Dell® OptiPlex® N and OptiPlex NX Systems

USER'S GUIDE

October 1997 P/N 88787

Safety Instructions

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

CAUTION: Only authorized service technicians and qualified network administrators should remove the computer cover and access any of the components inside the computer. Do not attempt to service the computer system yourself.

When Using Your Computer System

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

- To help avoid damaging your computer, only plug your computer into a 115-volt (V)/60-hertz (Hz) or 230-V/50-Hz AC power source.

  Also be sure your monitor and attached peripherals are electrically rated to operate with the AC power available in your location.
- To help prevent electric shock, plug the computer and peripheral 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, call your network administrator.
- 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, and do not place your computer in a closed-in wall unit or on a bed, sofa, or rug.

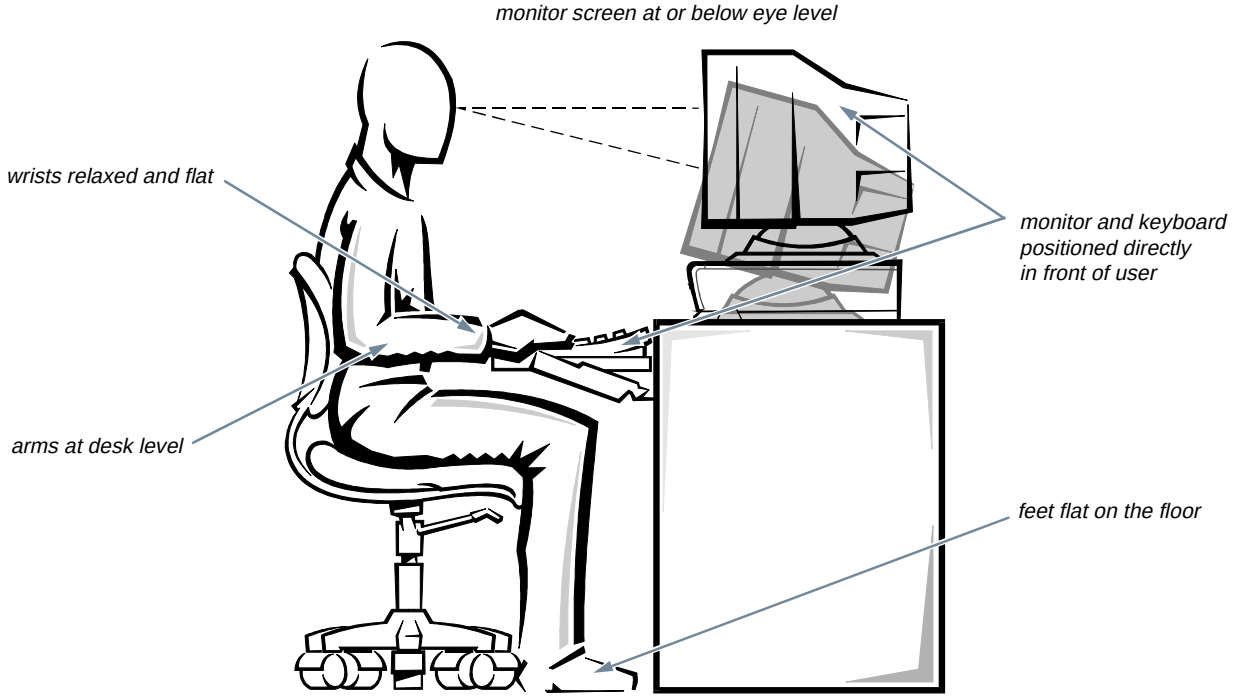
Ergonomic Computing Habits

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

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 [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 With Your Computer

Take note of these safety guidelines when appropriate:

- To help avoid possible damage to the system board, wait 5 seconds after turning off the system before disconnecting a peripheral device from the computer.
- 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 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.

Preface

About This Guide

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

- Chapter 1, "Introduction," presents an overview of the system features.
- Chapter 2, "Maintaining the System," describes the proper methods of cleaning and maintaining the system.
- Appendix A, "Regulatory Notices," details which regulatory agencies have tested and approved the Dell OptiPlex N and OptiPlex NX systems.
- Appendix B, "Warranties and Return Policy," covers the warranty for your Dell system and the "Total Satisfaction" Return Policy.

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. For information about the Dell warranty for your system, see Appendix B, "Warranties and Return Policy."

Other Documents You May Need

The *Getting Started* sheet, which is included with your system, provides step-by-step instructions for setting up your computer system.

Your network administrator has other documentation and information about your system and the network. If you need additional information, contact your network administrator.

Warnings, Cautions, and Notes

Throughout this guide, there may be blocks of text printed in bold type within boxes or in italic type. These blocks are warnings, cautions, and notes, and they are used as follows:

WARNING: A WARNING indicates the potential for bodily harm and tells you how to avoid the problem.

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

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

Contents

Figures

Chapter 1
Introduction

Dell® OptiPlex® N and OptiPlex NX systems are high-speed personal computers designed around Intel® Pentium® microprocessors with MMX™ technology. These systems are designed to be connected to a network server through a computer network. (Be sure you have the network cable plugged into the network connector on the back of your computer before turning on your system, or the system may not function properly.)

System Features

Your system offers the following features:

- An Intel microprocessor.

  For the OptiPlex N, a 166-, 200-, or 233-megahertz (MHz) Intel Pentium microprocessor with MMX technology and 256 kilobytes (KB) of cache memory.

  For the OptiPlex NX, a 233-, 266-, or 300-MHz Intel Pentium II microprocessor with MMX technology and 512 KB of cache memory.

- A network controller.

  For the OptiPlex N, an integrated Ethernet network interface controller (NIC).

  For the OptiPlex NX, either an integrated Ethernet NIC or an installed network card.

- For the OptiPlex NX, a built-in, 64-bit accelerated graphics port (AGP) video subsystem.
- System memory that supports both parity and non-parity extended-data out (EDO) dual in-line memory modules (DIMMs).
- Self-Monitoring Analysis Reporting Technology (SMART) support, which warns you at system start-up if your hard-disk drive has become unreliable. If you receive a hard-disk drive error message, contact your network administrator immediately.
- Universal Serial Bus (USB) capability, which can simplify connecting peripheral devices such as mice, printers, and computer speakers.
- A special computer chassis that should be opened only by an authorized service technician or a qualified network administrator.

NOTE: Your network administrator determines whether the following components are to be used.

- A Personal System/2 (PS/2)-style keyboard port and a PS/2-compatible mouse port.
- Two high-performance serial ports and one bi-directional parallel port for connecting external devices. The parallel port is fully Enhanced Capabilities Port (ECP)-compliant.
- One 32-bit Peripheral Component Interconnect (PCI) expansion slot with full Plug and Play version 1.0a capability.
- For all OptiPlex N systems and for OptiPlex NX systems with a Wakeup On LAN-capable network card, a Wakeup On LAN feature that allows remote computer setup, software downloading and installation, file updates, and asset tracking.
- For the OptiPlex NX, a 16-bit integrated audio controller that provides Sound Blaster Pro-compatible sound functions.

The following software may be installed on your Dell computer system:

- The application programs that you are to use when performing your daily tasks.
- Microsoft® Windows® 95 or Windows NT® operating system.

- Utilities that safeguard your system and enhance the operation of its hardware features.
- Video drivers for displaying application programs in high-resolution modes.
- Network device drivers for several operating systems.
- For the OptiPlex NX, audio drivers for use with the integrated audio controller.
- The Dell Inspector program, which is a Desktop Management Interface (DMI) browser that allows you to view your computer's current hardware configuration and operating system version.

  The Dell Inspector program is available in client and administrator versions. Both versions provide information you may need if you call Dell for technical assistance or if you install hardware or software in your system. In addition, the Dell Inspector administrator version enables system administrators to view, manage, and inventory remote systems in a Dell DMI client network.

  The Dell Inspector program is located in the Dell Accessories program group or folder.

Operating System

The system you received is designed to use Windows 95 or Windows NT and includes a special configuration of either operating system called the *Zero Administration Kit* (ZAK). The operating system must be downloaded from a server. ZAK, if used, allows your computer to be configured by your network administrator to operate in three different modes depending on your company's requirements and your daily tasks.

What you see when you turn on your system depends on the mode your computer is set to use:

- Task Station Mode — You see only the application program you use in your daily tasks. (You do not see the Windows 95 or Windows NT operating system desktop.) Examples of a single application program that you might use as your primary task are an airline reservation system, a bank teller's system, or an order entry system.
- Application Station Mode — You see a modified Windows 95 or Windows NT operating system desktop. (You do not see all of the features of a normal Windows 95 or Windows NT desktop.)

  This mode allows you to run a minimal number of business applications such as the Microsoft Office suite of programs and/or an application program or two. You access these application programs by using the Windows 95 or Windows NT Start button. This system runs application programs and accesses documents from the server.
- Normal Mode — You see a normal, fully functional Windows 95 or Windows NT operating system desktop. You have access to the following features that are eliminated or controlled in the other modes:
  - — A fully functional Start button
  - — Computer file system
  - — Taskbar
  - — Task Manager
  - — Context menus
  - — Ability to download, install, and run any application programs available from the various network application servers

Turning On the System

If your network administrator installed and set up your computer system, it may operate the same way every time you turn it on.

However, if you are installing your system and setting it up, the first time you turn on the system it must download and install software such as the operating system, application programs, drivers, and utilities. While the system is downloading and installing the software from the server, you may be required to enter data or press keys. Therefore, you should contact your network administrator for any special instructions before turning on your system for the first time.

When you turn on your system after the software is installed, your system should come up in the appropriate mode.

Responding to Error Messages

Each time you turn on your computer system, the system compares the hardware installed in the system to the hardware listed in the system configuration information stored in nonvolatile random-access memory (NVRAM) on the system board. If the system detects a discrepancy, it generates error messages that identify the incorrect configuration settings.

If an error message appears on the screen while the system is booting, make a note of the message. Then contact your network administrator.

Turning Off the System

To turn off your system, press and release the power button. If the system does not turn off when you press the power button, the system may be hung. Press and hold the power button until the system turns off completely (this may take several seconds).

Using the Optional Stand for Vertical Orientation

An optional stand is available for your system that you can attach to the computer to give it a vertical orientation. Although you can attach (and remove) the stand at any time, it is easiest to attach before you set up your computer and connect any cables.

Attach the stand as follows:

1. **Turn the computer onto its right side as shown in Figure 1-1.**
2. **Fit the stand onto what *was* the left side of the computer.**

   Align the front edge of the stand with the groove between the front bezel and the computer cover. Move the stand until the locator pins fit into the holes in the side of the computer. Then align the captive thumbscrew in the stand with the screw hole in the cover.

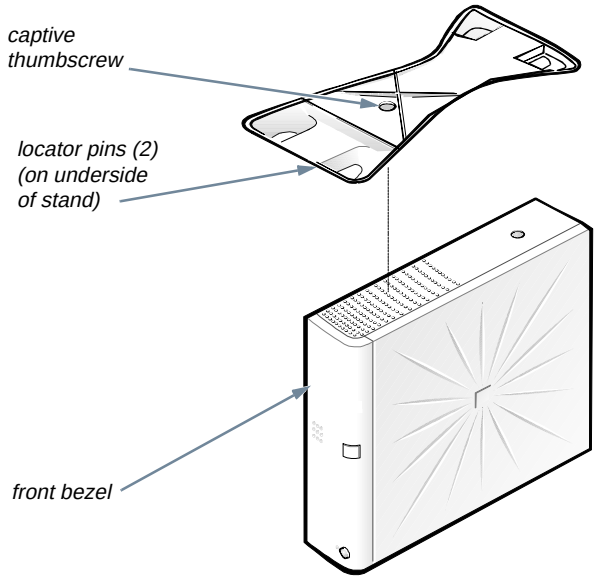


Figure 1-1. Optional Stand

3. **When the stand is in place, tighten the captive thumbscrew.**
4. **Rotate the computer so that the stand is at the bottom.**

To remove the stand, turn the computer over so that the stand is at the top, loosen the captive thumbscrew, and lift the stand away. Then place the computer in a horizontal position.

Security Cable Slot and Padlock Ring

On the back of the computer are a security cable slot and padlock ring (see Figure 1-2) for attaching commercially available antitheft devices. Antitheft devices for personal computers usually include a segment of galvanized cable with an attached locking device and key. To prevent unauthorized removal of your computer, loop the cable around an immovable object, insert the locking device into the security cable slot on the back of your computer, and lock the device with the key provided. Complete instructions for installing this kind of antitheft device are usually included with the device.

NOTE: Antitheft devices are of differing designs. Before purchasing such a device, make sure it will work with the cable slot on your computer.

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

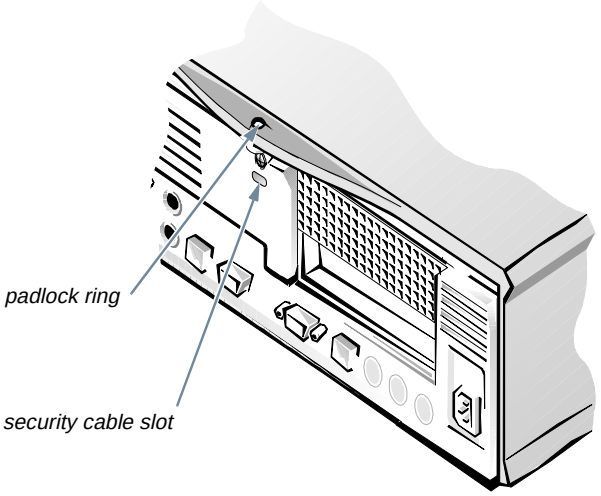


Figure 1-2. Security Cable Slot and Padlock Ring

Audio Connectors for the OptiPlex NX

On the back of the OptiPlex NX computer are three audio connectors (see Figure 1-3) that provide access to the 16-bit audio controller integrated onto the computer's system board. To use external speakers, connect the speaker cable to the middle (line-out) audio connector.

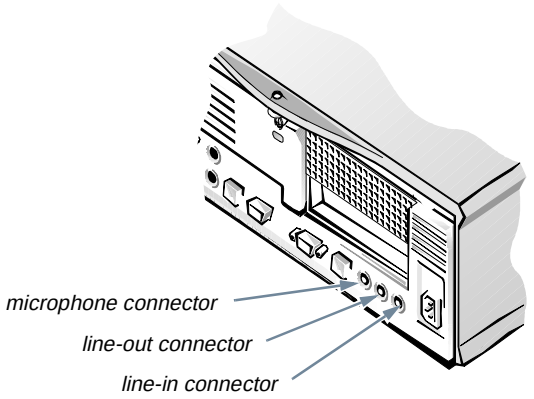


Figure 1-3. OptiPlex NX Audio Connectors

Energy Star Compliance

Certain configurations of Dell computer systems comply with the requirements set forth by the Environmental Protection Agency (EPA) for energy-efficient computers. If the front panel of your computer bears the Energy Star Emblem (see Figure 1-4), your original configuration complied with these requirements and all Energy Star power management features of the computer are enabled.

NOTES: As an Energy Star Partner, Dell Computer Corporation has determined that these products meet the Energy Star guidelines for energy efficiency.

Any Dell computer bearing the Energy Star Emblem is certified to comply with EPA Energy Star requirements ***as configured when shipped by Dell****. Any changes you make to this configuration may increase the system's power consumption beyond the limits set by the EPA's Energy Star Computers program.*

Figure 1-4. Energy Star Emblem

The EPA's Energy Star Computers program is a joint effort between the EPA and computer manufacturers to reduce air pollution by promoting energy-efficient computer products. The EPA estimates that use of Energy Star computer products can save computer users up to two billion dollars annually in electricity costs. In turn, this reduction in electricity usage can reduce emissions of carbon dioxide, the gas primarily responsible for the greenhouse effect, and sulfur dioxide and nitrogen oxides, which are the two primary causes of acid rain.

Computer users can also help to reduce electricity usage and its side effects by turning off their computer systems when they are not in use for extended periods of time—particularly at night and on weekends.

Chapter 2
Maintaining the System

This chapter covers general maintenance procedures for your computer system and environmental conditions that can affect the system's performance.

Preserving Data

Everyone inadvertently deletes files at one time or another. Also, hard-disk drives can fail after extended use, so it is not a question of *whether* you will eventually lose data, but *when*. To avoid such loss of data, you should regularly make backup copies of all hard-disk drive files.

Scheduling Backups

Dell recommends that you back up the hard-disk drive at least once a week and perform a daily backup of those files known to have been changed, such as your data files. Doing so ensures that you lose no more than a week's work and most likely only a day's work.

Because your Dell OptiPlex N or OptiPlex NX system is connected to a network, most of the backup process is automatic. Your network administrator should have a backup location created on a server and a process for you to follow when performing the backup. If you have questions about the backup process, contact your network administrator.

Cleaning System Components

Dell recommends keeping your work environment clean to reduce the amount of dust and dirt around the computer, thereby reducing the amount of contaminants drawn into the computer by the power supply fan.

Contaminant buildup increases the computer's internal temperature and interferes with the operation of various system components.

In particular, you should keep the exterior of your computer and monitor clean.

A conventional monitor or keyboard cover minimizes the accumulation of dust and other debris inside the monitor and keyboard when they are not in use. Also, commercially available keyboard membrane covers make it possible to use the keyboard while providing protection against foreign particles.

Recommended Tools and Accessories

Use the following tools and accessories for cleaning the computer and the monitor:

- Liquid dishwashing detergent

  Use a mixture of one part liquid dishwashing detergent and three parts water to clean the exterior of the computer, monitor, and keyboard. You can also add fabric softener to produce an antistatic solution that prevents dust from being attracted to the monitor screen.

- Soft, lint-free cleaning cloth

  Moisten the cleaning cloth with the dishwashing detergent solution to clean the exterior of the computer system.

- Small vacuum cleaner with a brush attachment

  Use the vacuum cleaner to remove dust and dirt from the exterior of the computer and keyboard.

Cleaning the Computer, Monitor, and Keyboard Exteriors

1. **Turn off the computer, the monitor, and any attached peripherals, and disconnect them from their power sources.**
2. **Use a vacuum cleaner to remove any dust from the slots and holes on the computer and between the keys on the keyboard.**
3. **Moisten a soft cleaning cloth with a dishwashing detergent solution, and use the cloth to wipe the computer cover, the keyboard, and the exterior of the monitor, including the screen.**

   Do not soak the cloth in the solution; you must not let the solution drip inside the computer or the keyboard. If you get moisture into any of the computer components, contact your network administrator immediately.

Minimizing Environmental Hazards

This section discusses various environmental factors that can adversely affect system performance and longevity.

Temperature

Temperature extremes can cause a variety of problems, including premature aging and failure of chips and mechanical failure of devices. Extreme temperature fluctuations can cause chips to become loose in their sockets and can cause expansion and contraction of disk drive platters, resulting in read or write data errors.

There are several guidelines you can follow to minimize the negative effects of temperature on system performance.

For optimum system performance, follow these guidelines:

- Operate the system in an environment no colder than 10° Celsius (C) (50° Fahrenheit [F]) or hotter than 35°C (95°F).

  NOTE: At 35°C (95°F), the maximum operating altitude is 914.4 meters (m) (3,000 feet [ft]).

- Ensure that the system has adequate ventilation. Make sure that all slots and openings on the computer remain unobstructed, especially the fan vent on the front of the computer.

  Do not place the system within a closed-in wall unit or on top of cloth material, which can act as insulation. Do not place it where it will receive direct sunlight. Do not place it next to a heat source of any kind, including heating vents during the winter.

- Clean the system at regular intervals to avoid any buildup of dust and debris, which can cause a system to overheat.
- If the system has been exposed to abnormally cold temperatures, allow a 15-minute warm-up period before it is turned on and starts attempting to read from or write to the hard-disk drive.
- If you notice intermittent system failures, ask your network administrator or a service technician to reseat any socketed chips, which might have become loose because of temperature fluctuations.

Humidity

High-humidity conditions can cause moisture to collect in the computer. This moisture can cause corrosion of internal components and degradation of properties such as electrical resistance, thermal conductivity, physical strength, and size. Extreme moisture buildup inside the computer can result in electrical shorts, which can cause serious damage to the computer.

Each Dell system is rated to operate at 20 percent to 80 percent relative humidity, with a humidity gradation of 10 percent per hour. In storage, a Dell system can withstand from 5 percent to 95 percent relative humidity.

Buildings in which climate is controlled by air-conditioning in the warmer months and by heat during the colder months usually maintain an acceptable level of humidity for computer equipment. However, if a system is located in an unusually humid location, use a dehumidifier to maintain the humidity within an acceptable range.

Altitude

Operating a system at high altitude (low pressure) reduces the efficiency of forced and convection cooling and can result in electrical problems related to arcing and

corona effects. This condition can also cause sealed components with internal pressure, such as electrolytic capacitors, to fail or perform at reduced efficiency.

Each Dell system is rated to operate at altitudes from –16 to 3048 m (–50 to 10,000 ft) and can be stored at altitudes of –16 to 10,600 m (–50 to 35,000 ft).

NOTE: At 35°C (95°F), the maximum operating altitude is 914.4 m (3,000 ft).

Dust and Particles

A clean operating environment can greatly reduce the negative effects of dust and other particles, which act as insulators and interfere with the operation of a system's mechanical components. In addition to regular cleaning, you should follow these guidelines to deter contamination of the computer equipment:

- Do not permit smoking anywhere near the system.
- Do not permit food or drink near the system.
- Use dust covers when the system is not in use.
- Close windows and outside doors to keep out airborne particles.

Corrosion

Prolonged exposure to high temperature or humidity can corrode the gold-plated edge connectors and pin connectors on various devices in the computer. This corrosion on computer connectors is a gradual process that can eventually lead to intermittent failures of electrical circuits.

Protecting the system from corrosive elements is especially important in moist and salty environments, which tend to promote corrosion. Also, as a further deterrent to corrosion, the system should not be used in extreme temperatures.

ESD

Electrostatic discharge (ESD) is a discharge of static electrical charge. ESD occurs when a person whose body contains a static electrical charge touches a part of the computer or connector pins when connecting cables. This static discharge can cause components, especially chips, to fail. ESD is a problem particularly in dry environments where the relative humidity is below 50 percent.

EMI and RFI

Electromagnetic interference (EMI) and radio frequency interference (RFI) can travel from the computer to other devices through the AC power cable and power source or through the air like transmitted radio waves. They can adversely affect devices such as radio and television receivers operating near the computer, as well as interfere with cordless and low-power telephones. Conversely, RFI from high-power telephones can cause spurious characters to appear on your monitor screen.

Various regulatory agencies, such as the Federal Communications Commission (FCC), publish regulations to limit the amount of EMI and RFI emitted by computing equipment. Each Dell system is tested for compliance with these regulations. See Appendix A, "Regulatory Notices," in this guide for information on which regulatory agencies have tested and approved your system.

To reduce the possibility of EMI and RFI as well as to prevent RFI from a computer affecting television reception, follow these guidelines:

- Operate the system only with the computer cover installed.
- Ensure that all expansion slots are covered by a card-mounting bracket or a metal filler bracket.
- Ensure that the screws on all peripheral cable connectors are securely fastened to their corresponding connectors on the back of the computer.
- Always use shielded cables with metal connector shells for attaching peripherals to the computer.

To prevent the possibility of RFI from a computer affecting television reception, follow these guidelines:

- Keep any television at least 6 ft away from the computer system.
- Use cable television when possible.
- Use a directional outdoor television antenna.
- Attach line filters to the television.
- Use 75-ohm coaxial cable for the television rather than twin-lead antenna wire.
- If interference occurs, rotate the computer or the television 90 degrees.

Magnetism

Because they store data magnetically, hard-disk drives are extremely susceptible to the effects of magnetism.

Speakers

Audio speakers can be a source of magnetic energy if they are not properly shielded. Speakers used in music systems are typically enclosed in wooden cabinets, which provide no magnetic shielding. Multimedia speakers for computer systems are magnetically shielded inside a metallic case and are thus the only type of speakers recommended for use with multimedia computer systems.

Shock and Vibration

Excessive shock can damage the function, external appearance, and physical structure of a system. Excessive vibration can cause the same problems as excessive shock does and can cause components to become loose in their sockets or connectors. Systems can be subjected to significant vibration when being transported by vehicle or when operated in an environment with machinery that causes vibration.

Each Dell system, when operating, is designed to withstand a left side (for vertical orientation using the optional stand) and bottom half-sine pulse with a change in velocity of 50.8 centimeters per second (cm/sec) (20 inches/sec). In storage, the system can withstand a 26,478-cm/sec^2 (27-gravities) faired square wave with a velocity change of 508 cm/sec (200 inches/sec).

Power Source Interruptions

Computer systems are sensitive to variations in voltage supplied by the AC power source. Overvoltage, undervoltage, and transients (or *spikes*) can erase data from memory or even cause components to fail. To protect against such problems, power cables should always be properly grounded, you should use a power protection device, and you should place the system on a circuit that does not contain any heavy electrical equipment.

Your network administrator should verify your power source and network cables; however, you should ensure that your system is connected to a dedicated power circuit and that it is not sharing a circuit with any of the following:

- Kitchen appliances
- Copier machines
- Air conditioners
- Vacuum cleaners
- Space heaters
- Power tools
- Teletype machines
- Adding machines
- Any other motorized equipment

Another threat to a system's supply of power is surges or blackouts caused by electrical storms. Whenever possible, turn off the computer and any peripherals and unplug them from their power sources during thunderstorms.

If a blackout occurs—even a temporary one—turn off the system immediately and disconnect it from its power source. Leaving the system on may cause problems when the power is restored; all other appliances left on in the area can create large voltage spikes that could damage the system.

Power Protection Devices

Various levels of power protection are available for your system.

Surge Protectors

Surge protectors prevent voltage spikes, such as those caused during electrical storms, from entering a system through the AC power source. These devices are available in a variety of types and usually provide a level of protection commensurate with the cost of the device.

Surge protectors, however, do not offer protection against brownouts, which occur when the voltage drops more than 20 percent below the normal AC line voltage level.

Line Conditioners

Line conditioners keep a computer's AC power source voltage at a fairly constant level and, therefore, can handle brownouts. Because they provide more protection than surge protectors, line conditioners cost more—up to several hundred dollars. However, these devices cannot protect against a complete loss of power.

UPS

An uninterruptible power supply (UPS) offers the most complete protection against variations in power because it uses battery power to keep the system running when AC power is lost. The battery is charged by the AC power while it is available, so when AC power is lost, the battery can provide power to the system for a limited amount of time—from 15 minutes to an hour or so depending on the UPS system.

UPS systems range in price from a few hundred dollars to several thousand dollars, with the more expensive units allowing you to run larger systems for a longer period of time when AC power is lost. UPS systems that provide only 5 minutes of battery power let you conduct an orderly shutdown of the system, but are not intended to provide continued operation. Surge protectors should be used with all UPS systems, and the UPS system should be Underwriters Laboratories (UL) safety-approved.

Appendix A
Regulatory Notices

FCC Notices (U.S. Only)

Most Dell computer systems are classified by the Federal Communications Commission (FCC) as Class B digital devices. However, the inclusion of certain options changes the rating of some configurations to Class A. To determine which classification applies to your computer system, examine all FCC registration labels located on the back panel of your computer, on card-mounting brackets, and on the cards themselves. If any one of the labels carries a Class A rating, your entire system is considered to be a Class A digital device. If *all* labels carry either the Class B rating or the FCC logo (FC), your system is considered to be a Class B digital device.

NOTE: Some Dell computer systems that are classified as Class B digital devices may include a built-in network interface controller (NIC). If your system contains a NIC, it is considered to be a Class A digital device only at the time that the NIC is being used. When the NIC is not being used, your system is considered to be a Class B digital device.

Once you have determined your system's FCC classification, read the appropriate FCC notice. Note that FCC regulations provide that changes or modifications not expressly approved by Dell Computer Corporation could void your authority to operate this equipment.

A Notice About Shielded Cables: Use only shielded cables for connecting peripherals to any Dell device to reduce the possibility of interference with radio and television reception. Using shielded cables ensures that you maintain the appropriate FCC radio frequency emissions compliance (for a Class A device) or FCC certification (for a Class B device) of this product. For parallel printers, a cable is available from Dell Computer Corporation.

Class A

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

Class B

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, 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 representative of Dell Computer Corporation or an experienced radio/television technician for additional suggestions. You may find the following booklet helpful: *FCC Interference Handbook, 1986*, available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00450-7.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

The following information is provided on the device or devices covered in this document in compliance with FCC regulations:

- Product name: Dell OptiPlex N or Dell OptiPlex NX
- Model number: NCS
- Company name: Dell Computer Corporation
  Regulatory Department
  One Dell Way
  Round Rock, Texas 78682 USA
  512-338-4400

IC Notice (Canada Only)

Most Dell computer systems (and other Dell digital apparatus) are classified by the Industry Canada (IC) Interference-Causing Equipment Standard #3 (ICES-003) as Class B digital devices. To determine which classification (Class A or B) applies to your computer system (or other Dell digital apparatus), examine all registration labels located on the bottom or the back panel of your computer (or other digital apparatus). A statement in the form of "IC Class A ICES-3" or "IC Class B ICES-3" will be located on one of these labels.

Note that Industry Canada regulations provide that changes or modifications not expressly approved by Dell Computer Corporation could void your authority to operate this equipment.

This Class B (or Class A, if so indicated on the registration label) digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B (ou Classe A, si ainsi indiqué sur l'étiquette d'enregistration) respecte toutes les exigences du Reglement sur le Materiel Brouilleur du Canada.

EN 55022 Compliance (Czech Republic Only)

This device belongs to category B devices as described in EN 55022, unless it is specifically stated that it is a category A device on the specification label. The following applies to devices in category A of EN 55022 (radius of protection up to 30 meters). The user of the device is obliged to take all steps necessary to remove sources of interference to telecommunication or other devices.

Pokud není na typovém štitku počítače uvedeno, že spadá do třídy A podle EN 55022, spadá automat-icky do třídy B podle EN 55022. Pro zařízení zařazená do třídy A (ochranné pásmo 30m) podle EN 55022 platí následující. Dojde-li k rušení tele-komunikačních nebo jinych zařízení, je uživatel povinen provést taková opatření, aby rušení odstranil.

CE Notice

Marking by the symbol CE indicates compliance of this Dell system to the EMC (Electromagnetic Compatibility) directive of the European Community. Such marking is indicative that this Dell system meets or exceeds the following technical standards:

- EN 55022 — "Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment."

  NOTE: EN 55022 emissions requirements provide for two classifications—Class A and Class B. If any one of the registration labels (located on the bottom or back panel of your computer, on card-mounting brackets, or on the cards themselves) carries an FCC Class A rating, the following warning applies to your system.

  WARNING: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

- EN 50082-1 — "Electromagnetic compatibility—Generic immunity standard Part 1: Residential, commercial, and light industry."
- IEC 801-2 — "Electromagnetic compatibility for industrial-process measurement and control equipment Part 2: Electrostatic discharge requirements." — Severity level 3.
- IEC 801-3 — "Electromagnetic compatibility for industrial-process measurement and control equipment Part 3: Radiated electromagnetic field requirements." — Severity level 2.
- IEC 801-4 — "Electromagnetic compatibility for industrial-process measurement and control equipment Part 4: Electrical fast transient/burst requirements." — Severity level 2.
- EN60950:1992 + Amd.1:1993 + Amd.2:1993 — "Safety of Information Technology Equipment including Electrical Business Equipment."

A "Declaration of Conformity" in accordance with the preceding standards has been made and is on file at Dell Products Europe BV, Limerick, Ireland.

VCCI Notices (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 changes the rating of some configurations to Class A. To determine which classification applies to your computer system, examine the FCC classification on the registration labels located on the back panel of your computer, on card-mounting brackets, and on the cards themselves. If any one of the labels carries an FCC Class A designation, your entire system is considered to be VCCI Class A ITE. If *all* labels carry either an FCC Class B identification number or the FCC logo (FC), your system is considered to be VCCI Class B ITE.

Once you have determined your system's VCCI classification, read the appropriate VCCI notice. Note that VCCI regulations provide that changes or modifications not expressly approved by Dell Computer Corporation could void your authority to operate this equipment.

Class A ITE

This is a Class A product based on the standard of the Voluntary Control Council for Interference 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.

Class B ITE

This is a Class B product based on the standard of the Voluntary Control Council for Interference 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.

Korean Regulatory Notice

To determine which classification (Class A or B) applies to your computer system (or other Dell digital apparatus), examine all registration labels located on the bottom or back panel of your computer (or other Dell digital apparatus), on card-mounting brackets, and on the cards themselves. If any one of the labels carries a Class A rating, your entire system is considered to be a Class A digital device. If *all* labels carry either the Class B rating or the FCC logo (FC), your system is considered to be a Class B digital device.

NOTE: Class A devices are for business purposes. Class B devices are for nonbusiness purposes.

Class A Device

Please note that this device has been approved for business purposes with regard to electromagnetic interference. If you find that this device is not suitable for your use, you may exchange it for a device that has been approved for use in residential as well as business environments.

Class B Device

Please note that this device has been approved for nonbusiness purposes and may be used in any environment, including residential areas.

Polish Center for Testing and Certification Notice

The equipment should draw power from a socket with an attached protection circuit (a three-prong socket). All equipment that works together (computer, monitor, printer, and so on) should have the same power supply source.

The phasing conductor of the room's electrical installation should have a reserve short-circuit protection device in the form of a fuse with a nominal value no larger than 10 amperes (A).

To completely switch off the equipment, the power supply cable must be removed from the power supply socket, which should be located near the equipment and easily accessible.

A protection mark "B" confirms that the equipment is in compliance with the protection usage requirements of standards PN-93/T-42107 and PN-89/E-06251.

Wymagania Polskiego Centrum Badań i Certyfikacji

Urządzenia powinno być zasilane z gniazda z przyłączonym obwodem ochronnym (gniazdo z kołkiem). Współpracujące ze sobą urządzenia (komputer, monitor, drukarka) powinny być zasilane z tego samego źródła.

Instalacja elektryczna pomieszczenia powinna zawierać w przewodzie fazowym rezerwową ochronę przed zwarciami, w postaci bezpiecznika o wartości znamionowej nie większej niż 10A (amperów).

W celu całkowitego wyłączenia urządzenia z sieci zasilania, należy wyjąć wtyczkę kabla zasilającego z gniazdka, które powinno znajdować się w pobliżu urządzenia i być łatwo dostępne.

Znak bezpieczeństwa "B" potwierdza zgodność urządzenia z wymaganiami bezpieczeństwa użytkowania zawartymi w PN-93/T-42107 i PN-89/E-06251.

Pozostałe instrukcje bezpieczeństwa

- Nie należy używać wtyczek adapterowych lub usuwać kołka obwodu ochronnego z wtyczki. Jeżeli konieczne jest użycie przedłużacza to należy użyć przedłużacza 3−żyłowego z prawidłowo połączonym przewodem ochronnym.
- System komputerowy należy zabezpieczyć przed nagłymi, chwilowymi wzrostami lub spadkami napięcia, używając eliminatora przepięć, urządzenia dopasowującego lub bezzakłóceniowego źródła zasilania.
- Należy upewnić się, aby nic nie leżało na kablach systemu komputerowego, oraz aby kable nie były umieszczone w miejscu, gdzie można byłoby na nie nadeptywać lub potykać się o nie.
- Nie należy rozlewać napojów ani innych płynów na system komputerowy.
- Nie należy wpychać żadnych przedmiotów do otworów systemu komputerowego, gdyż może to spowodować pożar lub porażenie prądem, poprzez zwarcie elementów wewnętrznych.
- System komputerowy powinien znajdować się z dala od grzejników i źródeł ciepła. Ponadto, nie należy blokować otworów wentylacyjnych. Należy unikać kładzenia luźnych papierów pod komputer oraz umieszczania komputera w ciasnym miejscu bez możliwości cyrkulacji powietrza wokół niego.

NOM 024 Information (Mexico Only)

The following information is provided on the device(s) described in this document in compliance with the requirements of the official Mexican standards (NOM 024):

Exporter:	Dell Computer Corporation One Dell Way Round Rock, TX 78682
Importer:	Dell Computer de México, S.A. de C.V. Rio Lerma No. 302 - 4° Piso Col. Cuauhtemoc 16500 México, D.F.
Ship to:	Dell Computer de México, S.A. de C.V. al Cuidado de Kuehne & Nagel de México S. de R.I. Avenida Soles No. 55 Col. Peñon de los Baños 15520 México, D.F.
Supply voltage:	115/230 V.C.A. ±10%
Frequency:	60/50 Hz
Current consumption:	6.0/3.0 A

Información para NOM 024 (únicamente para México)

La información siguiente se proporciona en el dispositivo o en los dispositivos descritos en este documento, en cumplimiento con los requisitos de la Norma Oficial Mexicana (NOM 024):

Exportador:	Dell Computer Corporation One Dell Way Round Rock, TX 78682
Importador:	Dell Computer de México, S.A. de C.V. Rio Lerma No. 302 - 4° Piso Col. Cuauhtemoc 16500 México, D.F.
Embarcar a:	Dell Computer de México, S.A. de C.V. al Cuidado de Kuehne & Nagel de México S. de R.I. Avenida Soles No. 55 Col. Peñon de los Baños 15520 México, D.F.
Tensión alimentación:	115/230 V.C.A. ±10%
Frecuencia:	60/50 Hz
Consumo de corriente:	6.0/3.0 A

Appendix B
Warranties and Return Policy

Limited Three-Year Warranty (U.S. and Canada Only)

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. Dell warrants that the hardware products it manufactures will be free from defects in materials and workmanship. The warranty term is three years beginning on the date of invoice, as described in the following text.

Damage due to shipping the products to you is covered under this warranty. Otherwise, this warranty does not cover damage due to external causes, including accident, abuse, misuse, problems with electrical power, servicing not authorized by Dell, usage not in accordance with product instructions, failure to perform required preventive maintenance, and problems caused by use of parts and components not supplied by Dell.

This warranty does not cover any items that are in one or more of the following categories: software; external devices (except as specifically noted); accessories or parts added to a Dell system after the system is shipped from Dell; accessories or parts added to a Dell system through Dell's system integration department; accessories or parts that are not installed in the Dell factory; or DellWare® products. Monitors, keyboards, and mice that are Dell-branded or that are included on Dell's standard price list are covered under this warranty; all other monitors, keyboards, and mice (including those sold through the DellWare program) are not covered. Batteries for portable computers are covered only during the initial one-year period of this warranty.

Coverage During Year One

During the one-year period beginning on the invoice date, Dell will repair or replace products covered under this limited warranty that are returned to Dell's facility. To request warranty service, you or your network administrator must call Dell's Customer Technical Support within the warranty period. Refer to the section titled "Contacting Dell" in the online *Network Administrator's Guide* (installed on the server with the Intel LANDesk® Configuration Manager) to find the appropriate telephone number for obtaining customer assistance. If warranty service is required, Dell will issue a Return Material Authorization Number. You must ship the products back to Dell in their original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk of loss or damage during shipment. Dell will ship the repaired or replacement products to you freight prepaid if you use an address in the continental U.S. or Canada, where applicable. Shipments to other locations will be made freight collect.

NOTE: Before you ship the product(s) to Dell, back up the data on the hard-disk drive in the product(s). Dell does not accept liability for lost data or software.

Dell owns all parts removed from repaired products. Dell uses new and reconditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If Dell repairs or replaces a product, its warranty term is not extended.

Coverage During Years Two and Three

During the second and third years of this limited warranty, Dell will provide, on an exchange basis and subject to Dell's Exchange Policy in effect on the date of the exchange, replacement parts for the Dell hardware product(s) covered under this limited warranty when a part requires replacement. You must report each instance of

hardware failure to Dell's Customer Technical Support in advance to obtain Dell's concurrence that a part should be replaced and to have Dell ship the replacement part. Dell will ship parts (freight prepaid) if you use an address in the continental U.S. or Canada, where applicable. Shipments to other locations will be made freight collect. Dell will include a prepaid shipping container with each replacement part for your use in returning the replaced part to Dell. Replacement parts are new or reconditioned. Dell may provide replacement parts made by various manufacturers when supplying parts to you. The warranty term for a replacement part is the remainder of the limited warranty term.

You will pay Dell for replacement parts if the replaced part is not returned to Dell. The process for returning replaced parts, and your obligation to pay for replacement parts if you do not return the replaced parts to Dell, will be in accordance with Dell's Exchange Policy in effect on the date of the exchange.

You accept full responsibility for your software and data. Dell is not required to advise or remind you of appropriate backup and other procedures.

General

DELL MAKES NO EXPRESS WARRANTIES OR CONDITIONS BEYOND THOSE STATED IN THIS WARRANTY STATEMENT. DELL DISCLAIMS ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME STATES (OR JURISDICTIONS) DO NOT ALLOW LIMITATIONS ON IMPLIED WARRANTIES OR CONDITIONS, SO THIS LIMITATION MAY NOT APPLY TO YOU.

DELL'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN HARDWARE IS LIMITED TO REPAIR AND REPLACEMENT AS SET FORTH IN THIS WARRANTY STATEMENT. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE (OR JURISDICTION).

DELL DOES NOT ACCEPT LIABILITY BEYOND THE REMEDIES SET FORTH IN THIS WARRANTY STATEMENT OR LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION ANY LIABILITY FOR PRODUCTS NOT BEING AVAILABLE FOR USE OR FOR LOST DATA OR SOFTWARE.

SOME STATES (OR JURISDICTIONS) DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE PRECEDING EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU.

These provisions apply to Dell's limited three-year warranty only. For provisions of any service contract covering your system, refer to the separate service contract that you will receive.

If Dell elects to exchange a system or component, the exchange will be made in accordance with Dell's Exchange Policy in effect on the date of the exchange.

NOTE: If you chose one of the available warranty and service options in place of the standard limited three-year warranty described in the preceding text, the option you chose will be listed on your invoice.

"Total Satisfaction" Return Policy (U.S. and Canada Only)

If you are an end-user customer who bought products directly from a Dell company, you may return them to Dell up to 30 days from the date of invoice for a refund of the product purchase price if already paid. This refund will not include any shipping and handling charges shown on your invoice. If you are an organization who bought the products from Dell under a written agreement with Dell, there may be different terms for the return of products under this policy, based on your agreement with Dell. To return products, you or your network administrator must call Dell Customer Service (at the telephone number shown in the section titled "Contacting Dell" in the online *Network Administrator's Guide* installed on the server with the Intel LANDesk Configuration Manager) to receive a Credit Return Authorization Number. You must ship the products to Dell in their original packaging, prepay shipping charges, and insure the shipment or accept the risk of loss or damage during shipment. You

may return software for refund or credit only if the sealed package containing the diskette(s) or CD(s) is unopened. Returned products must be in as-new condition, and all of the manuals, diskette(s), CD(s), power cables, and other items included with a product must be returned with it.

This "Total Satisfaction" Return Policy does not apply to DellWare products, which may be returned under DellWare's then-current return policy.

Index

W

www.dell.com

Printed in the U.S.A. **P/N 88787**