



Troubleshooting Guide

Business PCs

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This guide provides helpful hints and solutions for troubleshooting the above products as well as scenarios for possible hardware and software problems.

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Computer Diagnostic Features

HP Insight Diagnostics



HP Insight Diagnostics is included on CD with some computer models only.

The HP Insight Diagnostics utility allows you to view information about the hardware configuration of the computer and perform hardware diagnostic tests on the subsystems of the computer. The utility simplifies the process of effectively identifying, diagnosing, and isolating hardware issues.

The Survey tab is displayed when you invoke HP Insight Diagnostics. This tab shows the current configuration of the computer. From the Survey tab, there is access to several categories of information about the computer. Other tabs provide additional information, including diagnostic test options and test results. The information in each screen of the utility can be saved as an html file and stored on a diskette or USB HP Drive Key.

Use HP Insight Diagnostics to determine if all the devices installed on the computer are recognized by the system and functioning properly. Running tests is optional but recommended after installing or connecting a new device.

You should run tests, save the test results, and print them so that you have printed reports available before placing a call to the Customer Support Center.



Third party devices may not be detected by HP Insight Diagnostics.

Accessing HP Insight Diagnostics

You must boot to the *Documentation and Diagnostics* CD, as described in the steps below, to access HP Insight Diagnostics.

1. While the computer is on, insert the *Documentation and Diagnostics* CD into an optical drive on the computer.
2. Shut down the operating system and turn off the computer.
3. Turn on the computer. The system will boot to the CD.



If the system does not boot to the CD in the optical drive, you may need to change the boot order in the Computer Setup (F10) utility so that the system attempts to boot to the optical drive before booting to the hard drive. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation and Diagnostics* CD for more information.

4. When prompted, press the **Y** key if you want to operate in Safe mode or any other key if you want to operate in Regular mode.



Regular mode is the default mode if no keys are pressed within the specified time frame. If the screen remains blank after pressing any key other than **Y**, try rebooting and select safe mode when prompted.

5. Select the appropriate language and click **Continue**.



It is recommended that you accept the assigned default keyboard for your language unless you want to test your specific keyboard.

6. In the End User License Agreement page, click **Agree** if you agree with the terms. The HP Insight Diagnostics utility launches with the Survey tab displayed.

Survey Tab

The **Survey** tab displays important system configuration information. In the **View** section on the left side of the screen, you can select the **Summary** view to see limited configuration data or select the **Advanced** view to see all the data in the selected category. Regardless of whether you choose **Advanced** or **Summary**, the following categories of information are available on the **Survey** tab:

All—Gives a listing of all categories of information about the computer.

Overview—Gives you a listing of general information about the computer.

Architecture—Provides system BIOS and PCI device information.

Asset Control—Shows asset tag, system serial number, and processor information.

Communication—Shows information about the computer parallel (LPT) and serial (COM) port settings, plus USB and network controller information.

Graphics—Shows information about the graphics controller of the computer.

Input Devices—Shows information about the keyboard, mouse, and other input devices connected to the computer.

Memory—Shows information about all memory in the computer. This includes memory slots on the system board and any memory modules installed.

Miscellaneous—Shows information obtained from the computer configuration memory (CMOS), system management BIOS data, system board data, and diagnostics component information.

Storage—Shows information about storage media connected to the computer. This list includes all fixed disks, diskette drives, and optical drives.

System—Shows information about the system board, processor, chassis, and BIOS, plus internal speaker and PCI bus information.

Test Tab

The Test tab allows you to choose various parts of the system to test. You can also choose the type of test and testing mode.

There are two test modes to choose from:

- **Interactive Mode**—Provides maximum control over the testing process. The diagnostic software will prompt you for input during tests that require your interaction. You may also determine whether the test passed or failed.
- **Unattended Mode**—Does not display prompts and requires no interaction. If errors are found, they are displayed when testing is complete.

There are three types of tests to choose from:

- **Quick Test**—Provides a predetermined script where a sample of each hardware component is exercised and requires no user intervention in either Unattended or Interactive mode.
- **Complete Test**—Provides a predetermined script where each hardware component is fully tested. There are more tests available in the Interactive mode, but these require user intervention.
- **Custom Test**—Provides the most flexibility in controlling the testing of a system. The Custom Test mode allows you to specifically select which devices, tests, and test parameters are run.

To begin testing:

1. Select the Test tab.
2. On the left side of the tab, select the **Type of Test** to perform (**Quick**, **Complete**, or **Custom**).
3. On the left side of the tab, select the **Test Mode (Interactive or Unattended)**.
4. Select the device to be tested from the drop-down list.

5. Choose how you want the test to be executed, either **Number of Loops** or **Total Test Time**. When choosing to run the test over a specified number of loops, enter the number of loops to perform. If you desire to have the diagnostic test for a specified time period, enter the amount of time in minutes.
6. Click **Begin Testing** to start the test. The Status tab, which allows you to monitor the progress of the test, is automatically displayed during the testing process. When the test is complete, the Status tab shows whether the device passed or failed.
7. If errors are found, go to the Log tab and click the **Error Log** to display more detailed information and recommended actions.

Status Tab

The Status tab displays the status of the selected tests. The type of test executed (**Quick**, **Complete**, or **Custom**) is also displayed. The main progress bar displays the percent complete of the current set of tests. While testing is in progress, a **Cancel Testing** button is displayed for use if you want to cancel the test.

After testing has completed, the **Cancel Testing** button is replaced with a **Retest** button. The **Retest** button will retest the last set of tests executed. This enables you to re-run the set of tests without having to re-enter the data in the Test tab.

The Status tab also shows:

- The devices being tested
- The tests that are running
- The overall elapsed time
- The individual elapsed test times
- The condition status of each test

Log Tab

The Log tab contains two logs, a **Test Log** and an **Error Log**, each of which can be selected from the left side of the tab.

The **Test Log** displays all tests that have been executed, the number of times of execution, the number of times the test failed, and the time it took to complete the test. The **Clear Test Log** button will clear the contents of the **Test Log**.

The **Error Log** displays the tests for devices that have failed during the diagnostic testing and includes the following columns of information.

- The **Description** section describes the error that the diagnostic test found.
- The **Recommended Repair** will give a recommended action that should be performed to resolve the failed hardware.
- The **Failed Count** is the number of times the test has failed.
- The **Error Code** provides a numerical code for the failure. The error codes are defined in the Help tab.
- The **Clear Error Log** button will clear the contents of the Error Log.

Help Tab

On the Help tab you can select either **Error Codes** or **Test Components** from the left side of the tab.

The **Error Codes** view provides a description of each numerical error code and recommended actions for each code. To find an error code description quickly, enter the code in the box at the top of the window and click the **Find Error Codes** button.

The **Test Components** view displays low-level information on tests that are run.

Saving and Printing Information in HP Insight Diagnostics

You can save the information displayed in the HP Insight Diagnostics Status and Log tabs to a diskette or a USB 2.0 HP Drive Key (64MB or higher). You can not save to the hard drive. The system will automatically create an html file that has the same appearance as the information displayed on the screen.

1. Insert a diskette or USB 2.0 HP Drive Key (capacity must be 64MB or higher). USB 1.0 Drive Keys are not supported.
2. Click **Save** in the upper right corner of the tab.
3. Select **Save to the floppy** or **Save to USB key**.
4. Enter a file name in the **File Name** box and click the **Save** button. An html file will be saved to the inserted diskette or USB HP Drive Key.
5. Print the information from the storage device used to save it.



To exit HP Insight Diagnostics, click Exit in the upper right corner of the screen then remove the *Documentation and Diagnostics* CD from the optical drive.

Downloading the Latest Version of HP Insight Diagnostics

1. Go to www.hp.com.
2. Click the **Support & Drivers** link.
3. Click the **Download driver and software** radio button.
4. Enter your product number (for example, dc7600) in the text box and press the **Enter** key.
5. Select your OS.
6. Click the **Diagnostic** link.
7. Locate **HP Insight Diagnostics** and click **Download**.



The download includes instructions on how to create the bootable CD.

Protecting the Software

To protect software from loss or damage, you should keep a backup copy of all system software, applications, and related files stored on the hard drive. See the operating system or backup utility documentation for instructions on making backup copies of data files.

Restoring the Software

The Windows operating system and software can be restored to the original state that they were when you purchased the computer by using the *Restore Plus!* CD. See the documentation included with the *Restore Plus!* CD for complete instructions on using this feature.

Troubleshooting Without Diagnostics

This chapter provides information on how to identify and correct minor problems, such as diskette drive, hard drive, optical drive, graphics, audio, memory, and software problems. If you encounter problems with the computer, refer to the tables in this chapter for probable causes and recommended solutions.



For information on specific error messages that may appear on the screen during Power-On Self-Test (POST) at startup, refer to [Appendix A, “POST Error Messages.”](#)

Safety and Comfort



WARNING: Misuse of the computer or failure to establish a safe and comfortable work environment may result in discomfort or serious injury. Refer to the *Safety & Comfort Guide* on the *Documentation and Diagnostics* CD and available on the Web site at www.hp.com/ergo, for more information on choosing a workspace and creating a safe and comfortable work environment.

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. For more information, refer to *Safety & Regulatory Information* on the *Documentation and Diagnostics* CD.

Before You Call for Technical Support

If you are having problems with the computer, try the appropriate solutions below to try to isolate the exact problem before calling for technical support.

- Run the diagnostics utility. Refer to [Chapter 1, “Computer Diagnostic Features”](#) for more information.
- Run the Drive Protection System (DPS) Self-Test in Computer Setup. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation and Diagnostics* CD for more information.
- Check the Power LED on the front of the computer to see if it is flashing red. The flashing lights are error codes that will help you diagnose the problem. Refer to [Appendix A, “POST Error Messages”](#) for more information.
- If the screen is blank, plug the monitor into a different video port on the computer if one is available. Or, change out the monitor with a monitor that you know is functioning properly.
- If you are working on a network, plug another computer with a different cable into the network connection. There may be a problem with the network plug or cable.
- If you recently added new hardware, remove the hardware and see if the computer functions properly.
- If you recently installed new software, uninstall the software and see if the computer functions properly.
- Boot the computer to the Safe Mode to see if it will boot without all of the drivers loaded. When booting the operating system, use “Last Known Configuration.”
- Refer to the comprehensive online technical support at www.hp.com/support.
- Refer to the following [“Helpful Hints”](#) section in this guide.
- Run the *Restore Plus!* CD.



CAUTION: Running the *Restore Plus!* CD will erase all data on the hard drive.

To assist you in resolving problems online, HP Instant Support Professional Edition provides you with self-solve diagnostics. If you need to contact HP support, use HP Instant Support Professional Edition's online chat feature. Access HP Instant Support Professional Edition at: www.hp.com/go/ispe.

Access the Business Support Center (BSC) at www.hp.com/go/bizsupport for the latest online support information, software and drivers, proactive notification, and worldwide community of peers and HP experts.

If it becomes necessary to call for technical assistance, be prepared to do the following to ensure that your service call is handled properly:

- Be in front of your computer when you call.
- Write down the computer serial number and product ID number, and the monitor serial number before calling.
- Spend time troubleshooting the problem with the service technician.
- Remove any hardware that was recently added to your system.
- Remove any software that was recently installed.
- Run the *Restore Plus!* CD.



CAUTION: Running the *Restore Plus!* CD will erase all data on the hard drive.



For sales information and warranty upgrades (Care Packs), call your local authorized service provider or dealer.

Helpful Hints

If you encounter problems with the computer, monitor, or software, see the following list of general suggestions before taking further action:

- Check that the computer and monitor are plugged into a working electrical outlet.
- Check to see that the voltage select switch (some models) is set to the appropriate voltage for your region (115V or 230V).
- Check to see that the computer is turned on and the green power light is on.
- Check to see that the monitor is turned on and the green monitor light is on.
- Check the Power LED on the front of the computer to see if it is flashing red. The flashing lights are error codes that will help you diagnose the problem. Refer to [Appendix A, “POST Error Messages”](#) for more information.
- Turn up the brightness and contrast controls of the monitor if the monitor is dim.
- Press and hold any key. If the system beeps, then the keyboard should be operating correctly.
- Check all cable connections for loose connections or incorrect connections.
- Wake the computer by pressing any key on the keyboard or pressing the power button. If the system remains in suspend mode, shut down the computer by pressing and holding the power button for at least four seconds then press the power button again to restart the computer. If the system will not shut down, unplug the power cord, wait a few seconds, then plug it in again. The computer will restart if automatic start on power loss is set in Computer Setup. If it does not restart, press the power button to start the computer.
- Reconfigure the computer after installing a non–plug and play expansion board or other option. See [“Solving Hardware Installation Problems”](#) for instructions.

- Be sure that all the needed device drivers have been installed. For example, if you are using a printer, you need a driver for that model printer.
- Remove all bootable media (diskette, CD, or USB device) from the system before turning it on.
- If you have installed an operating system other than the factory-installed operating system, check to be sure that it is supported on the system.
- If the system has multiple video sources (embedded, PCI, or PCI-Express adapters) installed (embedded video on some models only) and a single monitor, the monitor must be plugged into the monitor connector on the source selected as the primary VGA adapter. During boot, the other monitor connectors are disabled and if the monitor is connected into these ports, the monitor will not function. You can select which source will be the default VGA source in Computer Setup.



CAUTION: When the computer is plugged into an AC power source, there is always voltage applied to the system board. You must disconnect the power cord from the power source before opening the computer to prevent system board or component damage.

Solving General Problems

You may be able to easily resolve the general problems described in this section. If a problem persists and you are unable to resolve it yourself or if you feel uncomfortable about performing the operation, contact an authorized dealer or reseller.

Solving General Problems

Problem	Cause	Solution
Computer appears locked up and will not turn off when the power button is pressed.	Software control of the power switch is not functional.	<ol style="list-style-type: none"> 1. Press and hold the power button for at least four seconds until the computer turns off. 2. Disconnect the power cord from the electrical outlet.
Computer will not respond to USB keyboard or mouse.	Computer is in standby mode.	Press the power button to resume from standby mode.
	System has locked up.	Restart computer.
<p> CAUTION: When attempting to resume from standby mode, do not hold down the power button for more than four seconds. Otherwise, the computer will shut down and you will lose any unsaved data.</p>		
Computer date and time display is incorrect.	<p>RTC (real-time clock) battery may need to be replaced.</p> <p> Connecting the computer to a live AC outlet prolongs the life of the RTC battery.</p>	<p>First, reset the date and time under Control Panel (Computer Setup can also be used to update the RTC date and time). If the problem persists, replace the RTC battery. See the <i>Hardware Reference Guide</i> on the <i>Documentation and Diagnostics</i> CD for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement.</p>
Cursor will not move using the arrow keys on the keypad.	The Num Lock key may be on.	Press the Num Lock key. The Num Lock light should not be on if you want to use the arrow keys. The Num Lock key can be disabled (or enabled) in Computer Setup.

Solving General Problems *(Continued)*

Problem	Cause	Solution	
Cannot remove computer cover or access panel.	Smart Cover Lock, featured on some computers, is locked.	Unlock the Smart Cover Lock using Computer Setup. The Smart Cover FailSafe Key, a device for manually disabling the Smart Cover Lock, is available from HP. You will need the FailSafe Key in case of forgotten password, power loss, or computer malfunction. Order PN 166527-001 for the wrench-style key or PN 166527-002 for the screwdriver bit key.	
Poor performance is experienced.	Processor is hot.	<ol style="list-style-type: none"> 1. Ensure airflow to the computer is not blocked. 2. Ensure fans are connected and working properly (some fans only operate when needed). 3. Ensure the processor heatsink is installed properly. 	
	Hard drive is full.	Transfer data from the hard drive to create more space on the hard drive.	
	Low on memory.	Add more memory.	
	Hard drive fragmented.	Defragment hard drive.	
	Program previously accessed did not release reserved memory back to the system.	Restart the computer.	
	Virus resident on the hard drive.	Run virus protection program.	
	Too many applications running.		<ol style="list-style-type: none"> 1. Close unnecessary applications to free up memory. 2. Add more memory.

Solving General Problems *(Continued)*

Problem	Cause	Solution
Poor performance is experienced. <i>(continued)</i>	Some software applications, especially games, are stressful on the graphics subsystem	<ol style="list-style-type: none"> 1. Lower the display resolution for the current application or consult the documentation that came with the application for suggestions on how to improve performance by adjusting parameters in the application. 2. Add more memory. 3. Upgrade the graphics solution.
	Cause unknown.	Restart the computer.
Computer powered off automatically and the Power LED flashes Red two times, once every second, followed by a two second pause, and the computer beeps two times. (Beeps stop after fifth iteration but LEDs continue flashing).	<p>Processor thermal protection activated: A fan may be blocked or not turning.</p> <p>OR</p> <p>The heatsink is not properly attached to the processor.</p>	<ol style="list-style-type: none"> 1. Ensure that the computer air vents are not blocked and the processor cooling fan is running. 2. Open hood, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, then replace the processor fan. 4. Reseat processor heatsink and verify that the fan assembly is properly attached. 5. Contact an authorized reseller or service provider.

Solving General Problems (Continued)

Problem	Cause	Solution
System does not power on and the LEDs on the front of the computer are not flashing.	System unable to power on.	<p>Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:</p> <ol style="list-style-type: none"> 1. Check that the voltage selector, located on the rear of the power supply on some models, is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Remove the expansion cards one at a time until the 5V_aux light on the system board turns on. 3. Replace the system board. <p>OR</p> <p>Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then:</p> <ol style="list-style-type: none"> 1. Check that the unit is plugged into a working AC outlet. 2. Open hood and check that the power button harness is properly connected to the system board. 3. Check that both power supply cables are properly connected to the system board. 4. Check to see if the 5V_aux light on the system board is turned on. If it is turned on, then replace the power button harness. 5. If the 5V_aux light on the system board is off, then replace the power supply. 6. Replace the system board.

Solving Power Supply Problems

Common causes and solutions for power supply problems are listed in the following table.

Solving Power Supply Problems

Problem	Cause	Solution
Power supply shuts down intermittently.	Voltage selector switch on rear of computer chassis (some models) not switched to correct line voltage (115V or 230V).	Select the proper AC voltage using the selector switch.
	Power supply will not turn on because of internal power supply fault.	Contact an authorized service provider to replace the power supply.
Computer powered off automatically and the Power LED flashes Red two times, once every second, followed by a two second pause, and the computer beeps two times. (Beeps stop after fifth iteration but LEDs continue flashing.)	Processor thermal protection activated: A fan may be blocked or not turning. OR The heatsink is not properly attached to the processor.	<ol style="list-style-type: none"> 1. Ensure that the computer air vents are not blocked and the processor cooling fan is running. 2. Open hood, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, then replace the processor fan. 4. Reseat processor heatsink and verify that the fan assembly is properly attached. 5. Contact an authorized reseller or service provider.

Solving Power Supply Problems *(Continued)*

Problem	Cause	Solution
<p>Power LED flashes Red four times, once every second, followed by a two second pause, and the computer beeps four times. (Beeps stop after fifth iteration but LEDs continue flashing.)</p>	<p>Power failure (power supply is overloaded).</p>	<ol style="list-style-type: none"> 1. Check that the voltage selector, located on the rear of the power supply (some models), is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Open the hood and ensure the 4- or 6-wire power supply cable is seated into the connector on the system board. 3. Check if a device is causing the problem by removing ALL attached devices (such as hard, diskette, or optical drives, and expansion cards). Power on the system. If the system enters the POST, then power off and replace one device at a time and repeat this procedure until failure occurs. Replace the device that is causing the failure. Continue adding devices one at a time to ensure all devices are functioning properly. 4. Contact an authorized service provider to replace the power supply. 5. Replace the system board.

Solving Diskette Problems

Common causes and solutions for diskette problems are listed in the following table.



You may need to reconfigure the computer when you add or remove hardware, such as an additional diskette drive. See [“Solving Hardware Installation Problems”](#) for instructions.

Solving Diskette Problems

Problem	Cause	Solution
Diskette drive light stays on.	Diskette is damaged.	In Microsoft Windows XP, right-click Start , click Explore , and select a drive. Select File > Properties > Tools . Under Error-checking , click Check Now .
	Diskette is incorrectly inserted.	Remove diskette and reinsert.
	Drive cable is not properly connected.	Reconnect drive cable. Ensure that all four pins on the diskette power cable are connected to the drive.
Drive not found.	Cable is loose.	Reseat diskette drive data and power cable.
	Removable drive is not seated properly.	Reseat the drive.
Diskette drive cannot write to a diskette.	Diskette is not formatted.	Format the diskette. <ol style="list-style-type: none"> 1. From Windows Explorer select the disk (A) drive. 2. Right-click the drive letter and select Format. 3. Select the desired options, and click Start to begin formatting the diskette.
	Diskette is write-protected.	Use another diskette or remove the write protection.

Solving Diskette Problems (Continued)

Problem	Cause	Solution
Diskette drive cannot write to a diskette. (continued)	Writing to the wrong drive.	Check the drive letter in the path statement.
	Not enough space is left on the diskette.	<ol style="list-style-type: none"> 1. Use another diskette. 2. Delete unneeded files from diskette.
	Legacy diskette writes are disabled in Computer Setup.	Enter Computer Setup and enable Legacy Diskette Write in Storage > Storage Options .
	Diskette is damaged.	Replace the damaged disk.
Cannot format diskette.	Invalid media reported.	When formatting a disk in MS-DOS, you may need to specify diskette capacity. For example, to format a 1.44-MB diskette, type the following command at the MS-DOS prompt: FORMAT A: /F:1440
	Disk may be write-protected.	Open the locking device on the diskette.
	Diskette write control is enabled.	Enter Computer Setup and enable Legacy Diskette Write in Storage > Storage Options .
A problem has occurred with a disk transaction.	The directory structure is bad, or there is a problem with a file.	In Windows XP, right-click Start , click Explore , and select a drive. Select File > Properties > Tools . Under Error-checking , click Check Now .
Diskette drive cannot read a diskette.	You are using the wrong diskette type for the drive type.	Check the type of drive that you are using and use the correct diskette type.
	You are reading the wrong drive.	Check the drive letter in the path statement.
	Diskette is damaged.	Replace the diskette with a new one.

Solving Diskette Problems (Continued)

Problem	Cause	Solution
"Invalid system disk" message is displayed.	A diskette that does not contain the system files needed to start the computer has been inserted in the drive.	When drive activity stops, remove the diskette and press the Spacebar . The computer should start up.
	Diskette error has occurred.	Restart the computer by pressing the power button.
Cannot Boot to Diskette.	Diskette is not bootable.	Replace with a bootable diskette.
	Diskette boot has been disabled in Computer Setup.	<ol style="list-style-type: none"> 1. Run Computer Setup and enable diskette boot in Storage > Boot Order. 2. Run Computer Setup and enable diskette boot in Storage > Storage Options > Removable Media Boot.
		 Both steps should be used as the Removable Media Boot function in Computer Setup overrides the Boot Order enable command.
	Network server mode is enabled in Computer Setup.	Run Computer Setup and disable Network Server Mode in Security > Password Options .
Removable media boot has been disabled in Computer Setup.	Run Computer Setup and enable Removable Media Boot in Storage > Storage Options > Removable Media Boot .	

Solving Hard Drive Problems

Solving Hard Drive Problems

Problem	Cause	Solution
Hard drive error occurs.	Hard disk has bad sectors or has failed.	<ol style="list-style-type: none"> 1. In Windows XP, right-click Start, click Explore, and select a drive. Select File > Properties > Tools. Under Error-checking, click Check Now. 2. Use a utility to locate and block usage of bad sectors. If necessary, reformat the hard disk.
Disk transaction problem.	Either the directory structure is bad or there is a problem with a file.	In Windows XP, right-click Start , click Explore , and select a drive. Select File > Properties > Tools . Under Error-checking , click Check Now .
Drive not found (identified).	Cable could be loose.	Check cable connections.
	The system may not have automatically recognized a newly installed device.	<p>See reconfiguration directions in the "Solving Hardware Installation Problems" section. If the system still does not recognize the new device, check to see if the device is listed within Computer Setup. If it is listed, the probable cause is a driver problem. If it is not listed, the probable cause is a hardware problem.</p> <p>If this is a newly installed drive, enter Computer Setup and try adding a POST delay under Advanced > Power-On.</p>
	Drive's controller is disabled in Computer Setup.	Run Computer Setup and enable all the SATA controllers in Storage > Storage Options .

Solving Hard Drive Problems (Continued)

Problem	Cause	Solution
Drive not found (identified). (continued)	Drive responds slowly immediately after power-up.	Run Computer Setup and increase the POST Delay in Advanced > Power-On Options .
Nonsystem disk/NTLDR missing message.	The system is trying to start from a diskette that is not bootable.	Remove the diskette from the diskette drive.
	The system is trying to start from the hard drive but the hard drive may have been damaged.	<ol style="list-style-type: none"> 1. Insert a bootable diskette into the diskette drive and restart the computer. 2. Check the hard drive format using fdisk: If NTFS formatting, use a third party reader to evaluate the drive. If FAT32 formatting, the hard drive cannot be accessed. 3. Install system files for the appropriate operating system.
	System files missing or not properly installed.	<ol style="list-style-type: none"> 1. Insert a bootable diskette into the diskette drive and restart the computer. 2. Check the hard drive format using Fdisk: If NTFS formatting, use a third party reader to evaluate the drive. If FAT32 formatting, the hard drive cannot be accessed.
	Hard drive boot has been disabled in Computer Setup.	Run Computer Setup and enable the hard drive entry in the Storage > Boot Order list.
	Bootable hard drive is not attached as first in a multi-hard drive configuration.	If attempting to boot from a hard drive, ensure it is attached to the system board connector labeled P60 SATA 0.

Solving Hard Drive Problems *(Continued)*

Problem	Cause	Solution
Nonsystem disk/NTLDR missing message. <i>(continued)</i>	Bootable hard drive's controller is not listed first in the Boot Order.	Enter Computer Setup and select Storage > Boot Order and ensure the bootable hard drive's controller is listed immediately under the Hard Drive entry.
Computer will not start.	Hard drive is damaged.	Observe if the front panel Power LED is blinking RED and if any beeps are heard. See Appendix A, "POST Error Messages" to determine possible causes for the blinking red and beep codes. See the Worldwide Limited Warranty for terms and conditions.
Computer seems to be locked up.	Program in use has stopped responding to commands.	Attempt the normal Windows "Shut Down" procedure. If this fails, press the power button for four or more seconds to turn off the power. To restart the computer, press the power button again.

Solving MultiBay Problems

Solving MultiBay Problems

Problem	Cause	Solution
Drive not found.	You attempted to hot plug a removable hard drive that has DriveLock security enabled. (This feature supported on some models only.)	Shut down Windows and turn off the computer. Insert the drive into the MultiBay, if it is not already inserted. Turn on the computer.
	MultiBay is hidden in Computer Setup.	Enter Computer Setup and set MultiBay to Device Available in Security > Device Security .

Solving Display Problems

If you encounter display problems, see the documentation that came with the monitor and to the common causes and solutions listed in the following table.

Solving Display Problems

Problem	Cause	Solution
Blank screen (no video).	Monitor is not turned on and the monitor light is not on.	Turn on the monitor and check that the monitor light is on.
	Bad monitor.	Try a different monitor.
	The cable connections are not correct.	Check the cable connection from the monitor to the computer and to the electrical outlet.
	You may have a screen blanking utility installed or energy saver features are enabled.	Press any key or click the mouse button and, if set, type your password.
	System ROM is corrupted; system is running in Boot Block Emergency Recovery Mode (indicated by eight beeps).	Reflash the system ROM with the latest BIOS image. See the "Boot Block Emergency Recovery Mode" section of the <i>Desktop Management Guide</i> on the <i>Documentation and Diagnostics</i> CD for more information.
	You are using a fixed-sync monitor and it will not sync at the resolution chosen.	Be sure that the monitor can accept the same horizontal scan rate as the resolution chosen.
Computer is in standby mode.	Press the power button to resume from standby mode.	



CAUTION: When attempting to resume from **standby** mode, do not hold down the power button for more than four seconds. Otherwise, the computer will shut down and you will lose any unsaved data.

Solving Display Problems (Continued)

Problem	Cause	Solution
Blank screen (no video). (continued)	Monitor cable is plugged into the wrong connector.	<p>If the computer system has both an integrated graphics connector and an add-in graphics card connector, plug the monitor cable into the graphics card connector on the back of the computer.</p> <p> If the graphics card is a standard PCI expansion card, you can enable the integrated graphics in Computer Setup. If a PCI-Express graphics card is installed, the integrated graphics can not be enabled.</p>
	Monitor settings in the computer are not compatible with the monitor.	<ol style="list-style-type: none"> 1. Restart the computer and press F8 during startup when you see "Press F8" in the bottom right corner of the screen. 2. Using the keyboard arrow keys, select Enable VGA Mode and press Enter. 3. In Windows Control Panel, double-click the Display icon and select the Settings tab. 4. Use the sliding control to reset the resolution.
Blank screen and the power LED flashes Red five times, once every second, followed by a two second pause, and the computer beeps five times. (Beeps stop after fifth iteration but LEDs continue flashing.)	Pre-video memory error.	<ol style="list-style-type: none"> 1. Reseat DIMMs. Power on the system. 2. Replace DIMMs one at a time to isolate the faulty module. 3. Replace third-party memory with HP memory. 4. Replace the system board.

Solving Display Problems *(Continued)*

Problem	Cause	Solution
Blank screen and the power LED flashes Red six times, once every second, followed by a two second pause, and the computer beeps six times. (Beeps stop after fifth iteration but LEDs continue flashing.)	Pre-video graphics error.	For systems with a graphics card: <ol style="list-style-type: none"> 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board. For systems with integrated graphics, replace the system board.
Blank screen and the power LED flashes Red seven times, once every second, followed by a two second pause, and the computer beeps seven times. (Beeps stop after fifth iteration but LEDs continue flashing.)	System board failure (ROM detected failure prior to video).	Replace the system board.
Monitor does not function properly when used with energy saver features.	Monitor without energy saver capabilities is being used with energy saver features enabled.	Disable monitor energy saver feature.
Dim characters.	The brightness and contrast controls are not set properly.	Adjust the monitor brightness and contrast controls.
	Cables are not properly connected.	Check that the graphics cable is securely connected to the graphics card and the monitor.
Blurry video or requested resolution cannot be set.	If the graphics controller was upgraded, the correct graphics drivers may not be loaded.	Install the video drivers included in the upgrade kit.
	Monitor is not capable of displaying requested resolution.	Change requested resolution.
	Graphics card is bad.	Replace the graphics card.

Solving Display Problems (Continued)

Problem	Cause	Solution
The picture is broken up, rolls, jitters, or flashes.	The monitor connections may be incomplete or the monitor may be incorrectly adjusted.	<ol style="list-style-type: none"> 1. Be sure the monitor cable is securely connected to the computer. 2. In a two-monitor system or if another monitor is in close proximity, be sure the monitors are not interfering with each other's electromagnetic field by moving them apart. 3. Fluorescent lights or fans may be too close to the monitor.
	Monitor needs to be degaussed.	Degauss the monitor. Refer to the documentation that came with the monitor for instructions.
Image is not centered.	Position may need adjustment.	Press the Menu button to access the OSD menu. Select ImageControl/ Horizontal Position or Vertical Position to adjust the horizontal or vertical position of the image.
"No Connection, Check Signal Cable" displays on screen.	Monitor video cable is disconnected.	<p>Connect the video cable between the monitor and computer.</p> <p> Ensure that the computer power is off while connecting the video cable.</p>
"Out of Range" displays on screen.	Video resolution and refresh rate are set higher than what the monitor supports.	Restart the computer and enter Safe Mode. Change the settings to a supported setting then restart the computer so that the new settings take effect.
Vibrating or rattling noise coming from inside a CRT monitor when powered on.	Monitor degaussing coil has been activated.	None. It is normal for the degaussing coil to be activated when the monitor is powered on.

Solving Display Problems (Continued)

Problem	Cause	Solution
Clicking noise coming from inside a CRT monitor.	Electronic relays have been activated inside the monitor.	None. It is normal for some monitors to make a clicking noise when turned on and off, when going in and out of standby mode, and when changing resolutions.
High pitched noise coming from inside a flat panel monitor.	Brightness and/or contrast settings are too high.	Lower brightness and/or contrast settings.
Fuzzy focus; streaking, ghosting, or shadowing effects; horizontal scrolling lines; faint vertical bars; or unable to center the picture on the screen. (flat panel monitors using an analog VGA input connection only)	Flat panel monitor's internal digital conversion circuits may be unable to correctly interpret the output synchronization of the graphics card.	<ol style="list-style-type: none"> 1. Select the monitor's Auto-Adjustment option in the monitor's on-screen display menu. 2. Manually synchronize the Clock and Clock Phase on-screen display functions. To download a SoftPaq that will assist you with the synchronization, go to the following Web site, select the appropriate monitor, and download either SP20930 or SP22333: www.hp.com/support
	Graphics card is not seated properly or is bad.	<ol style="list-style-type: none"> 1. Reseat the graphics card. 2. Replace the graphics card.
Certain typed symbols do not appear correct.	The font you are using does not support that particular symbol.	Use the Character Map to locate the and select the appropriate symbol. Click Start > All Programs > Accessories > System Tools > Character Map . You can copy the symbol from the Character Map into a document.

Solving Audio Problems

If the computer has audio features and you encounter audio problems, see the common causes and solutions listed in the following table.

Solving Audio Problems

Problem	Cause	Solution
Sound cuts in and out.	Processor resources are being used by other open applications.	Shut down all open processor-intensive applications.
	Direct sound latency, common in many media player applications.	In Windows XP: <ol style="list-style-type: none"> 1. From the Control Panel, select Sounds and Audio Devices. 2. On the Audio tab, select a device from the Sound Playback list. 3. Click the Advanced button and select the Performance tab. 4. Set the Hardware acceleration slider to None and the Sample rate conversion quality slider to Good and retest the audio. 5. Set the Hardware acceleration slider to Full and the Sample rate conversion quality slider to Best and retest the audio.
Sound does not come out of the speaker or headphones.	Software volume control is turned down.	Double-click the Speaker icon on the taskbar, then make sure that Mute is not selected and use the volume slider to adjust the volume.
	Audio is hidden in Computer Setup.	Enable the audio in Computer Setup: Security > Device Security > Audio .

Solving Audio Problems (Continued)

Problem	Cause	Solution
Sound does not come out of the speaker or headphones. (continued)	The external speakers are not turned on.	Turn on the external speakers.
	External speakers plugged into the wrong audio jack.	See the sound card documentation for proper speaker connection.
	Digital CD audio is not enabled.	Enable digital CD audio: <ol style="list-style-type: none"> 1. From the Control Panel, select System. 2. On the Hardware tab, click the Device Manager button. 3. Right-click on the CD/DVD device and select Properties. 4. On the Properties tab, make sure "Enable digital CD audio for this CD-ROM device" is checked.
Headphones or devices connected to the line-out connector mute the internal speaker.		Turn on and use headphones or external speakers, if connected, or disconnect headphones or external speakers.
	Volume is muted.	<ol style="list-style-type: none"> 1. From the Control Panel program, click Sound, Speech and Audio Devices, then click Sounds and Audio Devices. 2. Click the Mute check box to remove the check mark from the box.
	Computer is in standby mode.	Press the power button to resume from standby mode.



CAUTION: When attempting to resume from **standby** mode, do not hold down the power button for more than four seconds. Otherwise, the computer will shut down and you will lose any unsaved data.

Solving Audio Problems *(Continued)*

Problem	Cause	Solution
Sound from headphones is not clear or muffled.	Headphones are plugged into the rear audio output connector. The rear audio output connector is for powered audio devices and is not designed for headphone use.	Plug the headphones into the headphone connector on the front of the computer.
Computer appears to be locked up while recording audio.	The hard disk may be full.	Before recording, make sure there is enough free space on the hard disk. You can also try recording the audio file in a compressed format.

Solving Printer Problems

If you encounter printer problems, see the documentation that came with the printer and to the common causes and solutions listed in the following table.

Solving Printer Problems

Problem	Cause	Solution
Printer will not print.	Printer is not turned on and online.	Turn the printer on and make sure it is online.
	The correct printer drivers for the application are not installed.	<ol style="list-style-type: none"> 1. Install the correct printer driver for the application. 2. Try printing using the MS-DOS command: DIR C:\ > [printer port] where [printer port] is the address of the printer being used. If the printer works, reload the printer driver.
	If you are on a network, you may not have made the connection to the printer.	Make the proper network connections to the printer.
	Printer may have failed.	Run printer self-test.
Printer will not turn on.	The cables may not be connected properly.	Reconnect all cables and check the power cord and electrical outlet.
Printer prints garbled information.	The correct printer driver for the application is not installed.	Install the correct printer driver for the application.
	The cables may not be connected properly.	Reconnect all cables.
	Printer memory may be overloaded.	Reset the printer by turning it off for one minute, then turn it back on.
Printer is offline.	The printer may be out of paper.	Check the paper tray and refill it if it is empty. Select online.

Solving Keyboard and Mouse Problems

If you encounter keyboard or mouse problems, see the documentation that came with the equipment and to the common causes and solutions listed in the following table.

Solving Keyboard Problems

Problem	Cause	Solution
Keyboard commands and typing are not recognized by the computer.	Keyboard connector is not properly connected.	<ol style="list-style-type: none"> 1. On the Windows Desktop, click Start. 2. Click Shut Down. The Shut Down Windows dialog box is displayed. 3. Select Shut down. 4. After the shutdown is complete, reconnect the keyboard to the back of the computer and restart the computer.
	Program in use has stopped responding to commands.	Shut down your computer using the mouse and then restart the computer.
	Keyboard needs repairs.	See the Worldwide Limited Warranty for terms and conditions.
	Wireless device error.	<ol style="list-style-type: none"> 1. Check the software, if available, for device status. 2. Check/replace device batteries. 3. Reset receiver and keyboard.
	Computer is in standby mode.	Press the power button to resume from standby mode.

 **CAUTION:** When attempting to resume from **standby** mode, do not hold down the power button for more than four seconds. Otherwise, the computer will shut down and you will lose any unsaved data.

Solving Keyboard Problems *(Continued)*

Problem	Cause	Solution
Cursor will not move using the arrow keys on the keypad.	The Num Lock key may be on.	Press the Num Lock key. The Num Lock light should not be on if you want to use the arrow keys. The Num Lock key can be disabled (or enabled) in Computer Setup.

Solving Mouse Problems

Problem	Cause	Solution
Mouse does not respond to movement or is too slow.	Mouse connector is not properly plugged into the back of the computer.	<p>Shut down the computer using the keyboard.</p> <ol style="list-style-type: none"> 1. Press the Ctrl and Esc keys at the same time (or press the Windows logo key) to display the Start menu. 2. Use the up or down arrow key to select Shut Down and then press the Enter key. 3. Use the up or down arrow key to select the Shut Down option and then press the Enter key. 4. After the shutdown is complete, plug the mouse connector into the back of the computer (or the keyboard) and restart.
	Program in use has stopped responding to commands.	Shut down the computer using the keyboard then restart the computer.
	Mouse may need cleaning.	Remove the roller ball cover on the mouse and clean the internal components.
	Mouse may need repair.	See the Worldwide Limited Warranty for terms and conditions.

Solving Mouse Problems (Continued)

Problem	Cause	Solution
Mouse does not respond to movement or is too slow. (continued)	Wireless device error.	<ol style="list-style-type: none"> 1. Check the software, if available, for device status. 2. Check/replace device batteries. 3. Reset receiver and mouse.
	Computer is in standby mode.	Press the power button to resume from standby mode.
<p> CAUTION: When attempting to resume from standby mode, do not hold down the power button for more than four seconds. Otherwise, the computer will shut down and you will lose any unsaved data.</p>		
Mouse will only move vertically, horizontally, or movement is jerky.	Mouse roller ball is dirty.	Remove roller ball cover from the bottom of the mouse and clean it with a mouse cleaning kit available from most computer stores.

Solving Hardware Installation Problems

You may need to reconfigure the computer when you add or remove hardware, such as an additional drive or expansion card. If you install a plug and play device, Windows XP automatically recognize the device and configure the computer. If you install a non–plug and play device, you must reconfigure the computer after completing installation of the new hardware. In Windows XP, use the **Add Hardware Wizard** and follow the instructions that appear on the screen.

Solving Hardware Installation Problems

Problem	Cause	Solution
A new device is not recognized as part of the system.	Device is not seated or connected properly.	Ensure that the device is properly and securely connected and that pins in the connector are not bent down.
	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected and that pins in the cable or connector are not bent down.
	Power switch of new external device is not turned on.	Turn off the computer, turn on the external device, then turn on the computer to integrate the device with the computer system.
	When the system advised you of changes to the configuration, you did not accept them.	Reboot the computer and follow the instructions for accepting the changes.
	A plug and play board may not automatically configure when added if the default configuration conflicts with other devices.	Use Windows XP Device Manager to deselect the automatic settings for the board and choose a basic configuration that does not cause a resource conflict. You can also use Computer Setup to reconfigure or disable devices to resolve the resource conflict.

Solving Hardware Installation Problems *(Continued)*

Problem	Cause	Solution
Computer will not start.	Wrong memory modules were used in the upgrade or memory modules were installed in the wrong location.	<ol style="list-style-type: none"> 1. Review the documentation that came with the system to determine if you are using the correct memory modules and to verify the proper installation. 2. Observe the beeps and LED lights on the front of the computer. See Appendix A, "POST Error Messages" to determine possible causes. 3. If you still cannot resolve the issue, contact Customer Support.
Power LED flashes Red five times, once every second, followed by a two second pause, and the computer beeps five times. (Beeps stop after fifth iteration but LEDs continue flashing.)	Memory is installed incorrectly or is bad.	<ol style="list-style-type: none"> 1. Reseat DIMMs. Power on the system. 2. Replace DIMMs one at a time to isolate the faulty module. 3. Replace third-party memory with HP memory. 4. Replace the system board.
Power LED flashes Red six times, once every second, followed by a two second pause, and the computer beeps six times. (Beeps stop after fifth iteration but LEDs continue flashing.)	Graphics card is not seated properly or is bad, or system board is bad.	<p>For systems with a graphics card:</p> <ol style="list-style-type: none"> 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board. <p>For systems with integrated graphics, replace the system board.</p>

Solving Hardware Installation Problems *(Continued)*

Problem	Cause	Solution
Power LED flashes Red ten times, once every second, followed by a two second pause, and the computer beeps ten times. (Beeps stop after fifth iteration but LEDs continue flashing.)	Bad option card.	<ol style="list-style-type: none">1. Check each option card by removing the cards one at time (if multiple cards), then power on the system to see if fault goes away.2. Once bad card is identified, remove and replace bad option card.3. Replace the system board.

Solving Network Problems

Some common causes and solutions for network problems are listed in the following table. These guidelines do not discuss the process of debugging the network cabling.

Solving Network Problems		
Problem	Cause	Solution
Wake-on-LAN feature is not functioning.	Wake-on-LAN is not enabled.	Enable Wake-on-LAN. <ol style="list-style-type: none"> 1. Select Start > Control Panel. 2. Double-click Network Connections. 3. Double-click Local Area Connection. 4. Click Properties. 5. Click Configure. 6. Click the Power Management tab, then select the check box to Allow this device to bring the computer out of standby.
Network driver does not detect network controller.	Network controller is disabled.	<ol style="list-style-type: none"> 1. Run Computer Setup and enable network controller. 2. Enable the network controller in the operating system via Device Manager.
	Incorrect network driver.	Check the network controller documentation for the correct driver or obtain the latest driver from the manufacturer's Web site.

Solving Network Problems (Continued)

Problem	Cause	Solution
Network status link light never flashes.	No active network is detected.	Check cabling and network equipment for proper connection.
 The network status light is supposed to flash when there is network activity.	Network controller is not set up properly.	Check for the device status within Windows, such as Device Manager for driver load and the Network Connections applet within Windows for link status.
	Network controller is disabled.	<ol style="list-style-type: none"> 1. Run Computer Setup and enable network controller. 2. Enable the network controller in the operating system via Device Manager.
	Network driver is not properly loaded.	Reinstall network drivers. See the <i>Network & Internet Communications Guide</i> on the <i>Documentation and Diagnostics</i> CD.
	System cannot autosense the network.	Disable auto-sensing capabilities and force the system into the correct operating mode. See the <i>Network & Internet Communications Guide</i> on the <i>Documentation and Diagnostics</i> CD.
Diagnostics reports a failure.	The cable is not securely connected.	Ensure that the cable is securely attached to the network connector and that the other end of the cable is securely attached to the correct device.
	The cable is attached to the incorrect connector.	Ensure that the cable is attached to the correct connector.
	There is a problem with the cable or a device at the other end of the cable.	Ensure that the cable and device at the other end are operating correctly.

Solving Network Problems (Continued)

Problem	Cause	Solution
Diagnostics reports a failure. (continued)	Network controller interrupt is shared with an expansion board.	Under the Computer Setup Advanced menu, change the resource settings for the board.
	The network controller is defective.	Contact an authorized service provider.
Diagnostics passes, but the computer does not communicate with the network.	Network drivers are not loaded, or driver parameters do not match current configuration.	Make sure the network drivers are loaded and that the driver parameters match the configuration of the network controller. Make sure the correct network client and protocol is installed.
	The network controller is not configured for this computer.	Select the Network icon in the Control Panel and configure the network controller.
Network controller stopped working when an expansion board was added to the computer.	Network controller interrupt is shared with an expansion board.	Under the Computer Setup Advanced menu, change the resource settings for the board.
	The network controller requires drivers.	Verify that the drivers were not accidentally deleted when the drivers for a new expansion board were installed.
	The expansion board installed is a network card (NIC) and conflicts with the embedded NIC.	Under the Computer Setup Advanced menu, change the resource settings for the board.
Network controller stops working without apparent cause.	The files containing the network drivers are corrupted.	Reinstall the network drivers, using the <i>Restore Plus!</i> CD.
	The cable is not securely connected.	Ensure that the cable is securely attached to the network connector and that the other end of the cable is securely attached to the correct device.

Solving Network Problems *(Continued)*

Problem	Cause	Solution
Network controller stops working without apparent cause. <i>(continued)</i>	The network controller is defective.	Contact an authorized service provider.
New network card will not boot.	New network card may be defective or may not meet industry-standard specifications.	Install a working, industry-standard NIC, or change the boot sequence to boot from another source.
Cannot connect to network server when attempting Remote System Installation.	The network controller is not configured properly.	Verify Network Connectivity, that a DHCP Server is present, and that the Remote System Installation Server contains the NIC drivers for your NIC.
System setup utility reports unprogrammed EEPROM.	Unprogrammed EEPROM.	Contact an authorized service provider.

Solving Memory Problems

If you encounter memory problems, some common causes and solutions are listed in the following table.



CAUTION: For those systems that support ECC memory, HP does not support mixing ECC and non-ECC memory. Otherwise, the computer will not boot the operating system.

Solving Memory Problems

Problem	Cause	Solution
System will not boot or does not function properly after installing additional memory modules.	Memory module is not the correct type or speed grade for the system or the new memory module is not seated properly.	Replace module with the correct industry-standard device for the computer.
		On some models, ECC and non-ECC memory modules cannot be mixed.
Out of memory error.	Memory configuration may not be set up correctly.	Use the Device Manager to check memory configuration.
	You have run out of memory to run the application.	Check the application documentation to determine the memory requirements.
Memory count during POST is wrong.	The memory modules may not be installed correctly.	Check that the memory modules have been installed correctly and that proper modules are used.
	Integrated graphics may use system memory.	No action required.
Insufficient memory error during operation.	Too many Terminate and Stay Resident programs (TSRs) are installed.	Delete any TSRs that you do not need.
	You have run out of memory for the application.	Check the memory requirements for the application or add more memory to the computer.

Solving Memory Problems *(Continued)*

Problem	Cause	Solution
Power LED flashes Red five times, once every second, followed by a two second pause, and the computer beeps five times. (Beeps stop after fifth iteration but LEDs continue flashing.)	Memory is installed incorrectly or is bad.	<ol style="list-style-type: none"> 1. Reseat DIMMs. Power on the system. 2. Replace DIMMs one at a time to isolate the faulty module. 3. Replace third-party memory with HP memory. 4. Replace the system board.

Solving Processor Problems

If you encounter processor problems, common causes and solutions are listed in the following table.

Solving Processor Problems

Problem	Cause	Solution
Poor performance is experienced.	Processor is hot.	<ol style="list-style-type: none"> 1. Make sure the airflow to the computer is not blocked. 2. Make sure the fans are connected and working properly (some fans only operate when needed). 3. Make sure the processor heatsink is installed properly.
Power LED flashes Red three times, once every second, followed by a two second pause.	Processor is not seated properly or not installed.	<ol style="list-style-type: none"> 1. Check to see that the processor is present. 2. Reseat the processor.

Solving CD-ROM and DVD Problems

If you encounter CD-ROM or DVD problems, see the common causes and solutions listed in the following table or to the documentation that came with the optional device.

Solving CD-ROM and DVD Problems

Problem	Cause	Solution
System will not boot from CD-ROM or DVD drive.	Removable Media Boot is disabled in the Computer Setup utility.	Run the Computer Setup utility and enable booting to removable media in Storage > Storage Options . Ensure IDE CD-ROM is enabled in Storage > Boot Order .
	Network Server Mode is enabled in Computer Setup.	Run the Computer Setup utility and disable Network Server Mode in Security > Password Options .
	Non-bootable CD in drive.	Try a bootable CD in the drive.
	Boot order not correct.	Run the Computer Setup utility and change boot sequence in Storage > Boot Order .
CD-ROM or DVD devices are not detected or driver is not loaded.	Drive is not connected properly or not properly configured.	See the documentation that came with the optional device.
Movie will not play in the DVD drive.	Movie may be regionalized for a different country.	See the documentation that came with the DVD drive.
	Decoder software is not installed.	Install decoder software.
	Damaged media.	Replace media.
	Movie rating locked out by parental lock.	Use DVD software to remove parental lock.
	Media installed upside down.	Reinstall media.

Solving CD-ROM and DVD Problems *(Continued)*

Problem	Cause	Solution
Cannot eject compact disc (tray-load unit).	Disc not properly seated in the drive.	Turn off the computer and insert a thin metal rod into the emergency eject hole and push firmly. Slowly pull the tray out from the drive until the tray is fully extended, then remove the disc.
CD-ROM, CD-RW, DVD-ROM, or DVD-R/RW drive cannot read a disc or takes too long to start.	Media has been inserted upside down.	Re-insert the Media with the label facing up.
	The DVD-ROM drive takes longer to start because it has to determine the type of media played, such as audio or video.	Wait at least 30 seconds to let the DVD-ROM drive determine the type of media being played. If the disc still does not start, read the other solutions listed for this topic.
	CD or DVD disc is dirty.	Clean CD or DVD with a CD cleaning kit, available from most computer stores.
	Windows does not detect the CD-ROM or DVD-ROM drive.	<ol style="list-style-type: none"> 1. Use Device Manager to remove or uninstall the device in question. 2. Restart the computer and let Windows detect the CD or DVD driver.
Recording audio CDs is difficult or impossible.	Wrong or poor quality media type.	<ol style="list-style-type: none"> 1. Try using a slower speed when recording. 2. Verify that you are using the correct media for the drive. 3. Try a different brand of media. Quality varies widely between manufacturers.

Solving Drive Key Problems

If you encounter Drive Key problems, common causes and solutions are listed in the following table.

Solving Drive Key Problems

Problem	Cause	Solution
Drive Key is not seen as a drive letter in Windows XP.	The drive letter after the last physical drive is not available.	Change the default drive letter for the Drive Key in Windows XP.
The computer boots to DOS after making a bootable Drive Key.	Drive Key is bootable.	Install the Drive Key only after the operating system boots.

Solving Front Panel Component Problems

If you encounter problems with devices connected to the front panel, refer to the common causes and solutions listed in the following table.

Solving Front Panel Component Problems

Problem	Cause	Solution
A USB device, headphone, or microphone is not recognized by the computer.	Device is not properly connected.	<ol style="list-style-type: none"> 1. Turn off the computer. 2. Reconnect the device to the front of the computer and restart the computer.
	The device does not have power.	If the USB device requires AC power, be sure one end is connected to the device and one end is connected to a live outlet.
	The correct device driver is not installed.	<ol style="list-style-type: none"> 1. Install the correct driver for the device. 2. You might need to reboot the computer.

Solving Front Panel Component Problems *(Continued)*

Problem	Cause	Solution
A USB device, headphone, or microphone is not recognized by the computer. <i>(continued)</i>	The cable from the device to the computer does not work.	<ol style="list-style-type: none"> 1. If possible, replace the cable. 2. Restart the computer.
	The device is not working.	<ol style="list-style-type: none"> 1. Replace the device. 2. Restart the computer.

Solving Internet Access Problems

If you encounter Internet access problems, consult your Internet Service Provider (ISP) or refer to the common causes and solutions listed in the following table.

Solving Internet Access Problems

Problem	Cause	Solution
Unable to connect to the Internet.	Internet Service Provider (ISP) account is not set up properly.	Verify Internet settings or contact your ISP for assistance.
	Modem is not set up properly.	Reconnect the modem. Verify the connections are correct using the quick setup documentation.
	Web browser is not set up properly.	Verify that the Web browser is installed and set up to work with your ISP.
	Cable/DSL modem is not plugged in.	Plug in cable/DSL modem. You should see a "power" LED light on the front of the cable/DSL modem.
	Cable/DSL service is not available or has been interrupted due to bad weather.	Try connecting to the Internet at a later time or contact your ISP. (If the cable/DSL service is connected, the "cable" LED light on the front of the cable/DSL modem will be on.)

Solving Internet Access Problems *(Continued)*

Problem	Cause	Solution
Unable to connect to the Internet. <i>(continued)</i>	The CAT5 UTP cable is disconnected.	Connect the CAT5 UTP cable between the cable modem and the computers's RJ-45 connector. (If the connection is good, the "PC" LED light on the front of the cable/DSL modem will be on.)
	IP address is not configured properly.	Contact your ISP for the correct IP address.
	Cookies are corrupted. (A "cookie" is a small piece of information that a Web server can store temporarily with your Web browser. This is useful for having your browser remember some specific information that the Web server can later retrieve.)	In Windows XP: <ol style="list-style-type: none"> 1. Select Start > Control Panel. 2. Double-click Internet Options. 3. On the General tab, click the Delete Cookies button.
Cannot automatically launch Internet programs.	You must log on to your ISP before some programs will start.	Log on to your ISP and launch the desired program.

Solving Internet Access Problems *(Continued)*

Problem	Cause	Solution
Internet takes too long to download Web sites.	Modem is not set up properly.	Verify that the correct modem speed and COM port are selected. In Windows XP: <ol style="list-style-type: none">1. Select Start > Control Panel.2. Double-click System.3. Click the Hardware tab.4. In the Device Manager area, click the Device Manager button.5. Double-click Ports (COM & LPT).6. Right-click the COM port your modem uses, then click Properties.7. Under Device status, verify that the modem is working properly.8. Under Device usage, verify the modem is enabled.9. If there are further problems, click the Troubleshoot button and follow the on-screen instructions.

Solving Software Problems

Most software problems occur as a result of the following:

- The application was not installed or configured correctly.
- There is insufficient memory available to run the application.
- There is a conflict between applications.
- Be sure that all the needed device drivers have been installed.
- If you have installed an operating system other than the factory-installed operating system, check to be sure it is supported on the system.

If you encounter software problems, see the applicable solutions listed in the following table.

Solving Software Problems

Problem	Cause	Solution
Computer will not continue and no HP logo screen has appeared.	POST error has occurred.	Observe the beeps and LED lights on the front of the computer. See Appendix A, "POST Error Messages" to determine possible causes. See the Restore Kit or the Worldwide Limited Warranty for terms and conditions.
Computer will not continue after HP logo screen has appeared.	System files may be damaged.	Use recovery diskette to scan hard drive for errors.
"Illegal Operation has Occurred" error message is displayed.	Software being used is not Microsoft-certified for your version of Windows.	Verify that the software is certified by Microsoft for your version of Windows (see program packaging for this information).
	Configuration files are corrupt.	If possible, save all data, close all programs, and restart the computer.

Contacting Customer Support

For help and service, contact an authorized reseller or dealer. To locate a reseller or dealer near you, visit www.hp.com.



If you take the computer to an authorized reseller, dealer, or service provider for service, remember to provide the setup and power-on passwords if they are set.



Refer to the number listed in the warranty or in the *Support Telephone Numbers* guide on the *Documentation and Diagnostics* CD for technical assistance.

POST Error Messages

This appendix lists the error codes, error messages, and the various indicator light and audible sequences that you may encounter during Power-On Self-Test (POST) or computer restart, the probable source of the problem, and steps you can take to resolve the error condition.

POST Message Disabled suppresses most system messages during POST, such as memory count and non-error text messages. If a POST error occurs, the screen will display the error message. To manually switch to the POST Messages Enabled mode during POST, press any key (except **F10** or **F12**). The default mode is POST Message Disabled.

The speed at which the computer loads the operating system and the extent to which it is tested are determined by the POST mode selection.

Quick Boot is a fast startup process that does not run all of the system level tests, such as the memory test. Full Boot runs all of the ROM-based system tests and takes longer to complete.

Full Boot may also be enabled to run every 1 to 30 days on a regularly scheduled basis. To establish the schedule, reconfigure the computer to the Full Boot Every x Days mode, using Computer Setup.



For more information on Computer Setup, see the *Computer Setup (F10) Utility Guide* on the *Documentation and Diagnostics* CD.

POST Numeric Codes and Text Messages

This section covers those POST errors that have numeric codes associated with them. The section also includes some text messages that may be encountered during POST.



The computer will beep once after a POST text message is displayed on the screen.

Numeric Codes and Text Messages

Code/Message	Probable Cause	Recommended Action
101-Option ROM Checksum Error	System ROM or expansion board option ROM checksum.	<ol style="list-style-type: none">1. Verify the correct ROM.2. Flash the ROM if needed.3. If an expansion board was recently added, remove it to see if the problem remains.4. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.")5. If the message disappears, there may be a problem with the expansion card.6. Replace the system board.
103-System Board Failure	DMA or timers.	<ol style="list-style-type: none">1. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.")2. Remove expansion boards.3. Replace the system board.

Numeric Codes and Text Messages (Continued)

Code/Message	Probable Cause	Recommended Action
110-Out of Memory Space for Option ROMs	Recently added PCI expansion card contains an option ROM too large to download during POST.	<ol style="list-style-type: none"> 1. If a PCI expansion card was recently added, remove it to see if the problem remains. 2. In Computer Setup, set Advanced > Device Options > NIC PXE Option ROM Download to DISABLE to prevent PXE option ROM for the internal NIC from being downloaded during POST to free more memory for an expansion card's option ROM. Internal PXE option ROM is used for booting from the NIC to a PXE server. 3. Ensure the ACPI/USB Buffers @ Top of Memory setting in Computer Setup is enabled
162-System Options Not Set	Configuration incorrect. RTC (real-time clock) battery may need to be replaced.	<p>Run Computer Setup and check the configuration in Advanced > Onboard Devices.</p> <p>Reset the date and time under Control Panel. If the problem persists, replace the RTC battery. See the <i>Hardware Reference Guide</i> on the <i>Documentation and Diagnostics</i> CD for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement.</p>
163-Time & Date Not Set	Invalid time or date in configuration memory. RTC (real-time clock) battery may need to be replaced.	<p>Reset the date and time under Control Panel (Computer Setup can also be used). If the problem persists, replace the RTC battery. See the <i>Hardware Reference Guide</i> on the <i>Documentation and Diagnostics</i> CD for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement.</p>

Numeric Codes and Text Messages *(Continued)*

Code/Message	Probable Cause	Recommended Action
163-Time & Date Not Set <i>(continued)</i>	CMOS jumper may not be properly installed.	Check for proper placement of the CMOS jumper if applicable.
164-Memory Size Error	Memory amount has changed since the last boot (memory added or removed).	Press the F1 key to save the memory changes.
	Memory configuration incorrect.	<ol style="list-style-type: none"> 1. Run Computer Setup or Windows utilities. 2. Make sure the memory module(s) are installed properly. 3. If third-party memory has been added, test using HP-only memory. 4. Verify proper memory module type.
201-Memory Error	RAM failure.	<ol style="list-style-type: none"> 1. Run Computer Setup or Windows utilities. 2. Ensure memory modules are correctly installed. 3. Verify proper memory module type. 4. Remove and replace the identified faulty memory module(s). 5. If the error persists after replacing memory modules, replace the system board.
213-Incompatible Memory Module in Memory Socket(s) X, X, ...	A memory module in memory socket identified in the error message is missing critical SPD information, or is incompatible with the chipset.	<ol style="list-style-type: none"> 1. Verify proper memory module type. 2. Try another memory socket. 3. Replace DIMM with a module conforming to the SPD standard.
214-DIMM Configuration Warning	Populated DIMM Configuration is not optimized.	Rearrange the DIMMs so that each channel has the same amount of memory.

Numeric Codes and Text Messages (Continued)

Code/Message	Probable Cause	Recommended Action
219-ECC Memory Module Detected ECC Modules not supported on this Platform	Recently added memory module(s) support ECC memory error correction.	<ol style="list-style-type: none"> 1. If additional memory was recently added, remove it to see if the problem remains. 2. Check product documentation for memory support information.
301-Keyboard Error	Keyboard failure.	<ol style="list-style-type: none"> 1. Reconnect keyboard with computer turned off. 2. Check connector for bent or missing pins. 3. Ensure that none of the keys are depressed. 4. Replace keyboard.
303-Keyboard Controller Error	I/O board keyboard controller.	<ol style="list-style-type: none"> 1. Reconnect keyboard with computer turned off. 2. Replace the system board.
304-Keyboard or System Unit Error	Keyboard failure.	<ol style="list-style-type: none"> 1. Reconnect the keyboard with computer turned off. 2. Ensure that none of the keys are depressed. 3. Replace the keyboard. 4. Replace the system board.
404-Parallel Port Address Conflict Detected	Both external and internal ports are assigned to parallel port X.	<ol style="list-style-type: none"> 1. Remove any parallel port expansion cards. 2. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.") 3. Reconfigure card resources and/or run Computer Setup.
410-Audio Interrupt Conflict	IRQ address conflicts with another device.	Enter Computer Setup and reset the IRQ in Advanced > Onboard Devices .

Numeric Codes and Text Messages (Continued)

Code/Message	Probable Cause	Recommended Action
411-Network Interface Card Interrupt Conflict	IRQ address conflicts with another device.	Enter Computer Setup and reset the IRQ in Advanced > Onboard Devices .
501-Display Adapter Failure	Graphics display controller.	<ol style="list-style-type: none"> 1. Reseat the graphics card (if applicable). 2. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.") 3. Verify monitor is attached and turned on. 4. Replace the graphics card (if possible).
510-Flash Screen Image Corrupted	Flash Screen image has errors.	Reflash the system ROM with the latest BIOS image.
511-CPU, CPUA, or CPUB Fan not Detected	CPU fan is not connected or may have malfunctioned.	<ol style="list-style-type: none"> 1. Reseat CPU fan. 2. Reseat fan cable. 3. Replace CPU fan.
512-Chassis, Rear Chassis, or Front Chassis Fan not Detected	Chassis, rear chassis, or front chassis fan is not connected or may have malfunctioned.	<ol style="list-style-type: none"> 1. Reseat chassis, rear chassis, or front chassis fan. 2. Reseat fan cable. 3. Replace chassis, rear chassis, or front chassis fan.
514-CPU or Chassis Fan not Detected	CPU or chassis fan is not connected or may have malfunctioned.	<ol style="list-style-type: none"> 1. Reseat CPU or chassis fan. 2. Reseat fan cable. 3. Replace CPU or chassis fan.

Numeric Codes and Text Messages (Continued)

Code/Message	Probable Cause	Recommended Action
601-Diskette Controller Error	Diskette controller circuitry or floppy drive circuitry incorrect.	<ol style="list-style-type: none"> 1. Run Computer Setup. 2. Check and/or replace cables. 3. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.") 4. Replace diskette drive. 5. Replace the system board.
605-Diskette Drive Type Error	Mismatch in drive type.	<ol style="list-style-type: none"> 1. Run Computer Setup. 2. Disconnect any other diskette controller devices (tape drives). 3. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.")
610-External Storage Device Failure	External tape drive not connected.	Reinstall tape drive or press F1 and allow system to reconfigure without the drive.
611-Primary Floppy Port Address Assignment Conflict	Configuration error.	Run Computer Setup and check the configuration in Advanced > Onboard Devices .
660-Display cache is detected unreliable	Integrated graphics controller display cache is not working properly and will be disabled.	Replace system board if minimal graphics degrading is an issue.
912-Computer Cover Has Been Removed Since Last System Startup	Computer cover was removed since last system startup.	No action required.
917-Front Audio Not Connected	Front audio harness has been detached or unseated from motherboard.	Reconnect or replace front audio harness.

Numeric Codes and Text Messages (Continued)

Code/Message	Probable Cause	Recommended Action
918-Front USB Not Connected	Front USB harness has been detached or unseated from motherboard.	Reconnect or replace front USB harness.
919-Multi-Bay Riser not Connected	Riser card has been removed or has not been reinstalled properly in the system.	Reinsert riser card.
921-Device in PCI Express slot failed to initialize	There is an incompatibility/problem with this device and the system or PCI Express Link could not be retrained to an x1.	Try rebooting the system. If the error reoccurs, the device may not work with this system
1151-Serial Port A Address Conflict Detected	Both external and internal serial ports are assigned to COM1.	<ol style="list-style-type: none">1. Remove any serial port expansion cards.2. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.")3. Reconfigure card resources and/or run Computer Setup or Windows utilities.
1152-Serial Port B Address Conflict Detected	Both external and internal serial ports are assigned to COM2.	<ol style="list-style-type: none">1. Remove any serial port expansion cards.2. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.")3. Reconfigure card resources and/or run Computer Setup or Windows utilities.

Numeric Codes and Text Messages *(Continued)*

Code/Message	Probable Cause	Recommended Action
1155-Serial Port Address Conflict Detected	Both external and internal serial ports are assigned to same IRQ.	<ol style="list-style-type: none"> 1. Remove any serial port expansion cards. 2. Clear CMOS. (See Appendix B, "Password Security and Resetting CMOS.") 3. Reconfigure card resources and/or run Computer Setup or Windows utilities.
1201-System Audio Address Conflict Detected	Device IRQ address conflicts with another device.	Enter Computer Setup and reset the IRQ in Advanced > Onboard Devices .
1202-MIDI Port Address Conflict Detected	Device IRQ address conflicts with another device.	Enter Computer Setup and reset the IRQ in Advanced > Onboard Devices .
1203-Game Port Address Conflict Detected	Device IRQ address conflicts with another device.	Enter Computer Setup and reset the IRQ in Advanced > Onboard Devices .
1720-SMART Hard Drive Detects Imminent Failure	Hard drive is about to fail. (Some hard drives have a hard drive firmware patch that will fix an erroneous error message.)	<ol style="list-style-type: none"> 1. Determine if hard drive is giving correct error message. Enter Computer Setup and run the Drive Protection System test under Storage > DPS Self-test. 2. Apply hard drive firmware patch if applicable. (Available at www.hp.com/support.) 3. Back up contents and replace hard drive.
1785-MultiBay incorrectly installed	<i>(for integrated MultiBay/USDT systems)</i> <ol style="list-style-type: none"> 1. MultiBay device not properly seated. 2. MultiBay riser not properly seated. 	<ol style="list-style-type: none"> 1. Ensure the MultiBay device is fully inserted. 2. Ensure the MultiBay riser is properly seated.

Numeric Codes and Text Messages (Continued)

Code/Message	Probable Cause	Recommended Action
1794-Inaccessible devices attached to SATA 1 and/or SATA 3	A device is attached to SATA 1 and/or SATA 3. Devices attached to these connectors will be inaccessible while "SATA Emulation" is set to "Combined IDE Controller" in Computer Setup.	<ol style="list-style-type: none">1. If using Windows 2000 or Windows XP, change "SATA Emulation" to "Separate IDE Controller" in Computer Setup.2. If not using Windows 2000 or Windows XP, relocate the affected devices to SATA 0 or SATA 2 (if available).3. Remove the affected devices from SATA 1 and SATA 3.
1796-SATA Cabling Error	One or more SATA devices are improperly attached. For optimal performance, the SATA 0 and SATA 1 connectors must be used before SATA 2 and SATA 3.	Ensure SATA connectors are used in ascending order. For one device, use SATA 0. For two devices, use SATA 0 and SATA 1. For three devices, use SATA 0, SATA 1, and SATA 2.
1801-Microcode Patch Error	Processor is not supported by ROM BIOS.	<ol style="list-style-type: none">1. Upgrade BIOS to proper version.2. Change the processor.
Invalid Electronic Serial Number	Electronic serial number has become corrupted.	<ol style="list-style-type: none">1. Run Computer Setup. If Setup already has data in the field or will not allow the serial number to be entered, download from www.hp.com and run SP5572.EXE (SNZERO.EXE).2. Run Computer Setup and try to enter serial number under Security, System ID, then save changes.

Numeric Codes and Text Messages (Continued)

Code/Message	Probable Cause	Recommended Action
Network Server Mode Active and No Keyboard Attached	Keyboard failure while Network Server Mode enabled.	<ol style="list-style-type: none">1. Reconnect keyboard with computer turned off.2. Check connector for bent or missing pins.3. Ensure that none of the keys are depressed.4. Replace keyboard.
Parity Check 2	Parity RAM failure.	Run Computer Setup and Diagnostic utilities.
System will not boot without fan	CPU fan not installed or disconnected in VSFF chassis.	<ol style="list-style-type: none">1. Open hood, press the Power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the heatsink is properly seated and installed.2. If the fan is plugged in and the heatsink is properly seated but the fan does not spin, then replace the heatsink-fan assembly.

POST Diagnostic Front Panel LEDs and Audible Codes

This section covers the front panel LED codes as well as the audible codes that may occur before or during POST that do not necessarily have an error code or text message associated with them.



If you see flashing LEDs on a PS/2 keyboard, look for flashing LEDs on the front panel of the computer and refer to the following table to determine the front panel LED codes.



Recommended actions in the following table are listed in the order in which they should be performed.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Green Power LED On.	None	Computer on.	None
Green Power LED flashes every two seconds.	None	Computer in Suspend to RAM mode (some models only) or normal Suspend mode.	None required. Press any key or move the mouse to wake the computer.

Diagnostic Front Panel LEDs and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes two times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	2	Processor thermal protection activated: A fan may be blocked or not turning. OR The heatsink/fan assembly is not properly attached to the processor.	<ol style="list-style-type: none"> 1. Ensure that the computer air vents are not blocked and the processor cooling fan is running. 2. Open hood, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, then replace processor fan. 4. Reseat processor heatsink and verify that the fan assembly is properly attached. 5. Contact an authorized reseller or service provider.
Red Power LED flashes three times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	3	Processor not installed (not an indicator of bad processor).	<ol style="list-style-type: none"> 1. Check to see that the processor is present. 2. Reseat the processor.

Diagnostic Front Panel LEDs and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes four times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	4	Power failure (power supply is overloaded).	<ol style="list-style-type: none">1. Open the hood and ensure the 4 or 6-wire power supply cable is seated into the connector on the system board.2. Check if a device is causing the problem by removing ALL attached devices (such as hard, diskette, or optical drives, and expansion cards). Power on the system. If the system enters the POST, then power off and replace one device at a time and repeat this procedure until failure occurs. Replace the device that is causing the failure. Continue adding devices one at a time to ensure all devices are functioning properly.3. Replace the power supply.4. Replace the system board.
Red Power LED flashes five times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	5	Pre-video memory error.	<ol style="list-style-type: none">1. Reseat DIMMs. Power on the system.2. Replace DIMMs one at a time to isolate the faulty module.3. Replace third-party memory with HP memory.4. Replace the system board.

Diagnostic Front Panel LEDs and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes six times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	6	Pre-video graphics error.	For systems with a graphics card: <ol style="list-style-type: none"> 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board. For systems with integrated graphics, replace the system board.
Red Power LED flashes seven times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	7	System board failure (ROM detected failure prior to video).	Replace the system board.
Red Power LED flashes eight times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	8	Invalid ROM based on bad checksum.	<ol style="list-style-type: none"> 1. Reflash the system ROM with the latest BIOS image. See the "Boot Block Emergency Recovery Mode" section of the <i>Desktop Management Guide</i> on the <i>Documentation and Diagnostics</i> CD for more information. 2. Replace the system board.
Red Power LED flashes nine times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	9	System powers on but is unable to boot.	<ol style="list-style-type: none"> 1. Check that the voltage selector, located on the rear of the power supply (some models), is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Replace the system board. 3. Replace the processor.

Diagnostic Front Panel LEDs and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes ten times, once every second, followed by a two second pause. Beeps stop after fifth iteration but LEDs continue until problem is solved.	10	Bad option card.	<ol style="list-style-type: none">1. Check each option card by removing the card (one at a time if multiple cards), then power on the system to see if fault goes away.2. Once a bad card is identified, remove and replace the bad option card.3. Replace the system board.

Diagnostic Front Panel LEDs and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
System does not power on and LEDs are not flashing.	None	System unable to power on.	<p>Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:</p> <ol style="list-style-type: none"> 1. Check that the voltage selector, located on the rear of the power supply, is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Remove the expansion cards one at a time until the 5V_aux light on the system board turns on. 3. Replace the system board. <p>OR</p> <p>Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then:</p> <ol style="list-style-type: none"> 1. Check that the unit is plugged into a working AC outlet. 2. Open hood and check that the power button harness is properly connected to the system board. 3. Check that both power supply cables are properly connected to the system board. 4. Check to see if the 5V_aux light on the system board is turned on. If it is turned on, then replace the power button harness. 5. If the 5V_aux light on the system board is not turned on, then replace the power supply. 6. Replace the system board.

Password Security and Resetting CMOS

This computer supports security password features, which can be established through the Computer Setup Utilities menu.

This computer supports two security password features that are established through the Computer Setup Utilities menu: setup password and power-on password. When you establish only a setup password, any user can access all the information on the computer except Computer Setup. When you establish only a power-on password, the power-on password is required to access Computer Setup and any other information on the computer. When you establish both passwords, only the setup password will give you access to Computer Setup.

When both passwords are set, the setup password can also be used in place of the power-on password as an override to log in to the computer. This is a useful feature for a network administrator.

If you forget the password for the computer, there are two methods for clearing that password so you can gain access to the information on the computer:

- Resetting the password jumper
- Using the Clear CMOS button



CAUTION: Pushing the CMOS button will reset CMOS values to factory defaults and will erase any customized information including passwords, asset numbers, and special settings. It is important to back up the computer CMOS settings before resetting them in case they are needed later. Back up is easily done through Computer Setup. See the *Computer Setup (F10) Utility Guide* on the *Documentation and Diagnostics* CD for information on backing up the CMOS settings.

Resetting the Password Jumper

To disable the power-on or setup password features, or to clear the power-on or setup passwords, complete the following steps:

1. Shut down the operating system properly, then turn off the computer and any external devices, and disconnect the power cord from the power outlet.
2. With the power cord disconnected, press the power button again to drain the system of any residual power.



WARNING: To reduce the risk of personal injury from electrical shock and/or hot surfaces, be sure to disconnect the power cord from the wall outlet, and allow the internal system components to cool before touching.



CAUTION: When the computer is plugged in, the power supply always has voltage applied to the system board even when the unit is turned off. Failure to disconnect the power cord can result in damage to the system.



CAUTION: Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. See the *Safety & Regulatory Information* guide on the *Documentation and Diagnostics* CD for more information.

3. Remove the computer cover or access panel.
4. Locate the header and jumper.



The password jumper is green so that it can be easily identified. For assistance locating the password jumper and other system board components, see the Illustrated Parts Map (IPM) for that particular system. The IPM can be downloaded from www.hp.com/support.

5. Remove the jumper from pins 1 and 2. Place the jumper on either pin 1 or 2, but not both, so that it does not get lost.
6. Replace the computer cover or access panel.
7. Reconnect the external equipment.

8. Plug in the computer and turn on power. Allow the operating system to start. This clears the current passwords and disables the password features.
9. To establish new passwords, repeat steps 1 through 4, replace the password jumper on pins 1 and 2, then repeat steps 6 through 8. Establish the new passwords in Computer Setup. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation and Diagnostics* CD for Computer Setup instructions.

Clearing and Resetting the CMOS

The computer's configuration memory (CMOS) stores password information and information about the computer's configuration.

Using the CMOS Button

1. Turn off the computer and any external devices, and disconnect the power cord from the power outlet.
2. Disconnect the keyboard, monitor, and any other external equipment connected to the computer.



WARNING: To reduce the risk of personal injury from electrical shock and/or hot surfaces, be sure to disconnect the power cord from the wall outlet, and allow the internal system components to cool before touching.



CAUTION: When the computer is plugged in, the power supply always has voltage applied to the system board even when the unit is turned off. Failure to disconnect the power cord can result in damage to the system.



CAUTION: Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. See the *Safety & Regulatory Information* guide on the *Documentation and Diagnostics* CD for more information.

3. Remove the computer cover or access panel.



CAUTION: Pushing the CMOS button will reset CMOS values to factory defaults and will erase any customized information including passwords, asset numbers, and special settings. It is important to back up the computer CMOS settings before resetting them in case they are needed later. Back up is easily done through Computer Setup. See the *Computer Setup (F10) Utility Guide* on the *Documentation and Diagnostics* CD for information on backing up the CMOS settings.

4. Locate, press, and hold the CMOS button in for five seconds.



Make sure you have disconnected the AC power cord from the wall outlet. The CMOS button will not clear CMOS if the power cord is connected.



CMOS button



For assistance locating the CMOS button and other system board components, see the Illustrated Parts Map (IPM) for that particular system.

5. Replace the computer cover or access panel.

6. Reconnect the external devices.
7. Plug in the computer and turn on power.



You will receive POST error messages after clearing CMOS and rebooting advising you that configuration changes have occurred. Use Computer Setup to reset your passwords and any special system setups along with the date and time.

See the *Desktop Management Guide* on the *Documentation and Diagnostics* CD for further instructions on reestablishing passwords. For instructions on Computer Setup, see the *Computer Setup (F10) Utility Guide* on the *Documentation and Diagnostics* CD.

Using Computer Setup to Reset CMOS

To reset CMOS through Computer Setup, you must first access the Computer Setup Utilities menu.

When the Computer Setup message appears in the lower-right corner of the screen, press the **F10** key. Press **Enter** to bypass the title screen, if necessary.



If you do not press the **F10** key while the message is displayed, you must turn the computer off, then on again, to access the utility.

A choice of five headings appears in the Computer Setup Utilities menu: **File**, **Storage**, **Security**, **Power**, and **Advanced**.

To reset CMOS to the factory default settings first set time and date, then use the arrow keys or the **Tab** key to select **File > Set Defaults and Exit**. This resets the soft settings that include boot sequence order and other factory settings. It will not, however, force hardware rediscovery.

See the *Desktop Management Guide* on the *Documentation and Diagnostics* CD for further instructions on reestablishing passwords. For instructions on Computer Setup, see the *Computer Setup (F10) Utility Guide* on the *Documentation and Diagnostics* CD.

Drive Protection System (DPS)

The Drive Protection System (DPS) is a diagnostic tool built into the hard drives installed in some computers. DPS is designed to help diagnose problems that might result in unwarranted hard drive replacement.

When these systems are built, each installed hard drive is tested using DPS, and a permanent record of key information is written onto the drive. Each time DPS is run, test results are written to the hard drive. Your service provider can use this information to help diagnose conditions that caused you to run the DPS software.

Running DPS will not affect any programs or data stored on the hard drive. The test resides in the hard drive firmware and can be executed even if the computer will not boot to an operating system. The time required to execute the test depends on the manufacturer and size of the hard drive; in most cases, the test will take approximately two minutes per gigabyte.

Use DPS when you suspect a hard drive problem. If the computer reports a SMART Hard Drive Detect Imminent Failure message, there is no need to run DPS; instead, back up the information on the hard drive and contact a service provider for a replacement hard drive.

Accessing DPS Through Computer Setup

When the computer does not power on properly you should use Computer Setup to access the DPS program. To access DPS, perform the following steps:

1. Turn on or restart the computer.
2. When the F10 Setup message appears in the lower-right corner of the screen, press the **F10** key.



If you do not press the **F10** key while the message is displayed, you must turn the computer off, then on again, to access the utility.

A choice of five headings appears in the Computer Setup Utilities menu: **File**, **Storage**, **Security**, **Power**, and **Advanced**.

3. Select **Storage > DPS Self-Test**.

The screen will display the list of DPS-capable hard drives that are installed on the computer.



If no DPS-capable hard drives are installed, the **DPS Self-Test** option will not appear on the screen.

4. Select the hard drive to be tested and follow the screen prompts to complete the testing process.

When the test has been completed, one of three messages will be displayed:

- Test Succeeded. Completion Code 0.
- Test Aborted. Completion Code 1 or 2.
- Test Failed. Drive Replacement Recommended. Completion Code 3 through 14.

If the test failed, the completion code should be recorded and reported to your service provider for help in diagnosing the computer problem.

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