

Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

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Notes, Notices, Cautions, and Warnings

-  **NOTE:** A NOTE indicates important information that helps you make better use of your computer.
-  **NOTICE:** A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.
-  **CAUTION:** A CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
-  **WARNING:** A WARNING indicates a potentially hazardous situation which, if not avoided, may result in severe injury.

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Jumpers and Connectors

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This section provides specific information about the jumpers on the system board.

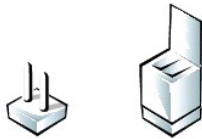
Jumpers—A General Explanation

Jumpers provide a convenient and reversible way of reconfiguring the circuitry on a printed circuit board. When reconfiguring the system, you may need to change jumper settings on the system board. You may also need to change jumper settings on expansion cards or drives.

Jumpers

Jumpers are small blocks on a circuit board with two or more pins emerging from them. Plastic plugs containing a wire fit down over the pins. The wire connects the pins and creates a circuit. To change a jumper setting, pull the plug off its pin(s) and carefully fit it down onto the pin(s) indicated. [Figure A-1](#) shows an example of a jumper.

Figure A-1. Jumpers



⚠ WARNING: Make sure the system is turned off before you change a jumper setting. Otherwise, damage to the system or unpredictable results may occur.

A jumper is referred to as open or unjumpered when the plug is pushed down over only one pin or if there is no plug at all. When the plug is pushed down over two pins, the jumper is referred to as jumpered. The jumper setting is often shown in text as two numbers, such as 1-2. The number 1 is printed on the circuit board so that you can identify each pin number based on the location of pin 1.

[Figure A-2](#) shows the location and default settings of the jumper blocks on the system board. See [Table A-1](#) for the designations, default settings, and functions of the system's jumpers.

System-Board Jumpers

[Figure A-2](#) shows the location of the configuration jumpers on the system board. [Table A-1](#) lists the function of these jumpers.

Figure A-2. System-Board Jumpers

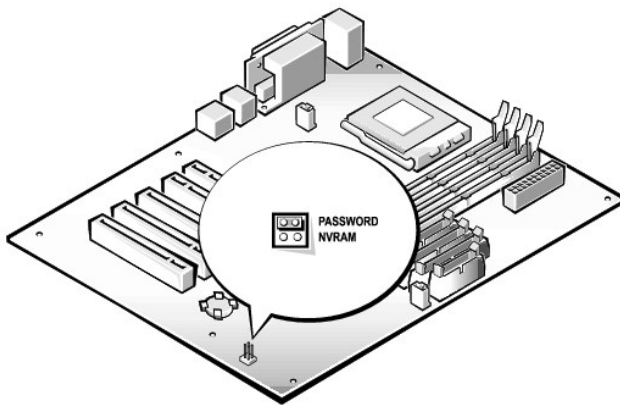








Table A-1. System-Board Jumper Settings

Jumper	Setting	Description
PASSWORD	 (default)	The password feature is enabled.
		The password feature is disabled.
NVRAM	 (default)	The configuration settings are retained at system boot.
		The configuration settings are cleared at next system boot. (If the configuration settings become corrupted to the point where the system will not boot, install the jumper plug and boot the system. Remove the jumper before restoring the configuration information.)
 jumpered  unjumpered		
NOTE: For the full name of an abbreviation or acronym used in this table, see " Abbreviations and Acronyms ."		

Disabling a Forgotten Password

The system's software security features include a system password and a setup password, which are discussed in "Using the System Setup Program," in the *User's Guide*. A password jumper on the system board enables these password features or disables them and clears any password(s) currently in use.

To disable a forgotten system password or setup password, perform the following steps.

 **CAUTION:** See "Protecting Against Electrostatic Discharge" in your *System Information* document.

1. Remove the system cover.
2. Refer to [Figure A-2](#) for the location of the password jumper (labeled "PASSWORD") on the system board.
3. Remove the jumper plug from the PASSWORD jumper.
4. Replace the system cover, and then reconnect the system to an electrical outlet and turn it on.

The existing passwords are not disabled (erased) until the system boots with the PASSWORD jumper plug removed. However, before you assign a new system and/or setup password, you must install the jumper plug.

 **NOTE:** If you assign a new system and/or setup password with the jumper plug still removed, the system disables the new password(s) the next time it boots.

5. Repeat step 1.
6. Install the jumper plug on the PASSWORD jumper.
7. Replace the system cover, and then reconnect the system and peripherals to their electrical outlets and turn them on.
8. Assign a new system and/or setup password.

To assign a new system password using the System Setup program, see "Assigning a System Password" in the *User's Guide*.

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Abbreviations and Acronyms

Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

The following list defines or identifies technical terms, abbreviations, and acronyms used in Dell user documents.

A

ampere(s)

AC

alternating current

ACPI

Advanced Configuration and Power Interface

ADC

analog-to-digital converter

BIOS

basic input/output system

bpi

bits per inch

bps

bits per second

C

Celsius

CD

compact disc

cm

centimeter(s)

CMOS

complementary metal-oxide semiconductor

C.O.D.

collect on delivery

CPU

central processing unit

DAT

digital audio tape

dB

decibel(s)

dBA

adjusted decibel(s)

DC

direct current

DIMM

dual in-line memory module

DIN

Deutsche Industrie Norm

DMA

direct memory access

DOC

Department of Communications (in Canada)

dpi

dots per inch

DRAM

dynamic random-access memory

DS/DD

double-sided double-density

DS/HD

double-sided high-density

ECC

error checking and correction

EDO

extended-data out

EGA

enhanced graphics adapter

EIDE

enhanced integrated drive electronics

EMI

electromagnetic interference

EMM

expanded memory manager

ESD

electrostatic discharge

ESM

embedded server management

F

Fahrenheit

FAT

file allocation table

FCC

Federal Communications Commission

ft

feet

g

gram(s)

G

gravities

GB

gigabyte(s)

GUI

graphical user interface

h

hexadecimal

Hz

hertz

I/O

input/output

ICBM

inter-chassis management bus

ID

identification

IDE

integrated drive electronics

IRQ

interrupt request

ISA

Industry-Standard Architecture

K

kilo- (1024)

KB

kilobyte(s)

KB/sec

kilobyte(s) per second

Kb

kilobit(s)

Kbps

kilobit(s) per second

kg

kilogram(s)

KHz

kilohertz

LAN

local area network

lb

pound(s)

LED

light-emitting diode

LIF

low insertion force

LN

load number

lpi

lines per inch

LVD

low voltage differential

m

meter(s)

mA

milliampere(s)

mAh

milliampere-hour(s)

MB

megabyte(s)

Mb

megabit(s)

Mbps

megabit(s) per second

MBR

master boot record

MDA

monochrome display adapter

MGA

monochrome graphics adapter

MHz

megahertz

mm

millimeter(s)

ms

millisecond(s)

mV

millivolt(s)

NIC

network interface controller

NiCad

nickel cadmium

NiMH

nickel-metal hydride

ns

nanosecond(s)

NTFS

NT File System

NVRAM

nonvolatile random-access memory

PCI

Peripheral Component Interconnect

PDU

power distribution unit

PGA

pin grid array

POST

power-on self-test

ppm

pages per minute

RAID

redundant arrays of independent disks

RAM

random-access memory

RCU

Resource Configuration Utility

RFI

radio frequency interference

ROM

read-only memory

rpm

revolutions per minute

RTC

real-time clock

SCSI

small computer system interface

SDS

Scalable Disk System

sec

second(s)

SEC

single-edge contact

SDRAM

synchronous dynamic random-access memory

SNMP

Simple Network Management Protocol

SRAM

static random-access memory

SSU

system setup utility

tpi

tracks per inch

TSR

terminate-and-stay-resident

UPS

uninterruptible power supply

V

volt(s)

VAC

volt(s) alternating current

VDC

volt(s) direct current

VGA

video graphics array

VRAM

video random-access memory

W

watt(s)

WH

watt-hour(s)

Z**ZIF**

zero insertion force

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Introduction

Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

- [Other Documents You May Need](#)
- [Getting Help](#)

Your system is a high-speed server that offers significant service and upgrade features. Your system includes the following service features:

- 1 Embedded server management hardware, which monitors temperatures and voltages throughout the system and notifies you if the system overheats, if a system cooling fan malfunctions, or a power supply fails
- 1 System diagnostics, which checks for hardware problems (if the system can boot)

The following system upgrade options are offered:

- 1 Expansion-card options
 - 1 Additional memory
 - 1 Microprocessors
-

Other Documents You May Need

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

- 1 *User's Guide*, which describes system features and technical specifications, the system setup program, and software support utilities.
- 1 Server management documentation, which describes the features, requirements, installation, and basic operation of the server management software. Refer to the software's online help for information about the alert messages issued by the software.
- 1 *System Information* document, which includes important safety, regulatory, and warranty information.

You may also have one or more of the following documents.



NOTE: Documentation updates are sometimes included with the system to describe changes to the system or software. Always read these updates before consulting any other documentation because the updates often contain information that supersedes the information in the other documents.

- 1 Operating system documentation is included with the system if you ordered the operating system software with your system. This documentation describes how to install (if necessary), configure, and use the operating system software.
 - 1 Documentation is included with any options you purchase separately from the system. This documentation includes information that you need to configure and install these options in your system.
 - 1 Technical information files—sometimes called "readme" files—may be installed on the hard drive to provide last-minute updates about technical changes to the system or advanced technical reference material intended for experienced users or technicians.
-

Getting Help

If at any time you do not understand a procedure described in this guide, or if your system does not perform as expected, a number of tools are available to help you. For more information on these help tools, see "[Getting Help](#)."

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Indicators, Messages, and Codes

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- [Checking Connections and Switches](#)
- [System Messages](#)
- [System Beep Codes](#)
- [Warning Messages](#)
- [Diagnostics Messages](#)
- [Alert Log Messages From the System Management Server Agent](#)

Application programs, operating systems, and the system itself are capable of identifying problems and alerting you to them. When a problem occurs, a message may appear on the monitor screen or a beep code may sound.

Several different types of messages can indicate when the system is not functioning properly:

- 1 System messages
- 1 System beep codes
- 1 Warning messages
- 1 Diagnostics messages
- 1 Alert messages

This section also describes each type of message and lists the possible causes and actions you can take to resolve any problems indicated by a message.

Performing some initial checks and procedures can solve many basic system problems. The system indicators and the back-panel features are illustrated in [Figure 2-1](#) and [Figure 2-2](#).

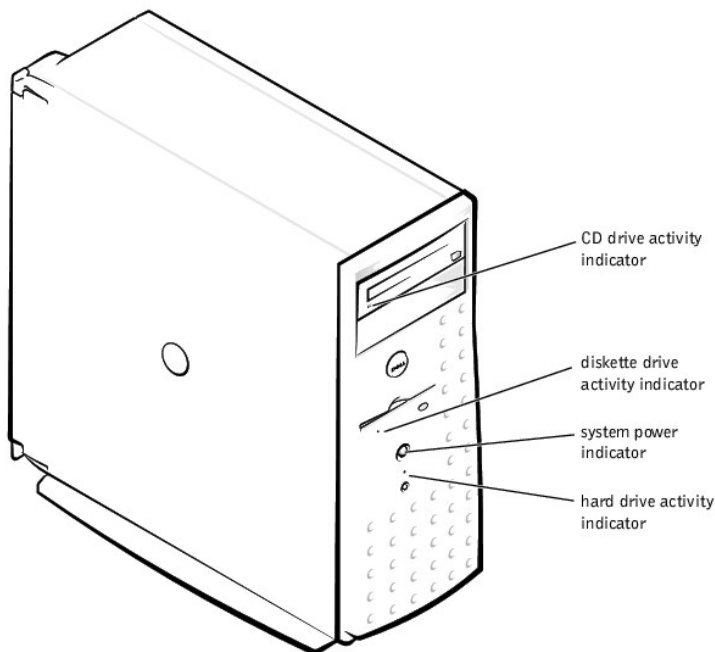
Start-Up Routine

Looking at and listening to the system is important in determining the source of a problem. Look and listen during the system's start-up routine for the indications described in [Table 2-1](#).

Bezel Indicators

When the bezel is in place on the system, it has four indicators (see [Figure 2-1](#)). There is a *CD drive activity indicator*, *diskette drive activity indicator*, *hard drive activity indicator*, and *system power indicator*.

Figure 2-1. Bezel Indicators



Look and listen for the indications described in [Table 2-1](#).

Table 2-1. Start-Up Routine Indications

Look/Listen for:	Action
An error message	See " System Messages ."
Alert messages from the system management server agent software	See " Alert Log Messages From the System Management Server Agent " in " System Messages ."
The monitor's power indicator	See " Troubleshooting the Video Subsystem " in " Troubleshooting Your System ."
The keyboard indicators	See " Troubleshooting the Keyboard " in " Troubleshooting Your System ."
The diskette-drive activity indicator	See " Troubleshooting the Diskette Drive " in " Troubleshooting Your System ."
The hard drive activity indicators	See " Troubleshooting Hard Drives " in " Troubleshooting Your System ."
A series of beeps	See " System Beep Codes ."
An unfamiliar constant scraping or grinding sound when you access a drive	See " Getting Help ," for instructions on obtaining technical assistance.
NOTE: For the full name of an abbreviation or acronym used in this table, see "Abbreviations and Acronyms."	

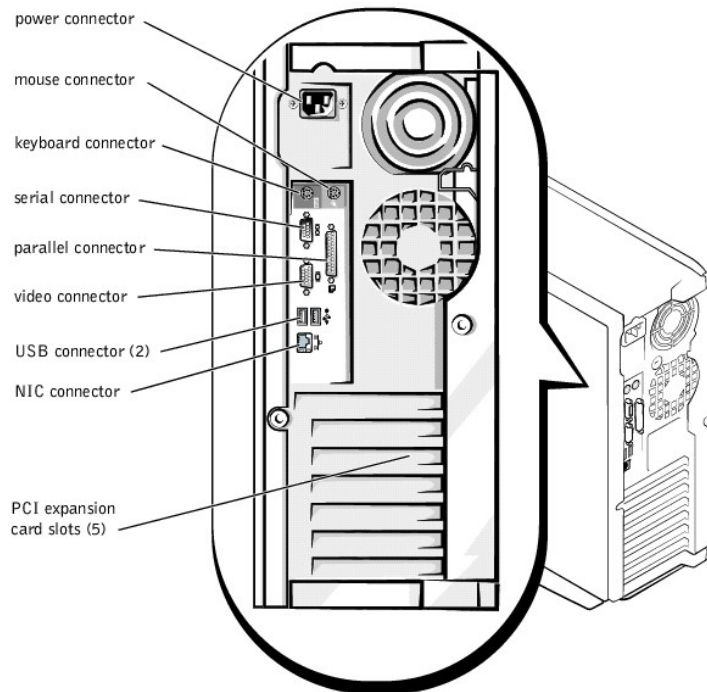
Checking Connections and Switches

Improperly set switches, controls, and loose or improperly connected cables are the most likely source of problems for the system, monitor, or other peripherals (such as a printer, keyboard, mouse, or other external equipment). A quick check of all the switches, controls, and cable connections can easily solve these problems. See [Figure 2-2](#) for the back-panel features and connectors.

Back-Panel Features

[Figure 2-2](#) shows the back-panel features of the system.

Figure 2-2. Back-Panel Features



Complete the following procedure to check all the connections and switches:

Checking Specific System Problems

1. Turn off the system, including any attached peripherals. Disconnect all the power cables from their electrical outlets.
2. If the system is connected to a PDU, turn the PDU off and then on again.

If it is not receiving power, plug it into another electrical outlet. If it still is not receiving power, try another PDU.

3. Reconnect the system to the electrical outlet or PDU.

4. Is the monitor working properly?

See "[Troubleshooting the Video Subsystem](#)."

5. Is the keyboard working properly?

See "[Troubleshooting the Keyboard](#)."

6. Are the mouse and printer working properly?

See "[Troubleshooting the Basic I/O Functions](#)."

System Messages

System messages alert you to a possible operating system problem or to a conflict between the software and hardware. [Table 2-2](#) lists the system error messages that can occur and the probable cause for each message.


 **NOTE:** If you receive a system message that is not listed in [Table 2-2](#), check the documentation for the application program that is running when the message appears and/or the operating system documentation for an explanation of the message and recommended action.

Table 2-2. System Messages

Message	Cause	Corrective Action
Address mark not found	Faulty diskette, CD-ROM, or hard drive subsystem (defective system board).	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Alert! Maximum memory size exceeded. Limiting memory size to 2 GB	System supports up to 2 GB of memory.	Remove a memory module pair so that the maximum amount of memory is 2 GB or less. See " Adding Memory " in "Installing System Board Options."
Alert! Single-bit memory error previously detected in xxxx xxxh	Improperly seated or faulty memory modules.	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
Alert! Previous processor thermal failure	The microprocessor exceeded its recommended operating temperature during the previous operating session.	Remove and replace the defective microprocessor. See " Replacing the Microprocessor " in "Installing System Board Options."
Alert! Primary processor is out of rev	System detected that the primary processor is not the correct revision.	Replace the microprocessor. See " Replacing the Microprocessor " in "Installing System Board Options."
Alert! Processor thermal probe failure detected	Faulty processor or defective system board.	Replace the defective microprocessor. See " Replacing the Microprocessor " in "Installing System Board Options." If the problem persists, the system is defective. See " Getting Help ," for instructions on obtaining technical assistance.
Alert! Unsupported memory in DIMM slot(s)	Unsupported memory module(s) installed in specified slot(s).	Replace one or more memory modules so that the memory module pairs are the same type. See " Adding Memory " in "Installing System Board Options."
Alert! Uncorrectable memory error previously detected in xxxx xxxh	Improperly seated or faulty memory modules.	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
Attachment failed to respond	Diskette drive or hard drive controller cannot send data to associated drive.	Replace the defective drive. See " Installing Drives ." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
Auxiliary device failure	Mouse cable connector loose or improperly connected, defective mouse.	Check the mouse cable connection. " Checking Connections and Switches ." If the problem persists, replace the mouse. See " Getting Help ," for instructions on obtaining technical assistance.
Bad command or file name	Command entered does not exist, is faulty, or is not in pathname specified.	Faulty command and syntax, or incorrect filename.
Bad error-correction code(ECC) on disk read	Faulty diskette, CD-ROM, or hard drive subsystem (defective system board).	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Controller has failed		
Boot: Couldn't find NTLDR	A nonbootable diskette formatted with Win-dows NT was detected in the diskette drive.	A nonbootable diskette is preventing the system from booting. Remove the diskette to boot the system from the hard drive or from a bootable diskette.
CAUTION! NVRAM_CLR jumper is installed on system board. Please run SETUP	The NVRAM jumper is installed.	Remove the NVRAM jumper. See " Figure A-2 " for jumper location. Run the System Setup program to correct the diskette drive type. See "Using the System Setup Program," in the <i>User's Guide</i> for instructions.
CD-ROM drive not found	Improperly connected or missing CD drive.	Check that the CD drive unit is seated properly against the interposer board on the peripheral cage. See " Inside the System " in "Troubleshooting Your System" for the location of the CD drive. Replace the drive. See " Installing Drives ." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
Data error	Faulty diskette, diskette drive, or hard drive.	Replace the diskette, diskette drive, or hard drive. See " Installing Drives ."
Decreasing available memory	One or more memory modules improperly seated or faulty.	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.

Diskette drive 0 seek failure	Faulty or improperly inserted diskette, incorrect configuration settings in System Setup program, loose diskette drive interface cable.	Replace the diskette. Run the System Setup program to correct the diskette drive type. See "Using the System Setup Program," in the <i>User's Guide</i> for instructions. Check the interface cable and power cable connections to the system board. See " Installing Drives ."
Diskette drive 1 seek failure		
Diskette read failure	Faulty diskette, faulty or improperly connected diskette drive.	Check the interface cable and power cable connections to the system board. See " Installing Drives ."
Diskette subsystem reset failed	Faulty diskette controller (defective system board).	Replace the system board. See " Installing Drives ," for instructions on obtaining technical assistance.
Diskette write protected	Diskette write-protect feature activated.	Move the write-protect tab on the diskette.
Drive not ready	Diskette missing from or improperly inserted in diskette drive.	Reinsert or replace the diskette.
Gate A20 failure	Faulty keyboard controller (defective system board).	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
General failure	Operating system corrupted or not installed properly.	Reinstall the operating system.
Hard disk controller failure	Incorrect configuration settings in System Setup program, improperly connected hard drive, faulty hard drive controller subsystem (defective system board), or loose power cable.	Check the hard drive configuration settings in the System Setup program. See "Using the System Setup Program," in the <i>User's Guide</i> for instructions. Reinstall the hard drive. See " Installing Drives ." Check the interface cable and power cable connections to the system board. See " Installing Drives ."
Hard disk drive read failure		
Hard disk failure		
Invalid configuration information - please run SETUP program	Incorrect configuration settings in System Setup program, faulty battery, or NVRAM jumper is installed.	Check the System Setup configuration settings. See "Using the System Setup Program," in the <i>User's Guide</i> for instructions. Replace the battery. See " Replacing the System Battery " in "Installing System Board Options." Remove the NVRAM jumper. See " Figure A-2 " for jumper location.
Invalid CPU speed detected	Microprocessor not supported by system.	Install a correct version of the microprocessor in the specified microprocessor connector. See " Replacing the Microprocessor " in "Installing System Board Options."
Invalid NVRAM configuration, resource reallocated	System detected and corrected a resource conflict when system resources were allocated using the System Setup program.	No action is required.
I/O parity interrupt at address	Expansion card improperly installed or faulty.	Reinstall the expansion cards. See " Installing Expansion Cards " in "Installing System Board Options." If the problem persists, replace the expansion card. See " Removing Expansion Cards " in "Installing System Board Options."
Keyboard failure	Keyboard cable connector loose or improperly connected, defective keyboard, or defective keyboard/mouse controller (defective system board).	Check the keyboard cable connection. Replace the keyboard. If the problem persists, replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Keyboard data line failure		
Keyboard stuck key failure		
Keyboard clock line failure		
Keyboard controller failure	Defective keyboard/mouse controller (defective system board).	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Memory address line failure at address, read value expecting value	Faulty or improperly seated memory modules or defective system board.	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
Memory data line failure at address, read value expecting value		
Memory double word logic failure at address, read value expecting value		
Memory odd/even logic failure at address, read value expecting value		
Memory write/read failure at address, read value expecting value		
Memory allocation error	Faulty application program.	Restart the application program.
Memory parity interrupt at address	Improperly seated or faulty memory modules.	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
Memory tests terminated by keystroke	POST memory test terminated by pressing the spacebar.	No action is required.
No boot device available	Faulty diskette, diskette subsystem, hard drive, hard drive subsystem, or no boot disk in drive A.	Replace the diskette or hard drive. See " Installing Drives ." If the problem persists, replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
No boot sector on hard drive	Incorrect configuration settings in System Setup program, or no operating system on hard drive.	Check the hard drive configuration settings in the System Setup program. See "Using the System Setup Program," in the <i>User's Guide</i> for instructions.

No timer tick interrupt	Defective system board.	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Non-system disk or disk error	Faulty diskette, diskette subsystem, or hard drive subsystem.	Replace the diskette or hard drive. See " Installing Drives ." If the problem persists, replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Not a boot diskette	No operating system on diskette.	Use a bootable diskette.
Read fault	Faulty diskette, diskette subsystem, or hard drive subsystem (defective system board).	Replace the diskette or hard drive. See " Installing Drives ." If the problem persists, replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Requested sector not found		
Reset failed	Improperly connected diskette drive, CD drive, hard drive, or power cable.	Check the interface cable and power cable connections to the diskette drive, CD drive, or hard drive. See " Installing Drives ." Reinstall the hard drive. Check the interface cable and power cable connections to the system board. See " Getting Help ."
ROM bad checksum = address	Expansion card improperly installed or faulty.	Reinstall the expansion cards. See " Installing Expansion Cards " in "Installing System Board Options." If the problem persists, replace the expansion card. See " Removing Expansion Cards " in "Installing System Board Options." If the problem persists, replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Sector not found	Defective sectors on diskette or hard drive.	Replace the diskette or hard drive. See " Installing Drives ."
Seek error	Defective sectors on diskette or hard drive.	Replace the diskette or hard drive. See " Installing Drives ."
Seek operation failed	Faulty diskette or hard drive.	Replace the diskette or hard drive. See " Installing Drives ."
Shutdown failure	Defective system board.	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
System halted	System microprocessor is not supported.	Replace the unsupported microprocessor with a supported microprocessor. See " Replacing the Microprocessor " in "Installing System Board Options."
Time-of-day clock stopped	Defective battery or faulty chip (defective system board).	Replace the system battery. See " Replacing the System Battery " in "Installing System Board Options." If the problem persists, replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Time-of-day not set - please run SETUP program	Incorrect Time or Date settings, defective system battery, or NVRAM jumper is installed.	Check the Time and Date settings. See "Using the System Setup Program," in the <i>User's Guide</i> for instructions. If the problem persists, replace the system battery. See " Replacing the System Battery " in "Installing System Board Options." If the problem persists, replace the system board. See " Getting Help ," for instructions on obtaining technical assistance. Remove the NVRAM jumper. See " Figure A-2 " for jumper location.
Timer chip counter 2 failed	Defective system board.	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
Unexpected interrupt in protected mode	Improperly seated memory modules or faulty keyboard/mouse controller chip (defective system board).	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
Unsupported CPU speed in CMOS	Microprocessor not supported by BIOS.	Upgrade the BIOS. See "Using the System Setup Program," in the <i>User's Guide</i> for instructions.
Utility partition not available	<F10> key was pressed during POST, but no utility partition exists on the boot hard drive.	Create a utility partition on the boot hard drive. See "Using the <i>Dell OpenManage Server Assistant</i> CD" in your <i>User's Guide</i> .
Write fault	Faulty diskette or hard drive.	Replace the diskette or hard drive. See " Installing Drives ."
Write fault on selected drive		
NOTE: For the full name of an abbreviation or acronym used in this table, see "Abbreviations and Acronyms."		

System Beep Codes

When an error that cannot be reported on the monitor occurs during a boot routine, the system may emit a series of beeps that identify the problem.

 **NOTE:** If the system boots without a keyboard, mouse, or monitor attached, the system will not issue beep codes related to these peripherals.

When a beep code is emitted, record it on a copy of the Diagnostics Checklist in "[Getting Help](#)," and then look it up in [Table 2-3](#). If you are unable to resolve the problem by looking up the meaning of the beep code, use the system diagnostics to identify a more serious cause. If you are still unable to resolve the problem, see "[Getting Help](#)," for instructions on obtaining technical assistance.


Table 2-3. System Beep Codes

Code	Cause	Corrective Action
1-1-3	CMOS write/read failure	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
1-1-4	BIOS checksum failure	This fatal error usually requires that you replace the BIOS firmware. See " Getting Help ," for instructions on obtaining technical assistance.
1-2-1	Programmable interval-timer failure	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
1-2-2	DMA initialization failure	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
1-2-3	DMA page register write/read failure	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.

1-3-1	Main-memory refresh verification failure	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
1-3-2	No memory installed	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
1-3-3	Chip or data line failure in the first 64 KB of main memory	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
1-3-4	Odd/even logic failure in the first 64 KB of main memory	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
1-4-	Address line failure in the first 64 KB of main memory	
1-4-2	Parity failure in the first 64 KB of main memory	
2-1-1 through 2-4-4	Bit failure in the first 64 KB of main memory	
3-1-1	Slave DMA-register failure	
3-1-2	Master DMA-register failure	
3-1-3	Master interrupt-mask register failure	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
3-1-4	Slave interrupt-mask register failure	
3-2-4	Keyboard-controller test failure	
3-3-1	CMOS failure	
3-3-2	System configuration check failure	Run the system board test in the system diagnostics to isolate the problem. See " Running the System Diagnostics ."
3-3-3	Keyboard controller not detected	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
3-3-4	Screen initialization failure	Run the video test in the system diagnostics. See " Running the System Diagnostics ."
3-4-2	Screen-retrace test failure	
3-4-3	Search for video ROM failure	
4-2-1	No timer tick	Replace the system board. " Getting Help ," for instructions on obtaining technical assistance.
4-2-2	Shutdown failure	
4-2-3	Gate A20 failure	
4-2-4	Unexpected interrupt in protected mode	Ensure that all expansion cards are properly seated, and then reboot the system.
4-3-1	Improperly seated or faulty memory modules	Remove and reseat the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, replace the memory modules. See " Adding Memory " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
4-3-3	Defective system board	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
4-3-4	Time-of-day clock stopped	Replace the battery. See " Replacing the System Battery " in "Installing System Board Options." If the problem persists, replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
4-4-1	I/O chip set failure (defective system board)	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
4-4-2	Parallel-port test failure (defective system board)	Replace the system board. See " Getting Help ," for instructions on obtaining technical assistance.
4-4-3	Math coprocessor failure (defective microprocessor)	Remove and reseat the specified microprocessor. See " Upgrading the Microprocessor " in "Installing System Board Options." If the problem persists, replace the microprocessor. See " Upgrading the Microprocessor " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
4-4-4	Cache test failure (defective microprocessor)	Remove and reseat the specified microprocessor. See " Upgrading the Microprocessor " in "Installing System Board Options." If the problem persists, replace the microprocessor. See " Replacing the Microprocessor " in "Installing System Board Options." If the problem persists, see " Getting Help ," for instructions on obtaining technical assistance.
NOTE: For the full name of an abbreviation or acronym used in this table, see "Abbreviations and Acronyms."		

Warning Messages

A warning message alerts you to a possible problem and asks you to take corrective action before the system continues a task. For example, before you format a diskette, a message may warn you that you may lose all data on the diskette, as a way to protect against inadvertently erasing or writing over the data. These warning messages usually interrupt the procedure and require you to respond by typing y (yes) or n (no).

 **NOTE:** Warning messages are generated by either the application program or the operating system. See "[Finding Software Solutions](#)," and the documentation that accompanied the operating system and application program for more information on warning messages.

Diagnostics Messages

When you run a test group or subtest in the system diagnostics, an error message may result. These particular error messages are not covered in this section. Record the message on a copy of the Diagnostics Checklist (see ["Getting Help"](#)), and then follow the instructions in that section for obtaining technical assistance.

Alert Log Messages From the System Management Server Agent

The optional system management software generates alert messages for your system. For example, the server agent generates messages that appear in the SNMP trap log file. Alert messages consist of information, status, warning, and failure messages for drive, temperature, fan, and power conditions. More information about alert messages is provided in the system management software documentation found on the *Online Documentation* CD that shipped with your system.

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Finding Software Solutions

Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

- [Installing and Configuring Software](#)
- [Using Software](#)

Because most systems have several application programs installed in addition to the operating system, isolating a software problem can be confusing. Software errors can also appear to be hardware malfunctions at first.

Software problems can result from the following circumstances:

- 1 Improper installation or configuration of an application program
- 1 Input errors
- 1 Device drivers that may conflict with certain application programs
- 1 Interrupt conflicts between devices

You can confirm that a system problem is caused by software by running the system diagnostics. See "[Running the System Diagnostics](#)." If all tests in the test group are completed successfully, the problem is most likely caused by software.

This section provides some general guidelines for analyzing software problems. For detailed troubleshooting information on a particular application program, see the documentation that accompanied the software or consult the support service for the software.

Installing and Configuring Software

Use virus-scanning software to check newly acquired application programs and files for viruses before installing the application programs on the system's hard drive. Viruses can quickly use all available system memory, damage and/or destroy data stored on the hard drive, and permanently affect the performance of the application programs they infect. Several commercial virus-scanning programs are available for purchase.

Before installing an application program, read its documentation to learn how the application program works, what hardware it requires, and what its defaults are. An application program usually includes installation instructions in its accompanying documentation and a software installation routine.

The software installation routine assists users in transferring the appropriate application program files to the system's hard drive. Installation instructions may provide details about how to configure the operating system to successfully run the application program. Always read the installation instructions before running an application program's installation routine.

When you run the installation routine, be prepared to respond to prompts for information about how the system's operating system is configured, what type of system you have, and what peripherals are connected to the system.

Using Software

The following subsections discuss errors that can occur as a result of software operation or configuration.

Error Messages

Error messages can be produced by an application program, the operating system, or the system. "[Indicators, Messages, and Codes](#)," discusses the error messages that are generated by the system. If you receive an error message that is not listed in "[Indicators, Messages, and Codes](#)," check the operating system or application program documentation.

Input Errors

If a specific key or set of keys is pressed at the wrong time, an application program may give you unexpected results. See the documentation that came with the application program to make sure that the values or characters you are entering are valid.

Make sure that the operating environment is set up to accommodate the application programs you use. Keep in mind that whenever you change the parameters of the system's operating environment, you may affect the successful operation of the application programs. Sometimes, after modifying the operating environment, you may need to reinstall an application program that no longer runs properly.

Application Program Conflicts

Some application programs may leave portions of their setup information behind, even though you have exited from them. As a result, other application programs cannot run. Rebooting the system can confirm whether these application programs are the cause of the problem.

Device drivers, which are application programs that use specialized subroutines, can cause problems with the system. For example, a variation in the way the data is sent to the monitor may require a special screen driver application program that expects a certain kind of video mode or monitor. In such cases, you may have to develop an alternate method of running that particular application program—by creating a start-up file made especially for that application program, for example. Call the support service for the software you are using to help you with this problem.

Avoiding Interrupt Assignment Conflicts

Problems can arise if two devices attempt to use the same IRQ line. To avoid this type of conflict, check the documentation for the IRQ line's default for each installed expansion card. Then consult [Table 3-1](#) to configure the card for one of the available IRQ lines.

Table 3-1. IRQ Line Assignment Defaults

IRQ Line	Used By/Available
IRQ0	Used by the system timer
IRQ1	Used by the keyboard controller
IRQ2	Used by interrupt controller 1 to enable IRQ8 through IRQ15
IRQ3	Available
IRQ4	Used by serial port 1 (COM1 - COM4)
IRQ5	Available unless used by USB ports
IRQ6	Used by the diskette drive controller
IRQ7	Used by the primary parallel port
IRQ8	Used by the real-time clock
IRQ9	Reserved for ACPI functions
IRQ10	Available
IRQ11	Available
IRQ12	Used by the PS/2 mouse port if the mouse is enabled in the System Setup program
IRQ13	Used by the math coprocessor
IRQ14	Primary IDE controller (IDE 1)
IRQ15	Secondary IDE controller (IDE 2)
NOTE: For the full name of an abbreviation or acronym used in this table, see "Abbreviations and Acronyms."	

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Running the System Diagnostics

Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

- [Features of the System Diagnostics](#)
- [When to Use the System Diagnostics](#)
- [Starting the System Diagnostics](#)
- [How to Use the System Diagnostics](#)
- [How to Use the Device Groups Menu](#)
- [Device Groups Menu Options](#)
- [Error Messages](#)

The system diagnostics provided with your system helps you check the system's hardware without any additional equipment and without destroying any data. By using the diagnostics, you can have confidence in the system's operation. If you find a problem that you cannot solve by yourself, the diagnostic tests can provide you with important information you will need when talking to a technical assistance representative.

 **NOTICE:** Use the system diagnostics to test only your system. If you use this program with other systems, incorrect system responses or error messages may result.

Features of the System Diagnostics

The system diagnostics provide a series of menus and options from which you choose particular device groups or devices. You can also control the sequence in which the tests are run. The diagnostic menus also have these helpful features:

- 1 Options that let you run tests individually or collectively
 - 1 An option that allows you to choose the number of times a test is repeated
 - 1 The ability to display or print test results or to save them in a file
 - 1 Options to temporarily suspend testing if an error is detected or to terminate testing when an adjustable error limit is reached
 - 1 Help messages that briefly describe each test and its parameters
 - 1 Status messages that inform you whether device group or device tests are completed successfully
 - 1 Error messages that appear if any problems are detected
-

When to Use the System Diagnostics

Whenever a major component or device in the system does not function properly, you may have a component failure. As long as the microprocessor and the input and output components of the system (the monitor, keyboard, and diskette drive) are working, you can use the system diagnostics. If you know what component(s) you need to test, simply select the appropriate diagnostic device group(s) or subtest(s). If you are unsure about the scope of the problem, read the rest of the information in this section.

Starting the System Diagnostics

You can run the system diagnostics from either the utility partition on your hard drive or from a set of diskettes that you create from the *Dell OpenManage Server Assistant* CD.

To run the diagnostics from the utility partition, perform the following steps:

1. Start the utility partition by pressing <F10> during POST.
2. From the utility partition's main menu, select the **Run System Diagnostics** option from **Run System Utilities**.

See "Utility Partition" in "Using the *Dell OpenManage Server Assistant* CD," in the *User's Guide* for additional information about the utility partition.

To run the system diagnostics from the diskettes, perform the following steps:


1. Create a set of diagnostics diskettes using the *Dell OpenManage Server Assistant* CD.

See "Using the *Dell OpenManage Server Assistant* CD" in the *User's Guide* for instructions on creating diagnostics diskettes.

2. Boot the system from the first diagnostics diskette.

If the system fails to boot, see "[Getting Help](#)," for instructions on obtaining technical assistance.

When you start the diagnostics a message is displayed telling you that the diagnostics is loading. The **Diagnostics** menu appears. The menu allows you to run all or specific diagnostic tests or to exit the system diagnostics.

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

For a quick check of the system, select **Test All Devices** and then select **Quick Tests**. This option runs only the device tests 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 chance of tracing the source of the problem quickly. For a complete check of the system, select **Test All Devices** and then select **Extended Tests**. To check a particular area of the system, choose **Advanced Testing**.

Selecting **Exit to MS-DOS** exits the diagnostics and returns you to the MS-DOS® operating system environment.

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

How to Use the System Diagnostics

When you select **Advanced Testing** from the **Diagnostics** menu, the main screen of the diagnostics appears.

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

- 1 Two lines at the top of the main screen identify the diagnostics and give its version number.
- 1 On the left side of the screen, the **Device Groups** area lists the diagnostic device groups in the order they will run if you select **All** under the **Run Tests** submenu. Press the up- or down-arrow key to highlight a device group.
- 1 On the right side of the screen, the **Devices for Highlighted Group** area lists the specific devices within a particular test group.
- 1 Two lines at the bottom of the screen make up the menu area. The first line lists the menu options you can select; press the left- or right-arrow key to highlight an option. The second line gives information about the highlighted option.

How to Use the Device Groups Menu

The **Device Groups** menu at the bottom of the screen provides options that enable you to select and run specific diagnostic tests from the diagnostics main screen. Press the left- and right-arrow keys to select the options on the menu. As you move from one menu option to another, a brief explanation of the highlighted option appears on the bottom line of the screen.

If you want more information about a device group or device, highlight the **Help** option and press <Enter>. After you read the information, press <Esc> to return to the previous screen.

Device Groups Menu Options

Five options are listed at the bottom of the diagnostics main screen: **Run Tests**, **Devices**, **Select**, **Config**, and **Help**.

There are two ways to select a menu option:

- 1 Look on the screen to see which letter in the option is capitalized, and type that letter (for example, type r to select the **Run** option).
- 1 Move the highlight to the option you want to select by pressing the left- or right-arrow key, and then press <Enter>.

Whenever one of the options is selected, additional choices become available.

The following subsections explain the menu options as listed from left to right in the **Device Groups** menu.

Run Tests

Run Tests displays seven options: **One**, **All**, **Select**, **Options**, **Results**, **Errors**, and **Help**. If you select **One**, all the devices within the highlighted device group are run. If you select **All**, all of the tests in all of the device group tests are run. (The device group tests are run in the same order as they are listed.) If you choose **Select**, only the selected device groups or the devices that you selected within the device groups are run. Before you test any device groups or devices, consider setting global parameters within **Options**. [Table 4-1](#) lists all of the possible values for each option. Global parameters offer you greater control over how the device group tests or device tests are run and how results are reported. **Help** displays a series of help options, including **Menu**, **Keys**, **Device Group**, **Device**, **Test**, and **Versions**.

Table 4-1. Options

Option	Possible Values
Number of Times to Repeat Test(s)	0001 through 9999 or 0000, which loops indefinitely until you press <Ctrl><Break>. The default is 1.
Maximum Errors Allowed	0000 through 9999, where 0000 means that there is no error limit. The default is 1.
Pause for User Response	Yes, No Allows you to decide whether tests will wait for user input. The default is Yes to wait for user input.
Message Logging	None, Errors, All Determines if any test results are saved to a file. The default is None.
Message Logging File Name	Specifies the name of the logging file if the Message Logging option is selected. The default is A: RESULT.

Display Detailed Messages	Yes, No Enables or disables detailed messages.
---------------------------	---

Devices

Most of the device groups consist of several devices. Use the **Devices** option to select individual devices within the device group(s).

When you select **Devices**, the following options are displayed: **Run Tests**, **Tests**, **Select**, **Parameters**, and **Help**. [Table 4-2](#) lists all of the possible values for each option.

Table 4-2. Devices Options

Option	Functions
Run Tests	Displays five options: One , All , Select , Options , Results , Errors , and Help .
Tests	Allows you to select individual devices to tailor the testing process to your particular needs. You can choose one or more devices from the list. When you choose Tests , four options are displayed: Run Tests , Select , Parameters , and Help .
Select	Allows you to choose one or more devices from a particular device group. Three options are displayed: One , All , and Help .
Parameters	Determines how a particular test runs.
Help	Displays a list of help topics.

Select

The **Select** option in the **Device Groups** menu allows you to choose one or more devices from a particular device group. Three options are displayed: **One**, **All**, and **Help**.

Config

Choosing **Config** from the **Device Groups** menu displays information about the particular device that is highlighted.

Error Messages

When you run a test in the diagnostics, error messages may result. Record the messages on a copy of the Diagnostics Checklist; also see "[Getting Help](#)," for instructions on obtaining technical assistance and informing the technical assistance representative of these messages.

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Troubleshooting Your System

Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

- [Safety First—For You and Your System](#)
- [Removing and Replacing the System Cover and Support Beam](#)
- [Removing and Replacing the Bezel](#)
- [Checking the Equipment](#)
- [Inside the System](#)
- [Responding to a System Management Server Agent Message](#)
- [Troubleshooting a Wet System](#)
- [Troubleshooting a Damaged System](#)
- [Troubleshooting the System Battery](#)
- [Troubleshooting the Power Supply](#)
- [Troubleshooting the Cooling Fan](#)
- [Troubleshooting Expansion Cards](#)
- [Troubleshooting System Memory](#)
- [Troubleshooting the Video Subsystem](#)
- [Troubleshooting the System Board](#)
- [Troubleshooting the Diskette Drive](#)
- [Troubleshooting CD and DVD Drives](#)
- [Troubleshooting Hard Drives](#)

If your system is not working as expected, begin troubleshooting using the procedures in this section. This section guides you through some initial checks and procedures that can solve basic system problems and provides troubleshooting procedures for components inside the system. Before you start any of the procedures in this section, take the following steps:

- 1 Lay the system on its side.
- 1 Read the "Safety Instructions" in your *System Information* document.
- 1 Read "[Running the System Diagnostics](#)" for information about running diagnostics.

Safety First—For You and Your System



The procedures in this guide require that you remove the cover and work inside the system. While working inside the system, do not attempt to service the system except as explained in this guide and elsewhere in your system documentation. Always follow the instructions closely. Make sure to review all of the procedures in "Safety Instructions" in your *System Information* document.

Working inside the system is safe—if you observe the following precaution.

-  **CAUTION:** See "Protecting Against Electrostatic Discharge" in the "Safety Instructions" in your *System Information* document before performing any procedure which requires you to open the cover.


Removing and Replacing the System Cover and Support Beam

The system is enclosed by a bezel and a cover. To upgrade or troubleshoot the system, remove the system cover and support beam to gain access to internal components.

-  **NOTE:** Before you begin any of the procedures in this section, follow the safety instructions in "[Safety First—For You and Your System](#)."
-  **NOTICE:** To avoid damaging the system board, disconnect the power cable from the electrical outlet and from the back of the system, then press the power button before you remove the system cover. The system board continues to receive a small amount of power when the system is turned off and attached to an electrical outlet.

Removing the System Cover and Support Beam

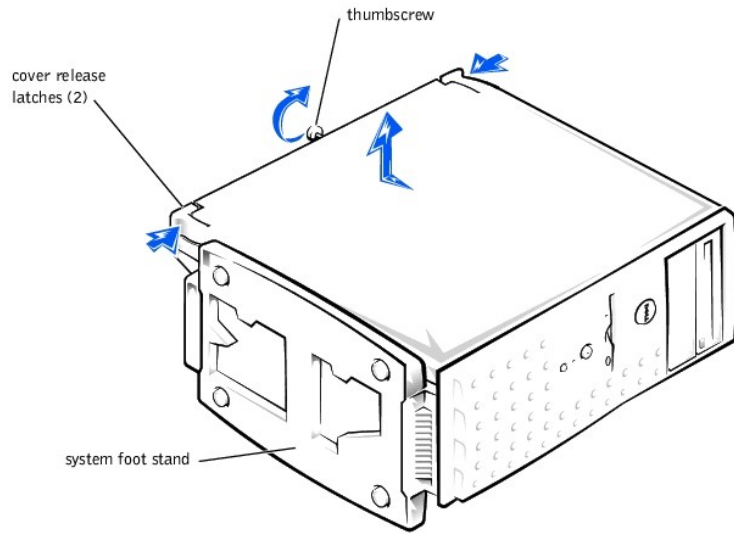
- 1 Lay the system on its right side, with the system foot stand off the edge of the work surface.
- 2 Loosen the captive thumbscrew that secures the cover to the back of the system.

-  **CAUTION:** To prevent cuts, keep your hands clear of the metal edges on the system as you slide back the cover.

- 3 Face the front of the system. Use your thumbs to press in both latches while pushing the cover backward. Move the cover back slightly, and then lift it straight up (see [Figure 5-1](#)).

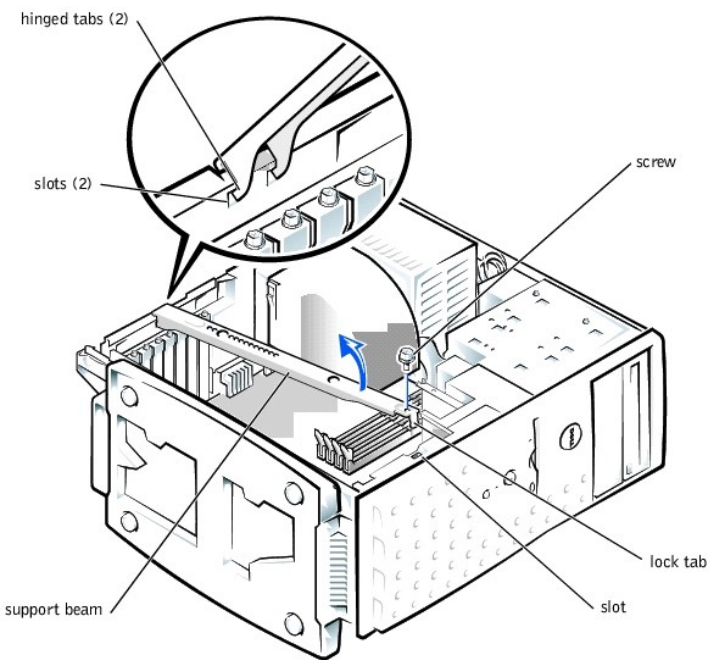
If necessary, use both hands and work one side at a time.

Figure 5-1. Removing the System Cover



4. Remove the screw from the support beam as shown in [Figure 5-2](#).
5. Pull the front end of the support beam until it snaps free from its fastener. Rotate the front of the beam upward until the hinged tabs on the back of the beam clear their slots (see [Figure 5-2](#)).

Figure 5-2. Removing and Replacing the Support Beam



Replacing the System Cover and Support Beam

1. Check that no tools or parts are left inside the system.
2. Slip the support beam's hinged tabs into their slots and lower the beam until the lock tab snaps into the retaining slot (see [Figure 5-2](#)).
3. Replace the screw you removed in step 4 of "[Removing the System Cover and Support Beam](#)."
4. Fit the cover over the sides of the chassis and slide the cover forward until it locks in place.
5. Secure the cover with the thumbscrew.

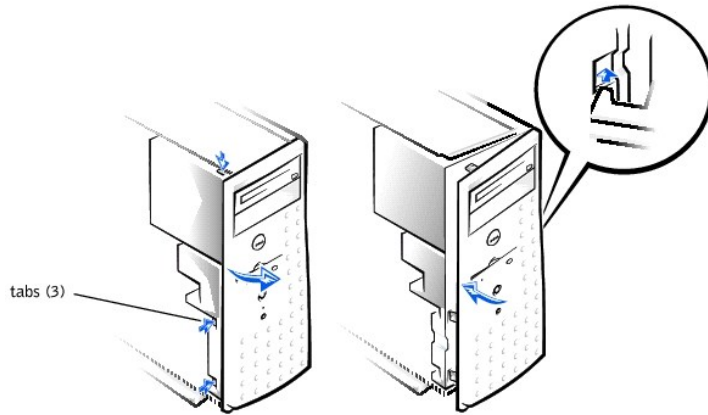
Removing and Replacing the Bezel

The front bezel has status and attention indicators. You must remove the system cover in order to remove the bezel.

Removing the Bezel

1. Remove the system cover (see "[Removing the System Cover and Support Beam](#)").
2. Press the three tabs along the side of the bezel (see [Figure 5-3](#)).
3. Swing the bezel away from the system, disengage the hooks, and carefully pull the bezel away from the system.

Figure 5-3. Removing and Replacing the Bezel



Replacing the Bezel

Insert the bezel hooks into the system slots, and snap the bezel back onto the system (see [Figure 5-3](#)).

Checking the Equipment

This section provides troubleshooting procedures for equipment that connects directly to the I/O panel of the system, such as the monitor, keyboard, or mouse. Before you perform any of the procedures, see "[Checking Connections and Switches](#)" in "Indicators, Messages, and Codes."

Troubleshooting the Video Subsystem

Problem

- 1 Monitor
- 1 Monitor interface cable
- 1 Video memory
- 1 Video logic

Action

1. Check the system and power connections to the monitor.
2. Run the video tests in the system diagnostics.

If the tests run successfully, the problem is not related to video hardware. Go to "[Finding Software Solutions](#)."

If the tests did not run successfully see "[Getting Help](#)" for instructions on obtaining technical assistance.

Troubleshooting the Keyboard

Problem

- 1 A system error message indicates a keyboard problem

Action

1. Look at the keyboard and the keyboard cable for any signs of damage.
2. Press and release each key on the keyboard.

If the keyboard and its cable appear to be free of physical damage, and the keys work, go to step 4.

If the keyboard or its cable are damaged, continue to step 3.

3. Swap the faulty keyboard with a working keyboard.

If the problem is resolved, the keyboard must be replaced. See "[Getting Help](#)," for instructions on obtaining technical assistance.

4. Run the keyboard test in the system diagnostics.

If you can use the keyboard to select the keyboard test, go to step 6.

If you cannot use the keyboard to select the keyboard test, continue to step 5.

5. Swap the faulty keyboard with a working keyboard.

6. Did the keyboard test run successfully?

If the problem is resolved, the keyboard must be replaced. If the problem is not resolved, the keyboard controller on the system board is faulty. See "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting the Basic I/O Functions

Problem

1. A system error message indicates an I/O port problem
1. A device connected to the port does not function properly

Action

1. Check the system setup. See "Using the System Setup Program" in the *User's Guide* for instructions.

If the system setup is correct, go to step 4.

2. Change the necessary statements in the system setup. If the port problem is confined to a particular application program, see the application program's documentation for specific port configuration requirements.
3. Reboot the system from the diagnostics diskette, and run the serial port test and/or the parallel port test in the system diagnostics.

If the tests did not run successfully, see "[Getting Help](#)," for instructions on obtaining technical assistance.

4. If the problem persists, see one of the following procedures, "[Troubleshooting a Parallel Printer](#)" or "[Troubleshooting a Serial I/O Device](#)," depending on the malfunctioning device.

Troubleshooting a Serial I/O Device

Problem

1. Device connected to the serial ports is not working

Action

1. Turn off the system and any peripheral devices connected to the serial port.
2. Swap the interface cable with a known working cable.

If the problem is resolved, the interface cable must be replaced. See "[Getting Help](#)," for instructions on obtaining technical assistance.

3. Turn off the system and the serial device, and swap the device with a comparable device.
4. Turn on the power to the system and the serial device.

If the problem is resolved, the serial device must be replaced. If the problem is not resolved, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting a Parallel Printer

Problem

1. Parallel printer is not working

Action

1. Turn off the power from the printer and the system.
2. Swap the parallel printer interface cable with a known working cable.
3. Turn on the power to the printer and the system.
4. Attempt to print with the printer.

If the print operation is successful, the interface cable must be replaced. See "[Getting Help](#)," for instructions on obtaining technical assistance.

5. Run the printer's self-test.

If the self-test is not successful, the printer is probably defective. If the printer was purchased from Dell, see "[Getting Help](#)," for instructions on obtaining technical assistance.

6. Attempt to print on the parallel printer.

If the print operation is not successful, the see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting a USB Device

Problem

- 1 A system error message indicates a problem
- 1 Device connected to the port is not working

Action

1. Enter the System Setup program, and check that the USB ports are enabled. See "Using the System Setup Program" in the *User's Guide* for instructions.
2. Turn off the system and any USB devices.

If there is only one USB device connected to the system, go to step 5.

3. Disconnect the USB devices, and connect the malfunctioning device to the other port.
4. Apply power to the system and the reconnected device.

If the problem is resolved, the USB port may be defective. See "[Getting Help](#)," for instructions on obtaining technical assistance.

5. If possible, swap the interface cable with a known working cable.

If the problem is resolved, the interface cable must be replaced. See "[Getting Help](#)," for instructions on obtaining technical assistance.

6. Turn off the system and the USB device, and swap the device with a comparable device.
7. Turn on the power to the system and the USB device.

If the problem is resolved, the USB device must be replaced. If the problem is not resolved, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting the Integrated NIC

Problem

- 1 NIC cannot communicate with the network

Action

1. Enter the System Setup program and confirm that the NIC is enabled.

See "Using the System Setup Program" in the *User's Guide* for instructions.

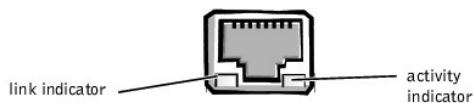
2. Check the two indicators on the left and right corners of the NIC connector on the system's back-panel (see [Figure 5-4](#)).

The green *link indicator* shows that the adapter is connected to a valid link partner. The amber *activity indicator* lights if network data is being sent or received.

- o If the *link indicator* is not on, check all cable connections.
- o Try changing the auto-negotiation setting, if possible.
- o Try another port on the switch or hub.

3. If the *activity indicator* does not light, the network driver files might be damaged or deleted.
4. Reinstall the drivers.
5. Make sure the appropriate drivers are installed and the protocols are bound.

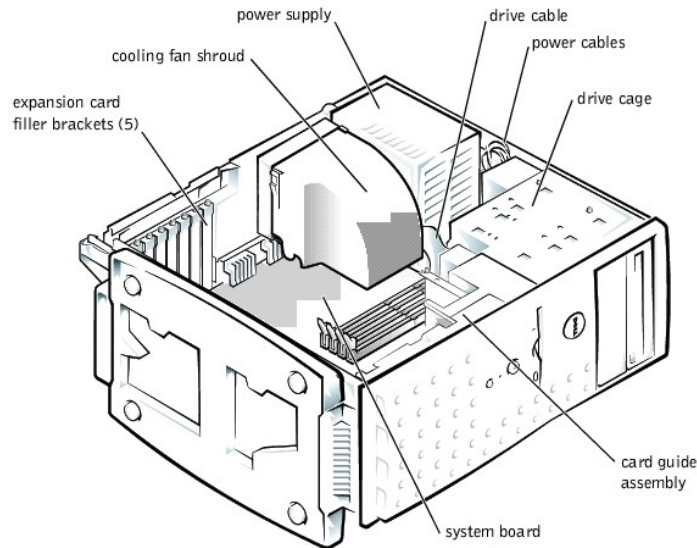
Figure 5-4. NIC Indicators



Inside the System

In [Figure 5-5](#), the system cover and front bezel are removed to provide an interior view of the system.

Figure 5-5. Inside the System



The system board holds the system's control circuitry and other electronic components. Several hardware options such as the microprocessor and memory are installed directly on the system board. The system board can accommodate up to five PCI expansion cards (two cards at 64-bit/66 MHz or 64-bit/33 MHz, and three cards at 32-bit/33 MHz).

The drive cage contains two externally accessible, 5.25-inch drive bays that provide space for up to two drives, including a CD or DVD drive and one other device, such as a tape drive. The drive cage also provides space for up to two 1-inch IDE hard drives.

Additionally, the card guide assembly provides two additional brackets for a 3.5-inch diskette drive and a 1-inch IDE hard drive.

NOTICE: Do not install a hard drive in the lower card-guide assembly bracket next to the card guides. Installing a drive in the lower card-guide assembly bracket is not supported in this system.

When you look inside the system, note the DC power cables leading from the power supply. The power cables supply power to the system board, drives, and any expansion cards that connect to external peripheral.

The wide ribbon cables are the interface cables for internal drives. For the diskette drive, an interface cable connects the drive to an interface connector on the system board or on an expansion card. For IDE devices, interface cables connect the devices to an IDE connector on the system board (for more information, see "[Installing Drives](#)").

During an installation or troubleshooting procedure, you may be required to change a jumper. For information on the system board jumpers, see "[Jumpers and Connectors](#)."

Responding to a System Management Server Agent Message

The optional system management server agent monitors critical system voltages and temperatures, the system cooling fans, and the status of the hard drives in the system. The server agent generates alert messages that appear in the alert log window. For information about the alert log window and options, see the system management server agent documentation.

Troubleshooting a Wet System

Problem

- 1 Liquid spills
- 1 Splashes
- 1 Excessive humidity

Action

1. Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet.
2. Remove the system cover.
3. Remove all expansion cards installed in the system.
4. Let the system dry thoroughly for at least 24 hours.

5. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system.

If the system does not start up properly, see "[Getting Help](#)," for instructions on obtaining technical assistance.

6. If the system starts up normally, shut down the system and reinstall all expansion cards you removed in step 3.
7. Run the system board tests in the system diagnostics to confirm that the system is working properly.

If the tests did not complete successfully, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting a Damaged System

Problem

- 1 System dropped or damaged

Action

1. Check the expansion-card connections to the system board.
2. Make sure that all cables are properly connected and that all components are properly seated in their connectors and sockets.
3. Run the system board tests in the system diagnostics.

If the tests did not complete successfully, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting the System Battery

Problem

- 1 Error message shows problem with the battery
- 1 System Setup program loses the system configuration information
- 1 System date and time will not stay current

Action

1. Check the connection of the coin cell battery to the system board.

See "[Replacing the System Battery](#)" in "Installing System Board Options."

▲ WARNING: 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.

2. If the problem is not resolved by reseating the battery, replace the battery.

If the problem is not resolved by replacing the battery, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting the Power Supply

Problem

- 1 Green *power indicator* on the system bezel is not lit
- 1 Server management application program issues a power supply-related error message

Action

1. Check the power outlet and power cable (see "[Checking Connections and Switches](#)" in "Indicators, Messages, and Codes").
2. Turn off the system, including any attached peripherals, and disconnect all the power cables from the electrical outlets.

▲ CAUTION: See "Protecting Against Electrostatic Discharge" in your *System Information* document.

3. Remove the system cover. See "[Replacing the System Cover and Support Beam](#)."
4. Check the power cable connection to the POWER connector on the system board.

If the problem is not resolved, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting the Cooling Fan

Problem

- 1 Fan not operating
- 1 Server management application program issues a fan-related error message

Action

1. Turn off the system, including any attached peripherals, and disconnect all the power cables from the electrical outlets.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)").
3. Check the fan cable connection to the SYS_FAN2 connector on the system board.

If the problem is not resolved, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting Expansion Cards

Problem

- 1 Error message indicates an expansion-card problem
- 1 Expansion card seems to perform incorrectly or not at all

Action

1. Turn off the system, including any attached peripherals, and disconnect all the power cables from the electrical outlets.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)").
3. Verify that each expansion card is firmly seated in its connector.
4. Verify that any appropriate cables are firmly connected to their corresponding connectors on the expansion cards.
5. Install the system cover.
6. Connect the system to an electrical outlet and turn on the system. If the problem still exists, go to step 7.
7. Turn off the system and disconnect the system from its electrical outlet.
8. Remove the system cover.
9. Remove all expansion cards installed in the system.
10. Install the system cover.
11. Connect the system to an electrical outlet and turn on the system.
12. Run the system memory tests in the system diagnostics.

If the tests do not complete successfully, see "[Getting Help](#)," for information on obtaining technical assistance.

13. Reinstall one of the expansion cards you removed in step 9 (see "[Installing Expansion Cards](#)" in *Installing System Board Options*).
14. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system.

If the problem still exists, repeat steps 13 and 14 for each of the remaining expansion cards.

If you have reinstalled all of the expansion cards and the system memory tests are still failing, see "[Getting Help](#)," for information on obtaining technical assistance.

Troubleshooting System Memory

Problem

- 1 Faulty memory module
- 1 Faulty system board

Action


1. Turn on the power to the system, including any attached peripherals.

If there is not an error message, go to step 4.

2. Enter the System Setup program to check the system memory setting.

See "Using the System Setup Program," in the *User's Guide* for instructions.

3. **If the amount of memory installed does match the system memory setting, go to step 8.**
4. Turn off the system, including any attached peripherals, and disconnect the system from its electrical outlet.

 **CAUTION:** See "Protecting Against Electrostatic Discharge" in the safety instructions in your *System Information* document.

5. Remove the system cover (see "[Removing the System Cover and Support Beam](#)").
6. Reseat the memory modules in their sockets.
7. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system.
8. Enter the System Setup program and check the system memory again.
9. Does the amount of memory installed match the system memory?

If the amount of memory installed does not match the system memory setting, continue to step 10.

10. Reboot the system, and observe the monitor screen and the Num Lock, Caps Lock, and Scroll Lock indicators on the keyboard.

If the monitor screen remains blank, and the Num Lock, Caps Lock, and Scroll Lock indicators on the keyboard remain on, continue to step 11.

If the monitor screen does not remain blank, and the Num Lock, Caps Lock, and Scroll Lock indicators on the keyboard remain on, continue to step 16.

11. Repeat steps 4 and 5.

 **NOTE:** There are multiple configurations for the memory modules; see "[Memory Module Installation Guidelines](#)" in "Installing System Board Options." The following steps are an example of one configuration.

12. Swap the memory module in socket DIMM_A with one of the same capacity.
13. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system.
14. Reboot the system, and observe the monitor screen and the indicators on the keyboard.
15. If the problem still exists, repeat steps 12 through 14 for each memory module installed.

If the problem is not resolved, see "[Getting Help](#)," for instructions on obtaining technical assistance.

16. Run the system memory test in the system diagnostics.

If the test does not complete successfully, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting the Video Subsystem

Problem

- 1 Monitor not operating
- 1 Monitor interface cable not connected correctly or is faulty
- 1 Video logic problems

Action

1. Check the system and power connections to the monitor.
2. Run the video tests in the system diagnostics.

If the tests run successfully, the problem is not related to video hardware. See "[Finding Software Solutions](#)."

If the tests did not run successfully see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting the System Board

Problem

- 1 Error message indicating a system board problem

Action

1. Turn off the system, including any attached peripherals, and disconnect the system from its electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)").
3. Remove all expansion cards.
4. Replace the system cover, reconnect the system to power, and turn on the system.
5. Run the system board tests in the system diagnostics.

If the tests does not run successfully, see "[Getting Help](#)," for instructions on obtaining technical assistance.

6. Turn off the system, disconnect it from power, and remove the system cover.

7. Reinstall one of the expansion cards that you removed in step 3 (see "[Installing Expansion Cards](#)" in Installing System Board Options").
8. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system.
9. Run the system board tests again.

Did the tests run successfully?

If the tests does not complete successfully, see "[Getting Help](#)," for instructions on obtaining technical assistance.

10. Repeat steps 7 through 9 for the remaining expansion cards that you removed in step 3.

If you have reinstalled all of the expansion cards and the problem still persists, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting the Diskette Drive

Problem

1. Error message indicating a diskette drive problem during execution of either the boot routine or the system diagnostics

Action

1. Enter the System Setup program, and verify that the system is configured correctly. See "Using the System Setup Program" in the *User's Guide* for instructions.
2. Run the diskette drive tests in the system diagnostics to see whether the diskette drive now works correctly.
3. Turn off the system, including any attached peripherals, and disconnect the system from its electrical outlet.
4. Remove the system cover.
5. Verify that the diskette drive interface cable is securely connected between the diskette drive assembly and the system board.
6. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system, including any attached peripherals.
7. Run the diskette drive tests in the system diagnostics to determine whether the diskette drive works correctly.
8. If the drive still does not work, remove all expansion cards.
9. Run the diskette drive tests in the system diagnostics to determine whether the diskette drive now works correctly.

If the test ran successfully, an expansion card may be conflicting with the diskette drive logic, or you may have a faulty expansion card. Continue to step 11.

If the test failed, see "[Getting Help](#)," for instructions on obtaining technical assistance.

10. Reinstall one of the expansion cards you removed in step 9.
11. Retest and run the diskette drives test in the system diagnostics to determine whether the diskette drive subsystem now works correctly.
12. Repeat steps 11 and 12 until all expansion cards have been reinstalled or until one of the expansion cards prevents the system from booting from the diagnostics diskette.

If the problem is not resolved, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting CD and DVD Drives

Problem

1. System cannot read data from CD
1. CD drive indicator fails to flash during boot

Action

1. Turn off the system, including any attached peripherals, and disconnect the system from its electrical outlet.
2. Remove the system cover.
3. Verify that the CD drive interface cable is securely connected between the CD drive assembly and the system board.
4. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system, including any attached peripherals.
5. Run the IDE devices tests in the system diagnostics to determine whether the CD drive now works correctly.


If the problem is not resolved, see "[Getting Help](#)," for instructions on obtaining technical assistance.

Troubleshooting Hard Drives

Problem

1. The drive itself

Action

 **CAUTION:** This troubleshooting procedure can destroy data stored on the hard drive. Before you proceed, back up all the files on the hard drive.

1. Turn off the system, including any attached peripherals, and disconnect the system from its electrical outlet.
2. Remove the system cover.
3. Verify that the hard drive interface cable is securely connected between the hard drive assembly and the system board.
4. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system, including any attached peripherals.
5. Run the IDE devices tests in the system diagnostics to determine whether the hard drive now works correctly.

If the problem is not resolved, see "[Getting Help](#)," for instructions on obtaining technical assistance.

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Installing System Board Options

Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

- [Removing and Replacing the Fan Assembly](#)
- [Adding and Replacing Expansion Cards](#)
- [Adding Memory](#)
- [Upgrading the Microprocessor](#)
- [Replacing the System Battery](#)

This section describes how to install or replace the following options:

- 1 Expansion cards
- 1 Memory modules
- 1 Microprocessor
- 1 Fan assembly and cooling shroud
- 1 Power supply
- 1 System battery

Use [Figure 6-1](#) to locate the system board features. [Table 6-1](#) describes the system board connectors and sockets.

▲ WARNING: Before you perform this procedure, you must turn off the system and disconnect it from its power source. For more information, see ["Safety First— For You and Your System"](#) in ["Troubleshooting Your System."](#)

Figure 6-1. System Board Features

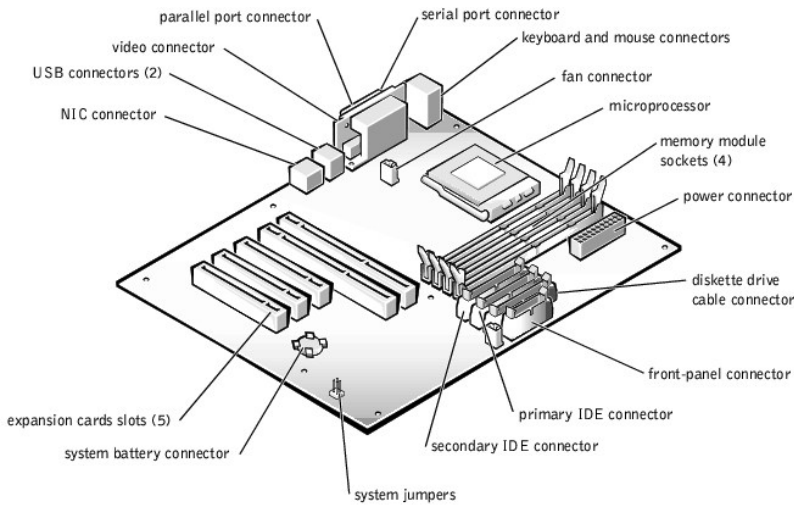


Table 6-1. System Board Connectors and Sockets

Connector or Socket	Description
BATTERY	System battery connector
COM1	Serial port connectors
DIMM_x	Memory module sockets (DIMM_A–DIMM_D)
SLOT_n	Expansion card connectors (SLOT_1–SLOT_5)
LAN1	NIC connector
SYS_FAN2	Fan connector
PRIMARY IDE	Primary IDE connector
SECONDARY IDE	Secondary IDE connector
FDD	Diskette drive cable connector
KY	Keyboard connector
MS	Mouse connector
FRONT PANEL	System front panel connector
LPT	Parallel port connector

POWER	Power connector
CPU	Microprocessor socket
USB	USB connector
VGA	Video connector
J12	System jumpers
NOTE: For the full name of an abbreviation or acronym used in this table, see "Abbreviations and Acronyms."	

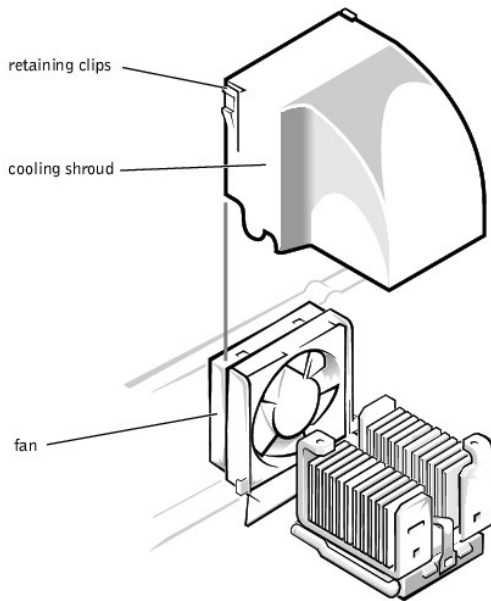
Removing and Replacing the Fan Assembly

The fan assembly consists of a fan and a cooling shroud. The cooling shroud is used to improve airflow over the microprocessor.

Removing the Cooling Shroud

1. Turn off the system, including any peripherals, and disconnect the power cable from the electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
3. Remove the shroud by squeezing the retaining clips on the top of the shroud and lifting it straight up (see [Figure 6-2](#)).

Figure 6-2. Removing the Cooling Shroud



Replacing the Cooling Shroud

Place the shroud in the fan assembly guide slots and slide the shroud straight down until the retaining clips snap in place.

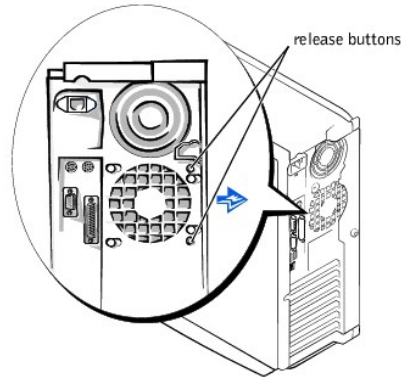
Removing the Fan

1. Turn off the system, including any peripherals, and disconnect the power cable from the electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
3. Remove the cooling shroud (see "[Removing the Cooling Shroud](#)").
4. While pushing the fan assembly upward, press the two release buttons on the back of the system and lift the fan assembly out of its retaining brackets (see [Figure 6-3](#)).

NOTE: Do not lift the fan out of the system until you have disconnected the fan cable from the system board.

5. After the fan has been released from the retaining brackets, disconnect the fan cable from the SYS_FAN2 connector on the system board and lift the fan out of the system.

Figure 6-3. Removing the Fan



Replacing the Fan

1. Connect the fan power cable to the fan connector (SYS_FAN2) on the system board (see [Figure 6-1](#)).
2. Align the brackets on the back of the fan with the corresponding holes in the back-panel, and gently push down until the fan is firmly seated and the release buttons are engaged (see [Figure 6-3](#)).
3. Install the cooling shroud (see "[Replacing the Cooling Shroud](#)").
4. Replace the system cover (see "[Replacing the System Cover and Support Beam](#)").

Adding and Replacing Expansion Cards

Expansion cards are installed on the system board (see [Figure 6-1](#)). There are five expansion card slots available.

The card guide assembly is used to help secure the expansion cards.

Installing Expansion Cards

▲ WARNING: Before you perform this procedure, you must turn off the system and disconnect it from its power source. For more information, see "[Safety First— For You and Your System](#)" in "Troubleshooting Your System."

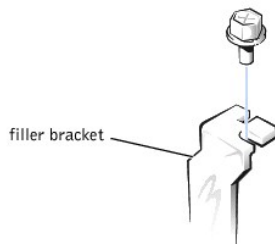
1. Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").

▲ CAUTION: See "Protecting Against Electrostatic Discharge" in the safety instructions in your *System Information* document.

See the documentation that came with the expansion card for information on configuring the card, making internal connections, or otherwise customizing the card for your system.

3. Unscrew and remove the filler bracket for the card slot you want to use. Save the screw to use when installing the expansion card later in this procedure (see "[Removing the Filler Bracket](#)").

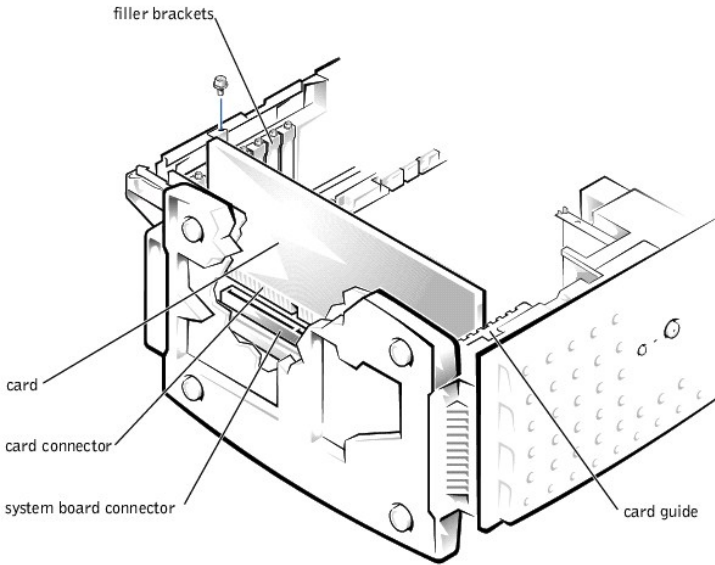
Figure 6-4. Removing the Filler Bracket



4. Align the cutout on the bottom of the card with the crossbar in the system board connector. Gently rock the card into the connector until it is fully seated (see [Figure 6-5](#)).

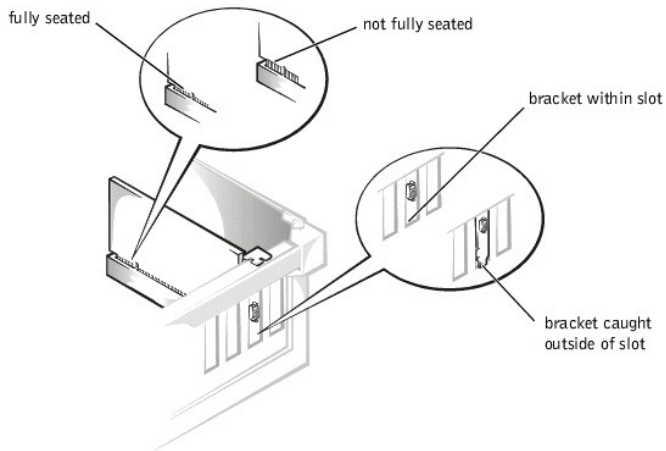
If the card is full-length, insert the front end of the card into the corresponding card guide at the front of the system as you insert the card into its connector.

Figure 6-5. Installing Expansion Cards



Make sure that the card is fully seated and that its bracket is within the card slot (see [Figure 6-6](#)).

Figure 6-6. Seating an Expansion Card



5. Secure the bracket on the end of the card with the screw you removed in step 3.
6. Connect any cables required for the card as described in the card documentation.
7. Replace the system cover (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
8. Plug your system and devices into their electrical outlets, and turn them on.
9. Install any drivers required for the card as described in the card documentation.

Removing Expansion Cards

1. Remove the system cover (see ["Removing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
2. Disconnect any cables connected to the expansion card.
3. Remove the screw from the card bracket.
4. Grasp the card by its top corners, and lift it from the system board.
5. If you are removing the card permanently, install a metal filler bracket over the empty card-slot opening.

NOTE: Installing a filler bracket over an empty expansion slot is necessary to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system.

6. Replace the system cover, and then reconnect the system and peripherals to their power sources and turn on the system (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").

Adding Memory

The four memory module sockets on the system board can accommodate 64 MB to 2 GB of registered SDRAM (see [Figure 6-1](#)).

Memory Upgrade Kits

The system is upgradable to 2 GB by installing combinations of 64-, 128-, 256-, and 512-MB registered memory modules. If you receive an error message stating that maximum memory has been exceeded, see "[Indicators, Messages, and Codes](#)," for detailed information. You can purchase memory upgrade kits as needed.

NOTE: The memory modules must be PC-133 compliant.

Memory Module Installation Guidelines

For optimum operation, install the memory modules starting with the DIMM_A socket (furthest from the microprocessor) and working toward the DIMM_D socket, leaving no open sockets between installed memory modules.

Figure 6-7. Memory Module Sockets

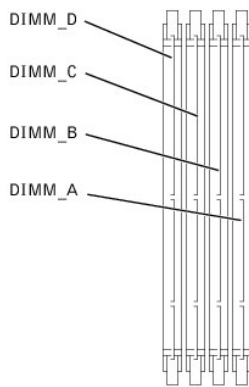


Table 6-2. Sample Memory Module Configurations

Total Memory	DIMM_A	DIMM_B	DIMM_C	DIMM_D
64 MB	64 MB	—	—	—
128 MB	128 MB	—	—	—
256 MB	128 MB	128 MB	—	—
512 MB	256 MB	256 MB	—	—
768 MB	256 MB	256 MB	256 MB	—
1 GB	256 MB	256 MB	256 MB	256 MB
2 GB	512 MB	512 MB	512 MB	512 MB

[Table 6-2](#) illustrates several sample memory configurations based on these guidelines.

Performing a Memory Upgrade

WARNING: Before you perform this procedure, you must turn off the system and disconnect it from its power source. For more information, see "[Safety First— For You and Your System](#)" in "Troubleshooting Your System."

CAUTION: See "Protecting Against Electrostatic Discharge" in the safety instructions in your *System Information* document.

1. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
2. Locate the memory module sockets in which you will install or replace memory modules. [Figure 6-7](#) shows the order of the memory module sockets.
3. Install or replace the memory module as necessary to reach the desired memory total (see "[Installing Memory Modules](#)" or "[Removing Memory Modules](#)").
4. Replace the system cover, reconnect the system to the electrical outlet, and turn on the system (see "[Replacing the System Cover and Support Beam](#)" in "Troubleshooting Your System"). After the system completes the POST routine, it runs a memory test.

The system detects that the new memory does not match the system configuration information, which is stored in NVRAM. The monitor displays an error message that ends with the following words:

Press <F1> to continue; <F2> to enter System Setup

5. Press <F2> to enter the System Setup program, and check the **System Memory** setting in the system data box on the System Setup screens. The system should have already changed the value in the **System Memory** setting to reflect the newly installed memory.
6. If the **System Memory** value is incorrect, one or more of the memory modules may not be installed properly. Repeat steps 1 through 4, checking to make sure that the memory modules are firmly seated in their sockets.
7. Run the system memory test in the system diagnostics (see "[Running the System Diagnostics](#)").

Installing Memory Modules

WARNING: Before you perform this procedure, you must turn off the system and disconnect it from its power source. For more information, see "[Safety First— For You and Your System](#)" in "Troubleshooting Your System."

CAUTION: See "Protecting Against Electrostatic Discharge" in the safety instructions in your *System Information* document.

1. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
2. Press down and outward on the ejectors on the memory module socket, as shown in [Figure 6-8](#), to allow the memory module to be inserted into the socket.
3. Align the notches on the bottom of the module with the crossbars in the connector.

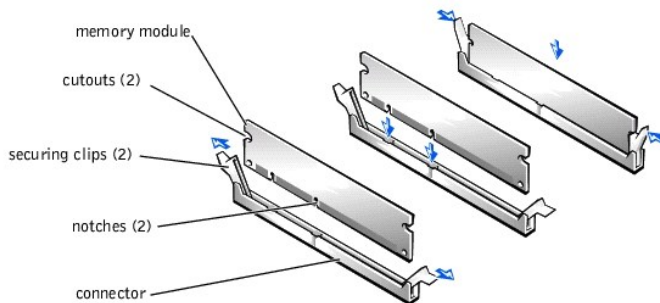
NOTICE: To avoid breaking the memory module, do not press near the middle of the module.

4. Insert the module straight down into the connector, making sure that it fits into the vertical guides at each end of the connector. Press firmly on the ends until the memory module snaps into place.

When the memory module is properly seated in the socket, the ejectors on the memory module socket should align with the ejectors on the other sockets with memory modules installed.

5. Repeat steps 2 through 4 of this procedure to install the remaining memory modules.
6. Perform steps 4 through 7 of "[Performing a Memory Upgrade](#)."

Figure 6-8. Installing a Memory Module



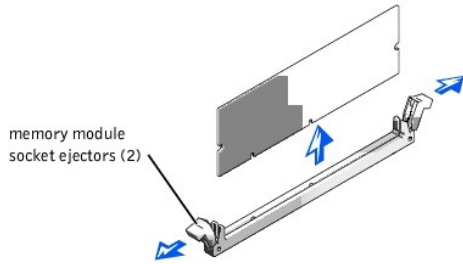
Removing Memory Modules

WARNING: Before you perform this procedure, you must turn off the system and disconnect it from its power source. For more information, see "[Safety First— For You and Your System](#)" in "Troubleshooting Your System."

CAUTION: See "Protecting Against Electrostatic Discharge" in the safety instructions in your *System Information* document.

1. Remove the system cover.
2. Locate the memory module sockets in which you will remove memory modules.
[Figure 6-7](#) shows the order of the memory module sockets.
3. Press down and outward on the ejectors on each end of the socket until the memory module pops out of the socket (see [Figure 6-9](#)).

Figure 6-9. Removing a Memory Module



Upgrading the Microprocessor

To take advantage of future options in speed and functionality, you can upgrade the system microprocessor.

The microprocessor and its associated L2 cache memory are contained in a PGA package that is installed in a ZIF socket on the system board. The following subsection describes how to upgrade or replace the microprocessor.

Replacing the Microprocessor

The following items are included in the microprocessor upgrade kit:

- 1 A microprocessor
- 1 A heat sink
- 1 A securing clip

NOTE: Dell recommends that only a technically knowledgeable person perform this procedure.

1. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
2. Remove the cooling shroud (see "[Removing the Cooling Shroud](#)" in "Troubleshooting Your System").

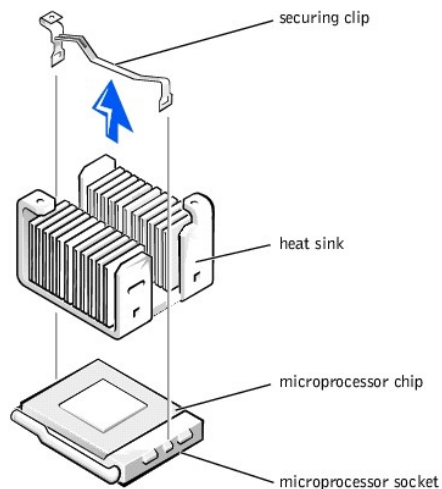
CAUTION: See "Protecting Against Electrostatic Discharge" in the safety instructions in your *System Information* document.

3. Press down on the heat-sink securing clip to release the clip from the retaining tab on the ZIF socket (see [Figure 6-10](#)).
4. Remove the securing clip.

CAUTION: Never remove the heat sink from a microprocessor unless you intend to remove the microprocessor. The heat sink is necessary to maintain proper thermal conditions.

CAUTION: The microprocessor and heat sink can become extremely hot. Be sure the microprocessor has had sufficient time to cool before handling.

Figure 6-10. Securing Clip

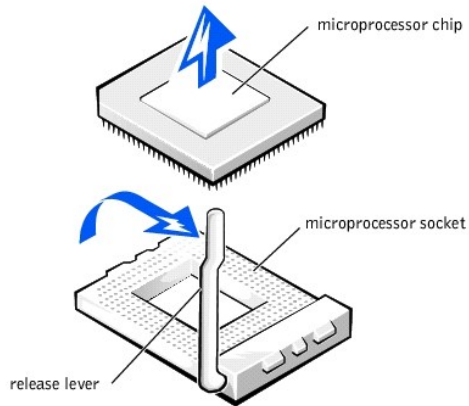


5. Remove the heat sink.
6. Pull the socket release lever straight up until the microprocessor is released (see [Figure 6-11](#)).

7. Lift the microprocessor out of the socket and leave the release lever up so that the socket is ready for the new microprocessor.

CAUTION: Be careful not to bend any of the pins when removing the microprocessor. Bending the pins can permanently damage the microprocessor.

Figure 6-11. Removing the Microprocessor



8. Unpack the new microprocessor.

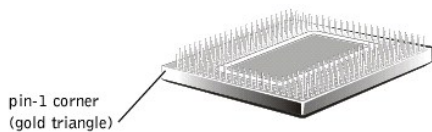
If any of the pins on the microprocessor appear bent, see ["Getting Help,"](#) for instructions on obtaining technical assistance.

9. Align the pin-1 corner of the microprocessor (see [Figure 6-12](#)) with the pin-1 corner of the microprocessor socket.

NOTE: Identifying the pin-1 corners is critical to positioning the microprocessor correctly.

Identify the pin-1 corner of the microprocessor by locating the tiny gold triangle that extends from one corner of the large central rectangular area. The gold triangle points toward pin 1, which is also uniquely identified by a square pad.

Figure 6-12. Pin-1 Identification



10. Install the microprocessor in the socket (see [Figure 6-13](#)).

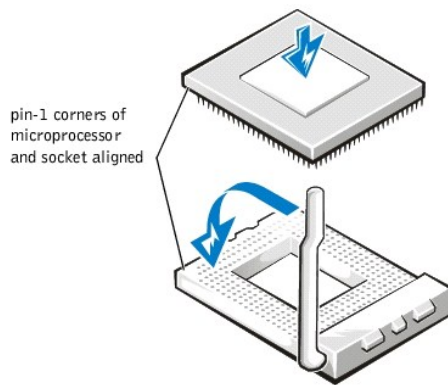
CAUTION: Positioning the microprocessor incorrectly can permanently damage the microprocessor and the system when you turn on the system. When placing the microprocessor in the socket, be sure that all of the pins on the microprocessor go into the corresponding holes. Be careful not to bend the pins.

If the release lever on the microprocessor socket is not all the way up, move it to that position now.

With the pin-1 corners of the microprocessor and socket aligned, set the microprocessor lightly in the socket and make sure all pins are matched with the correct holes in the socket. Because the system uses a ZIF micro-processor socket, there is no need to use force (which could bend the pins if the microprocessor is misaligned). When the microprocessor is positioned correctly, it should drop down into the socket with minimal pressure.

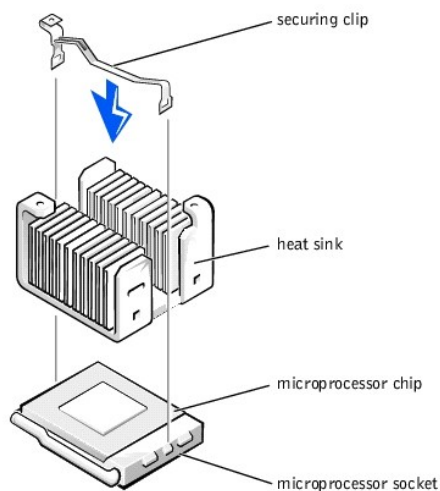
When the microprocessor is fully seated in the socket, rotate the socket release lever back down until it snaps into place, securing the microprocessor.

Figure 6-13. Installing the Microprocessor



11. Place the new heat sink on top of the microprocessor (see [Figure 6-14](#)).
 1. If the heat sink provided has a foil thermal interface material strip on the bottom of the heat sink, place the heat sink on the microprocessor.
 1. If the heat sink provided has a thermal grease tab, remove the tab and place the heat sink on the microprocessor.
 1. If heat sink thermal grease is provided, clean the heat sink and apply the thermal grease before placing the heat sink on the microprocessor.
12. Orient the securing clip as shown in [Figure 6-14](#).

Figure 6-14. Installing the Heat-Sink



13. Hook the end of the clip without the heat-sink latch to the tab on the edge of the socket facing the front of the system.
14. Push down and pivot the heat-sink latch until the hole on the clip latches onto the ZIF socket tab.
15. Make sure that the latches engage.
16. Replace the cooling shroud (see ["Replacing the Cooling Shroud"](#) in "Troubleshooting Your System").
17. Reconnect your system and peripherals to their power sources, and turn on system.
18. Press <F2> to enter the System Setup program, and check that the **PROCESSOR 1** category matches the new system configuration.

See the system User's Guide for instructions.

19. As the system boots, it detects the presence of the new processor and automatically changes the system configuration information in the System Setup program.
20. Enter the System Setup program, and confirm that the top line in the system data area correctly identifies the installed processor. See "Using the System Setup Program" in your *User's Guide*.
21. Run the system diagnostics to verify that the new microprocessor is operating correctly (see ["Running the System Diagnostics"](#)).

Replacing the System Battery

The system battery maintains system configuration, date, and time information in a special section of memory when you turn off the system. The operating life of the battery ranges from 2 to 5 years. You may need to replace the battery if an incorrect time or date is displayed during the boot routine along with the following or similar message:

```
Time-of-day not set -- please run SETUP program
Strike the F1 key to continue, F2 to run the setup utility
```

or

```
System CMOS checksum bad -- Run SETUP
Strike the F1 key to continue, F2 to run the setup utility
```


or


```
Invalid configuration information -- please run SETUP program
Strike the F1 key to continue, F2 to run the setup utility
```

To determine if the battery needs replacing:

1. Reenter the time and date through the System Setup program.
2. Turn off and disconnect the system from the electrical outlet for a few hours.
3. Reconnect and turn the system on again.
4. Enter the System Setup program.


If the date and time are not correct in the System Setup program, replace the battery.


 **NOTE:** Some software may cause the system time to speed up or slow down. If the system seems to operate normally except for the time kept in the System Setup program, the problem may be caused by software rather than by a defective battery.

 **NOTE:** If the system is turned off for long periods of time (for weeks or months), the NVRAM may lose its system configuration information. This situation is not caused by a defective battery.

You can operate the system without a battery; however, the system configuration information maintained by the battery in NVRAM is erased each time you shut down the system. Therefore, you must reenter the system configuration information and reset the options each time the system boots until you replace the battery.

The battery is a 3.0-volt (V), coin-cell battery. To remove the battery, perform the following steps.


 **WARNING:** Before you perform this procedure, you must turn off the system and disconnect it from its power source. For more information, see "[Safety First— For You and Your System](#)" in "Troubleshooting Your System."

 **WARNING:** 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. Enter the System Setup program and, if possible, make a printed copy of the System Setup screens.

See "Using the System Setup Program," in the *User's Guide* for instructions.

2. Shut down the system, including any attached peripherals, and disconnect the system from the electrical outlet.

 **CAUTION:** See "Protecting Against Electrostatic Discharge" in the safety instructions in your *System Information* document.

3. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
4. Remove any expansion cards that limit access to the battery (see "[Removing Expansion Cards](#)").
5. Remove the battery (see [Figure 6-1](#), for the battery location).
6. Pry the battery out of its socket with your fingers or with a blunt, nonconductive object such as a plastic screwdriver.
7. Install the new battery with the side labeled "+" facing up (see [Figure 6-15](#)).
8. Replace any expansion cards that you removed in step 4 (see "[Installing Expansion Cards](#)").

Figure 6-15. Installing the Battery



9. Replace the system cover, and then reconnect the system and peripherals to their power sources and turn on the system power.
10. Enter the System Setup program to confirm that the battery is operating properly.
11. Enter the correct time and date through the System Setup program's **Time** and **Date** settings.

Also reenter any system configuration information that is no longer displayed on the System Setup screens, and then exit the System Setup program.

12. To test the newly installed battery, power down and disconnect the system from the electrical source for at least an hour.
13. After an hour, connect the system to an electrical source and turn on the power.
14. Enter the System Setup program and if the time and date are still incorrect, see "[Getting Help](#)," for instructions on obtaining technical assistance.

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Installing Drives

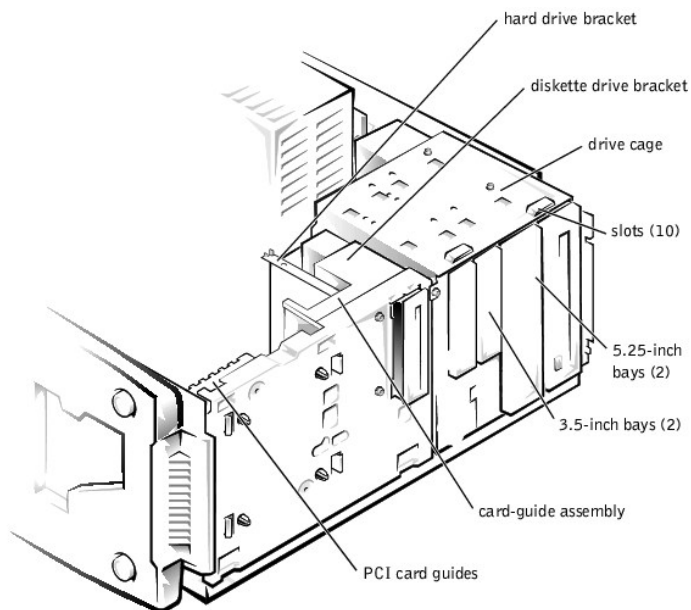
Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

- [Configuring the EIDE Subsystem](#)
- [Configuring the Boot Device](#)
- [Connecting Drives](#)
- [Removing and Reinstalling the Drive Cage](#)
- [Adding or Replacing Hard Drives](#)
- [Adding or Replacing Other Drives](#)

Your system has six drive bays for installing the following types of drives (see [Figure 7-1](#)):

- 1 The externally accessible drive bays at the front of the system consist of a 3.5-inch drive bay that accommodates one 3.5-inch diskette drive (standard) and two 5.25-inch, half height drive bays that can accommodate two 5.25-inch devices— typically a CD drive and one other device, such as a tape drive.
- 1 There are three internally accessible 3.5-inch bays that can hold up to three 1-inch EIDE hard drives.

Figure 7-1. Drive Bays



The following sections contain general information and information that you will need in several of the installation procedures. The remaining sections address each type of drive removal and installation.

Configuring the EIDE Subsystem

The enhanced integrated drive electronics (EIDE) subsystem includes two IDE interfaces (primary and secondary), each of which can support up to two IDE devices such as high-capacity hard drives, CD drives, DVD drives, and tape drives.

All IDE devices should be configured for the Cable Select jumper position, which assigns master and slave status to devices by their position on the interface cable. In this configuration, the drive attached to the last connector on the interface cable is the master or boot drive (drive 0) and the drive attached to the middle connector on the interface cable is the slave drive (drive 1). The drive jumpers are located on the back of each IDE drive. See the drive's documentation for instructions on setting the Cable Select jumper position.

Configuring the Boot Device

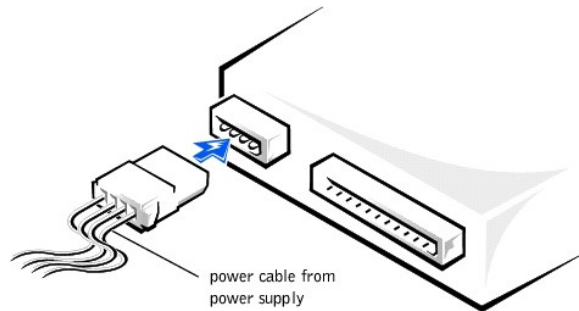
If you plan to boot the system from a hard drive, the hard drive must be attached to the primary IDE controller. The device that the system boots from is determined by the boot order specified in the System Setup program.

The System Setup program provides options that the system uses to scan for installed boot devices. Refer to the *User's Guide* for information about the System Setup program.

Connecting Drives

When installing a drive, you connect two cables—a DC power cable and an interface cable—to the back of the drive. Your drive's power input connector (to which you connect the DC power cable) resembles the connector shown in [Figure 7-2](#).

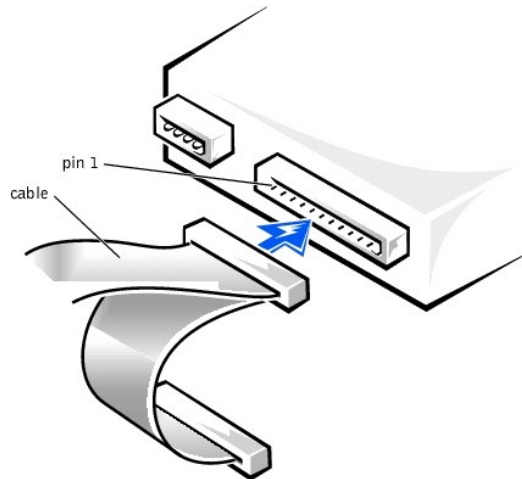
Figure 7-2. Connecting the Power Cable



NOTICE: When you attach the interface cable to the drive, match the colored strip on the cable with pin 1 on the drive.

Your drive's interface connector resembles the connector shown in [Figure 7-3](#).

Figure 7-3. Connecting the Interface Cable



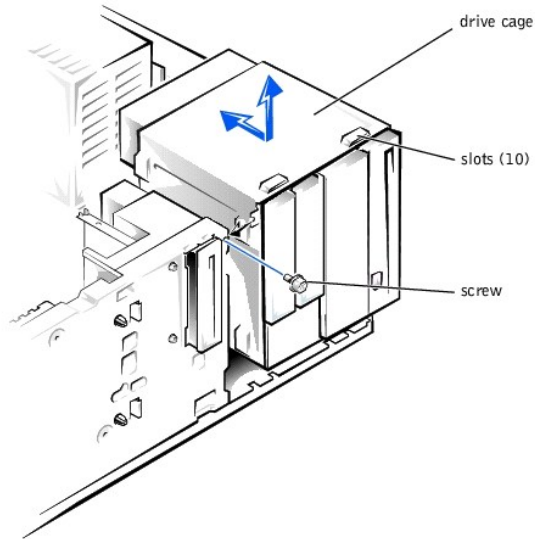
Removing and Reinstalling the Drive Cage

The drive cage has two 5.25-inch bays and two 3.5-inch bays.

Removing the Drive Cage

1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
3. Remove the bezel (see "[Removing the Bezel](#)" in "Troubleshooting Your System").
4. Disconnect the interface cable and the power cable from all drives installed in the drive cage. Note the location and orientation of all cables attached to the drives.
5. Remove the screw from the side of the drive cage (see [Figure 7-4](#)). Pull the drive cage toward you to unlock it from the system. Lift out the drive cage.

Figure 7-4. Removing and Reinstalling the Drive Cage



Reinstalling the Drive Cage

1. With the slots on the drive cage extending slightly beyond the front of the system, lower the drive cage and slide it toward the back of the system until the cage locks into place (see [Figure 7-4](#)).
2. Secure the drive cage to the system with the screw you removed in step 5 of "[Removing the Drive Cage](#)" (see [Figure 7-4](#)).
3. Connect the interface cable and the power cable to all drives installed in the drive cage.
4. Replace the bezel (see "[Replacing the Bezel](#)" in "Troubleshooting Your System").
5. Replace the system cover (see "[Replacing the System Cover and Support Beam](#)" in "Troubleshooting Your System").

Adding or Replacing Hard Drives

Your system includes bays or brackets for up to three 1-inch IDE hard drives.

- 🔔 **NOTICE:** When replacing a hard drive, set the jumpers on the replacement hard drive to match the jumpers on the hard drive you removed. For additional information about jumper settings on IDE drives, see "[Configuring the IDE Subsystem](#)."

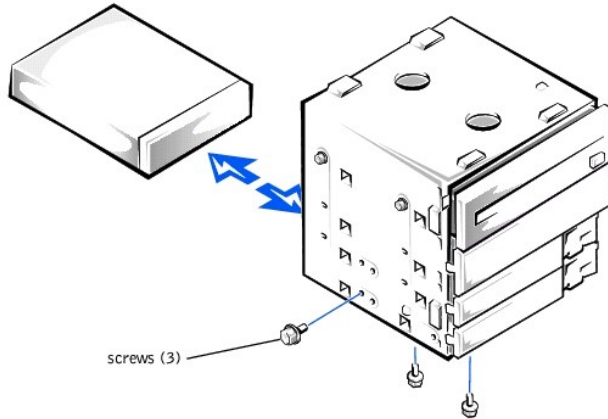
Adding or Replacing Hard Drives in the Drive Cage

Each of the two 3.5-inch bays in the drive cage can accommodate a 1-inch IDE hard drive.

Removing a Hard Drive From the Lower 3.5-Inch Bay

1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
3. Remove the bezel (see "[Removing the Bezel](#)" in "Troubleshooting Your System").
4. Remove the drive cage from the system (see "[Removing the Drive Cage](#)").
5. Remove the three drive-mounting screws, two from the bottom and one from the left side (see [Figure 7-5](#)).

Figure 7-5. Adding or Removing a Hard Drive in the Lower 3.5-inch Bay



6. Slide the hard drive out of the back of the drive cage.
7. Reinstall the drive cage into the system (see ["Reinstalling the Drive Cage"](#)).
8. Replace the bezel (see ["Replacing the Bezel"](#) in "Troubleshooting Your System").
9. Replace the system cover (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").

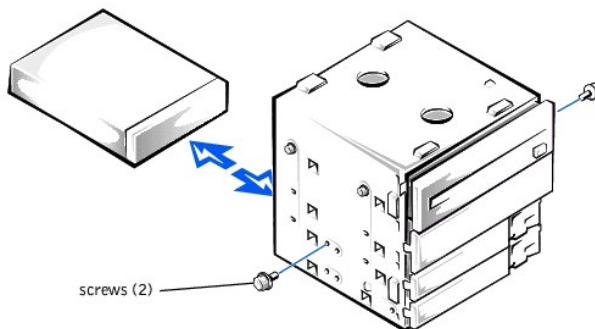
Installing a Hard Drive in the Lower 3.5-inch Bay

1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see ["Removing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
3. Remove the bezel (see ["Removing the Bezel"](#) in "Troubleshooting Your System").
4. Remove the drive cage from the system (see ["Removing the Drive Cage"](#)).
5. Slide the drive into the back opening of the bay over the two small grooves on the bottom of the bay.
6. Secure the drive with three drive-mounting screws, two from the bottom and one from the left side (see [Figure 7-5](#)).
7. Reinstall the drive cage into the system (see ["Reinstalling the Drive Cage"](#)).
8. Replace the bezel (see ["Replacing the Bezel"](#) in "Troubleshooting Your System").
9. Replace the system cover (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
10. Plug your system and any external devices into their electrical outlets, and turn them on.
11. See the drive documentation for instructions on installing any software required for hard drive operation.

Removing a Hard Drive From the Upper 3.5-inch Bay

1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see ["Removing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
3. Remove the bezel (see ["Removing the Bezel"](#) in "Troubleshooting Your System").
4. Remove the drive cage from the system (see ["Removing the Drive Cage"](#)).
5. Remove the two screws securing the drive to the drive cage (see [Figure 7-6](#)). Insert your screwdriver into the reticular slot on the right side of the drive cage to access the screw securing the right side of the drive.

Figure 7-6. Adding or Replacing a Hard Drive in the Upper 3.5-inch Bay



6. Slide the hard drive out the back of the drive cage.

7. Reinstall the drive cage in the system (see "[Reinstalling the Drive Cage](#)").
8. Replace the bezel (see "[Replacing the Bezel](#)" in "Troubleshooting Your System").
9. Replace the system cover (see "[Replacing the System Cover and Support Beam](#)" in "Troubleshooting Your System").

Installing a Hard Drive in the Upper 3.5-inch Bay

1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
3. Remove the bezel (see "[Removing the Bezel](#)" in "Troubleshooting Your System").
4. Remove the drive cage (see "[Removing the Drive Cage](#)").
5. Slide the hard drive into the bay through the back of the drive cage.
6. Secure the hard drive to the drive cage with two screws as shown in [Figure 7-6](#). To secure the screw on the right side of the drive, you must position the screw over the screw hole through the back of the drive cage while inserting your screwdriver into the reticular slot on the right side of the drive cage.
7. Reinstall the drive cage in the system (see "[Reinstalling the Drive Cage](#)").
8. Replace the bezel (see "[Replacing the Bezel](#)" in "Troubleshooting Your System").
9. Replace the system cover (see "[Replacing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
10. Plug your system and any external devices into their electrical outlets, and turn them on.
11. See the drive documentation for instructions on installing any software required for hard drive operation.

Adding or Replacing a Hard Drive in the Card Guide Assembly

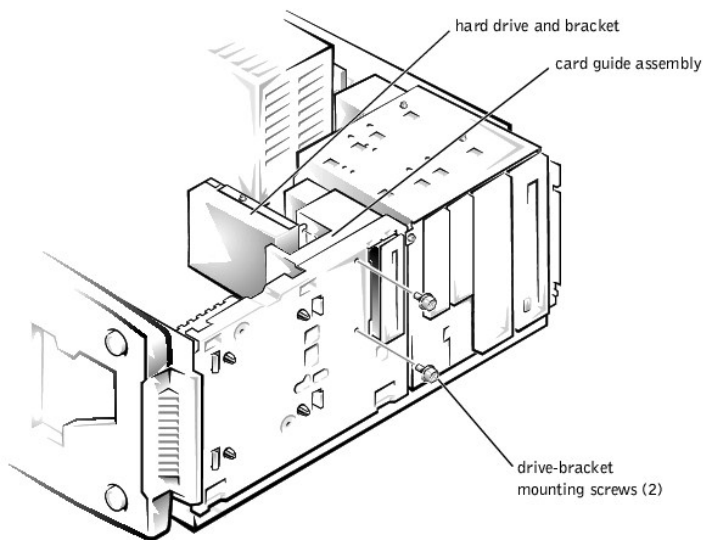
The 3.5-inch bracket next to the floppy drive accommodates a 1-inch IDE hard drive.

NOTICE: Do not install a hard drive in the lower card-guide assembly bracket next to the card guides. Installing a drive in the lower card-guide assembly bracket is not supported in this system.

Removing a Hard Drive From the Card Guide Assembly Bracket

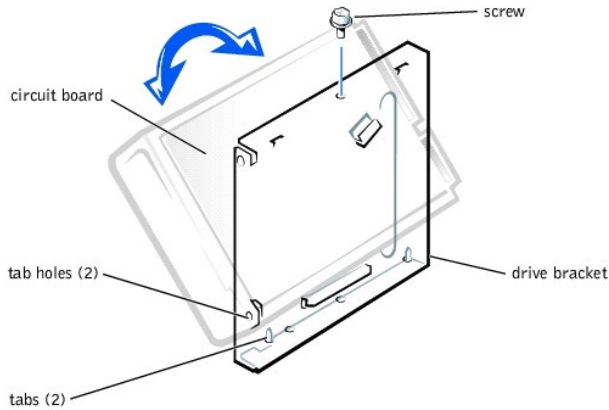
1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
3. Remove the bezel (see "[Removing the Bezel](#)" in "Troubleshooting Your System").
4. Disconnect the interface cable and the power cable from the hard drive.
5. Remove the screws securing the drive bracket (see [Figure 7-7](#)).
6. Slide the drive bracket and hard drive toward the back of the system and lift them out of the system.

Figure 7-7. Removing the Hard Drive and Drive Bracket



7. Remove the screw securing the hard drive to the drive bracket, and rotate the drive out of the bracket (see [Figure 7-8](#)).

Figure 7-8. Detaching or Attaching the Hard Drive

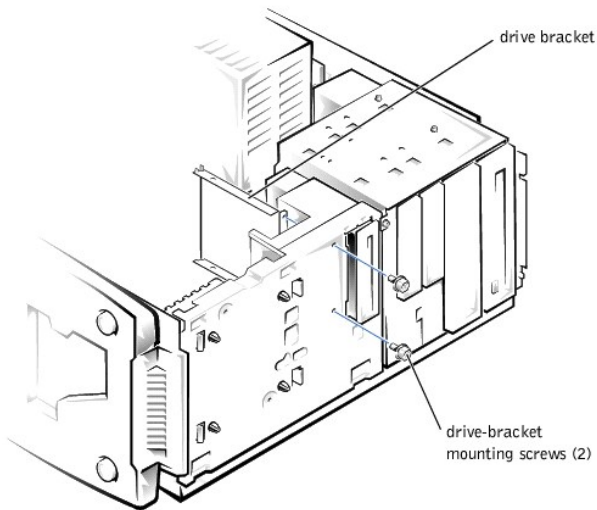


8. Align the bracket tabs with the slots in the system, and slide the bracket into place. Secure the bracket with the screws you removed in step 5.
9. Replace the bezel (see ["Replacing the Bezel"](#) in "Troubleshooting Your System").
10. Replace the system cover (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").

Installing a Hard Drive in the Card Guide Assembly Bracket

1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see ["Removing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
3. Remove the bezel (see ["Removing the Bezel"](#) in "Troubleshooting Your System").
4. Remove the screws securing the upper drive bracket, and lift the bracket out of the system (see [Figure 7-9](#)).

Figure 7-9. Removing the Drive Bracket



5. Orient the drive with its circuit board facing the inside of the bracket.
6. Align the bracket tabs with the two tab holes in the side of the drive, and rotate the drive into the bracket. Then secure the screw as illustrated in [Figure 7-8](#).
7. Align the bracket tabs with the slots in the system, and slide the hard drive and bracket into place. Secure the bracket with the screws you removed in step 4.
8. Connect a power cable to the hard drive.

NOTICE: When you attach the interface cable to the hard drive, match the colored strip on the cable with pin 1 on the drive.

9. Connect an interface cable to the hard drive.
10. Replace the bezel (see ["Replacing the Bezel"](#) in "Troubleshooting Your System").
11. Replace the system cover (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
12. Plug your system and any external devices into their electrical outlets, and turn them on.

13. See the drive documentation for instructions on installing any software required for drive operation.

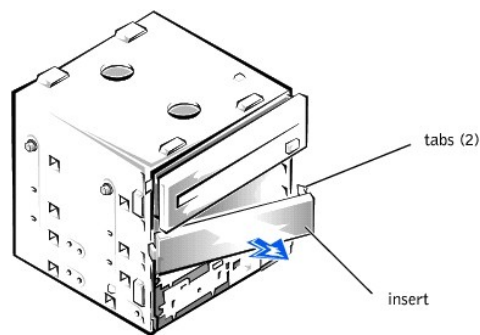
Adding or Replacing Other Drives

Your system includes a diskette drive and a CD drive. You can add drives, such as DVD drives and tape drives, using the procedures in the following sections.

Adding 5.25-Inch Devices

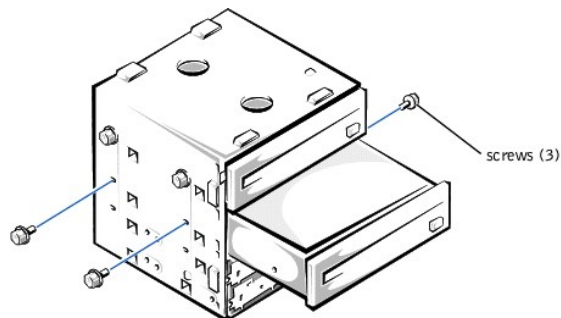
1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
3. Remove the bezel (see "[Removing the Bezel](#)" in "Troubleshooting Your System").
4. Remove the drive cage from the system (see "[Removing the Drive Cage](#)").
5. Press in the two tabs on the insert, and rotate the insert toward you to remove it (see [Figure 7-10](#)).

Figure 7-10. Removing the Insert



6. Slide the new drive into the bay, and secure the drive with the three screws (see [Figure 7-11](#)).

Figure 7-11. Adding or Removing a 5.25-inch Device



7. Reinstall the drive cage in the system (see "[Reinstalling the Drive Cage](#)").
8. Replace the bezel (see "[Replacing the Bezel](#)" in "Troubleshooting Your System").
9. Replace the system cover (see "[Replacing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
10. Plug your system and any external devices into their electrical outlets, and turn them on.
11. See the drive documentation for instructions on installing any software required for drive operation.

Removing 5.25-Inch Devices

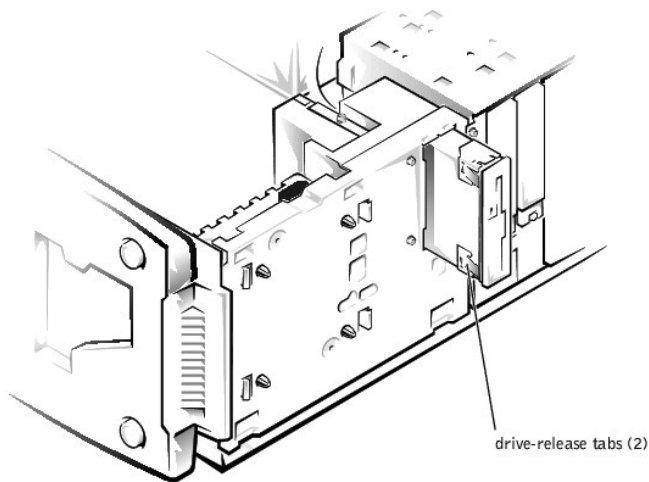
1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see "[Removing the System Cover and Support Beam](#)" in "Troubleshooting Your System").
3. Remove the bezel (see "[Removing the Bezel](#)" in "Troubleshooting Your System").

4. Remove the drive cage (see ["Removing the Drive Cage"](#)).
5. Remove the three drive-mounting screws and slide the drive out of the drive bay (see [Figure 7-11](#)).
6. Reinstall the drive cage in the system (see ["Reinstalling the Drive Cage"](#)).
7. Replace the bezel (see ["Replacing the Bezel"](#) in "Troubleshooting Your System").
8. Replace the system cover (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").

Removing the Diskette Drive

1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see ["Removing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
3. Remove the bezel (see ["Removing the Bezel"](#) in "Troubleshooting Your System").
4. Disconnect the power and interface cables from the back of the diskette drive.
5. Press the two drive-release tabs, and slide the drive out of the drive bay (see [Figure 7-12](#)).

Figure 7-12. Removing and Installing a Diskette Drive



6. Replace the bezel (see ["Replacing the Bezel"](#) in "Troubleshooting Your System").
7. Replace the system cover (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").

Installing a Diskette Drive

1. Turn off the system, including any external devices, and disconnect the system from its electrical outlet.
2. Remove the system cover (see ["Removing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
3. Remove the bezel (see ["Removing the Bezel"](#) in "Troubleshooting Your System").
4. Before you install the new diskette drive, transfer the drive-release tabs from the drive you removed to the replacement drive.
5. Slide the diskette drive into the drive bay until the two drive-release tabs engage (see [Figure 7-12](#)).
6. Connect a power cable and the diskette drive interface cable to the diskette drive.
7. Replace the bezel (see ["Replacing the Bezel"](#) in "Troubleshooting Your System").
8. Replace the system cover (see ["Replacing the System Cover and Support Beam"](#) in "Troubleshooting Your System").
9. Plug your system and any external devices into their electrical outlets, and turn them on.
10. See the drive documentation for instructions on installing any software required for drive operation.

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Getting Help

Dell™ PowerEdge™ 500SC Systems Installation and Troubleshooting Guide

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Help Overview

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

Technical Assistance


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

1. Complete the procedures in "[Troubleshooting Your System](#)."
2. Run the system diagnostics.
3. Make a copy of the Diagnostics Checklist, and fill it out.
4. Use Dell's extensive suite of online services available at Dell's website (<http://www.dell.com>) for help with installation and troubleshooting procedures.

For more information, see "[World Wide Web](#)."

5. If the preceding steps have not resolved the problem, call Dell for technical assistance.


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

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

For instructions on using the technical support service, see "[Technical Support Service](#)" and "[Before You Call](#)."

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 outside the continental U.S. 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 system and other Dell products. Through the Internet, you can access most of the services described in this section, including AutoTech, TechFax, order status, technical support, and product information.

You can access Dell's support website at <http://support.dell.com>. To select your country, click the map that appears. The **Welcome to support.dell.com** page opens. Enter your system information to access help tools and information.

Dell can be accessed electronically using the following addresses:

- 1 World Wide Web

<http://www.dell.com/>

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

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

<http://www.dell.com/la> (for Latin American countries)

- 1 Anonymous file transfer protocol (FTP)

<ftp.dell.com/>

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

- 1 Electronic Support Service

support@us.dell.com

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

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

- 1 Electronic Quote Service

sales@dell.com

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

1 Electronic Information Service

info@dell.com

AutoTech Service

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

When you call AutoTech, you use your touch-tone telephone to select the subjects that correspond to your questions.

The AutoTech service is available 24 hours a day, seven days a week. You can also access this service through the technical support service. For the telephone number to call, see "[Dell Contact Numbers](#)."

TechFax Service

Dell takes full advantage of fax technology to serve you better. Twenty-four hours a day, seven days a week, you can call the Dell TechFax line toll-free for all kinds of technical information.

Using a touch-tone phone, you can select from a full directory of topics. The technical information you request is sent within minutes to the fax number you designate. For the TechFax telephone number to call, see "[Dell Contact Numbers](#)."

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, see "[Dell Contact Numbers](#)."

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, see "[Before You Call](#)" and then call the number for your country as listed in "[Dell Contact Numbers](#)."

Problems With Your Order

If you have a problem with your order, such as missing parts, wrong parts, or incorrect billing, contact Dell for customer assistance. Have your invoice or packing slip handy when you call. For the telephone number to call, see "[Dell Contact Numbers](#)."

Product Information

If you need information about additional products available from Dell, or if you would like to place an order, visit Dell's website at <http://www.dell.com/>. For the telephone number to call to speak to a sales specialist, see "[Dell Contact Numbers](#)."

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, see "[Dell Contact Numbers](#)."
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 system diagnostics.
4. Include any accessories that belong with the item(s) being returned (such as power cables, software diskettes, and guides) if the return is for credit.
5. Pack the equipment to be returned in the original (or equivalent) packing materials.


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

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

Before You Call

 **NOTE:** Have your Express Service Code ready when you call. The code helps Dell's automated-support telephone system direct your call more efficiently.

Remember to fill out the Diagnostics Checklist. If possible, turn on your system before you call Dell for technical assistance and call from a telephone at or near the system. 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 system itself. Make sure that the system documentation is available.

 **CAUTION:** Before servicing any components inside your system, see "[Safety First—For You and Your System](#)."

Diagnostics Checklist

Name: _____ Date: _____

Address: _____ Phone number: _____

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

Express Service Code: _____

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: _____

See your operating system documentation to determine the contents of the system's startup files. Print each file if possible. 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: _____

Dell Contact Numbers

The following table provides country-specific access codes and telephone numbers, websites, and e-mail addresses that you can use to contact Dell.

The codes required depend on where you are calling from as well as the destination of your call; in addition, each country has a different dialing protocol. If you need assistance in determining which codes to use, contact a local or an international operator.

 **NOTE:** Toll-free numbers are for use only within the country for which they are listed. Area codes are most often used to call long distance within your own country (not internationally)—in other words, when your call originates in the same country you are calling.

Country (City) International Access Code Country Code City Code	Department Name or Service Area, Website and E-mail Address	Area Codes, Local Numbers, and Toll Free Numbers
Australia (Sydney) International Access Code: 0011 Country Code: 61 City Code: 2	Home and Small Business	1-300-65-55-33
	Government and Business	toll free: 1-800-633-559
	Preferred Accounts Division (PAD)	toll free: 1-800-060-889
	Customer Care	toll free: 1-800-819-339
	Corporate Sales	toll free: 1-800-808-385
	Transaction Sales	toll free: 1-800-808-312
	Fax	toll free: 1-800-818-341
Austria (Vienna) International Access Code: 900 Country Code: 43	Home/Small Business Sales	01 795 67602
	Home/Small Business Fax	01 795 67605
	Home/Small Business Customer Care	01 795 67603
	Preferred Accounts/Corporate Customer Care	0660 8056

City Code: 1	Home/Small Business Technical Support	01 795 67604
	Preferred Accounts/Corporate Technical Support	0660 8779
	Switchboard	01 491 04 0
	Website: http://support.euro.dell.com	
	E-mail: tech_support_germany@dell.com	
Belgium (Brussels) International Access Code: 00 Country Code: 32 City Code: 2	Technical Support	02 481 92 88
	Customer Care	02 481 91 19
	Home/Small Business Sales	toll free: 0800 16884
	Corporate Sales	02 481 91 00
	Fax	02 481 92 99
	Switchboard	02 481 91 00
	Website: http://support.euro.dell.com E-mail: tech_be@dell.com	
Brazil International Access Code: 0021 Country Code: 55 City Code: 51	Customer Support, Technical Support	0800 90 3355
	Sales	0800 90 3366
	Website: http://www.dell.com/br	
Brunei Country Code: 673	Customer Technical Support (Penang, Malaysia)	604 633 4966
	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales (Penang, Malaysia)	604 633 4955
Canada (North York, Ontario) International Access Code: 011	Automated Order-Status System	toll free: 1-800-433-9014
	AutoTech (Automated technical support)	toll free: 1-800-247-9362
	Customer Care (From outside Toronto)	toll free: 1-800-387-5759
	Customer Care (From within Toronto)	416 758-2400
	Customer Technical Support	toll free: 1-800-847-4096
	Sales (Direct Sales—from outside Toronto)	toll free: 1-800-387-5752
	Sales (Direct Sales—from within Toronto)	416 758-2200
	Sales (Federal government, education, and medical)	toll free: 1-800-567-7542
	Sales (Major Accounts)	toll free: 1-800-387-5755
	TechFax	toll free: 1-800-950-1329
Chile (Santiago) Country Code: 56 City Code: 2	Sales, Customer Support, and Technical Support	toll free: 1230-020-4823
China (Xiamen) Country Code: 86 City Code: 592	Technical Support	toll free: 800 858 2437
	Customer Experience	toll free: 800 858 2060
	Home and Small Business	toll free: 800 858 2222
	Preferred Accounts Division	toll free: 800 858 2062
	Large Corporate Accounts	toll free: 800 858 2999
Czech Republic (Prague) International Access Code: 00 Country Code: 420 City Code: 2	Technical Support	02 22 83 27 27
	Customer Care	02 22 83 27 11
	Fax	02 22 83 27 14
	TechFax	02 22 83 27 28
	Switchboard	02 22 83 27 11
	Website: http://support.euro.dell.com E-mail: czech_dell@dell.com	
Denmark (Horsholm) International Access Code: 00 Country Code: 45	Technical Support	45170182
	Relational Customer Care	45170184
	Home/Small Business Customer Care	32875505
	Switchboard	45170100
	Fax Technical Support (Upplands Vasby, Sweden)	46 0 859005594
	Fax Switchboard	45170117
	Website: http://support.euro.dell.com E-mail: den_support@dell.com E-mail Support for Servers: Nordic_server_support@dell.com	
Finland (Helsinki) International Access Code: 990	Technical Support	09 253 313 60
	Technical Support Fax	09 253 313 81

Country Code: 358 City Code: 9	Relational Customer Care	09 253 313 38
	Home/Small Business Customer Care	09 693 791 94
	Fax	09 253 313 99
	Switchboard	09 253 313 00
	Website: http://support.euro.dell.com E-mail: fin_support@dell.com	
France (Paris/Montpellier) International Access Code: 00 Country Code: 33 City Code: (1) (4)	Home and Small Business	
	Technical Support	0825 387 270
	Customer Care	0825 823 833
	Switchboard	0825 004 700
	Switchboard (Alternative)	04 99 75 40 00
	Sales	0825 004 700
	Fax	0825 004 701
	Website: http://support.euro.dell.com E-mail: web_fr_tech@dell.com	
	Corporate	
	Technical Support	0825 004 719
	Customer Care	0825 338 339
	Switchboard	01 55 94 71 00
	Sales	01 55 94 71 00
	Fax	01 55 94 71 01
	Website: http://support.euro.dell.com E-mail: web_fr_tech@dell.com	
Germany (Langen) International Access Code: 00 Country Code: 49 City Code: 6103	Technical Support	06103 766-7200
	Home/Small Business Customer Care	0180-5-224400
	Global Segment Customer Care	06103 766-9570
	Preferred Accounts Customer Care	06103 766-9420
	Large Accounts Customer Care	06103 766-9560
	Public Accounts Customer Care	06103 766-9555
	Switchboard	06103 766-7000
	Website: http://support.euro.dell.com E-mail: tech_support_germany@dell.com	
Hong Kong International Access Code: 001 Country Code: 852	Technical Support	toll free: 800 96 4107
	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales	toll free: 800 96 4109
	Corporate Sales	toll free: 800 96 4108
Ireland (Cherrywood) International Access Code: 16 Country Code: 353 City Code: 1	Technical Support	0870 908 0800
	Home User Customer Care	01 204 4095
	Small Business Customer Care	01 204 4026
	Corporate Customer Care	01 204 4003
	Sales	01 286 0500
	SalesFax	01 204 0144
	Fax	0870 907 5590
	Switchboard	01 286 0500
	Website: http://support.euro.dell.com E-mail: dell_direct_support@dell.com	
Italy (Milan) International Access Code: 00 Country Code: 39 City Code: 02	Home and Small Business	
	Technical Support	02 577 826 90
	Customer Care	02 696 821 14
	Fax	02 696 821 13
	Switchboard	02 696 821 12
	Website: http://support.euro.dell.com E-mail: web_it_tech@dell.com	
	Corporate	
	Technical Support	02 577 826 90
	Customer Care	02 577 825 55
	Fax	02 575 035 30
	Switchboard	02 577 821

	Website: http://support.euro.dell.com	
	E-mail: web_it_tech@dell.com	
Japan (Kawasaki)	Technical Support (Server)	toll free: 0120-1984-35
International Access Code: 001	Technical Support (Dimension™ and Inspiron™)	toll free: 0120-1982-26
Country Code: 81	Technical Support Outside of Japan (Dimension and Inspiron)	81-44-520-1435
City Code: 44	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
	24-Hour Automated Order Service	044 556-3801
	Customer Care	044 556-4240
	Home and Small Business Group Sales	044 556-3344
	Business Sales Division (up to 400 employees)	044 556-3344
	Preferred Accounts Division Sales (over 400 employees)	044 556-3433
	Large Corporate Accounts Sales (over 3500 employees)	044 556-3430
	Government, Education, and Medical Sales	044 556-1469
	Dell Global Japan	044 556-3469
	Individual User	044 556-3344
	Faxbox Service	044 556-3490
	Switchboard	044 556-4300
	Website: http://support.jp.dell.com	
Korea (Seoul)	Technical Support	toll free: 080-200-3800
International Access Code: 001	Sales	toll free: 080-200-3600
Country Code: 82	Customer Service (Seoul, Korea)	toll free: 080-200-3800
City Code: 2	Customer Service (Penang, Malaysia)	604 633 4949
	Fax	2194-6202
	Switchboard	2194-6000
Latin America	Customer Technical Support (Austin, Texas, U.S.A.)	512 728-4093
	Customer Service (Austin, Texas, U.S.A.)	512 728-3619
	Fax (Technical Support and Customer Service)(Austin, Texas, U.S.A.)	512 728-3883
	Sales (Austin, Texas, U.S.A.)	512 728-4397
	SalesFax (Austin, Texas, U.S.A.)	512 728-4600
		or 512 728-3772
Luxembourg	Technical Support (Brussels, Belgium)	02 481 92 88
International Access Code: 00	Home/Small Business Sales (Brussels, Belgium)	toll free: 080016884
Country Code: 352	Corporate Sales (Brussels, Belgium)	02 481 91 00
	Customer Care (Brussels, Belgium)	02 481 91 19
	Fax (Brussels, Belgium)	02 481 92 99
	Switchboard (Brussels, Belgium)	02 481 91 00
	Website: http://support.euro.dell.com	
	E-mail: tech_be@dell.com	
Macau	Technical Support	toll free: 0800 582
Country Code: 853	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales	toll free: 0800 581
Malaysia (Penang)	Technical Support	toll free: 1 800 888 298
International Access Code: 00	Customer Service	04 633 4949
Country Code: 60	Transaction Sales	toll free: 1 800 888 202
City Code: 4	Corporate Sales	toll free: 1 800 888 213
Mexico	Automated Order-Status System (Austin, Texas, U.S.A.)	512 728-0685
International Access Code: 95	AutoTech (Automated technical support) (Austin, Texas, U.S.A.)	512 728-0686
Country Code: 52	Customer Technical Support	525 228-7870
City Code: 5	Sales	525 228-7811
		or toll free: 91-800-900-37
		or toll free: 91-800-904-49
	Customer Service	525 228-7878
	Main	525 228-7800
Netherlands (Amsterdam)	Technical Support	020 581 8838

International Access Code: 00 Country Code: 31 City Code: 20	Customer Care	020 581 8740
	Home/Small Business Sales	toll free: 0800-0663
	Home/Small Business Sales Fax	020 682 7171
	Corporate Sales	020 581 8818
	Corporate Sales Fax	020 686 8003
	Fax	020 686 8003
	Switchboard	020 581 8818
	Website: http://support.euro.dell.com E-mail: tech_nl@dell.com	
New Zealand International Access Code: 00 Country Code: 64	Home and Small Business	0800 446 255
	Government and Business	0800 444 617
	Sales	0800 441 567
	Fax	0800 441 566
Norway (Lysaker) International Access Code: 00 Country Code: 47	Technical Support	671 16882
	Relational Customer Care	671 17514
	Home/Small Business Customer Care	23162298
	Switchboard	671 16800
	Fax Technical Support (Upplands Vasby, Sweden)	46 0 85 590 05 594
	Fax Switchboard	671 16865
	Website: http://support.euro.dell.com E-mail: nor_support@dell.com E-mail Support for Servers: Nordic_server_support@dell.com	
Poland (Warsaw) International Access Code: 011 Country Code: 48 City Code: 22	Technical Support	22 57 95 700
	Customer Care	22 57 95 999
	Sales	22 57 95 999
	Fax	22 57 95 998
	Switchboard	22 57 95 999
	Website: http://support.euro.dell.com E-mail: pl_support@dell.com	
Portugal International Access Code: 00 Country Code: 35	Technical Support	35 800 834 077
	Customer Care	800 300 415 or 35 800 834 075
	Sales	800 300 410 or 800 300 411 or 800 300 412 or 351 214 220 710
	Fax	35 121 424 01 12
	E-mail: es_support@dell.com	
Singapore (Singapore) International Access Code: 005 Country Code: 65	Technical Support	toll free: 800 6011 051
	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales	toll free: 800 6011 054
	Corporate Sales	toll free: 800 6011 053
South Africa (Johannesburg) International Access Code: 09/091 Country Code: 27 City Code: 11	Technical Support	011 709 7710
	Customer Care	011 709 7707
	Sales	011 709 7700
	Fax	011 709 0495
	Switchboard	011 709 7700
	Website: http://support.euro.dell.com E-mail: dell_za_support@dell.com	
Southeast Asian and Pacific Countries	Customer Technical Support, Customer Service, and Sales (Penang, Malaysia)	604 633 4810
Spain (Madrid) International Access Code: 00 Country Code: 34 City Code: 91	Home and Small Business	
	Technical Support	902 100 130
	Customer Care	902 118 540
	Sales	902 118 541
	Switchboard	902 118 541
	Fax	902 118 539
	Website: http://support.euro.dell.com E-mail: web_esp_tech@dell.com	
	Corporate	

	Technical Support	902 100 130
	Customer Care	902 118 546
	Switchboard	91 722 92 00
	Fax	91 722 95 83
	Website: http://support.euro.dell.com	
	E-mail: web_esp_tech@dell.com	
Sweden (Upplands Vasby)	Technical Support	08 590 05 199
International Access Code: 00	Relational Customer Care	08 590 05 642
Country Code: 46	Home/Small Business Customer Care	08 587 70 527
City Code: 8	Fax Technical Support	08 590 05 594
	Sales	08 590 05 185
	Website: http://support.euro.dell.com	
	E-mail: swe_support@dell.com	
	E-mail Support for Latitude and Inspiron: Swe-nbk_kats@dell.com	
	E-mail Support for OptiPlex: Swe_kats@dell.com	
	E-mail Support for Servers: Nordic_server_support@dell.com	
Switzerland (Geneva)	Technical Support (Home and Small Business)	0844 811 411
International Access Code: 00	Technical Support (Corporate)	0844 822 844
Country Code: 41	Customer Care (Home and Small Business)	0848 802 202
City Code: 22	Customer Care (Corporate)	0848 821 721
	Fax	022 799 01 90
	Switchboard	022 799 01 01
	Website: http://support.euro.dell.com	
	E-mail: swisstech@dell.com	
Taiwan	Technical Support	toll free: 0080 60 1255
International Access Code: 002	Technical Support (Servers)	toll free: 0080 60 1256
Country Code: 886	Transaction Sales	toll free: 0080 651 228 or 0800 33 556
	Corporate Sales	toll free: 0080 651 227 or 0800 33 555
Thailand	Technical Support	toll free: 0880 060 07
International Access Code: 001	Customer Support (Penang, Malaysia)	604 633 4949
Country Code: 66	Sales	toll free: 0880 060 09
U.K. (Bracknell)	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees])	0870 908 0500
International Access Code: 010	Technical Support (Direct/PAD and General)	0870 908 0800
Country Code: 44	Global Accounts Customer Care	01344 723186
City Code: 1344	Home and Small Business Customer Care	0870 906 0010
	Corporate Customer Care	0870 908 0500
	Preferred Accounts (500-5000 employees) Customer Care	01344 723196
	Central Government Customer Care	01344 723193
	Local Government Customer Care	01344 723194
	Home/Small Business Sales	0870 907 4000
	Corporate/Public Sector Sales	01344 860456
	Website: http://support.euro.dell.com	
	E-mail: dell_direct_support@dell.com	
U.S.A. (Austin, Texas)	Automated Order-Status System	toll free: 1-800-433-9014
International Access Code: 011	AutoTech (for portable and desktop computers)	toll free: 1-800-247-9362
Country Code: 1	Dell Home and Small Business Group (for portable and desktop computers):	
	Customer Technical Support (Return Material Authorization Numbers)	toll free: 1-800-624-9896
	Customer Technical Support (Home sales purchased via http://www.dell.com)	toll free: 1-877-576-3355
	Customer Service (Credit Return Authorization Numbers)	toll free: 1-800-624-9897
	National Accounts (systems purchased by established Dell national accounts [have your account number handy], medical institutions, or value-added resellers [VARs]):	
	Customer Service and Technical Support (Return Material Authorization Numbers)	toll free: 1-800-822-8965
	Public Americas International (systems purchased by governmental agencies [local, state, or federal] or educational institutions):	

Customer Service and Technical Support (Return Material Authorization Numbers)	toll free: 1-800-234-1490
Dell Sales	toll free: 1-800-289-3355 or toll free: 1-800-879-3355
Spare Parts Sales	toll free: 1-800-357-3355
DellWare™	toll free: 1-800-753-7201
Desktop and Portable Fee-Based Technical Support	toll free: 1-800-433-9005
Server Fee-Based Technical Support	toll free: 1-800-967-0765
Sales (Catalogs)	toll free: 1-800-426-5150
Fax	toll free: 1-800-727-8320
TechFax	toll free: 1-800-950-1329
Dell Services for the Deaf, Hard-of-Hearing, or Speech-Impaired	toll free: 1-877-DELLTTY (1-877-335-5889)
Switchboard	512 338-4400
Dellnet Technical Support	toll free: 1-877-Dellnet (1-877-335-5638)

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● [Notes, Notices, Cautions, and Warnings](#)

Notes, Notices, Cautions, and Warnings



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



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



CAUTION: A CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



WARNING: A WARNING indicates a potentially hazardous situation which, if not avoided, may result in severe injury.

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