Chapter 5 System Diagnostics and Troubleshooting

This chapter discusses the tools available for diagnosing and troubleshooting system issues. This chapter includes the following sections:

Help & Support Center (HSC) and E-Support

HSC provides online access to technical support information, software updates and downloads, diagnostic tools, and HP support contact information.

To open HSC from your desktop, click **Start>Help and Support**.

HSC contains four sections:

- HP Product Information (requires Internet access)—Links to the HP Technical Support Web site for your product. You can access all related documentation, downloads and updates, tools, and more.
- HP Software & Driver Downloads (requires Internet access)—Links to HP-specific software downloads and updates.
- HP Support Tools (requires Internet access)—Links to self-help tools and diagnostics offered by HP Instant Support Professional Edition.
- Contact HP for Support (option available that does not require Internet access)—Provides two different options:
  - Chat with an expert online (requires Internet access)—Provides a tool to communicate with a support specialist online through **Active Chat**.
  - Call a support agent—Provides hardware details about the workstation and HP support contact phone number worldwide.

Troubleshooting Checklist

Before running any of the diagnostic utilities, review the following checklist to find possible solutions for workstation or software problems:

- Are the workstation and monitor connected to a working electrical outlet?
- Is the workstation turned on?
- Is the green power light illuminated?
- Is the monitor turned on?
- Is the green monitor light illuminated?
- Turn up the monitor brightness and contrast controls if the monitor is dim.
- Press and hold any key. If the system beeps, then the keyboard is operating correctly.
- Check all cables for loose or incorrect connections.
- Reconfigure the workstation after installing a non-Plug ‘n Play expansion board or other option, such as a diskette drive.
- Are all of the necessary device drivers installed?
- Have all printer drivers been installed for each application?
- Remove all diskettes and CDs from the drives before you turn on the system.
- Are all switches set correctly?
- Are you running the latest BIOS version, drivers, and/or software updates?

LED Color Definitions

An LED light exists on the front panel of your workstation. The following table describes what each color signifies.

Table 5-1 LED color definitions

LED State	LED Color	System Status
Solid	Green	System is on.
Blinking	Green	System is in Standby.
Solid or Blinking	Red	System has error. See “Diagnostic Error Codes” on page 123
None	No Light	System is in Hibernate or it is off.

HP Insight Diagnostics Offline Edition

The diagnostics utility enables you to perform testing and to view critical computer hardware and software configuration information from various sources. This utility allows you to:

- Run diagnostics.
- View the hardware configuration of the system.

Key Features and Benefits

HP Insight Diagnostics simplifies the process of effectively identifying, diagnosing, and isolating the hardware issues.

In addition to robust management tools, service tools can be invaluable in quickly resolving system problems. To streamline the service process and resolve problems quickly, it is necessary to have the right information available at the time that a service call is placed. The primary information requirement, which is also the one that provides the greatest insight into potential system issues, is the configuration of the system. Insight Diagnostics helps provide higher system availability. Typical uses of the Insight Diagnostics are:

- Testing and diagnosing apparent hardware failures
- Documenting system configurations for upgrade planning, standardization, inventory tracking, disaster recovery, and maintenance
- Sending configuration information to another location for more in-depth analysis

Theory of Operation

Insight Diagnostics Offline Edition operates in offline mode only. The operating system is not running and software information from the system is not available to the diagnostics.

Offline Survey is available to display the current system configuration.

The **Insight Diagnostics Test** feature provides the capability to test functionality of all the major hardware components in the system. The Test feature is designed to be flexible to allow the user to customize test selections by providing different modes and types of testing.

A **Quick Test** provides a predetermined script where a sample of each hardware component is exercised and requires no user intervention.

A **Complete Test** provides a predetermined script where each hardware component is fully tested. You can select Interactive or Unattended tests. This will change the devices tested during the Complete Test. There are more tests available in the interactive mode, but these require user intervention.

A **Custom Test** provides the most flexibility in controlling the testing of a system. The Custom Test mode allows the user to specifically select which devices, tests, and test parameters are run. Users are provided the ability to select tests that do not require any user interaction through the Interactive and Unattended tests modes.

Diagnostic Utility on CD

HP Insight Diagnostics is available on the *Documentation Library* CD that was shipped with your workstation.

To start the diagnostic utility on the *Documentation Library* CD:

1. Turn on your workstation and press the **F10** key during the initial boot process to enter the Computer Setup (F10) Utility (page 36).
2. Select your language from the list and press the **Enter** key. In the Computer Setup Utilities menu, there are five headings displayed: File, Storage, Security, Power, and Advanced.
3. Use the right arrow key to select **Storage**. Use the down arrow key to select **Boot Order**, then press **Enter**.
4. Select **CD-ROM Drive** and enable it as a bootable device by pressing the **F5** key (if not already enabled, pressing F5 key again disables the device).
5. Set the **CD-ROM Drive** to the top of the boot order. To do this, select **CD-ROM**, press **Enter**, and use use the up arrow to move it to top of order.
6. To apply and save changes, press the **F10** key, then select **File>Save Changes and Exit**.
7. Insert the *Documentation Library* CD into the workstation.
8. Restart your system and HP Insight Diagnostics launches automatically.

Download the ISO Image

The download the latest diagnostic utility.

1. Visit http://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, xw4200) in the text box and press **Enter**.
5. Select your OS.
6. Click the **Diagnostic** link.
7. Locate **HP Insight Diagnostics** and click **Download**.

User Interface

NAVIGATION

The Insight Diagnostics home page contains the following tabs: **Survey**, **Test**, **Status**, **Log**, and **Help**. These tabs separate the major functions of Insight Diagnostics.

SURVEY TAB

When the Survey tab is selected, the **Survey** menu displays and allows you to view important system configuration information. The **Summary** view limits the amount of data displayed, while the **Advanced** view shows 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** menu:

- **Overview**—The Overview view gives you a listing of general information about the computer.
- **All**—The All view gives a listing of all information about the computer.
- **Architecture**—The Architecture view shows the type of bus the computer uses. In addition, if the bus is PCI, information about the PCI configuration is displayed.
- **Asset Control**—The Asset Control view shows the serial number of the computer (system identification number).
- **Communication**—The Communication view shows information about the computer parallel (LPT) and serial (COM) port settings, USB, and network controller information.
- **Graphics**—The Graphics view shows information about the graphics subsystem of the computer. This includes information about the graphics card, mode, and ROM.
- **Input Devices**—The Input Devices view shows information about the type of keyboard, mouse, and other input devices connected to the computer.
- **Internal Conditions**—The Internal Conditions view shows information about the health of the computer. This includes fan, temperature, and power supply information.
- **Memory**—The Memory view shows information about all memory in the computer. This includes memory on the board and any memory modules installed.
- **Miscellaneous**—The Miscellaneous view shows information obtained from the computers configuration memory (CMOS), BIOS data area, Interrupt Vector table, and diagnostics component information.
- **Multimedia**—The Multimedia view shows information about all multimedia devices in the workstation. This includes audio devices installed.
- **Resources**—The Resources view shows the system device resource usage information. This includes information about I/O, memory, IRQ, slot, and bus usage.
- **Storage**—The Storage view shows information about storage media connected to the computer. This list includes all fixed disks, diskette drives, and CD-ROM drives.
- **System**—The System view shows product type, processor type and speed, and coprocessor information. Also shown in this display is information about all ROMs in the computer.

TEST TAB

The Insight Diagnostics utility provides the capability to test all the major pieces of hardware in the system. You can select from several types of tests:

- **Quick Test**—Provides a predetermined script where a sample of each hardware component is exercised and requires no user intervention.
- **Complete Test**—Provides a predetermined script where each hardware component is fully tested. You can select **Interactive** or **Unattended** tests. This will change the devices tested during the Complete Test. 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 enables the user to specifically select which devices, tests, and test parameters are run. Users are provided the ability to select tests that do not require any user interaction through the **Interactive** and **Unattended** test modes.

To begin testing:

1. Select the **Test** tab.
2. Select the **Type of Test** to perform and then select the **Test Mode**, either **Interactive** or **Unattended**.
3. 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.

NOTE Testing will automatically stop, if one test loop has been completed, when the elapsed test time has reached the specified time limit.

4. Click **Begin Testing** to start the test.

   While tests are being performed, the user can monitor the progress by viewing the Status tab. Any errors that are detected are summarized in the Error Log. Click the Print button to print or save the report.

   If the diagnostics utility detects an error during a test, the user can mouse-over the failed text in the Status tab to display additional information for the type of error and the error code.

   To view all test failure information, select the Error Log. To view the status of all testing that has been performed, select the Log tab.

STATUS TAB

The Status tab displays the status of the selected tests. The type of test executed (for example, **Quick**, **Complete**, **Custom**) is displayed. The main progress bar displays the percent complete of the current set of tests. While testing is in progress a **Cancel** testing button, which will cancel the test job, is displayed.

After testing has completed the **Cancel** testing button is replaced with two buttons, **Select New Tests** and **Retest**. The **Select New Tests** button allows you to go back to the previous test selection page to select a new set of tests. The **Retest** button will retest the last set of tests executed. This enables you to re-run the set of tests without having to go back to the test selection page.

The Status page 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 consists of three views.

- **Test Log**—Displays all tests that have been executed, number of times of execution, 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.
- **Error Log**—Displays the tests that have failed during the diagnostic testing. Besides displaying the device and test this section might also include error details. 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 error count is the number of times the test has failed. The Clear Error Log button will clear the contents of the Error Log.
- **Test Components**—Hardware and software tests can be performed on the following components:
  - **Audio**—Identifies all audio devices installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices.
  - **CPU**—Identifies all processors installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices.
  - **Inspect**—Captures general system configuration information.
  - **Keyboard**—Identifies the keyboard installed in a system and provides the ability to verify proper operation of this device.
  - **Memory**—Identifies all memory modules installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these modules.
  - **Modem**—Identifies all modem devices installed in a system, captures any associated configuration information, and provides the ability to verify the proper operation of these devices.
  - **Mouse**—Identifies the mouse installed in a system and provides the ability to verify proper operation of this device.

- **Network**—Identifies all network devices installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices. NIC testing is only performed if drivers are installed during discovery.
- **Parallel Port**—Identifies all parallel devices installed in a system and captures any associated configuration information. If the parallel port is properly configured and the information is available to the operating system, the associated DMA, IRQ, and I/O ports are reported. This test component also provides the ability to verify proper operation of these devices.
- **PCI Bus**—Identifies all PCI devices installed in a system and provides the ability to verify proper PCI I/O operation to the devices.
- **Serial Port**—Identifies all serial devices installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices.
- **Storage**—Identifies storage devices connected to a system through IDE, USB, SCSI or a Fibre Channel network. Supported devices include:
  - IDE hard disk drives
  - USB diskette drives
  - SCSI disk drives
  - SCSI tape drives
  - SCSI controllers
  - RAID controllers

  Controllers can be connected to the host through PCI, I2C, or serial port. The component also captures any associated configuration information, and provides the ability to verify proper operation of these devices.
- **Stress**—Provides a solution for stress testing hardware in a system.
- **USB**—Identifies all USB devices installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices.
- **Graphics**—Identifies all graphic devices installed in a system, captures any associated configuration information, such as the ASIC and monitor types, and provides the ability to verify proper operation of these devices.

A list of available tests for each test component and a list of error codes can be accessed through the Test Component and Error Codes menu selections on the Help tab menu bar.

Troubleshooting Using HP Intelligent Manageability Features

The Local Alert Pop-Up Dialog notifies you of an impending or actual hardware failure. If the workstation is connect to a network and the HP Insight Management Agents are installed and configured, a Simple Network Management Protocol (SNMP) trap (message) is sent to the specified SNMP-compliant management application.

Diagnostic Error Codes

This section gives an overview of the diagnostic lights and error codes that are related to the HP Workstation xw4200.

Diagnostic Light Codes

Table 5-2 Diagnostic Light Codes

Chassis Indicator Lights	
Power LED and Sound Activity	**Diagnosis and Service Action**
None	System does not power on Press power button. If HDD LED = GREEN, then: 1 Verify voltage selected. 2 Remove expansion cards one at a time until the 5V_Aux light on the system board illuminates. 3 Replace system board. OR 1 Press power button. If HDD LED does not illuminate, then: 2 Verify workstation plugged into live AC outlet. 3 Verify power button harness connected to system board. 4 Verify that both power supply cables are properly connected to the system board. 5 Verify that the 5V_Aux light on the system board is illuminated. If on, replace the power button harness. 6 Disconnect the AC power cord. Disconnect all internal power supply cables. Plug in the AC power cord. On the rear panel of the workstation, look through the ventilation holes above the power cord connector for a green LED light. ● If the green LED light is not visible or the power supply fan is not spinning, replace the power supply. ● If the green LED light is visible and the power supply fan is spinning, the power supply is functional. 7 Replace system board.
Solid GREEN Power LED	Workstation on. No action required.
GREEN Power LED flashes 1 time every 2 seconds	Workstation in Suspended to RAM mode (select models) or normal Suspend or Standby mode. No action required.
Blinks RED 2 times, once per second, then 2 second pause, 2 beeps	Thermal Shutdown: 1 Ensure the workstation air vents are not blocked and cooling fan is running. 2 Open hood, press power button, and see if processor fan spins. If not spinning, ensure fan cable is plugged into the system board. Ensure fan is fully/properly seated. 3 If fan is plugged in and seated but not spinning, then replace processor fan. 4 Reseat CPU heatsink and verify fan assembly properly attached.

Table 5-2 Diagnostic Light Codes (Continued)

Chassis Indicator Lights (Continued)	
Power LED and Sound Activity	**Diagnosis and Service Action**
Blinks RED 3 times, once per second, then 2-second pause, 3 beeps	CPU not installed: 1 Install CPU. 2 Reseat CPU.
Blinks RED 4 times, once per second, then 2 second pause, 4 beeps	Power supply failure: 1 Open the access panel and ensure the 4-wire power supply cable is properly connected to the system board. 2 Locate faulty device by removing all devices and then reinstalling one at a time until workstation fails. Replace the device causing the failure. Continue adding devices to ensure all are functioning properly. 3 Replace the power supply. 4 Replace the system board.
Blinks RED 5 times, once per second, then 2 second pause, 5 beeps	Pre-video memory error. 1 Reseat memory modules. 2 Replace memory modules one at a time to find the faulty module. 3 Replace third-party modules with HP memory. 4 Replace system board.
Blinks RED 6 times, once per second, then 2 second pause, 6 beeps	Pre-video graphics card error. For systems with integrated graphics, replace system board. For systems with graphic cards, 1 Reseat the graphics card. Power on the system. 2 Replace the graphics card. 3 Replace the system board.
Blinks RED 7 times, once per second, then 2 second pause, 7 beeps.	System board failure (ROM detected failure before video). Replace system board.
Blinks RED 8 times, once per second, then 2 second pause, 8 beeps	Invalid ROM based on bad checksum. 1 Reflash ROM. 2 Replace system board.
Blinks RED 9 times, once per second, then 2 second pause, 9 beeps	System powers on but is unable to boot. 1 Replace the system board. 2 Replace the processor.
Blinks RED 10 times, once per second, then 2 second pause, 10 beeps	Bad option card. 1 Check each graphics card by removing the card (one at a time if multiple cards), then power on the system to see if the fault goes away. 2 Once a bad card is identified, remove and replace the bad option card. 3 Replace the system board.

Troubleshooting Scenarios and Solutions

This section presents an extensive overview of various troubleshooting scenarios and includes possible solutions for each. Before replacing the power supply, use the Built-In Self-Test (BIST) feature to learn if the power supply still works.

To test the power supply:

1 Disconnect all internal power supply cables.

2 On the rear panel of the workstation, look through the ventilation holes above the power cord connector for a green LED light. If the light is visible, the power supply is functional.

Solving Minor Problems

Table 5-3 Solving Minor Problems

Problem	Cause	Possible Solution
Workstation appears locked up and will not turn off when the power button is pressed.	Software control of the power switch is not functional.	1 Press and hold the power button for at least four seconds until the workstation turns off. 2 Disconnect electrical plug from outlet.
Workstation will not respond to USB keyboard or mouse.	Workstation is in standby mode.	Press the power button to resume from standby mode.
NOTE: When attempting to resume from standby mode, do not hold down the power button for more than four seconds. Otherwise, the workstation will shut down and you will lose your data.		
Workstation date and time display is incorrect.	Real-time clock (RTC) battery may need to be replaced.	1 Reset the date and time under Control Panel. 2 Replace the RTC battery.
Workstation appears to pause periodically.	Network driver is loaded and no network connection is established.	Establish a network connection, or use Computer Setup or Microsoft Windows Device Manager to disable the network controller.
Cursor will not move using the arrow keys on the keypad.	The **Num Lock** key might be on.	Press the **Num Lock** key. The **Num Lock** key can be disabled (or enabled) in Computer Setup.
Cannot remove access panel.	Solenoid hood lock, featured on some workstations, is locked.	1 Unlock the solenoid hood lock using Computer Setup. 2 Use the access panel FailSafe Key in case of forgotten password, power loss, or workstation malfunction.
Poor performance is experienced.	Processor is hot.	1 Ensure airflow to the workstation is not blocked. 2 Ensure the 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.

Table 5-3 Solving Minor Problems (Continued)

Problem	Cause	Possible Solution
Workstation powered off automatically and the Power LED flashes Red two times, once every second, followed by a two-second pause.	Processor thermal protection activated: A fan might be blocked or not turning. OR The heatsink is not properly attached to the processor.	1 Ensure workstation air vents are not blocked and the cooling fan is running. 2 Open hood, press power button, and see if the processor fan spins. If not spinning, be sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3 Replace the processor fan. 4 Reseat processor heatsink and verify that the fan assembly is properly attached.
System does not power on and the LEDs on the front of the workstation are not flashing.	System unable to power on.	Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then: 1 Remove the expansion cards one at a time until the 5V_aux light on the system board turns on. 2 Replace the system board. OR Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then: 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 If the 5V_aux light on the system board is on, then replace the power button harness. 5 If the 5V_aux light on the system board is off, perform the Built-In Self-Test on the power supply. Disconnect the AC power cord from the system. Disconnect all internal power supply cables. Plug in AC power. ■ If the green BIST LED on the rear of the workstation is lit AND the fan is spinning, the power supply is functional. ■ If the green BIST LED is not lit OR the fan is not spinning, replace the power supply. 6 Replace the system board.

Solving Power Supply Problems

Before replacing the power supply, use the Built-In Self-Test (BIST) feature to learn if the power supply still works.

To test the power supply:

1 Disconnect the AC power cord from the workstation.

2 Disconnect all internal power supply cables.

3 Plug in the AC power cord.

- If the green BIST LED **1** on the rear of the workstation is lit AND the fan is spinning, the power supply is functional.
- If the green BIST LED is not lit OR the fan is not spinning, replace the power supply.

Table 5-4 Solving Power Supply Problems

Problem	Cause	Solution
Power supply shuts down intermittently.	Power supply fault.	Replace the power supply.
Workstation powered off automatically and the Power LED flashes Red two times, once every second, followed by a two-second pause.	Processor thermal protection activated: A fan might be blocked or not turning. OR The heatsink/fan assembly is not properly attached to the processor.	1 Ensure that the workstation air vents are not blocked and the cooling fan is running. 2 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 fan is fully/properly seated or installed. 3 Replace the processor fan. 4 Reseat processor heatsink and verify that the fan assembly is properly attached.

Table 5-4 Solving Power Supply Problems (Continued)

Problem	Cause	Solution
Power LED flashes Red, once every two seconds.	Power failure (power supply is overloaded).	1 Open the hood and ensure the 4-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). 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 causing the failure. Continue adding devices one at a time to ensure all devices are functioning properly. 3 Perform BIST on power supply. If power supply fan does NOT spin or the green BIST LED does NOT light, replace the power supply. 4 Replace system board.

Solving Diskette Problems

Table 5-5 Solving Diskette Problems

Problem	Cause	Solution
Diskette drive light stays on.	Diskette is damaged.	In Microsoft Windows 2000 and 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 button is not pushed in.	Push in drive button.
	Files on diskette are damaged.	Check the program diskettes.
	Drive cable is not properly connected.	Reconnect power cable. Ensure that all four pins are connected.
Drive not found.	Cable is loose.	Reseat diskette drive data and power cables.
	Removable drive is not seated properly.	Reseat the drive.
Diskette drive cannot write to a diskette.	Diskette is not formatted.	Format the diskette.
	Diskette is write-protected.	Use another diskette or remove the write protection.
	Writing to the wrong drive.	Check the drive letter in the path statement.
	Not enough space is left on the diskette.	Use another diskette.
	Diskette write control is enabled.	Use Computer Setup to check the storage security feature disabled settings.
	Diskette is damaged.	Replace the damaged disk.

Table 5-5 Solving Diskette Problems (Continued)

Problem	Cause	Solution
Cannot format diskette.	Invalid media reported.	When formatting a disk in MS-DOS, you might need to specify diskette capacity. For example, to format a 1.44-MB diskette, enter the following command at the MS-DOS prompt: **FORMAT A: /F:1440**
A problem has occurred with a disk transaction.	The directory structure is bad, or there is a problem with a file.	In Windows 2000 and 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.	Diskette is not formatted.	Format the 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.
"Invalid system disk" message is displayed.	A diskette that does not contain the system files needed to start the workstation has been inserted in the drive.	When drive activity stops, remove the diskette and press the **Spacebar.** The workstation should start up.
	Diskette error has occurred.	Restart the workstation 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.	Run Computer Setup and enable diskette boot in **Storage>Boot Order**.
	Removable media boot has been disabled in Computer Setup.	Run Computer Setup and enable **Removable Media Boot in Storage>Storage Options**.
	Diskette MBR validation is enabled.	Run Computer Setup and disable **Diskette MBR Validation in Storage>Storage Options**.

Solving Hard Drive Problems

Table 5-6 Solving Hard Drive Problems

Problem	Cause	Solution
Hard drive error occurs.	Hard disk has bad sectors or has failed.	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 2000 and 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).	Loose cable.	Check cable connections.
	The system might not have automatically recognized a newly installed device.	1 Run Computer Setup. 2 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. 3 If this is a newly installed drive, enter Setup and try adding a POST delay under **Advanced>Power-On**.
	Drive jumper settings might be incorrect.	If the drive is a secondary drive that has just been installed on the same cable as the primary drive, verify that the jumpers for both drives are set correctly.
	Drive's IDE (ATA) controller is disabled in Computer Setup.	Run Computer Setup and enable the IDE controller in **Storage>Storage Options**.
	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.	System is trying to start from a non-bootable diskette.	Remove the diskette from the diskette drive.
	System is trying to start from a damaged hard drive.	1 Insert a bootable diskette into the diskette drive and restart the workstation. 2 If the hard drive is still inaccessible and MBR Security is enabled, try restoring the previously saved MBR image by entering Setup and selecting **Security>Restore Master Boot Record**.
	System files missing or not properly installed.	1 Insert a bootable system diskette and restart. 2 Verify hard drive is partitioned and formatted. 3 Install system files for the appropriate operating system if necessary.
	Hard drive boot disabled in Computer Setup.	Run Computer Setup and enable the hard drive entry in the **Storage>Boot Order** list.
Second UATA hard drive does not perform optimally.	Using the wrong cable for the drive type.	Reinstall the second UATA hard drive using an 80-conductor cable (standard on select models).

Table 5-6 Solving Hard Drive Problems (Continued)

Problem	Cause	Solution
Workstation will not start.	Hard drive is damaged.	Observe the beeps and LED lights on the front of the workstation. See the "POST and Error Messages" on page 148.
Workstation seems to be locked up.	Program in use has stopped responding to commands.	1 Attempt the normal Windows "Shut Down" procedure. 2 Press the power button for four or more seconds to turn off the power. 3 Restart the workstation using the power button.

Solving Display Problems

Table 5-7 Solving Display Problems

Problem	Cause	Solution
Blank screen (no video).	The cable connections are not correct.	Check the cable connections from the monitor to the workstation and to the electrical outlet.
	Screen blanking utility installed or energy saver features enabled.	Press any key or click the mouse button and, if set, enter your password.
	System ROM is bad; system is running in FailSafe Boot Block mode (indicated by eight beeps).	Reflash the ROM using a ROMPaq diskette.
	Fixed-sync monitor will not sync at the resolution chosen.	Ensure 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 workstation will shut down and you will lose your data.		
	Monitor cable plugged into the wrong connector.	If the workstation system has both an integrated graphics connector and an PCI expansion card connector, plug the monitor cable into the PCI expansion card connector.
	Monitor settings in the workstation are not compatible with the monitor.	1 Restart the workstation 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.

Table 5-7 Solving Display Problems (Continued)

Problem	Cause	Solution
Power LED flashes Red six times, once every second, followed by a two-second pause, and the workstation beeps six times.	Pre-video graphics error.	For systems with a graphics card: 1 Reseat the graphics card. 2 Replace the graphics card. 3 Replace the system board. 4 For systems with integrated graphics, 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 video drivers might not be loaded.	Install the video drivers included in the upgrade kit.
	Monitor is not capable of displaying requested resolution.	Change requested resolution.
The picture is broken up, rolls, jitters, or flashes.	The monitor connections might be incomplete or the monitor might be incorrectly adjusted.	1 Be sure the monitor cable is securely connected to the workstation. 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 might be too close to the monitor.
	Monitor must be degaussed.	Degauss the monitor.
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.
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 might be unable to correctly interpret the output synchronization of the graphics card.	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. Download SoftPaq SP20930 or SP22333, depending on the monitor, to assist with the synchronization.

Table 5-7 Solving Display Problems (Continued)

Problem	Cause	Solution
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

Table 5-8 Solving Audio Problems

Problem	Cause	Solution
Sound does not come out of the speaker or headphones.	Software volume control is turned down.	Double-click the Speaker icon on the taskbar and use the volume slider to adjust the volume.
	The external speakers are not turned on.	Turn on the external speakers.
	External speakers plugged into the wrong audio jack.	Refer to the sound card documentation for proper speaker connection.
	Audio cable not connected.	Connect audio cable between CD or DVD-ROM drive and the system board.
	Digital CD audio is not enabled.	Enable digital CD audio: 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, be 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.	1 From the Control Panel program, click Sound, Speech and Audio Devices, then click Sounds and Audio Devices. 2 Click the Mute checkbox 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 workstation will shut down and you will lose your data.		
Noise or no sound comes out of the speakers or headphones.		1 If using digital speakers that have a stereo jack and want the system to auto-switch to digital, use a stereo-to-mono adapter to properly engage the auto-sense feature or use the multimedia device properties to manually switch the audio signal from analog to digital. 2 If the headphones have a mono jack, use the multimedia device properties to switch the system to analog out.
NOTE: If you set digital as the Output Mode, the internal speaker and external analog speakers will no longer output audio until you switch back to an auto-sense or analog mode. If you set analog as the Output Mode, external digital speakers will not function until you change the output mode back to an auto-sense or digital mode.		

Table 5-8 Solving Audio Problems (Continued)

Problem	Cause	Solution
Sound cuts in and out.	Processor resources are being used by other open applications.	Shut down all open processor-intensive applications.
Workstation appears to be locked up while recording audio.	The hard disk may be full.	1 Before recording, be sure there is enough free space on the hard disk. 2 Try recording the audio file in a compressed format.

Solving Printer Problems

Table 5-9 Solving Printer Problems

Problem	Cause	Solution
Printer will not print.	Printer is not turned on and online.	Turn the printer on and be sure it is online.
	The correct printer driver for the application are not installed.	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 might not have made the connection to the printer.	Make the proper network connections to the printer.
	Printer might have failed.	Run printer self-test.
Printer will not turn on.	The cables might not be connected properly.	Reconnect all cables.
Printer prints garbled information.	The correct printer driver is not installed.	Install the correct printer driver for the application.
	The cables might not be connected properly.	Reconnect all cables.
	Printer memory might be overloaded.	Reset the printer by turning it off for one minute, then turn it back on.
Printer is offline.	The printer might be out of paper.	1 Check the paper tray and refill it if it is empty. 2 Select online.

Solving Keyboard and Mouse Problems

Table 5-10 Solving Keyboard Problems

Problem	Cause	Solution
Keyboard commands and typing are not recognized by the workstation.	Keyboard connector is not properly connected.	1 Turn off the workstation. 2 Reconnect the keyboard to the back of the workstation and restart the workstation.
	Program in use has stopped responding to commands.	Shut down the workstation using the mouse and then restart the workstation.
	Keyboard needs repairs.	Replace the keyboard.
	Workstation is in standby mode.	Press the power button to resume from standby mode. **NOTE:** Some mouse software applications might interfere with the functionality of the keyboard and mouse if the keyboard and mouse are connected to your workstation through a keyboard, video, mouse (KVM) switch. If you are experiencing “no-response” from your keyboard and mouse, you might need to uninstall the mouse software or connect the keyboard and mouse directly to the keyboard and mouse connectors on the workstation.
CAUTION: When attempting to resume from standby mode, do not hold down the power button for more than four seconds. Otherwise, the workstation will shut down and you will lose your data.		
Cursor will not move using the arrow keys on the keypad.	The **Num Lock** key might 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.
Mouse does not respond to movement or is too slow.	Mouse connector is not properly plugged into the back of the workstation.	1 Shut down the workstation using the keyboard. 2 Plug the mouse connector into the back of the workstation (or the keyboard) and restart the workstation.
	Program in use has stopped responding to commands.	Shut down the workstation using the keyboard and then restart the workstation.
	Mouse needs repairs.	Replace the mouse.
	Workstation 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 workstation will shut down and you will lose your data.		
Mouse will only move vertically or horizontally, or movement is jerky.	Mouse roller ball is dirty.	Remove roller ball cover from the bottom of the mouse and clean it.

Solving Front Panel Component Problems

If you are experiencing problems with one of the front panel ports, you might be able to try your device in the corresponding port on the back side of the computer. If this does not fix the problem, or you must use the front panel ports, continue troubleshooting.

Some problems in this section are also discussed in other troubleshooting suggestions in this chapter.

Table 5-11 Solving Front Panel Component Problems

Problem	Cause	Solution
If a USB device, headphone, or microphone is not recognized by the workstation.	It is not properly connected.	1 Turn off the workstation. 2 Reconnect the device to the front of the workstation and restart the workstation.
	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.	1 Install the correct driver for the device. 2 You might need to reboot the workstation.
	The cable from the device to the computer does not work.	1 If possible, replace the cable. 2 Restart the workstation.
	The device is not working.	1 Replace the device. 2 Restart the workstation.
A device in the IEEE-1394 port is not responsive.	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected.
	The power switch on the device is not turned on.	Turn off the workstation, turn on the external device, then turn on the workstation to integrate the device with the workstation system.
The IEEE-1394 port is not active.	The port is not there because it was not purchased with the system.	You can buy an IEEE1394 connection. Contact an HP seller.
	The IEEE-1394 cable might not be connected to the IEEE-1394 card.	1 Turn off the workstation. 2 Remove the access panel. See “Access Panel” on page 77 for more information. 3 Be sure to connect the front IEEE-1394 pre-installed cable to the IEEE-1394 card. See “IEEE-1394 (Optional)” on page 82.

Solving Hardware Installation Problems

You might need to reconfigure the workstation when you add or remove hardware, such as an additional diskette drive. If you install a Plug ‘n Play device, Windows 2000 and Windows XP automatically recognize the device and configure the workstation. If you install a non-Plug ‘n Play device, you must reconfigure the workstation after completing installation of the new hardware. In Windows 2000, select the Add New Hardware icon in the Control Panel (for Windows XP, use the Add Hardware Wizard) and follow the instructions that appear on the screen.

Table 5-12 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.
	Cables 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 workstation, turn on the external device, then turn on the workstation to integrate the device with the workstation system.
	When the system advised you of changes to the configuration, you did not accept them.	Reboot the workstation and follow the instructions for accepting the changes.
	A Plug ‘n Play board might not automatically configure when added if the default configuration conflicts with other devices.	Use Windows 2000 or 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.
Workstation will not start.	Wrong memory modules were used in the upgrade or memory modules were installed in the wrong location.	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 workstation. See the “POST and Error Messages” on page 148 to determine possible causes.
Power LED flashes Red five times, once every second, followed by a two-second pause, and the workstation beeps five times.	Memory is installed incorrectly or is bad.	1 Reseat DIMMs. 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.

Table 5-12 Solving Hardware Installation Problems (Continued)

Problem	Cause	Solution
Power LED flashes Red six times, once every second, followed by a two-second pause, and the workstation beeps six times.	Video card is not seated properly or is bad, or system board is bad.	For systems with a graphics card: 1 Reseat the graphics card. Power on the system. 2 Replace the graphics card. 3 Replace the system board. 4 For systems with integrated graphics, replace the system board.

Solving Network Problems

These guidelines do not discuss the process of debugging the network cabling.

Table 5-13 Solving Network Problems

Problem	Cause	Solution
Wake-on-LAN feature is not functioning.	Wake-on-LAN is not enabled.	Use the Network control application to enable Wake-on-LAN.
Network driver does not detect network controller.	Network controller is disabled.	Run Computer Setup and enable network controller.
	Incorrect network driver.	Check the network controller documentation for the correct driver or obtain the latest driver from the manufacturer's Web site.
Network status link light does not turn on or it never flashes. **NOTE:** The network status light should flash when there is network activity.	No active network is detected.	Check cabling and network equipment for proper connection.
	Network controller is not set up properly.	Use the Network control application to verify that the device is working properly.
	Network driver is not properly loaded.	Reinstall network drivers.
	System cannot autosense the network.	Disable auto-sensing capabilities and force the system into the correct operating mode.
Diagnostics reports a failure.	The cable is not securely connected.	Ensure that both ends of the data cable are securely connected.
	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.
	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.	Replace the NIC.
Diagnostics passes, but the workstation does not communicate with the network.	Network drivers are not loaded, or driver parameters do not match current configuration.	1 Be sure the network drivers are loaded and that the driver parameters match the configuration of the network controller. 2 Be sure the correct network client and protocol is installed.
	The network controller is not configured for this workstation.	Select the Network icon in the Control Panel and configure the network controller.

Table 5-13 Solving Network Problems (Continued)

Problem	Cause	Solution
Network controller stopped working when an expansion board was added to the workstation.	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 *Restore Plus!* CD.
	The cable is not securely connected.	Ensure that both ends of the cable are securely attached to the correct devices.
	The network controller is defective.	Replace the NIC.
New network card will not boot.	New network card might be defective or might 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.	Flash the ROM.

Solving Memory Problems

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

Table 5-14 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 or the new memory module is not seated properly.	Replace module with the correct industry-standard device for the workstation.
		On some models, ECC and non-ECC memory modules cannot be mixed.
Out of memory error.	Memory configuration might 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 might not be installed correctly.	Check that the memory modules have been installed correctly and that proper modules are used.
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 workstation.
Power LED flashes Red five times, once every second, followed by a two-second pause, and the workstation beeps five times.	Memory is installed incorrectly or is bad.	1 Reseat DIMMs. 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

Table 5-15 Solving Processor Problems

Problem	Cause	Solution
Poor performance is experienced.	Processor is hot.	1 Be sure the airflow to the workstation is not blocked. 2 Be sure the fans are connected and working properly (some fans only operate when needed). 3 Be sure the processor heatsink is installed properly.
Power LED is Red and stays on.	Processor is not seated properly or not installed.	1 Check to see that the processor is present. 2 Reseat the processor.

Solving CD-ROM and DVD Problems

Table 5-16 Solving CD-ROM and DVD Problems

Problem	Cause	Solution
System will not boot from CD-ROM or DVD drive.	The CD-ROM or DVD boot is not enabled through the Computer Setup utility.	Run the Computer Setup utility and enable booting to removable media and verify boot order settings.
	Non-bootable CD in drive.	Try a bootable CD in the drive.
CD-ROM or DVD devices are not detected or driver is not loaded.	Drive is not connected properly or not properly configured.	1 Reconnect power and data cables to the drive. 2 Install correct device driver.
Movie will not play in the DVD drive.	Movie might be regionalized for a different country.	Refer to the documentation that came with the DVD drive.
	Decoder software is not installed.	Install decoder software.
Cannot eject compact disc (tray-load unit).	Disc not properly seated in the drive.	1 Turn off the workstation and insert a thin metal rod into the emergency eject hole and push firmly. 2 Slowly pull the tray out from the drive until the tray is fully extended, then remove the disc.

Table 5-16 Solving CD-ROM and DVD Problems (Continued)

Problem	Cause	Solution
CD-ROM, CD-RW, DVD-ROM, or DVD-R/RW drive cannot read a disc or takes too long to start.	CD has been inserted upside down.	Re-insert the CD 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.
	Windows does not detect the CD-ROM or DVD-ROM drive.	1 Use Device Manager to remove or uninstall the device in question. 2 Restart the workstation and let Windows detect the device.
Recording audio CDs is difficult or impossible.	Wrong or poor quality media type.	1 Try using a slower recording speed. 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 Internet Access Problems

Table 5-17 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 the 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.)
	The LAN cable is not connected.	Connect the CAT5 10/100/1000 cable between the cable modem and the workstations’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 the ISP for the correct IP address.
	Cookies are corrupted.	Windows 2000: 1 Select **Start>Settings>Control Panel**. 2 Double-click Internet Options. 3 On the General tab, click the Delete Cookies button. Windows XP: 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 the ISP before some programs will start.	Log on to the ISP and launch the desired program.

Table 5-17 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. For Windows 2000: 1 Select **Start>Settings>Control Panel**. Continue with step #2. For Windows XP: 1 Select **Start>Control Panel**. Continue with step #2. 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 and 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.

POST and Error Messages

POST is a series of diagnostic tests that runs automatically when the system is turned on. An audible and visual message occurs if the POST encounters a problem. POST checks the following items to ensure that the workstation system is functioning properly:

- Keyboard
- Memory modules
- Diskette drives
- All SATA, IDE and SCSI mass storage devices
- Processors
- Controllers

NOTE If the Power-On Password is set, a key icon appears on the screen while POST is running. You must enter the password before continuing.

Table 5-18 POST Error Messages

Screen Message	Probable Cause	Recommended Action
101–Option ROM Error	System ROM checksum.	Verify the correct ROM. 1 Flash the ROM, if needed. 2 If an expansion card was recently added, remove it and see if the problem remains. 3 Clear CMOS. 4 If the message disappears, there might be a problem with the expansion card. 5 Replace the system board.
102–System Board Failure	DMA, timers, and so on.	1 Remove expansion boards. 2 Replace the system board.
110–Out of Memory for Option ROMs	Option ROM for a device was unable to run due to memory constraints.	Run Computer Setup and enable the ACPO/USB Buffers at Top of Memory under the **Advanced>Power-On** option.
162–System Options Not Set	Configuration incorrect. RTC (real-time clock) battery might need to be replaced.	1 Run Computer Setup (F10 Setup). 2 Set the date and time under Control Panel or in F10 Setup depending on the operating system. 3 If the problem persists, replace the RTC battery.
163–Time and Date Not Set	Invalid time or date in configuration memory. RTC (real-time clock) battery might need to be replaced.	1 Set the date and time under Control Panel or in F10 Setup depending on the operating system. 2 If the problem persists, replace the RTC battery.

Table 5-18 POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
164–Memory Size Error	Memory configuration is incorrect.	1 Run Computer Setup (F10 Setup) or Windows utilities. 2 Be sure memory modules (if any) 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.	1 Run Computer Setup (F10 Setup) or Windows utilities. 2 Ensure memory and continuity modules are installed correctly. 3 Verify proper memory module type. 4 Remove and replace memory modules one at a time to isolate faulty module. 5 Replace the faulty memory modules. 6 If error persists after replacing memory modules, replace the system board.
207–ECC Corrected Single Bit Errors in Memory Sockets y,y	Single Bit ECC error.	1 Verify proper memory module type. 2 Try another memory socket. 3 Replace memory module if problem persists.
213–Incompatible memory Module in memory Sockets X,X, X	A memory module in memory socket identified in the error message is missing critical SPD information, or is incompatible with the chipset.	1 Verify proper memory module type. 2 Try another memory socket. 3 Replace memory with a module conforming to the SPD standard.
214–DIMM Configuration Warning	DIMMs not installed correctly (not paired correctly).	See “Memory” on page 93 for the correct memory configurations and reseat the DIMMs accordingly.
301–Keyboard Error	Keyboard failure.	1 Reconnect keyboard with workstation 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.	1 Reconnect keyboard with workstation turned off. 2 Replace the system board.
304–Keyboard or System Unit Error	Keyboard failure.	1 Reconnect the keyboard with workstation turned off. 2 Ensure that none of the keys are depressed. 3 Replace keyboard. 4 Replace system board.
402–Parallel Port 2 Address Assignment Conflict	IRQ address conflicts with another device.	Reset the IRQ.

Table 5-18 POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
501–Display Adapter Failure	Graphics display controller.	1 Reseat the graphics card (if applicable). 2 Clear CMOS. 3 Verify that the monitor is attached and turned on. 4 Replace the graphics controller.
510–Splash Screen image corrupted	Splash Screen image has errors.	Install latest version of ROMPaq to restore image.
511–CPU, CPUA, or CPUB Fan not detected	Fan is not connected or might have malfunctioned.	1 Reseat fan cable. 2 Reseat the fan. 3 Replace the fan.
512–Chassis, rear chassis, or front chassis fan not detected	Fan is not connected, might have malfunctioned.	1 Reseat chassis, rear chassis, or front chassis fan cable. 2 Reseat chassis, rear chassis, or front chassis fan. 3 Replace chassis, rear chassis, or front chassis fan.
515–Power Supply fan not detected	Power Supply fan not seated properly.	Reseat the power supply connector.
601–Diskette Controller Error	Diskette controller circuitry or diskette drive circuitry incorrect.	1 Run Computer Setup (F10 Setup). 2 Check and/or replace cables. 3 Clear CMOS. 4 Replace diskette drive. 5 Replace the system board.
605–Diskette Drive Type Error	Mismatch in drive type.	1 Run Computer Setup (F10 Setup). 2 Disconnect any other diskette controller devices (tape drives). 3 Clear CMOS.
918–Front USB Not Connected	Front USB is not connected.	Connect front USB cable.
920–Fan Command 4 Pin Connector from Power Supply Not Connected	The 4-pin fan connector from the power supply is not connected.	Connect 4-pin fan connector.
921–Device in PCI Express Slot failed to initialize	PCI Express cards not seated properly.	Reseat all PCI Express cards in their PCI Express slots. If the problem persists, contact the PCI Express card vendor.
1720–SMART Hard Drive Detect Imminent Failure	Hard drive is about to fail. (Some hard drives have a firmware patch that will fix an erroneous error message.)	1 Determine if hard drive is giving correct error message. Run the Drive Protection System test if applicable. 2 Apply firmware patch if applicable (visit http://www.hp.com/support). 3 Back up contents and replace hard drive.

Table 5-18 POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
1721–SMART SCSI Hard Drive detects imminent failure	Hard drive is about to fail. (Some hard drives have a firmware patch that will fix an erroneous error message.)	1 Determine if hard drive is giving correct error message. Run the Drive Protection System test if applicable. 2 Apply firmware patch if applicable (visit http://www.hp.com/support).
1785–MultiBay incorrectly installed	No other IDE device may be attached to the same IDE controller.	Attach the MultiBay as device 0 on the primary IDE controller.
1794–Inaccessible devices attached to SATA 1 and/or SATA 3	Devices attached to the primary IDE controller are inaccessible while the SATA controller is set to “Replace Primary IDE Controller in Setup.	1 Run Computer Setup (F10 Setup). 2 Select Storage>Storage Options and set SATA controller to Add as Separate Controller.
1796–SATA Cabling Error	SATA cables are plugged into the incorrect connectors.	Follow the on-screen directions that are displayed in conjunction with this message. It will direct you to use the four SATA connectors in a particular sequence. The SATA connectors are color-coded dark blue, white, orange, and light blue.
1801–Microcode Patch Error	Processor not supported by ROM BIOS.	Upgrade BIOS to proper version.
1998–Master Boot Record has been lost	The previously saved copy of the MBR has been corrupted.	Run Computer Setup and save the MBR of the current bootable disk.
1998–Master Boot Record has been changed	The current MBR does not match the previously saved copy of the MBR.	Use extreme caution, the MBR might have been updated due to normal disk maintenance activities (disk manager, fdisk, or format). Replacing the previously saved MBR in such situations can cause data loss. If certain that the MBR change is unintentional and undesired (for example, due to a virus), run Computer Setup and restore the previously saved MBR copy. Otherwise, run Computer Setup and either disable MBR security or save the MBR of the current bootable disk.