

COMPAQ

**Deskpro Service
Reference Guide**

COMPAQ

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COMPAQ

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Reference Guide**

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Deskpro Service Reference Guide

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preface

ABOUT THIS GUIDE

This *Deskpro Service Reference Guide* is a troubleshooting and repair guide that can be used for reference when servicing the Compaq Deskpro Personal Computers. Only authorized technicians trained by Compaq should attempt to repair this equipment.

Compaq Computer Corporation reserves the right to make changes to the Compaq Deskpro Family of Personal Computers without notice.

Symbols and Conventions

The following text and symbols mark special messages throughout this guide:



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of data.



Text set off in this manner presents commentary, sidelights, or clarifying information.

Technician Notes



WARNING: Only authorized technicians trained by Compaq should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indications of component replacement or printed wiring board modifications may void any warranty.



CAUTION: To properly ventilate your system, you must provide at least 3 inches (7.6 cm) of clearance at the front and back of the computer.



CAUTION: The computer is designed to be electrically grounded. To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only.

Additional Documentation

The following documentation is available to support these products:

- User Documentation
- Technical Training Guides
- Compaq Service Advisories and Bulletins
- Compaq QuickFind
- Technical Reference Guide
- Compaq Service Quick Reference Guide
- Compaq Maintenance & Service Guide

chapter 1

INSTALLING THE OPERATING SYSTEM

Depending on the model, Microsoft Windows 95, 98, or Microsoft Windows NT is preinstalled on the computer and will be configured automatically the first time the computer is turned on.



CAUTION: Do not add optional hardware devices to your computer until the operating system is successfully installed. Doing so may cause errors and may prevent the operating system from installing properly.



CAUTION: Once the automatic installation has begun, DO NOT TURN OFF THE COMPUTER UNTIL THE PROCESS IS COMPLETE. Turning off the computer during the installation process might damage the software that runs the computer.

1.1 Microsoft Windows 95 or 98

The first time the computer is turned on, Microsoft Windows is automatically installed. This takes approximately 5 to 15 minutes, depending on the system hardware configuration. At the beginning of the installation process, the user is prompted to select the appropriate language for the operating system. Read and follow the instructions that appear on the screen to complete the installation.

When the Welcome to Windows screen is displayed, Internet Explorer is installed and the installation process is completed.

1.2 Microsoft Windows NT Workstation 4.0

The first time you turn on your computer, Microsoft Windows NT Workstation is automatically installed for you. This takes approximately 30 minutes, depending on the system hardware configuration. At the beginning of the installation process, the user is prompted to select the appropriate language for the operating system. Read and follow the instructions that appear on the screen to complete the installation.

1.2.1 Installing Windows NT Workstation 4.0 over a Network

Network installation is used primarily for installing or upgrading Microsoft Windows NT Workstation over a local area network. It can also be used to install additional drivers or files with Windows NT.



This capability does not imply the grant of a site license for Microsoft Windows NT Workstation and should only be used to install the operating system on computers for which the appropriate software license has already been obtained.

This installation method should be used to deploy Windows NT using a distribution share point over a network connection.

The initial Windows NT installation (completed when the computer is first turned on) creates an I386 directory. This directory and its subdirectories provide the Compaq-specific integration of Windows NT for the computer model. This image, license permitting, can be used as a distribution share point to deploy Windows NT over a network connection.

To use a distribution share point to install or upgrade Windows NT, see the Windows NT Resource Kit and its documentation.


1.2.2 Installing or Upgrading Device Drivers

To install hardware devices such as a printer, a display adapter, or network adapter after the Windows NT installation is completed, Windows NT needs access to the appropriate software drivers for the devices.

The I386 directory and its subdirectories provide the Compaq-specific integration of Windows NT for the computer model and include device drivers supported by Windows NT.

When prompted for the I386 directory on the Windows NT CD, replace the path specification with C:\I386 or use the browse button of the dialog box to browse the computer for the I386 folder. This points Windows NT to the appropriate drivers and allows installation of the device to be completed.

1.2.3 Creating an Emergency Repair Diskette

 The following section applies only to computers equipped with a diskette drive.


After installing Microsoft Windows NT, Compaq recommends that you create an Emergency Repair Diskette. Using one blank, formatted diskette, complete the following steps:

1. Click Start → Compaq Information Center → Create Emergency Repair Diskette.
2. Read and follow the instructions that appear on the screen.

A set of boot diskettes should also be created. These diskettes are required to start the computer should the Emergency Repair Diskette be needed. To create boot diskettes, you need three blank, formatted diskettes.

1. Click Start → Compaq Information Center → Create Boot Diskettes.
2. Read and follow the instructions that appear on the screen.

1.2.4 Using the Emergency Repair Diskette

 The following section applies only to computers equipped with a diskette drive.

To use the Emergency Repair Diskette if the computer is not equipped with the LS-120 drive, insert the first boot diskette in the diskette drive and restart the computer. Follow the instructions displayed on the screen.

To use the Emergency Repair Diskette if the computer is equipped with the LS-120 drive, follow the instructions below:

1. Restart the computer using the Microsoft Windows NT Boot Disk 1.
2. Press the F6 key when the message “Setup is inspecting your computer’s hardware configuration...” appears on your screen.
3. When asked if you want to specify a storage device, press S and select the Compaq ATAPI/IDE/LS-120 Controller from the list.
4. When asked again if you want to specify a storage device, press the Enter key. Follow the rest of the installation procedures as outlined in the operating system documentation from Microsoft.

1.3 Registering the Computer

The computer should be registered with Compaq. Registration establishes a record of ownership and gives the user an opportunity to receive product announcements, updates, and other communications periodically. To register one machine, just visit Compaq's Web site at www.compaq.com/products/registration and follow the instructions that appear on the screen. To register more than one machine, either telephone in the information or enter the units one at a time on the Compaq Web site.

1.4 Compaq Software

The Microsoft Windows 95, 98, or Windows NT Workstation operating system is preinstalled on the computer and will be configured automatically the first time the computer is turned on. The following Compaq software will also be installed at that time on selected models:

- Computer Setup Utilities and diagnostic features
- Compaq Support Software including device drivers
- Online *Compaq Safety & Comfort Guide*
- Intelligent Manageability
- Enhanced Compaq Insight Personal Edition (Diagnostics for Windows)
- DMI Support
- Power Management with energy saver features
- Security Management tools
- Support Software Management tools

Certain drivers and utilities are available only in selected languages. You can obtain the latest version of these files, in English and selected other languages, in one of three ways:

- *Compaq Support Software CD for Compaq Desktop, Portable, and Workstation Products* (refer to Section 3.4.7, "Enhanced Support Software CD and World Wide Web Site," for ordering information)
- Compaq Web Site at www.compaq.com
- *Compaq Deskpro Supplement CD*, which is supplied with many desktop models

chapter 2

SETUP UTILITIES AND DIAGNOSTIC FEATURES

Compaq Computer Setup Utilities and diagnostic features provide information needed about the computer system when contacting Compaq Customer Support. These tools can also be used to:

- Change factory default settings and to set or change the system configuration, which may be necessary when you add or remove hardware.
- Determine if all of the devices installed on the computer are recognized by the system and functioning properly.
- Determine information about the operating environment of the computer.
- Solve system configuration errors detected but not automatically fixed during the Power-On Self-Test (POST).
- Establish and manage passwords and other security features.
- Establish and manage energy-saving timeouts.

2.1. Computer Setup Utilities

Use Computer Setup Utilities to do the following:


- Modify or restore factory default settings.
- Set the system date and time.
- Set, view, change, or verify the system configuration including settings for processor, graphics, memory, audio, storage, communications, and input devices.
- Modify the boot order of bootable devices such as hard drives, diskette drives, CD-ROM drives, DVD-ROM drives, or PD-CD drives.
- Enable Quick Boot which is faster than Full Boot but does not run all of the diagnostic tests run during a Full Boot. You can set your system to:
 - always Quick Boot (default);
 - periodically Full Boot (from every 1 to 30 days); or
 - always Full Boot.
- Enable or disable Network Server Mode, which allows the computer to boot the operating system when the power-on password is enabled. The keyboard and mouse remain locked until the power-on password is entered.
- Select Clean or Descriptive mode for displaying Power-On Self-Test (POST) messages. Clean mode suppresses most POST messages, such as memory count, product name, and other non-error text messages. If a POST error occurs, the error is displayed regardless of the mode selected. To manually switch to Descriptive mode during POST, press any key (except F10 or F12).
- Establish Ownership Tag, the text of which is displayed each time the system is turned on or restarted.

- Enter the Asset Tag or property identification number assigned by your company to this computer.
- Enable power-on password prompting during system restarts (warm boots) as well as during power-on.
- Establish a setup password that controls access to Computer Setup and the settings described in this section.
- Secure the serial, USB, or parallel ports so that they cannot be used until they are unsecured.
- Enable or disable removable media boot ability.
- Enable or disable removable media write ability.
- Solve system configuration errors detected but not automatically fixed during the Power-On Self-Test (POST).
- Replicate your system setup by saving system configuration information on diskette and restoring it on one or more computers.

2.1.1 Using Computer Setup Utilities

To access the Computer Setup Utilities menu, complete the following steps:

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer.
2. When the F10 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.

3. Using the arrow keys or the Tab key, select the option you want and press the Enter key. To return to the Computer Setup Utilities menu, press the Esc key.
4. To apply and save changes, select File → Save Changes and Exit. If you selected an option that automatically restarted the computer, changes were applied at that time. If you have made changes that you do not want applied, select Ignore Changes and Exit. If you have already applied changes you now want to eliminate, select Set Defaults and Exit. This option will restore the original system defaults.

2.1.2 Computer Setup Menu

Heading	Option	Description
File	System Information	Lists product name, processor type/speed/stepping, CPU serial number, cache size, system ROM family and version, installed memory size, and asset tracking number.
	Set Time and Date	Allows you to set system time and date.
	Save to Diskette	Saves system configuration to a blank 1.44-MB diskette.
	Restore from Diskette	Restores system configuration from a diskette.
File	Set Defaults and Exit	Restores factory default settings.
	Ignore Changes and Exit	Exits Computer Setup without applying or saving any changes.
	Save Changes and Exit	Saves changes to system configuration and exits Computer Setup.
Storage	Diskettes	Lists the currently installed drive A (preinstalled diskette drive) and drive B devices.
	Removable Media	Enables/disables removable media booting and removable media writing. Note: After saving changes to Removable Media, the computer will restart. Turn the computer off, then on, manually.
	IDE Devices	Lists information regarding IDE devices connected to the system. ATAPI devices (CD-ROM, DVD-ROM, tape) are listed as ATAPI devices.
	IDE Drive Timing	Allows you to set hard drive to Ultra-DMA (Ultra-ATA), Enhanced DMA, or PIO mode operation.
	IDE Options	Enables/disables IDE drive translation.
	Boot Order	Allows you to specify boot order of installed peripheral devices (such as LS-120 drive, diskette drive, hard drive, SCSI drive, CD-ROM drive, or DVD-ROM drive).
	Security	Setup Password
	Power-On Password	Enables power-on password. Specifies prompting for Power-On Password. See Section 3.2, "Asset Tracking and Security" for more information.

continued

Computer Setup Menu *Continued*

Heading	Option	Description
Security	Password Options	Enables/disables network server mode, keyboard QuickLock, QuickBlank screen when locked, and QuickLock in energy saver mode. See Section 3.2, "Asset Tracking and Security," for more information. Note: This selection will appear only if a power-on password is set.
	Smart Cover	Enables/disables Smart Cover Sensor and Cover Lock. (Feature supported on select models only.) Lists most recent cover removal. (Feature supported on select models only.) See Section 3.2, "Asset Tracking and Security," for more information.
	Device Security	Enables/disables serial, parallel, and USB ports and audio security.
	Network Service Boot	Enables/disables Network Service Boot. (Feature supported on select models only.)
Power	System IDs	Allows you to set Asset Tag and Ownership Tag. Allows setting of Chassis Serial Number if current number is invalid. Also allows you to set keyboard locale setting (e.g., English or German) for System ID entry. Allows setting of Ownership Tag and UUID. See Section 3.2, "Asset Tracking and Security," for more information.
	Energy Saver	Allows you to set energy saver mode to advanced, disabled, or minimal.
	Timeouts	Allows you to enable/disable timeouts or manually select timeout values. Note: This selection will appear only when energy saver mode is set to advanced.
	Energy Saver Options	Allows you to set power button configuration (on/off or suspend/wakeup.) Allows user to enable/disable power LED blink in suspend mode. Note: This selection will appear only if the energy saver mode is enabled.


continued

Computer Setup Menu Continued

Heading	Option	Description
Advanced*	Power-On Self Test	Allows you to set POST mode (QuickBoot or FullBoot) and enables/disables POST messages.
	Onboard Devices	Allows you to set resources for onboard system devices (serial port, parallel port, etc.).
	PCI Devices	Lists currently installed PCI devices and their IRQ settings. Allows you to reconfigure IRQ settings for these devices or to disable them entirely.
	ISA PnP Devices	Lists current settings of Plug and Play (PnP) devices. Enables or disables Plug and Play devices. Note: Appears only when Plug and Play devices are currently installed.
	Bus Options	Enables/disables PCI bus mastering, PCI reset on warm boot, and PCI VGA palette snooping. Allows you to set ISA back-to-back I/O (fast/legacy) delay and bus priority (ISA/PCI).
	Device Options	Allows you to set printer mode (flexible/standard), NumLock state at power-on, and Erase-Eaze Keyboard support.
	PCI VGA Configuration	Allows users to specify which VGA controller will be the "boot" or primary VGA controller. Appears only if there are multiple PCI video adapters in the system.

*These options should be used by advanced users only.

2.2 Computer Diagnostics


 The following section applies only to computers equipped with a diskette drive.

Compaq strongly recommends that you create a diagnostics diskette as soon as you begin to use the computer. This diskette will play an important role in the restoration process if you ever experience a major system failure. It will also allow you to run the Computer Checkup (TEST) or View System Information (INSPECT) diagnostic programs.

Another Compaq diagnostic feature is Enhanced Compaq Insight Personal Edition (Diagnostics for Windows), described later in this guide.

2.2.1 Create a Diagnostics Diskette

DOS-Based

 The following section applies only to computers equipped with a diskette drive.

To create a bootable, DOS-based Diagnostic Diskette (some models may require two 1.44-MB diskettes), run the SOFTPAQ executable file found in C:\DIAGDISK\ to extract the necessary files. Insert a blank, 1.44MB formatted diskette into the diskette drive, then run C:\DIAGDISK\PDIAG\MAKEDISK.BAT.

 To obtain the SOFTPAQ executable filename, run
DIR C:\DIAGDISK\SP*.EXE.

Windows-Based

Using the Windows or Windows NT operating system:

Click Start → Compaq Information Center → Create Diagnostics Disk. Insert a diskette into the diskette drive and follow the instructions on the screen.

2.2.2 Computer Checkup (TEST)

Use Computer Checkup (TEST) in the following instances to:

- Determine if all the devices installed on the computer are recognized by the system and functioning properly. Running Test is optional but recommended after installing or connecting a new device.
- Save, print, or display the information generated by TEST. You should run TEST and have the printed report available before placing a call to the Compaq Customer Support Center.
- Reproduce the same environment on another computer for testing.

2.2.3 View System Information (INSPECT)

Use View System Information (INSPECT) to:

- View information about the system once it has been configured.
- Save, print, or display the information generated by INSPECT. You should run INSPECT and have the printed report available before placing a call to the Compaq Customer Support Center.
- Assist your Compaq authorized dealer, reseller, or service provider in analyzing the system by allowing the service provider to reproduce the same environment on another computer for testing.

The information provided by INSPECT includes:

- Contents of the operating system startup files
- Current memory configuration
- ROM versions
- Type of processor and coprocessor
- Diskette, CD-ROM, DVD-ROM tape, or hard drives installed
- Active printer and communications interfaces
- Modem type installed
- Graphics settings
- Windows *WIN.INI* file details

✍ Categories or items of information displayed by INSPECT are similar to but may vary slightly from those available in Compaq Diagnostics for Windows.

Using Computer Checkup (TEST) or View System Information (INSPECT)

✍ Before you run TEST or INSPECT, you must create a diagnostics diskette. See Section 2.2.1, “Create a Diagnostics Diskette,” for instructions.

1. Cold boot your computer from the diagnostics diskette you have created. Press Enter to bypass the title screen, if necessary.
2. Select either Computer Checkup (TEST) or View System Information (INSPECT).

When running TEST:

1. Select the option to view the device list. A list of the installed hardware devices appears.
2. Verify that TEST correctly detected the devices installed. This utility will detect all devices manufactured by Compaq; devices from other manufacturers may not be detected.
 - If the list is correct, select OK and go on to step 3.
 - If the list is incorrect, be sure that any new devices are installed properly.
3. Select one of the following from the test option menu:
 - Quick Check Diagnostics**—This option runs a quick, general test on each device with a minimal number of prompts. If errors occur, they are displayed when the testing is complete.
 - Automatic Diagnostics**—This option runs unattended, maximum testing of each device with minimal prompts. You can choose how many times to run the tests, to stop on errors, or to print or file a log of errors.
 - Prompted Diagnostics**—This option allows maximum control over the device testing process. You can choose attended or unattended testing, decide to stop on errors, or choose to print or file a log of errors.

Follow the instructions on the screen as the diagnostic tests are run on the devices.

To exit either TEST or INSPECT, press the Esc key to reach the Exit option. Then press Enter.

2.2.4 Enhanced Compaq Insight Personal Edition (Windows)

Enhanced Compaq Insight Personal Edition is a component of Intelligent Manageability that allows you to view:

- System overview
- AssetControl information
- Input devices
- Communications ports
- Storage devices
- Graphics information
- Memory configuration
- Security management settings
- System health
- Operating system
- Windows version


Depending on the version, Compaq Insight Personal Edition may include diagnostic tests to determine if all the devices installed on the computer are recognized by the system and are functioning properly.

Using Compaq Insight Personal Edition


1. Select the Compaq Insight Personal Edition icon or the Compaq Diagnostics icon, located in the Control Panel.

The screen displays an overview of the computer hardware and software.


2. For specific hardware and software information, select a category from the Categories menu or from the toolbar.

 As you move your cursor over the toolbar icons, the corresponding category names appear near the cursor.

3. To display more detailed information in a selected category, click More in the Information Level box.

 Categories or items of information displayed by Compaq Insight Personal Edition are similar to but may vary slightly from the information presented in View System Information (INSPECT).

4. Review and print this information.

 To print the information, click File, then select Print. Select one of the following options: Detailed Report (All Categories), Summary Report (All Categories), or Current Category. Click OK to print the report you selected.

5. To exit Compaq Insight Personal Edition, click File, then click Exit.

Running Diagnostic Tests

If your version of Compaq Insight Personal Edition includes diagnostic testing utilities, four tabs will appear next to Overview: Test, Status, Log, and Error.

1. Select the Test tab.
2. Select one of the following options:
 - Quick Test**—Runs a quick, general test on each device with a minimal number of prompts.
 - Complete Test**—Runs maximum testing of each device with minimal prompts.
 - Custom Test**—Runs only the tests you select. To select specific devices or tests, find the device in the list, then click the box beside each test to select or deselect it. When selected, a red check mark appears in the box.
3. Select Interactive Mode or Unattended Mode.
4. In Interactive Mode, the diagnostic software will prompt you for input during tests that require it. Some tests require interaction and will display errors or halt testing if selected in conjunction with Unattended Mode.
5. Click the Begin Testing button.

Test Status is displayed, showing the progress and result of each test.


6. If errors are found, click the Error tab to display more detailed information and recommended actions. By following the recommended actions, you may be able to solve some problems yourself.
7. Click Print or Save the error information in case you need to contact your Compaq authorized dealer, reseller, or service provider for assistance.
8. To exit Compaq Insight Personal Edition, click File, then click Exit.

2.3 Protecting Your 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. You can order a set of backup diskettes from Compaq at nominal cost for all of the software preinstalled on the computer, or you can make a set. Refer to the operating system or backup utility documentation for instructions on making backup copies of data files. Another option is the *Compaq Deskpro Supplement CD*, which accompanies many desktop models and enables the user to selectively restore the original system software.

2.3.1 Ordering Backup Diskettes

You can order all software as a single set, or you can order the various software packages separately.

-  Before calling Compaq to place your order, be sure to have the serial number of your computer available. This number is necessary for all diskette purchases.

For a list of Compaq support telephone numbers, consult the *Contacting Compaq Customer Support* guide.

2.3.2 Compaq Restore CD


The *Compaq Restore CD* offers easy deployment and recovery of the system software. Along with the Microsoft operating system CD, the *Compaq Restore CD* enables the user to selectively restore the original system software. This can be extremely helpful in the event of hard drive failure or corruption.

The *Compaq Restore CD* is specific to each desktop model and accompanies many desktop models along with the Microsoft operating system CD.

2.4 Unique Universal Identification (UUID)

This feature is available on all 1999 and later model computers. Each computer has a randomly generated 32-digit identification that may be used for asset management purposes. The random number is generated during the pretest process in the Compaq factory, is flashed onto the ROM, and is then printed on the shipping label. Users and service providers may turn off the UUID number by following these instructions:

1. Turn on or restart the computer. In Windows, click Start → Shut Down → 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 off the computer, then on again, to access the utility.

3. Select the language from the list and press Enter.

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

4. Select Advanced → Power-On Options → UUID → Disable.
5. To apply and save changes, select File → Save Changes and Exit.

chapter 3

INTELLIGENT MANAGEABILITY

Compaq Intelligent Manageability is the best, most comprehensive set of desktop management solutions in the industry. Providing easy control and management of the desktop and portable PC, Intelligent Manageability delivers significant financial and intangible returns when used to manage distributed PC environments.

Intelligent Manageability is built upon industry-standard building blocks, including DMI 2.0, Web-Based Enterprise Management, Intel's "Wired for Management," SNMP, and Net PC technologies. It is tightly integrated with Compaq Management Solutions Partners and Compaq Insight Manager.

Intelligent Manageability delivers solutions in five areas of primary concern for today's businesses:

- Initial Configuration and Deployment
- Asset Tracking and Security
- Fault Notification and Recovery
- Software Updating and Management
- Building Blocks and Partners

This section provides an introduction to Intelligent Manageability concepts and features. For more detailed information on specific features, refer to the online *Intelligent Manageability Installation and Configuration Guide* (IMINST.HLP) and the online *Intelligent Manageability Guide* (INTMGT3.HLP).

- ✍ Support for specific features described in this chapter and in the online *Intelligent Manageability Guide* may vary by model or software version.

3.1 Initial Configuration and Deployment

Compaq computers come with a preinstalled set of system software. Automated System Installation and Remote System Installation enable you to replace the preinstalled software with a customized set of system and application software for consistent, standard software deployment. The *Compaq Deskpro Supplement CD*, ROM-based setup, and ACPI-ready hardware provide further assistance with selective recovery of system software, configuration management and troubleshooting, and power management.

3.1.1 Remote System Installation

Remote System Installation allows you to start and set up your system using the software and configuration information located on a network server. The Remote System Installation feature is usually used as a system setup and configuration tool, and can be used for the following tasks:

- Installing the optional Setup partition. The partition should be installed only if you wish to use the previous generation of Compaq Computer Setup and Diagnostics utilities.
- Formatting a hard drive.

- Installing an operating system.
- Installing application software or drivers.


To initiate Remote System Installation, press F12 when the F12=Network Service Boot message appears in the lower-right corner of the Compaq logo screen. Follow the instructions on the screen to continue the process.

3.2 Asset Tracking and Security

Compaq AssetControl features incorporated into the computer provide key asset tracking data that can be managed using Management Solutions Partners products. Seamless, automatic integration between AssetControl features and Solutions Partners products enables you to choose the management tool that is best suited to your environment and to leverage your investment in existing tools.

Compaq computers are manufactured with the hardware and firmware required to fully support the DMI 2.0 standard.




Compaq also offers several solutions for controlling access to valuable computer components and information. DriveLock prevents unauthorized access to data stored on the hard disk, even when removed from the computer. Remote Security Management enables the system administrator to centrally establish and manage policies for hardware-based security features, such as the Smart Cover Lock and the Ownership tag, for networked PCs. Another solution integrates Memory Change and Smart Cover Sensor alerts with Compaq Insight Manager to deliver proactive notification of tampering with a computer's internal components.

 Security features described in the table below can be established from the Compaq Computer Setup Utilities menu.

Feature	Purpose
Removable Media Boot Control	Prevents booting from the removable media drives.
Removable Media Write Control	Prevents writing to the removable media drives.
Serial, Parallel, USB, or Infrared Interface Control	Prevents transfer of data through the integrated serial, parallel, USB (universal serial bus), or infrared interface.
Power-On Password	Prevents use of the computer until the password is entered. This can apply to both initial computer startup and restarts.
Setup Password	Prevents reconfiguration of the computer (use of the Computer Setup utility) until the password is entered.
Smart Cover	Indicates that computer cover or side panel has been removed. Can be set to require the setup password to restart the computer, after the cover or side panel has been removed.

continued

Setup Utilities Menu continued

Feature	Purpose
Smart Cover Lock	<p>Prevents unauthorized access to the internal components. This is a software-controllable cover lock, controlled by the setup password.</p> <p> The Smart Cover FailSafe Key is a device for manually disabling the Smart Cover Lock, is available from Compaq. You'll need the FailSafe Key in case of forgotten password, power loss, or computer malfunction.</p>
Memory Change Alerts	<p>Detects when DIMMs (dual inline memory modules) have been added, moved, or removed; notifies end-user and system administrator.</p> <p> For information on enabling Memory Change Alerts, refer to the online <i>Intelligent Manageability Guide</i>.</p>
Ownership Tag	<p>Displays ownership information, as defined by the system administrator, during system startup (protected by setup password).</p>
Cable Lock Provision	<p>Inhibits access to the interior of the computer to prevent unwanted configuration changes or component removal. Can also be used to secure the computer to a fixed object to prevent theft of the computer.</p> <p> Install a padlock with the security bracket to inhibit access to the interior of the computer; add a cable lock to secure the computer to a fixed object.</p>


For more information about Computer Setup, refer to Section 2.1, "Setup." In some cases switches may need to be set. For more information about these switches, refer to the "Connectors, Jumpers, and Switches" chapter in the product-specific MSG.

3.2.1 Password Security

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

Establishing a Setup Password Using Computer Setup

Establishing a setup password through Computer Setup prevents reconfiguration of the computer (use of the Computer Setup utility) until the password is entered.

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer.
2. When the F10 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.
3. Select Security, then select Setup Password and follow the instructions on the screen.
4. Before exiting, click File → Save Changes and Exit.

Establishing a Power-On Password Using Computer Setup

Establishing a power-on password through Computer Setup prevents access to the computer when power is turned on, unless the password is entered. The password must be entered each time the computer is turned on, when the key icon appears on the monitor.

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer.
2. When the F10 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.
3. Select Security, then Power-On Password and follow the instructions on the screen.
4. Before exiting, click File → Save Changes and Exit.

Entering a Power-On Password

To enter a power-on password the following steps:

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer.
2. When the key icon appears on the monitor, enter your current password.
 - ✍ Type carefully; for security reasons, the characters you type do not appear on the screen.

If you enter the password incorrectly, a broken key icon appears. Try again. After three unsuccessful tries, you must turn off the computer, then turn it on again before you can continue.

Changing a Power-On or Setup Password

1. Turn or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer. To change the setup password, run Computer Setup.
2. When the key icon appears, type your current password, a slash (/) or alternate delimiter character, your new password, another slash (/) or alternate delimiter character, and your new password again as shown:

current password/new password/new password


- ✍ Refer to the “National Keyboard Delimiter Characters” section in this chapter for information about the alternate delimiter characters.
- ✍ Type carefully; for security reasons, the characters you type do not appear on the screen.

The new password takes effect the next time you turn on the computer.

Deleting a Power-On Password

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer. To delete the setup password, run Computer Setup.
2. When the key icon appears, type your current password followed by a slash (/) or alternate delimiter character as shown:

current password/

 Refer to the “National Keyboard Delimiter Characters” section in this chapter for information about alternate delimiter characters.

National Keyboard Delimiter Characters

Each keyboard is designed to meet country-specific requirements. The syntax and keys that you use for changing or deleting your password depend on the keyboard that came with your computer.

/	Arabic	-	Greek	/	Russian
=	Belgian	.	Hebrew	-	Slovakian
-	BHCSY*	-	Hungarian	-	Spanish
/	Brazilian	-	Italian	/	Swedish/Finnish
/	Chinese	/	Japanese	-	Swiss
-	Czech	/	Korean	/	Taiwanese
-	Danish	-	Latin American	/	Thai
!	French	-	Norwegian	.	Turkish
é	French Canadian	-	Polish	/	U.K. English
-	German	-	Portuguese	/	U.S. English

*For Bosnia-Herzegovina, Croatia, Slovenia, and Yugoslavia

Clearing Passwords

If you forget your password you cannot access the computer. Refer to the “Connectors, Jumpers, and Switches” chapter in the product-specific MSG for instructions on clearing passwords.


3.2.2 Smart Cover Sensor

Smart Cover Sensor is a combination of hardware and software technology that can alert you when the computer cover or side panel has been removed. There are three levels of protection, as described in the following table:

Level	Setting	Description
Level 0	Disabled	Smart Cover Sensor is disabled (default).
Level 1	Notify User	When the computer is restarted, the screen displays a message indicating that the computer cover or side panel has been removed.
Level 2	Setup Password	When the computer is restarted, the screen displays a message indicating that the computer cover or side panel has been removed. You must enter the setup password to continue.

Setting the Smart Cover Sensor Protection Level

To set the Smart Cover Sensor protection level, complete the following steps:

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer.
2. When the F10 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.
3. Select Security, then Smart Cover and follow the instructions on the screen.
4. Before exiting, click File → Save Changes and Exit.

3.2.3 Smart Cover Lock


The Smart Cover Lock is a software-controllable cover lock featured on some desktop computers. This lock prevents unauthorized access to the internal components. Computers ship with the Smart Cover Lock in the unlocked position.



CAUTION: For maximum cover lock security, be sure to establish a setup password. The setup password prevents unauthorized access to the Computer Setup utility.

Locking the Smart Cover Lock

To activate and lock the Smart Cover Lock, complete the following steps:

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer.
2. When the F10 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.
3. Select Security, then select Smart Cover and follow the instructions on the screen.
4. Before exiting, click File → Save Changes and Exit.

Unlocking the Smart Cover Lock

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer.
2. When the F10 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.
3. Select Security, then select Smart Cover and the Unlocked option.
4. Before exiting, click File → Save Changes and Exit.

Using the Smart Cover FailSafe Key

If you enable the Smart Cover Lock and cannot enter your password to disable the lock, you will need a Smart Cover FailSafe Key to open the computer cover. You will need the key in any of the following circumstances:

- Power outage
- Startup failure
- PC component failure (e.g., processor or power supply)
- Forgotten password



CAUTION: The Smart Cover FailSafe Key is a specialized tool available from Compaq. Be prepared; order this key before you need one.

3.2.4 Cable Lock Provision

A physical security device for your computer may also be available, through the cable lock provision. See your *Guide to Features & Upgrades* for more information on using and installing the cable lock provision.

3.3 Fault Notification and Recovery

Fault Notification and Recovery features combine innovative hardware and software technology to prevent the loss of critical data and minimize unplanned downtime.

When a fault occurs, the computer displays a Local Alert message containing a description of the fault and any recommended actions. You can then view current system health by using Compaq Insight Personal Edition. If the computer is connected to a network managed by Compaq Insight Manager or other SNMP-based management products from Compaq Management Solutions Partners, the computer also sends a fault notice to the network management application.

3.3.1 Processor Fault Prediction and Prefailure Warranty

When the processor encounters an excessive number of error checking and correcting (ECC) cache memory errors, the computer displays a Local Alert Message. This message contains detailed information about the faulty processor, allowing you to take action before you experience non-correctable cache memory errors. The Prefailure Warranty allows you to replace these processors, free of charge, before they actually fail. Processors with ECC cache memory are available on select Compaq personal computers.

3.3.2 SMART Hard Drive Fault Prediction

The SMART hard drive monitors hard drive activity to predict failures and, in some cases, fix faults before failures occur. Fault prediction and failure indication parameters, such as abnormal variations in spinup and seek times, or non-correctable read and write errors, are tracked to determine the hard drive condition. Should these errors become significant, the computer displays a warning message. The warning gives you time to back up the hard drive and replace it prior to experiencing downtime or loss of data. The Prefailure Warranty for SMART hard drives allows you to replace these drives, free of charge, before the drives fail.

SMART hard drives are compliant with the Small Form Factor Committee Specification for Self-Monitoring, Analysis, and Reporting Technology (SMART). SMART is the industry standard technology, pioneered by Compaq and originally called IntelliSafe, that allows you to prevent data loss and minimize downtime, in concert with Compaq Insight Management Agents.

3.3.3 Drive Protection System


The Compaq Drive Protection System (DPS) is a diagnostic tool built into the hard drives installed in select Compaq Deskpro computers. DPS is designed to help diagnose problems that might result in unwarranted hard drive replacement. When Compaq Deskpro Computers 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. You can use this information to help diagnose conditions that caused you to run the DPS software.

3.3.4 Ultra ATA Integrity Monitoring

Ultra ATA Integrity Monitoring monitors the integrity of data as it is transferred between an Ultra ATA hard drive and the system's core logic. If the computer detects an abnormal number of transmission errors, the computer displays a Local Alert message with recommended actions. An alert is also sent over the network to the system administrator.

3.3.5 ECC Fault Prediction and Prefailure Warranty

When the computer encounters an excessive number of error checking and correcting (ECC) memory errors, the computer displays a Local Alert message. This message contains detailed information about the errant memory module, allowing you to take action before you experience non-correctable memory errors. The Prefailure Warranty for ECC memory modules allows you to replace these modules, free of charge, before the modules actually fail. ECC memory modules are optional on all Compaq personal computers.

 To use this feature, you must replace the standard DIMMs with ECC DIMMs.

3.3.6 Surge-Tolerant Power Supply

An integrated surge-tolerant power supply provides greater reliability when the computer is hit with an unpredictable power surge. This power supply is rated to withstand a power surge of up to 2000 volts without incurring any system downtime or data loss.

3.3.7 Thermal Sensor

The thermal sensor is a hardware and software feature that tracks the internal temperature of the computer. This feature displays a warning message when the normal range is exceeded, which gives you time to take action before internal components are damaged or data is lost.

3.4 Software Updating and Management

Remote ROM Flash, Remote Wakeup, and Remote Shutdown, when integrated with Management Solutions Partners products, deliver ongoing management of firmware, 24 hours a day. This supplements the software distribution capabilities of the Solutions Partners products, which can also be used to distribute new applications, device drivers, and other system software. The *Support Software CD* and Web site includes updated ROM images and device drivers which can be distributed to client PCs using these software tools.

For more information, refer to the online *Remote Management Administrators Guide*. The *Remote Management Administrators Guide* is included with the Remote Management Administration Tools, and is available on the *Support Software CD* or on the Compaq World Wide Web site at www.compaq.com.

3.4.1 Remote ROM Flash

Your computer comes with reprogrammable flash ROM (read only memory). By establishing a setup password in Security Management, you can protect the ROM from being unintentionally updated or overwritten. This is important to ensure computer operating integrity. Should you need or want to upgrade your ROM, you may:

- Order an upgraded ROMPaq diskette from Compaq.
- Order the *Support Software CD*.
- Download the latest ROMPaq images from the Compaq World Wide Web site (www.compaq.com).



CAUTION: For maximum ROM protection, be sure to establish a setup password. The setup password prevents unauthorized ROM upgrades.

Using Remote ROM Flash

Remote ROM Flash allows the system administrator to safely upgrade the ROM on remote Compaq desktop personal computers, directly from the centralized network management console. Enabling the system administrator to perform this task remotely, on multiple computers, results in a consistent deployment of and greater control over Compaq desktop ROM images over the network. It also results in greater productivity and lower total cost of ownership.

Compaq created the Remote ROM Flash capability to be secure and fail-safe. All desktop ROMPaq ROM images from Compaq are digitally signed to ensure authenticity and minimize potential corruption. The ROM firmware includes a Boot Block that is protected during the flash process and allows the computer to be restarted, in the unlikely event of an unsuccessful ROM flash.

- ✍ Your computer must be powered on, or turned on through Remote Wakeup, to take advantage of Remote ROM Flash. Use of Remote ROM Flash also requires an established setup password.

For more information on enabling Remote ROM Flash, refer to the online *Remote Management Administrators Guide*. The *Remote Management Administrators Guide* is included with the Remote Management Administration Tools, and is available on the *Support Software CD* or at the Compaq Web Site at www.compaq.com.

FailSafe Boot Block ROM

The FailSafe Boot Block ROM allows for system recovery in the unlikely event of a ROM flash failure, for example, if a power failure occurs during a ROM upgrade. The Boot Block is a flash-protected section of the ROM that checks to validate the system ROM each time power to the system is turned on.

- If the system ROM is valid, the system starts normally.
- If the system ROM fails the validation check, the FailSafe Boot Block ROM provides enough support to start the system from a ROMPaq diskette, which will program the system ROM with a valid image.

Because there is no video or hard drive support from the Boot Block ROM, the keyboard lights communicate information. When the Boot Block detects an invalid system ROM, the system sounds a series of beeps (one long and three short) and flashes the three keyboard lights.

To recover the system after hearing the FailSafe Boot Block beeps, complete the following steps:

1. Remove any diskettes from the diskette drive and turn off the power.
2. Insert a ROMPaq diskette into the diskette drive.
3. Turn on power to the system.

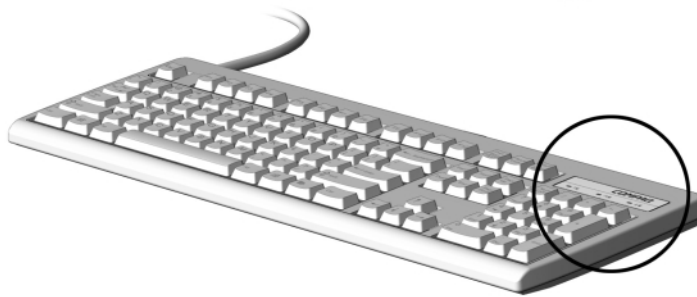
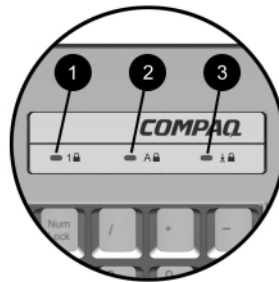
If a setup password has been established, the Caps Lock light will turn on.

4. Enter the setup password.

If the system successfully starts from the diskette and successfully reprograms the ROM, then the three keyboard lights will turn on. A “rising tone” series of beeps also signals successful completion.

The following table lists the various keyboard light combinations as well as the meaning and action associated with each combination.

Num Lock ①	Caps Lock ②	Scroll Lock ③	Meaning and Required Action
OFF	ON	OFF	System requires setup password. Enter the setup password. The light remains turned on until you enter a valid setup password.
ON	OFF	OFF	System could not start from diskette because the ROMPaq diskette is not present, is bad, or the drive is not ready. Insert a valid ROMPaq diskette, turn the power off, then turn the power on.
OFF	OFF	ON	ROM upgrade failed. Try another ROMPaq diskette. If the light remains turned on, contact Compaq customer support.
ON	ON	ON	ROM upgrade successfully completed. Turn power off and back on to resume normal system operation.



Keyboard Lights

3.4.2 Remote Security Management

Remote Security Management allows the system administrator to safely set or modify security features on remote Compaq desktops, directly from the centralized network management console. Enabling the system administrator to perform these tasks remotely, on multiple computers, results in consistent deployment of and greater control over desktop security parameters over the network. It also results in greater productivity and lower total cost of ownership.

- ✎ Your computer must be powered on, or turned on through Remote Wakeup, to take advantage of Remote Security Management. Use of Remote Security Management also requires an established setup password.

For more information about the Remote Management Setup software and enabling Remote Security Management, refer to the online *Remote Management Administrators Guide*. The *Remote Management Administrators Guide* is included with the Remote Management Administration Tools, and is available on the *Support Software CD* or at the Compaq Web site at www.compaq.com.

3.4.3 Remote Wakeup and Remote Shutdown

If the computer has an optional network card installed, it may support the Compaq Remote Wakeup and Remote Shutdown functions. These functions allow a system administrator to power on and power off a client computer from a remote location, supported by PC LAN management tools.

- ✎ Third-party software tools are required to remotely distribute software.

Remote Wakeup allows the network interface controller to continue functioning, even when power to the computer has been turned off.

- ✎ The computer continues to consume a small amount of electricity even after you turn it off. Only when you disconnect the power cord from the electrical outlet does the computer stop consuming electricity.

To enable Remote Wakeup and Remote Shutdown, complete the following steps:

1. Double-click the Network Icon, located in the Control Panel.
2. Double-click the appropriate network controller.
3. Click the Advanced Properties tab.
4. Select Remote Wakeup.
5. Change the value to ON.
6. Click OK to save and apply changes, then click OK to exit the Network dialog.

For more information on using Remote Wakeup and Remote Shutdown, refer to the online *Remote Management Administrators Guide*. The *Remote Management Administrators Guide* is included with the Remote Management Administration Tools, and is available on the *Support Software CD* or at the Compaq Web site at www.compaq.com.

3.4.4 Replicating Original Setup

This procedure gives an administrator the ability to easily copy one setup configuration to other computers of the same model. This allows for faster, more consistent configuration of multiple computers. To replicate your setup:

1. Access the Computer Setup Utilities menu.
2. Click File → Save to Floppy. Follow the instructions on the screen.
3. To replicate the configuration, click File → Restore from Floppy, and follow the instructions on the screen.

3.4.5 Dual-State Power Button

In Windows 95 or Windows 98, the power button can function either as an on/off switch or as a suspend button. The suspend feature does not turn off power altogether, but instead causes the computer to enter a low-power standby. This allows you to quickly power down without closing applications and to quickly return to the same operational state without any data loss.

To change the power button's configuration, complete the following steps:

1. Access the Computer Setup Utilities menu.
2. Select Power → Energy Saver Options. Set the power button configuration to either Advanced or Minimal Energy Saver, or Disabled, as desired.

For more information about the various screen and configuration options, refer to Section 2.1.2, "Using Computer Setup Utilities."

3. Select File → Save Changes and Exit.

After configuring the power button to function as a suspend button (Energy Saver mode), press the power button to put the system in a very low power state (suspend). Press the button again to quickly bring the system out of suspend to full power status. To completely turn off all power to the system, press and hold the power button for four seconds.

- ✎ If you have selected the "Blink LED during Energy Save" option in Computer Setup, the power-on light will blink once every second while the computer is in suspend. Refer to Section 2.1.1, "Using Computer Setup Utilities" for more information.

3.4.6 Power Management

Use the Timeouts option under the Power menu in Computer Setup to enable, customize, or disable standby timeouts. This feature shuts down certain components of the computer when they are not in use, saving energy without having to shut down the computer.

- ✎ When using Windows 95 or Windows 98, disable monitor timeouts in Computer Setup first, then establish the settings in Windows, to avoid potential conflicts.

Use Display Properties to establish, modify, or disable Power Management settings for the monitor. To access Display Properties, right-click on the Windows Desktop, then choose Properties.

3.4.7 Enhanced Support Software CD and World Wide Web Site


Compaq engineers rigorously test and debug software developed by Compaq and third-party suppliers, and develop operating-system specific support software, to ensure the highest level of performance, compatibility, and reliability for Compaq personal computers.

When making the transition to new or revised operating systems, it is important to implement the support software designed for that operating system. If you plan to run any of the following operating systems on your computer, you must install corresponding Compaq device drivers and utilities to ensure all features are supported and functioning properly:

- Microsoft Windows 3.1
- IBM OS/2
- A version of Microsoft Windows or Microsoft Windows NT Workstation that is different from the version included with your computer

Compaq has made the task of locating, accessing, evaluating, and installing the latest support software easier. There are three methods you can use to access support software:

- You can order the *Support Software CD*. This compact disc contains the latest device drivers, utilities, and flashable ROM images needed to run MS-DOS, Microsoft Windows 3.1, Windows 95, Windows 98, Windows NT Workstation, and IBM OS/2 on your Compaq commercial desktop product.
- You can download the software from the Compaq World Wide Web site at www.compaq.com.


 Both the CD and the Compaq Web site include a comprehensive listing of the device drivers, utilities, flashable ROM images, and more, categorized by operating system, personal computer family, and model for easy retrieval. Decision Support provides detailed information for each support software file, including descriptions, features, enhancements, dependencies, and update information.

- You can purchase backup diskettes.

If you choose to purchase the *Support Software CD*, you have two options:

- You can purchase a single CD-ROM that gives you one-time access to the latest support software (North America only, Compaq part number 272505-001).
- You can purchase a yearly subscription that delivers up to 12 monthly CD-ROMs (Compaq part number 183426-xxx).

The annual subscription ensures your continuous access to the latest developments.

 If you call Compaq to place an order, be sure to have the serial number of the computer available. This number is necessary for all purchases.

3.4.8 Compaq Integrated Software

Additional support software is available on the *Support Software CD* and may be downloaded from the Compaq World Wide Web site at www.compaq.com. This software supplements the installation of off-the-shelf Microsoft operating systems and lets you quickly and easily install the correct device drivers and other software required for top performance.

3.5 Building Blocks and Partners

Compaq management solutions are based on industry standards, including DMI 2.0, Web-Based Enterprise Management, Intel's "Wired for Management," SNMP, and Net PC technologies. Microsoft, Intel, Hewlett-Packard, Novell, Seagate, and other industry leaders work closely with Compaq to integrate their management solutions with Compaq products and initiatives, giving you, the Compaq customer, extraordinary flexibility and functionality in client management and PC ownership cost reduction.

3.5.1 Desktop Management Interface (DMI)

The Desktop Management Task Force (DMTF) is an industry body created in 1992 with the goal of standardizing systems manageability. DMTF established the Desktop Management Interface (DMI) framework to standardize access to PC configuration data. Compaq, as a Steering Committee and Technical Committee member of the DMTF, delivers hardware and software instrumentation that supports the DMI standard.

For more information on configuring the DMI software, refer to the online *Intelligent Manageability Guide*.

3.5.2 Compaq Insight Manager and the Insight Management Agents

Using the industry-standard Simple Network Management Protocol (SNMP) found in Microsoft operating systems, Compaq has continued the migration of management tools from servers to desktops by enhancing Compaq Insight Manager. Compaq Insight Manager allows the LAN administrator to remotely view AssetControl data, configuration data, memory change alerts, NIC performance data, and contact information. The tool also provides access to the Fault Management features of the Compaq Personal Computers.

3.5.3 Compaq Management Solutions Partners Program

The Compaq Deskpro can be easily integrated into leading desktop and enterprise management solutions such as Microsoft SMS, Computer Associates' Unicenter TNG, and Tivoli 10 among others. Compaq has established close partnerships with these vendors to ensure that the Deskpro is a well-managed PC client in their environments.

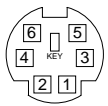
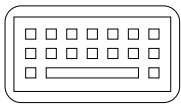
Compaq's PC Lifecycle Solutions offer a comprehensive suite of tools and service which can help in more easily managing PC clients throughout their lifecycle in the areas of planning, deployment, management, and transition. Intelligent Manageability tools like the Compaq Insight Manager LC and the System Software Manager can be used side-by-side with other third-party management solutions.

appendix **A**

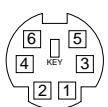
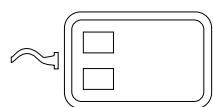
CONNECTOR PIN ASSIGNMENTS

This appendix contains the pin assignments for many computer connectors. Some of these connectors may not be used on the computer being serviced.

Enhanced Keyboard

Connector and Icon	Pin	Signal
 	1	Data
	2	Unused
	3	Ground
	4	+5 VDC
	5	Clock
	6	Unused



Mouse

Connector and Icon	Pin	Signal
 	1	Data
	2	Unused
	3	Ground
	4	+5 VDC
	5	Clock
	6	Unused

Ethernet BNC

Connector and Icon	Pin	Signal
 	1 (Inside)	Data
	2 (Outside)	Ground

Ethernet RJ-45

Connector and Icon	Pin	Signal
 	1	(+) Transmit Data
	2	(-) Transmit Data
	3	(+) Receive Data
	4	Unused
	5	Unused
	6	(-) Receive Data
	7	Unused
	8	Unused

Ethernet AUI

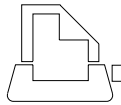
Connector and Icon



Pin	Signal
1	Ground
2	Negative AUI Differential Collision
3	Positive AUI Differential Collision
4	Negative AUI Differential Transmit
5	Positive AUI Differential Transmit
6	Ground
7	Ground
8	Negative AUI Differential Receive
9	Positive AUI Differential Receive
10	+12V
11	Ground
12	Ground
13	Not Used
14	Not Used
15	Not Used
16	Not Used

Parallel Interface

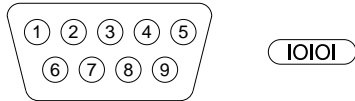
Connector and Icon



Pin	Signal
1	Strobe
2	Data Bit 0
3	Data Bit 1
4	Data Bit 2
5	Data Bit 3
6	Data Bit 4
7	Data Bit 5
8	Data Bit 6
9	Data Bit 7
10	Acknowledge
11	Busy
12	Paper End
13	Select
14	Auto Linefeed
15	Error
16	Initialize Printer
17	Select IN
18-25	Signal Ground

Serial Interface

Connector and Icon



Pin	Signal
1	Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Signal Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator

USB Connector

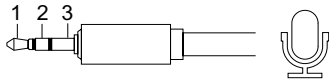
Connector and Icon



Pin	Signal
1	VCC
2	- Data
3	+ Data
4	Ground

Microphone Connector

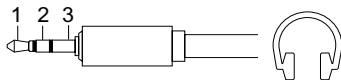
Connector and Icon (1/8" miniphone)



Pin	Signal
1 (Tip)	Audio
2 (Ring)	Power
3 (Shield)	Ground

Headphone Connector

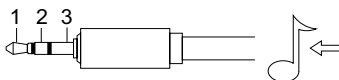
Connector and Icon (1/8" miniphone)



Pin	Signal
1 (Tip)	Audio_Left
2 (Ring)	Audio_Right
3 (Shield)	Ground

Line-In Audio

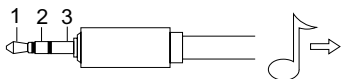
Connector and Icon (1/8" miniphone)



Pin	Signal
1 (Tip)	Audio_In_Left
2 (Ring)	Audio_In_Right
3 (Shield)	Ground

Line-Out Audio

Connector and Icon (1/8" miniphone)



Pin	Signal
1 (Tip)	Audio_Out_Left
2 (Ring)	Audio_Out_Right
3 (Shield)	Ground

External Infrared Transceiver

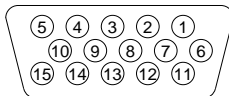
Connector and Icon



Pin	Signal
1	Transmit
2	Receive
3	Ground
4	5V
5	Mode
6	Not Used
7	Not Used
8	Not used

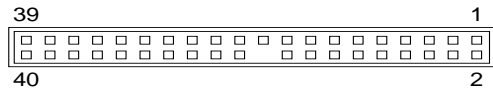
Monitor

Connector



Pin	Signal
1	Red Analog
2	Green Analog
3	Blue Analog
4	Not Connected
5	Ground
6	Ground
7	Ground
8	Ground
9	+5V DC
10	Ground
11	Not Connected
12	DCC Serial Data
13	Horizontal Sync
14	Vertical Sync
15	DCC Serial Clock

IDE/EIDE Drive Cable



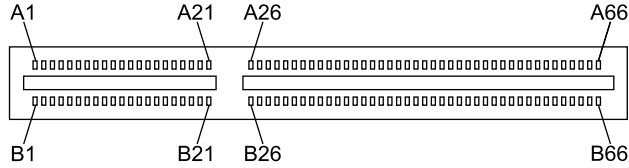
Pin	Signal	Pin	Signal	Pin	Signal
1	RESET	15	DD1	29	DMAK
2	GROUND	16	DD14	30	GROUND
3	DD7	17	DD0	31	INTRQ
4	DD8	18	DD15	32	IOCS16
5	DD6	19	GROUND	33	DA1
6	DD9	20	(KEY)	34	PDIAG (80-pin cable detect)
7	DD5	21	DMARQ	35	DA0
8	DD10	22	GROUND	36	DA2
9	DD4	23	DIOW	37	CS1FX
10	DD11	24	Ground	38	CS3FX
11	DD3	25	DIOR	39	DASP
12	DD12	26	GROUND	40	GROUND
13	DD2	27	IORDY		
14	DD13	28	CSEL		

Slimline CD-ROM Adapter



Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	RESDRV_	18	D15	35	A0	52	FP05
2	GROUND	19	GROUND	36	A2	53	FP06
3	D07	20	(KEY)	37	CS1FX	54	FP07
4	D08	21	DRQ	38	CS3FX	55	FP08
5	D06	22	GROUND	39	DASP	56	FP09
6	D09	23	IOW	40	GROUND	57	FP10
7	D05	24	GROUND	41	+5VMLOG	58	FP11
8	D10	25	IOR	42	+5VMOT	59	FP12
9	D04	26	GROUND	43	GROUND	60	FP13
10	D11	27	IOCHRDY	44	AUDIO_L	61	FP14
11	D03	28	CABLE SELECT	45	A_GROUND_R	62	FP15
12	D12	29	DAK	46	A_GROUND_L	63	FP16
13	D02	30	GROUND	47	AUDIO_R	64	FP17
14	D13	31	IRQ	48	FP01	65	FP18
15	D01	32	IO16	49	FP02	66	FP19
16	D14	33	A1	50	FP03	67	FP20
17	D00	34	PDIAG	51	FP04	68	FP21

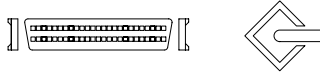
AGP Connector



Pin	Signal A	Signal B	Pin	Signal A	Signal B	Pin	Signal A	Signal B
1	+12 V	OVRCNT#	23	Ground	Ground	45	VCC 3.3	VCC 3.3
2	TYPEDET# + 5V		24	Reserved	3.3 Vaux	46	TRDY#	DEVSEL#
3	Reserved	+ 5V	25	VCC 3.3	VCC 3.3	47	STOP#	Vddq
4	USB-	USB+	26	AD30	AD31	48	PME#	PERR#
5	Ground	Ground	27	AD28	AD29	49	Ground	Ground
6	INTA#	INTB#	28	VCC 3.3	VCC 3.3	50	PAR	SERR#
7	RST#	CLK	29	AD26	AD27	51	AD15	C/BE1#
8	GNT#	REQ#	30	AD24	AD25	52	Vddq	Vddq
9	VCC3.3	VCC3.3	31	Ground	Ground	53	AD13	AD14
10	ST1	ST0	32	AD_STB1#	AD_STB1	54	AD11	AD12
11	Reserved	ST2	33	C/BE3#	AD23	55	Ground	Ground
12	PIPE#	RBF#	34	Vddq	Vddq	56	AD9	AD10
13	Ground	Ground	35	AD22	AD21	57	C/BEO#	AD8
14	WBF#	Reserved	36	AD20	AD19	58	Vddq	Vddq
15	SBA1	SBA0	37	Ground	Ground	59	AD_STBO#	AD_STBO
16	VCC 3.3	VCC 3.3	38	AD18	AD17	60	AD6	AD7
17	SBA3	SBA2	39	AD16	C/BE2#	61	Ground	Ground
18	SB_STB#	SB_STB	40	Vddq	Vddq	62	AD4	AD5
19	Ground	Ground	41	FRAME#	IRDY#	63	AD2	AD3
20	SBA5	SBA4	42	Reserved	3.3VAux	64	Vddq	Vddq
21	SBA7	SBA6	43	Ground	Ground	65	AD0	AD1
22	Reserved	Reserved	44	Reserved	Reserved	66	VREFGC	VREFCG

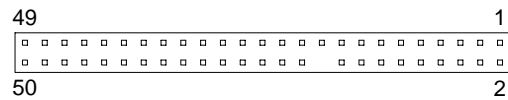
Ultra SCSI

Connector and Icon



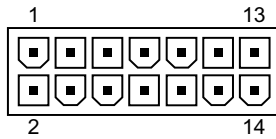
Pin	Signal	Pin	Signal	Pin	Signal
1-11	Ground	31	DB5	41	ATN #
12	Reserved	32	DB6	42	Ground
13	Open	33	DB7	43	BSY #
14	Reserved	34	DBP	44	ACK #
15-25	Ground	35	Ground	45	RST #
26	DB0	36	Ground	46	MSG #
27	DB1	37	Reserved	47	SEL #
28	DB2	38	TERMPWR	48	C/D
29	DB3	39	Reserved	49	REQ #
30	DB5	40	Ground	50	Input/Output

IDE CD-ROM Cable



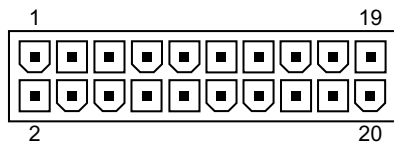
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	RESDRV_	14	GROUND	27	D07	40	D08
2	D06	15	D09	28	D05	41	D10
3	D04	16	D11	29	D03	42	D12
4	D02	17	D13	30	D01	43	D14
5	D00	18	D15	31	Ground	44	(KEY)
6	DREQ	19	Ground	32	IOW	45	Ground
7	IOR	20	Ground	33	OCHRDY	46	CABLE SELECT
8	DAK	21	Ground	34	IRQ	47	IO16
9	A1	22	PDIAG	35	A0	48	A2
10	CS1FX	23	CS3FX	36	DASP	48	Ground
11	AUDIO_R	24	AUDIO_L	37	A_GND_R	49	A_GND_L
12	+5VMOT1	25	+5VMOT2	38	+5VMOT3	50	+5VMOT4
13	+5VMLOG1	26	+5VMLOG2	39	DASP		

14-Pin Power Connector



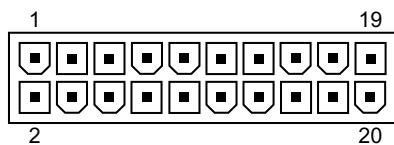
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	+3.3 V	5	RTN	9	-12 V	13	Fan
2	+3.3 V Aux	6	+5 V	10	Fan OFF	14	+12 V
3	RTN	7	RTN	11	ON/STBY		
4	+5 V	8	+3.3 V	12	+5 V Aux		

20-Pin Power Connector - Deskpro EP



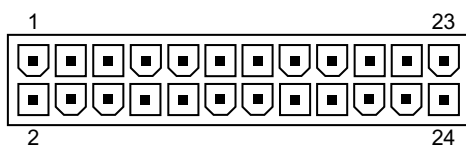
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	+3.3 V	6	+5 V	11	+3.3 V	16	RTN
2	+3.3 V	7	RTN	12	-12 V	17	RTN
3	RTN	8	Fan OFF	13	RTN	18	-5 V
4	+5 V	9	+5 V Aux	14	ON/STBY	19	+5 V
5	RTN	10	+12 V	15	RTN	20	+5 V

20-Pin Power Connector - Deskpro EN



Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	3 V	6	5 V	11	3 V	16	RTN/RS
2	3 V/RS	7	Aux RTN	12	-12 V	17	RTN
3	RTN	8	Fan OFF	13	RTN	18	-5 V
4	5 V	9	5 Vaux	14	ON/STBY	19	5 V
5	RTN	10	12 V	15	RTN	20	5 V

24-Pin Power Connector



Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	+3.3 V	7	aux RTN	13	+3.3V	19	RTN
2	+3.3 V	8	Fan OFF	14	-12 V	20	-5 V
3	RTN	9	+5 V aux	15	RTN	21	+5 V
4	+5 V	10	+12 V	16	ON/STBY	22	+5 V
5	RTN	11	3.3 Vaux	17	RTN	23	3.3 V R/S
6	+5 V	12	Fan CMD	18	RTN / (R/S)	24	Fan Sink

appendix **B**

POWER CORD SET REQUIREMENTS

The voltage select switch feature on the computer permits it to operate from any line voltage between 100-120 or 220-240 volts AC.

The power cord set received with the computer meets the requirements for use in the country where you purchased the equipment.

Power cord sets for use in other countries must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your authorized Compaq dealer, reseller, or service provider.

General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 6.00 feet (1.8 m) and a maximum of 9.75 feet (3.0 m).
2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the Switch Box.

Country-Specific Requirements

Additional requirements specific to a country are shown in parentheses and explained below.

Country	Accrediting Agency	Country	Accrediting Agency
Australia (1)	EANSW	Italy (1)	IMQ
Austria (1)	OVE	Japan (3)	JIS
Belgium (1)	CEBC	Norway (1)	NEMKO
Canada (2)	CSA	Sweden (1)	SEMKO
Denmark (1)	DEMKO	Switzerland (1)	SEV
Finland (1)	SETI	United Kingdom (1)	BSI
France (1)	UTE	United States (2)	UL
Germany (1)	VDE		

Notes:

(1) The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

(2) The flexible cord must be Type SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A 250V) configuration.

(3) The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 0.75 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.

appendix C

HARD DRIVES

Compaq Computer Corporation uses IDE hard disk drives that conform to two different primary/secondary implementations. These are Conner mode and ATA-compatible mode. These two modes are incompatible with one another.

Device 0/Device 1 Relationship

A device 0/device 1 relationship exists when there are two hard drives connected to a single port. In this situation, one drive must be designated as the device 0 or primary drive and the other as the device 1, or secondary drive. This designation is necessary because both drives cannot work simultaneously.

SMART

The SMART IDE hard drives for the Compaq Deskpro Personal Computers have built-in drive failure prediction that warns the user or the network administrator of an impending failure or crash of the hard drive.

Automatic Soft-Drive Types

An automatic soft-drive type is a mechanism where the system ROM and Computer Setup automatically build a soft-drive type to provide support for IDE hard drives that are not in the hard drive parameter table.

The soft-drive types are assigned according to the table below:

Drive	Hard Drive Type	Controller
0	65	Primary
1	66	Primary
0	68	Secondary
1	15	Secondary

For hard drives that are greater than 528 MB, the system automatically translates the hard drive parameter for DOS by logically halving the cylinders and doubling the heads. This allows DOS to access greater than 528 MB. The translated hard drive parameters are put into the hard drive parameter table in the shadow RAM copy of the system ROM. When using any operating system other than DOS, you must use F10 Setup to set up the hard drive parameter table without translation.

appendix **D**

POST ERROR MESSAGES

An error message results if the Power-On Self-Test (POST) encounters a problem. This test runs when the system is turned on, checking assemblies within the computer and reporting any errors found.

Screen Message	Beeps*	Probable Cause	Recommended Action
101-Option ROM Error	1L, 1S	System ROM checksum.	<ol style="list-style-type: none">1. Verify the correct ROM.2. Flash the ROM if needed.3. If an expansion card was recently added, remove it and see if the problem remains.4. If the message disappears, there may be a problem with the expansion card.5. Replace the system board.
102-System Board Failure	None	DMA, timers, etc.	<ol style="list-style-type: none">1. Clear CMOS.2. Remove expansion boards.3. Replace the system board.
103-System Board Failure	None	DMA, timers, etc.	<ol style="list-style-type: none">1. Clear CMOS.2. Remove expansion boards.3. Replace the system board.
162-System Options Not Set	2S	Configuration incorrect. RTC (real-time clock) battery may need to be replaced. Battery life is approximately 5 years.	Run Computer Setup (F10 Setup). Reset the date and time under Control Panel. If the problem persists, replace the RTC battery.
163-Time & Date Not Set	2S	Invalid time or date in configuration memory. RTC (real-time clock) battery may need to be replaced. Battery life is approximately five years. CMOS jumper may not be properly installed.	Set the date and time under Control Panel. If the problem persists, replace the RTC battery. Check for proper placement of the CMOS jumper.

* L = Long, S = Short

continued

POST Error Messages Continued

Screen Message	Beeps*	Probable Cause	Recommended Action
164-Memory Size Error	2S	Memory configuration is incorrect.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup) or Windows utilities.2. Make sure memory module(s) (if any) are installed properly.3. Verify proper memory module type.
183-Invalid Processor Jumper Setting	2S	System board jumper improperly set.	Reset system board jumpers to match processor and bus speeds.
201-Memory Error	None	RAM failure.	<ol style="list-style-type: none">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 module(s) one at a time to isolate faulty module.5. Replace the faulty memory module(s).6. If error persists after replacing memory modules, replace the system board.
202-Memory Type Mismatch	None	Memory modules do not match each other.	Replace memory modules with matched sets.
207-ECC Corrected Single Bit Errors in DIMM/SIMM Pair(s) X,X,... in Memory Socket(s) y,y	2S	Single Bit ECC error.	<ol style="list-style-type: none">1. Verify proper memory module type.2. Try another memory socket.3. Replace memory module if problem persists.
213-Incompatible DIMM Module in DIMM Socket(s) X,X, X	2S	A DIMM module in DIMM 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.

* L = Long, S = Short

continued

POST Error Messages *Continued*

Screen Message	Beeps*	Probable Cause	Recommended Action
301-Keyboard Error	None	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.
304-Keyboard or System Unit Error	None	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 keyboard.4. Replace system board.
401-Parallel Port 1 Address Assignment Conflict	2S	IRQ address conflicts with another device.	Reset the IRQ.
403-Parallel Port 3 Address Assignment Conflict	2S	IRQ address conflicts with another device.	Reset the IRQ.
404-Parallel Port Address Conflict Detected	2S	Both external and internal ports are assigned to parallel port X.	<ol style="list-style-type: none">1. Remove any parallel expansion cards.2. Clear CMOS.3. Reconfigure card resources and/or run Computer Setup (F10 Setup).
410-Audio Interrupt Conflict	2S	IRQ address conflicts with another device.	Reset the IRQ.
411-Network Interface Card Interrupt Conflict	2S	IRQ address conflicts with another device.	Reset the IRQ.
501-Display Adapter Failure	1L, 2S	Graphics display controller.	<ol style="list-style-type: none">1. Reseat the graphics card (if applicable).2. Clear CMOS.3. Verify the monitor is attached and turned on.4. Replace the graphics controller.

* L = Long, S = Short

continued

POST Error Messages *Continued*

Screen Message	Beeps*	Probable Cause	Recommended Action
601-Diskette Controller Error	None	Diskette controller circuitry or floppy drive circuitry incorrect.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Check and/or replace cables.3. Clear CMOS.4. Replace diskette drive.5. Replace the system board.
602-Diskette Boot Record Error	None	Diskette in drive A not bootable.	Replace the diskette.
605-Diskette Drive Type Error	2S	Mismatch in drive type.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup) or Windows NT, Windows 95, or Windows 98 utilities.2. Disconnect any other diskette controller devices (tape drives).3. Clear CMOS.
610-External Storage Device Failure	None	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	2S	Configuration error.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Remove expansion cards.3. Clear CMOS.
612-Secondary Floppy Port Address Assignment Conflict	2S	Configuration error.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Remove expansion cards3. Clear CMOS.
660-Display Cache is Detected Unreliable	None	Integrated video controller display cache not working properly and will be disabled.	Replace system board if minimal video degrading is an issue.
912-Computer Cover Has Been Removed Since Last System Start Up	None		No action required.

* L = Long, S = Short

continued

POST Error Messages *Continued*

Screen Message	Beeps*	Probable Cause	Recommended Action
914-Hood Lock Coil is not Connected	None	Hood lock mechanism is missing or not connected.	<ol style="list-style-type: none"> 1. Reconnect or replace hood locking mechanism. 2. Reseat or replace hood locking mechanism cable.
916-Thermal Sensor from Processor Heatsink is not Connected.	None	Processor heatsink cable not connected to system board.	Reseat or replace the processor heatsink cable going to the system board.
917-Expansion Riser not Detected	None	Riser board not seated or not installed.	Install riser board if missing or remove and reseat to ensure good connection.
1151-Serial Port 1 Address Conflict Detected	2S	Both external and internal serial ports are assigned to COM1.	<ol style="list-style-type: none"> 1. Remove any Comm port expansion cards. 2. Clear CMOS. 3. Reconfigure card resources and/or run Computer Setup (F10 Setup).Run Computer Setup or Windows utilities.
1152-Serial Port 2 Address Conflict Detected	2S	Both external and internal serial ports are assigned to COM2.	<ol style="list-style-type: none"> 1. Remove any Comm port expansion cards. 2. Clear CMOS. 3. Reconfigure card resources and/or run Computer Setup (F10 Setup).Run Computer Setup or Windows utilities.
1155- Serial Port Address Conflict Detected	2S	Both external and internal serial ports are assigned to same IRQ.	<ol style="list-style-type: none"> 1. Remove any Comm port expansion cards. 2. Clear CMOS. 3. Reconfigure card resources and/or run Computer Setup (F10 Setup).Run Computer Setup or Windows utilities.
1201-System Audio Address Conflict Detected	2S	Device IRQ address conflicts with another device.	Reset the IRQ.
1202-MIDI Port Address Conflict Detected	2S	Device IRQ address conflicts with another device.	Reset the IRQ.
1203-Game Port Address Conflict Detected		Device IRQ address conflicts with another device.	Reset the IRQ.

* L = Long, S = Short

continued

POST Error Messages *Continued*

Screen Message	Beeps*	Probable Cause	Recommended Action
1720-SMART Hard Drive Detects Imminent Failure	None	Hard drive is about to fail. (Some hard drives have a 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. Run the Drive Protection System test available.2. Apply firmware patch if applicable.3. Back up contents and replace hard drive.
1721-SMART SCSI Hard Drive Detects Imminent Failure	None	Hard drive is about to fail. (Some hard drives have a 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. Run the Drive Protection System test available.2. Apply firmware patch if applicable.3. Back up contents and replace hard drive.
1771-Primary Disk Port Address Assignment Conflict	2S	Internal and external hard drive controllers are both assigned to the primary address.	<ol style="list-style-type: none">1. Remove any Comm port expansion cards.2. Clear CMOS.3. Reconfigure card resources and/or run Computer Setup (F10 Setup).
1772-Secondary Disk Port Address Assignment Conflict	2S	Internal and external hard drive controllers are both assigned to the primary address.	<ol style="list-style-type: none">1. Remove any Comm port expansion cards.2. Clear CMOS.3. Reconfigure card resources and/or run Computer Setup (F10 Setup).
1780-Disk 0 Failure	None	Hard drive/format error.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Clear CMOS.3. Check cables/jumper settings.4. Run hard drive diagnostics.5. Disconnect additional drives.6. Run the Drive Protection System test if available.7. Replace the hard drive.

* L = Long, S = Short

continued

POST Error Messages *Continued*

Screen Message	Beeps*	Probable Cause	Recommended Action
1781-Disk 1 Failure	None	Hard drive/format error.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Clear CMOS.3. Check cable seating/jumper settings.4. Run hard drive diagnostics.5. Disconnect additional drives.6. Run the Drive Protection System test if available.7. Replace the hard drive.
1782-Disk Controller Failure	None	Hard drive circuitry error.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Clear CMOS.3. Check cable seating /jumper settings.4. Run hard drive diagnostics.5. Disconnect additional drives.6. Run the Drive Protection System test if available.7. Replace the hard drive.8. Replace the system board.
1790-Disk 0 Failure	None	Hard drive error or wrong drive type.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Clear CMOS.3. Check cable seating /jumper settings.4. Run hard drive diagnostics.5. Disconnect additional drives.6. Confirm drive is supported on this computer (Large drive ROM support.)7. Run the Drive Protection System test if available.8. Replace the hard drive.9. Replace the system board.

* L = Long, S = Short

continued

POST Error Messages Continued

Screen Message	Beeps*	Probable Cause	Recommended Action
1791-Disk 1 Failure	None	Hard drive error or wrong drive type.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Clear CMOS.3. Check cable seating /jumper settings.4. Run hard drive diagnostics.5. Disconnect additional drives.6. Confirm drive is supported on this computer (Large drive ROM support).7. Run the Drive Protection System test if available.8. Replace the hard drive.9. Replace the system board.
1792-Secondary Disk Controller Failure	None	Hard drive circuitry error.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Clear CMOS.3. Check cable seating /jumper settings.4. Run hard drive diagnostics.5. Disconnect additional drives.6. Run the Drive Protection System test if available.7. Replace the hard drive.
1793-Secondary Controller or Disk Failure	None	Hard drive circuitry error.	<ol style="list-style-type: none">1. Run Computer Setup (F10 Setup).2. Clear CMOS.3. Check cable seating /jumper settings.4. Run hard drive diagnostics.5. Disconnect additional drives.6. Run the Drive Protection System test if available.7. Replace the hard drive.

* L = Long, S = Short

continued

POST Error Messages *Continued*

Screen Message	Beeps*	Probable Cause	Recommended Action
1800-Temperature Alert	None	Internal temperature exceeds specification.	<ol style="list-style-type: none"> 1. Check that computer air vents are not blocked and cooling fan is running. 2. Verify processor speed selection. 3. Replace the processor. 4. Replace the system board.
1801	None	Processor not supported by ROM Bios.	Upgrade Bios to proper version.
Audible	1L, 3S	System ROM is bad; system is running in Failsafe Boot Block mode.	Reflash the ROM using a ROMPaq diskette. Refer to the "Failsafe Boot Block ROM" section of the <i>Software Reference Guide</i> .
Audible	2S	Power-on successful.	None
Flashing Caps Lock LED on Keyboard	1L, 2S	Graphics controller not present or incorrectly initialized.	<ol style="list-style-type: none"> 1. Clear CMOS. 2. If graphics card has been added, remove and reseal.
Flashing Num Lock LED on Keyboard	1S, 2L	System memory not present	<ol style="list-style-type: none"> 1. Check memory module. 2. Remove and reseal memory module. 3. See "Memory Problems" in Appendix F.
Num Lock LED on Keyboard	None	Failed Boot Block.	Reflash the ROM using a ROMPaq diskette.
Flashing Scroll Lock LED on Keyboard	2L, 1S	System board hardware failure (prior to video)	Replace system board.
Green Power LED Blinks Once per Second	None	Computer in normal Suspend mode.	None
Green Power LED ON	None	Computer on.	None
Invalid Electronic Serial Number	None	Electronic serial number has become corrupted.	Run Computer Setup (F10 Setup). If Setup already has data in the field or will not allow the serial number to be entered, download and run SP5572.EXE (SNZERO.EXE).

* L = Long, S = Short

continued

POST Error Messages *Continued*

Screen Message	Beeps*	Probable Cause	Recommended Action
Flashing Power and Hard Drive Green LEDs	None	Unseated riser board.	<ol style="list-style-type: none">1. Remove riser board.2. Wipe connector.3. Reinstall riser board.
Red Power LED Blinks Every 2 or More Seconds	None	Power supply overloaded.	<ol style="list-style-type: none">1. Push in power button. LED should be green.2. Remove all AC power from computer, wait 30 seconds, then apply power.3. Remove load from power supply by removing options one at a time until computer runs.4. Check for damage to system board.5. Replace system board.6. Replace power supply.
Red Power LED Blinks Every Second	None	System memory error.	<ol style="list-style-type: none">1. Check memory module.2. Remove and reseat memory module.3. See the "Solving Memory Problems" section of this guide.
Red power LED ON * L = Long, S = Short	None	Processor unseated.	Reseat processor in system board.

appendix **E**

DIAGNOSTIC INDICATOR LIGHTS

LED	Color	LED Activity	State/Message
Power	Green	On	Computer on
Power	Green	1 blink/second	Normal suspend mode
Power	Green	1 blink/second	Suspend to RAM
Power	None		Computer off
Power	Red	4 blinks/second	CPU thermal shutdown
Power	Red	On	CPU not installed/fetching code
Power	Red	1 blink/second	ROM error
Power	Red	1 blink/2 or more seconds	Power supply overloaded
Power and Hard Drive	Red	On	Riser board not seated
Num Lock	Green	Flashing	Memory error
Caps Lock	Green	Flashing	No video
Scroll Lock	Green	Flashing	System board failure, prior to video

appendix *F*

TROUBLESHOOTING WITHOUT DIAGNOSTICS

Preliminary Checklist

This section describes some simple, preliminary tests and guidelines for troubleshooting the computer without using the diagnostics.

If you encounter some minor problem with the computer or a software application, go through the following checklist for possible solutions before running any of the diagnostic utilities:

- Are the computer and monitor connected to a working electrical outlet?
- Is the computer 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 should be operating correctly.
- Check all cables for loose or incorrect connections.
- Reconfigure the computer after installing a non Plug and 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 from the diskette drives before you turn on the system.
- Are all switches set correctly?
- Is the NIC Remote Wakeup cable (featured on some models) connected between the NIC and the riser/system board?

Solving Minor Problems

Problem

Computer will not turn on.

Possible Solution

1. Ensure that the computer is properly connected to an external power source and the wall outlet is active.
2. A PCI or ISA card that has been installed is defective. Remove any expansion card that was just installed.
3. Reseat drive power, data, and power supply cables.

Computer appears locked up and won't turn off when the power button is pressed.

Software control of the power button may not be functional. Press and hold the button for four seconds, then release. This invokes the hardware override for the power button.

Computer date and time display is incorrect.

First, reset the date and time under Control Panel. If the problem persists, the real-time clock (RTC) battery may need to be replaced. Refer to the "Removal and Replacement Procedures" chapter in the product-specific MSG.

Computer powered off automatically.

1. The unit temperature was exceeded because the unit is in an exceedingly hot environment or the fan is blocked. Let the unit cool down.
2. The fan may not be functioning correctly or the air vents are blocked.
3. The unit temperature was exceeded because the computer was functioning with the cover or side panel removed. Replace cover or side panel, and let the computer cool down before turning power back on.

Computer appears to pause periodically.

Network driver is loaded and no network connection is established. Establish a network connection, or use Computer Setup or Windows Device Manager to disable the network controller.

Cannot remove computer cover or side panel.

1. Smart Lock, featured on some computers, is locked. Unlock the Smart Cover Lock using Computer Setup.
2. The Smart Cover FailSafe Key, a device for manually disabling the Smart Cover Lock, is available from Compaq. You'll need the FailSafe Key in cases of forgotten password, power loss, or computer malfunction.

Computer does not boot up and power and hard drive LEDs are blinking.

Ensure that the riser board is properly seated.

Computer does not boot up and Num Lock LED is blinking; you may hear one short and two long beeps.

Memory may be improperly installed or may be bad.

The Caps Lock LED is flashing; you may hear one long and two short beeps.

The video controller is not present or is incorrectly initialized. Clear configuration memory (CMOS). If a video board has been added, remove and reseat it.

Computer does not boot up and the Scroll Lock LED is flashing; you may hear two long and one short beeps.

System board hardware failure (prior to video). Replace system board.



If the standard keyboard has been replaced with a Universal Serial Bus (USB) keyboard, you will hear the beep sequences mentioned above but will not see the flashing lights.

Diskette Drive

Problem

Diskette drive light stays on.

Possible Solution

1. Diskette is damaged. In Windows 95 or 98, run ScanDisk. Click Start → Programs → Accessories → System Tools → ScanDisk.

In Windows NT, right click Start, click Explore, and select a drive. Select File → Properties → Tools. Under Error-checking, click Check Now.

2. Diskette is incorrectly inserted. Remove the diskette and reinsert.
3. Software program may be damaged. Check the program diskettes.
4. Drive button is not pushed in. Push in drive button.
5. Drive cable is not properly connected. Reconnect drive cable.

Diskette drive cannot write to a diskette.

1. Diskette is not formatted. Format the diskette.
2. Diskette is write-protected. Either use another diskette that is not write-protected or disable the write protection on the diskette.
3. Writing to the wrong drive. Check the drive letter in the path statement.
4. Not enough space is left on the diskette. Use another diskette.
5. Diskette write control is enabled. Check the Removable Media write settings in Computer Setup.

Cannot format diskette.

Invalid media reported. When formatting a diskette in DOS, you may need to specify diskette capacity. For example, to format a 1.44-MB diskette, type the following command at the DOS prompt:

```
FORMAT A:/F:1440
```

Diskette drive cannot read a diskette.

1. Diskette is not formatted. Format the diskette.
2. Using the wrong diskette type for the drive type. Check the drive type and use a compatible diskette.
3. Reading the wrong drive. Check the drive letter in the path statement.
4. Diskette drive has been disabled by Computer Setup, Windows NT, Windows 95, or Windows 98 utilities. Run Computer Setup and enable the diskette drive.

A problem has occurred with a disk transaction.

The directory structure is bad, or there is a problem with a file. In Windows 95 or 98, run ScanDisk. Click Start → Programs → Accessories → System Tools → ScanDisk.

In Windows NT, right click Start, click Explore, and select a drive. Select File → Properties → Tools. Under Error-checking, click Check Now.

Non-system disk message.

The system is trying to start from a nonsystem diskette. Remove the diskette from the drive.

Drive not found.

1. Reseat the diskette drive cable.
2. If a second diskette drive has been installed, follow the computer reconfiguration directions in the "Hardware Installation Problems" section.

System has misidentified the diskette drive type.

If a diskette drive other than a 3.5-inch, 1.44-MB drive has been installed, ensure that the drive type is identified correctly under Computer Setup.

Display

Problem

Screen is blank

Possible Solution

1. Monitor is not turned on and the monitor light is not on. Turn on the monitor and check that the monitor light is on.
2. Screen save has been initiated. Press any key or move the mouse to light the screen.
3. The cable connections are not correct. Check the cable connection from the monitor to the computer and to the electrical outlet.
4. The brightness need adjusting. Adjust the brightness control.
5. The energy saver feature has been enabled. Press any key or click the mouse button and, if one has been set, type the password.
7. The RGB (Red, Green, Blue) input switch on the back of the monitor is incorrectly set. Set the monitor's input switch to 75 ohms and, if there is a sync switch, set it to External.
8. System ROM is bad and system is running in FailSafe Boot Block mode (indicated by one long beep and three short beeps). Reflash the ROM using a ROMPaq diskette. Refer to "FailSafe Boot Block ROM" in section 3.4.1 of this book.
9. If a fixed-sync monitor is used, be sure that the monitor can accept the same sweep rate as the resolution chosen.
10. Ensure the VGA/BNC selector is properly set.

Graphics colors are wrong.

Either the cabling or the monitor impedance is incorrect.

1. Ensure that the Red, Green, and Blue BNC cables are connected to the corresponding monitor connectors.
2. Be sure the monitor's RGB inputs are set to 75 ohms.

Characters are dim.

1. Adjust the monitor's brightness and contrast controls.
2. Check that the video cable is securely connected to the graphics card and monitor.
3. Set the RGB switch (and sync options, if available) to 75 ohms, with the sync set to External. Refer to the documentation included with the monitor.

Monitor does not function properly when used with the energy saver features.

Monitor without the energy saver feature is being used with energy saver features enabled. Disable the monitor energy saver features.

Blurry display or requested resolution cannot be set.

If the graphics controller was upgraded, the correct display drivers may not be loaded. Install the correct display drivers on the diskette included in the upgrade kit.

The picture is broken up; it rolls, jitters, or blinks.

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, move the monitors apart to be sure they are not interfering with one other's magnetic field.
3. Fluorescent lights or fans may be too close to the monitor.

Screen goes blank.

A screen blanking utility may be installed or energy saver features may be enabled. Press any key or type password.

continued

Display Problems Continued

Problem

Possible Solution

Monitor overheats.

There is not enough ventilation space for proper airflow. Leave at least 3 inches (7.6 cm) of ventilation space. Be sure there is nothing on top of the monitor obstructing the air flow.

Cursor will not move using the arrow keys on the numeric keypad.

The Num Lock key is on. Press the key to turn it off. The Num Lock light should not be on when you want to use the arrow keys.

SCSI

Problem

Possible Solution

System with IDE and SCSI drives will not boot from SCSI hard drive.

The IDE drive needs to be disabled. Under the Computer Setup Advanced menu, disable the primary IDE controller.

System will not boot from a SCSI drive.

1. The SCSI drive is not configured correctly.
2. Ensure that drive cabling and jumpers are set correctly. To boot a SCSI drive, the drive ID number must be set to 0.

Printer

Problem

Possible Solution

Printer will not print.

1. Printer is not turned on and online. Turn the printer on and ensure it is online.
2. Run printer self-test.
3. Reseat both ends of the printer cable.
4. Verify that printer port is enabled in BIOS and in Windows using F10 Setup.
5. Try printing using the DOS command C:\>DIR>PRN. If printer works, problem is with the printer driver. Reload driver.
6. If the computer is on a network, you may not have made the connection to the printer. Make the proper network connections to the printer.

Printer will not turn on.

The cables may not be connected properly. Reconnect all cables and check the power cord and electrical outlet.

Prints garbled information.

1. The correct printer drivers for the application are not installed. Install the correct printer driver for the application.
2. The cables may not be connected properly. Reconnect all cables.

Printer is off line.

The printer may be out of paper. Check the paper tray and refill it if empty. Select online.

Hard Drive

This section identifies some quick checks for hard drive-related problems.

The information provided by the diagnostics tests includes: error code, system serial number, drive serial number, drive model, and drive firmware revision. Specific details of the drive failure are not included.

When you run the diagnostics, the test results are stored in a log. After completing the test, you can print this log to a local printer or save it to a file. Alternatively, before running the test, you can configure the test options to send the results to a local printer or file.

Solutions for some typical hard drive problems are presented in the following table:

Problem	Possible 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 95 and 98, run ScanDisk. Click Start → Programs → Accessories → System Tools → ScanDisk. In Windows NT, right click Start, click Explore, and select a drive. Select File → Properties → Tools. Under Error-checking, click Check Now.
Drive not found.	<ol style="list-style-type: none">1. Cable could be loose. Check cable connections.2. The system may not have automatically recognized a newly installed device. See reconfiguration directions in the “Hardware Installation Problems” section. If 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. Check drive jumper settings. If the drive is a secondary drive that has just been installed on the same controller as the primary drive, verify that the jumpers for both drives are set correctly.
Nonsystem disk message.	<ol style="list-style-type: none">1. The system is trying to start from a diskette that is not bootable. Remove the diskette from the diskette drive.2. The system is trying to start from the hard drive but the hard drive may have been damaged. Insert a bootable diskette into the diskette drive and restart the computer.3. Diskette boot has been disabled in Computer Setup. Run Computer Setup and enable diskette boot.
Second Ultra ATA hard drive does not perform optimally.	The cable is not compatible with the drive type. Reinstall the second Ultra ATA hard drive using an 80-conductor cable.

Hardware Installation

You may need to reconfigure the computer when you add or remove hardware, such as an additional diskette drive. If you install a Plug and Play device, Windows 95 and 98 automatically recognizes the device and configures 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 95 and 98, select the Add New Hardware icon in the Control Panel and follow the instructions that appear on the screen. To reconfigure the computer in Windows NT Workstation 4.0 after installing new hardware, use the utility provided with the hardware.

Problem

A new device is not automatically recognized as part of the computer system.

Possible Solutions

1. The computer needs to be reconfigured to recognize the new device. Follow the reconfiguration instructions above. If system still does not recognize the new device, but the device is listed within Computer Setup, use Computer Setup to address any resource conflicts.
2. 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.
3. A Plug and Play board may not automatically configure when added if the default configuration conflicts with other devices. Use Windows 95 or 98 Device Manager to deselect the automatic settings for the board and choose a basic configuration that doesn't cause a resource conflict. You can also use Computer Setup to reconfigure or disable devices to resolve the resource conflict.
4. The cables for the new external device are loose or the power cables are unplugged. Check all cables, and check that pins in the cable or connector are not bent down.
5. The power switch for the new external device is not turned on. Turn off the computer, turn on the external device, and then turn the computer on to integrate the new device with the computer.
6. If the drive is a secondary drive that has just been installed on the same controller as the primary drive, verify that the jumpers for both drives are set correctly.

DVD and CD-ROM

Problem

Cannot read compact disc.

Possible Solution

1. CD is not properly seated in the drive. Eject the CD, correctly seat it in the drive, then reload.
2. CD has been loaded upside down. Eject the CD, turn it over, then reload.

System will not boot from CD-ROM or DVD drive.

1. The CD-ROM or DVD boot is not enabled through the Computer Setup utility. Run the Computer Setup utility and set the drive priorities.
2. Ensure that drive cabling and jumpers are set correctly. To boot a SCSI drive, the drive ID number must be set to 0.

Cannot eject compact disc (tray-load unit).

CD is not properly seated in the drive. Turn off the computer and insert a thin metal rod into the emergency eject hole and push firmly (a straightened paper clip can be used). Slowly pull the tray out from the drive until the tray is fully extended, then remove the CD.

Cannot eject compact disc (slot-load unit).

1. Remove the drive from the chassis.
2. Remove the front bezel from the drive.
3. Remove the top and bottom drive covers.
4. Release the clamping mechanism to retrieve the CD.

CD-ROM or DVD device is not detected; driver is not loaded.

CD-ROM or DVD drive is not connected properly or not properly terminated. Open the computer and check the drive cable.

Movie will not play in the DVD drive

Movie may be regionalized for a different country. Refer to the documentation that came with the device.

Memory

Problem

System won't boot or does not function properly after installing additional memory modules

Out of Memory error.

Memory count during POST is wrong.

Insufficient memory error during operation.

Possible Solution

Memory module is not the correct type or speed grade for the system. Replace module with the correct industry-standard device for the computer.

1. Memory configuration may not be set up correctly; check memory configuration using Device Manager.
2. The computer has run out of memory for the application. Check the application documentation to determine the memory requirements.

Memory modules may not have been installed correctly or incorrect modules may have been used.

1. Too many Terminate and Stay Resident programs (TSRs) are installed. Delete any unnecessary TSRs.
2. There is not enough memory for the application. Check the memory requirements for the application or add more memory.

Network

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

Problem	Possible Solution
The Remote Wakeup feature is not functioning.	<ol style="list-style-type: none">1. The feature is not available when using an AUI network connection; use an RJ-45 network connection.2. Remote Wakeup is not enabled. Use the network control application to enable Remote Wakeup.
Network driver does not detect network controller.	Network controller is disabled. Run Computer Setup and enable network controller.
Network status link light does not turn on or flashes.	<ol style="list-style-type: none">1. No active network is detected. Check cabling and network equipment for proper connection.2. Network connection is not set up properly. Use the network control application to verify that the device is working properly.3. System is configured for AUI connection; link LED does not apply to AUI connections.4. Network driver is not properly loaded. Reinstall network drivers.5. System cannot autosense the network. Disable autosensing capabilities and force the system into the correct operating mode.
Diagnostics reports a failure.	<ol style="list-style-type: none">1. The cable is not securely connected or is attached incorrectly. 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.2. 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.3. The network controller is defective. Replace the controller or the system board.4. Network controller interrupt is shared with an expansion board. Under the Computer Setup Advanced menu, change the resource settings for the board.
Diagnostics passes, but the computer does not communicate with the network.	<ol style="list-style-type: none">1. Network drivers are not loaded, or driver parameters do not match current configuration. Make sure the network drivers are loaded and the driver parameters match the configuration of the network controller.2. The network controller is not configured for this computer. In Windows 95, 98, or Windows NT, select the Network icon at the Control Panel.3. Network controller interrupt with an expansion board. Under the Computer Setup Advanced menu, change the resource settings for the board.

continued

Network Problem Continued

Problem

Network controller stopped working when an expansion board was added to the computer.

Possible Solution

1. Network drivers are not loaded or driver parameters do not match the current configuration. Make sure that the drivers are loaded and that the driver parameters match the configuration of the network controller.
2. The cable is not securely connected or is attached incorrectly. 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.
3. Network controller interrupt is shared with an expansion board. Under the Computer Setup Advanced menu, change the resource settings for the board.
4. Network drivers were accidentally deleted when the drivers for the new expansion board were installed, or the files containing the network drivers are corrupted. Reinstall the network drivers, using backup diskettes.

Network controller stopped working without apparent cause.

1. The files containing the network drivers are corrupted. Reinstall the network drivers, using backup diskettes.
2. The cable is not securely connected or is attached incorrectly. 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.
3. The network controller is defective. Replace the network controller or system board.

Cannot connect to the network server when attempting Remote System Installation.

The network controller is not configured properly. Run Computer Setup and modify the Embedded NIC Settings.

Resolving Audio Hardware Conflicts

Hardware conflicts occur when two or more peripheral devices contend for the same signal lines or channels. Conflicts between the audio interface and another peripheral device may be due to the settings of the base I/O addresses, interrupts, or DMA channels. The audio interface typically has the following settings:

Item	Setting
Base I/O address	220H
FM Synthesizer I/O address	388-38Bh
Interrupt	IRQ 5
8-bit DMA	Channel 1

To resolve hardware conflicts:

1. Change the hardware settings of your audio card or the peripheral card in your system if the peripheral card is using the audio interface setting. You can change settings for integrated audio using Computer Setup.
2. If you are unsure of the settings of the peripheral cards, you can isolate the source of the problem by temporarily removing all cards and other essential cards such as the disk controller. After that, add the cards back one at a time until the card that is causing the conflict is found.

Problem	Possible Solution
Sound does not come out of the speaker.	Software volume control is turned down electronically, or CD-ROM volume control on the front or back of the computer is turned down. Double click on the speaker icon located on the taskbar, then set the volume by adjusting the volume slider.

Troubleshooting Using Compaq Intelligent Manageability Features

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

The Local Alert Pop-Up Dialog also tells you the steps you need to take prior to a hardware failure to avoid loss of data and damage to the computer. The system administrator can create a customized action message that might include contact telephone or pager numbers.

To close the Local Alert Pop-Up Dialog, click the Close button. To retrieve fault information after closing the dialog, run Compaq Insight Personal Edition.

For more detailed information, refer to the online *Intelligent Manageability Guide*.

appendix G

SYSTEM BOARD AND RISER BOARD REFERENCE DESIGNATORS

Designator	Component
E49	Clear Password header
E50	CMOS header
E51	Video pass through header
J6	BNC
J7	RJ-45 Jack
J8	IEEE 1394
J10 - 19	ISA slots
J20 -29	PCI slots
J30	Riser board
J31 - J35	Device bay connectors
J40	AGP
J50	First parallel port
J51	Second parallel port
J52	Double-stacked parallel port Top Port B Bottom Port A
J55	Double-stacked serial port Top Serial B Bottom Serial A
J66	Keyboard connector (Closest to monitor connector)
J67	Mouse connector
J68	Double-stacked mouse/keyboard connector Top Mouse Bottom Keyboard
J69	Video connector
J70	Single USB connector
J71	Double-stacked USB
J72	Microphone jack
J73	Line-in jack

continued

Reference Designators Continued

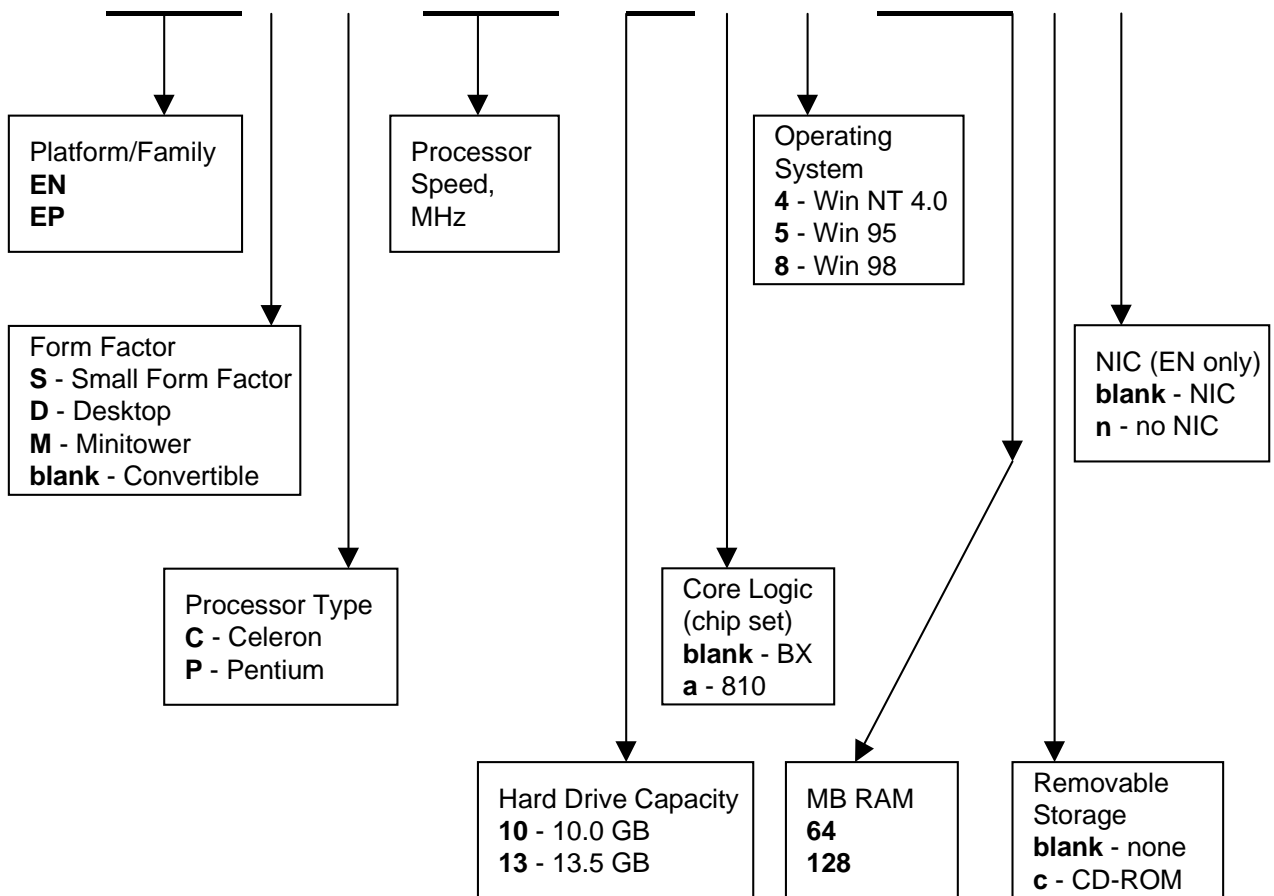
Designator	Component
J74	Line-out jack
J75	Headphone jack
J76	Volume control
J77	Double-stacked headphone/microphone connector Top Microphone Bottom Headphone
J78	Double-stacked line-in/line-out connector Top Line in Bottom Line out
P1	P/S connector
P2	Second P/S connector (as required)
P3	Third P/S connector (as required)
P5	Main Power HDD LED connector
P6	Speaker connector
P7	Audio connector (from CD-ROM
P8	Second fan connector
P9	WOL connector (NIC cable)
P10	Diskette drive connector
P11	Second Audio connector
P15	AUI connector
P20	Primary IDE connector
P21	Secondary IDE connector
P22	CD-ROM connector
P25 - P26	Video memory upgrade connector
P30	Primary SCSI connector
P31	Secondary SCSI connector
P53	First serial port
P54	Second serial port
P70	Processor fan header
P89	Floating Serial Port Connector
P100	ITP connector
SW50	Clear CMOS switch
XMM1	Memory slot. The first slot populated (DIMM1 or RIMM1) and tested.
XMM2 - XMM5	Following memory slots
XU1	Primary processor socket
XU2	Secondary processor socket
XU15	ROM socket

appendix **H**

MODEL NUMBER NAMING

The following is an example of the 21-character model number information.

END/P333/10a/5/128c/n



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