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Advanced Troubleshooting

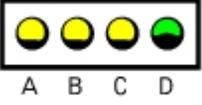
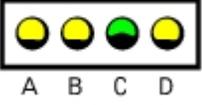
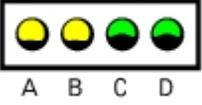
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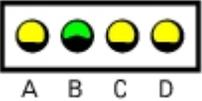
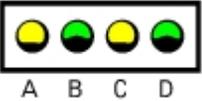
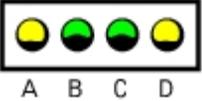
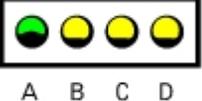
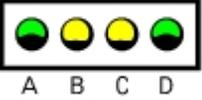
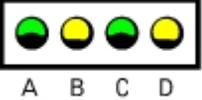
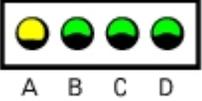
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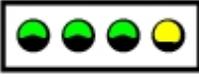
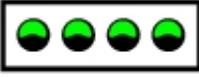
Diagnostic Codes

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.

⚠ CAUTION: Before you begin any of the procedures in this section, follow the steps listed in "[Safety Instructions](#)."

Diagnostic Code	Definition	Corrective Action
	Power up default.	<p>Make sure that the computer is connected to a known working electrical outlet, and then check whether the front-panel power light on the power button is on or off. If the power light is off, check the power supply. If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.</p> <p>See "Safety Instructions," and then remove all cards. If the computer still does not start, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.</p>
	Recovery mode from BIOS failure.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
	Microprocessor has failed a BIOS test.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
	Memory modules are detected, but a memory failure has occurred.	<ul style="list-style-type: none"> ● If you have one memory module installed, reinstall it, and then restart the computer. ● If you have two or more memory modules installed, remove the modules, reinstall one module, and then restart the computer. If the computer starts normally, reinstall an additional module. Continue until you have identified a faulty connector or reinstalled all modules without error. ● If available, install properly working memory of the same type into your computer.

		<ul style="list-style-type: none"> If the problem persists, see "Contacting Dell" in the <i>Dell Owner's Manual</i> for instructions on obtaining technical assistance.
	PCI bus failure has occurred.	<ol style="list-style-type: none"> Determine if a conflict exists by removing a 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, see "Contacting Dell" in the <i>Dell Owner's Manual</i> for instructions on obtaining technical assistance.
	Video controller failed to initialize or respond.	<ul style="list-style-type: none"> If the computer has a video card, remove the card and reinstall it. If the problem persists or the computer has integrated video, see "Contacting Dell" in the <i>Dell Owner's Manual</i> for instructions on obtaining technical assistance.
	IDE bus failure has occurred.	<ul style="list-style-type: none"> Reseat the drive cables. If the problem persists, see "Contacting Dell" in the <i>Dell Owner's Manual</i> for instructions on obtaining technical assistance.
	No memory modules are detected.	<ul style="list-style-type: none"> Reseat all memory modules, and then restart the computer. To eliminate the possibility of a faulty memory connector, remove all memory modules, reinstall one memory module (if the computer supports a single module), and then restart the computer. If the computer starts normally, move the memory module to a different connector and restart the computer. Continue until you have identified a faulty connector or reinstalled all modules without error. If the problem persists, see "Contacting Dell" in the <i>Dell Owner's Manual</i> for instructions on obtaining technical assistance.
	System board failure.	See "Contacting Dell" in the <i>Dell Owner's Manual</i> for instructions on obtaining technical assistance.
	Memory modules are detected, but a memory configuration or compatibility error exists.	<ul style="list-style-type: none"> Be sure that there are no special memory module/memory connector placement requirements. Verify that the memory modules that you are installing are compatible with the computer. If the problem persists, see "Contacting Dell" in the <i>Dell Owner's Manual</i> for instructions on obtaining technical assistance.
	USB port or a device connected to it has failed initialization.	<ul style="list-style-type: none"> Disconnect the device from the USB connector. If the problem persists, see "Contacting Dell" in the <i>Dell Owner's Manual</i> for instructions on obtaining technical assistance.

 <p>A B C D</p>	Other failure.	<ul style="list-style-type: none"> • Ensure that the cables are properly connected from the hard drive, CD drive, and DVD drive to the system board. • If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
 <p>A B C D</p>	Computer has started and turned over control to the operating system.	No action is necessary.
<p>  = yellow  = green  = off </p>		

Beep Codes

If the monitor cannot display errors or problems, during POST the computer might emit a series of beeps, or beep code, that identifies the problem. The POST beep codes are listed below.

Beep Codes	Possible Cause	Corrective Action
1	A memory refresh failure occurred.	Reseat the memory modules.
2	Memory parity cannot be reset.	Reseat the memory modules.
3	A failure occurred in the first 64 KB of memory.	Reseat the memory modules.
4	The system timer is not operational.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
6	8042 Gate A20 cannot be toggled.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
7	An exception interrupt error occurred.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
8	A read/write error occurred in the display memory.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
10	A CMOS shutdown register test error occurred.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
11	An invalid BIOS is installed.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.

System Messages

Message	Possible Cause	Corrective Action
8042 Gate-A20 error	The keyboard controller failed its test.	If you receive this message after making changes in the system setup program , enter the program and restore the original value(s).

Address Line Short!	Error in the address decoding circuitry in the memory.	Reseat the memory modules.
C: Drive Error C: Drive Failure	The hard drive is not working or is not configured correctly.	Ensure that the drive is installed correctly in the computer and defined correctly in the system setup program .
Cache Memory Bad, Do Not Enable Cache	Cache memory is not operating.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
CH-2 Timer Error	An error is occurring on the timer on the system board.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
CMOS Battery State Low CMOS Checksum Failure CMOS System Options Not Set CMOS Display Type Mismatch CMOS Memory Size Mismatch CMOS Time and Date Not Set	The system configuration information in the system setup program is incorrect, or the battery charge may be low.	Enter the system setup program and verify the system configuration; then restart the computer.
Diskette Boot Failure	Drive A or B is present but has failed the BIOS POST.	Ensure that the drive is installed correctly in the computer and defined correctly in the system setup program . Check the interface cable at both ends.
DMA Error DMA 1 Error DMA 2 Error	Error in the DMA controller on the system board.	The keyboard or system board may need to be replaced.
FDD Controller Failure HDD Controller Failure	BIOS cannot communicate with the floppy drive or hard drive controller.	Ensure that the floppy drive or the hard drive is installed correctly in the computer and defined correctly in the system setup program . Check the interface cable at both ends.
INTR1 Error INTR2 Error	Interrupt channel on the system board failed to POST.	The keyboard or system board may need to be replaced.
Invalid Boot Diskette	The operating system cannot be located on drive A or drive C.	Enter the system setup program and confirm that drive A or drive C is properly identified.
Keyboard Error	The BIOS has detected a stuck key.	Make sure that nothing is resting on the keyboard; if a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
KB/Interface Error	An error occurred with the keyboard connector.	Make sure that nothing is resting on the keyboard; if a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
No ROM Basic	The operating system cannot be located on drive A or drive C.	Enter the system setup program and confirm that drive A or drive C is properly identified.

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. To access Windows Help, see "[Finding Help Information](#)."

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

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

If problems occur after installing a device driver, first try using [Device Driver Rollback](#). If that is unsuccessful, then use System Restore.

 **NOTICE:** Before restoring 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 undoing 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. Select **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 drive space available, System Restore is automatically disabled. To see if System Restore is enabled:

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

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 driver recognizes.

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

- Upgrade your operating system
- Reinstall your operating system
- Connect or install a new device

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 to update the driver, if necessary.

Identifying Drivers

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** screen, 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.

Reinstalling Drivers

 **NOTICE:** The Dell Support website and your *Dell Dimension ResourceCD* provide approved drivers for Dell™ computers. If you install drivers obtained from other sources, your computer might not work correctly.

Using Windows XP Device Driver Rollback

If a problem occurs on your computer after you install or update a driver, use Windows XP Device Driver Rollback to replace the driver with the previously installed version.

To use Device Driver Rollback:

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** screen, click the **Hardware** tab.
5. Click **Device Manager**.
6. In the **Device Manager** window, right-click the device for which the new driver was installed, and then click **Properties**.
7. Click the **Drivers** tab.
8. Click **Roll Back Driver**.

If Device Driver Rollback does not resolve the problem, then use [System Restore](#) to return your operating system to the operating state it was in before you installed the new driver.

Using the Dell Dimension ResourceCD

If using Device Driver Rollback or [System Restore](#) does not resolve the problem, then reinstall the driver from the *Dell Dimension ResourceCD*:

1. With the Windows desktop displayed, insert the ResourceCD into the CD or DVD drive.

If this is your first time to use the ResourceCD, go to step 2. If not, go to step 5.

2. When the ResourceCD installation program starts, follow the prompts on the screen.
3. When the **InstallShield Wizard Complete** window appears, remove the ResourceCD and click **Finish** to restart the computer.
4. When you see the Windows desktop, reinsert the ResourceCD into the CD or DVD drive.
5. At the **Welcome Dell System Owner** screen, click **Next**.

 **HINT:** The ResourceCD displays drivers only for hardware that came on your computer. If you installed additional hardware, those drivers might not be displayed by the ResourceCD. If those drivers are not displayed, exit the ResourceCD program. For drivers information, see the documentation that came with that product.

A message stating that the ResourceCD is detecting hardware in your computer appears.

The drivers that are used by your computer are automatically displayed in the **My Drivers—The ResourceCD has identified these components in your system** window.

6. Click the driver that you want to reinstall and follow the instructions on the screen.

If a particular driver is not listed, then that driver is not required by your operating system.

Resolving Software and Hardware Incompatibilities

Microsoft® 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 conflicting device listed to bring up the **Properties** window to determine what needs to be reconfigured or removed from the Device Manager.

Resolve these conflicts before checking specific devices.

6. Double-click the malfunctioning device type in the **Device Manager** list.
7. Double-click the icon for the specific device in the expanded list.

The **Properties** window appears.

8. Resolve any IRQ conflicts, as described in [step 5](#).

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

You can also use the Windows XP Hardware Troubleshooter:

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

6. Click **Next**.

Reinstalling Microsoft® Windows® XP

Before You Reinstall

If you are reinstalling the Windows XP operating system to correct a problem with a newly installed driver, use Windows XP [Device Driver Rollback](#) to replace the device driver with the previously installed version.

If Device Driver Rollback does not resolve the problem, then use [System Restore](#) to return your operating system to the operating state it was in before you installed the new device driver.

Reinstalling Windows XP

To reinstall Windows XP, perform the steps in the following sections in the order in which they are listed.

The reinstallation process can take 1 to 2 hours to complete. After the reinstallation is complete, you will need to reinstall the device drivers, virus protection program, and other software.

- ➔ **NOTICE:** The *Operating System* CD provides options for reinstalling Windows XP. The options can overwrite files and possibly affect programs installed on your hard drive. Therefore, do not reinstall Windows XP unless instructed to do so by a Dell technical support representative.
- ➔ **NOTICE:** To prevent conflicts with Windows XP, disable any virus protection software installed on your computer before you reinstall Windows XP. See the documentation that came with the software for instructions.

Preparing to Boot From the Operating System CD

1. Insert the *Operating System CD* into the CD or DVD drive.
2. Exit any program or utility that might run after you insert the CD.
3. [Shut down](#), and restart the computer.
4. Press <F12> immediately after the Dell™ logo appears.

If the operating system logo appears, wait until you see the Windows desktop, and then shut down the computer and try again.

5. Use the arrow keys to select CD-ROM, and then press <Enter>.
6. Press any key when the `Press any key to boot from CD` message appears on the screen.

Starting Windows XP Setup

1. When the **Windows XP Setup** screen appears, press <Enter> to select **To set up Windows now**.
2. Read the information in the **Microsoft Windows Licensing Agreement** screen, and then press <F8> on your keyboard to accept the license agreement.
3. If your computer already has Windows XP installed and you want to recover your current Windows XP data, type `r` to select the repair option, and then remove the CD from the drive.

4. If you want to install a new copy of Windows XP, press <Esc> to select the fresh copy option.
5. Press <Enter> to select the highlighted partition (recommended), and then follow the instructions on the screen.

The **Windows XP Setup** screen appears, and the operating system begins to copy files and install the devices. The computer automatically restarts multiple times.

Completing the GUI Setup

 **NOTICE:** When the computer restarts, you will see the following message: `Press any key to boot from the CD.` Do not press any key when this message appears.

1. When the **Regional and Language Options** screen appears, select the settings for your location, and then click **Next**.
2. Enter your name and organization (optional) in the **Personalize Your Software** screen, and then click **Next**.
3. *If you are reinstalling Windows XP Home Edition*, at the **What's your computer's name** window, enter a name for your computer (or accept the name provided), and then click **Next**.

If you are reinstalling Windows XP Professional, at the **Computer Name and Administrator Password** window, enter a name for your computer (or accept the one provided) and a password, and then click **Next**.

4. If your computer has a modem installed, the **Modem Dialing Information** screen appears. Enter the requested information and click **Next**.
5. Enter the date, time, and time zone in the **Date and Time Settings** window and click **Next**.
6. *If your computer has a network adapter*, select **Typical** in the **Networking Settings** screen and click **Next**.

If your computer does not have a network adapter, you do not see this option.

7. If you are reinstalling Windows XP Professional, you may be prompted to provide further network information regarding your network configuration, such as the domain name or workgroup name. If you are unsure of your settings, accept the default selections.

Windows XP installs the operating system components and configures the computer. The computer automatically restarts.

Completing the Operating System Setup

 **NOTICE:** When the computer restarts, you will see the following message: `Press any key to boot from the CD.` Do not press any key when this message appears.

1. When the **Welcome to Microsoft** screen appears, click **Next**.
2. When the `How will this computer connect to the Internet?` message appears, click **Skip**.
3. When the **Ready to register with Microsoft?** screen appears, select **No, not at this time**, and then click **Next**.
4. When the **Who will use this computer?** screen appears, you can enter up to five users.
5. Click **Next**.
6. Click **Finish** to complete the setup, and remove the CD from the drive.

Reinstalling Drivers and Software

1. [Reinstall the appropriate drivers.](#)
2. Reinstall your virus protection software. See the documentation that came with the software for instructions.
3. Reinstall your other software programs. See the documentation that came with the software for instructions.

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