Dell Precision™ Workstation 350 User's Guide

Information About Your Computer
Finding Information for Your Computer Specifications Your Computer Front View Back View Inside Your Computer System Board Components Cleaning Your Computer Before Cleaning Your Computer Computer, Keyboard, and Monitor Mouse Floppy Drive CDs and DVDs Advanced Features LegacySelect Technology Control Manageability Security Password Protection System Setup Power Button Connecting an IEEE 1394 Device TAPI Hyper-Threading Microsoft® Windows® XP Features Overview New User Interface Files and Settings Transfer Wizard Application and Device Compatibility System Restore User Accounts and Fast User Switching Home and Small Office Networking Internet Connection Firewall Removing and Installing Computer Parts Opening the Computer Cover <u>Drives</u> <u>PCI Cards</u> AGP Card Microprocessor Memory Battery Closing the Computer Cover Solving Problems Battery Problems Card Problems Drive Problems **Dropped or Damaged Computer** F-Mail, Modem, and Internet Problems Error Messages General Problems IEEE 1394 Device Problems **Keyboard Problems** Memory Problems Mouse Problems Network Problems Power Problems Printer Problems Serial or Parallel Device Problems Sound and Speaker Problems System Board Problems Video and Monitor Problems Advanced Troubleshooting Diagnostic Lights Beep Codes **Dell Diagnostics** Drivers Using System Restore Resolving Software and Hardware Incompatibilities Getting Help Technical Assistance Problems With Your Order Product Information Returning Items for Warranty Repair or Credit Before You Call Contacting Dell Warranty and Return Policy **Ergonomic Computing Habits** Regulatory Notices Glossarv



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



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



CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

For a complete list of abbreviations and acronyms, see the Glossary.

If you purchased a $Dell^{TM}$ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

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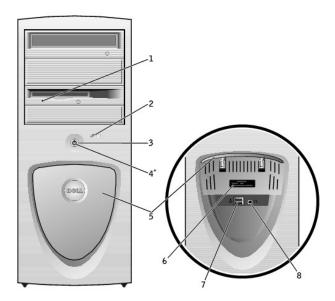
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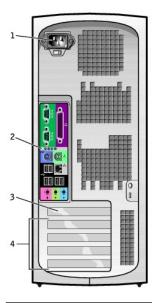
Front View



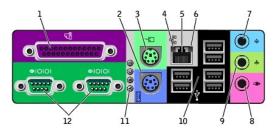
	1	floppy-drive light button [*]	The floppy-drive light is on when the computer reads data from or writes data to the floppy drive. Wait until this light turns off before you remove the floppy disk from the drive.	
	2	hard-drive light	The hard-drive light is on when the computer reads data from or writes data to the hard drive. The light might also be on when a devicesuch as your CD player is operating.	
	3	power button	Press this button to turn on the computer. NOTICE: To avoid losing data, do not use the power button to turn off the computer. Instead, perform a Microsoft® Windows® shutdown.	
	4	power light	The power light illuminates and blinks or remains solid to indicate different states: No light — The computer is in the off state. Steady green — The computer is in a normal operating state. Blinking green — The computer is in a power-saving state. To exit from a power-saving state, press the power button or click or move the mouse. See "Diagnostic Lights" for a description of light codes that can help you troubleshoot problems with your computer.	
	5	front-panel	Open the door to use the front-panel	

	door	connectors.	
6	service tag	The tag is used to identify your computer when you access the Dell Support website or call technical support.	
7	USB 2.0 connectors (2)	Use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras. It is recommended that you use the back USB connectors for devices that typically remain connected, such as printers and keyboards.	
8	headphone connector	Attach headphones.	
*	* On computers with an optional floppy drive.		

Back View



1	power connector	Insert the power cable.	
2	back panel connectors	Plug serial, USB, and other devices int the appropriate connector.	
3	AGP card slot	Access connectors for any installed AGP card.	
4	PCI card slots (4)	Access connectors for any installed PCI cards.	



1	parallel connector	Connect a parallel device, such as a printer, to the parallel connector. If you have a USB printer, plug it into a USB connector.
		NOTE: The integrated parallel connector is automatically disabled if the computer detects an installed card containing a parallel connector configured to the same address. For more information, see "System Setup."

2	keyboard connector	If you have a standard keyboard, plug it into the purple keyboard connector. If you have a USB keyboard, plug it into a USB connector.	
3	mouse connector	Plug a standard mouse into the green mouse connector. Turn off the computer and any attached devices before you connect a mouse to the computer. If you have a USB mouse, plug it into a USB connector.	
		If your computer is running Microsoft® Windows® 2000, Dell installed the necessary mouse drivers on your hard drive.	
4	link integrity light	Green — A good connection exists between a 10-Mbps network and the computer. Orange — A good connection exists between a 100-Mbps network and the computer. Also indicates a 1 GB (or 1000 Mbps) connection. Off — The computer is not detecting a physical connection to the network.	
5	network adapter	Attach the UTP cable to an RJ45 jack wall plate or to an RJ45 port on a UTP concentrator or hub and then press the other end of the UTP cable into the network adapter connector until the cable snaps securely into place.	
		The use of Category 5 wiring and connectors is recommended for our customers' networks.	
6	network activity light	The yellow light flashes when the computer is transmitting or receiving network data. A high volume of network traffic may make this light appear to be in a steady "on" state.	
7	line-in connector	Use the blue line-in connector (available on computers with integrated sound) to attach a record/playback device such as a cassette player, CD player, or VCR.	
		On computers with a sound card, use the line-in connector on the card.	
8	microphone connector	Use the pink microphone connector (available on computers with integrated sound) to attach a personal computer microphone for voice or musical input into a sound or telephony program.	
		On computers with a sound card, use the microphone connector on the card.	
9	line-out connector	Use the green line-out connector (available on computers with integrated sound) to attach headphones and most speakers with integrated amplifiers.	
		On computers with a sound card, use the line-out connector on the card.	
10	USB 2.0 connectors (6)	Use the back USB connectors for devices that typically remain connected, such as printers and keyboards.	
		It is recommended that you use the front USB connectors for devices that you connect occasionally, such as joysticks or cameras.	
11	diagnostic lights (4)	Use the lights to help you troubleshoot a computer problem based on the diagnostic code. For more information, see "Diagnostic Lights."	
12	serial connectors (2)	Connect a serial device, such as a handheld device, to the serial port. The default designations are COM1 for serial connector 1 and COM2 for serial connector 2.	
		For more information, see "System Setup."	

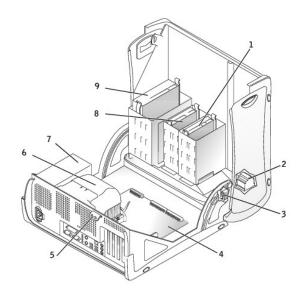
A CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.



CAUTION: To avoid electrical shock, always unplug your computer from the electrical outlet before opening the cover.



NOTICE: Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.

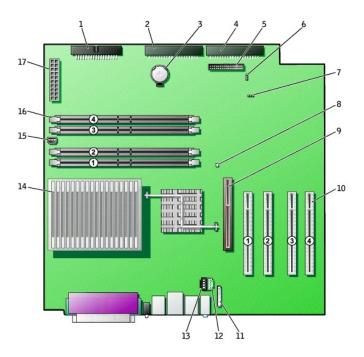


1	hard drive	6	heat sink and blower assembly
2	internal speaker	7	power supply
3	chassis intrusion switch	8	floppy drive
4	system board	9	CD/DVD drive
5	padlock ring		

Cable Colors

Device	Color
Hard drive	Blue pull tab
Floppy drive	Black pull tab
CD/DVD drive	Orange pull tab

System Board Components



back of computer

_			
1	floppy drive connector (DSKT)	10	PCI card connectors (PCI1, PCI2, PCI3, and PCI4)
2	CD/DVD drive connector (SEC _IDE)	11	front-panel audio cable connector (FRONTAUDIO)
3	battery socket (BATTERY)	12	telephony connector (MODEM)
4	hard drive connector (PRI_IDE)	13	CD drive audio cable connector (CD_IN)
5	front-panel connector (FRONTPANEL)	14	microprocessor and heat sink connector (CPU)
6	password jumper (PSWD)	15	microprocessor fan connector (FAN2)
7	clear CMOS jumper (CLR_CMOS)	16	memory module connectors (RIMM 1, RIMM 2, RIMM 3, and RIMM 4)
8	standby power light (AUX_PWR)	17	power connector (POWER)
9	AGP card connector (AGP)		

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Advanced Troubleshooting

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- Dell Diagnostics
- <u>Drivers</u>
- Using System Restore
- Resolving Software and Hardware Incompatibilities

Diagnostic Lights

To help you troubleshoot a problem, your computer is equipped with four lights on the back panel labeled "A," "B," "C," and "D". These lights can be yellow or green. When the computer starts normally, the lights flash. After the computer starts, the lights remain green. If the computer malfunctions, the color and sequence of the lights identify the problem.

AUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

Light Pattern	Problem Description	Suggested Resolution
OOOO A B C D	Normal off condition or possible power failure.	Verify that the computer power cable is plugged into the computer and a working electrical outlet. Press the power button.
YYYG A B C D	Possible BIOS failure; the computer is in the recovery mode.	Run the BIOS Recovery utility, wait for recovery completion, and then restart the computer.
YYGY A B C D	Possible microprocessor failure.	Reinstall the microprocessor, and restart the computer.
YYGG A B C D	Memory modules are detected, but a memory failure has occurred.	Remove and reinstall all memory modules and CRIMMs. Ensure that all the connector tabs are locked. Restart the computer. Install the memory modules in memory connectors RIMM 1 (located closest to the microprocessor) and RIMM 2 and ensure that, if no additional memory is used, CRIMMs are installed in memory connectors RIMM 3 and RIMM 4. If you installed memory modules in memory connectors RIMM3 and RIMM4 that were not purchased from Dell, remove the modules and replace them with the CRIMMs that were originally installed in your computer. If available, install Dell memory of the same type into your computer. If the problem persists, contact Dell.
YGYY A B C D	Possible expansion card failure.	Determine if a conflict exists by removing a card (not the video card) and then restarting the computer. If the problem persists, reinstall the card that you removed, remove a different card, and then restart the computer. Repeat this process for each card. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts (see "Resolving Software and Hardware Incompatibilities"). If the problem persists, contact Dell.
YGYG A B C D	Possible video card failure or bad on- board video.	If the computer has a video card, remove the card and reinstall it. If the problem persists or the computer has integrated video, contact Dell.
YGGY A B C D	Possible floppy or hard drive failure.	Check all power and data cable connections, and then restart the computer.

YGGG	Possible USB failure.	Reinstall all USB devices, check cable connections, and then restart the computer.
ABCD		
GYYY	No memory modules are installed.	Reinstall all memory modules and then restart the computer.
A B C D		If the problem persists, contact Dell.
GYYG	Possible system board failure.	Perform the procedures in "System Board Problems."
A B C D		If the problem persists, contact Dell.
GYGY	Memory modules are detected, but a memory configuration or compatibility error exists.	Ensure that there are no special memory module/memory connector placement requirements (see "Memory").
A B C D		Verify that the memory modules that you are installing are compatible with your computer (see "Memory").
		Reinstall the memory modules and then restart the computer.
		If the problem persists, contact Dell.
GYGG	Possible system board resource and/or hardware failure.	Perform the procedure in " <u>System Board Problems</u> " and see " <u>Resolving Software and Hardware Incompatibilities</u> ."
A B C D		If the problem persists, contact Dell.
GGYY	Possible expansion card failure.	Determine if a conflict exists by removing a card (not the video card) and then restarting the computer. If the problem persists, reinstall the card that you removed, remove a different card, and then restart the computer.
ABCD		Repeat this process for each card. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts (see "Resolving Software and Hardware Incompatibilities"). If the problem persists, contact Dell.
GGGY	Other failures has occurred.	Ensure that the cables are properly connected from the hard drive, CD drive, and DVD drive to the system board.
A B C D		If the problem persists, contact Dell.
GGGG	Normal operating condition after POST.	None.
A B C D		

Beep Codes

Your computer might emit a series of beeps during start-up if the monitor cannot display errors or problems. This series of beeps, called a beep code, identifies a problem. One possible beep code (code 1-3-1) consists of one beep, a burst of three beeps, and then one beep. This beep code tells you that the computer encountered a memory problem.

If your computer beeps during start-up:

- 1. Write down the beep code on the <u>Diagnostics Checklist</u>, and perform the action recommended in the following table.
- 2. Run the $\underline{\mbox{Dell Diagnostics}}$ to identify a more serious cause.
- 3. <u>Contact Dell</u> for technical assistance.

Code	Cause
1-1-2	Microprocessor register failure
1-1-3	NVRAM
1-1-4	ROM BIOS checksum failure
1-2-1	Programmable interval timer
1-2-2	DMA initialization failure
1-2-3	DMA page register read/write failure
1-3	Video Memory Test failure
1-3-1 through 2-4-4	Memory not being properly identified or used

3-1-1	Slave DMA register failure
3-1-2	Master DMA register failure
3-1-3	Master interrupt mask register failure
3-1-4	Slave interrupt mask register failure
3-2-2	Interrupt vector loading failure
3-2-4	Keyboard Controller Test failure
3-3-1	NVRAM power loss
3-3-2	NVRAM configuration
3-3-4	Video Memory Test failure
3-4-1	Screen initialization failure
3-4-2	Screen retrace failure
3-4-3	Search for video ROM failure
4-2-1	No time tick
4-2-2	Shutdown failure
4-2-3	Gate A20 failure
4-2-4	Unexpected interrupt in protected mode
4-3-1	Memory failure above address 0FFFFh
4-3-3	Timer-chip counter 2 failure
4-3-4	Time-of-day clock stopped
4-4-1	Serial or parallel port test failure
4-4-2	Failure to decompress code to shadowed memory
4-4-3	Math-coprocessor test failure
4-4-4	Cache test failure

Dell Diagnostics

When to Use the Dell Diagnostics

If you experience a problem with your computer, perform the checks in "Solving Problems" and run the Dell Diagnostics before you contact Dell for technical assistance. Running the Dell Diagnostics may help you resolve the problem without contacting Dell. If you do contact Dell, the test results can provide important information for Dell's service and support personnel.

The Dell Diagnostics allows you to:

- 1 Perform express, extended, or custom tests on one or all devices
- 1 Select tests based on a symptom of the problem you are having
- 1 Choose how many times a test is run
- 1 Display test results
- 1 Suspend testing if an error is detected
- 1 Access online help information that describes the tests and devices
- 1 Receive status messages that tell you whether tests completed successfully
- 1 Receive error messages if problems are detected

Starting the Dell Diagnostics

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

NOTICE: Only use the Dell Diagnostics to test your Dell™ computer. Using this program with other computers can result in error messages.

Enter system setup, review your computer's configuration information, and ensure that the device you want to test displays in system setup and is active.

Start the Dell Diagnostics from either your hard drive or from the Drivers and Utilities CD (also known as the ResourceCD).

Starting the Dell Diagnostics From Your Hard Drive

- 1. Shut down and restart the computer.
- 2. When the DELL® logo appears, press <F12> immediately.



NOTE: If you receive a message stating that no Diagnostics utility partition has been found, follow the instructions to run the Dell Diagnostics from your Drivers and Utilities CD.

If you wait too long and the Microsoft® Windows® logo appears, continue to wait until you see the Windows desktop. Then shut down your computer through the **Start** menu and try again.

3. When the boot device list appears, highlight Boot to Utility Partition and press <Enter>.

4. When the Dell Diagnostics Main Menu appears, select the test you want to run.

Starting the Dell Diagnostics From the Drivers and Utilities CD

- 1. Insert the Drivers and Utilities CD into the CD drive.
- 2. Shut down and restart the computer.

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

If you wait too long and the Windows logo appears, continue to wait until you see the Windows desktop. Then shut down your computer through the



NOTE: This feature changes the boot sequence for one time only. On the next start-up, the computer boots according to the devices specified in system

- 3. When the boot device list appears, highlight IDE CD-ROM Device and press <Enter>.
- 4. Select the IDE CD-ROM Device option from the CD boot menu.
- 5. Select the **Boot from CD-ROM** option from the menu that appears.
- 6. Type 1 to start the ResourceCD menu.
- 7. Type 2 to start the Dell Diagnostics.
- 8. Select Run the 32 Bit Dell Diagnostics from the numbered list. If multiple versions are listed, select the version appropriate for your platform.
- 9. When the Dell Diagnostics Main Menu appears, select the test you want to run.

Dell Diagnostics Main Menu

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



NOTE: The Service Tag number for your computer is located on the top of each test screen.

Option	Function
	Performs a quick test of devices. This test typically takes 10 to 20 minutes and requires no interaction on your part. Run Express Test first to increase the possibility of tracing the problem quickly.
Extended Test	Performs a thorough check of devices. This test typically takes an hour or more and requires you to answer questions periodically.
Custom Test	Tests a specific device. You can customize the tests you want to run.
Symptom Tree	Lists the most common symptoms encountered and allows you to select a test based on the symptom of the problem you are having.

2. If a problem is encountered during a test, a message displaying the error code and a description of the problem appear. Write down the error code and problem description and follow the instructions on the screen.

If you cannot resolve the error condition, contact Dell.

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

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

- 4. When the tests are completed, if you are running the Dell Diagnostics from the Drivers and Utilities CD, remove the CD.
- 5. Close the test screen to return to the Main Menu screen. To exit the Dell Diagnostics and restart the computer, close the Main Menu screen.

Drivers

What Is a Driver?

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

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

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

- 1 You upgrade your operating system
- 1 You reinstall your operating system.
- 1 You connect or install a new device.

If you experience a problem with any device, perform the steps in the following sections to identify whether the driver is the source of your problem and if

Identifying Drivers

Windows XP

- 1. Click the Start button and click Control Panel.
- 2. In the Control Panel window, under Pick a Category, click Performance and Maintenance
- 3. In the Performance and Maintenance window, click System.
- 4. In the System Properties window, click the Hardware tab.
- 5. Click Device Manager.
- 6. In the Device Manager window, scroll down the list to see if any device has an exclamation point (a yellow circle with a [!]) on the device icon

If an exclamation point is next to the device name, you may need to reinstall the driver or install a new driver.

Windows 2000

- 1. Click the Start button, point to Settings, and click Control Panel
- 2. In the Control Panel window, double-click System.
- 3. In the System Properties window, click the Hardware tab.
- 4. Click Device Manager
- 5. In the Device Manager window, scroll down the list to see if any device has an exclamation point (a yellow circle with a [!]) on the device icon.

If an exclamation point is next to the device name, you may need to reinstall the driver or install a new driver.

Reinstalling Drivers



MOTE: To access device drivers and user documentation, you must use the ResourceCD while your computer is running Windows.

1. Insert the Drivers and Utilities CD into the CD drive.

If this is your first time to use the *Drivers and Utilities* CD, the Installation window opens to inform you that the CD will begin the installation. Click OK, and respond to the installation program prompts to complete the installation.

- 2. Click Next at the Welcome Dell System Owner screen.
- 3. Choose the appropriate selections for System Model, Operating System, Device Type, and Topic.
- 4. Click My Drivers in the Topic drop-down menu.

The Drivers and Utilities CD scans your computer's hardware and operating system and then displays a list of device drivers for your system configuration

5. Click the appropriate driver and follow the instructions to download the driver for your computer.

To view a list of all available drivers for your computer, click Drivers in the Topic drop-down menu.

To access the Dell Drivers and Utilities CD Guide, click User's Guides in the Topic drop-down menu, and then click Dell Precision ResourceCD.

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

Using System Restore

The Microsoft® Windows® XP operating system provides System Restore to allow you to return your computer to an earlier operating state (without affecting data files) if changes to the hardware, software, or other system settings have left the computer in an undesirable operating state. See Windows Help for information on using System Restore.

Creating a Restore Point

- 1. Click the Start button
- 2. Click Help and Support

- 3. Click System Restore
- 4. Follow the instructions on the screen

Restoring the Computer to an Earlier Operating State

NOTICE: Before you restore the computer to an earlier operating state, save and close all open files and close all open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

- 1. Click the Start button, point to All Programs Accessories System Tools, and then click System Restore.
- 2. Ensure that Restore my computer to an earlier time is selected, and then click Next.
- 3. Click a calendar date to which you want to restore your computer.

The Select a Restore Point screen provides a calendar that allows you to see and select restore points. All calendar dates with available restore points appear in bold.

4. Select a restore point, and then click Next

If a calendar date has only one restore point, then that restore point is automatically selected. If two or more restore points are available, click the restore point that you prefer.

5. Click Next

The Restoration Complete screen appears after System Restore finishes collecting data, and then the computer automatically restarts.

6. After the computer restarts, click OK

To change the restore point, you can either repeat the steps using a different restore point, or you can undo the restoration.

Undoing the Last System Restore

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

- 1. Click the Start button, point to All Programs Accessories System Tools, and then click System Restore.
- 2. Click Undo my last restoration and click Next.
- 3. Click Next.

The System Restore screen appears, and then the computer automatically restarts

4. After the computer restarts, click OK

Enabling System Restore

If you reinstall Windows XP with less than 200 MB of free hard-disk space available, System Restore is automatically disabled. To see if System Restore is enabled:

- Click the Start button, and then click Control Panel.
- 2. Click Performance and Maintenance
- 3. Click System.
- 4. Click the **System Restore** tab.
- 5. Ensure that Turn off System Restore is unchecked.

Resolving Software and Hardware Incompatibilities

Microsoft® Windows® XP

Windows XP IRQ conflicts occur if a device either is not detected during the operating system setup or is detected but incorrectly configured.

To check for conflicts on a computer running Windows XP:

- 1. Click the Start button, and then click Control Panel.
- 2. Click Performance and Maintenance, and then click System.
- 3. Click the Hardware tab, and then click Device Manager
- 4. In the **Device Manager** list, check for conflicts with the other devices.

Conflicts are indicated by a yellow exclamation point (!) beside the conflicting device or a red x if the device has been disabled.

5. Double-click any conflict to display the **Properties** window.

If an IRQ conflict exists, the **Device** status area in the **Properties** window reports the cards or devices that share the device's IRQ.

6. Resolve conflicts by reconfiguring the devices or removing the devices from the **Device Manager**.

To use the Windows XP Hardware Troubleshooter:

- 1. Click the Start button, and then click Help and Support.
- 2. Type hardware troubleshooter in the **Search** field, and then click the arrow to start the search.
- 3. Click Hardware Troubleshooter in the Search Results list.
- 4. In the Hardware Troubleshooter list, click I need to resolve a hardware conflict on my computer, and then click Next.

Windows 2000

To check for conflicts on a computer running Windows 2000:

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

Conflicts are indicated by a yellow exclamation point (!) beside the conflicting device or a red x if the device has been disabled.

7. Double-click any conflict to display the **Properties** window.

If an IRQ conflict exists, the **Device** status area in the **Properties** window reports the cards or devices that share the device's IRQ.

8. Resolve conflicts by reconfiguring the devices or removing the devices from the Device Manager.

To use the Windows 2000 Hardware Troubleshooter:

- 1. Click the Start button and click Help.
- 2. Click Troubleshooting and Maintenance on the Contents tab, click Windows 2000 troubleshooters, and then click Hardware.
- 3. In the Hardware Troubleshooter list, click I need to resolve a hardware conflict on my computer, and then click Next.

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- Ocnnecting an IEEE 1394 Device
- TAPI
- Hyper-Threading

LegacySelect Technology Control

LegacySelect technology control offers legacy-full, legacy-reduced, or legacy-free solutions based on common platforms, hard-drive images, and help desk procedures. Control is provided to the administrator through system setup, Dell OpenManage $^{\text{m}}$ IT Assistant, or Dell $^{\text{m}}$ custom factory integration.

LegacySelect allows administrators to electronically activate or deactivate connectors and media devices that include serial and USB connectors, a parallel connector, a floppy drive, and a PS/2 mouse. Connectors and media devices that are deactivated make resources available. You must restart the computer for the changes to take effect.

Manageability

Alert Standard Format

ASF is a DMTF management standard that specifies "pre-operating system" or "operating system-absent" alerting techniques. It is designed to generate an alert on potential security and fault conditions when the operating system is in a sleep state or the computer is powered down. ASF is designed to supersede previous operating system-absent alerting technologies.

Your computer supports the following ASF alerts and remote capabilities:

Alert	Description
Chassis Intrusion/Chassis Intrusion Cleared	The computer has been opened/The chassis intrusion alert has been cleared.
Corrupt BIOS	The BIOS is corrupted.
Failure to Boot to BIOS	The BIOS did not complete loading upon initiation.
System Password Failure	The system password is invalid (after 3 failed attempts).
Entity Presence	Periodic Heartbeats transmitted to verify computer presence.
Temperature - Too Low/Low/High/Too High/Fault - Non Critical/Fault - Critical	The computer temperature out of limits.
Voltage - Too Low/Too High/Fault	The computer voltage out of limits.
Cooling Device - Speed Low/Speed Too Low/Malfunction/Status Change	The computer fan speed/rpm out of limits.
Ethernet Connectivity Enabled/ Ethernet Connectivity Disabled	The Ethernet Connectivity Enabled/Ethernet Connectivity Disabled.

For more information about Dell's ASF implementation, see the ASF User's Guide and the ASF Administrator's Guide, available on the Dell Support website at support.dell.com.

Dell OpenManage IT Assistant

IT Assistant configures, manages, and monitors computers and other devices on a corporate network. IT Assistant manages assets, configurations, events (alerts), and security for computers equipped with industry-standard management software. It supports instrumentation that conforms to SNMP, DMI, and CIM industry standards.

Dell OpenManage Client instrumentation, which is based on DMI and CIM, is available for your computer. For information on IT Assistant, see the *Dell OpenManage IT Assistant User's Guide* available on the Dell Support website at **support.dell.com**.

Dell OpenManage Client Instrumentation

Dell OpenManage Client Instrumentation is software that enables remote management programs such as IT Assistant to do the following:

- 1 Access information about your computer, such as how many processors it has and what operating system it is running
- 1 Monitor the status of your computer, such as listening for thermal alerts from temperature probes or hard-drive failure alerts from storage devices
- 1 Change the state of your computer, such as updating its BIOS or shutting it down remotely

A managed computer is one that has Dell OpenManage Client Instrumentation set up on a network that uses IT Assistant. For information about Dell OpenManage Client Instrumentation, see the Dell OpenManage Client Instrumentation User's Guide available on the Dell Support website at support.dell.com.

Security

Chassis Intrusion Detection



MOTE: When the setup password is enabled, you must know the setup password before you can reset the Chassis Intrusion setting.

This feature detects that the chassis was opened and alerts the user. To change the Chassis Intrusion setting:

- 1. Enter system setup
- 2. Press the down-arrow keys to move to the System Security option.
- 3. Press <Enter> to access the System Security option's pop-up menu.
- 4. Press the down-arrow key to move to the Chassis Intrusion setting
- 5. Press the spacebar to select an option setting.
- 6. Exit system setup

Option Settings

1 Enabled — If the computer cover is opened, the setting changes to Detected, and the following alert message displays during the boot routine at the

Alert! Cover was previously removed.

To reset the **Detected** setting, enter system setup. In the **Chassis Intrusion** option, press the left- or right-arrow key to select **Reset**, and then choose **Enabled**, **Enabled-Silent**, or **Disabled**.

- 1 Enabled-Silent (default) If the computer cover is opened, the setting changes to Detected. No alert message appears during the boot sequence at the next computer start-up.
- 1 Disabled No intrusion monitoring occurs and no messages appear.

Padlock Ring and Security Cable Slot

Use one of the following methods to secure your computer:

1 Use a padlock alone or a padlock and looped security cable with the padlock ring. For location of the padlock ring, see "Inside Your Computer."

A padlock alone prevents the computer from being opened.

A security cable looped around a stationary object is used in conjunction with a padlock to prevent unauthorized movement of the computer.

1 Attach a commercially available antitheft device to the security cable slot on the back of the computer



MOTE: Before you purchase an antitheft device, ensure that it works with the security cable slot on your computer.

Antitheft devices usually include a segment of metal-stranded cable with an attached locking device and key. A Kensington lock is recommended. The documentation that comes with the locking device contains instructions for installing it.

Password Protection



NOTICE: Although passwords provide security for the data on your computer, they are not foolproof. If your data requires more security, it is your responsibility to obtain and use additional forms of protection, such as data encryption programs

System Password



NOTICE: If you leave your computer running and unattended without having a system password assigned, or if you leave your computer unlocked so that someone can disable the password by changing a jumper setting, anyone can access the data stored on your hard drive

Option Settings

You cannot change or enter a new system password if either of the following two options is displayed:

1 Enabled — A system password is assigned.

Disabled — The system password is disabled by a jumper setting on the system board.

You can only assign a system password when the following option is displayed:

1 Not Enabled — A system password has not been assigned and the password jumper on the system board is in the enabled position (the default).

Assigning a System Password

To escape from the field without assigning a system password, press <Tab> or the <Shift><Tab> key combination to move to another field, or press <Esc> at any time before you complete step 5.

- 1. Enter system setup and verify that Password Status is set to Unlocked.
- 2. Highlight System Password and then press the left- or right-arrow key.

The option heading changes to Enter Password, followed by an empty 32-character field in square brackets.

3. Type your new system password.

You can use up to 32 characters. To erase a character when entering your password, press <Backspace> or the left-arrow key. The password is not case sensitive.

Certain key combinations are not valid. If you enter one of these combinations, the speaker emits a beep.

As you press each character key (or the spacebar for a blank space), a placeholder appears in the field.

4. Press <Enter>.

If the new system password is less than 32 characters, the whole field fills with placeholders. Then the option heading changes to **Verify Password**, followed by another empty 32-character field in square brackets.

5. To confirm your password, type it a second time and press <Enter>.

The password setting changes to Enabled.

6. Exit system setup.

Password protection takes effect when you restart the computer.

Typing Your System Password

When you start or restart your computer, one of the following prompts appears on the screen.

If Password Status is set to Unlocked:

```
Type in the password and - press <ENTER> to leave password security enabled. - press <CTRL><ENTER> to disable password security. Enter password:
```

If Password Status is set to Locked:

Type the password and press <Enter>.

If you have assigned a setup password, the computer accepts your setup password as an alternate system password.

If you type a wrong or incomplete system password, the following message appears on the screen:

```
** Incorrect password. **
```

If you again type an incorrect or incomplete system password, the same message appears on the screen. The third and subsequent times you type an incorrect or incomplete system password, the computer displays the following message:

```
** Incorrect password. **
Number of unsuccessful password attempts: 3
System halted! Must power down.
```

Even after your computer is turned off and on, the previous message is displayed each time you type an incorrect or incomplete system password.

NOTE: You can use Password Status in conjunction with system password and setup password to further protect your computer from unauthorized changes.

Deleting or Changing an Existing System Password

- 1. Enter system setup and verify that Password Status is set to Unlocked
- 2. Restart your computer.
- 3. When prompted, type the system password.
- 4. Press <Ctrl><Enter> to disable the existing system password.
- $5. \quad \text{Confirm that $\textbf{Not Enabled}$ is displayed for the $\textbf{System Password}$ option.}$

If **Not Enabled** is displayed, the system password is deleted. If **Not Enabled** is not displayed, press <Alt> to restart the computer, and then repeat step 3 through step 5.

To assign a new password, follow the procedure in "Assigning a System Password."

6. Exit system setup.

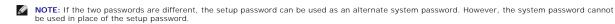
Setup Password

Option Settings

- 1 Enabled Does not allow assignment of setup passwords; you must enter a setup password to make changes to system setup.
- 1 Not Enabled Allows assignment of setup passwords; password feature is enabled but no password is assigned.

Assigning a Setup Password

The setup password can be the same as the system password.



- 1. Enter system setup and verify that Setup Password is set to Not Enabled.
- 2. Highlight Setup Password and press the left- or right-arrow key.

The computer prompts you to type and verify the password. If a character is not permitted, the computer emits a beep.

3. Type and then verify the password.

After you verify the password, the **Setup Password** setting changes to **Enabled**. The next time you enter system setup, the computer prompts you for the setup password.

4. Exit system setup.

A change to Setup Password becomes effective immediately (no need to restart the computer).

Operating Your Computer With a Setup Password Enabled

When you enter system setup, the Setup Password option is highlighted, prompting you to type the password.

If you do not type the correct password, the computer lets you view, but not modify, system setup options.

NOTE: You can use Password Status in conjunction with Setup Password to protect the system password from unauthorized changes.

Deleting or Changing an Existing Setup Password

To change an existing setup password, you must know the setup password.

- 1. Enter system setup
- 2. Type the setup password at the prompt.
- 3. Highlight **Setup Password** and press the left- or right-arrow key to delete the existing setup password.

The setting changes to Not Enabled.

To assign a new setup password, perform the steps in "Assigning a System Password."

4. Exit system setup.

Disabling a Forgotten Password and Setting a New Password

NOTICE: This process erases both the system and setup passwords.

A CAUTION: Before you open the computer cover, follow the safety instructions in the System Information Guide.

- 1. Open the computer cover.
- 2. Remove the jumper plug labeled "PSWD" from the jumper.

See "Jumper Settings" to locate the password jumper.

- 3. Close the computer cover.
- 4. Reconnect your computer and devices to electrical outlets and turn them on.

This disables the existing password(s).

- 5. Enter system setup and verify that Setup Password is set to Disabled.
- 6. Exit system setup.

CAUTION: Before you open the computer cover, follow the safety instructions in the System Information Guide.

- 7. Open the computer cover.
- 8. Replace the PSWD jumper plug.
- 9. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

This reenables the password feature. When you enter system setup, both password options appear as **Not Enabled**—the password feature is enabled but no password is assigned.

10. Assign a new system and/or setup password.

System Setup

Use system setup settings as follows:

- 1 To set user-selectable options such as date and time or system password
- 1 To read the current amount of memory or set the type of hard drive installed

It is recommended that you print the system setup screens (by pressing < Print Screen >) or record the information for future reference.

Before you use system setup, you must know the kind of floppy drive(s) and hard drive(s) installed in your computer. To confirm this information, see the Manufacturing Test Report that came with your computer, or find this information in the online **Dell Accessories** folder.

Entering System Setup

- 1. Turn on or restart your computer.
- 2. When Press <F2> to Enter Setup appears in the upper-right corner of the screen, press <F2> immediately.

NOTE: To ensure an orderly computer shutdown, consult the documentation that came with your operating system.

If you wait too long and the Microsoft® Windows® logo appears, continue to wait until you see the Windows desktop. Then shut down your computer and try again.

System Setup Screens

System setup screens display current configuration information for your computer. Information on the screen is organized into four areas:

- 1 Title —The box at the top of all screens that lists the computer name
- 1 Computer data Two boxes below the title box that display your computer processor, L2 cache, service tag, and the version number of the BIOS
- 1 Options A scrollable box listing options that define the configuration of your computer, including installed hardware, power conservation, and security features

Fields to the right of the option titles contain settings or values. The fields that you can change appear bright on the screen. The fields that you cannot change (because they are set by the computer) appear less bright. When <Enter> appears to the right of an option title, press <Enter> to access a popup menu of additional options.

- 1 Key functions A line of boxes across the bottom of all screens that lists keys and their functions within system setup
 - o <F1> Accesses the System Setup Help
 - o $\,$ <ESC> Exits System Setup

System Setup Navigation Keys

Keys	Action
Tab α ▼	Moves to the next field
Shift Tab	Moves to the previous field
13	
• or •	Cycles through the options in a field. In many fields, you can also type the appropriate value
Page Or Page Up	Scrolls through help information
Enter	Enters the selected field's pop-up options menu
spacebar or	In the selected field's pop-up options menu, cycles through the options in a

e or	_	field
Alt	×	Exits system setup without restarting the computer and returns the computer to the boot routine
Alt	В	Exits system setup and restarts the computer, implementing any changes you have made
Alt		Resets the selected option to the default

Boot Sequence

This feature allows users to change the sequence of devices from which the computer boots.

Option Settings

- 1 Normal (Available only for the current boot process.) The computer attempts to boot from the sequence of devices specified in system setup.
- 1 Diskette Drive The computer attempts to boot from the floppy drive. If the floppy disk in the drive is not bootable, or if no floppy disk is in the drive, the computer generates an error message.
- 1 Hard Drive The computer attempts to boot from the primary hard drive. If no operating system is on the drive, the computer generates an error
- 1 CD Drive The computer attempts to boot from the CD drive. If no CD is in the drive, or if the CD has no operating system, the computer generates an error message.
- 1 MBA (Available only for the future boot process) As the computer boots, it prompts you to press <Ctrl><Alt>. Pressing this key combination causes a menu to display that allows you to select a method for booting from a network server. If a boot routine is not available from the network server, the system attempts to boot from the next device in the boot sequence list.

Changing the Computer Boot Sequence for the Current Boot

You can use this feature, for example, to tell the computer to boot from the CD drive so you can run the Dell Diagnostics, but specify that the computer boots from the hard drive when the diagnostic tests are complete.

- 1. Turn on or restart your computer.
- 2. When F2 = Setup appears in the upper-right corner of the screen, press <Ctrl><Alt><F8>.

If you wait too long and the Microsoft Windows logo appears, continue to wait until you see the Windows desktop. Then shut down your computer and



MOTE: To ensure an orderly computer shutdown, consult the documentation that came with your operating system.

The Boot Device Menu appears, listing all available boot devices. Each device has a number next to it. At the bottom of the menu, enter the number of the device that is to be used for the current boot only

Changing Boot Sequence for Future Boots

- 1. Enter system setup
- 2. Use the arrow keys to highlight the Boot Sequence menu option and press <Enter> to access the pop-up menu.



NOTE: Write down your current boot sequence in case you want to restore it.

- 3. Press the up- and down-arrow keys to move through the list of devices.
- 4. Press the spacebar to enable or disable a device (enabled devices have a checkmark).
- 5. Press plus (+) or minus (-) to move a selected device up or down the list.

System Setup Options

AC Power Recovery - Determines what happens when AC power is restored to the computer

- Off Computer remains off when AC power is restored.
- On Computer starts when AC power is restored.

 Last Computer returns to the AC power state existing at the time that AC power was lost.

Asset Tag - Displays the customer-programmable asset tag number for the computer if an asset tag number is assigned

Auto Power On — Sets time and days of week to turn on the computer automatically. Choices are every day or every Monday through

Time is kept in a 24-hour format (hours: minutes). Change the start-up time by pressing the right- or left-arrow keys to increase or to decrease the numbers or type numbers in both the date and time fields.

Disabled is the default.

This feature does not work if you turn off your computer using a power strip or surge protector

CPU ID — Manufacturer's identification code for the installed microprocessor

CPU Information

1 CPU Speed - Processor speed at which the computer boots

Press the left- or right-arrow key to toggle the CPU Speed option between the resident microprocessor's rated speed (the default) and a lower compatibility speed. A change to this option takes effect immediately (no restart is necessary).

To toggle between the rated processor speed and the compatibility speed while the computer is running in real mode, press <Ctrl><Alt><\>. (For keyboards that do not use American English, press <Ctrl><Alt><#>.)

1 Bus Speed - Speed of the microprocessor's system bus

NOTE: The front side bus speed may appear as 133MHz, but due to Quad pumped architecture the effective speed is 533MHz.

- Processor ID Manufacturer's identification code(s) for the installed microprocessor
- Clock Speed Core speed at which the microprocessor(s) operates
- Cache Size Size of the microprocessor's L2 cache

 Hyper-Threading Enables or disables Hyper-Threading technology for operating systems that support this feature. The default setting is Disabled.

Diskette Drive A — Type of floppy drive(s) installed in the computer. With the standard cabling configuration, Diskette Drive A (the boot floppy drive) is the 3.5-inch floppy drive installed in the top externally accessible drive bay. The two options are 3.5 Inch, 1.44 MB, and Not Installed.

Tape drives are not reflected in the Diskette Drive A option. For example, if a single floppy drive and a tape drive are attached to the floppy drive interface cable, set Diskette Drive A to 3.5 Inch, 1.44 MB.

Fastboot

- On (default) Your computer boots in 10 seconds or less, skipping certain configurations and tests
- Off Your computer does not skip certain configurations and tests during the boot process

Integrated Devices - Configures the following devices integrated with the system board:

- Sound Settings are On (default) or Off.

 USB Controller Settings are On or Off.

 Network Interface Controller Settings are On (default), Off, or On w/ MBA. Settings for On w/ MBA are PXE, RPL, BootP, or
- NetWare as the active boot mode.

 Mouse Port Settings are On or Off.
- Serial Port 1 and Serial Port 2 Settings are Off and Auto (default).
 - o Auto automatically configures a connector to a particular designation (COM1 or COM3 for Serial Port 1; COM2 or COM4 for Serial Port 2).

If you set a serial connector to Auto and add a card containing a connector configured to the same designation, the computer automatically remaps the integrated port to the next available connector designation that shares the same IRQ setting as follows:

COM1 (I/O address 3F8h), which shares IRQ4 with COM3, is remapped to COM3 (I/O address 3E8h).

COM2 (I/O address 2F8h), which shares IRQ3 with COM4, is remapped to COM4 (I/O address 2E8h),

NOTE: When two COM connectors share an IRQ setting, you can use either connector as necessary, but you may not be able to use them both at the same time. If you are running the Microsoft Windows 95 or IBM® OS/2® operating system, you cannot use both serial connectors at the same time. If the second connector (COM3 or COM4) is also in use, the integrated connector is turned off.

Parallel Port — The settings are Mode, I/O Address, and DMA Channel

Mode settings are PS/2, EPP, ECP, AT, or Off. Set the Mode option according to the type of device connected to the parallel connector. To determine the correct mode to use, see the documentation that came with the device.

I/O Address settings are 378h (default), 278h, or 3BCh. The settings are not available when Mode is set to Off.

NOTE: You cannot set the parallel connector to 3BCh if Mode is set to EPP

DMA Channel appears only when Mode is set to ECP. Settings are DMA 1, DMA 3, or Off.

I IDE Drive Interface — The settings are Off and Auto (default).

Auto turns off the IDE interface when necessary to accommodate a controller card installed in an expansion slot.

Diskette Interface — The settings are Auto (default), Read Only, and Off.

Auto turns off the integrated floppy drive controller when necessary to accommodate a controller card installed in an expansion slot.

Read Only prevents the computer's integrated floppy drive controller from writing to floppy drives and activates Auto

- USB Emulation Settings are On and Off.
 Primary Video Controller settings are Auto and AGP (default).

Auto — If only an AGP card is installed, the computer uses the AGP card; if only a PCI card is installed, the computer uses the PCI card; if both AGP and PCI cards are installed, the computer uses the PCI card to boot.

AGP (default) — The computer uses the AGP card.

Video DAC Snoop — The settings are Off (default) and On.

On corrects video problems such as incorrect colors or blank windows that may occur when you use certain video cards.

Keyboard NumLock — The settings are On and Off (does not apply to 84-key keyboards).

On — Activates the rightmost bank of keys so they provide the mathematical and numeric functions shown at the top of each key.

Off — Activates the rightmost bank of keys so they provide cursor-control functions shown by the label on the bottom of each key.

Memory Information -

Indicates amount of installed memory, computer memory speed, and AGP size

PCLIRQ Assignment — Specifies which IRQ lines are assigned to the PCI devices installed in the computer

Press <Enter> and then select the device whose IRQ line you want to change, and press the plus (+) or minus (-) key to scroll through the available IRQ lines.

Primary Drive n and Secondary Drive n — The settings are Auto (use this setting for all IDE devices from Dell) and Off.

Primary Drive n identifies drives attached to the primary IDE interface connector (labeled "IDE1") on the system board.

Secondary Drive n identifies drives connected to the secondary IDE interface connector (labeled "IDE2").

NOTE: You must have an IDE device connected to the primary IDE interface if you have an IDE device connected to the secondary IDE

If You Have a Problem

If the computer generates a drive error message the first time you boot your computer after you install an IDE drive, your drive may not work with the automatic drive-type detect feature. Press <Alt><d> in any hard drive field to set the hard drive autoconfiguration feature.

During POST the computer scans the IDE channels for supported devices and generates a summary message. For example, if the computer detects that a hard drive is connected to the Primary channel and that a CD drive is connected to the Secondary channel, it generates the

Performing automatic IDE configuration...

Primary Master: TDE Disk Drive

Secondary Master: CD-ROM Reader

If the computer detects a device during the scan, it sets the device to Auto in system setup. If no device is listed, it sets the device setting to

If your computer does not reset after you perform these steps, enter system setup and reset the computer to its original factory settings:

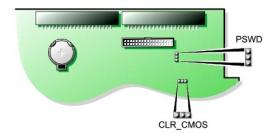
- Restart your computer.
- 2. As the computer restarts, press <F2> to enter system setup.
 3. When the system setup screen appears, press <Alt><F> to load the default settings.

The computer beeps when the settings are restored.

- Verify that the time, date, and year are correct and that the Secondary Drive 0 option is set to Auto.
 Press <Esc> and then press <Enter> to save your changes and exit.

The computer restarts

Jumper Settings



NOTICE: Ensure that your computer is turned off and unplugged before you change the jumper settings. Otherwise, damage to your computer or unpredictable results can occur.

To change a jumper setting, pull the plug off its pin(s) and carefully fit it down onto the pin(s) indicated.

Jumper	Setting	Description
PSWD	000	Password features are enabled
	000	Password features are disabled
	(default)	
CLR_CMOS	000	Clears the CMOS settings
	(default)	Normal CMOS function
jumpered unjumpered		

Power Button

NOTICE: To turn off your computer, perform an orderly computer shutdown when possible.

You can use the ACPI feature to configure the function of the Microsoft Windows 2000 and Windows XP operating systems.

Power Button Functions for Windows 2000 and Windows XP with ACPI Enabled

Action	Results		
	Computer Turned On and ACPI Enabled	Computer in Standby Mode	Computer Turned Off
Press power button	Computer goes into standby mode or turns off (depending on the operating system setup)	Computer turns on	Boots and computer turns on
Hold power button for 6 seconds*	Computer turns off	Computer turns off	Boots and computer turns on

NOTE: Pressing or holding the power button to shut down the computer may result in data loss. Use the power button to shut down the computer only if the operating system is not responding.

Power Button Functions for Windows 2000 and Windows XP with ACPI Disabled

Action	Results		
	Computer Turned On and ACPI Disabled	Computer in Suspend Mode	Computer Turned Off
Press power button	Computer turns off immediately	Computer turns off immediately	Boots and computer turns on
Hold power button for 6 seconds*	Computer turns off	Computer turns off	Boots and computer turns on

NOTE: Pressing or holding the power button to shut down

the computer may result in data loss. Use the power button to shut down the computer only if the operating system is not responding.

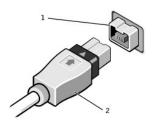
Hung Computer

If the computer does not turn off when you press the power button, the computer may be hung. Press and hold the power button until the computer turns off completely (this process may take several seconds). If the computer is hung and the power button fails to function properly, unplug the AC power cable from the computer, wait for the computer to completely stop running, and plug in the AC power cable. If the computer does not restart, press the power button to restart the computer.

Connecting an IEEE 1394 Device

IEEE 1394 is a digital interface that can move large amounts of data between computers and peripheral devices. IEEE 1394 is ideal for use with multimedia devices because it speeds the transfer of data and large files, which enables a computer to connect directly to devices such as digital video cameras.

Your computer provides a standard IEEE 1394 connector as an add-in card. For information on adding a card, see "Installing a Card."



|--|

2 IEEE 1394 cable

TAPI



NOTE: See the documentation that came with the TAPI-compliant card for more information on using TAPI devices and to verify that the card works with

Your computer supports TAPI-compliant modem cards using the standard TAPI connector (the green connector labeled MODEM or TELEPHONY). If your modem supports voice features, you can connect your modem to the TAPI connector and then use your audio speakers and microphone as an answering machine or speakerphone. The microphone carries your voice into the computer and then through the TAPI system board connector to your modem card. The caller's voice enters through the modem card to the TAPI system board connector and then out to the speakers. You can also use this configuration to record and play audio files over the telephone by using third-party software.



ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

Installing a TAPI-Compliant Modem Card

- 1. Shut down the computer through the Start menu
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 3. Disconnect any telephone or telecommunication lines from the computer.
- 4. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 5. Open the computer cover
- 6. Install the TAPI-compliant modem card:
 - a. Connect the 4-pin TAPI cable to the TAPI system board connector
 - To locate the TAPI connector on the system board, see "System Board Components."
 - b. Connect the other end of the cable to the TAPI connector on the modem card.
 - To locate the TAPI connector on the card, see the documentation for the card.
- Close the computer cover.
- 8. Reconnect the computer and devices to electrical outlets, and turn them on.

9. Install the appropriate modern driver and voice program.

For more information, see the manufacturer's documentation and your Microsoft® Windows® documentation.

Installing a TAPI Sound Card

You can connect your modem to a TAPI-compliant sound card connector (typically labeled TAD) and then use the audio capabilities as a speakerphone.

- 1. Shut down the computer through the Start menu.
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 3. Disconnect any telephone or telecommunication lines from the computer.
- 4. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 5. Open the computer cover.
- 6. Install the TAPI-compliant sound card.
- 7. Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the front or back panel of your computer.
- 8. Connect the 4-pin TAPI cable to the TAPI sound card connector.

To locate the TAPI connector on the sound card, see the documentation for the card,

9. Connect the other end of the cable to the TAPI connector on the modem card.

To locate the TAPI connector on the card, see the documentation for the card.

- 10. Close the computer cover
- 11. Reconnect the computer and devices to electrical outlets, and turn them on.
- 12. Enter system setup, click Integrated Devices, and change the setting for Sound to Off.
- 13. Install the appropriate drivers for the new devices.

For more information, see the manufacturer's documentation and your Windows documentation.

Hyper-Threading

Hyper-Threading is an Intel® technology that can enhance overall performance by allowing one physical microprocessor to function as two logical microprocessors, capable of performing certain tasks simultaneously. It is recommended that you use the Windows XP operating system because Windows XP is optimized to take advantage of Hyper-Threading technology. While many programs can benefit from Hyper-Threading technology, some programs have not been optimized for Hyper-Threading and may require an update from the software manufacturer. Contact the software manufacturer for updates and information on using your software with Hyper-Threading.



NOTE: Hyper-Threading is supported only on computers that have 3.06-GHz (or higher) microprocessors installed

To determine if your computer is using Hyper-Threading technology:

- 1. Click the Start button, right-click My Computer, and then click Properties.
- 2. Click Hardware and click Device Manager
- 3. In the Device Manager window, click the plus (+) sign next to the processor type. If Hyper-Threading is enabled, the processor is listed twice.

You can enable or disable Hyper-Threading through system setup. For more information on Hyper-Threading, search the Knowledge Base on the Dell Support website at support.dell.com

Battery

Dell Precision™ Workstation 350 User's Guide



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

A coin-cell battery maintains computer configuration, date, and time information. The battery can last several years.

The battery may need replacing if you have repeatedly reset the time and date information after turning on the computer or if one of the following messages

Time-of-day not set - please run SETUP program

Invalid configuration information please run SETUP program

Strike the F1 key to continue. F2 to run the setup utility

To determine whether you need to replace the battery, reenter the time and date in system setup and exit the program to save the information. Turn off your computer and disconnect it from the electrical outlet for a few hours; then reconnect the computer, turn it on, and enter system setup. If the date and time are not correct in system setup, replace the battery.

You can operate your computer without a battery; however, without a battery, the configuration information is erased if the computer is turned off or unplugged from the electrical outlet. In this case, you must enter system setup and reset the configuration options.

CAUTION: A new battery can explode 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.

To replace the battery:

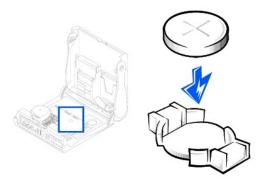
NOTE: If you have not already done so, make a copy of your configuration information, found in system setup.

- 1. Shut down the computer through the Start menu.
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 3. Disconnect any telephone or telecommunication lines from the computer.
- 4. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 5. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

↑ CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

- 6. Open the computer cover. 7. Locate the battery socket labeled BATTERY
- NOTICE: If you pry the battery out of its socket with a blunt object, be careful not to touch the system board with the object. Ensure that the object is inserted between the battery and the socket before you attempt to pry out the battery. Otherwise, you may damage the system board by prying off the socket or by breaking circuit traces on the system board.
- 8. Remove the battery by carefully prying it out of its socket with your fingers or with a blunt, nonconducting object such as a plastic screwdriver.
- 9. Insert the new battery into the socket with the side labeled "+" facing up, and snap the battery into place.



- NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.
- 10. <u>Close the computer cover</u>, and plug your computer and devices into electrical outlets.
- ${\bf 11.} \quad \underline{\textbf{Enter system setup}} \text{ and restore the settings you recorded before beginning this procedure}.$
- 12. Properly dispose of the old battery. For more information see your *System Information Guide*.

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Cleaning Your Computer

Dell Precision™ Workstation 350 User's Guide

- Before Cleaning Your Computer
- Omputer, Keyboard, and Monitor
- Mouse
- Floppy Drive
- CDs and DVDs

Before Cleaning Your Computer



ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

- 1. Shut down the computer through the Start menu.
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 3. Disconnect any telephone or telecommunication lines from the computer.
- 4. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.

Computer, Keyboard, and Monitor

- 1 Use a vacuum cleaner with a brush attachment to remove dust from the slots and holes on your computer and between the keys on the keyboard.
- NOTICE: Do not wipe the monitor screen with any soap or alcohol solution. Doing so may damage the antiglare coating.
 - 1 To clean your monitor screen, lightly dampen a soft, clean cloth with water. If possible, use a special screen-cleaning tissue or solution suitable for the
 - 1 Wipe the keyboard, computer, and plastic part of the monitor with a soft cleaning cloth moistened with a solution of three parts water and one part liquid dishwashing detergent. Wipe off stubborn stains with a cloth lightly moistened with isopropyl alcohol.

Do not soak the cloth in the solution or let the solution drip inside your computer or keyboard

Mouse

If your screen cursor skips or moves abnormally, clean the mouse. To clean a non-optical mouse:

- 1. Turn the retainer ring on the underside of your mouse counterclockwise, and then remove the ball.
- 2. Wipe the ball with a clean, lint-free cloth.
- 3. Blow carefully into the ball cage to dislodge dust and lint.
- 4. If there is a buildup of dirt on the rollers inside the ball cage, clean the rollers with a cotton swab moistened lightly with isopropyl alcohol.
- 5. Recenter the rollers in their channels if they are misaligned. Ensure that fluff from the swab is not left on the rollers.
- 6. Replace the ball and retainer ring. Turn the retainer ring clockwise until it clicks into place.

Floppy Drive



NOTICE: Do not attempt to clean drive heads with a swab. You might accidentally misalign the heads, which prevents the drive from operating.

Clean your floppy drive using a commercially available cleaning kit. These kits contain pretreated floppy disks to remove contaminants that accumulate during

CDs and DVDs

- 1. Hold the disc by its outer edge. It is okay to touch the inside edge of the center hole.
- NOTICE: To prevent damaging the surface, do not wipe in a circular motion around the disc.
- 2. With a soft, lint-free cloth, gently wipe the bottom of the disc (the unlabeled side) in a straight line from the center to the outer edge of the disc.

For stubborn dirt, try using water or a diluted solution of water and mild soap. You can also purchase commercial products that clean discs and provide some protection from dust, fingerprints, and scratches. Cleaning products for CDs are safe to use on DVDs.

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Contacting Dell

Dell Precision™ Workstation 350 User's Guide

To contact Dell electronically, you can access the following websites:

- 1 www.dell.com
- 1 support.dell.com (technical support)
- 1 premiersupport.dell.com (technical support for educational, government, healthcare, and medium/large business customers, including Premier, Platinum, and Gold customers)

For specific web addresses for your country, find the appropriate country section in the table below.

NOTE: Toll-free numbers are for use within the country for which they are listed.

When you need to contact Dell, use the electronic addresses, telephone numbers, and codes provided in the following table. If you need assistance in determining which codes to use, contact a local or an international operator.

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
Anguilla	General Support	toll-free: 800-335-0031
Antigua and Barbuda	General Support	1-800-805-5924
Argentina (Buenos Aires)	Website: www.dell.com.ar	
International Access Code: 00	Tech Support and Customer Care	toll-free: 0-800-444-0733
	Sales	0-810-444-3355
Country Code: 54	Tech Support Fax	11 4515 7139
City Code: 11	Customer Care Fax	11 4515 7138
Aruba	General Support	toll-free: 800-1578
Australia (Sydney)	E-mail (Australia): au_tech_support@dell.com	
International Access Code:	E-mail (New Zealand): nz_tech_support@dell.com	
0011	Home and Small Business	1-300-65-55-33
Country Code: 61	Government and Business	toll-free: 1-800-633-559
Country Code. C1	Preferred Accounts Division (PAD)	toll-free: 1-800-060-889
City Code: 2	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)	Website: support.euro.dell.com	
International Access Code: 900	E-mail: tech_support_central_europe@dell.com	
International Access code. 400	Home/Small Business Sales	0820 240 530 00
Country Code: 43	Home/Small Business Fax	0820 240 530 49
City Code: 1	Home/Small Business Customer Care	0820 240 530 14
	Preferred Accounts/Corporate Customer Care	0820 240 530 16
	Home/Small Business Technical Support	0820 240 530 14
	Preferred Accounts/Corporate Technical Support	0660 8779
	Switchboard	0820 240 530 00
Bahamas	General Support	toll-free: 1-866-278-6818
Barbados	General Support	1-800-534-3066
Belgium (Brussels)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: tech_be@dell.com	
Country Code: 32	E-mail for French Speaking Customers: support.euro.dell.com/be/fr/emaildell/	
	Technical Support	02 481 92 88
City Code: 2	Customer Care	02 481 91 19
	Corporate Sales	02 481 91 00
	Fax	02 481 92 99
	Switchboard	02 481 91 00
Bermuda	General Support	1-800-342-0671
Bolivia	General Support	toll-free: 800-10-0238

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Brazil	Website: www.dell.com/br	
International Access Code: 00	Customer Support, Technical Support	0800 90 3355
Country Code: 55	Tech Support Fax	51 481 5470
, and the second	Customer Care Fax	51 481 5480
City Code: 51	Sales	0800 90 3390
British Virgin Islands	General Support	toll-free: 1-866-278-6820
Brunei	Customer Technical Support (Penang, Malaysia)	604 633 4966
Country Code: 673	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales (Penang, Malaysia)	604 633 4955
Canada (North York, Ontario)	Online Order Status: www.dell.ca/ostatus	
International Access Code: 011	AutoTech (automated technical support)	toll-free: 1-800-247-9362
	TechFax	toll-free: 1-800-950-1329
	Customer Care (Home Sales/Small Business)	toll-free: 1-800-847-4096
	Customer Care (med./large business, government)	toll-free: 1-800-326-9463
	Technical Support (Home Sales/Small Business)	toll-free: 1-800-847-4096
	Technical Support (med./large bus., government)	toll-free: 1-800-387-5757
	Sales (Home Sales/Small Business)	toll-free: 1-800-387-5752
	Sales (med./large bus., government)	toll-free: 1-800-387-5755
Course and Indianal	Spare Parts Sales & Extended Service Sales	1 866 440 3355
Cayman Islands	General Support	1-800-805-7541
Chile (Santiago)	Sales, Customer Support, and Technical Support	toll-free: 1230-020-4823
Country Code: 56		
City Code: 2		
China (Xiamen)	Tech Support website: support.ap.dell.com/china	
	Tech Support E-mail: cn_support@dell.com	
Country Code: 86	Tech Support Fax	818 1350
City Code: 592	Home and Small Business Technical Support	toll-free: 800 858 2437
	Corporate Accounts Technical Support	toll-free: 800 858 2333
	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 GCP	toll-free: 800 858 2055
	Large Corporate Accounts Key Accounts	toll-free: 800 858 2628
	Large Corporate Accounts North	toll-free: 800 858 2999
	Large Corporate Accounts North Government and Education	toll-free: 800 858 2955
	Large Corporate Accounts East	toll-free: 800 858 2020
	Large Corporate Accounts East Government and Education	toll-free: 800 858 2669
	Large Corporate Accounts Queue Team	toll-free: 800 858 2572
	Large Corporate Accounts South	toll-free: 800 858 2355
	Large Corporate Accounts West	toll-free: 800 858 2811
	Large Corporate Accounts Spare Parts	toll-free: 800 858 2621
Colombia	General Support	980-9-15-3978
Costa Rica	General Support	0800-012-0435
Czech Republic (Prague)	Website: support.euro.dell.com	
International Access Code: 22	E-mail: czech_dell@dell.com	
International Access Code: 00	Technical Support	02 2186 27 27
Country Code: 420	Customer Care	02 2186 27 11
City Code: 2	Fax	02 2186 27 14
-	TechFax	02 2186 27 28
	Switchboard	02 2186 27 11
Denmark (Copenhagen)	Website: support.euro.dell.com	
	E mail Cunnert (nortable computers), den phi cunnert@dell.com	
International Assess 0 1 55	E-mail Support (portable computers): den_nbk_support@dell.com	
International Access Code: 00	E-mail Support (desktop computers): den_nbk_support@dell.com	
International Access Code: 00 Country Code: 45		
	E-mail Support (desktop computers): den_support@dell.com	7023 0182
	E-mail Support (desktop computers): den_support@dell.com E-mail Support (servers): Nordic_server_support@dell.com Technical Support	
	E-mail Support (desktop computers): den_support@dell.com E-mail Support (servers): Nordic_server_support@dell.com	7023 0182 7023 0184 3287 5505

	Fax Switchboard (Relational)	3287 1201
	Switchboard (Home/Small Business)	3287 5000
	Fax Switchboard (Home/Small Business)	3287 5001
Dominica	General Support	toll-free: 1-866-278-6821
Dominican Republic	General Support	1-800-148-0530
Ecuador	General Support	toll-free: 999-119
El Salvador	General Support	01-899-753-0777
Finland (Helsinki)	Website: support.euro.dell.com	01-077-753-0777
Tillana (Heisinki)	E-mail: fin_support@dell.com	
International Access Code: 990	''	
Country Code: 358	E-mail Support (servers): Nordic_support@dell.com Technical Support	09 253 313 60
	Technical Support Fax	09 253 313 80
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
France (Paris) (Montpellier)	Website: support.euro.dell.com	09 233 313 00
rrance (rans) (Montpeller)	E-mail: support.euro.dell.com/fr/fr/emaildell/	
International Access Code: 00	Home and Small Business	
Country Code: 33	Technical Support	0825 387 270
•	Customer Care	0825 387 270
City Codes: (1) (4)	Switchboard	0825 823 833
	Switchboard (calls from outside of France)	04 99 75 40 00
	Sales	0825 004 700
	Fax	0825 004 701
	Fax (calls from outside of France)	04 99 75 40 01
	Corporate	0035 004 740
	Technical Support	0825 004 719
	Customer Care	0825 338 339
	Switchboard	01 55 94 71 00
	Sales Fax	01 55 94 71 00
Germany (Langen)	Website: support.euro.dell.com	01 55 94 71 01
Cermany (Langen)	E-mail: tech_support_central_europe@dell.com	
International Access Code: 00	Technical Support	06103 766-7200
Country Code: 49	Home/Small Business Customer Care	0180-5-224400
City Carley (102	Global Segment Customer Care	06103 766-9570
City Code: 6103	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
Greece	Website: support.euro.dell.com	00103 708-7000
Ol cece	E-mail: support.euro.dell.com/gr/en/emaildell/	
International Access Code: 00	Technical Support	080044149518
Country Code: 30	Gold Technical Support	080044149518
*	Switchboard	
	Sales	2108129800
Granada	Fax Coporal Support	2108129812
Grenada	General Support	toll-free: 1-866-540-3355
Guatemala	General Support	1-800-999-0136
Guyana	General Support	toll-free: 1-877-270-4609
Hong Kong	Website: support.ap.dell.com	+
International Access Code: 001	E-mail: ap_support@dell.com	201-1-1-1
Country Code: 852	Technical Support (Dimension™ and Inspiron™)	296 93188
Southly Soute. UJZ	Technical Support (OptiPlex™, Latitude™, and Dell Precision™)	296 93191
	Customer Service (non-technical, post-sales issues)	800 93 8291
	Transaction Sales	toll-free: 800 96 4109
	Large Corporate Accounts HK	toll-free: 800 96 4108
	Large Corporate Accounts GCP HK	toll-free: 800 90 3708

India	Technical Support	1600 33 8045
	Sales	1600 33 8044
Ireland (Cherrywood)	Website: support.euro.dell.com	
International Access Code: 16	E-mail: dell_direct_support@dell.com	
international Access code. 10	Ireland Technical Support	1850 543 54
Country Code: 353	U.K. Technical Support (dial within U.K. only)	0870 908 080
City Code: 1	Home User Customer Care	01 204 401
	Small Business Customer Care	01 204 401
	U.K. Customer Care (dial within U.K. only)	0870 906 001
	Corporate Customer Care	1850 200 98
	Corporate Customer Care(dial within U.K. only)	0870 907 449
	Ireland Sales	01 204 444
	U.K. Sales (dial within U.K. only)	0870 907 400
	Fax/SalesFax	01 204 010
	Switchboard	01 204 444
taly (Milan)	Website: support.euro.dell.com	
nternational Access Code: 00	E-mail: support.euro.dell.com/it/it/emaildell/	
	Home and Small Business	
Country Code: 39	Technical Support	02 577 826 9
City Code: 02	Customer Care	02 696 821 1
	Fax	02 696 821 1
	Switchboard	02 696 821 1
	Corporate	
	Technical Support	02 577 826 9
	Customer Care	02 577 825 5
	Fax	02 575 035 3
	Switchboard	02 577 821
Jamaica	General Support (dial from within Jamaica only)	1-800-682-363
Japan (Kawasaki)	Website: support.jp.dell.com	
nternational Access Code: 001	Technical Support (servers)	toll-free: 0120-198-49
	Technical Support outside of Japan (servers)	81-44-556-416
Country Code: 81	Technical Support (Dimension™ and Inspiron™)	toll-free: 0120-198-22
City Code: 44	Technical Support outside of Japan (Dimension and Inspiron)	81-44-520-143
	Technical Support (Dell Precision™, OptiPlex™, and Latitude™)	toll-free: 0120-198-43
	Technical Support outside of Japan (Dell Precision, OptiPlex, and Latitude)	81-44-556-389
	Faxbox Service	044-556-349
	24-Hour Automated Order Service	044-556-380
	Customer Care	044-556-424
	Business Sales Division (up to 400 employees)	044-556-146
	Preferred Accounts Division Sales (over 400 employees)	044-556-343
	Large Corporate Accounts Sales (over 3500 employees)	044-556-343
	Public Sales (government agencies, educational institutions, and medical institutions)	044-556-146
	Global Segment Japan	044-556-346
	Individual User	044-556-176
	Switchboard	044-556-430
Korea (Seoul)	Technical Support	toll-free: 080-200-380
	Sales	toll-free: 080-200-360
International Access Code: 001	Customer Service (Seoul, Korea)	toll-free: 080-200-380
Country Code: 82	Customer Service (Penang, Malaysia)	604 633 494
City Code: 2	Fax	2194-620
, oode. 2	Switchboard	2194-600
_atin America	Customer Technical Support (Austin, Texas, U.S.A.)	512 728-409
. 	Customer Service (Austin, Texas, U.S.A.)	512 728-361
	Fax (Technical Support and Customer Service) (Austin, Texas, U.S.A.)	512 728-388
	Sales (Austin, Texas, U.S.A.)	512 728-338
	SalesFax (Austin, Texas, U.S.A.)	512 728-460
		or 512 728-3772

	E-mail: tech_be@dell.com	1
International Access Code: 00	Technical Support (Brussels, Belgium)	3420808075
Country Code: 352	Home/Small Business Sales (Brussels, Belgium)	toll-free: 080016884
	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
Macao	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	Customer Technical Support	001-877-384-8979
International Access Code: 00		or 001-877-269-3383
Country Code F2	Sales	50-81-8800
Country Code: 52		or 01-800-888-3355
	Customer Service	001-877-384-8979
	Customer Service	
		or 001-877-269-3383
	Main	50-81-8800
		or 01-800-888-3355
Montserrat	General Support	toll-free: 1-866-278-6822
Netherlands Antilles	General Support	001-800-882-1519
Netherlands (Amsterdam)	Website: support.euro.dell.com	
International Access Code: 00	E-mail (Technical Support):	
Country Code: 31	(Enterprise): nl_server_support@dell.com	
City Code: 20	(Latitude): nl_latitude_support@dell.com	
	(Inspiron): nl_inspiron_support@dell.com	
	(Dimension): nl_dimension_support@dell.com	
	(OptiPlex): nl_optiplex_support@dell.com	
	(Dell Precision): nl_workstation_support@dell.com	200 574 45 00
	Technical Support	020 674 45 00
	Technical Support Fax	020 674 47 66
	Home/Small Business Customer Care	020 674 42 00
	Relational Customer Care Home/Small Business Sales	020 674 4325 020 674 55 00
	Relational Sales	020 674 50 00
	Home/Small Business Sales Fax	020 674 30 00
	Relational Sales Fax	020 674 47 79
	Switchboard	020 674 50 00
	Switchboard Fax	020 674 47 50
New Zealand	E-mail (New Zealand): nz_tech_support@dell.com	
	E-mail (Australia): au_tech_support@dell.com	
International Access Code: 00	Home and Small Business	0800 446 255
Country Code: 64	Government and Business	0800 444 617
	Sales	0800 441 567
	Fax	0800 441 566
	Connect Street	001-800-220-1006
Nicaragua	General Support	
Nicaragua Norway (Lysaker)	Website: support.euro.dell.com	
Norway (Lysaker)	Website: support.euro.dell.com	

I	nor_support@dell.com	1
	E-mail Support (servers):	
	nordic_server_support@dell.com	
	Technical Support	671 16882
	Relational Customer Care	671 17514
	Home/Small Business Customer Care	23162298
	Switchboard	671 16800
_	Fax Switchboard	671 16865
Panama	General Support	001-800-507-0962
Peru (Wassan)	General Support	0800-50-669
Poland (Warsaw)	Website: support.euro.dell.com	
International Access Code: 011	E-mail: pl_support@dell.com	F7 0F 700
Country Code: 48	Customer Service Phone	57 95 700
	Customer Care	57 95 999
City Code: 22	Sales Customer Service Fax	57 95 999 57 95 806
	Reception Desk Fax	57 95 998
Portugal	Switchboard Website: support ours dell com	57 95 999
Portugal	Website: support.euro.dell.com	1
International Access Code: 00	E-mail: support.euro.dell.com/pt/en/emaildell/	707200149
Country Code: 351	Technical Support Customer Care	
	Sales	800 300 413 800 300 410 or 800 300 411 or
	Sales	800 300 410 or 800 300 411 or 800 300 412 or 21 422 07 10
	Fax	21 424 01 12
Puerto Rico	General Support	1-800-805-7545
St. Kitts and Nevis	General Support	toll-free: 1-877-441-4731
St. Lucia	General Support	1-800-882-1521
St. Vincent and the Grenadines	General Support	toll-free: 1-877-270-4609
Singapore (Singapore)	Technical Support	toll-free: 800 6011 051
International Access Code: 005	Customer Service (Penang, Malaysia)	604 633 4949
	Transaction Sales	toll-free: 800 6011 054
Country Code: 65	Corporate Sales	toll-free: 800 6011 053
South Africa (Johannesburg)	Website: support.euro.dell.com	
International Access Code:	E-mail: dell_za_support@dell.com	
	Technical Support	011 709 7710
09/091	Customer Care	011 709 7707
Country Code: 27	Sales	011 709 7700
City Code: 11	Fax	011 706 0495
City code. 11	Switchboard	011 709 7700
Southeast Asian and Pacific Countries	Customer Technical Support, Customer Service, and Sales (Penang, Malaysia)	604 633 4810
Spain (Madrid)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: support.euro.dell.com/es/es/emaildell/	
	Home and Small Business	
Country Code: 34	Technical Support	902 100 130
City Code: 91	Customer Care	902 118 540
	Sales	902 118 541
	Switchboard	902 118 541
	Fax	902 118 539
	Corporate	
	Technical Support	902 100 130
	Customer Care	902 118 546
	Switchboard	91 722 92 00
	Fax	91 722 95 83
Sweden (Upplands Vasby)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: swe_support@dell.com	
	E-mail Support for Latitude and Inspiron:	
Country Code: 46	Swe-nbk_kats@dell.com	

City Code: 8	E-mail Support for OptiPlex: Swe_kats@dell.com	
only code. C	E-mail Support for Servers: Nordic_server_support@dell.com	
	Technical Support	08 590 05 19
	Relational Customer Care	08 590 05 642
	Home/Small Business Customer Care	08 587 70 527
	Employee Purchase Program (EPP) Support	20 140 14 44
	Fax Technical Support	08 590 05 594
	Sales	08 590 05 185
Switzerland (Geneva)	Website: support.euro.dell.com	
International Access Code: 00	E-mail: swisstech@dell.com	
Country Code 44	E-mail for French-speaking HSB and Corporate Customers: support.euro.dell.com/ch/fr/emaildell/	
Country Code: 41	Technical Support (Home and Small Business)	0844 811 411
City Code: 22	Technical Support (Corporate)	0844 822 844
	Customer Care (Home and Small Business)	0848 802 202
	· · · · · · · · · · · · · · · · · · ·	0848 821 721
	Customer Care (Corporate) Fax	022 799 01 90
T-1	Switchboard	022 799 01 01
Taiwan	Technical Support (portable and desktop computers)	toll-free: 00801 86 1011
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 Service (Penang, Malaysia)	604 633 4949
Country Code: 66	Sales	toll-free: 0880 060 09
Trinidad/Tobago	General Support	1-800-805-8035
Turks and Caicos Islands	General Support	toll-free: 1-866-540-3355
U.K. (Bracknell)	Website: support.euro.dell.com	
International Access Code: 00	Customer Care website: support.euro.dell.com/uk/en/ECare/Form/Home.asp	
0 1 0 1 11		
Country Code: 44		
	E-mail: dell_direct_support@dell.com	
Country Code: 44 City Code: 1344	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees])	
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general)	0870 908 0800
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care	0870 908 0800 01344 373 186
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general)	0870 908 0800 01344 373 186
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care	0870 908 0800 01344 373 186 0870 906 0010
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500-5000 employees) Customer Care	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500–5000 employees) Customer Care Central Government Customer Care	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 199
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500–5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 199
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500–5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 194 0870 907 4000
	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500–5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care Home and Small Business Sales	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 194 0870 907 4000 01344 860 456
City Code: 1344	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500-5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care Home and Small Business Sales Corporate/Public Sector Sales	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 194 0870 907 4000 01344 860 456 toll-free: 000-413-598-2521
Uruguay U.S.A. (Austin, Texas)	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500-5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care Home and Small Business Sales Corporate/Public Sector Sales General Support	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 194 0870 907 4000 01344 860 456 toll-free: 000-413-598-2521 toll-free: 1-800-433-9014
City Code: 1344	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500-5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care Home and Small Business Sales Corporate/Public Sector Sales General Support Automated Order-Status Service	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 194 0870 907 4000 01344 860 456 toll-free: 000-413-598-2521 toll-free: 1-800-433-9014
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Uruguay U.S.A. (Austin, Texas) International Access Code: 011	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500–5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care Home and Small Business Sales Corporate/Public Sector Sales General Support Automated Order-Status Service AutoTech (portable and desktop computers) Consumer (Home and Home Office)	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 195 01344 373 195 01344 373 194 0870 907 4000 01344 860 456 toll-free: 000-413-598-2521 toll-free: 1-800-433-9014 toll-free: 1-800-247-9362
Uruguay U.S.A. (Austin, Texas) International Access Code: 011	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500–5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care Home and Small Business Sales Corporate/Public Sector Sales General Support Automated Order-Status Service AutoTech (portable and desktop computers) Consumer (Home and Home Office) Technical Support	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 194 0870 907 4000 01344 860 456 toll-free: 1-800-433-9014 toll-free: 1-800-247-9362 toll-free: 1-800-624-9896
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Uruguay U.S.A. (Austin, Texas) International Access Code: 011	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500-5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care Home and Small Business Sales Corporate/Public Sector Sales General Support Automated Order-Status Service AutoTech (portable and desktop computers) Consumer (Home and Home Office) Technical Support Customer Service DellNet™ Service and Support Employee Purchase Program (EPP) Customers	0870 908 0500 0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 199 01344 373 194 0870 907 4000 01344 860 456 toll-free: 000-413-598-2521 toll-free: 1-800-433-9014 toll-free: 1-800-624-9897 toll-free: 1-800-624-9897 toll-free: 1-877-Dellnet (1-877-335-5638) toll-free: 1-800-695-8133
Uruguay U.S.A. (Austin, Texas) International Access Code: 011	Technical Support (Corporate/Preferred Accounts/PAD [1000+ employees]) Technical Support (direct/PAD and general) Global Accounts Customer Care Home and Small Business Customer Care Corporate Customer Care Preferred Accounts (500-5000 employees) Customer Care Central Government Customer Care Local Government & Education Customer Care Health Customer Care Home and Small Business Sales Corporate/Public Sector Sales General Support Automated Order-Status Service AutoTech (portable and desktop computers) Consumer (Home and Home Office) Technical Support Customer Service DellNet™ Service and Support Employee Purchase Program (EPP) Customers Financial Services website: www.dellfinancialservices.com	0870 908 0800 01344 373 186 0870 906 0010 01344 373 185 0870 906 0010 01344 373 193 01344 373 199 01344 373 194 0870 907 4000 01344 860 456 toll-free: 000-413-598-2521 toll-free: 1-800-433-9014 toll-free: 1-800-624-9896 toll-free: 1-800-624-9897 toll-free: 1-877-Delinet (1-877-335-5638) toll-free: 1-800-695-8133

ſ	Customer Service and Technical Support	toll-free: 1-800-822-8965		
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133		
	Projectors Technical Support	toll-free: 1-877-459-7298		
	Public (government, education, and healthcare)			
	Customer Service and Technical Support	toll-free: 1-800-456-3355		
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-234-1490		
	Dell Sales	toll-free: 1-800-289-3355		
		or toll-free: 1-800-879-3355		
	Dell Outlet Store (Dell refurbished computers)	toll-free: 1-888-798-7561		
	Software and Peripherals Sales	toll-free: 1-800-671-3355		
	Spare Parts Sales	toll-free: 1-800-357-3355		
	Extended Service and Warranty Sales	toll-free: 1-800-247-4618		
	Fax	toll-free: 1-800-727-8320		
	Dell Services for the Deaf, Hard-of-Hearing, or Speech-Impaired	toll-free: 1-877-DELLTTY		
		(1-877-335-5889)		
U.S. Virgin Islands	General Support	1-877-673-3355		
Venezuela	General Support	8001-3605		

Getting Help

Dell Precision™ Workstation 350 User's Guide

- Technical Assistance
- Problems With Your Order
- Product Information
- Returning Items for Warranty Repair or Credit
- Before You Call

Technical Assistance

If you need help with a technical problem, Dell is ready to assist you.



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

- 1. Complete the procedures in "Solving Problems."
- 2. Run the Dell 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 Support (support.dell.com) for help with installation and troubleshooting procedures.
- 5. If the preceding steps have not resolved the problem, contact Dell.

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

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

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

For instructions on using the technical support service, see "Technical Support Service."

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

Online Services

You can access Dell Support at support.dell.com. Select your region on the WELCOME TO DELL SUPPORT page, and fill in the requested details to access help tools and information.

You can contact Dell electronically using the following addresses:

1 World Wide Web

www.dell.com/

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

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

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

mobile support@us.dell.com

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

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 computers

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

The AutoTech service is available 24 hours a day, 7 days a week. You can also access this service through the technical support service. For the telephone number to call, see the contact numbers for your region

Automated Order-Status Service

To check on the status of any Dell products that you have ordered, you can go to **support.dell.com**, or you can call the automated order-status service. A recording prompts you for the information needed to locate and report on your order. For the telephone number to call, see the <u>contact numbers</u> for your

Technical Support Service

Dell's technical support service is available 24 hours a day, 7 days a week, to answer your questions about Dell hardware. Our technical support staff uses computer-based diagnostics to provide fast, accurate answers.

To contact Dell's technical support service, see "Technical Assistance" and then call the number for your country as listed in "Contacting Dell."

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 the contact numbers for your region.

Product Information

If you need information about additional products available from Dell, or if you would like to place an order, visit the Dell website at **www.dell.com**. For the telephone number to call to speak to a sales specialist, see the <u>contact numbers</u> for your region.

Returning Items for Warranty Repair or Credit

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

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

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

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

Before You Call

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

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



CAUTION: Before working inside your computer, read the safety instructions in your System Information Guide.

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:

Devices:

Expansion cards:

Are you connected to a network? Yes No

Network, version, and network adapter:

Programs and versions:

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

Error message, beep code, or diagnostic code:

Description of problem and troubleshooting procedures you performed:

Ergonomic Computing Habits

Dell Precision™ Workstation 350 User's Guide

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

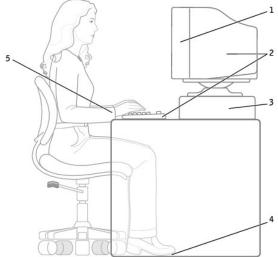
CAUTION: Viewing the monitor screen for extended periods of time may result in eye strain.

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

- 1 Position your computer so that the monitor and keyboard are directly in front of you as you work. Special shelves are commercially available to help you correctly position your keyboard
- 1 Set the monitor at a comfortable viewing distance (usually 450 to 610 millimeters [18 to 24 inches] from your eyes).
- 1 Make sure the monitor screen is at eye level or slightly lower when you are sitting in front of the monitor.
- Adjust the tilt of the monitor, its contrast and brightness settings, and the lighting around you (such as overhead lights, desk lamps, and the curtains or blinds on nearby windows) to minimize reflections and glare on the monitor screen.
- 1 Use a chair that provides good lower back support.
- 1 Keep your forearms horizontal with your wrists in a neutral, comfortable position while using the keyboard or mouse.
- 1 Always leave space to rest your hands while using the keyboard or mouse.
- 1 Let your upper arms hang naturally at your sides.
- 1 Ensure that your feet are resting flat on the floor.
- 1 When sitting, make sure the weight of your legs is on your feet and not on the front of your chair seat. Adjust your chair's height or use a footrest, if necessary, to maintain proper posture.
- Vary your work activities. Try to organize your work so that you do not have to type for extended periods of time. When you stop typing, try to do things that use both hands.

For more information about ergonomic computing habits, see the BSR/HFES 100 standard, which can be purchased on the Human Factors and Ergonomics Society (HFES) website at: www.hfes.org/publications/HFES100.htm

Example:



1	monitor screen at or below eye level	4	feet flat on the floor
2	monitor and keyboard positioned directly in front of the user	5	wrists relaxed and flat
3	monitor stand		

References:

- 1. American National Standards Institute. ANSI/HFES 100: American National Standards for Human Factors Engineering of Visual Display Terminal Workstations. Santa Monica, CA: Human Factors Society, Inc., 1988.
- 2. Human Factors and Ergonomics Society. BSR/HFES 100 Draft standard for trial use: Human Factors Engineering of Computer Workstations. Santa Monica, CA: Human Factors and Ergonomics Society, 2002.
- 3. International Organization for Standardization (ISO). ISO 9241 Ergonomics requirements for office work with visual display terminals (VDTs). Geneva, Switzerland: International Organization for Standardization, 1992

Glossary

Dell Precision™ Workstation 350 User's Guide

A B C D E E G H I K L M N P R S I U V W X Z

Α

AC — alternating current — The form of electricity that powers your computer when you plug the AC adapter power cable into an electrical outlet.

ACPI — advanced configuration and power interface — A power management specification that enables Microsoft® Windows® operating systems to put a computer in standby or hibernate mode to conserve the amount of electrical power allocated to each device attached to the computer.

AGP — accelerated graphics port — A dedicated graphics port that allows system memory to be used for video-related tasks. AGP delivers a smooth, true-color video image because of the faster interface between the video circuitry and the computer memory.

Antivirus software - A program designed to identify, quarantine, and/or delete viruses from your computer

ASF — alert standards format — A standard to define a mechanism for reporting hardware and software alerts to a management console. ASF is designed to be platform- and operating system-independent.

В

Backup — A copy of a program or data file on a floppy disk, CD, or hard drive. As a precaution, back up the data files from your hard drive regularly.

BIOS — basic input/output system — A program (or utility) that serves as an interface between the computer hardware and the operating system. Unless you understand what effect the settings have on the computer, do not change the settings for this program. Also referred to as the system setup program.

Bit - The smallest unit of data interpreted by your computer.

Boot sequence — Specifies the order of the devices from which the computer attempts to boot.

Bootable CD — A CD that you can use to start your computer. In case your hard drive is damaged or your computer has a virus, ensure that you always have a bootable CD or bootable disk available. Your *Drivers and Utilities* CD is a bootable CD.

Bootable disk — A disk that you can use to start your computer. In case your hard drive is damaged or your computer has a virus, ensure that you always have a bootable disk or bootable CD available.

 ${f bps}$ — bits per second — The standard unit for measuring data transmission speed.

BTU - British thermal unit - A measurement of heat output.

Bus — A communication pathway between the components in your computer.

Bus speed — The speed, given in MHz, that indicates how fast a bus can transfer information.

Byte — The basic data unit used by your computer. A byte is usually equal to 8 bits.

C

 ${\tt C-Celsius-A\ temperature\ measurement\ system\ where\ 0°} \ is\ the\ freezing\ point\ and\ 100°\ is\ the\ boiling\ point\ of\ water.$

Cache — A special high-speed storage mechanism which can be either a reserved section of main memory or an independent high-speed storage device. The cache enhances the efficiency of many microprocessor operations.

 ${\tt L1}$ cache — Primary cache stored inside the microprocessor.

L2 cache — Secondary cache which can either be external to the microprocessor or incorporated into the microprocessor architecture.

CD — compact disc — An optical form of storage media, typically used for audio and software programs.

CD drive — A drive that uses optical technology to read data from CDs.

CD player — The software used to play music CDs. The CD player displays a window with buttons you use to play a CD.

CD-R — CD recordable — A recordable version of a CD. Data can be recorded only once onto a CD-R. Once recorded, the data cannot be erased or written over.

CD-RW — CD rewritable — A rewritable version of a CD. Data can be written to a CD-RW, and then erased and written over (rewritten).

CD-RW drive — A drive that can read CDs and write to CD-RW (rewritable CDs) and CD-R (recordable CDs) discs. You can write to CD-RW discs multiple times, but you can write to CD-R discs only once.

Clock speed — The speed, given in MHz, that indicates how fast computer components that are connected to the system bus operate.

COA — Certificate of Authenticity — The Windows alpha-numeric code located on a sticker on your computer. You may need the COA to complete the operating

system setup or reinstallation. Also referred to as the Product Key or Product ID.

Control Panel — A Windows utility that allows you to modify operating system and hardware settings, such as display settings.

Controller — A chip that controls the transfer of data between the microprocessor and memory or between the microprocessor and devices.

CRIMM — continuity rambus in-line memory module — A special module that has no memory chips and is used to fill unused RIMM slots

Cursor — The marker on a display or screen that shows where the next keyboard or mouse action will occur. It often is a blinking solid line, an underline character, or a small arrow.

D

DDR SDRAM — double-data-rate SDRAM — A type of SDRAM that doubles the data burst cycle, improving system performance.

Device — Hardware such as a disk drive, printer, or keyboard that is installed in or connected to your computer.

Device driver - See driver

DIN connector — A round, six-pin connector that conforms to DIN (Deutsche Industrinorm) standards; it is typically used to connect PS/2 keyboard or mouse cable connectors.

Disk striping — A technique for spreading data over multiple disk drives. Disk striping can speed up operations that retrieve data from disk storage. Computers that use disk striping generally allow the user to select the data unit size or stripe width.

DMA — direct memory access — A channel that allows certain types of data transfer between RAM and a device to bypass the microprocessor.

DMTF — Distributed Management Task Force — A consortium of hardware and software companies who develop management standards for distributed desktop, network, enterprise and Internet environments.

DRAM — dynamic random-access memory — Memory that stores information in integrated circuits containing capacitors.

Driver — Software that allows the operating system to control a device such as a printer. Many devices do not work properly if the correct driver is not installed in the computer.

DSL — Digital Subscriber Line — A technology that provides a constant, high-speed Internet connection through an analog telephone line.

Dual display mode — A display setting that allows you to use a second monitor as an extension of your display. Also referred to as extended display mode.

DVD — digital versatile disc — A disc usually used to store movies. DVDs are double-sided, whereas CDs are single-sided. DVD drives read most CD media as well.

DVD drive — A drive that uses optical technology to read data from DVDs and CDs.

DVD player — The software used to watch DVD movies. The DVD player displays a window with buttons that you use to watch a movie.

DVD+RW drive — A drive that can read DVDs and most CD media and write to DVD+RW (rewritable DVDs) discs.

DVI — digital video interface — A standard for digital transmission between a computer and a digital video display; the DVI adapter works through the computer's integrated graphics.

Ε

ECC — error checking and correction — A type of memory that includes special circuitry for testing the accuracy of data as it passes in and out of memory.

ECP — extended capabilities port — A parallel connector design that provides improved bidirectional data transmission. Similar to EPP, it uses direct memory access to transfer data and often improves performance.

EIDE — enhanced integrated device electronics — An improved version of the IDE interface for hard drives and CD drives.

EMI - electromagnetic interference - Electrical interference caused by electromagnetic radiation.

Energy Star \$ - EPA requirements that decrease the overall consumption of electricity.

EPP — enhanced parallel port — A parallel connector design that provides bidirectional data transmission.

ESD — electrostatic discharge — A rapid discharge of static electricity. ESD can damage integrated circuits found in computer and communications equipment.

Expansion card — A circuit board that installs in an expansion slot on the computer's system board, expanding the capabilities of the computer. Examples include video, modem, and sound cards.

Expansion slot — A connector on the computer's system board where you insert an expansion card, connecting it to the system bus.

 $\textbf{Express Service Code} - \textbf{A} \text{ numeric code located on a sticker on your Dell}^{\text{TM}} \text{ computer. Use the Express Service Code when contacting Dell for assistance.}$

Extended Display Mode — A display setting that allows you to use a second monitor as an extension of your display. Also referred to as dual display mode.

Extended PC Card — A PC card that extends beyond the edge of the PC card slot when installed.

F

F — Fahrenheit — A temperature measurement system where 32° is the freezing point and 212° is the boiling point of water.

FCC — Federal Communications Commission — A U.S. agency responsible for enforcing communications-related regulations that state how much radiation computers and other electronic equipment can emit.

Floppy drive — A disk drive that can read and write to floppy disks.

Folder — A place to organize and group files on a disk or drive. Files in a folder can be viewed and ordered in various ways, such as alphabetically, by date, and by size.

Format — The process that prepares a drive or disk for file storage. When a drive or disk is formatted, the existing information on it is lost.

FSB - front side bus - The data path and physical interface between the microprocessor and RAM.

FTP - file transfer protocol - A standard Internet protocol used to exchange files between computers connected to the Internet.

G

G - gravity - A measurement of weight and force.

GB — gigabyte — For memory, a gigabyte is a unit of data that equals 1024 MB (1,073,741,824 bytes); for storage, a gigabyte equals 16 Mb, or 1 billion bytes.

GHz - gigahertz - A measurement of frequency that equals one thousand million Hz, or one thousand MHz.

Graphics mode — A video mode that can be defined as *x* horizontal pixels by *y* vertical pixels by *z* colors. Graphics modes can display an unlimited variety of shapes and fonts.

GUI — graphical user interface — Software that interacts with the user by means of menus, windows, and icons. Most programs that operate on the Microsoft Windows operating systems are GUIs.

Н

Hard drive — A drive that reads and writes data on a hard disk. The terms hard drive and hard disk are often used interchangeably.

Heat sink - A metal plate on some microprocessors that helps dissipate heat.

Hibernate mode — A power management mode that saves everything in memory to a reserved space on the hard drive and then turns off the computer. When you restart the computer, the memory information that was saved to the hard drive is automatically restored.

HTML — hypertext markup language — A set of codes inserted into an Internet web page intended for display on an Internet browser.

HTTP — hypertext transfer protocol — A protocol for exchanging files between computers connected to the Internet.

Hz — hertz — A unit of frequency measurement that equals 1 cycle per second. Computers and electronic devices are often measured in kilohertz (kHz), megahertz (MHz), gigahertz (GHz), or terahertz (THz).

т

IC — Industry Canada — The Canadian regulatory body responsible for regulating emissions from electronic equipment, much as the FCC does in the United States.

IDE — integrated device electronics — An interface for mass storage devices in which the controller is integrated into the hard drive or CD drive.

IEEE 1394 — Institute of Electrical and Electronics Engineers, Inc. — A high-performance serial bus used to connect IEEE 1394-compatible devices, such as digital cameras and DVD players, to the computer.

Integrated -

Usually refers to components that are physically located on the computer's system board. Also referred to as built-in.

1/0 — input/output — An operation or device that enters and extracts data from your computer. Keyboards and printers are I/O devices.

I/O address — An address in RAM that is associated with a specific device (such as a serial connector, parallel connector, or expansion slot) and allows the microprocessor to communicate with that device.

IRQ — interrupt request — An electronic pathway assigned to a specific device so that the device can communicate with the microprocessor. Each device connection must be assigned an IRQ. Although two devices can share the same IRQ assignment, you cannot operate both devices simultaneously.

ISP — Internet service provider — A company that allows you to access its host server to connect directly to the Internet, send and receive e-mail, and access websites. The ISP typically provides you with a software package, user name, and access phone numbers for a fee.

Kb – kilobit – A unit of data that equals 1024 bytes. A measurement of the capacity of memory integrated circuits.

KB - kilobyte - A unit of data that equals 1024 bytes but is often referred to as 1000 bytes

kHz - kilohertz - A measurement of frequency that equals 1000 Hz.

L

LAN — local area network — A computer network covering a small area. A LAN usually is confined to a building or a few nearby buildings. A LAN can be connected to another LAN over any distance via telephone lines and radio waves to form a wide area network (WAN).

LED — light-emitting diode — An electronic component that emits light to indicate the status of the computer.

Local bus - A data bus that provides a fast throughput for devices to the microprocessor

LPT — Line print terminal — The designation for a parallel connection to a printer or other parallel device.

M

Mb - megabit - A measurement of memory chip capacity that equals 1024 KB.

Mbps — megabits per second — One million bits per second. This measurement is typically used for transmission speeds for networks and modems.

MB — megabyte — A measurement of data storage that equals 1,048,576 bytes. 1 MB equals 1024 KB. When used to refer to hard drive storage, the term is often rounded to mean 1,000,000 bytes.

MB/sec — megabytes per second — One million bytes per second. This measurement is typically used for data transfer ratings.

Memory — A temporary data storage area inside your computer. Because the data in memory is not permanent, Dell recommends that you frequently save your files while you are working on them, and always save your files before you shut down the computer. Your computer can contain several different forms of memory, such as RAM, ROM, and video memory. Frequently, the word memory is used as a synonym for RAM.

Memory address - A specific location where data is temporarily stored in RAM.

Memory mapping — The process by which the computer assigns memory addresses to physical locations at start-up. Devices and software can then identify information that the microprocessor can access.

MHz — megahertz — A measure of frequency that equals 1 million cycles per second. The speeds for computer microprocessors, buses, and interfaces are typically measured in MHz.

Microprocessor — A computer chip that interprets and executes program instructions. Sometimes the microprocessor is referred to as the processor or the CPU (central processing unit).

Modem — A device that allows your computer to communicate with other computers over analog telephone lines. Three types of modems include: external, PC Card, and internal. You typically use your modem to connect to the Internet and exchange e-mail.

Monitor — The high-resolution TV-like device that displays your computer's output.

Mouse — A pointing device that controls the movement of the cursor on your screen. Typically you roll the mouse along a hard, flat surface to move the pointer or cursor on your screen.

ms — millisecond — A measure of time that equals one thousandth of a second. Access times of storage devices are often measured in ms.

Ν

Network adapter -

A chip that provides network capabilities. A computer may include a network adapter on its system board or it may contain a PC Card with an adapter on it. A network adapter is also referred to as a NIC (network interface controller).

NIC — See network adapter.

Notification area — The section of the Windows taskbar that contains icons for providing quick access to programs and computer functions, such as the clock, volume control, and print status. Also referred to as system tray.

 ${f ns}$ — nanosecond — A measure of time that equals one billionth of a second.

NVRAM — nonvolatile random access memory — A type of memory that stores data when the computer is turned off or loses its external power source. NVRAM is used for maintaining computer configuration information such as date, time, and other system setup options that you can set.

Р

Parallel connector — An I/O port often used to connect a parallel printer to your computer. Also referred to as an LPT port.

Partition — A physical storage area on a hard drive that is assigned to one or more logical storage areas known as logical drives. Each partition can contain

PCI — peripheral component interconnect — PCI is a local bus that supports 32- and 64-bit data paths, providing a high-speed data path between the microprocessor and devices such as video, drives, and networks.

PIO - programmed input/output - A method of transferring data between two devices through the microprocessor as part of the data path.

Pixel — A single point on a display screen arranged in rows and columns to create an image. A video resolution, such as 800 x 600, is expressed as the number of pixels across by the number of pixels up and down.

Plug-and-Play — The ability of the computer to automatically configure devices. Plug and Play provides automatic installation, configuration, and compatibility with existing hardware if the BIOS, operating system, and all devices are Plug and Play compliant.

POST — power-on self-test — Diagnostics programs, loaded automatically by the BIOS, that perform basic tests on the major computer components, such as memory, hard drives, and video. If no problems are detected during POST, the computer continues the start-up.

Program — Any software that processes data for you, including spreadsheet, word processor, database, and game packages. Programs require an operating system to run.

PS/2 - personal system/2 - A type of connector for attaching a PS/2-compatible keyboard, mouse, or keypad.

PXE — pre-boot execution environment — A WfM (Wired for Management) standard that allows networked computers that do not have an operating system to be configured and started remotely

R

RAID -

redundant array of independent disks — A system of two or more drives working together for performance and fault tolerance. RAID drives are typically used on servers and high-end PCs.

The three most common RAID levels are 0, 3, and 5:

- Level 0: Provides data striping but no redundancy. Level 0 improves performance but does not provide fault tolerance.
 Level 3: Same as Level 0, but also reserves one dedicated drive for error correction data, providing good performance and some level of fault tolerance.
- Level 5: Provides data striping at the byte level and also stripe error correction information, resulting in excellent performance and good fault tolerance

RAM — random-access memory — The primary temporary storage area for program instructions and data. Any information stored in RAM is lost when you turn off your computer

Readme file — A text file included with a software package or hardware product. Typically, readme files provide installation information and describe new product enhancements or corrections that have not yet been documented.

Read-Only - Data and/or files you can view but cannot edit or delete. A file can have read-only status if:

- It resides on a physically write-protected floppy disk.
 It is located on a network in a directory and the system administrator has assigned rights only to specific individuals.

Refresh rate — The frequency, measured in Hz, at which your screen's horizontal lines are recharged (sometimes also referred to as its vertical frequency). The higher the refresh rate, the less video flicker can be seen by the human eye

Resolution — The sharpness and clarity of an image produced by a printer or displayed on a monitor. The higher the resolution, the sharper the image.

RFI — radio frequency interference — Interference that is generated at typical radio frequencies, in the range of 10 kHz to 100,000 MHz. Radio frequencies are at the lower end of the electromagnetic frequency spectrum and are more likely to have interference than the higher frequency radiations such as infrared and

ROM — read-only memory — Memory that stores data and programs that cannot be deleted or written to by the computer. ROM, unlike RAM, retains its contents after you turn off your computer. Some programs essential to the operation of your computer reside in ROM

RPM - revolutions per minute - The number of rotations that occur per minute.

RTC — real time clock — Battery-powered clock on the system board that keeps the date and time after you turn off the computer.

RTCRST — real time clock reset — A jumper on the system board that can often be used for troubleshooting problems

S

ScanDisk - A Microsoft utility that checks files, folders, and the hard drive's surface for errors. ScanDisk often runs after a lockup occurs.

SDRAM - synchronous dynamic random-access memory - A type of DRAM that is synchronized with the optimal clock speed of the microprocessor.

Serial connector — An I/O port often used to connect devices such as a handheld digital device or digital camera to your computer.

Service tag — A bar code label on your computer that identifies your computer when you access Dell | Support at support.dell.com or when you call Dell for customer or technical support.

Setup program — A program that is used to install and configure hardware and software. The setup.exe or install.exe program comes with most Windows software packages. Setup program differs from system setup program

Shortcut — An icon that provides quick access to frequently used programs, files, folders, and drives. When you place a shortcut on your Windows desktop and double-click the icon, you can open its corresponding folder or file without having to find it first. Shortcut icons do not change the location of files. If you delete a shortcut, the original file is not affected. Also, you can rename a shortcut icon.

Shutdown — The process of closing windows and programs, exiting the operating system, and turning off your computer. You can lose data if you turn off your computer before completing a shutdown.

Software - Anything that can be stored electronically, such as computer files or programs.

Standby mode — A power management mode that shuts down all unnecessary computer operations to save energy.

Surge protectors — Prevents voltage spikes, such as those that may occur during an electrical storm, from entering the computer through the electrical outlet. They do not protect against lightning strikes or against brownouts, which occur when the voltage drops more than 20 percent below the normal AC line voltage level.

Network connections cannot be protected by surge protectors. Always disconnect the network cable from the network connector during electrical storms.

System board — The main circuit board in your computer. Also known as the motherboard.

System setup program — A utility that serves as an interface between the computer hardware and the operating system. System setup allows you to configure user-selectable options in the BIOS such as date and time or system password. Unless you understand what effect the settings have on the computer, do not change the settings for this program.

System tray — The section of the Windows taskbar that contains icons for providing quick access to programs and computer functions, such as the clock, volume control, and print status. Also referred to as notification area.

Т

TAPI — telephony application programming interface — Enables Microsoft Windows program applications to operate with a wide variety of telephony devices, including voice, data, fax, video, and so on.

Text editor — A program used to create and edit files that contain only text; for example, Windows Notepad uses a text editor. Text editors do not usually provide word wrap or formatting functionality (the option to underline, change fonts, and so on).

U

UPS — uninterruptible power supply — A backup power source used when the electrical power fails or drops to an unacceptable voltage level. A UPS keeps a computer running for a limited amount of time when there is no electrical power. UPS systems typically provide surge suppression and may also provide voltage regulation. Small UPS systems provide battery power for a few minutes to enable you to shut down your computer.

USB — universal serial bus — A hardware interface for a low-speed device such as a USB-compatible keyboard, mouse, joystick, scanner, set of speakers, or printer. Devices are plugged directly into a 4-pin socket on your computer or into a multi-port hub that plugs into your computer. USB devices can be connected and disconnected while the computer is turned on, and they can also be daisy-chained together.

V

Video controller — The circuitry on a video card or on the system board (in computers with an integrated video controller) that provides the video capabilities—in combination with the monitor—for your computer.

Video memory — Memory that consists of memory chips dedicated to video functions. Video memory is usually faster than system memory. The amount of video memory installed primarily influences the number of colors that a program can display.

Video mode — A mode that describes how text and graphics are displayed on a monitor. Graphics-based software, such as the Windows operating system, displays in video modes that can be defined as *x* horizontal pixels by *y* vertical pixels by *z* colors. Character-based software, such as text editors, displays in video modes that can be defined as *x* columns by *y* rows of characters.

Video resolution - See resolution.

Virus — A program that is designed to inconvenience you or to destroy data stored on your computer. A virus program moves from one computer to another via an infected disk, software downloaded from the Internet, or e-mail attachments. When an infected program starts, its embedded virus also starts.

A common type of virus is a boot virus, which is stored in the boot sectors of a floppy disk. If the floppy disk is left in the drive when the computer is shut down and then turned on, the computer is infected when it reads the boot sectors of the floppy disk expecting to find the operating system. If the computer is infected, the boot virus may replicate itself onto all of the floppy disks that are read or written in that computer until the virus is eradicated.

V — volt — The measurement of electric potential or electromotive force. One V appears across a resistance of 1 ohm when a current of 1 ampere flows through that resistance.

W

 \mathbf{W} — watt — The measurement of electrical power. One W is 1 ampere of current flowing at 1 volt.

WHr — watt-hour — A unit of measure commonly used to indicate the approximate capacity of a battery. For example, a 66 WHr battery can supply 66 W of power for 1 hour or 33 W for 2 hours.

Wallpaper — The background pattern or picture on the Windows desktop. Change your wallpaper through the Windows Control Panel. You can also scan in

your favorite picture and make it wallpaper.

Write-Protected — Files or media that cannot be changed. Use write-protection when you want to protect data from being changed or destroyed. To write-protect a 3.5-inch floppy disk, slide its write-protect tab to the open position.

X

Z

ZIF — zero insertion force — A type of socket or connector that allows a computer chip to be installed or removed with no stress applied to either the chip or its socket.

Zip — A popular data compression format. Files that have been compressed with the Zip format are called Zip files and usually have a filename extension of .zip. A special kind of zipped file is a self-extracting file, which has a filename extension of .exe. You can unzip a self-extracting file by double-clicking it.

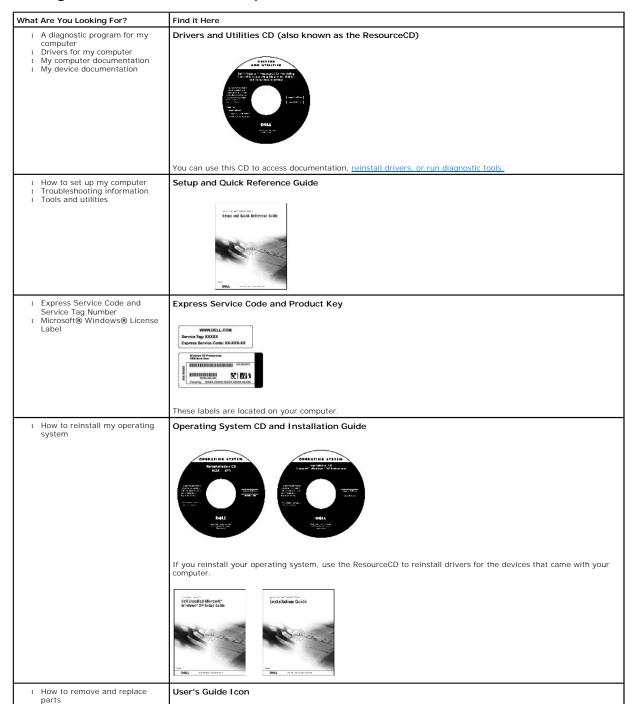
Zip drive — A high-capacity floppy drive developed by Iomega Corporation that uses 3.5-inch removable disks called Zip disks. Zip disks are slightly larger than regular floppy disks, about twice as thick, and they hold up to 100 MB of data.

Information About Your Computer

Dell Precision™ Workstation 350 User's Guide

- Finding Information for Your Computer
- Specifications

Finding Information for Your Computer



Technical specifications How to configure system settings How to troubleshoot and solve problems	Depending on your operating system, double-click the User's Guides icon on your desktop or click the Start button and then click Help and Support to access the electronic documentation stored on your hard drive.
Latest drivers for my computer Answers to technical service and support questions Online discussions with other users and technical support Documentation for my computer	Dell Support Website The Dell Support website provides several online tools, including: 1 Knowledge Base — Hints, tips, and online courses 1 Customer Forum — Online discussion with other Dell customers 1 Upgrades — Upgrade information for components, such as memory, the hard drive, and the operating system 1 Customer Care — Contact information, order status, warranty, and repair information 1 Downloads — Drivers, patches, and software updates 1 Reference — Computer documentation, product specifications, and white papers
Service call status Top technical issues for my computer Frequently asked questions File downloads Details on my computer's configuration Service contract for my computer	Dell Premier Support Website The Dell Premier Support website is customized for corporate, government, and education customers. This website may not be available in all regions.
How to use Windows XP Documentation for my computer and devices	1. Click the Start button and click Help and Support. 2. Type a word or phrase that describes your problem and click the arrow icon. 3. Click the topic that describes your problem. 4. Follow the instructions shown on the screen.

Specifications

- <u>Microprocessor</u>
- Computer Information
- VideoAudio
- Expansion Bus
- <u>Drives</u>

- Connectors
- Key Combinations
- Controls and Lights
- Power
- Physical
- Environmental

Microprocessor			
Microprocessor type	Intel® Pentium® 4		
Level 1 (L1) cache	64 KB		
Level 2 (L2) cache	512 KB		
Memory			
Туре	RDRAM		
Memory connectors	four		
Memory modules supported	PC800-40: 64-, 128-, 256-, 512-MB, non-ECC or ECC		
	PC1066-32P: 128-, 256-, 512-MB, ECC and 64-, 128-,256-,512-MB, non-ECC		
Minimum memory	PC800-40: 128 MB non-ECC and ECC		
	PC1066-32P: 128 MB non-ECC and 256 MB ECC		
Maximum memory	PC800-40: 2 GB non-ECC and ECC		
	PC1066-32P: 1.5 GB non-ECC and ECC		
BIOS address	F0000h		
Computer Information			
Chip set	Intel 850E		
Data bus width	64 bits		
Address bus width	32 bits		
DMA channels	eight		
Interrupt levels	23		
BIOS chip	4-Mb		

Memory speed	Processors between 1.5 GHz and 2.2 GHz with a 400 MHz FSB require 45 ns or faster memory.
	Processors at 2.26 GHz or above with a 533 MHz FSB require 40 ns or faster memory.
NIC	integrated PCI Network Interface with ASF support as defined by DMTF
SCSI controller	optional add-in U320 SCSI
System clock	400- or 533-MHz data rate
Video	•
Туре	AGP 4x (1.5 V only)
Audio	
Туре	AC97, Sound Blaster emulation
Stereo conversion	16-bit analog-to-digital; 20-bit digital-to-analog
Expansion Bus	
Bus type	PCI and AGP
Bus speed	PCI: 33 MHz
	AGP: 66 MHz
Expansion-card connectors	four PCI slots and one AGP slot
Drives	_
Externally accessible:	two 3.5-inch bays
	two 5.25-inch bays
Internally accessible:	two bays for 1-inch high hard drives
Connectors	J
External connectors:	
Serial	two 9-pin connectors; 16550C-compatible
Parallel	
	25-hole connector (bidirectional)
Network adapter	RJ45 connector
PS/2 (keyboard and mouse)	6-pin mini-DIN
USB	two front-panel and six back-panel USB 2.0- compliant connectors
Audio	three connectors for line-in, line-out, and microphone one front-panel connector for headphones
System board connectors:	
Primary IDE	40-pin connector on PCI local bus
Secondary IDE	40-pin connector on PCI local bus
Floppy	34-pin connector
CD drive audio interface	4-pin connector
Telephony (TAPI)	4-pin connector
Fan	3-pin connector
Key Combinations	
<ctrl><alt></alt></ctrl>	restarts the computer
<f2></f2>	starts embedded system setup (during start-up only)
<f12></f12>	boots from the network (during start-up only)
<ctrl><alt><f10></f10></alt></ctrl>	launches the utility partition (if installed) during computer start-up
<ctrl><alt><f8></f8></alt></ctrl>	changes boot sequence (during start-up only)
<ctrl><enter></enter></ctrl>	disables computer password at start-up (after correct
Controls and Lights	password is entered)
Controls and Lights	Lauren hustan
Power control	push button
Power light	green light on power button—blinking green in sleep state; solid green for power on state
Hard-drive access light	green
Link integrity light (on integrated network adapter)	green light for 10-Mb operation; orange light for 100-Mb operation; yellow light for 1000-Mb (1-Gb) operation
Activity light (on integrated network adapter)	yellow blinking light
Diagnostic lights	four lights on the back panel
Power	
DC power supply:	
be power suppry.	
Wattage	250 W

Voltage	90 to 135 V at 50/60 Hz; 180 to 265 V at 50/60 Hz
Backup battery	3-V CR2032 lithium coin cell
Physical	
Height	42.5 cm (16.7 inches)
Width	18.1 cm (7.1 inches)
Depth	44.7 cm (17.6 inches)
Weight	12.7 kg (28 lbs)
Environmental	
Temperature:	
Operating	10° to 35°C (50° to 95°F)*
Storage	-40° to 65°C (-40° to 149°F)
Relative humidity	20% to 80% (noncondensing)
Maximum vibration:	
Operating	0.25 G at 3 to 200 Hz at 0.5 octave/min
Storage	0.5 G at 3 to 200 Hz at 1 octave/min
Maximum shock:	
Operating	bottom half-sine pulse with a change in velocity of 20 inches/sec (50.8 cm/sec)
Storage	27-G faired square wave with a velocity change of 200 inches/sec (508 cm/sec)
Altitude:	
Operating	-15.2 to 3048 m (-50 to 10,000 ft)*
Storage	-15.2 to 10,668 m (-50 to 35,000 ft)

Memory

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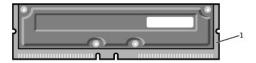
ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

You can increase your computer memory by installing memory modules on the system board. For information on the type of memory supported by your computer, look under "Memory" in "Sp

Memory Installation Guidelines

- 1 Before you install new memory modules, download the most recent BIOS for your computer from the Dell Support website at support.dell.com.
- NOTICE: You can only place a CRIMM in memory module connectors 3 and 4. To locate the connectors, see "System Board Components."
 - 1 Each memory socket on the system board must be occupied by either a RIMM or a CRIMM.

Memory Modules





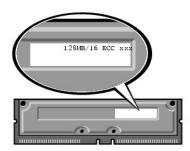
1	RIMM
2	CRIMM



NOTICE: If you remove your original memory modules from the computer during a memory upgrade, keep them separate from any new modules that you may have, even if you purchased the new modules from Dell. You must install your original memory modules in pairs either in connectors RIMM1 and RIMM 2 or RIMM 3 and RIMM4. Do not pair one original memory module with one new memory module. Otherwise, your computer may not start properly.

1 Memory sockets must be upgraded in matched pairs. In other words, two sockets in a pair must contain modules of identical capacity with the same number of components and the same speed. To locate the memory sockets on the system board, see "System Board Components."

Memory Module Label



- 1 Mixed pairs of ECC and non-ECC modules all function as non-ECC.
- 1 Mixed pairs of PC1066 and PC800 modules all function as PC800.
- 1 Be sure to install a RIMM in socket 1 first (closest to the processor) before installing modules in the other sockets.

Before You Remove or Install a Memory Module

- 1. Shut down the computer through the Start menu.
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 3. Disconnect any telephone or telecommunication lines from the computer.
- 4. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 5. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.
- A CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.
- NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.
- 6. Open the computer cover.

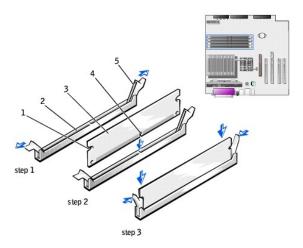
Removing a Memory Module

- 1. Press out the securing clip at each end of the memory module connector.
- 2. Grasp the module and pull up

If the module is difficult to remove, gently ease the module back and forth to remove it from the connector.

Installing a Memory Module

1. Press out the securing clip at each end of the memory module connector.



1	cutouts (2)	
2	connector	
3	memory module	
4	notch	
5	securing clips (2)	

- 2. Align the notch on the bottom of the module with the crossbar in the connector.
- NOTICE: To avoid damage to the memory module, press the module straight down into the socket with equal force applied at each end of the module.
- 3. Insert the module straight down into the connector, ensuring that it fits into the vertical guides at each end of the connector. Press firmly on the ends of the module until it snaps into place.

If you insert the module correctly, the securing clips snap into the cutouts at each end of the module.

- 4. Close the computer cover.
- NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.
- 5. Connect your computer and devices to electrical outlets, and turn them on.
- 6. Press <F2> to enter system setup and check the value for **System Memory**.

The computer should have changed the value of **System Memory** to reflect the newly installed memory. Verify the new total. If it is correct, skip to step 8.

If the memory total is incorrect, turn off and disconnect your computer and devices from electrical outlets. Open the computer cover and check the
installed memory modules to ensure that they are seated properly in their sockets. Then repeat steps 4, 5, and 6.

- 8. When the System Memory total is correct, press <Esc> to exit system setup.
- 9. Run the <u>Dell Diagnostics</u> to verify that the memory modules are operating properly.

AGP Card

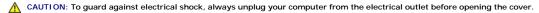
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AUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

Your computer provides a connector for an AGP card.

- 1. If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.
- 2. Shut down the computer through the Start menu.
- 3. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 4. Disconnect any telephone or telecommunication lines from the computer.
- 5. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 6. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

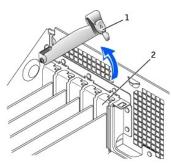


NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

7. Open the computer cover.

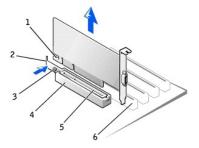
Removing an AGP Card

1. Remove the filler bracket by raising the hinged lever and sliding the bracket up.



1	hinged lever	
2	filler bracket	

- 2. Press the card lever toward the PCI connector.
- 3. Pull the card up and out of the card clip.



	1	notch	4	card clip
I	2	lever	5	AGP connector
I	3	tab	6	PCI connector

Installing an AGP/Card

- 1. To add or replace the card, press the card lever toward the PCI connector and gently press the card into the AGP connector until it clicks into place.
- 2. Release the card lever, ensuring that the tab fits into the notch on the front end of the card.
- 3. Secure the card by lowering the hinged lever on the back panel.
- 4. Close the computer cover.
- 5. Connect the monitor cable to the card's video connector.
- NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.
- 6. Connect your computer and devices to electrical outlets, and turn them on.

PCI Cards

Dell Precision™ Workstation 350 User's Guide

- Installing a Card



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

Your computer provides four slots for 32-bit 33-MHz cards. For more information see "Specifications" or "System Board Components."



NOTE: To meet PC99 requirements, your Dell computer uses only PCI slots. ISA cards are not supported.

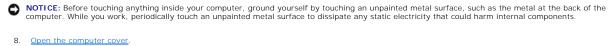
If you are installing or replacing a card, follow the procedures in the next section. If you are removing but not replacing a card, see "Removing a Card."

Installing a Card

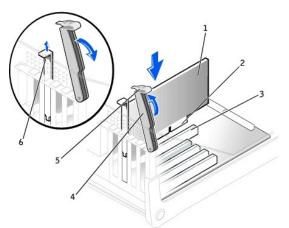
- 1. If you are replacing a card, remove the current driver for the card from the operating system.
- 2. If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.
- 3. Shut down the computer through the Start menu.
- 4. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 5. Disconnect any telephone or telecommunication lines from the computer.
- 6. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 7. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.



⚠ CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.



9. Press the lever on the card retention arm and raise the retention arm.



1	card		
2	edge connector		
3	card connector		
4	retention arm		
5	lever		
6	filler bracket		

- 10. If you are installing a new card, remove the filler bracket to create a card-slot opening. Then continue with step 12.
- 11. If you are replacing a card that is already installed in the computer, remove the card.

If necessary, disconnect any cables connected to the card. Grasp the card by its top corners, and ease it out of its connector.

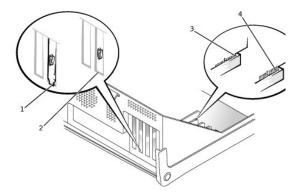
12. Prepare the card for installation.

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

CAUTION: Some network adapters automatically start the computer when they are connected to a network. To guard against electrical shock, be sure to unplug your computer from its electrical outlet before installing any cards. Verify that the standby power light on the system board is off. To locate this light, see "System Board Components."

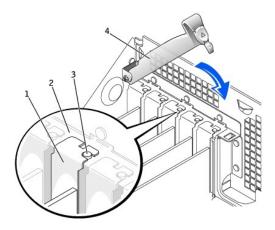
13. Place the card in the connector and press down firmly. Ensure that the card is fully seated in the slot.

If the card is full-length, insert the end of the card into the card guide bracket as you lower the card toward its connector on the system board. Insert the card firmly into the card connector on the system board.



- bracket caught outside of bracket within slot fully seated card not fully seated card
- 14. Before you lower the retention arm, ensure that:
 - 1 The tops of all cards and filler brackets are flush with the alignment bar
 - 1 The notch in the top of the card or filler bracket fits around the alignment guide

Press the arm into place, securing the card(s) in the computer.



1	filler bracket
2	alignment bar
3	alignment guide
4	retention arm

- NOTICE: Do not route card cables over or behind the cards. Cables routed over the cards can prevent the computer cover from closing properly or cause damage to the equipment.
- 15. Connect any cables that should be attached to the card.

See the documentation for the card for information about the card's cable connections.

- NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.
- 16. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.
- 17. If you installed a sound card:
 - a. Enter system setup, go to Integrated Devices, and change the setting for Sound to Off.
 - Connect external audio devices to the sound card's connectors. Do not connect external audio devices to the microphone, speaker/headphone, or line-in connectors on the back panel.
- 18. If you installed an add-in network adapter:
 - a. Enter system setup, go to Integrated Devices, and change the setting for Network Interface Card to Off.
 - b. Connect the network cable to the add-in network adapter's connectors. Do not connect the network cable to the integrated connector on the back panel.
- 19. Install any drivers required for the card as described in the card documentation.

Removing a Card

ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

- 1. If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.
- 2. Shut down the computer through the Start menu.
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 4. Disconnect any telephone or telecommunication lines from the computer.
- 5. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 6. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.
- ⚠ CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.
- NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.
- 7. Open the computer cover.
- 8. Press the lever on the card retention arm and raise the retention arm (see "Installing a Card")
- 9. If necessary, disconnect any cables connected to the card.
- 10. Grasp the card by its top corners, and ease it out of its connector.
- 11. If you are removing the card permanently, install a filler bracket in the empty card-slot opening.

If you need a filler bracket, contact Dell.

- NOTE: Installing filler brackets over empty card- slot openings is necessary to maintain FCC certification of the computer. The brackets also keep dust and dirt out of your computer.
- 12. Lower the retention arm and press it into place, securing the card(s) in the computer.
- NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.
- 13. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.
- 14. Remove the card's driver from the operating system.
- 15. If you removed a sound card:
 - a. Enter system setup, go to Integrated Devices, and change the setting for Sound to On.
 - b. Connect external audio devices to the audio connectors on the computer back panel.
- 16. If you removed an add-in network adapter:
 - a. Enter system setup, go to Integrated Devices, and change the setting for Network Interface Card to On.

17. Connect the network cable to the integrated connector on the computer back panel.

Closing the Computer Cover Dell Precision™ Workstation 350 User's Guide

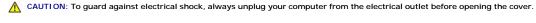
- 1. Ensure that all cables are connected, and fold cables out of the way.
 - Gently pull the power cables toward you so that they do not get caught underneath the drives.
- 2. Ensure that no tools or extra parts are left inside the computer.
- 3. Close the computer cover:
 - a. Pivot the cover down.
 - b. Press down on the right side of the cover until it closes.
 - c. Press down on the left side of the cover until it closes.
 - d. Ensure that both sides of the cover are locked. If not, repeat step 3.
- NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.
- 4. Connect your computer and devices to electrical outlets, and turn them on.

Opening the Computer Cover

Dell Precision™ Workstation 350 User's Guide

ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

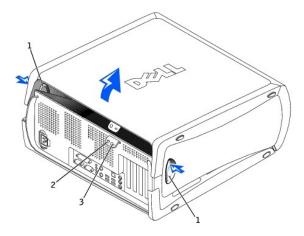
- 1. Shut down the computer through the Start menu.
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 3. Disconnect any telephone or telecommunication lines from the computer.
- 4. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 5. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.



6. Lay the computer on its side as shown in the illustration.

NOTICE: Ensure that sufficient space exists to support the open cover—at least 30 cm (1 ft) of desk top space.

- 7. Open the cover:
 - a. Facing the back of the computer, press the release button on the right side of the computer with one hand while pulling up on the top of the cover with the other hand.
 - b. Press the release button on the left side of the computer with one hand while pulling up on the top of the cover with the other hand.
 - c. Hold the bottom of the computer with one hand, and then pull open the cover with the other hand.



1	release buttons
2	padlock ring
3	security cable slot

Back to Contents Page

Drives

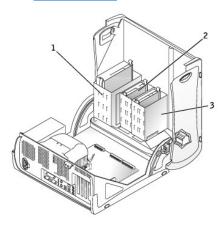
Dell Precision™ Workstation 350 User's Guide

- Overview
- Hard Drive
- Front-Panel Inserts
- Floppy Drive
- CD/DVD Drive

Overview

Your computer supports:

- 1 Two hard drives
- 1 Two floppy drives
- 1 Two CD or DVD drives



1	CD/DVD drive(s)
2	floppy drive(s)
3	hard drive(s)

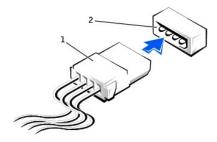
IDE Drive Addressing

When you connect two IDE devices to a single IDE interface cable and configure them for the cable select setting, the device attached to the last connector on the interface cable is the master or boot device (drive 0), and the device attached to the middle connector on the interface cable is the slave device (drive 1). See the drive documentation in your upgrade kit for information on configuring devices for the cable select setting.

Your computer supports up to two IDE devices. Hard drives should be connected to the connector labeled "IDE1," and CD/DVD drives should be connected to the connector labeled "IDE2."

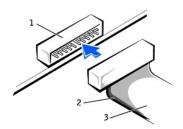
Connecting Drive Cables

When you install a drive, you connect two cables—a DC power cable and an interface cable—to the back of the drive.



1 Power cable

2 Power input connector



2 Colored stripe on cable

3 Interface cable

Most interface connectors are keyed for correct insertion; that is, a notch or a missing pin on one connector matches a tab or a filled-in hole on the other connector. Keyed connectors ensure that the pin-1 wire in the cable (indicated by the colored stripe along one edge of the cable) goes to the pin-1 end of the connector. The pin-1 end of a connector on a board or a card is usually indicated by a silk-screened "1" printed directly on the board or card.

0

NOTICE: When you connect an interface cable, do not place the colored stripe away from pin 1 of the connector. Reversing the cable prevents the drive from operating and could damage the controller, the drive, or both.

Hard Drive

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

NOTICE: To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently cushion it.

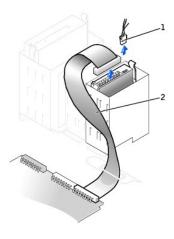
- 1. If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.
- 2. Shut down the computer through the Start menu.
- 3. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

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

- 4. Disconnect any telephone or telecommunication lines from the computer.
- 5. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 6. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.
- ↑ CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.
- NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.
- 7. Open the computer cover.

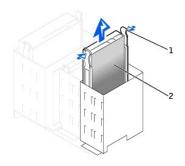
Removing a Hard Drive

1. Disconnect the power and hard-drive cables from the drive.



1	power cable
2	hard-drive cable

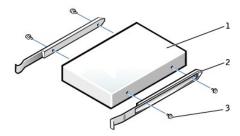
2. Press in on the tabs on each side of the drive and slide the drive up and out.



1	tabs (2)
2	hard drive

Installing a Hard Drive

- 1. Unpack the replacement hard drive, and prepare it for installation.
- 2. Check the documentation for the drive to verify that it is configured for your computer.
- 3. If your replacement hard drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket rails to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).

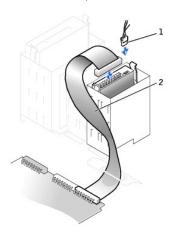


1	drive
2	bracket rails (2)
3	screws (4)

4. Gently slide the drive into place until the tabs securely click into position.

NOTICE: Match the colored strip on the cable with pin 1 on the drive (pin 1 is marked as "1").

5. Connect the power and hard-drive cables to the drive.



1	power cable
2	hard-drive cable

- 6. Check all connectors to be certain that they are properly cabled and firmly seated.
- Close the computer cover

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

8. Connect your computer and devices to electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

- 9. If the drive you just installed is the primary drive, insert a bootable floppy disk into drive A.
- 10. Turn on the computer.
- Enter system setup, and update the appropriate Primary Drive option (0 or 1).
- Exit system setup, and reboot the computer.
- 13. Partition and logically format your drive before you proceed to the next step.

See the documentation for your operating system for instructions.

- 14. Test the hard drive by running the Dell Diagnostics.
- 15. If the drive you just installed is the primary drive, install your operating system on the hard drive.
- Reset the chassis intrusion detector by changing Chassis Intrusion to Enabled or Enabled-Silent.

NOTE: If a setup password has been assigned by someone else, contact your network administrator for information on resetting the chassis intrusion

Adding a Second Hard Drive

ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

NOTICE: To avoid damage to the drive, do not set it on a hard surface. Instead, set the drive on a surface, such as a foam pad, that will sufficiently

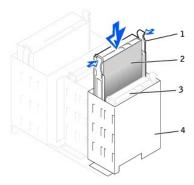
- 1. Check the documentation for the drive to verify that it is configured for your computer.
- 2. Shut down the computer through the Start menu.
- Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 4. Disconnect any telephone or telecommunication lines from the computer.
- 5. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 6. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

- NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.
- Open the computer cover.
- 8. Remove the two green plastic rails from the inside of the hard-drive bay by gently pulling the rails up and out of the bay.
- 9. Attach the rails to the hard drive using the two screws attached to the rails.

Ensure that the rail tabs are positioned at the back of the hard drive.

- NOTICE: Do not install any drive into the lower hard-drive bay until you have removed the green drive rails from the inside of the hard-drive bay.
- 10. Remove the first hard drive from the upper bay and install it in the lower bay:
 - a. Disconnect the power and the hard-drive cables from the back of the first hard drive.
 - b. Press in the two green rail tabs and pull the first hard drive out of the upper bay.
 - c. Gently slide the first hard drive into the lower bay until you hear a click.
 - d. Reconnect the power and hard-drive cables to the back of the first hard drive.
- 11. Gently slide the new hard drive into the upper bay until you hear a click.



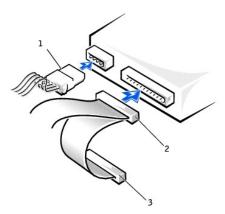
1	rail tabs (2)
2	second hard drive in upper bay
3	first hard drive in lower bay
4	hard drive bay

12. Connect a power cable to the drive.



13. Locate the extra connector on the drive cable that is attached to your first hard drive and attach the connector to the second hard drive.

Your computer uses cable-select drive cables. This means that the device connected to the end connector of the drive cable is the master device and the device connected to the middle connector is the slave device. Be sure that the jumper setting on the new device is set for "cable select" (see the documentation that came with the drive for information).



- second hard-drive cable (secondary drive)
- first hard-drive cable (primary boot drive)
- 14. Close the computer cover.



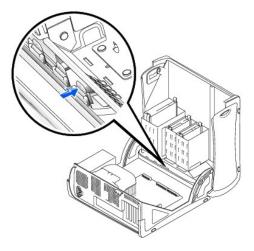
NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

- 15. Connect your computer and devices to electrical outlets, and turn them on.
- 16. See the documentation that came with the drive for instructions on installing any software required for drive operation.

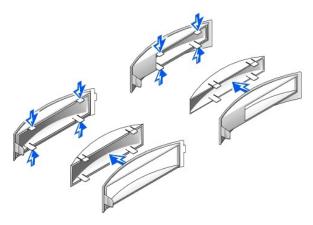
Front-Panel Inserts

If you are installing a new floppy or CD/DVD drive rather than replacing a drive, remove the front-panel inserts.

1. Open the computer cover to a 90-degree angle and release the insert tabs from inside the computer.



2. Press on the insert until it pops free of the front panel cover.



Floppy Drive



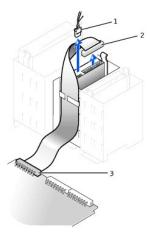
ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

- 1. Shut down the computer through the **Start** menu.
- 2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 3. Disconnect any telephone or telecommunication lines from the computer.
- 4. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 5. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.
- CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.
- NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.
- 6. Open the computer cover.

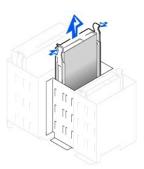
Removing a Floppy Drive

- 1. Disconnect the power and floppy-drive cables from the back of the floppy drive.
- 2. Disconnect the other end of the floppy-drive cable from the system board (labeled DSKT).



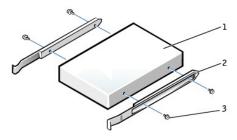
1	power cable
2	floppy-drive cable
3	floppy-drive connector (DSKT)

3. Press inward on the two tabs on the sides of the drive, slide the drive upward, and remove it from the floppy-drive bay.



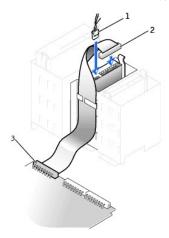
Installing a Floppy Drive

If you are replacing a drive and the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws
that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails
and then inserting and tightening all four screws (two screws on each rail).



1	drive
2	bracket rails (2)
3	screws (4)

- 2. Gently slide the drive into place until the tabs securely click into position.
- 3. Attach the power and floppy-drive cables to the floppy drive.
- 4. Connect the other end of the floppy-drive cable to the connector labeled "DSKT" on the system board.



1	power cable
2	floppy-drive cable
3	floppy-drive connector (DSKT)

- 5. If you are installing a new floppy drive rather than replacing a drive, remove the front-panel inserts.
- 6. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
- 7. Close the computer cover.

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

- 8. Connect your computer and devices to electrical outlets, and turn them on.
 - See the documentation that came with the drive for instructions on installing any software required for drive operation.
- 9. Enter system setup and update the appropriate Diskette Drive A option to reflect the size and capacity of your new floppy drive.
- 10. Verify that your computer works correctly by running the <u>Dell Diagnostics</u>.

CD/DVD Drive

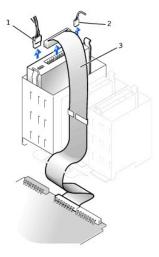
ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

- 1. Shut down the computer through the **Start** menu.
- 2. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.

- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 3. Disconnect any telephone or telecommunication lines from the computer.
- 4. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 5. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.
- ACAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.
- NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.
- 6. Open the computer cover.

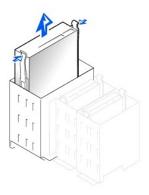
Removing a CD/DVD Drive

1. Disconnect the power, audio, and CD/DVD drive cables from the back of the drive.



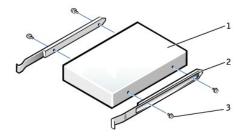
1	power cable			
2	audio cable			
3	CD/DVD drive cable			

2. Press inward on the two tabs on the sides of the drive, and then slide the drive upward and remove it from the drive bay.



Installing a CD/DVD Drive

- 1. If you are installing a new drive, unpack the drive and prepare it for installation.
 - Check the documentation that accompanied the drive to verify that the drive is configured for your computer. If you are installing an IDE drive, configure the drive for the cable select setting.
- 2. Connect the new drive to the set of rails that are attached to the inside of the cover. If a set of rails is not attached inside the cover, contact Dell.
- 3. If you are installing a replacement drive and the new drive does not have the bracket rails attached, remove the rails from the old drive by removing the two screws that secure each rail to the drive. Attach the bracket to the new drive by aligning the screw holes on the drive with the screw holes on the bracket rails and then inserting and tightening all four screws (two screws on each rail).

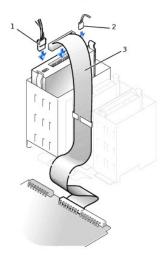


1	drive
2	bracket rails (2)
3	screws (4)

- 4. Gently slide the drive into place until the tabs securely click into position.
- 5. If you are installing a drive that has its own controller card, install the controller card in a card slot.

See the documentation that accompanied the drive and controller card to verify that the configuration is correct for your computer. Change any settings necessary for correct configuration.

6. Connect the power, audio, and CD/DVD drive cables to the drive.



1	power cable	
2	audio cable	
3	CD/DVD drive cable	

- 7. If you are installing a new CD/DVD drive rather than replacing a drive, remove the front-panel inserts.
- 8. Check all cable connections, and fold cables out of the way to provide airflow for the fan and cooling vents.
- 9. Close the computer cover

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

10. Connect your computer and devices to electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

- 11. Update your configuration information by setting the appropriate **Drive** option (**0 or 1**) under **Drives**: **Secondary** to **Auto.** <u>See "Primary Drive n and Secondary Drive n" in "System Setup Options"</u> for more information.
- 12. Verify that your computer works correctly by running the <u>Dell Diagnostics</u>.

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Removing and Installing Computer Parts Dell Precision™ Workstation 350 User's Guide

Opening the Computer Cover Drives PCL Cards AGP Card Microprocessor Memory Battery Closing the Computer Cover

Microprocessor

Dell Precision™ Workstation 350 User's Guide

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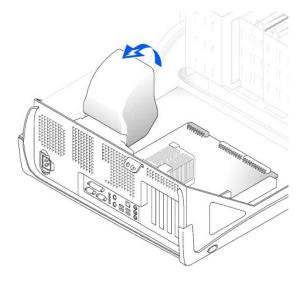
ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

- 1. If you are replacing a hard drive that contains data you want to keep, back up your files before you begin this procedure.
- 2. Shut down the computer through the Start menu.
- 3. Ensure that your computer and attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your computer, turn them off now.
- NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.
- 4. Disconnect any telephone or telecommunication lines from the computer.
- 5. Disconnect your computer and all attached devices from electrical outlets, and then press the power button to ground the system board.
- 6. If you have installed a padlock through the padlock ring on the back panel, remove the padlock.

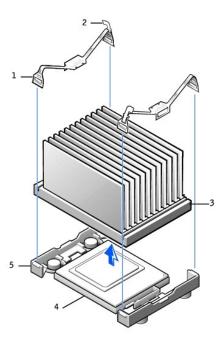
CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the cover.

NOTICE: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate any static electricity that could harm internal components.

- 7. Open the computer cover.
- 8. Disconnect the cooling fan power cable from the FAN connector on the system board.
- 9. Disconnect the power cable from the POWER connector on the system board.
- 10. Lift up the airflow shroud.

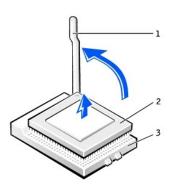


- 11. Remove the microprocessor heat sink:
 - a. For each of the metal securing clips that secure the heat sink to the microprocessor, press down on the clip's latch to release it from the heat-sink retention base. Then lift the clip away from the heat sink.
 - b. Lift the heat sink away from the microprocessor.



1	securing clips (2)		
2	latch (2) heat sink microprocessor socket		
3			
4			
5	retention base		

- NOTICE: Lay the heat sink down with the thermal grease facing upward.
- NOTICE: If you are installing a microprocessor upgrade kit from Dell, discard the original heat sink. If you are not installing a microprocessor upgrade kit from Dell, reuse the original heat sink and blower when you install your new microprocessor.
- 12. Pull the release lever straight up until the microprocessor is released.
- NOTICE: Be careful not to bend any of the pins when you remove the microprocessor from the socket. Bending the pins can permanently damage the microprocessor.



1	release lever
2	microprocessor
3	socket

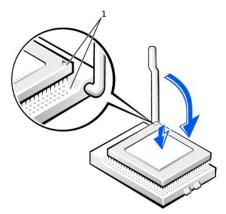
13. Remove the microprocessor from the socket.

 $\label{lem:leave_the_release} Leave the \ release \ lever \ extended \ in \ the \ release \ position \ so \ that \ the \ socket \ is \ ready \ for \ the \ new \ microprocessor.$

Installing the Microprocessor

NOTICE: You must position the microprocessor correctly in the socket to avoid permanent damage to the microprocessor and the computer.

- 1. If the release lever is not extended to the release position, move it to that position.
- 2. Align pin-1 (the imprinted corner) of the microprocessor and pin-1 of the socket.



- 1 pin-1 corners of microprocessor and socket aligned
- NOTICE: Microprocessor pins are delicate. To avoid damage, ensure that the microprocessor aligns properly with the socket, and do not use excessive force when you install the processor.
- 3. Carefully set the microprocessor in the socket and press it down lightly to seat it.
- 4. Rotate the release lever back toward the system board until it snaps into place, securing the microprocessor.
- 5. Place the heat sink in the base.
- 6. To replace the securing clips:
 - a. Fit the end of the clip that *does not* have a latch over a tab on the retention base.
 - b. Fit the middle of the clip over the middle tab on the retention base.
 - c. Press down the clip's latch so it fits over the tab and secures the clip to the retention base.
- 7. Lower the airflow shroud over the heat sink.

If you installed a microprocessor replacement kit from Dell, return the original heat sink assembly and microprocessor to Dell in the same package in which your replacement kit was sent.

- 8. Reconnect the cooling fan power cable to the FAN connector on the system board.
- 9. Reconnect the power cable to the 12VPOWER connector on the system board.
- 10. Close the computer cover.
- NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.
- 11. Connect your computer and devices to electrical outlets, and turn them on.

Regulatory Notices

Dell Precision™ Workstation 350 User's Guide

- FCC Notices (U.S. Only)
- IC Notice (Canada Only)
- CE Notice (European Union)
- ENERGY STAR® Compliance
- EN 55022 Compliance (Czech Republic Only)
- VCCI Notice (Japan Only)
- MIC Notice (Republic of Korea Only)
- Polish Center for Testing and Certification Notice
- BSMI Notice (Taiwan Only)
- NOM Information (Mexico Only)

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

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

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

If necessary, consult a Dell Technical Support representative or an experienced radio/television technician for additional suggestions.

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

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

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

A Notice About Shielded Signal Cables: Use only shielded cables for connecting peripherals to any Dell device to reduce the possibility of interference with radio communications services. Using shielded cables ensures that you maintain the appropriate EMC classification for the intended environment. For parallel printers, a cable is available from Dell. If you prefer, you can order a cable from Dell on the World Wide Web at accessories.us.dell.com/sna/category_id=4117.

Most Dell computer systems are classified for Class B environments. However, the inclusion of certain options can change the rating of some configurations to Class A. To determine the electromagnetic classification for your system or device, refer to the following sections specific for each regulatory agency. Each section provides country-specific EMC/EMI or product safety information.

FCC Notices (U.S. Only)

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

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

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

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

Class A

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

Class B

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- 1 Reorient or relocate the receiving antenna.
- 1 Increase the separation between the equipment and the receiver.
- 1 Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- 1 Consult the dealer or an experienced radio/television technician for help.

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

- 1 Model number: DHM
- 1 Company name:

Dell Computer Corporation One Dell Way Round Rock, Texas 78682 USA (512) 338-4400

IC Notice (Canada Only)

Most Dell computer systems (and other Dell digital apparatus) are classified by the Industry Canada (IC) Interference-Causing Equipment Standard #3 (ICES-003) as Class B digital devices. To determine which classification (Class A or B) applies to your computer system (or other Dell digital apparatus), examine all registration labels located on the bottom or the back panel of your computer (or other digital apparatus). A statement in the form of "IC Class A ICES-003" or "IC Class B ICES-003" will be located on one of these labels. Note that Industry Canada regulations provide that changes or modifications not expressly approved by Dell could void your authority to operate this equipment.

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

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

CE Notice (European Union)

Marking by the symbol C indicates compliance of this Dell computer to the EMC Directive and the Low Voltage Directive of the European Union. Such marking is indicative that this Dell system meets the following technical standards:

- 1 EN 55022 "Information Technology Equipment Radio Disturbance Characteristics Limits and Methods of Measurement."
- 1 EN 55024 "Information Technology Equipment Immunity Characteristics Limits and Methods of Measurement."
- 1 EN 61000-3-2 "Electromagnetic Compatibility (EMC) Part 3: Limits Section 2: Limits for Harmonic Current Emissions (Equipment Input Current Up to and Including 16 A Per Phase)."
- 1 EN 61000-3-3 "Electromagnetic Compatibility (EMC) Part 3: Limits Section 3: Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment With Rated Current Up to and Including 16 A."
- ı EN 60950 "Safety of Information Technology Equipment."

This Dell device is classified for use in a typical Class B domestic environment.

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

ENERGY STAR® Compliance

Certain configurations of $Dell^{TM}$ computers comply with the requirements set forth by the Environmental Protection Agency (EPA) for energy-efficient computers. If the front panel of your computer bears the ENERGY STAR® Emblem, your original configuration complies with these requirements and all ENERGY STAR® power management features of the computer are enabled.

NOTE:Any Dell computer bearing the ENERGY STAR® Emblem is certified to comply with EPA ENERGY STAR® requirements as configured when shipped by Dell. Any changes you make to this configuration (such as installing additional expansion cards or drives) may increase the computer's power consumption beyond the limits set by the EPA's ENERGY STAR® Computers program.



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

You can also help reduce electricity usage and its side effects by turning off your computer when it is not in use for extended periods of time, particularly at night and on weekends.

EN 55022 Compliance (Czech Republic Only)

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

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

VCCI Notice (Japan Only)

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

To determine which classification applies to your computer system, examine the regulatory labels/markings (see "VCCI Class A ITE Regulatory Mark" and "VCCI Class B ITE Regulatory Mark") located on the bottom, side, or back panel of your computer. Once you have determined your system's VCCI classification, read the appropriate VCCI notice.

Class A ITE

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

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

VCCI Class A ITE Regulatory Mark

If the regulatory label includes the following marking, your computer is a Class A product:

VCCI

Class B ITE

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

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

VCCI Class B ITE Regulatory Mark

If the regulatory label includes the following marking, your computer is a Class B product:



MIC Notice (Republic of Korea Only)

To determine which classification (Class A or B) applies to your computer (or other Dell digital device), examine the Republic of Korean Ministry of Information and Communications (MIC) registration labels located on your computer (or other Dell digital device). The MIC label may be located separately from the other regulatory marking applied to your product. Line two of the label identifies the emissions class for the product—"(A)" for Class A products or "(B)" for Class B products.

NOTE: MIC emissions requirements provide for two classifications:

- 1 Class A devices are for business purposes.
- 1 Class B devices are for nonbusiness purposes.

Class A Device

기 종 별	사 용 자 안 내 문
A급 기기 (업무용 정보통신기기)	이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점 을 주의하시기 바라며 만약 잘못 판매 또 는 구입하였을 때에는 가정용으로 교환하 시기 바랍니다.

Please note that this device has been approved for business purposes with regard to electromagnetic interference. If you find that this device is not suitable for your use, you may exchange it for a nonbusiness-purpose device.

MIC Class A Regulatory Label

If the regulatory label includes the following marking, your computer is a Class A product:



- 1. 기기의 명칭(모델명): 2. 인증번호:(A) 3. 인증받은 자의 상호:

- 4. 제조년월일:
- 5. 제조자/제조국가:

Class B Device

기종별	사용자 안내문	
B급 기기 (가정용 정보통신기기)	이 기기는 가정용으로 전자파적합등록을 한 기기로서 주거지역에서는 물론 모든 지역에 서 사용할 수 있습니다.	

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

MIC Class B Regulatory Label

If the regulatory label includes the following marking, your computer is a Class B product.



- 1. 기기의 명칭(모델명):
- 2. 인증번호:(B)
- 3. 인증받은 자의 상호:
- 4. 제조년월일:
- 5. 제조자/제조국가:

Polish Center for Testing and Certification Notice

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

The phasing conductor of the room's electrical installation should have a reserve short-circuit protection device in the form of a fuse with a nominal value no larger than 16 amperes (A).

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

A protection mark "B" confirms that the equipment is in compliance with the protection usage requirements of standards PN-93/T-42107 and PN-EN 55022:

Wymagania Polskiego Centrum Badań i Certyfikacji

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

Instalacja elektryczna pomieszczenia powinna zawierać w przewodzie fazowym rezerwową ochronę przed zwarciami, w postaci bezpiecznika o wartości znamionowej nie większej niż 16A (amperów).

W celu całkowitego wyłączenia urządzenia z sieci zasilania, należy wyjąć wtyczkę kabla zasilającego z gniazdka, które powinno znajdować się w pobliżu urządzenia i być łatwo dostępne. Znak bezpieczeństwa "B" potwierdza zgodność urządzenia z wymaganiami bezpieczeństwa użytkowania zawartymi w PN-93/T-42107 i PN-EN 55022:1996.

Jeżeli na tabliczce znamionowej umieszczono informację, że urządzenie jest klasy A, to oznacza to, że urządzenie w środowisku mieszkalnym może powodować zaklócenia radioelektryczne. W takich przypadkach można żądać od jego użytkownika zastosowania odpowiednich úrodków zaradczych.

Pozostałe instrukcje bezpieczeństwa

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

BSMI Notice (Taiwan Only)

BSMI 通告(僅限於台灣)

大多數的 Dell 電腦系統被 BSMI (經濟部標準檢驗局) 劃分寬乙類數位裝置。但是,使用 某些選件會使有些組態的等級變成甲類。若要確定您的電腦系統適用等級,請檢查所 有位於預腦点部或背面板、擴充卡安裝托架,以及擴充卡上的 BSMI 註冊標籤。如果其 中有一甲類標綫,即表示您的系統爲甲類數位裝置。如果只有 BSMI 的檢繳號碼標籤, 則表示您的系統爲乙類数位裝置。

一旦確定了系統的 BSMI 等級,請閱讀相關的 BSMI 通告。請让意,BSMI 通告規定凡是未 經 Dell Computer Corporation 明確批准的擅自變更或修改,將将致您失去此設備的使用權。

此装置符合 BSMI (經濟部標準檢驗局) 的規定,使用時須符合以下兩項條件;

- 此裝置不會產生有害干擾。
- 此裝置必須能接受所接收到的干擾,包括可能導致無法正常作業的干擾。

甲類

此設備經測就證明符合 BSM (經濟部標準檢驗局) 之甲類數位裝置的限制規定。這些限制的目的是為了在商業環境中使用此設備時,能提供合理的保護以防止有害的干擾。此設備會產生、使用並散發射賴能量;如果未選照製洗廠餚的指導手册來安裝和使用,可能會干擾無線電通訊。譜勿在住宅區使用此設備。

警告使用者:

這是甲類的資訊產品,在居住的環境中使用時,可能會造成射類干擾,在這種情況下,使用者會被要求采取某些適當的對策。

乙類

此設備經測試證明符合 BSM (經濟部標準檢驗局) 之乙類數位裝置的限制規定。這些限制的目的是為了在住宅互安裝時,能防止石害的干護,提供合理的保護。此設備會產生,使用並散發射頻能量;如果未遵照製造版圖的指導手册來安裝和使用,可能會干擾無線電通訊。但是,這查不保證在個別的安裝中不會產生干擾。您可以透過關閉和關係也設備來判斷它是否會對展播和電視被訊證或干擾;如果確實如此,我們建議您嘗試以下例一種或多種方法來排除干擾;

- 重新調整天線的接收方向或重新放置接收天線。
- 增加設備與接收器的距離。
- 將設備連接至不同的排座,使設備與接收器連接在不同的電路上。
- 請向經銷商或有經驗的無線電/電視技術人員查詢:以獲得幫助。

NOM Information (Mexico Only)

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

Exporter:	Dell Computer Corporation One Dell Way Round Rock, TX 78682	
Importer:	Dell Computer de México, S.A. de C.V. Paseo de la Reforma 2620 - 11º Piso Col. Lomas Altas 11950 México, D.F.	
Ship to:	Dell Computer de México, S.A. de C.V. al Cuidado de Kuehne & Nagel de México S. de R.I. Avenida Soles No. 55 Col. Peñon de los Baños 15520 México, D.F.	
Model number — Input current rating:	DHM-3.0/1.5 A	
Supply voltage:	115/230 VAC	
Frequency:	60-50 Hz	

Solving Problems

Dell Precision™ Workstation 350 User's Guide

- Battery Problems
- Card Problems
- Drive Problems
- Dropped or Damaged Computer
- Error Messages
- General Problems
- IEEE 1394 Device Problems
- Kevboard Problems

- Memory Problems
- Mouse Problems
- Network Problems
- Power Problems
- Serial or Parallel Device Problems
- Sound and Speaker Problems
- System Board Problems
- Video and Monitor Problems

Battery Problems

Fill out the $\underline{\mbox{Diagnostics Checklist}}$ as you complete these checks.



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



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

Replace the battery — If you have to repeatedly reset time and date information after turning on the computer, or if an incorrect time or date displays during start-up, replace the battery. If the battery still does not work properly, contact Dell.

Card Problems

Fill out the Diagnostics Checklist as you complete these checks.



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

Check the card seating and cable -

- Turn off the computer and devices, disconnect them from electrical outlets, wait 10 to 20 seconds, and open the computer cover.
- Ensure that each card is firmly seated in its connector. Reseat any loose cards.

 Make sure that all cables are firmly connected to their corresponding connectors on the cards. If any cables appear loose, reconnect

For instructions on which cables should be attached to specific connectors on a card, see the card's documentation.

4. Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

Test the video card -

- Turn off the computer and devices, disconnect them from electrical outlets, wait 10 to 20 seconds, and open the computer cover.
- 2. Remove all cards except the video card.

If your primary hard drive is connected to a drive controller card and not to one of the system board IDE connectors, leave the drive controller card installed in the computer.

- Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.
- 4. Run the Dell Diagnostics

If any of the tests fail, contact Dell

Test the cards -

- Turn off the computer and devices, disconnect them from electrical outlets, wait 10 to 20 seconds, and open the computer cover.
- Reinstall one of the cards that you removed previously.

 <u>Close the computer cover</u>, reconnect the computer and devices to electrical outlets, and turn them on.

If any of the diagnostics tests fail, the card you just reinstalled is faulty and needs to be replaced.

5. Repeat this process until you have reinstalled all cards.

If you have reinstalled all of the cards and the problem is not resolved, contact Dell

Drive Problems

Fill out the Diagnostics Checklist as you complete these checks.

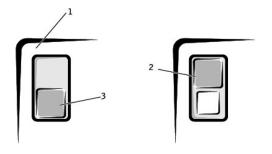
Floppy drive problems

Ensure that Windows® recognizes the drive — Click the Start button and click My Computer. If the floppy drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Test the drive -

- 1 Insert another disk to eliminate the possibility that the original floppy disk is defective.
- Insert a bootable floppy disk and reboot the computer

Ensure that the disk is not full or write-protected — Ensure that the disk has available space and that it is not write-protected (locked).



1	back of floppy disk	
2	write-protected	
3	not write-protected	

Test the floppy drive light -

MS-DOS®

Insert a floppy disk, type dir a: at the DOS prompt, and press < Enter >.

Microsoft Windows operating systems

Insert a floppy disk, click the Start button, click My Computer, and then double-click the floppy drive icon.

 $\textbf{Run the } \underline{\textbf{Dell Diagnostics}} - \textbf{If any of the tests fail, } \underline{\textbf{contact Dell}}$



Clean the drive — Use a commercially available cleaning kit. A CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

NOTICE: Do not attempt to clean drive heads with a swab. You may accidentally misalign the heads, which can render the drive inoperable.

Remove and reinstall the floppy drive — See "Removing a Floppy Drive" for information on performing this procedure.

If the computer displays a drive error message, see "Error Messages" for an explanation.

CD drive problems



MOTE: High-speed CD drive vibration is normal and may cause noise. This does not indicate a defect in the drive or the CD.

Adjust the Windows volume control — Click the speaker icon in the lower-right corner of your screen.

- Ensure that the volume is turned up by clicking the slidebar and dragging it up.
 Ensure that the sound is not muted by clicking any boxes that are checked.

Test the drive with another CD — Insert another CD to eliminate the possibility that the original CD is defective.

Ensure that Windows recognizes the drive — Click the Start button and click My Computer. If the CD drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Clean the disc — Use a commercially available cleaning kit.

Problems writing to a CD-RW drive

Close other programs — The CD-RW drive must receive a steady stream of data when writing. If the stream is interrupted, an error occurs. Try closing all programs before writing to the CD-RW.

DVD drive problems



NOTE: Because of different worldwide file types, not all DVD titles work in all DVD drives.

Test the drive with another DVD — Insert another DVD to eliminate the possibility that the original DVD is defective.

Ensure that Windows recognizes the drive — Click the Start button and click My Computer. If the DVD drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Clean the disc - Use a commercially available cleaning kit

Check for interrupt request conflicts - See "Resolving Software and Hardware Incompatibilities."

Hard drive problems

Test the hard drive -

Windows XP - Run the chkdsk utility:

- Click the Start button, select Shutdown, and click Restart the Computer.
- At the C: prompt, type CD\Windows\Command and press <Enter
- Type chkdsk and press < Enter >.

The utility creates and displays a status report and lists and corrects errors on the disk.

Windows 2000 - Run the ScanDisk utility:

Click the Start button, point to Run, type scandskw, and then click OK.

Type scandisk x: at an MS-DOS prompt, where x is the hard drive letter, and then press <Enter>

Run the Dell Diagnostics — If the tests indicate a faulty drive or drive controller, contact Dell.

Check the cable connections -

- Ensure that the DC power cables from the power supply are firmly connected to the connectors on each drive. Verify that the interface cable for each drive is firmly connected to the drive and to the system board.
- Ensure that the control panel cable is firmly connected to the system board.

If the hard drive activity light does not blink during the boot routine, contact Dell.

If a drive error message displays, see " $\underline{\mathsf{Error}}$ $\underline{\mathsf{Messages}}$ " for an explanation.

If the primary hard drive that contains the operating system does not boot, files in the operating system might be corrupt. For more information, see your operating system documentation.

Dropped or Damaged Computer



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

Check the card and cable connections -

- Turn off the computer and devices, disconnect them from electrical outlets, wait 10 to 20 seconds, and then open the computer cover
- Check all card connections in the computer, and reseat any loose cards.

 Ensure that all cables are properly connected and that all components are properly seated in their connectors and sockets. omputer cover, reconnect the computer and devices to electrical outlets, and turn them on

If any of the diagnostics tests fail, contact Dell.

E-Mail, Modem, and Internet Problems

Check the telephone line connection — Verify that the telephone line is connected to the jack on the modem. (The jack has either a green label or a connector-shaped icon next to it.) Ensure that you hear a click when you insert the telephone line connector into the modern

Check the telephone jack — Disconnect the telephone line from the modem and connect it to a telephone. Listen for a dial tone

Connect the modem directly to the telephone wall jack — If you have other telephone devices sharing the line, such as an answering machine, fax machine, surge protector, or line splitter, then bypass them and use the telephone to connect the modem directly to the telephone wall jack.

Use a different telephone line — If you are using a line that is 3 m (10 ft) or more in length, try a shorter one.

Run the Modem Helper diagnostics — Click the Start button, point to All Programs, and then click Modem Helper. Follow the instructions on the screen to identify and resolve modem problems. (Modem Helper is not available on all computers.)

Verify that the modem is communicating with Windows® -

- Click the Start button, and then click Control Panel.
- Click Printers and Other Hardware

- Click **Phone and Modem Options**. Click the **Modems** tab.
- Click the COM port for your modem
- Click Properties, click the Diagnostics tab, and then click Query Modem to verify that the modem is communicating with Windows

If all commands receive responses, the modem is operating properly.

Turn off call waiting (catch-phone) — See your telephone directory for instructions on deactivating this feature. Then adjust the dial-up

- Click the Start button, and then click Control Panel.
 Click Printers and Other Hardware, and then click Phone and Modem Options.
- Click your connection type to highlight it. Click the **Dialing Rules** tab, and then click **Edit**.
- Click the **To Disable Call Waiting** box to place a checkmark in it. Select the disable code from the drop-down menu (for example, *70). Click **Apply**, and then click **OK**.

Ensure that you are connected to the Internet — With the Outlook Express e-mail program open, click File. If Work Offline has a checkmark next to it, click the checkmark to remove it and connect to the Internet.

Ensure that you have subscribed to an Internet service provider — Contact an Internet service provider to subscribe

Contact your Internet service provider — Contact your Internet service provider for assistance

Error Messages

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

A filename cannot contain any of the following characters: \ / : * ? " < > | — Do not use these characters in filenames

A required .DLL file was not found — The program that you are trying to open is missing an essential file. To remove and then reinstall the

- Click the Start button.
- Click Control Panel.
- Click Add or Remove Programs

- Select the program you want to remove.
 Click the Change or Remove Program icon.
 See the program documentation for installation instructions.

Alert! CPU Fan Not Detected — The microprocessor cooling fan is not installed, has failed, or is not properly connected to the system board. Ensure that the cooling fan is properly installed and working. Also, ensure that the microprocessor airflow shroud is properly installed. See

Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support — The computer failed to complete the boot routine three consecutive times for the same error. Contact Dell and report the checkpoint code (nnnn) to the support technician.

Alert! Previous Fan Failures — The fan caused an errors last time you used the computer. Ensure that nothing is blocking the airflow vents and that all the fans are properly installed and operating correctly.

Alert! Previous Processor Thermal Failure — The microprocessor overheated that last time you used the computer. Ensure that nothing is blocking the airflow vents and that all the fans are properly installed and operating correctly. Also, ensure that the microprocessor heat sink is properly installed.

Alert! Previous Reboot Was Due to Voltage Regulator Failure — The VRM failed the last time you used the computer. Contact Dell for

Alert! Previous Shutdown Due to Thermal Event — The microprocessor or hard drive overheated the last time you used the computer. Ensure that nothing is blocking the airflow vents and that all the fans are working correctly. Also, ensure that the microprocessor heat sink is

Alert! Previous Voltage Failure - Voltage used by the computer either exceeded or fell below acceptable thresholds. See "Power

Alert! System Battery Voltage is Low - The computer battery is providing inadequate voltage. See "Battery

Alert! Unable to Initialize all Installed Memory — One or more memory modules may be improperly seated or faulty. See "Memory

Alert! Uncorrectable Memory Error Previously Detected... Address xxxxxxxxh, Device RIMM_Y — One or more memory modules may be improperly seated or faulty or the system board may be faulty. See "Memo

Attachment failed to respond — The floppy or hard drive controller cannot send data to the associated drive. See "Floppy drive problems" or "Hard drive problems" for troubleshooting suggestions.

Bad command or file name - Ensure that you have spelled the command correctly, have put spaces in the proper place, and have used the Bad error-correction code (ECC) on disk read — The floppy or hard drive controller detected an uncorrectable read error. See "Floppy drive

ems" for troubleshooting suggestions. Controller has failed - The hard drive or the associated controller is defective. See "Floppy drive problems" or "Hard drive problems" for

Data error - The floppy or hard drive cannot read the data.

troubleshooting suggestions

- 1 For the Microsoft® Windows® operating system, run the chkdsk utility to check the file structure of the floppy or hard drive.
 1 For another operating system, run the appropriate corresponding utility.

See your operating system documentation for information on running these utilities

Decreasing available memory — One or more memory modules might be faulty or improperly seated.

- Reinstall the memory modules and, if necessary, replace them. See "Memory Problems" for additional troubleshooting suggestions.

Diskette drive 0 seek failure — A cable might be loose or the computer configuration information may not match the hardware configuration. See "Floppy drive problems" for troubleshooting suggestions.

Diskette read failure — The floppy disk may be defective or a cable might be loose.

- If the drive access light turns on, try a different disk
- 1 See "Floppy drive problems" for troubleshooting suggestions.

Diskette subsystem reset failed - The floppy drive controller might be faulty. Run the Dell Diagnostics

Diskette write protected — The floppy disk is write-protected. Slide the write-protect notch to the open position.

Drive not ready - No floppy disk is in the drive. Put a floppy disk in the drive

Gate A20 failure - One or more memory modules might be faulty or improperly seated.

- Reinstall the memory modules and, if necessary, replace them. See "Memory Problems" for additional troubleshooting suggestions.

General failure — The operating system is unable to carry out the command. This message is usually followed by specific information—for example, Printer out of paper. Take the appropriate action to resolve the problem.

Hard-disk configuration error —

Hard-disk controller failure -

Hard-disk drive failure -

The hard drive failed initialization.

- Run the <u>Dell Diagnostics</u>.
 See "<u>Hard drive problems</u>" for troubleshooting suggestions.

Insert bootable media — The operating system is trying to boot to a nonbootable floppy disk or CD. Insert a bootable floppy disk or CD.

Invalid configuration information - please run SETUP program — The computer configuration information does not match the hardware configuration. Enter system setup and correct the computer configuration information.

Keyboard Controller Failure -

KeyBoard Stuck Key Failure -

Keyboard failure -

A cable or connector might be loose, or the keyboard or keyboard/mouse controller might be faulty. See "Keyboard Problems."

Memory address line failure at address, read value expecting value — A memory module might be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them. See "Memory Problems" for additional troubleshooting suggestions.

Memory allocation error — The software you are attempting to run is conflicting with the operating system, another program, or a utility.

- Turn off the computer, wait 30 seconds, and then restart the computer.
 Try to run the program again.
 If the error message appears again, see the software documentation for additional troubleshooting suggestions.

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 -

A memory module might be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them. See "Me <u>Problems</u>" for additional troubleshooting suggestions.

Memory size in CMOS invalid — The amount of memory recorded in the computer configuration information does not match the memory installed in the computer. Restart the computer. If the error message appears again, contact Dell. See "Memory Problems" for additional troubleshooting suggestions.

No boot device available — The computer cannot find the floppy disk or hard drive.

- If the floppy drive is your boot device, ensure that a bootable floppy disk is in the drive.
- If the hard drive is your boot device, ensure that the drive is installed, properly seated, and partitioned as a boot device.

 Enter system setup and ensure that the boot sequence information is correct.

No boot sector on hard-disk drive -

The computer configuration information in system setup might be incorrect. Enter system setup and ensure that the computer configuration information for the hard drive is correct.

If the message continues to appear after ensuring the information in system setup was correct, the operating system might have been corrupted. Reinstall the operating system. See your operating system documentation for reinstallation information.

No timer tick interrupt — A chip on the system board might be malfunctioning. Run the <u>Dell Diagnostics</u>.

Non-system disk or disk error — The floppy disk in drive A or your hard drive does not have a bootable operating system installed on it. Either replace the floppy disk with one that has a bootable operating system, or remove the floppy disk from drive A and restart the

Not a boot diskette — The operating system is trying to boot to a floppy disk that does not have a bootable operating system installed on it Insert a bootable floppy disk.

Not enough memory or resources. Close some programs and try again — You have too many programs open. Close all windows and open the program that you want to use. In some cases, you might have to restart your computer to restore computer resources. If so, try running the program that you want to use first.

Operating system not found - Contact Dell

Please Connect USB Keyboard/Mouse to USB Ports on the Back of the Computer - The USB keyboard and/or mouse must be connected to the USB connector on the back of the computer. Turn your computer off, connect the USB keyboard and/or mouse to the USB connectors on the back of the computer and then restart the computer.

Plug and Play Configuration Error — The computer encountered a problem while trying to configure one or more cards.

- Turn your computer off, unplug it from the electrical outlet, and remove all but one of the cards.
- Plug in your computer and reboot it.

 If the message reappears, the installed card might be malfunctioning. If the message does not reappear, turn off the computer and reinsert one of the other cards.
- Repeat this process until you identify which card is malfunctioning.

Read fault - The operating system cannot read from the floppy or hard drive, the computer could not find a particular sector on the disk, or the requested sector is defective. See "Floppy dr for troubleshooting suggestions

Requested sector not found — The operating system cannot read from the floppy or hard drive, the computer could not find a particular sector on the disk, or the requested sector is defective. See "Floppy drive problems" or "Hard drive problems" for troubleshooting

Reset failed — The disk reset operation failed. See "Floppy drive problems" or "Hard drive problems" for troubleshooting suggestions.

Sector not found - The operating system cannot locate a sector on the floppy or hard drive

- Run the Windows error-checking utility to check the file structure on the floppy disk or hard drive. See Windows Help for instructions. If a large number of sectors are defective, back up the data (if possible), and then reformat the floppy disk or hard drive.

Seek error — The operating system cannot find a specific track on the floppy disk or hard drive. See "Floppy drive problems" or "Hard drive problems" for troubleshooting suggestions.

Shutdown failure — A chip on the system board might be malfunctioning. Run the Dell Diagnostics

The file being copied is too large for the destination drive — The file that you are trying to copy is too large to fit on the disk. Try copying the file to a blank disk or using a larger-capacity disk

Time-of-day clock stopped — The battery might be dead. Enter system setup and correct the date or time. If the problem persists, contact Dell. See "Battery Problems" for additional troubleshooting suggestions.

Time-of-day not set — The time or date stored in system setup does not match the computer clock. <u>Enter system setup</u> and correct the **Date** and **Time** options.

Timer chip counter 2 failed — A chip on the system board might be malfunctioning. Run the Dell Diagnostics

Unexpected interrupt in protected mode — The keyboard controller might be malfunctioning, or a memory module might be loose. Run the

WARNING: Dell's Disk Monitoring System has detected that drive [0/1] on the [primary/secondary] EIDE controller is operating outside of normal specifications. It is advisable to immediately back up your data and replace your hard drive by calling your support desk or Dell — During initial start-up, the drive detected possible error conditions.

- When your computer finishes booting, immediately back up your data and replace your hard drive.
- If no replacement drive is immediately available and the drive is not the only bootable drive, enter system setup and change the appropriate drive setting to **None**. Then remove the drive from the computer.

Write fault — The operating system cannot write to the floppy or hard drive. See "Floppy drive problems" or "Hard drive problems" for troubleshooting suggestions

Write fault on selected drive — The operating system cannot write to the floppy or hard drive. See "Floppy drive problems" or "Hard drive for troubleshooting suggestions

x:\ is not accessible. The device is not ready — The floppy drive cannot read the disk. Insert a floppy disk into the drive and try again.

General Problems

The computer stops responding

Turn the computer off — If your computer locks up and you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds until the computer turns off. Then press the power button again to turn on the computer. You might lose data if you are unable to perform an operating system shutdown.

A program stops responding

Windows® XP, Windows 2000

- Press <Ctrl> <Shift> <Esc> simultaneously.
- Click Applications
- Click the program that is no longer responding. Click **End Task**.

A program crashes repeatedly



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

Check the software documentation — Many software manufacturers maintain websites with information that may help you solve the problem. Ensure that you properly installed and configured the program. If necessary, uninstall and then reinstall the program.

A program is designed for an earlier Windows operating system

If You Are Using Windows XP, Run the Program Compatibility Wizard —

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

- Click the Start button, point to All Programs -- > Accessories, and then click Program Compatibility Wizard.
- In the welcome screen, click **Next**.
 Follow the instructions on the screen.

A solid blue screen appears

Turn the computer off — If the computer does not respond to a keystroke or a proper shutdown, press the power button for at least 8 to 10 seconds until the computer turns off. Press the power button again to restart the computer. The chkdsk program automatically runs during the start-up process. Follow the instructions on the screen.

Other software problems

Check the software documentation or contact the software manufacturer for troubleshooting information

Back up your files immediately - If your computer has a CD-RW drive or a zip drive installed, see the drive's documentation for

Ensure that you have not made an error while entering data — See the program documentation to make sure that the values or characters you are entering are valid

Check for viruses — Use a virus-scanning program to check the hard drive, floppy disks, or CDs.

Restart the computer — Save and close any open files, exit any open programs, and then shut down your computer through the Start menu instead of pressing the power button. Otherwise, you may lose data.

Check for compatibility -

- 1 Ensure that the program is compatible with the operating system installed on your computer and that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
- 1 If necessary, uninstall and then reinstall the program.

Ensure that you properly installed and configured the program — See the software documentation for information. If necessary, uninstall

Run the Dell Diagnostics — If all tests run successfully, the error condition is related to a software problem.

- Verify that the program's device drivers do not conflict with certain programs. Call the software manufacturer for technical assistance.

Other technical problems

Go to the Dell Support website -

Go to **support.dell.com** for help with general usage, installation, and troubleshooting questions. The support website offers several different tools to help you, such as Dell Forum—a chat room where you can communicate with other Dell customers about their computers and gain access to technical support through e-mail. See "Finding Information for Your Computer" for more information about the website.

Call Dell — If you cannot solve your problem using the Dell Support website or e-mail service, contact Dell for technical assistance.

General hardware problems

If your computer exhibits one or more of the following symptoms, a device conflict may exist:

1 Your computer locks up, particularly while using a specific device.

- 1 A recently added device does not work.
- 1 Memory parity errors occur on parity-enabled computers.
- 1 A sound card emits noise or demonstrates other problems.
- 1 Unintelligible characters print from the printer.
- 1 The mouse pointer does not move or "stutters" when it moves.
- 1 Messages appear stating that the computer is not operating at maximum performance.
- 1 Errors occur and programs crash for no apparent reason.
- 1 Nothing displays on the monitor.

Remove any recently added hardware to see if it resolves the conflict — If removing the hardware resolves the conflict, see the hardware documentation for configuration and troubleshooting instructions. If the problem persists, contact the hardware manufacturer for technica

Check your operating system documentation for additional troubleshooting information

Check for interrupt request conflicts - See "Resolving Software and Hardware Incompatibilities.

IEEE 1394 Device Problems



NOTE: Check Windows Explorer to see if your device is listed as a drive.

Check the IEEE 1394 device - Ensure that the IEEE 1394 device is properly inserted into the connector

Ensure that the IEEE 1394 device is recognized by Windows® -

- Click the Start button.
- Click Control Panel
- Click Printers and Other Hardware.

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

If you have problems with a Dell-provided IEEE 1394 device — Contact Dell

If you have problems with a IEEE 1394 device not provided by Dell — Contact the IEEE 1394 device manufacturer

Keyboard Problems

Fill out the Diagnostics Checklist as you complete these checks.

Restart the computer -

- 1 If the mouse is functioning, shut down the computer through the Start menu. After the computer shuts down, press the power button to restart the computer.
- 1 If the computer does not respond to a keystroke or the mouse, press the power button for at least 8 to 10 seconds until the computer turns off. Press the power button again to restart the computer.

Check the keyboard cable -

- Ensure that the keyboard cable is firmly connected to the computer.
- Ensure that the keyboard cable is firmly connected to the computer. Check the cable connector for bent or broken pins and for damaged or frayed cables. Straighten bent pins.
- Remove keyboard extension cables and connect the keyboard directly to the computer

Test the keyboard — Connect a properly working keyboard to the computer, and try using the keyboard. If the new keyboard works, the original keyboard is faulty.

Check the keyboard switch setting — Some keyboards have switch settings are on the bottom of the keyboard, sometimes behind a panel. Ensure that the switch is set to PS/2, Enhanced XT/AT, or PC/AT. See the keyboard documentation for recommended settings.

Run the Dell Diagnostics — If any of the diagnostics tests fail, contact Dell

Check for interrupt request conflicts - See "Resolving Software and Hardware Incompatibilities

Memory Problems



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

Mouse Problems

Fill out the Diagnostics Checklist as you complete these checks.

Restart the computer -

- Simultaneously press <Ctrl><Esc> to display the **Start** menu.

 Type u, press the keyboard arrow keys to highlight **Shut down** or **Turn Off**, and then press <Enter>.
- After the computer turns off, press the power button to restart the computer

Check the mouse cable -

- Check the cable connector for bent or broken pins and for damaged or frayed cables. Straighten bent pins.
 Ensure that the cable is firmly connected to the computer.

Test the mouse - Connect a properly working mouse to the computer, and try using the mouse. If the new mouse works, the original

Check the mouse settings -

Windows® XP

- Click the Start button, click Control Panel, and then click Printers and Other Hardware.
- Try adjusting the settings.

- Click the **Start** button, point to **Settings**, and then click **Control Panel**. Double-click the **Mouse** icon.
- 3. Try adjusting the settings.

If you are using a PS/2 mouse

- Enter system setup and ensure that Mouse Port under the Integrated Devices option is set to On.
- 2. Exit system setup and restart the computer

Reinstall the mouse driver — See "Drivers."

Run the Dell Diagnostics — If any of the diagnostics tests fail, contact Dell.

Check for interrupt request conflicts — See "Resolving Software and Hardware Incompatibilities."

Network Problems

Check the network cable connector — Ensure that the network cable is firmly inserted into both the network connector on the back of the computer and the network jack

Check the network lights on the back of the computer -

No light indicates that there is no network communication. Try replacing the network cable.



- link integrity light
- 2 network activity light

Restart the computer and try to log on to the network again

Check your network settings — Contact your network administrator or the person who set up your network to verify that your network settings are correct and that the network is functioning.

Check for interrupt request conflicts — See "Resolving Software and Hardware Incompatibilities

Power Problems



ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

Fill out the Diagnostics Checklist as you complete these checks.

Adjust the Power Properties - Your computer may be in standby or hibernate mode. For information on power conservation modes, see

If the power light is green and the computer is not responding — See "Diagnostic Lights."

If the power light is blinking green — The computer is in standby mode. Press a key on the keyboard or move the mouse to resume normal operation.

If the power light is off — The computer is either turned off or is not receiving power.

- Reseat the power cable into both the power connector on the back of the computer and the electrical outlet.

 If the computer is plugged into a power strip, ensure that the power strip is plugged into an electrical outlet and that the power strip

is turned on

- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
- Bypass power protection devices, power strips, and power extension cables to verify that the computer turns on. Ensure that the main power cable is securely connected to the system board. Ensure that the front panel cable is securely connected to the system board.

- If the problem persists, contact Dell.

If the power light is amber and green — The computer is receiving electrical power, but an internal power problem might exist.

- Ensure that the voltage selection switch is set to match the AC power at your location.
- Ensure that the microprocessor power cable is securely connected to the system board. If the problem persists, contact Dell.

If the power light is steady amber - The computer is receiving electrical power, but an internal power problem might exist.

- Ensure that the microprocessor power cable is securely connected to the system board.
- If the problem persists, contact Dell

If the power light is blinking amber — A device might be malfunctioning or incorrectly installed.

- Remove and then reinstall the memory modules.
- Remove and then reinstall any cards.
 Remove and then reinstall the video card, if applicable.
- If the problem persists, contact Dell

Eliminate interference — Electrical appliances on the same circuit or operating near the computer can cause interference. Other causes of

- Power extension cables
- Keyboard and mouse extension cables Too many devices on a power strip
- Multiple power strips connected to the same electrical outlet

Printer Problems



NOTE: Dell does not cover the printer's warranty. If you need technical assistance for your printer, call the printer's manufacturer. See the printer documentation for the correct phone number

Check the printer documentation — See the printer documentation for setup and troubleshooting information.

Ensure that the printer is turned on — See the printer documentation for power button information.

Verify the printer cable connections -

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

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

Verify that the printer is recognized by Windows® -

Windows XP

- Click the Start button.
- Click Control Panel.
- Click **Printers and Other Hardware**.
 Click View installed printers or fax printers.

If the printer is listed, right-click the printer icon.

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

Windows 2000

1. Click the Start button, point to Settings, and then click Printers.

If the printer is listed, right-click the printer icon.

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

Reinstall the printer driver — See the printer documentation for instructions.

Serial or Parallel Device Problems

Fill out the Diagnostics Checklist as you complete these checks.



NOTE: If you are having a problem with a printer, see "Printer Problems."

Check the documentation for the device — See the device's documentation for troubleshooting procedures

Ensure that the device is turned on - Firmly press the device's power button

Check the device cable connections — Check the connector for bent or broken pins. (It is normal for most device cable connectors to have missing pins.) Ensure that the device cable is firmly connected to the computer

Test the device cable - Swap the device's cable with a cable that works properly.

Test the electrical outlet - Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Eliminate interference — Relocate any electrical appliances on the same circuit or operating near the computer that might cause interference. Remove these other possible causes of interference

- Power extension cables
- Keyboard and mouse extension cables
- Too many devices on a power strip
- Multiple power strips connected to the same electrical outlet

Check the option setting — See the device's documentation for the recommended settings. Then enter system setup and go to the Integrated Devices option settings. Ensure that the Serial Port setting (for a serial device) or the Parallel Port setting (for a parallel device) matches the recommended settings.

Check the software documentation — If the problem occurs with particular software, see the software documentation for the recommended serial or parallel port settings. Ensure that the port settings match the recommended settings.

Run the Dell Diagnostics - If the tests do not complete,

Test the device — Swap the device with a comparable device that works properly.

Sound and Speaker Problems

Fill out the Diagnostics Checklist as you complete these checks.

No sound from speakers



NOTE: The volume control in some MP3 players overrides the Windows® volume setting. If you have been listening to MP3 songs, ensure that you did not turn the player volume down or off.

Check the speaker cable connections - Ensure that the speakers are connected as shown on the setup diagram supplied with the

Ensure that the subwoofer and the speakers are turned on — See the setup diagram supplied with the speakers. If your speakers have volume controls, adjust the volume, bass, or treble to eliminate distortion.

Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Disconnect headphones from the headphone connector — Sound from the speakers is automatically disabled when headphones are

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

Eliminate possible interference — Turn off nearby fans, fluorescent lights, or halogen lamps to check for interference

Run the speaker diagnostics — Some speaker systems have self- diagnostics. See the speaker documentation for diagnostics instructions.

Reinstall the audio (sound) driver - See "Drivers

Check the device option setting — Enter system setup and ensure that Sound under the Integrated Devices option is set to On. Exit system setup and reboot the computer.

Run the Dell diagnostics

- If the tests complete successfully, the controller is functioning properly.
 If the problem persists, or if the tests do not complete successfully, contact Dell.

Check for interrupt request conflicts — See "Resolving Software and Hardware Incompatibilities."

No sound from headphones

Check the headphone cable connection — Ensure that the headphone cable is securely inserted into the headphone connector.

Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted

Disable digital mode — Your headphones do not work if the CD drive is operating in digital mode. To disable digital mode:

- Click the Start button, click Control Panel, and then click Sounds, Speech, and Audio Devices.
- Click Sounds and Audio Devices
- Click the Hardware tab
- Double-click the name of your CD drive. Click the **Properties** tab.
- Uncheck the Enable digital CD audio for this CD-ROM device box.

System Board Problems

Fill out the Diagnostics Checklist as you complete the following checks.

Run the Dell Diagnostics - Reboot the computer and run the Dell Diagnostics. If any of the tests fail, contact Dell.



ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

Check the power supply cable connections -

- Turn off the computer and devices, disconnect them from electrical outlets, wait 10 to 20 seconds, and <u>open the computer cover</u>. Ensure that the power cables from the power supply are firmly connected to the connectors on the system board. <u>Close the computer cover</u>, reconnect the computer and devices to electrical outlets, and turn them on.

Perform all checks in "Card Problems"

Perform all checks in "Keyboard Problems"



ACAUTION: Before you begin any of the procedures in this section, follow the safety instructions in the System Information Guide.

Reinstall the battery -

- Turn off the computer and devices, disconnect them from electrical outlets, wait 10 to 20 seconds, and open the computer. Remove the battery, wait 5 minutes, and reinstall the battery.
- Close the computer cover, reconnect the computer and devices to electrical outlets, and turn them on.

If the problem still exists, contact Dell



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

Replace the Memory Modules -

- Turn off the computer and devices, disconnect them from electrical outlets, wait 10 to 20 seconds, and open the computer cover. Rotate the power supply away from the system board.

- Replace the memory module(s).

 <u>Close the computer cover</u>, reconnect the computer and devices to electrical outlets, and turn them on.

If the RAM count displayed does not correctly match the actual amount of memory installed in the computer, contact Dell.

Video and Monitor Problems

Fill out the Diagnostics Checklist as you complete these checks.

If the screen is blank



NOTE: See the monitor documentation for troubleshooting procedures.

Check the monitor power light — If the power light is off, firmly press the button to ensure that the monitor is turned on. If the power light is lit or blinking, the monitor has power. If the power light is blinking, press a key on the keyboard or move the mouse

Check the monitor cable connection — Check the connector for bent or broken pins. (It is normal for monitor cable connectors to have

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

Swap the power cables - Swap the computer and monitor power cables to determine if the power cable is defective.

Test the video extension cable (if used) — If you are using a video extension cable and removing the cable solves the problem, the cable is

Test another monitor — If another monitor is available, connect it to the computer.

Check the diagnostic lights — See "Diagnostic

Check the card setting — Enter system setup and ensure that Primary Video Controller under the Integrated Devices option is set correctly. For an AGP card, set Primary Video Controller to AGP. For a PCI card, set Primary Video Controller to Auto. Exit system setup and reboot the computer.

Run the Dell Diagnostics — If any tests fail, contact Dell

If the screen is difficult to read

Check the monitor settings — See the monitor documentation for instructions on adjusting the contrast and brightness, demagnetizing (degaussing) the monitor, and running the monitor self-test.

NOTE: Flat-panel displays may appear blurry if the resolution is not properly set. See the monitor documentation for instructions on setting the display resolution.

Move the subwoofer away from the monitor — If your speaker system includes a subwoofer, ensure that the subwoofer is at least 60 cm

Move the monitor away from external power sources — Fans, fluorescent lights, halogen lamps, and other electrical devices can cause the screen image to appear "shaky." Turn off nearby devices to check for interference.

Adjust the Windows® display settings -

Windows XP

- Click the **Start** button, and then click **Control Panel**. Click **Appearance and Themes**.
- Click Display, and then click the Settings tab

4. Try different settings for Screen resolution and Color quality.

Windows 2000

- Click the Start button, point to Settings, and then click Control Panel.
 Double-click the Display icon, and then click the Settings tab.
 Try different settings for Screen area or Desktop area.

Restore the recommended settings — Restore the original resolution and refresh rate settings. See the *Tell Me How* help file for instructions. To access help files, see page 4.

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Dell Precision™ Workstation 350 User's Guide

- Notes, Notices, and Cautions
- Abbreviations and Acronyms

Notes, Notices, and Cautions

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

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

⚠ CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

Abbreviations and Acronyms

For a complete list of abbreviations and acronyms, see the Glossary.

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Warranty and Return Policy Dell Precision™ Workstation 350 User's Guide

Dell Computer Corporation ("Dell") manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry-standard practices. For information about the Dell warranty for your computer, see the System Information Guide.

Microsoft® Windows® XP Features

Dell Precision™ Workstation 350 User's Guide

- Overview
- New User Interface
- Files and Settings Transfer Wizard
- Application and Device Compatibility
- System Restore
- User Accounts and Fast User Switching
- Home and Small Office Networking
- Internet Connection Firewal

Overview

Based on an enhanced version of the Windows 2000 operating system, Windows XP is available in consumer and business editions: Windows XP Home Edition and Windows XP Professional. The features discussed are available in both editions, but the Professional version, designed for business environments, includes additional productivity, security, networking, and management features important in business environments.

For home users, Windows XP brings the significantly increased stability and security inherent in the Windows 2000® operating systems. It also provides better support for portable computers. Key new Windows XP features include:

- An improved desktop and user interface
- 1 Files and Settings Transfer Wizard
- 1 Application program compatibility enhancements
- System Restore
- 1 Fast User Switching*
- 1 Expanded home and small office networking functions*
- 1 A personal firewall for always-on Internet connections*
 - *Home and small office features

Help and Support Center

The Help and Support Center, introduced with Microsoft Windows Millennium Edition (Me), replaces Windows Help from earlier operating systems. The Help and Support Center provides an integrated resource center for information and assistance in using, configuring, and troubleshooting your computer and installed hardware devices and software. For Windows XP, the Help and Support Center features expanded search capabilities, including full-text search and the capability to search across multiple remote sites in addition to files resident on the hard drive. You can use a single print command to print an entire chapter of help content.

To open Help and Support Center, click the **Start** button, and then click **Help and Support**. From the home page, you can conduct a search or select categories of information, leading to task and information topics covering the use of your computer. Click **User and System Guides for information on using your Dell™** computer, including installed hardware devices and software.

New User Interface

Windows XP features a redesigned user interface with a new visual style, a less cluttered desktop, and built-in desktop cleanup features. Window layout has also been changed for Windows XP and, as in the Control Panel, emphasizes task presentation. The Start menu has been redesigned. The left half of the new Start menu includes the most frequently used icons. As you use your computer, the icons in this area are changed and rearranged depending on your computer usage patterns. If you wish to keep one of the icons permanently in its location, right-click the icon and click Pin to Start menu.

To access all the programs installed on the computer, click **All Programs** at the bottom of the **Start** menu. The right half of the new **Start** menu contains useful icons for accessing your files, configuring the computer, and finding information and assistance. The **Dell Solution Center** icon opens a portal to services and application programs installed on your Dell computer.

Switching to Classic View

If you want, you may change the appearance of the **Start** menu, desktop and windows, or **Control Panel** layout to that of earlier Windows operating systems. These classic view options are independent of each other.

You can easily switch back and forth between the new Control Panel category view and the classic icon view by clicking Switch to Classic View or Switch to Category View in the upper left area of the Control Panel window. This can be handy if you want to take advantage of the new, task-oriented features of the Windows XP Control Panel, but you are accustomed to performing a particular task with the icon-oriented classic Control Panel.

To change the appearance of the Start menu to the classic view:

- 1. Right-click the empty area on the task bar
- 2. Click Properties
- 3. Click the Start Menu tab

4. Select Classic Start Menu and click OK

If you prefer the classic window and button appearance, perform the following steps:

- 1. Right-click anywhere on the main desktop screen and click Properties.
- 2. Click the Appearance tab.
- 3. From the Windows and buttons dropdown box, select Windows Classic style.
- 4. To customize color, font, and other classic desktop options, click Advanced.
- 5. When you have completed your appearance selections, click OK

Clean Desktop Wizard

Another feature of Windows XP is the Desktop Cleanup Wizard. The wizard runs 7 days after you first start your computer and every 60 days after that. The Desktop Cleanup Wizard first opens a dialog box informing you that there are unused icons on the desktop and asking whether you want to run the wizard. If you elect to run the wizard, it places unused desktop icons in the folder C:\Desktop Icons.

The default for the Desktop Cleanup Wizard is on. To turn the wizard off:

- 1. Right-click anywhere on the main desktop screen and click Properties.
- 2. Select the Desktop tab and click Customize Desktop.
- 3. In the Desktop cleanup options make sure that the Run Desktop Cleanup Wizard every 60 days box is not checked.

You can run the Desktop Cleanup Wizard anytime by following these steps:

- 1. Right-click anywhere on the main desktop screen and select Properties
- 2. Click the Desktop tab and click Customize Desktop.
- Click Clean Desktop Now.
- 4. When the Desktop Cleanup Wizard welcome screen appears, click Next>
- 5. In the Shortcuts list, deselect any shortcuts you want to leave on the desktop, and then click Next>.
- 6. Click Finish to remove the shortcuts and close the wizard.

The shortcuts are moved to the folder C:\Desktop Icons.

To access desktop icons removed by Windows XP, click the Start button, and then click Dell Solution Center.

Taskbar Grouping

The Windows taskbar is a row of buttons that typically displays across the bottom of the screen. The taskbar includes the **Start** menu button and a button for each open application. (The taskbar also includes the Quick Launch icons and the notification area.) Windows XP groups multiple instances of the same application on the taskbar. For example, if six instances of Internet Explorer are open, each displaying a button on the taskbar, Windows XP groups the buttons next to one another on the taskbar. If space becomes an issue on the taskbar, Windows XP consolidates all the Internet Explorer buttons into a single button. When clicked, that button expands to a menu of the six Internet Explorer active sessions.

Notification Area Cleanup

Over time, software icons tend to proliferate in the notification area, the area in the bottom right corner of the Windows desktop. Windows XP detects when icons in the notification area are not being accessed and hides them. A caret, or chevron, button indicates that there are hidden icons that can be viewed by selecting the button. You can also configure the notification area manually by right-clicking the taskbar, selecting **Properties**, and then clicking **Customize...** in the **Taskbar and Start Menu Properties** window. For example, you may choose to hide the antivirus program icon because it is rarely accessed, but display the audio volume icon because it is used frequently. The notification area cleanup feature is automatically enabled when the operating system is installed, but you may disable it by unchecking **Hide inactive icons** in the **Taskbar and Start Menu Properties** window.

Files and Settings Transfer Wizard

The Files and Settings Transfer Wizard is used to migrate personal files and settings from one computer to another (for instance, when upgrading to a new computer). Personal files include the documents, images, spreadsheets, presentations, and e-mail messages on your computer. User settings include display properties, window sizes, toolbar settings, dial-up connections, Internet bookmarks, and so forth on your computer. The Files and Settings Transfer Wizard is run on a source (old) computer to collect the data and is run again on the destination (new) computer to import the data. If the old computer is using an earlier operating system, the wizard can be launched either from the Windows XP CD or from a diskette created on the new Windows XP computer. You transfer the data to the new computer over a network or direct serial connection, or store it on a removable medium such as a floppy disk, Zip disk, or writable CD.

To use the Files and Settings Transfer Wizard:

- On the new Windows XP computer, click the Start button, point to All Programs → Accessories → System Tools, and click Files and Settings Transfer Wizard.
- 2. On the Files and Settings Transfer Wizard welcome screen, click Next>
- 3. On the Which computer is this? screen, select New Computer, and then click Next>
- 4. The Do you have a Windows XP CD? screen appears

The Files and Settings Transfer Wizard guides you through the steps necessary to transfer user settings, personal files, or both to the new computer. If a CD drive is not available, the wizard allows you to create a wizard diskette to run on your old computer.

NOTE: The time required to collect and transfer data depends on the amount of data collected. Times can vary from just a few minutes to several hours.

Application and Device Compatibility

Although Windows XP is designed to be compatible with a wide range of application programs and hardware devices, some older programs and devices may not be usable. Check the Microsoft website at **www.microsoft.com** for application programs and hardware devices known to be compatible. When buying new software and devices, look for those that are labeled as ready for Windows XP. If you encounter problems using an application program designed for an earlier Windows operating system, Windows XP provides a compatibility mode feature (see "Program Compatibility Wizard"). If you are unsuccessful at installing application programs or hardware devices designed to operate on earlier Windows operating systems, contact the manufacturer of the product for information or updates for Windows XP.

Windows XP also includes a new technology that addresses the problems sometimes encountered on previous operating systems with Windows application programs that, when installed, replace current versions of certain Windows files with older versions. This situation can cause problems with the newer application programs, which rely on the replaced files. To eliminate this problem and improve operating system stability, Windows XP manages multiple versions of files and invokes the correct version required by a program.



NOTE: If you experience problems with your operating system or other applications after performing an installation, you can use System Restore to return your computer to a previous stable condition.

Program Compatibility Wizard

A program compatibility feature is provided in Windows XP that solves some issues that may be encountered when attempting to run older application programs. Using the Program Compatibility Wizard, you can configure a program to run in an environment closer to Windows 95, Windows 98/Me, Windows NT® 4.0 with Service Pack 5, or Windows 2000.

To use the Program Compatibility Wizard:

- 1. Click the Start button, point to All Programs → Accessories, and click Program Compatibility Wizard
- When the welcome screen appears, click Next>
- 3. Select how you want to locate the program to run with compatibility settings; from a list, available on a CD, or manually located. Then click Next>
- 4. Select the type of operating system for which the program was designed or on which it ran successfully, and then click Next>
- 5. If necessary, as for some games, select display settings for the program.
- 6. Click Next>
- 7. To test the compatibility settings for the program, click Next>

After you have determined whether the program is running correctly, return to the Program Compatibility Wizard window

- 8. Select Yes if the program ran correctly, No, try different compatibility settings, or No, I am finished trying compatibility settings and click Next>.
- Select either Yes to send information about the settings you used and whether they fixed the problem, or select No, and then click Next>
- 10. Click Finish to close the wizard

System Restore

The System Restore feature of Windows XP provides the capability to restore the operating system, in the event of a problem, to a previous state without losing personal data files (such as Word documents, drawings, or e-mail).

System Restore actively monitors system file changes and some application file changes to record or store previous versions before the changes occurred. System Restore maintains a rolling record of restore points; to limit the amount of space used, older restore points are purged to make room for newer ones.

In the event of a serious operating system problem, System Restore can be used from Safe Mode or Normal Mode to go back to a previous system state, restoring optimal system functionality.



NOTE: System Restore does not revert user data or document files, so restoring does not cause loss of work, mail, or browsing history and favorites.



NOTE: Dell recommends that you make regular backups of your data files. System Restore does not monitor changes to or recover your data files. In the event the original data on the hard drive is accidentally erased or overwritten or becomes inaccessible because of a hard-drive malfunction, backup files are required to recover lost or damaged data.

Using System Restore

System Restore monitors a core set of system and application program files, recording and sometimes copying states of these files before changes are made. System Restore automatically creates restore points; no user intervention is required. In addition, you can create restore points manually, if desired.

Restore points are created to allow you to choose previous system states. Each restore point gathers the necessary information needed to restore to a precisely chosen system state. There are three types of restore points:

- 1 System (automatically created) restore points (scheduled by your computer)
- Installation (event-triggered) restore points (when a program is installed)
- 1 Manual restore points (created by you as needed)

Scheduled Automatic Restore Points

By default, System Restore creates a restore point every day that the computer is running. If your computer is off for more than a day, a new restore point is

created the next time you turn the computer on.

Event-Triggered Restore Points

Event-triggered restore points are created before key changes are made to the system. System Restore automatically creates a restore point before the following events:

- 1 Application installations System Restore creates a restore point before you install an application program designed for Windows XP. You may wish to create a manual restore point before attempting to install an older program.
- 1 AutoUpdate installation When you choose to install the update, System Restore creates a restore point before the actual installation of the update begins
- 1 Restore operation The restore operation itself also creates a restore point for undo purposes.
- 1 Microsoft Backup Utility recovery Before Microsoft Backup Utility (only available in Windows XP Professional) performs a backup recovery, System Restore creates a restore point.
- Unsigned driver installation The INF installer of Windows detects unsigned device-driver installations. Drivers that are signed (electronically certified by the device manufacturer) do not generate a restore point.

Manual Restore Points

If you are logged on to the computer as computer administrator or as a user with administrator rights, you may create and name an on-demand restore point. (For information on types of user accounts, see "How to Add Users.") This is useful to create a checkpoint to return to before making a particularly risky change, before leaving a shared system to other users, or at a particular state you believe is optimal.

To create a restore point:

- 1. Click the Start button, point to All Programs → Accessories → System Tools, and then click System Restore.
- 2. Select Create a restore point and click Next>
- 3. Type a description of the restore point and click Create.

The date and time are automatically added to the description of the new restore point.

Restore Process

As the computer is used over time, restore points are collected in the archive without any management or intervention. If you encounter operating system problems, you can use the System Restore feature to select any of the restore points presented through the System Restore Wizard.

If problems occur after installing a device driver, you should first attempt to use Driver Rollback. If that is unsuccessful, then use System Restore.

To return your computer to a previous, stable condition:

- 1. Click the Start button, point to All Program \rightarrow Accessories \rightarrow System Tools, and then click System Restore.
- 2. Select Restore my computer to an earlier time and click Next>

The Select a Restore Point screen appears. The calendar on the left indicates in bold the dates on which restore points were created.

- 3. Click a date, click a restore point for that date, and click **Next>**.
- 4. Click Next> to confirm the restore point selection and complete the restore process.

After System Restore finishes collecting data, the computer automatically restarts and the Restoration Complete screen appears

5. Click **OK**.

If you are not satisfied with the results of the restoration, you can repeat the preceding steps, using a different restore point, or you can undo the restoration.

To undo a restoration

- 1. Click the Start button, point to All Programs → Accessories → System Tools, and then click System Restore.
- 2. Select **Undo my last restoration** and click **Next>**
- 3. Click Next> to confirm the restoration undo

After System Restore finishes collecting data, the computer automatically restarts and the **Undo Complete** screen appears.

4. Click OK.

Driver Rollback

Windows XP device Driver Rollback can replace a device driver with the previously installed version. When you install a new device driver that causes system instability, use Driver Rollback to reinstall the previous drivers. In the event that Driver Rollback cannot reinstall your previous driver, you can use System Restore to return your operating system to its state before the new device driver installation.

To use Driver Rollback:

- 1. Click the Start button, and then right-click My Computer.
- 2. Click Properties
- 3. Click the Hardware tab, and then click Device Manager.

- 4. In the Device Manager window, right-click the device for which the new driver was installed, and then click Properties
- 5. Click the Drivers tab, and then click Roll Back Driver

User Accounts and Fast User Switching

NOTE: Fast User Switching is the default user screen for both Home and Professional editions, but it is disabled in Windows XP Professional when the computer is a member of a computer domain

Microsoft Windows XP includes a new feature that provides multiuser access to a single computer. Fast User Switching, which is available in both the Home and Professional editions, allows users to access the computer with their specific settings, including the desktop and various applications, without requiring the previous user to log off. New users log on and switch from the original user's session to their own. New users can run their desktop and applications without interfering with the original user. When the original user user can switch back to the desktop and applications with the original user. When the original user user can switch back to the desktop and applications with the original user user can switch back to the desktop and applications with the original user user.

During setup, the computer administrator creates all the accounts that will be used on the computer. (For information on types of accounts and adding new accounts, see "How to Add Users.") When the computer starts, the main user **Welcome** screen appears with all of the user names. From this screen you select an account and log into that session.

How to Use Fast User Switching

To access Fast User Switching:

- Click the Start button and click Log Off.
- 2. When the Log Off Windows screen appears, click either Switch User or Log Off
- 3. When you select Switch User, the main user Welcome screen appears. You can then select your account name and log in.

Your personal desktop appears.

What Happens When a Fast User Switch Occurs?

When a fast user switch occurs, the original user is not logged off the computer as previously happened on other Microsoft operating systems. On Windows XP, the user's logon remains active, but is replaced by the new user. Users can switch between login IDs as often as they want.

However, user applications active during a user switch remain active and running in the background while the new user is working: this can result in a slower computer until the process finishes. For example, if one user is downloading a large file from the Internet and another user logs on to the computer, the file download continues in the background until it is complete.

While most applications continue to run in the background during a fast user switch, multimedia applications do not. Because multimedia applications use resources that cannot easily be shared between different users on a single computer, those applications terminate during the user switch, allowing the new user to take full advantage of the multimedia capabilities.

Special Considerations With Fast User Switching

Considerations when using Fast User Switching include:

- 1 Some older Windows games may not operate with a fast user switch.
- 1 Multimedia games may shut down on a fast user switch
- 1 DVD software shuts down and requires a restart when the user comes back
- 1 Computers with low memory configurations can experience problems. The computer uses memory to keep the first user's programs running in the background while the second user is logged on. On computers with limited memory, this can cause the entire computer to run slowly. Fast User Switching is off by default on computers with less than 128 megabytes (MB) of random-access memory (RAM).

Fast User Switching is unavailable if the computer has Windows XP Professional installed and is a member of a computer domain.

How to Turn Off Fast User Switching

You must have a computer administrator account on the computer to turn off Fast User Switching. (For information on types of accounts, see "How to Add

To disable Fast User Switching:

- 1. Click the Start button and click Control Panel
- 2. In the Control Panel window, click User Accounts.
- 3. Under Pick a task, click Change the way users log on or off and do one of the following:
 - 1 Select the Use Fast User Switching to log off check box to enable Fast User Switching
 - Deselect the Use Fast User Switching to log off check box to disable Fast User Switching.
- 4. Click Apply Options

How to Add Users

Only a computer administrator or a user with administrator rights can create multiple user accounts. The individual who performs the initial operating system setup creates a computer administrator account and can add any number of users during the initial setup. All user accounts created during setup have administrator rights

After initial operating system setup, the computer administrator or a user with administrator rights can create additional user accounts

To add users, perform the following steps:

- 1. Click the Start button and click Control Panel
- 2. In the Control Panel window, click User Accounts.
- 3. In the User Accounts window under Pick a Task, click Create a new account
- 4. In the box under Name the new account, type the name of the new user. Click Next>.
- 5. Under Pick an account type, click the bullet next to the type of account you are going to create Computer administrator, Standard, or Limited.
 - 1 Computer administrators can change all computer settings.
 - 1 Standard account users (Windows XP Professional only) can install some programs and hardware.
 - 1 Limited account users can change only a few settings such as their own passwords
- 6. Click Create Account

After the accounts are created, each shows up on the Fast User Switching Welcome screen.

Home and Small Office Networking

The Network Setup Wizard includes a checklist and steps to guide you through the process of sharing resources, such as files, printers, or an Internet connection, between computers in a home or small office. In Windows XP, Microsoft has improved the online documentation and usability of operating-system tools for setting up a home or small office network. New features in the operating system include support for the Point-to-Point Protocol over Ethernet (PPPoE) and a built-in firewall.

Network Setup Wizard

The Home Network Wizard first appeared in Windows Me. To make setting up a home or small office network easier, Microsoft developed an enhanced Network Setup Wizard for Windows XP. This version provides more complete online documentation and support for setting up a home or small office network. The new wizard automatically enables the personal firewall discussed later in this section (see "Internet Connection Firewall")

To use the wizard:

- 1. Click the Start button, point to All Programs → Accessories → Communications, and click Network Setup Wizard
- 2. When the welcome screen appears, click Next>
- 3. Click checklist for creating a network

The checklist leads you through the steps necessary to set up a home or small office network and provides extensive references for each step. When you have completed the necessary connections and preparations, return to the **Network Setup Wizard**.

- 4. Select the Internet connection method and click Next>
- 5. Select the Internet connection and click Next>
- 6. Type a description of the computer and a computer name, and then click Next>
- 7. Review the network settings and click Next> to finish the setup
- 8. When the setup process is complete, click Finish to close the wizard

Internet Connection Firewall

Today's always-on cable modem and DSL Internet access connections offer unprecedented bandwidth to the home, but also leave the connected computer or home network vulnerable to hacker attacks. The nature of these attacks varies, but the goal is to gain access to individual computers attached to the Internet. With this access, a hacker can browse the hard drive and add or delete files, discover passwords and credit card numbers, and set the system up to launch attacks on other systems or websites. As a result, firewall protection from these attacks is increasingly required on computers. Recognizing this need, Microsoft provides an integrated firewall in Windows XP to provide immediate protection from outside access attempts. When enabled, the Internet Connection Firewall provides basic protection suitable for most home and small office users.



NOTE: Enabling the Internet Connection Firewall does not reduce the need for virus- checking software.

The firewall is automatically enabled when you run the Network Setup Wizard. When the firewall is enabled for a network connection, its icon appears with a red background in the **Network Connections** portion of the **Control Panel**. The Internet Connection Firewall can be applied to each Internet connection on the computer. The firewall also provides basic logging capabilities. Not all events that appear in the log are hacker attacks. Many different types of harmless events can appear in the log, such as routine checks by an Internet Service Provider to verify the presence of your computer (pings).

The firewall is configured using the Properties dialog box associated with each Internet connection in the Control Panel. The firewall can be enabled or disabled. Additional configuration options are available for more advanced users. These advanced options include the ability to open or close specific Transmission Control Protocol (TCP) or User Datagram Protocol (UDP) ports or to enable port redirection. Port redirection allows access requests to a specific port on the firewall (such as port 80, the Web server port) to be automatically redirected to another computer on the local network. This capability allows a Web server on a home network to be protected by an edge firewall.