returned (power cables, software diskettes, 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 Computer Corporation. Collect-on-delivery (C.O.D.) packages are not accepted.

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

Before You Call

Remember to fill out the Diagnostics Checklist (Figure 6-1). If possible, turn on your system before you call Dell for technical 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 system itself. Make sure the system documentation is available.

CAUTION: If you need to remove the computer covers, be sure to first disconnect the computer system's power and modem cables from all electrical outlets.

Diagnostics Checklist

Name: _____Date: _____

Address: _____Phone number: _____

Service tag (bar code on the back of the computer): _____

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

Operating system and version: _____

Peripherals: _____

_____

_____

Expansion cards:_____

_____

_____

Are you connected to a network? ☐ yes ☐ no

Network, version, and network card: _____

Programs and versions:_____

_____

_____

_____

Refer to 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: _____

_____

_____

Figure 6-1. Diagnostics Checklist

Dell Contact Numbers

Table 6-1 provides area codes and telephone numbers for each department or service available in Japan.

Table 6-1. Dell Contact Numbers

Country (City)	Department Name or Service	Area Code	Local Number or Toll-Free Number
Japan (Kawasaki)	Technical Support (Server)		toll free: 0120-1984-35
	Technical Support (Dimension™ and Inspiron™)		toll free: 0120-1982-26
	Technical Support Outside of Japan (Dimension and Inspiron)	81-44	520-1435
	Technical Support (Dell Precision™, OptiPlex™, and Latitude™)		toll free: 0120-1984-33
	Technical Support Outside of Japan (Dell Precision, OptiPlex, and Latitude)	81-44	556-3894
	Customer Care	044	556-4240
	24-Hour Automated Order Status Service	044	556-3801
	Home and Small Business Group Sales	044	556-3344
	Individual User	044	556-1760
	Preferred Accounts Division Sales (over 400 employees)	044	556-3433
	Large Corporate Accounts Sales (over 3500 employees)	044	556-3430
	Business Sales Division (up to 400 employees)	044	556-1465
	Government, Education, and Medical Sales	044	556-3345
	Dell Global Japan	044	556-3469
	Faxbox Service	044	556-3490
	Switchboard	044	556-4300
	Web site: **http://support.jp.dell.com**		

APPENDIX A
System Specifications

Table A-1. Technical Specifications

Microprocessor	
Microprocessor type	Intel Socket 370 Pentium III processor that runs at an external speed of 100 MHz or an Intel Socket 370 Celeron processor that runs at an external speed of 66 MHz
L1 cache	32 KB (16-KB data cache; 16-KB instruction cache)
L2 cache	128-KB SDRAM
Math coprocessor	internal to processor
System Information	
System chip set	Intel 810e chip set
Data bus width	64 bits
Address bus width	32 bits
DMA channels	eight
Interrupt levels	15
Display cache	4 MB
System BIOS chip	Y2K-, DMI 2.0s-, and system management BIOS 2.3-compliant BIOS in 4-Mb flash chip
Expansion Bus	
Bus type	PCI (version 2.2)
Bus speed	33 MHz
PCI-to-PCI bridging	supported

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table A-1. Technical Specifications (continued)

Expansion Bus *(continued)*	
Expansion-card connectors	supports two one-third–length PCI expansion cards
Expansion-card connector size	120 pins
ACPI specification	1.0a
Expansion-card connector data width (maximum)	32 bits
System Clock	
System clock	66 or 100 MHz (matches external bus speed)
Memory	
Architecture	non-ECC SDRAM 168-pin modules
DIMM sockets	two; gold contacts
DIMM capacities	32, 64, 128, and 256 MB
Minimum RAM	64 MB
Maximum RAM	512 MB
Frequency	100 MHz
Clock cycle	10 ns (supports 4 clocks only)
CAS latency	three
SPD revision	1.2
Buffering	unbuffered
Voltage	3.3 V
Data bus width	64 bits
BIOS address	F0000h

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table A-1. Technical Specifications (continued)

Drives	
Externally accessible	one 3.5-inch bay for a slim-height 3.5-inch diskette drive; one 5.25-inch bay for a slim-height optical drive
Internally accessible	one bay for 1-inch–high IDE hard-disk drive
Ports and Connectors	
Externally accessible:	
Serial (DTE)	9-pin connector; 16550-compatible
Parallel	25-pin connector (bidirectional)
Video	15-pin connector
PS/2-style keyboard	6-hole mini-DIN connector
PS/2-compatible mouse	6-hole mini-DIN connector
USB	one USB-compliant connector on the front panel; one on the back panel
Audio	two front-panel miniature jacks for microphone and headphones and one back-panel miniature line-out jack for speakers
Internally accessible:	
Primary IDE channel	40-pin connector on PCI bus
Secondary IDE channel	50-pin slimline connector on PCI bus
Diskette drive	26-pin slimline connector
Fan	2-pin connector
Video	
Graphics architecture	Intel Dynamic Video Memory (DVM) technology
Graphics accelerator	Intel Direct AGP 2D and 3D graphics accelerator
Display cache	4-MB, 133-MHz SDRAM
Graphics memory	Dynamically assigned from system memory

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table A-1. Technical Specifications (continued)

Video *(continued)*	
Video resolutions	800 x 600 pixels; 75-Hz refresh rate with 16.7 million colors 1024 x 786 pixels; 75-Hz refresh rate with 64,000 colors 1280 x 1024 pixels; 75-Hz refresh rate with 256 colors 1600 x 1200 pixels; 75-Hz refresh rate with 256 colors
Controls and Indicators	
Power control	push button
Power indicators	green on system board; green on front panel
Hard-disk drive access indicator	green
Power	
DC power supply:	
Wattage	100 W
Heat dissipation	808 BTU (nominal)
Voltage (switch-selectable on back panel)	100 V at 50 to 60 Hz for Japanese systems; 90 to 135 V at 60 Hz; 180 to 265 V at 50 Hz;
Backup battery	3-V CR2032 coin cell
Physical	
Height	7.8 cm (3.0 inches)
Width	31.0 cm (12.2 inches)
Depth	29.5 cm (11.6 inches)
Weight	6.6 kg (14.5 lb)

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table A-1. Technical Specifications (continued)

Environmental	
Temperature:	
Operating	10° to 35°C (50° to 95°F) *
Storage	–40° to 65°C (–40° to 149°F)
Relative humidity:	
Operating	20% to 80% (noncondensing)
Storage	5% to 95% (noncondensing)
Maximum vibration:	
Operating	0.25 G at 3 to 200 Hz at 1/2 octave/min
Storage	0.5 G at 3 to 200 Hz at 1/2 octave/min
Maximum shock:	
Operating	bottom half-sine pulse with a change in velocity of 50.8 cm/sec (20 inches/sec)
Storage	27-G faired-square wave with a velocity change of 508 cm/sec (200 inches/sec)
Altitude:	
Operating	–15.2 to 3048 m (–50 to 10,000 ft) *
Storage	–15.2 to 10,668 m (–50 to 35,000 ft)

* *At 35°C (95°F), the maximum operating altitude is 914 m (3000 ft).*

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

APPENDIX B
System Setup Program

This appendix describes the system setup program, which you can use to configure your computer as well as enable and disable your computer's password features.

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

You can use the system setup program as follows:

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

Dell recommends that you print the system setup program screens (by pressing <Print Screen>) or write down the information for future reference.

Entering the System Setup Program

Enter the system setup program as follows:

1. Turn on (or restart) your system.
2. When the blue Dell logo appears, press <Del>.

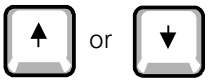
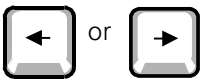
   If you wait too long and the operating system begins to load into memory, *let the system complete the load operation*. Then shut down the system and try again.

You can also enter the system setup program by responding to certain error messages.

Using the System Setup Program

Table B-1 lists the keys you use to view or change information on the system setup screens and to exit the program.

Table B-1. System Setup Navigation Keys

Keys	Action
	Moves the highlight bar up or down to select an item.
	Selects the submenu for the current option. Returns to selected screen from the **Key Help Guide**.
	Switches to full screen mode.
	Returns to the parent menu; from the **Main** screen, prompts you to exit with or without saving changes.
	Moves the cursor to the previous or next menu option.
	Moves the screen page up and down.
	Moves the cursor to the beginning of the page.
	Moves the cursor to the end of the page.
	Displays the **Key Help Guide**.

System Setup Screens and Options

The system setup screens are organized as follows:

- The left side of each screen lists options that define the installed hardware in your system.
- The right side of each screen displays options that contain settings or values that you can change. Values that are grayed out contain status information reported by the system.
- The bottom of each screen displays help information for the option with a currently highlighted field if the system setup program is not in full screen mode.
- Pressing <Alt><h> displays the **Key Help Guide**, which lists keys and their functions for the currently displayed screen.

The **Main** screen provides access to the following screens:

- **System Information** screen — Displays a compilation of the present settings of the basic system configuration
- **Product Information** screen — Displays system product version numbers and identification codes
- **Disk Drives** screen — Provides settings for the system drives
- **Onboard Peripherals** screen — Provides settings for the integrated system board ports and controllers
- **Boot Options** screen — Provides information about which device boots the system and options for boot type
- **Date and Time** screen — Provides selections for setting the system date and time
- **System Security** screen — Provides selections for setting the system's security level
- **Advanced Options** — Provides a menu for setting the system's cache and Peripheral Component Interface (PCI) device options and Plug and Play operation

The **Main** screen also allows you to load the system setup program's default settings and to cancel all changes to the settings.

Main Screen

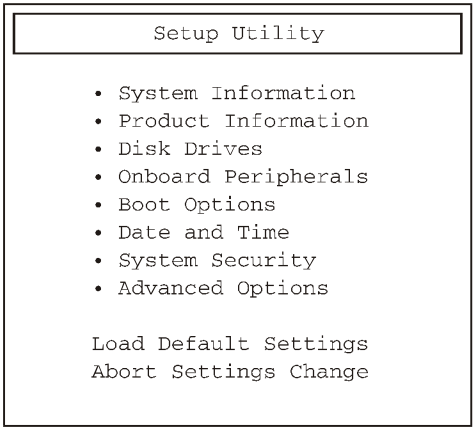


Figure B-1. Main Screen Menu

Table B-2. Main Screen Menu Options

Option	Function
System Information	Displays the **System Information** screen. See "System Information Screen" found later in this appendix.
Product Information	Displays the **Product Information** screen. See "Product Information Screen" found later in this appendix.
Disk Drives	Displays the **Disk Drives** screen. See "Disk Drives Screen" found later in this appendix.
Onboard Peripherals	Displays the **Onboard Peripherals** screen. See "Onboard Peripherals Screen" found later in this appendix.
Boot Options	Displays the **Boot Options** screen. See "Boot Options Screen" found later in this appendix.
Date and Time	Displays the **Date and Time** screen. See "Date and Times Screen" found later in this appendix.
System Security	Displays the **System Security** screen. See "System Security Screen" found later in this appendix.
Advanced Options	Displays the **Advanced Options** screen. See "Advanced Options Screen" found later in this appendix.
Load Default Settings	Resets the system setup program to its default settings.
Abort Settings Change	Cancels all changes to the system setup settings.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

System Information Screen

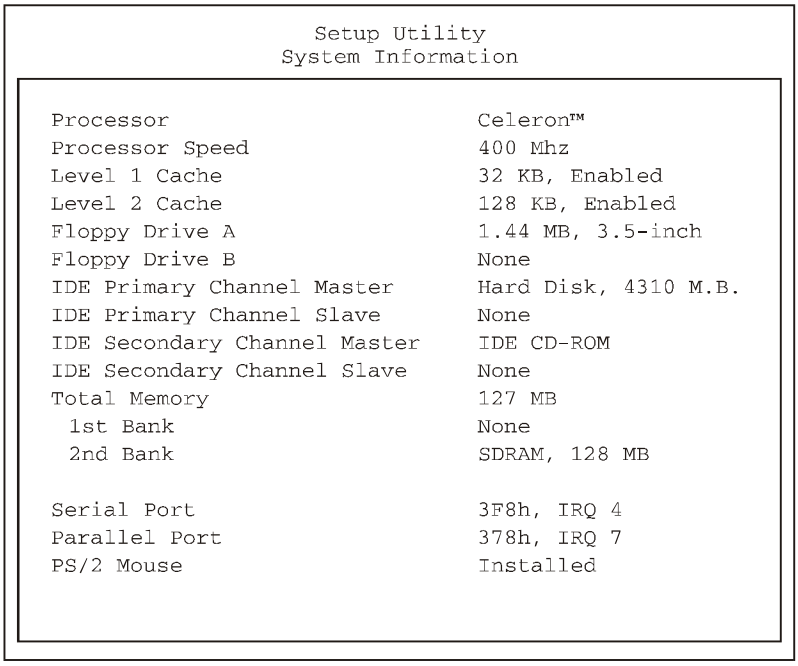


Figure B-2. System Information Screen Menu

Table B-3. System Information Screen Menu Options

Option	Function
None	Displays a compilation of the present settings of the basic system configuration.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Product Information Screen

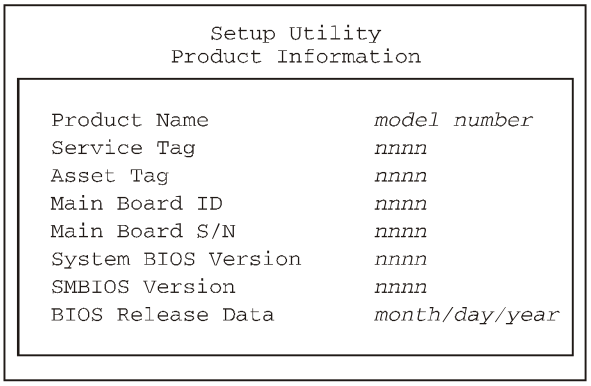


Figure B-3. Product Information Screen Menu

Table B-4. Product Information Screen Menu Options

Option	Function
None	Displays system product version numbers and identification codes.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Disk Drives Screen

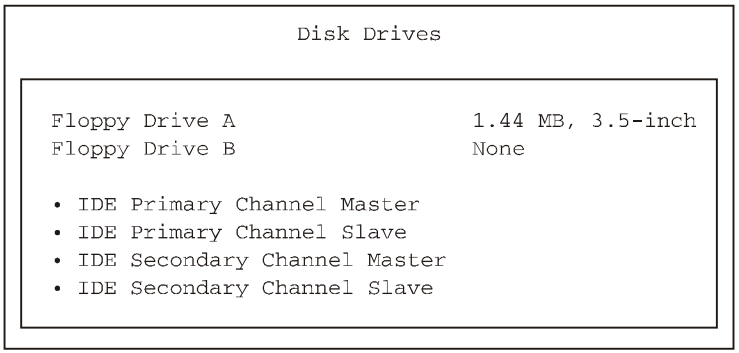


Figure B-4. Disk Drives Screen Menu

Table B-5. Disk Drives Screen Menu Options

Option	Function
Floppy Drive A	Selects the type of diskette drive. Valid selections are **1.44 MB, 3.5-inch** (default); **2.88 MB, 3.5-inch**; **720 KB, 3.5-inch**; or **None**.
Floppy Drive B	Because the chassis supports only one diskette drive, this option should be set to **None**.
IDE Primary Channel Master	Identifies the first drive attached to the primary EIDE interface, usually the boot hard-disk drive. See "IDE Primary Channel Master Submenu" found later in this appendix.
IDE Primary Channel Slave	Identifies the second drive attached to the primary EIDE interface, if there is one. The format of this submenu is the same as the one described in "IDE Primary Channel Master Submenu" found later in this appendix.
IDE Secondary Channel Master	Identifies the first drive attached to the secondary EIDE interface, usually a CD-ROM drive. The format of this submenu is the same as the one described in "IDE Primary Channel Master Submenu" found later in this appendix.
IDE Secondary Channel Slave	Identifies the second drive attached to the secondary EIDE interface, if there is one. The format of this submenu is the same as the one described in "IDE Primary Channel Master Submenu" found later in this appendix.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

IDE Primary Channel Master Submenu

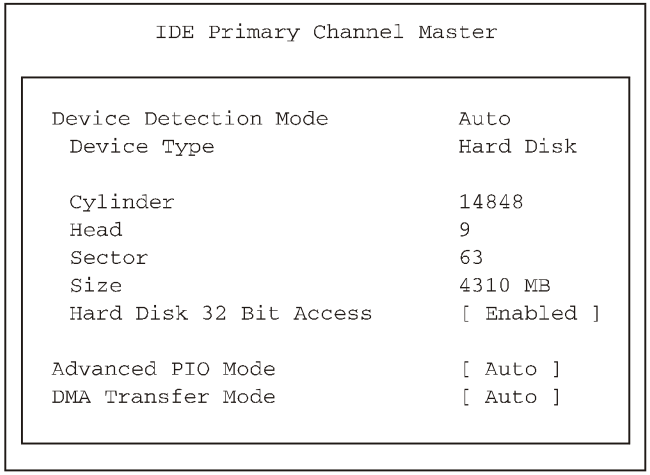


Figure B-5. IDE Primary Channel Master Submenu

Table B-6. IDE Primary Channel Master Submenu Options

Option	Function
Device Detection Mode	Specifies the mode of device detection on the channel. Selections are **Auto** (default), **User**, and **None**.
Device Type	Displays the device type as **Hard Disk**, **CD-ROM**, **DVD-ROM**, or **None**.
Cylinder	If you set **Device Detection Mode** to **User**, you can enter the number of cylinders from 0 to 16383.
Head	If you set **Device Detection Mode** to **User**, you can enter the number of heads from 0 to 16.
Sector	If you set **Device Detection Mode** to **User**, you can enter the number of sectors from 0 to 63.
Size	Displays the size of the drive.
Hard Disk 32 Bit Access	Set to **Enabled** (default) to enhance the hard-disk drive access-rate performance. Otherwise, set to **Disabled**.
Advanced PIO Mode	Sets the PIO mode to **Auto** (default), **Mode 0**, **Mode 1**, **Mode 2**, **Mode 3**, or **Mode 4**. Set to **Auto** to optimize the hard-disk drive timing.
DMA Transfer Mode	Sets the DMA transfer mode to **Auto** (default), **Multiword 0**, **Multiword 1**, **Multiword 2**, **Ultra Mode 0**, **Ultra Mode 1**, **Ultra Mode 2**, **Ultra Mode 3**, **Ultra Mode 4**, or **Disabled**.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Onboard Peripherals Screen

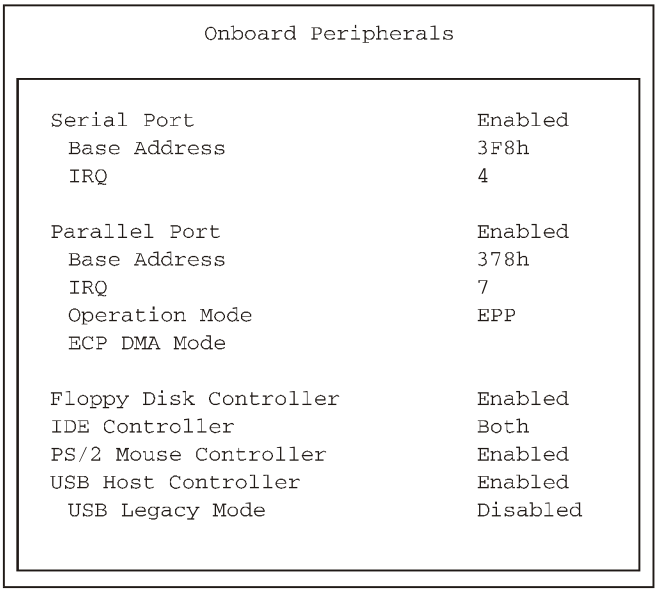


Figure B-6. Onboard Peripherals Screen Menu

Table B-7. Onboard Peripherals Screen Menu Options

Option	Function
Serial Port	Configures the serial port. Set this option to **Enabled** (default) or **Disabled**. If set to **Enabled**, you can set the following additional options:
Base Address	Available base I/O addresses are **3F8h** (default), **3E8h**, **2F8h**, and **2E8h**.
IRQ	Available interrupts are **4** (default) and **3**.
Parallel Port	Configures the parallel port. Set this option to **Enabled** (default) or **Disabled**. Depending on the port setting, you can set the following additional options:
Base Address	If port is set to **Enabled**, available base I/O addresses are **378h** (default) and **278h**.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table B-7. Onboard Peripherals Screen Menu Options *(continued)*

Option	Function
IRQ	If port is set to **Enabled**, available interrupts are **7** (default) and **5**.
Operation Mode	Sets parallel port to **EPP** (default), **ECP**, **Standard**, or **Bi-Directional** mode of operation. *NOTE: See the device manufacturer's documentation for information on which mode to use before changing this setting.*
ECP DMA Channel	If operation mode is set to **ECP**, sets the DMA channel to **1** (default) or **3**.
Floppy Disk Controller	Determines if the diskette-drive controller is **Enabled** (default) or **Disabled**.
PS/2 Mouse Controller	Determines if the mouse controller is **Enabled** (default) or **Disabled**.
IDE Controller	Determines the IDE controller mode. Selections are **Both** (default), **Primary**, or **Disabled**.
USB Host Controller	Determines if the USB host controller is **Enabled** (default) or **Disabled**. If set to **Enabled**, you can set the following additional option:
USB Legacy Mode	Set to **Disabled** (default) if legacy USB support is not desired. **Enabled** allows support for legacy USB devices. *NOTE: USB Legacy Mode automatically sets to **Disabled** if a PS/2 keyboard is detected by the system during POST.*

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Boot Options Screen

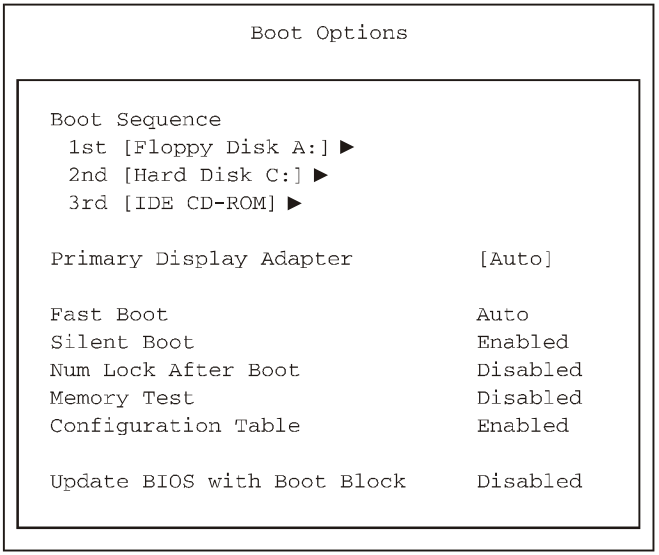


Figure B-7. Boot Options Screen Menu

Table B-8. Boot Options Screen Menu Options

Option	Function
Boot Sequence	Determines the sequence of the first, second, and third boot devices. The selections are **Floppy Disk A:**, **Hard Disk C:**, and **IDE CD-ROM**. *NOTE: If a NIC card is installed, it appears as a fourth boot device.*
Primary Display Adapter	Configures the primary display device. Select **Auto** (default) to have the computer first check for a video PCI expansion card and, if one is found, initialize it as the primary display device. Select **Onboard** to initialize the integrated video controller as the primary display device, regardless of the presence of a video card.
Fast Boot	Configures POST speed. Select **Auto** (default) to bypass some test procedures during POST. Select **Disabled** to allow full POST test procedures.
Silent Boot	Configures the Dell logo screen at boot. Selections are **Enabled** (default) and **Disabled**.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table B-8. Boot Options Screen Menu Options *(continued)*

Option	Function
Num Lock After Boot	Determines whether the keyboard's Num Lock mode remains on after the system boots. The selections are **Disabled** (default) and **Enabled**.
Memory Test	Configures memory testing during boot. If **Fast Boot** is **Disabled**, boot memory testing can be **Disabled** (default) or **Enabled**.
Configuration Table	Displays the system configuration table at boot. Set to **Enabled** (default) or **Disabled**.
Update BIOS with Boot Block	**NOTICE: Do not change this option from Disabled (default). If the option is set to Enabled, you cannot restart your computer without technical assistance.**

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Date and Time Screen

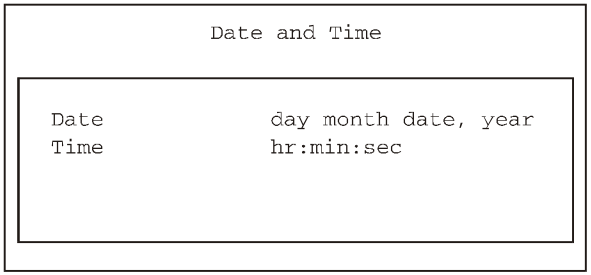


Figure B-8. Date and Time Screen Menu

Table B-9. Date and Time Screen Menu Options

Option	Function
Date	Resets the date on the computer's internal calendar.
Time	Resets the time on the computer's internal clock.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

System Security Screen

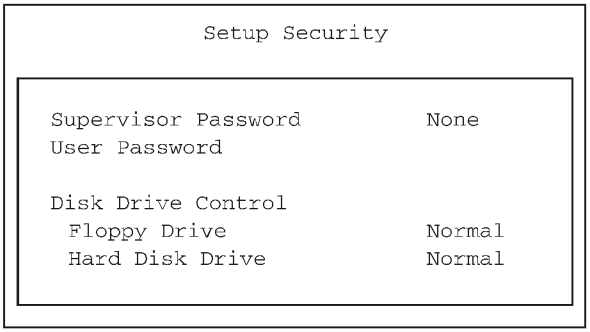


Figure B-9. System Security Screen Menu

Table B-10. System Security Screen Menu Options

Option	Function
Supervisor Password	Sets, changes, or cancels a supervisor password.
User Password	Sets, changes, or cancels a user password.
Floppy Drive	Provides security for the diskette drive. Selections are **Normal** (default), **Write Protect All Sectors**, and **Write Protect Boot Sector**.
Hard Disk Drive	Provides security for the hard-disk drive. Selections are **Normal** (default), **Write Protect All Sectors**, and **Write Protect Boot Sector**.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Advanced Options Screen

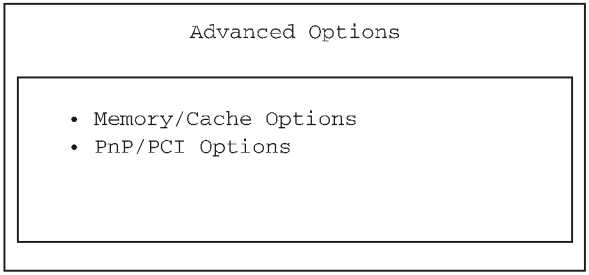


Figure B-10. Advanced Options Screen Menu

Table B-11. Advanced Options Screen Menu Options

Option	Function
Memory/Cache Options	Displays the **Memory/Cache Options** screen. See "Memory/Cache Options Submenu" found later in this appendix.
PnP/PCI Options	Displays the **PnP/PCI Options** screen. See "PnP/PCI Options Submenu" found later in this appendix.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

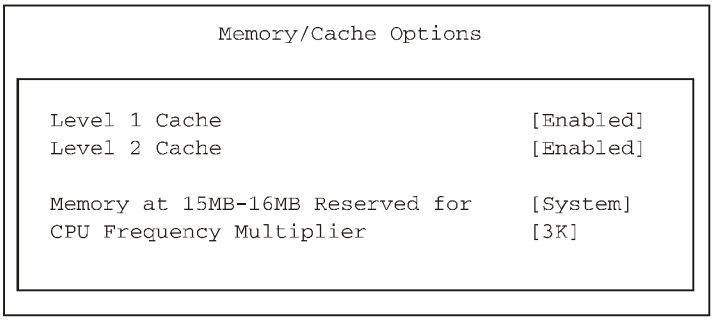


Figure B-11. Memory/Cache Options Submenu

Table B-12. Memory/Cache Options Submenu Options

Option	Function
Level 1 Cache	Sets Level 1 cache to **Enabled** (default) or **Disabled**.
Level 2 Cache	Sets Level 2 cache to **Enabled** (default) or **Disabled**.
Memory at 15MB-16MB Reserved for	Reserves system memory at 15 MB to 16 MB for use by **System** (default) or **Add-on Card**.
CPU Frequency Multiplier	Sets the CPU frequency multiplier at **3X** (default), **3.5X**, **4X**, **4.5X**, **5X**, **5.5X**, **6X**, **6.5X**, **7X**, **7.5X**, or **8X**.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

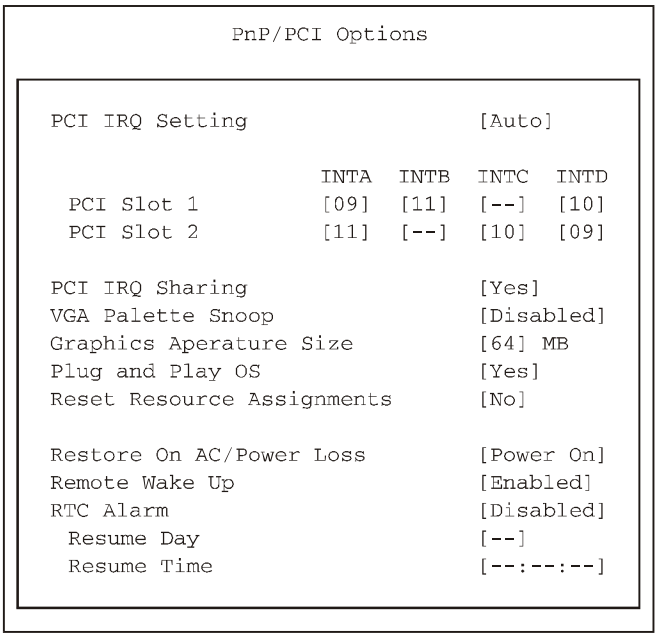


Figure B-12. PnP/PCI Options Submenu

Table B-13. PnP/PCI Options Screen Submenu Options

Option	Function
PCI IRQ Setting	Allows the PCI IRQ settings to be assigned automatically if set to **Auto** (default) or manually if set to **Manual**. If set to **Manual**, you can set the following additional options:
PCI Slot 1	If **PCI IRQ Setting** is set to **Manual**, the expansion card in PCI slot 1 can be manually assigned to interrupt **03**, **05**, **09**, **10**, or **11**.
PCI Slot 2	If **PCI IRQ Setting** is set to **Manual**, the expansion card in PCI slot 2 can be manually assigned to interrupt **03**, **05**, **09**, **10**, or **11**.
PCI IRQ Sharing	Allows different PCI devices to use the same interrupt assignment. The selections are **Yes** (default) and **No**.
VGA Palette Snoop	Deactivates the palette snoop function for PCI VGA devices if set to **Disabled** (default). Set to **Enable** to activate the function.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table B-13. PnP/PCI Options Screen Submenu Options *(continued)*

Option	Function
Graphics Aperture Size	Sets the graphics aperture size to **4**, **8**, **16**, **32**, **64**, **128**, or **256** MB.
Plug and Play OS	Set to **Yes** (default) to allow the operating system to handle all Plug and Play operation. Set to **No** to allow the BIOS to handle the Plug and Play operation.
Reset Resource Assignments	Set to **No** (default) to retain ESCD data. Set to **Yes** to clear ESCD data.
Restore On AC/ Power Loss	Determines the system mode of operation after an AC power failure. The selections are **Power On**, (default), **Stays Off**, and **Last State**.
Remote Wake Up	Set to **Enabled** (default) to activate remote Wakeup On LAN mode. Set to **Disabled** to deactivate it.
RTC Alarm	Determines the time and date for the RTC alarm function to resume. The selections are **Time**, **Date**, **Time/Date**, and **Disabled** (default). If set to **Time**, **Date**, or **Time/Date**, you can set the following additional options:
Resume Day	Sets the day for the RTC alarm function to resume. The selections are **1** (default) through **31**.
Resume Time	Sets the hour/minute/second for the RTC alarm function to resume. The selections are **00 (default)** to **59** for each field.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Disabling a Forgotten Password

If you forget your user or supervisor password, you will be unable to operate your system or change settings in the system setup program, respectively, until you disable the existing password(s). Disabling the password(s) involves removing the computer cover and changing a jumper setting (twice) on the system board.

NOTE: You disable both supervisor and user passwords at the same time.

To disable a forgotten password, perform the following steps:

1. Turn off the computer and unplug it from the electrical outlet.
2. Remove the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found in Chapter 2.
3. Remove the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found in Chapter 2.
4. Remove all expansion cards according to the instructions in "Removing Expansion Cards" found in Chapter 2.

5. Move the password jumper (JP6) to the "bypass" setting described in "Password Jumper" in Chapter 2.
6. Replace all expansions cards and the riser-board bracket.
7. Replace the computer cover.
8. Attach the computer to the electrical outlet and turn it on.
9. Enter the system setup program and assign a new supervisor or user password in the **System Security** menu (see Figure B-9).
10. Exit and save the system setup program settings.
11. After the system boots, turn it off, and unplug it from the electrical outlet.
12. Remove the computer cover, the riser-board bracket, and all expansions cards.
13. Move the password jumper (JP6) to the "enabled" setting described in "Password Jumper" in Chapter 2.
14. Replace all expansion cards, the riser-board bracket, and the computer cover.
15. Attach the computer to the electrical outlet, and turn it on.

Clearing NVRAM

To clear NVRAM for all devices, perform the following steps:

1. Turn off the computer and unplug it from the electrical outlet.
2. Remove the computer cover according to the instructions in "Removing and Replacing the Computer Cover" found in Chapter 2.
3. Remove the riser-board bracket according to the instructions in "Removing and Replacing the Riser-Board Bracket" found in Chapter 2.
4. Remove all expansion cards according to the instructions in "Removing Expansion Cards" found in Chapter 2.
5. Move the NVRAM jumper (JPX2) to the "clear" setting described in "NVRAM Jumper" in Chapter 2.
6. Replace all expansion cards, the riser-board bracket, and the computer cover.
7. Attach the computer to the electrical outlet, and turn it on.
8. After the system boots, turn it off, and unplug it from the electrical outlet.
9. Remove the computer cover, the riser-board bracket, and all expansion cards.

10. Move the NVRAM jumper (JPX2) to the "retain" setting described in "NVRAM Jumper" in Chapter 2.
11. Replace all expansions cards, the riser-board bracket, and the computer cover.
12. Attach the computer to the electrical outlet, and turn it on.

APPENDIX C
Beep Codes and System Messages

Your application programs, the operating system, and the computer itself can provide you with error and status information in the form of beep codes that sound through the computer's speaker or messages that appear on the monitor screen. This appendix documents the beep codes and system messages generated by the system basic input/output system (BIOS). For other messages, see the documentation for your application program or operating system.

POST Beep Codes

If the monitor cannot display errors or problems, during power-on self-test (POST) the computer may emit a series of beeps, or *beep code*, that identifies the problem. The beep codes are listed and explained in Table C-1.

Table C-1. POST Beep Codes

Beep Code	Possible Cause	Corrective Action
2-1-1	The **Update BIOS with Boot Block** option is set to **Enabled** in the system setup program.	Enter the system setup program, set the **Update BIOS with Boot Block** option to **Disabled**, and then restart the system. See Appendix B, "System Setup Program."
2-2	SDRAM DIMMs are not installed, or EDO DIMMs are installed.	Install 100-MHz SDRAM DIMMs from Dell. See "Adding Memory" in Chapter 2.
2-2-1-1-1	Incompatible 100-MHz SDRAM DIMM is installed.	Replace with 100-MHz SDRAM DIMM from Dell. See "Adding Memory" in Chapter 2.
2-2-2-1	EDO DIMM is installed with an SDRAM DIMM.	Replace EDO DIMM with 100-MHz SDRAM DIMMs from Dell. See "Adding Memory" in Chapter 2.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table C-1. POST Beep Codes (continued)

Beep Code	Possible Cause	Corrective Action
2-2-2-1-1	66-MHz SDRAM DIMM is installed.	Replace with 100-MHz SDRAM DIMMs from Dell. See "Adding Memory" in Chapter 2.
2-2-2-1-1-1	Registered DIMM is installed.	Replace with 100-MHz SDRAM DIMM from Dell. See "Adding Memory" in Chapter 2.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

System Messages

The first column in Table C-2 lists system messages that may appear on the screen during the start-up routine or during normal system operation. The second column in the table lists possible causes of the messages, and the third column either provides a corrective action or refers you to a source for resolving the problem.

Table C-2. System Messages

Message	Possible Cause	Corrective Action
`CMOS Battery Bad`	The system board battery may be faulty.	Replace the system battery. See "Replacing the System Battery" in Chapter 2.
`CMOS Checksum Error`	A CMOS checksum error has occurred.	Run the **System Board Devices** tests as described in "Running the Dell Diagnostics" in Chapter 3.
`CPU Clock Mismatch`	The processor-clock jumper may be set incorrectly.	Check the processor-clock jumper settings. See "Jumpers" in Chapter 2.

`Diskette Drive x Error`
 	
`Diskette Drive Controller Error`
	The diskette drive may be faulty, type mismatched, or not properly installed.	Run the **Diskette** tests as described in "Running the Dell Diagnostics" in Chapter 3.

`Equipment Configuration Error`	The hardware configuration does not match the system setup program configuration data.	Check the system setup program settings. See Appendix B, "System Setup Program."

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table C-2. System Messages *(continued)*

Message	Possible Cause	Corrective Action
`Expansion ROM Allocation Fail`	The I/O expansion ROM fails to allocate for an expansion card.	Turn off the computer and disconnect your system and devices from their electrical outlets. Remove both of the cards. (See "Expansion Cards" in Chapter 5.) Reconnect the system and devices and reboot the computer. If the message persists, the expansion card may be malfunctioning. If the message does not appear, turn off the system and reinsert the other card.

`IDE Drive n Error`
 	
`IDE Drive n Auto Detection Failed`
	The IDE drive may be faulty, type mismatched, or not properly installed.	Run the **IDE Devices** tests as described in "Running the Dell Diagnostics" in Chapter 3.

`I/O Parity Error`	The I/O address is not correct.	Run the **System Board Devices** tests as described in "Running the Dell Diagnostics" in Chapter 3.
`Insert system diskette and press <Enter> key to reboot`	The diskette in drive A or your hard-disk drive does not have a bootable operating system installed on it.	Either replace the diskette with one that has a bootable operating system, or remove the diskette from drive A, and restart the computer.
`IRQ Setting Error`	An IRQ conflict has occurred.	See "Resolving Software and Hardware Incompatibilities" in Chapter 4.

`Keyboard Error or Keyboard Not Connected`
 	
`Keyboard Interface Error`
 	
`Keyboard Locked`
	A cable or connector may be loose, or the keyboard or keyboard/mouse controller may be faulty.	Check the keyboard connections or change the keyboard. Run the **Keyboard** tests as described in "Running the Dell Diagnostics" in Chapter 3.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table C-2. System Messages *(continued)*

Message	Possible Cause	Corrective Action
`Memory Error at MMMM:SSSS: OOOOh (R:xxxxh, W:xxxxh)`	One or more DIMMs may be faulty or improperly seated.	See "System Memory" and "Reseating DIMMs" in Chapter 5.
`NVRAM checksum Error`	An NVRAM checksum error has occurred.	Run the **System Board Devices** tests as described in "Running the Dell Diagnostics" in Chapter 3. See "Clearing NVRAM" in Appendix B.

`On Board Serial Port 1 Conflict(s)`
 	
`On Board Parallel Port Conflict(s)`
	Onboard serial or parallel port address conflicts with an expansion card serial or parallel port.	See "Resolving Software and Hardware Incompatibilities" in Chapter 4.

`On Board xxx ... Conflict(s)`	An onboard device has an IRQ, DMA, or I/O address conflict.	See "Resolving Software and Hardware Incompatibilities" in Chapter 4.
`PCI Device Error`	An expansion card may be faulty or improperly installed.	Turn off the computer and disconnect your system and devices from their electrical outlets. Remove both of the cards. (See "Expansion Cards" in Chapter 5.) Reconnect the computer and devices, and start the computer. If the message reappears, the expansion card may be malfunctioning. If the message does not appear, turn off the computer and reinsert the other card.

`Pointing Device Error`
 	
`Pointing Device Interface Error`
 	
`Pointing Device IRQ Conflict`
	A cable or connector may be loose, or the mouse or keyboard/mouse controller may be faulty.
	
	The IRQ setting of an expansion card or system board controller may be conflicting with onboard mouse controller.
		Check the keyboard connections or change the keyboard. Run the **Mouse** tests as described in "Running the Dell Diagnostics" in Chapter 3. See "Resolving Software and Hardware Incompatibilities" in Chapter 4. Resolve any mouse IRQ conflicts, and restart the computer.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

Table C-2. System Messages *(continued)*

Message	Possible Cause	Corrective Action
`Press <Del> key to enter SETUP or F1 key to Continue...`	A system configuration error is detected, or the hardware configuration does not match the system setup program configuration data.	Check the system setup program settings. See Appendix B, "System Setup Program."
`Press <Del> to turn off NMI, or any key to reboot`	A non-maskable interrupt (NMI) has occurred.	Press carat (`^`) to reject the NMI error, or press any other key to restart the system.
`RAM Parity Error`	One or more DIMMs may be faulty or improperly seated.	See "System Memory" and "Reseating DIMMs" in Chapter 5.
`Real Time Clock Error`	A real-time clock error has occurred.	Run the **System Board Devices** tests as described in "Running the Dell Diagnostics" in Chapter 3.
`System Management Memory Bad`	System management memory may be faulty.	See "System Memory" in Chapter 5.
`System Resource Conflict`	Some system resources conflict with the resources required by a PCI device.	See "Resolving Software and Hardware Incompatibilities" in Chapter 4.

NOTE: The Glossary in the system Help defines abbreviations and acronyms.

APPENDIX D
Regulatory Notices

Electromagnetic Interference (EMI) is any signal or emission, radiated in free space or conducted along power or signal leads, that endangers the functioning of a radio navigation or other safety service or seriously degrades, obstructs, or repeatedly interrupts a licensed radio communications service. Radio communications services include but are not limited to AM/FM commercial broadcast, television, cellular services, radar, air-traffic control, pager, and Personal Communication Services (PCS). These licensed services, along with unintentional radiators such as digital devices, including computer systems, contribute to the electromagnetic environment.

Electromagnetic Compatibility (EMC) is the ability of items of electronic equipment to function properly together in the electronic environment. While this computer system has been designed and determined to be compliant with regulatory agency limits for EMI, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference with radio communications services, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet so that the computer and the receiver are on different branch circuits.

If necessary, consult a Technical Support representative of Dell Computer Corporation or an experienced radio/television technician for additional suggestions. You may find the *FCC Interference Handbook, 1986*, to be helpful. It is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00450-7 or on the World Wide Web at **http://www.fcc.gov/Bureaus/Compliance/WWW/tvibook.html**.

Dell computer systems are designed, tested, and classified for their intended electromagnetic environment. These electromagnetic environment classifications generally refer to the following harmonized definitions:

- Class A is typically for business or industrial environments.
- Class B is typically for residential environments.

Information Technology Equipment (ITE), including peripherals, expansion cards, printers, input/output (I/O) devices, monitors, and so on, that are integrated into or connected to the system should match the electromagnetic environment classification of the computer system.

A Notice About Shielded Signal Cables: Use only shielded cables for connecting peripherals to any Dell device to reduce the possibility of interference with radio communications services. Using shielded cables ensures that you maintain the appropriate EMC classification for the intended environment. For parallel printers, a cable is available from Dell Computer Corporation. If you prefer, you can order a cable from Dell Computer Corporation on the World Wide Web at http://www.dell.com/products/dellware/index.htm.

Most Dell computer systems are classified for Class B environments. To determine the electromagnetic classification for your system or device, refer to the following sections specific for each regulatory agency. Each section provides country-specific EMC/EMI or product safety information.

VCCI Notice (Japan Only)

Most Dell computer systems are classified by the Voluntary Control Council for Interference (VCCI) as Class B information technology equipment (ITE). However, the inclusion of certain options can change the rating of some configurations to Class A. ITE, including peripherals, expansion cards, printers, input/output (I/O) devices, monitors, and so on, integrated into or connected to the system, should match the electromagnetic environment classification (Class A or B) of the computer system.

To determine which classification applies to your computer system, examine the regulatory labels/markings (see Figures D-1 and D-2) located on the bottom or back panel of your computer. Once you have determined your system's VCCI classification, read the appropriate VCCI notice.

Class A ITE

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) for information technology equipment. If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

VCCI-A

Figure D-1. VCCI Class A ITE Regulatory Mark

Class B ITE

この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の基準に基づくクラス B 情報技術装置です。この装置は家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用させると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

This is a Class B product based on the standard of the Voluntary Control Council for Interference (VCCI) for information technology equipment. If this equipment is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Figure D-2. VCCI Class B ITE Regulatory Mark

Battery Disposal

Your computer system uses a lithium-ion battery. The lithium-ion is a long-life battery, and it is very possible that you will never need to replace it. However, should you need to replace it, see “Replacing the System Battery” in Chapter 2 for instructions.

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

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