
HP Notebook PC

———— Reference Guide

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Introducing Your Computer

Taking Inventory

Your HP notebook PC is shipped with these items:

- battery
- AC adapter and power cord
- *Quick Start* sheet
- HP notebook PC *Startup Guide*
- *Recovery CD* (or CDs), used to restore Windows and all software included with your computer
- Microsoft Windows manual
- telephone cord (if your computer has a built-in modem)

In addition, your HP notebook includes preinstalled software. (The exact software installed depends on your particular notebook model.)

To buy accessories

You can buy accessories for your computer online. For the latest accessories and options, visit the HP Notebook web site (www.hp.com/notebooks). As new accessories become available, you'll find them listed here.

Here are some of the HP notebook accessories and replacement modules offered:

- auto/airline adapter
- AC adapter
- ultraslim AC adapter
- primary lithium ion battery
- PS/2 Y adapter for mouse and keyboard
- additional RAM (HP SDRAM)

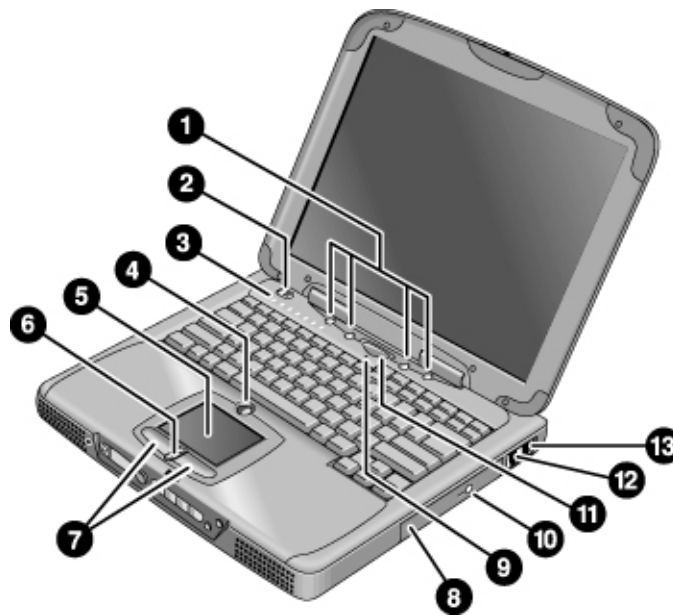
To find more information

Here are some sources of information about your HP notebook PC.

Source	Description
<i>Quick Start</i> sheet	This pictorial introduction shows you how to get the computer up and running quickly.
<i>Startup Guide</i>	The <i>Startup Guide</i> is the printed HP manual that came with your computer. It shows how to set up and operate your computer and where to go for help if you run into trouble.
HP Notes	This document contains late-breaking information available after the <i>Reference Guide</i> was completed. Double-click the HP Notes icon on the desktop (if available), or click Start, Help and Support, HP Library, HP Notes.
Introductory Microsoft manual for Windows	This manual contains information about using the standard features of Microsoft Windows.
Windows Help	Click Start, Help and Support.
HP notebook PC web site	www.hp.com/notebooks

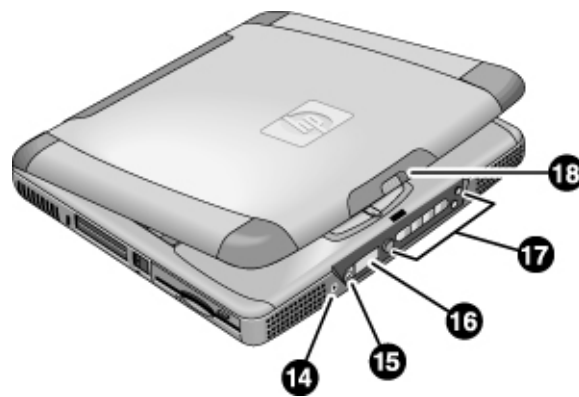
Identifying Parts of the Notebook

Top and right side view



- | | | | |
|---|--|----|--|
| 1 | One-Touch buttons | 8 | CD-ROM, CD-RW, DVD, or CD-RW/DVD drive |
| 2 | Power switch | 9 | Microphone |
| 3 | Status lights (see "Status lights" on page 18) | 10 | CD-ROM or DVD eject button |
| 4 | Pad Lock touch pad on/off button | 11 | Blue standby button |
| 5 | Touch pad (pointing device) | 12 | Modem port (on selected models) |
| 6 | Scroll up/down toggle | 13 | LAN port (on selected models) |
| 7 | Click buttons | | |

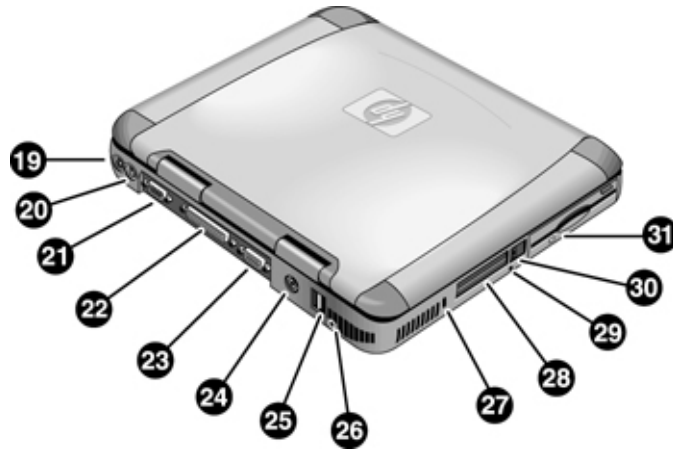
Front view



- 14 Headphone audio jack
- 15 Status panel mode select button **(on selected models)**
- 16 Status panel **(on selected models)**
- 17 Multimedia buttons **(on selected models)**
- 18 Latch (to open computer)

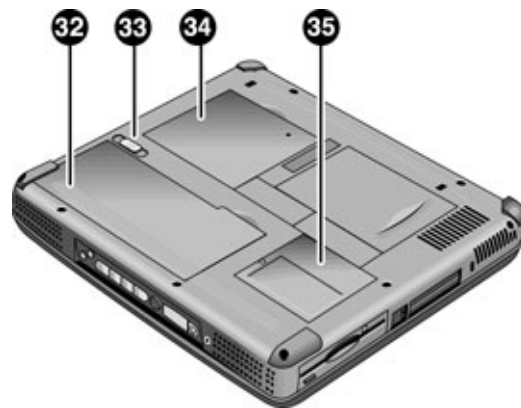
Introducing Your Computer
Identifying Parts of the Notebook

Rear and left side view



- | | | | |
|----|--|----|--|
| 19 | AC adapter (power) jack | 26 | Microphone jack |
| 20 | PS/2 port (external mouse or keyboard) | 27 | Kensington lock slot (security connector) |
| 21 | Serial port | 28 | PC card slots |
| 22 | Parallel port | 29 | System-off button (for resetting computer) |
| 23 | VGA port (external monitor) | 30 | PC card eject buttons |
| 24 | TV output port | 31 | Floppy disk drive |
| 25 | USB ports | | |

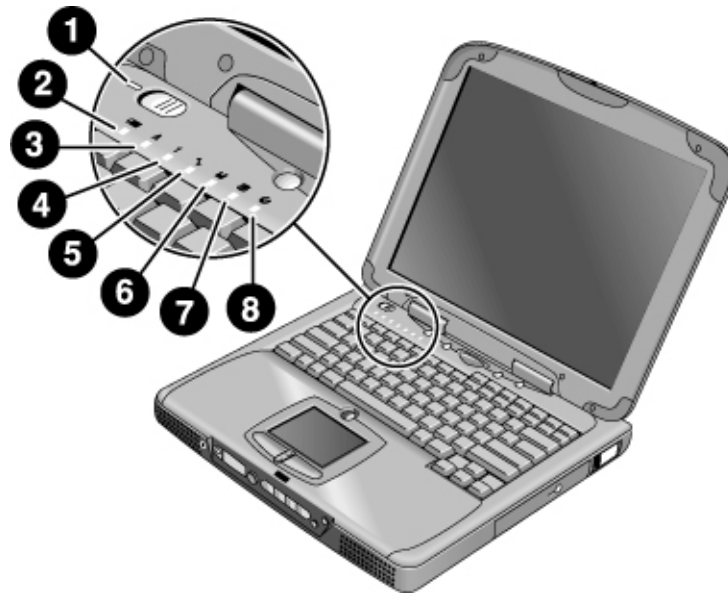
Bottom view



- 32 Battery
- 33 Battery latch
- 34 RAM expansion cover
- 35 Mini-PCI cover (no user parts inside)

Introducing Your Computer
Identifying Parts of the Notebook

Status lights



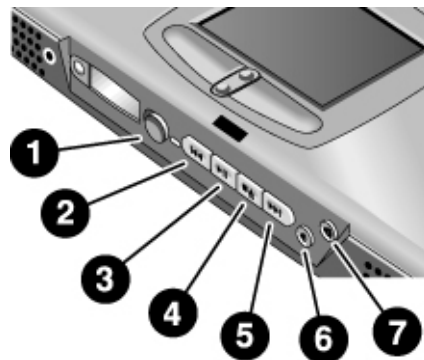
- 1 Power
- 2 Battery
- 3 Caps lock (capital letters)
- 4 Num lock (numeric keypad)
- 5 Scroll lock
- 6 Floppy disk drive access
- 7 Hard disk drive access
- 8 CD-ROM, CD-RW, DVD, or CD-RW/DVD drive access

Multimedia buttons

(Provided for selected models.) The multimedia buttons are on the front of the computer, to the right of the status display. They control the computer's CD, DVD, or MP3 player in the same way that the controls of a standalone multimedia player control its functions.

The buttons also work if the system is turned on, though in that case you don't need to use the multimedia power switch to turn on the player. When the computer is on, the volume control buttons also govern the volume for most other audio applications.

If the system is turned off (or in standby or hibernate mode), you can still use the player for audio CD playback. Slide the multimedia power switch to the left to activate the player without turning on the computer.



- 1 Multimedia power (use only when system is turned off or in standby or hibernate mode)
- 2 Previous track
- 3 Play/pause
- 4 Stop (when computer is on)*
Stop/eject (when computer is off)
- 5 Next track
- 6 Volume control down
- 7 Volume control up

*You can eject a CD or DVD by pressing the eject button on the CD/DVD drive.

Status panel

(Provided for selected models.) The status panel on the front of the computer provides information about CD playback status, system power management, system date and time, and battery status. Messages are displayed on the 8-character LCD display, and you can switch from one kind of message to another by pressing the mode button to the left of the display.

When the computer is on, these modes are displayed sequentially as you press the mode button:

- power status: on, off, standby (STBY), or hibernate (ZZZZ)
- date
- time
- battery charging status: percentage charged
- CD player status (if CD player is running): shows the track number, play status (playing, paused, or stopped), and time counter

When the computer is off and the CD player is off, you can view the status panel by sliding the multimedia power switch to the left to turn it on. Remember to turn it off when you are through checking the status panel.

If you change the Windows time or date (from Control Panel or the taskbar), the change displays on the status panel only after you shut down and restart the computer. Click Start, Turn Off Computer, Turn Off; and after the power is off, press the blue standby button to restart.

If you want to change the format displayed for date or time in the status panel, change it in the BIOS; see “Using the BIOS Setup Utility” on page 74.

Power switch and standby button

There are two controls above the keyboard that affect power in the HP notebook PC. The switch at the top left turns computer power on and off, and the large blue button in the top center—called the standby button—puts the system in standby mode or returns it to normal operation.

To use the power switch

To turn the computer on, slide the power switch to the left and release it. If the computer is plugged into AC power or contains a charged battery, the system turns on and Windows starts automatically.

To turn the computer off, click Start, Turn Off Computer, Turn Off. Windows then shuts down, and the computer automatically turns off. If for some reason you cannot turn the computer off using the Start menu, you can turn it off using the power switch.

To use the standby button

You can use the blue standby button to save the current state of your computer and then to return quickly to the same state when you are ready to resume work.

To put the computer in standby mode, press the blue standby button located above the center of the keyboard. Pressing the standby button turns off the display and the hard disk drive, and saves your current session to RAM. (Standby can also occur automatically when the timeout setting is reached—see “To use automated power management” on page 50.)

To return the computer to normal operation from standby mode, press the standby button again. The display and the hard disk drive then turn on, and the session you were working on earlier is restored.

Hint

If your notebook does not turn on when operating on battery power, the battery may not be sufficiently charged. Plug in the AC adapter, then press the standby button. Keep the adapter plugged in until your battery is charged again. (See “To check the battery status” on page 54.)

Setting Up the Computer

To install the battery

Your computer is shipped with the battery installed. If the battery has been removed, you can install it by inserting it into the battery bay on the bottom of your computer. Insert the back edge first, as shown, then press down the front edge until the battery latch clicks shut.



Once you have installed the battery, connect the AC adapter to the computer and recharge the battery while you work. You can also replace a low battery with a charged one.

WARNING

Do not mutilate, puncture, or dispose of batteries in fire. A battery can burst or explode, releasing hazardous chemicals. A rechargeable battery must be recycled or disposed of properly.

To connect AC power

Plug in the AC adapter, then connect the AC adapter to the rear of the computer. The battery starts charging.



CAUTION

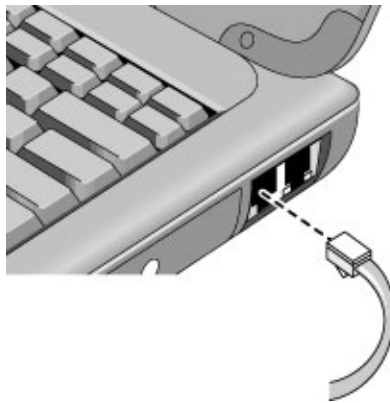
Use only an HP AC adapter intended for this product, either the adapter that came with the computer or another authorized HP adapter. Using an unauthorized AC adapter can damage the computer and may void your warranty. Refer to the warranty statement for your product.

Introducing Your Computer
Setting Up the Computer

To connect a phone line

Selected models of the HP notebook PC include a built-in modem. If you prefer, you can instead use a PC card modem or an external modem to connect a phone line.

1. Plug one end of the phone line into the modem phone jack on the computer. Be sure it clicks into place.



2. Plug the other end of the phone line into a telephone jack. (If the phone line does not fit your telephone jack, you may need to use an adapter.)

CAUTION

Your built-in modem may not work with multiple phone lines or a private branch exchange (PBX). It cannot be connected to a coin-operated telephone, and it does not work with party lines. Some of these connections may result in excess electrical voltage and could cause a malfunction in the internal modem. Check your telephone line type prior to connecting your phone line.

To turn on the computer

Press the blue standby button located above the center of the keyboard. Windows starts automatically. If you are turning on the computer for the first time, go to “To set up Windows,” below.

The power status light next to the power switch (see “Status lights” on page 18) reports the following:

- steady green light: computer is on
- steady amber light: computer is in system standby mode
- no light: computer is off or in hibernate mode

See “Managing Power Consumption” on page 50 for additional information about turning off your computer.

Hint

If your computer does not turn on when operating on battery power, the battery may be out of power. Plug in the AC adapter and press the standby button again.

To set up Windows

Your HP notebook has Microsoft Windows XP preinstalled on the hard disk drive. The first time you turn on your computer, a Windows Setup program will automatically run so that you can customize your setup.

Before you begin, connect the AC adapter to your notebook, since your battery may not be sufficiently charged to complete the Windows setup. Also, be sure to connect the notebook to a phone line; see “To connect a phone line” on page 24.

1. Press the blue standby button. The Windows Setup program starts automatically.
2. Follow the instructions as they appear on the screen.

During setup, you are prompted to enter a user name and accept the License Agreement.

You can also register your computer at this time. Follow the instructions on the screen during setup.

Introducing Your Computer

Setting Up the Computer

3. If your computer has a modem, check the modem's country or region settings: click Start, Control Panel, Printers and Other Hardware, Phone and Modem Options, then click Edit on the Dialing Rules tab.

Note

You may be required to enter your Windows ID number. To locate it, look on the Certificate of Authenticity packaged with the Microsoft Windows manual or look for a sticker in the battery compartment.

If you have any connection problems with your modem, try redialing. If that doesn't work, you can skip registration for now.

If you're not familiar with Windows XP, click Start, Tour Windows XP, or check the Windows manual to discover what's new.

To register your computer

Be sure to register your computer. Registering is free and fast, and it ensures you will receive quicker, more personalized support. The information you provide during registration will be used to provide you with better products and services.

You can register while setting up Windows, or later in any of three ways: by modem, by phone, or by fax. For some countries and models, an HP notebook registration icon is available on the desktop.

By modem

To register by modem, see that the phone is connected, then follow the onscreen instructions.

If you choose not to register right away, you can register by modem later by double-clicking the Registration icon on the desktop (if available). This icon disappears after you register.

Note

If you encounter a busy signal while attempting to register by modem, the registration client may suspend with an hourglass icon. Click the Back button and dial-out again.

If your computer does not have a built-in modem, you can register after you set up a PC card modem or an external modem—or you can register by phone or fax.

By phone

You can call your HP Customer Care Center and register by phone. Check “To call HP for service and support” on page 83 for the phone number.

By fax

If a printer is connected to your computer, you can print a registration form and fax it to HP. Double-click the HP Notebook Registration icon on the desktop (if available), and print the registration form. You will find the fax number on the registration form.

By completing registration, you will:

- Record your ownership of the computer with Hewlett-Packard and gain access to service, support, and information.
- Record your ownership of the Windows operating system with Microsoft.

To connect to an Internet Service Provider

Before you can connect to the Internet, you need to set up an account with an Internet Service Provider (ISP). In some countries, Hewlett-Packard provides easy Internet signup so that you can connect quickly to an ISP.

1. Connect the included telephone cord to your built-in modem. (If your computer does not have a built-in modem, you can instead use a PC card modem or an external modem.)
2. Click Start, All Programs, Easy Internet Signup, and select one of the listed ISPs. This begins the registration process for the ISP you have chosen.

OR

If available, double-click the desktop icon labeled “Connect to the Internet” or “Easy Internet Signup.” This will launch the New Connection wizard, which will help you locate an ISP in your area.

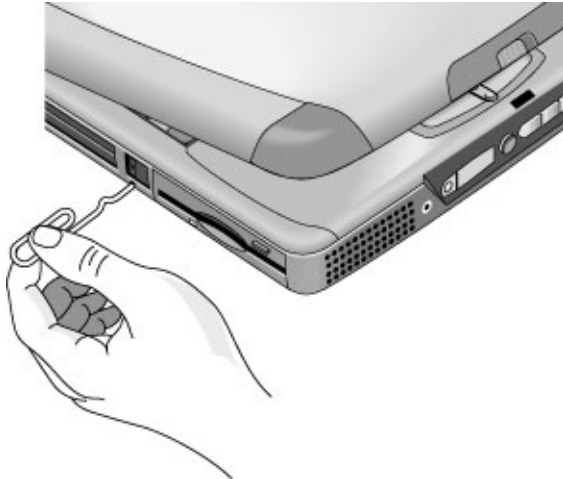
If AOL is your ISP, click Start, Control Panel, Network and Internet Connections, Internet Options. Select the Connections tab, then select either “Dial whenever a network connection is not present” or “Always dial my default connection.”

You can also make arrangements with an ISP of your choice for Internet connection.

To reset your computer

If Windows or your computer stops responding, you can reset the computer and restart Windows.

1. If possible, shut down Windows: click Start, Turn Off Computer, Turn Off.
–or, if this fails–
Press CTRL+ALT+DEL, then click Shut Down.
2. If the computer does not shut down, slide and hold the power switch for five seconds, then release it.
3. If the computer still does not shut down, insert a pin or straightened paper clip into the recess on the left side of the computer, underneath the PC card eject buttons.



4. After the computer shuts down, press the blue standby button to turn the computer on again.

Using Your Computer

Operating the Computer

To use the Fn hot keys



The combination of the Fn key plus another key creates a *hot key*—a shortcut key sequence—for various system controls. Press *and hold* Fn while pressing the appropriate key.

Hot key	Does this
Fn+F1	Decreases the display's brightness (TFT screens only)
Fn+F2	Increases the display's brightness (TFT screens only)
Fn+F3	Decreases the display's brightness (HPA screens only)
Fn+F4	Increases the display's brightness (HPA screens only)
Fn+F5	Switches among the built-in display, an external display, and simultaneous displays
Fn+F7	Toggles the sound on and off (mutes sound)
Fn+F8	Toggles the embedded numeric keypad on and off (see "To use the embedded keypad" on page 31)
Fn+Lock key*	Toggles Scroll Lock on and off (except on external keyboard)
Fn+Up arrow	Increases sound volume (except on external keyboard)
Fn+Down arrow	Decreases sound volume (except on external keyboard)

*The Lock key is in the top row of the keyboard:



To use the Windows and Applications keys



The Windows key brings up the Windows Start menu. This is the same as clicking the Start button on the taskbar.




The Applications key brings up the shortcut menu for the current application. This is the same menu that appears when you click the right mouse button while pointing at the application.

Windows key combinations

Key combination	Does this
Windows key+BREAK	Displays System Properties dialog box
Windows key+E	Opens My Computer
Windows key+F1	Runs Windows Help
Windows key+F	Runs Windows Search
Windows key+M	Minimizes all displayed windows
Shift+Windows key+M	Returns all minimized windows to original size
Windows key+R	Starts the Windows Run dialog box
Windows key+U	Opens Utility Manager

To use the embedded keypad

After pressing Fn+F8 to activate the numeric keypad, you must press the Lock key  (in the top row of the keyboard) to turn number lock on or off.

When number lock is on:

- Keys change to the numeric or arithmetic designations printed on the right side of the keys in the numeric keypad area.
- The Num Lock status indicator is lit.
- To turn off the embedded keypad, press Fn+F8 again.

To use the ALT GR key

Non-U.S. keyboards have an ALT GR key to the right of the spacebar. This is a shift key providing access to certain keyboard characters.

- For a character in the lower-right corner of a key, press and hold ALT GR to type the character.



1. Shifted.
2. Unshifted.
3. ALT GR.

To adjust the display

Changing the brightness

For TFT screens:

- To decrease the brightness, press Fn+F1.
- To increase the brightness, press Fn+F2.

For HPA screens:

- To decrease the brightness, press Fn+F3.
- To increase the brightness, press Fn+F4.

For all screens:

- Click Start, All Programs, Hewlett-Packard, Notebook, HP Display Settings, HP Display Settings. You have the option of adding a display settings icon in the taskbar for quick access.

When you are using battery power, the display dims automatically to conserve power. You can use the brightness controls to override this adjustment.

Hint

To maximize your battery operating time, set the brightness to the lowest level you can view comfortably.

Changing display settings

You can customize a number of display settings for your computer, such as color depth and screen area.

1. Click Start, Control Panel, Appearance and Themes, Display.
2. Click the Settings tab, then make the settings you want.

The computer has an LCD display, which behaves differently from a normal computer monitor. If you change the display resolution, the desktop changes size, but the objects on it do not. You normally won't change the resolution except to use an external monitor.

Changing icon and label sizes

To enlarge icons and labels on your screen when using a high-resolution display, use HP Desktop Zoom.

- Click Start, All Programs, Hewlett-Packard, Notebook, HP Desktop Zoom, HP Desktop Zoom. If this program is not installed on your computer, you can download it from the HP Customer Care Web site (www.hp.com/go/support).

To adjust the volume

From the keyboard

- To increase the volume, press Fn+Up arrow.
- To decrease the volume, press Fn+Down arrow.
- To temporarily silence the speaker without changing the volume setting, press Fn+F7. Press Fn+F7 again to restore the speaker output.

In Windows

1. Click the speaker symbol in the taskbar (if not present, see Windows Help).
2. Drag the volume control bar up or down to adjust the volume.
3. To temporarily silence the speaker without changing the volume setting, click Mute.

Using Your Computer

Operating the Computer

With the multimedia buttons

If your computer has multimedia buttons, you can use the volume control buttons to adjust volume for most audio applications when the computer is on. When the computer is off, you can use these buttons to adjust the volume for CDs.

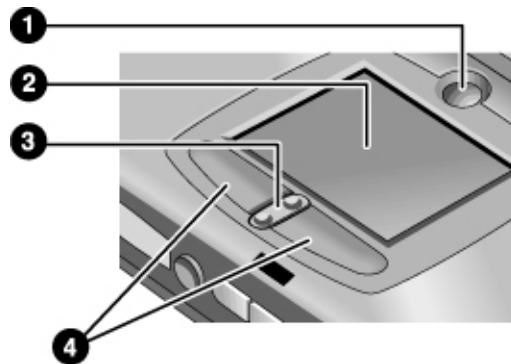
- To increase the volume, press the volume control up button.
- To decrease the volume, press the volume control down button.

From within an application

Many audio applications contain volume controls within the software; consult Help in an application to use such controls. In some cases, the application responds only to those controls.

To use the touch pad

The touch pad, a touch-sensitive pointing device that controls the motion and speed of the pointer on the screen, is built into your computer.



- 1 Pad Lock (touch pad on/off button)
- 2 Touch pad (pointing device)
- 3 Scroll up/down toggle
- 4 Click buttons

- Move a thumb or finger across the touch pad in the direction you want the pointer to move.
- Use the click buttons, which function like the left and right buttons on a mouse, to make your selection. You can also tap on the touch pad instead of clicking a button.

- To open an application, move the pointer over the icon, then press the left click button twice rapidly (double-click). You can instead tap twice on the touch pad.
- To make a menu selection, move the pointer to the item and click the left click button once.
- To open the shortcut menu for an item, move the pointer over the item and click the right click button.
- To drag an item, move the pointer over the item. Press and hold the left click button while you move the pointer to the new location. Release the button.
- To scroll up and down, press the top or bottom of the center toggle below the touch pad.
- To disable the touch pad, press the Pad Lock button (the amber touch pad indicator turns off). To reenable it, press the Pad Lock button again (the touch pad indicator lights). You may wish to disable the touch pad, for example, when you are entering text and do not want to move the cursor accidentally. Avoid contact with the touch pad itself at the same time you are pressing the Pad Lock button (to disable or to reenable); simultaneous contact will not allow the Pad Lock button to work properly.

To customize the operation of the touch pad (and an external PS/2 or serial mouse, if installed), double-click the Synaptics Touch Pad icon (or open Mouse in Control Panel) to access Mouse Properties; you will find the icon in the taskbar, toward the lower right corner of your screen. Select the tab corresponding to the characteristics you want to configure, including:

- button configuration for right-handed or left-handed operation (Button tab for mouse, Button Actions tab for touch pad)
- double-click speed, pointer speed, and pointer trail
- click sensitivity

Note

The touch pad is by default inactive when an external mouse is installed. You can enable both touch pad and an external pointing device by changing the BIOS setting. See “Using the BIOS Setup Utility” on page 74.

To use the One-Touch buttons

The One-Touch buttons on your HP notebook allow you to start your e-mail or a Web browser—or any other application—by pressing a single button. The buttons are configured initially for specific applications, but you can change the configuration to start any applications you want.

When you press a One-Touch button, the name of the application that's starting appears onscreen. You can modify the appearance of the name by selecting the color, size, and style you prefer.

To configure a One-Touch button

1. Click Start, Control Panel, Printers and Other Hardware, Keyboard.
2. Select the One-Touch buttons tab.
3. Click on the button of the key you want to reconfigure.
4. In the Button Label field, type the name of the application you want to start with this button. This name will appear onscreen when you press the button.
5. From the list of preinstalled applications, select the application to be associated with the button.

OR

If the desired application is not on the list, select "Select a file on your computer" and click the Browse button to choose any file on your notebook.

OR

If you want to attach a Web page to the button, select "Type in a Web site address" and then select a Favorites page or type the URL of the page you want.

6. If you want the computer to start automatically (and then start this application—or find this web site), select "Enable system wake-up for this button."
7. Click OK, then OK again to close the Keyboard properties window.

To format display of application names

When you press a One-Touch button on your HP notebook, the name of the application that is starting appears onscreen. You can change the size, color, and font of the display, as well as the length of time it appears. (These settings also affect the display of multimedia messages when you play an audio CD or a movie DVD with the optional multimedia buttons on the front of the unit.)

To format the display

1. Click Start, Control Panel, Printers and Other Hardware, Keyboard.
2. Select the One-Touch buttons tab.
3. Click Change Onscreen Display.
4. Follow the instructions below for specific formatting actions.

To change the font of the display

1. Select Change Font.
2. Choose the desired typeface and style.
3. Click OK, then Done, then OK.

To change the color of the display

1. Select Change Color.
2. Click on the desired color swatch.
3. Click OK, then Done, then OK.

To enable or disable Onscreen Display

1. Check Enable to enable onscreen display. (Or uncheck Enable to disable.)
2. Click Done, then OK.

To change the size of the display

1. Click the Size arrow.
2. Select the desired size.
3. Click Preview to see a sample message displayed in that size.
4. Click Done, then OK.

To change how long the display appears

1. Click a Timeout arrow repeatedly to choose a number from 1 to 10 seconds.
2. Click Preview to see a sample message displayed for that time.
3. Click Done, then OK.

To insert or remove a CD or DVD

CAUTION

Do not insert or remove a CD while the computer is reading it. Otherwise, the computer could stop responding and you could lose data.

1. Press the button on the face of the CD-ROM or DVD drive. If you are using this drive for the first time, be sure to remove any packing material that may be present.
2. Place the CD into the drive (label facing up) *and gently press down to seat it on the spindle, making sure that the CD snaps onto the spindle.*

OR

Remove the CD.

3. Slide the tray back into the module to close it.

Note

If your computer loses power, you can manually open the drive to remove a CD by inserting a straightened paper clip into the recessed hole on the front of the drive.

To play DVDs

If your computer came with a DVD drive, the software needed to play DVD movies has been preinstalled on your computer. Click Start, All Programs, Multimedia, DVD Player, Intervideo WinDVD.

If you need to install the DVD player software, click Start, Run, type C:\HP\PROGRAMS\DVD\SETUP.EXE, and press Enter.

If the DVD software is installed, you can also use Windows Media Player to play DVD movies.

Important

DVDs have regional codes embedded in the disc data. These codes prevent DVD movies from being played outside the region of the world in which they are sold.

Most DVD drives let you change the region code only a limited number of times (usually no more than four). Please note that when you reach this limit, your last change to the region code will be hard-coded on the DVD drive, and will be permanent. Refer to the help for your DVD player software for details.

Note

The DVD player in your notebook PC performs to high and advanced specifications. It would *not* benefit from the installation of a software program called “PC Friendly” that is included with many DVD titles. We recommend against installing PC Friendly on your notebook PC. In fact, PC Friendly can cause your DVD player to perform erratically and produce errors. If this should happen, uninstall PC Friendly, restart, and try playing your DVD again.

To create or copy CDs

If your computer came with a CD-RW drive, it also includes software that lets you copy or create CDs. Click Start, All Programs, Multimedia, CD Writer—if Veritas RecordNow is not listed, do the following.

- Run Setup on the software CD to install the CD-RW software.

Refer to the software’s help for details about creating or copying CDs.

You can also use Windows Media Player to create audio CDs, and Windows Explorer to create data CDs using a CD-RW drive.

Note

For best results use HP certified media. While other media may work well, HP cannot guarantee compatibility.

The computer’s drive does not support 12X media (it automatically switches to a lower recordable speed). Re-writable media C7981A 12X HP CD-RW is not compatible with this drive.

For further questions, please call the HP Customer Care Center for your region—see “To call HP for service and support” on page 83.

Securing the Computer

It is important to maintain security of the computer and of your data. You can improve security by—among other methods—using a password, locking the computer with a cable, or setting up virus protection.

To set up password protection

You can protect your computer from access by another user when you set up password protection, which is available either through Windows (software) or through the BIOS Setup utility (hardware). Both methods provide protection when the computer is restarted: a user must then enter the password. However, the BIOS password protection does not ask for a password when your computer resumes after standby (suspend) or hibernate, while Windows does provide that security.

To set up hardware password protection, see “Using the BIOS Setup Utility” on page 74.

To set up password protection

1. Click Start, Control Panel, User Accounts, then select your account.
2. Click Create a Password.
3. Enter your new password twice.
4. Enter a word or phrase to use as a reminder in case you forget your password.
5. Click Create Password.

If your account type is Computer Administrator, you will also be asked whether to make your files and folders private. See Windows Help for details.

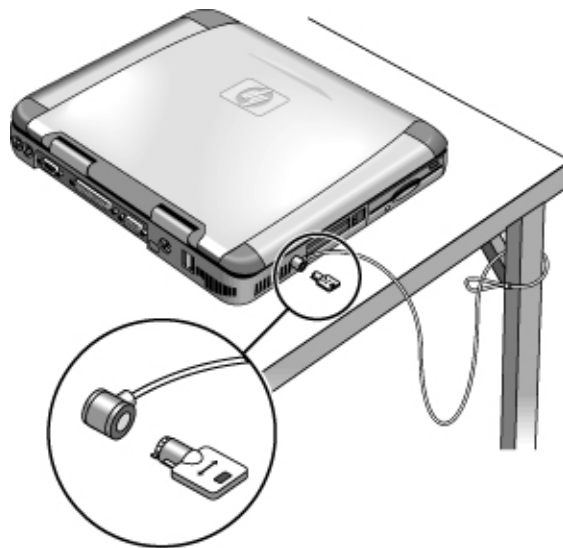
To activate password protection when resuming

1. Check that you have set up a Windows password, as described above.
2. Click Start, Control Panel, Performance and Maintenance, Power Options.
3. Select the Advanced tab.
4. Check "Prompt for password when computer resumes from standby."
5. Click OK.

To attach a security cable

Your computer has a built-in connector that allows you to secure the computer with a cable. The Kensington MicroSaver lock system works with this connector and is available at many computer stores.

1. Wrap the cable around a stationary object, such as a table leg.



2. Loop the cable to create a slipknot around the stationary object—make sure it can't slip off.
3. Insert the lock into the computer's security connector and release the key. Store the key in a safe place away from the computer.

To use virus-protection software

Virus-protection software can help protect the integrity of your data. This is especially important when you are connected to the Internet.

Your computer includes Norton AntiVirus software. To use the software, do the following:

- Click Start, All Programs, Norton AntiVirus, Norton AntiVirus.

Once installed, you can get detailed instructions from the software's online Help.

Working in Comfort with a Notebook PC

You can use your HP notebook computer virtually anywhere, anytime. The following recommendations should help you work more comfortably.

Note that if you are using your portable computer as your primary computer, or using it for extended periods, you should use it with a full-size keyboard, monitor, and mouse. This will give your portable computer the adjustability and comfort features of a desktop unit. HP docking accessories offer quick, easy connections to these devices. More information on how to prepare your workspace environment and set up your HP equipment is available in *Working in Comfort*, which is preloaded on the hard disk in the HP Library (click Start, Help and Support, HP Library) and available on the *Recovery CD* in \hp\library—as well as at www.hp.com/ergo.

WARNING

Improper use of keyboards and other input devices has been associated with ergonomic injury. For more information about reducing your risk, visit our ergonomics web site or see *Working in Comfort* in the online HP Library.

Your mobile work environment

- Use a chair that provides good support for your lower back. If an adjustable chair is not available, you can use a pillow or rolled-up towel to provide lower back support.
- Try to keep your thighs parallel to the floor and your feet flat on the floor. In a mobile environment, you can do this by using a phone book or briefcase to support your feet.
- Adjust the height of either your work surface or chair to keep your arms in a neutral position. Your arms should be relaxed and loose, elbows at your sides, with the forearms and hands parallel with the floor.
- Position your notebook computer display to minimize glare and reflection. For example, on an airplane, lower the window shade; or in a hotel room, draw the curtains. You also should maintain a comfortable viewing distance—approximately 40 to 60 cm (16 to 24 inches). Adjust the angle of your display to help keep your head angled slightly downward in a comfortable position.

Using Your Computer
Working in Comfort with a Notebook PC

Using your mobile computer

- Position the computer so your wrists and hands are in a neutral position. Your wrists should be as straight as possible and should not have to bend sideways or more than 10 degrees up or down. Your HP notebook computer has a built-in palm rest, which is ideal for this purpose.
- Try to type as lightly as possible. The notebook keyboard requires little force to activate.
- Take frequent, short rest breaks—this is especially important in a mobile computing environment.
- Portable computers weigh between approximately 1.5 and 4 kilograms (approximately 3 to 8 pounds). When traveling, be sure to carry your computer properly to minimize strain on your body. Shift the bag containing your notebook equipment frequently between your left and right hands and shoulders.

Caring for Your Computer

Here are some recommendations for maintaining your computer during everyday use, as well as preventing potential physical damage or data loss.

To protect your hard disk drive

Hard disk drives, like other internal components, are not indestructible and can be damaged by inappropriate handling and operation.

- Avoid bumps or jolts.
- Do not operate the computer while traveling over bumpy terrain.
- Put the computer into standby or hibernate mode, or shut it down before transporting it. This turns off the hard drive. A drop of a few inches onto a rigid surface while the hard drive is operating could cause loss of data or damage to the drive.
- Carry the computer in a padded case to protect against bumps and jolts.
- Set the computer down gently.
- When the computer has been in a very cold or very hot environment, do not start it again until it has returned to a more moderate temperature.

To take care of your computer

- Provide adequate ventilation around the computer. Ensure that the notebook is sitting on a flat surface, so that air is able to flow underneath the unit. See that there is adequate clearance to the rear and sides of the computer, so that fan vents are not blocked.
- Be sure to shut down the computer, or put it into hibernate or standby mode before putting it in a carrying case or other enclosed space.
- Do not pick up or carry the computer by the display.
- Do not use the computer outside in the rain or snow (or other inclement weather) or in any extremes of temperature or humidity.

To safeguard your data

- Do not touch the touch pad or activate any other device that interrupts operation while the system is starting or stopping.
- Back up your work regularly. Copy files to floppy disk, tape, or network drives.
- Use a virus-scanning program, such as Norton AntiVirus, to check the integrity of your files and operating system. Since new viruses appear frequently, you will also want to update the program's virus definitions from time to time. Updates for Norton AntiVirus are on the Web at www.symantec.com. If you are using another application, see the application's help for updating information.
- Check your disk for errors periodically: click Start, My Computer, and select the disk you want to scan. Click File, Properties, then select the Tools tab and click Check Now.

To extend the life of the display

Observe the following guidelines to extend the life of the backlight in the computer display.

- When working at your desk, connect an external monitor and turn off the internal display (Fn+F5).
- If you are not using an external monitor, set the Turn off monitor timeouts (for both AC and battery operation) to the shortest comfortable interval: click Start, Control Panel, Performance and Maintenance, Power Options, and use the Power Schemes tab.
- Set the brightness control to the minimum level for your comfort.

To get the most from your batteries

- Do not leave batteries unused for long periods of time. If you have more than one, rotate them.
- If you normally use AC power, make a practice of using the battery as your power source at least once a week.
- Unplug the AC adapter when the computer is not in use.
- To lengthen the life of a battery, be sure to charge the battery regularly.
- For long-term storage, the battery must be charged at 20–50% to minimize capacity loss by self-discharge and to avoid deterioration of battery performance.
- To maintain maximum battery capacity and accuracy of the battery gauge, perform this procedure about once a month:
 1. Charge the battery to 100%.
 2. Disconnect the AC adapter, and use the computer until the battery is fully discharged and the computer goes into hibernation.
 3. Connect the AC adapter and charge the battery to 100% with no power interruptions.

To clean your computer

You can clean the computer with a soft cloth dampened either with clean water or with water containing a mild detergent.

- Do not use an excessively wet cloth or allow water inside the case.
- Do not use any abrasive cleaners, especially on the display. Do not apply any cleaner directly to the display. Instead, apply the cleaner to a soft cloth and then gently wipe the display.
- You can clean the keyboard with a vacuum cleaner to remove accumulated dust.

Traveling with Your Computer

Managing Power Consumption

When you are not using your computer, you will want to maximize battery operating time without compromising performance. It is not necessary to turn the computer off in order to reduce power consumption and extend battery life.

Windows uses Advanced Configuration and Power Interface (ACPI) to provide manual and automated tools for reducing power consumption.

- You can set power management options to occur automatically, based on timeout values entered.
- You can also invoke power management options manually at any time by pressing the appropriate key. See “To use manual power management,” below.

To use automated power management

System hibernation, standby, monitor, and hard disk timeouts automatically occur based on the values set under Power Options in Control Panel. The following tables describe the power management timeouts you can set in Windows.

System hibernation

Action	Saves current session to disk, then shuts down. Provides maximum power savings while still allowing you to recover the current session.
When	After being in standby for the specified interval. -OR- Critically low battery.
Resume	Press the blue standby button to recover your current session. This may take several minutes.

When battery power reaches a critically low level, see “To respond to a low-battery warning” on page 55.

Note

When the system hibernates as a result of a critically low battery, you will find when resuming that all your data has been saved but that some functions may be disabled. To resume normal operation, restore power (by connecting AC power or installing a charged battery), perform a full shutdown, and then restart the computer.

Turn off monitor

Action	Turns off the display. This conserves battery power and extends the life of the display.
When	No activity of the keyboard or mouse for the specified interval.
Resume	Press any key or move the pointer to return to your current session.

Turn off hard disks

Action	Turns off only the hard disk drive. This is usually set to occur shortly after the monitor is turned off.
When	No hard disk access for the specified interval.
Resume	Press any key or move the pointer to return to your current session.

System standby

Action	Turns off the display and hard disk drive to conserve battery power.
When	No activity of the keyboard or mouse, no disk drive access, and no port (serial, parallel, or IR) activity for the specified interval.
Resume	Press the blue standby button to return to your current session.

CAUTION

Make a habit of saving your work before allowing your computer to go to system standby. If there is an interruption in power while the computer is in standby, information that has not been saved will be lost.

You can also create power schemes that will automatically shut down the computer components (not the computer itself) after a specified period of nonuse. Define these schemes so that they best support the ways you use your computer.

Traveling with Your Computer Managing Power Consumption

To set power management properties

1. Click Start, Control Panel, Performance and Maintenance, Power Options.
2. On the Power Schemes tab, set the timeout periods you prefer. (You can choose Never, but that setting is not recommended for hibernate mode.)
3. On the Advanced tab, select actions for the lid, power switch, and standby button.
4. Click OK.

CAUTION

Make sure hibernation support is enabled in the Power Options Hibernate tab, or you will lose any unsaved data if the computer's battery runs down completely.

To use manual power management

You can manage your computer's power manually whenever you need to with any of the following three levels of power management.

System Standby

Action	Turns off the display and hard disk drive.
When	Press the blue standby button -OR- Click Start, Turn Off Computer, Stand By -OR- Configure lid, power switch, or standby button to perform the standby action (see "To set power management properties," above). Then close lid or press button.
Resume	Press the blue standby button to return to your current session.

System standby can also occur automatically when the timeout setting in Power Options in Control Panel is reached.

CAUTION

Make a habit of saving your work before allowing your computer to go to system standby. If there is an interruption in power while the computer is in standby, information that has not been saved will be lost.

System Hibernation

Action	Saves the current session to disk, then shuts down. Provides maximum power savings while still allowing you to recover the current session. Restores network connections.
When	Click Start, Turn Off Computer, then press and hold Shift and click Hibernate. -OR- Configure lid, power switch, or standby button to perform the hibernation action (see “To set power management properties,” above). Then close lid or press button.
Resume	Press the blue standby button to recover your current session. This may take several minutes.

Hibernate mode also occurs automatically when battery power reaches a critically low level. See “To respond to a low-battery warning” on page 55.

Off

Action	Turning off your computer provides maximum power savings. The current session is not saved and unsaved data will be lost.
When	Click Start, Turn Off Computer, Turn Off -OR- Slide the power switch and hold for five seconds (only if the Start menu procedure doesn't work) -OR- Configure a power switch (see “To set power management properties,” above).
Resume	Press the blue standby button to start a new session. This may take several minutes.

If the system stops responding and you are not able to turn off the computer as described above, you can still recover. See “To reset your computer” on page 28.

Using Battery Power

You can operate the HP notebook PC on battery power for extended periods, but you should be prepared to save your work and shut down if the battery is low. Follow the tips in this section to maximize the length of time you can operate on battery power.

To check the battery status

From the battery status light



The battery status light reports the following information:

Green	AC attached—battery full
Amber	AC attached—battery charging
Red	AC attached—battery will not accept charge (abnormal)

From the Windows taskbar

The System Tray on the Windows taskbar can display a power icon that provides detailed battery status information (see Windows help for details). The icon looks like a battery when AC is not connected.

- Place pointer over the power icon to display the percentage of charge remaining.
- Right-click the power icon to view the options for displaying power information.
- Left-click the power icon to display a menu of the available power schemes.

From the Windows Control Panel

- Click Start, Control Panel, Performance and Maintenance, Power Options, then click the Power Meter tab to see battery status. The Alarms and Advanced tabs provide additional Windows' power-information options.

From the status panel

If your computer has a status panel, press the status panel mode button repeatedly until you see the battery icon and the percentage of charge remaining.

To respond to a low-battery warning

The computer automatically alerts you when the battery power drops to a critically low level. If you do not restore power within a short time, the system hibernates.

Once the computer hibernates in this way, you won't be able to turn it on again until you restore power by one of the following actions:

- Plug in the AC adapter (see "To connect AC power" on page 23).
- OR*
- Replace the battery with one that is charged (see "To install the battery" on page 22). The system must first be shut down or put into hibernate mode before changing the battery.

Note

If you plug in the AC adapter, you can continue to work while your battery recharges.

To optimize battery operating time

- Plug in the AC adapter, especially while using the CD-ROM drive or DVD, the floppy disk drive, or any external connections such as a PC card or a modem.
- Put the computer in standby mode whenever you are not using it for a short while: click Start, Turn Off Computer, Stand By.
- Put the computer in hibernate mode whenever you want to save your current session, but will not be using the computer for several hours: click Start, Turn Off Computer, then press and hold Shift and click Hibernate.
- If you have an I/O PC card—that is, a PC card having an external connection, such as a network card—remove it when you're not using it. Some I/O cards use significant power, even while they're inactive.
- If you work with an application that uses the serial port or an I/O PC card, exit the application when you have finished using it.
- Turn off the CD player when you are not using it.
- See “Managing Power Consumption” on page 50 for other ideas about reducing power consumption while the computer is not in use.

Making Connections

Using the Modem

By connecting your modem to a telephone line, your PC can communicate with other networked computers. You can explore the Internet, send and receive e-mail messages, and send and receive faxes. Your HP notebook PC contains several software programs that work with your modem:

- Internet Explorer, for browsing the World Wide Web
- Outlook Express, for sending and receiving e-mail messages
- Fax Console for sending and receiving faxes.

Selected models of the HP notebook PC include a built-in high-speed V.90 modem. This modem allows you to connect to any Internet Service Provider (ISP) that has V.90 interoperable modems. Check with your ISP for a list of telephone numbers that support V.90.

Note that the maximum speed for faxing is 14.4Kbps. Even though the built-in modem is capable of downloading at 56Kbps, your ISP may not operate at this speed; please check with your service provider for information. Transmission rates also depend on the condition of the telephone line.

If your computer does not have a built-in modem (or if you prefer to use a different modem), you can install a PC card modem or attach an external modem to the serial port.

Important safety information

CAUTION

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord to connect the modem to the telephone wall jack.

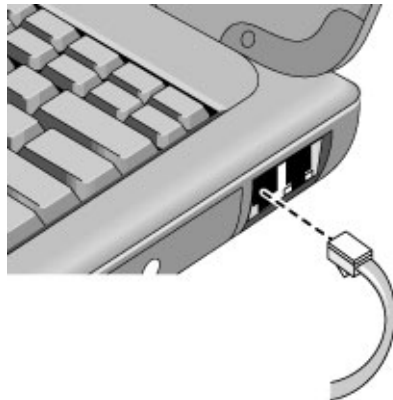
When using your computer with a telephone connection, always follow basic safety precautions to reduce the risk of fire, electric shock, and injury to persons:

- Do not use this product with a telephone connection near water, for example, near a bathtub, sink, swimming pool, or in a wet basement.
- Avoid using a telephone connection (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

- Do not use a telephone connection to report a gas leak in the vicinity of the leak.
- Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

To connect the modem

1. Make sure the telephone line is an analog line, sometimes called a data line. It should have 2, 3, or 4 wires. (You must not use a PBX or digital line.)
2. Connect a telephone cord with an RJ-11 plug to the built-in modem (or connect to a PC card or external modem). *Use only No. 26 AWG or larger telecommunications line cord to connect the modem to the telephone wall jack.*



3. Plug the other end of the phone cord into a telephone jack. If the plug on the phone cord doesn't fit the jack, you may need to use an adapter.
4. Check your modem's country or region settings: click Start, Control Panel, Printers and Other Hardware, Phone and Modem Options.

CAUTION

Your built-in modem may not work with multiple phone lines or a private branch exchange (PBX), cannot be connected to a coin-operated telephone, and does not work with party lines. Some of these connections may result in excess electrical voltage and could cause a malfunction in the internal modem. Check your telephone line type prior to connecting your phone line.

Making Connections Using the Modem

Special notes about using a modem in certain countries

- The pulse dialing feature may be disabled in certain countries, possibly because Loop Disconnect is not certified there. If pulse dialing is disabled, you should use tone dialing connections only.
- Many countries impose a blackout period after a modem repeatedly fails to connect to a service provider. The number of failed attempts and the period of time you must wait before trying again differ from country to country. Check with your telephone company. For example, if you are dialing from Italy and you fail to connect to your server or cancel the connection, you must wait one minute before dialing that same number again. If you dial before then, you will get an error message that says “delay.” After the fourth failed connection, you will need to wait one hour before trying the number again. If you dial before the hour is up, you will get a message that says “black list.”
- When using a modem in the Republic of South Africa, an external surge protector may be necessary in order to prevent computer damage by lightning or other electrical surges. Connect any approved surge protector to the modem cable whenever you are using the modem.

To connect to the Internet

If you have not yet signed up with an Internet Service Provider (ISP), see “To connect to an Internet Service Provider” on page 27 for instructions.

When you have signed up with an ISP, you can connect to the Internet. Choose one of the following:

- If you signed up with AOL, AT&T WorldNet, Compuserve 2000, Earthlink, or MSN, double-click the appropriate icon in the Online Services folder on the desktop (if available).

OR

Click Start, All Programs, Easy Internet Signup.

- If you signed up with another ISP, double-click the Internet Explorer icon on the desktop (if available), or click Start, Internet Explorer. Then click the Connect button in the Dial-up Connection or Network Connection window.

To display a connect icon (two connected computers) in the taskbar icon whenever you are connected, click Start, Control Panel, Network and Internet Connections, Network Connections. Then right-click the connection, select Properties, and select the icon option.

You are now ready to explore the Internet. To go to a specific web site, enter the address (for example, www.hp.com) in the browser's Address field. To search for information on the Web, you can use the browser's Search tool and enter the word or phrase you are looking for.

To use AOL as your ISP

When you use AOL as your Internet Service Provider, you can access the Internet only with AOL's own software; you can't use a standard browser like Internet Explorer. As a result:

- You cannot view web sites by clicking on links (such as those in the electronic *Reference Guide* that link to the HP notebook web site).
- You cannot go to a web site by entering the address in Windows Explorer.

If you try to access the Internet without using the AOL software, the Internet Connection wizard automatically launches, asking you to sign up for an ISP. In that case, cancel the wizard and launch AOL.

For additional ISP information, please refer to the Microsoft Operating Manual included in your box or Windows Help.

To disconnect from the Internet

You remain connected to the Internet until you shut down the computer, disconnect the phone line from the computer, or give a command to hang up the connection.

- To disconnect from AOL, use the Sign Off menu.
- To disconnect from other ISPs, double-click the connect icon (two connected computers next to the clock) on the taskbar, and click Disconnect. (You can enable this icon as described in "To connect to the Internet," above.)

OR

Click Start, Control Panel, Network and Internet Connections, Network Connections, then right-click the connection and select Disconnect.

To dial in to a network

You can use the modem to dial in to a LAN (local area network) that supports dial-in connections. This gives you access to network resources from a remote location.

- See Windows Help for information about setting up and using dial-in network connections—click Start, Help and Support.

To change your modem settings

The modem is already set up to be compatible with telephone systems and modems in most areas. However, in some situations, you may have to change modem settings to match local conditions. If you have questions about local requirements, contact your telephone company.

- **Control Panel.** Open Phone and Modem Options in Control Panel to change many modem settings. On the Modems tab click Properties to set connection speeds, or on the Dialing Rules tab click Edit to set dialing options.
- **Communications software.** Many communications applications provide options for controlling modem settings. See the help for your software.
- **AT commands.** You can control many aspects of modem operation using modem AT commands. AT commands are special strings of characters sent to the modem to set up specific conditions. Those command strings normally start with “AT” and contain additional characters. For a list of AT commands for the built-in modem, see “Modem Reference Information” on page 123.

Open Phone and Modem Options in Control Panel. On the Modems tab, click Properties. You can type AT commands on the Advanced tab in the space for Extra settings.

For example, to force the built-in modem to connect with V.34 modulation, you can use the +MS command, as shown in the table of AT commands—type AT+MS=11 in the space for extra settings.

To send and receive e-mail

The steps for sending and receiving e-mail depend on your Internet provider. If you are using AOL, e-mail is part of your AOL service. For other ISPs, you can use Outlook Express (included with your computer) or an e-mail system of your choice. This section includes instructions for using Outlook Express.

To start Outlook Express

1. Double-click the Outlook Express icon on the desktop (if available).
OR
Click Start, All Programs, Outlook Express.
2. If you are not currently connected to the Internet, the Dial-up Connection window appears. Choose Connect to connect to the Internet.

To send an e-mail message

1. Start Outlook Express.
2. Click the Create Mail tool on the toolbar.
3. Fill in the information in the New Message window.
4. When you're finished, click the Send button.

To receive e-mail messages

1. Start Outlook Express.
2. Click the Send/Recv tool on the toolbar to have Outlook deliver new messages.
3. Click the Inbox folder to view the list of messages. Unread messages appear bold on the screen.
4. To view a message, click it once. (Or double-click to view the message in its own window.)

To send and receive faxes

Sending and receiving faxes requires just a telephone connection—you don't need an Internet connection. You can use the modem and fax software to send and receive faxes on your computer. Fax Console fax software is included with Windows XP.

To set up Fax Console

Before you can use Fax Console, you need to install it.

1. Click Start, Control Panel, Add or Remove Programs.
2. Click Add/Remove Windows Components, select Fax Services, and follow the instructions on the screen. You may need the Windows CD to complete installation.

To start Fax Console

- Click Start, All Programs, Accessories, Communications, Fax, Fax Console.

The first time you start Fax Console, the Fax Configuration wizard steps you through the process of setting options and customizing the program for your use. Follow the onscreen instructions. If you're not sure which setting to choose, accept the default.

To send a fax

- Click Start, All Programs, Accessories, Communications, Fax, Send a Fax, then follow the instructions that appear on the screen.

If you want to send a document as a fax, open the document in its application window, then open the Print dialog. Change the selected printer to Fax, then print.

To receive faxes

Faxes are automatically received when Fax Console is running in an open or minimized window. New faxes are indicated in the status box in the Fax Console window. To receive a fax manually, do the following:

- When a fax call is coming in, click the Receive Now icon in the Fax Console menu bar.

To view and print a fax

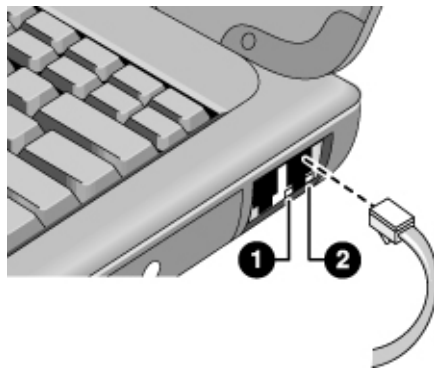
1. In Fax Console tree, click Inbox, then double-click the fax you want to view.
2. Click the printer icon to print the fax.

Connecting to a LAN

If your computer has a LAN port, you can use it to connect to a local area network (LAN). This gives you access to network resources—such as printers and file servers on your corporate network—and in some cases also to the Internet.

To connect to a LAN

1. Make sure the existing LAN supports Ethernet 10Base-T (10 Mbps) or 100Base-TX (100 Mbps) connections.
2. Plug the LAN cable (not supplied) into the built-in LAN port. The cable must have an RJ-45 connector.



3. Windows automatically detects and sets up a LAN connection. To edit the settings, open Network Connections or Network and Dial-Up Connections in Control Panel. See Windows Help or your Microsoft manual for information about setting up and using LAN connections—click Start, Help and Support.

Contact your network administrator or ISP provider for network information.

Two lights under the LAN port indicate the status of the connection (see the figure above):

1. The yellow light indicates network activity.
2. The green light indicates that a link is established to the network.

Connecting PC Cards

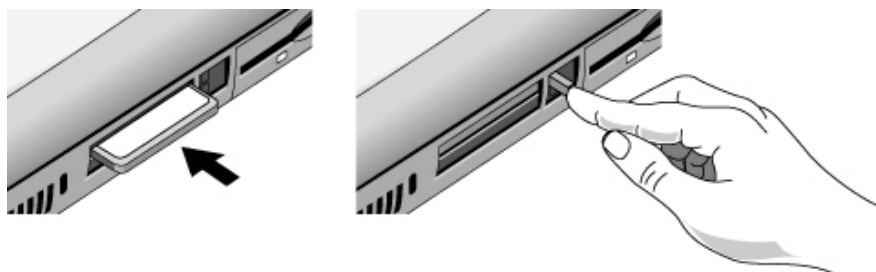
The computer's PC card slots expand the computer's data storage and communication capabilities, and support standard Type I, II, and III PC cards (PCMCIA and CardBus).

CAUTION

Do not remove a PC card while the computer is reading or writing data. If you do, you could lose data, or the computer could stop responding.

To insert a PC card

1. Hold the card with its face up and its connector holes toward the card slot.
2. Slide the PC card all the way into the upper or lower slot. Most cards are properly seated when the outer edge is flush with the casing of the computer, but some cards are designed to protrude from the case.



To remove a PC card

CAUTION

Before removing a PC Card, you must use the Safely Remove Hardware icon in the taskbar, or else shut down the computer. Otherwise, you could lose data.

1. Stop the PC card: double-click the Safely Remove Hardware icon in the taskbar, select the PC card you want to stop, then click Stop.
2. Flip the eject button out, so that it sticks out from the side of the computer.
3. Press the eject button and pull out the PC card.

To reestablish network connection after resume

When using a network PC card, you could possibly lose network connection after resuming from standby. If this happens, restart the card by removing and reinserting it.

Finding tested PC Cards

For a list of PC Cards that have been tested and approved for use with your computer, visit the Accessories section of the HP Notebook web site (www.hp.com/notebooks).

Connecting External Components

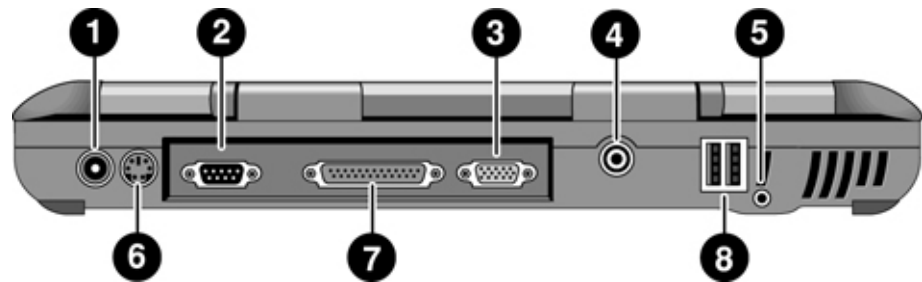
You can connect external components—such as a printer, mouse, monitor, or keyboard—directly to your computer.

To identify the ports

The diagrams below shows the connectors for external devices on the computer.

Note

Before you connect any device, check its documentation to see if you need to make any settings or adjustments to the equipment before using it. This might include setting switches so the equipment will operate properly with your computer and the software you plan to use.



- 1 AC adapter jack
- 2 Serial port
- 3 VGA port (external monitor)
- 4 TV out
- 5 Microphone port
- 6 PS/2 port
- 7 Parallel port
- 8 USB ports

Making Connections

Connecting External Components

To connect a printer or another parallel device

The parallel port uses a standard 25-pin connector, most commonly used for connecting dot-matrix, ink-jet, and laser printers. You can also use it to connect a parallel Zip drive.

- Connect the parallel printer cable or other parallel cable to the parallel port of the computer.

Note

If you connect a Zip drive to the parallel port, you can enhance its performance by installing the accelerator software supplied with your Zip drive.

To connect an external keyboard or PS/2 mouse

The 6-pin PS/2 port allows you to attach an external keyboard or a PS/2-compatible mouse to the computer. While an external PS/2 mouse is connected, the touch pad is normally disabled. The computer provides one PS/2 port.

- Plug the mouse or keyboard PS/2 cable into the PS/2 port on the computer.
 - To connect both a mouse and keyboard to the computer, use the PS/2 Y adapter, which is available separately.
 - To connect a device that has a PC-type jack, first connect its cable to an adapter cable with a PS/2 jack.
-

To connect a USB device

Universal serial bus (USB) provides a bidirectional serial interface for adding peripheral devices—such as game controllers, serial and parallel ports, and scanners—on a single bus. The computer provides two USB ports.

- Attach the USB cable to the USB port on the computer. Windows automatically recognizes the USB device.

Some USB devices can be connected to the computer in series—this is called a daisy-chain connection.

Note

If you have problems making this connection, contact the vendor of the peripheral device, as well as the HP web site, for the latest versions of the USB drivers.

To connect audio devices

There is a built-in microphone located just below the blue standby button. You can use it to record voice, sound, and music. You can also plug in an audio input source (such as a CD player or an external microphone) or an audio output device (such as external speakers or headphones).

- Attach the audio cable to the appropriate port on the computer; see “To identify the ports” on page 67.

Note

When you plug a device into the microphone port, the built-in microphone automatically turns off. When you plug a device into the audio out port, the built-in speakers automatically turn off.

To use an external monitor

You can connect your computer to an external monitor and then use either display—or both displays at once.

To connect an external monitor

1. Click Start, Turn Off Computer, Turn Off.
2. Connect the monitor cable from the monitor to the VGA port on the rear of the computer.
3. Connect the monitor to a power source and turn it on.
4. Press the blue standby button to turn on the computer.

To switch the display to the external monitor

- Close the computer lid.
OR
- Press Fn+F5 to cycle through the display options: notebook display, external monitor, both.
OR
- Click Start, All Programs, Hewlett-Packard, Notebook, HP Display Settings, HP Display Settings.

Making Connections

Connecting External Components

To adjust monitor resolution

1. Click Start, Control Panel, Appearance and Themes, Display.
2. On the Settings tab, adjust the Screen area.

To use dual display mode

You can extend the desktop by connecting an external monitor to your notebook.

Dual display mode requires that your computer display be set as shown in the table below. Click Start, Control Panel, Appearance and Themes, Display, and use the Settings tab.

Notebook screen or Display	Screen area	Colors
12.1-inch SVGA TFT or 13-inch SVGA HPA	800×600 pixels	256 colors or High Color (16 bit)
13.3-inch, 14.1-inch, or 15-inch XGA TFT	800×600 pixels or 1024×768 pixels	256 colors or High Color (16 bit) or True Color (24 bit)
15-inch SXGA+ TFT	1400×1050 pixels	High Color (16-bit) or True Color (32-bit)

1. Set your notebook display settings according to the table above. (The display settings do vary by model.)
2. Click Start, Turn Off Computer, Turn Off.
3. Connect the monitor cable from the monitor to the VGA port on the rear of the computer.
4. Connect the monitor to a power source and turn it on.
5. Press the blue standby button to turn on the computer. Windows will detect the second monitor and attempt to load the proper display driver. Follow the onscreen instructions.
6. Click Start, Control Panel, Appearance and Themes, Display, Settings. Position the second monitor to the right or left of your notebook display to match your monitor location.
7. Make sure that the Settings box “Extend my Windows desktop onto this monitor” is checked.

You can change the Screen area and Colors settings for the second monitor by selecting Display #2. These settings can be different from your notebook display settings.

To use a TV set as monitor

You can connect your computer to a television set and then use it as a display. On some notebook PC models, the computer's LCD display continues to be active when you use a TV set.

To connect a TV set

1. Connect a video cable (75 Ohm, with compatible RCA plugs) from the TV set to the TV output port on the rear of the computer. (You don't need to turn the computer off.)
2. Connect an audio cable from the computer's headphone audio jack (using a 3.5mm or 1/8" stereo plug) to the left and right audio jacks (using two RCA plugs) on the TV set.
3. Connect the TV set to a power source and turn it on.

To activate and adjust the TV display

- If you are running the DVD player, turn it off while you activate the TV display.
- Click the television icon in the system tray of the taskbar, and select TV from the options list. The computer's display will change to 640x480.

OR

Restart the computer: click Start, Turn Off Computer, Restart.

OR

1. Click Start, Control Panel, Appearance and Themes, Display.
 2. On the Settings tab, click Advanced.
 3. On the Displays tab, activate the TV output.
- The TV options list includes selections to center the TV image and to adjust the position of the TV image.

Making Connections

Connecting External Components

To make more advanced adjustments

1. Click Start, Control Panel, Appearance and Themes, Display.
2. Select the Settings tab, then click the Advanced button.
 - If you have Trident Video, select the Television tab. Here you can make further adjustments to the TV image.
 - If you have S3 Video, select the S3DuoVue tab and click TV to make further adjustments. If the TV option is grayed out, restart with the TV on and connected to the computer.
3. On some models, the TV Type for your country is automatically detected. (If it is incorrect, select the correct type on the Display Device tab: NTSC is used in North and South America, except for Argentina and Brazil; NTSC/Japan in Japan, South Korea, and Taiwan; and PAL in most other countries.)

On some models, it is necessary to change the Television Type in the Main menu of the BIOS Setup utility. To do this, restart your computer, and press F2 to start the BIOS Setup utility when you see the HP logo.

To disable TV

Different models of the notebook PC disable TV mode in different ways.

To return the system to normal LCD display mode, click the television icon in the system tray and do one of the following, depending on your PC model:

- Click on LCD.
OR
- Click the TV option to deselect it.
OR
- Click Start, Control Panel, Appearance and Themes, Display. On the Settings tab, click the Advanced button and disable the TV display.

Caution

Selecting Exit from the monitor or display icon pop-up menu removes the icon from the system tray. If you do this, you can access the TV settings from the Control Panel as described in the above steps. Restart the computer to restore the television icon.

Configuring and Expanding Your Computer

Using the BIOS Setup Utility

The BIOS (Basic Input and Output System) Setup utility is a menu-driven utility that enables you to make changes to the system configuration and tailor the operation of your computer to your individual work needs.

The settings made in the BIOS Setup utility control the hardware and therefore have a fundamental effect on how the computer operates.

To run the BIOS Setup utility

1. Restart the computer: click Start, Turn Off Computer, Restart.
2. When you see the HP logo, press F2 to enter the BIOS Setup utility.
3. Select the options you want. You can find a complete list of available options in BIOS Setup utility options on page 118.
4. After you have finished making changes, press F10 (or select Exit, Saving Changes and Exit).
5. Press Enter to confirm and restart the computer.

If the settings cause a conflict between devices while restarting, the system prompts you to run BIOS Setup, and the conflicting settings are marked.

The pointing devices are not active in the BIOS Setup utility. Press the Right and Left arrow keys to move from one menu to another. Press the Down and Up arrow keys to move among parameters in a menu. Press F5 or F6 to move through values for the current parameter or press Enter to change a setting.

To boot from a floppy disk or CD-ROM

Note

Your HP notebook is configured to boot from the hard drive first. If you want to always boot from a floppy disk or a CD-ROM, change the boot order under the Boot menu in the BIOS Setup utility. You can also select the boot drive at startup by pressing Esc when you see the HP logo.

Installing RAM Modules

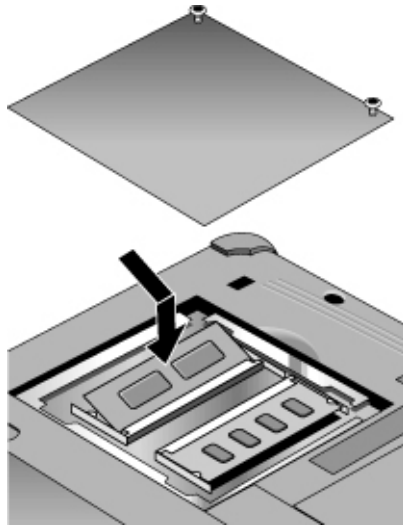
The notebook provides an optional memory expansion slot for installing up to two RAM expansion modules. Use HP PC-133 or higher SDRAM modules only.

CAUTION

Static electricity can permanently damage computer chips. Handle the RAM module only by its three non-connector edges. Otherwise, you may damage the module due to electrostatic discharge. Always discharge the static electricity from your body by touching the metal shielding around the connectors on the rear of the computer before touching or installing the memory module.

You'll need a small Phillips screwdriver to complete this procedure.

1. Click Start, Turn Off Computer, Turn Off.
2. **Important:** unplug the AC adapter, if present, and remove the battery.
3. Remove the RAM expansion cover located on the bottom of the computer.

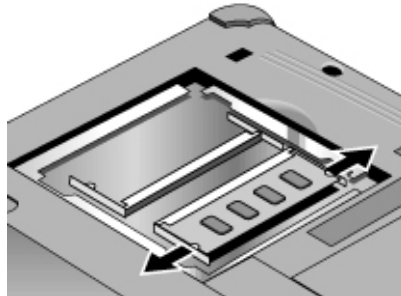


4. Insert the RAM expansion module into the connector at about a 30° angle until it's fully inserted. Then press down at both sides of the module until it latches.
5. Replace the RAM expansion module door.
6. Insert the battery.

Removing RAM Modules

You'll need a small Phillips screwdriver to complete this procedure.

1. Click Start, Turn Off Computer, Turn Off.
2. Unplug the AC adapter and remove the battery.
3. Remove the RAM expansion cover located on the bottom of the computer.



4. Release the two latches at the sides of the RAM expansion module by pushing them gently outward (away from the sides of the module). When you release the latches, the free edge of the module pops up.
5. Pull the module out of the connector. Note the markings on the socket, so you can replace the module with a compatible module.
6. Replace the RAM expansion module door.

Updating Windows Drivers

To download the latest Windows drivers

From time to time, HP releases updated versions of the drivers for your computer. These updates are intended to fix any problems that could be encountered in the drivers, and to keep your computer running smoothly.

In addition, HP normally provides drivers for other versions of Microsoft Windows, in case you decide to install a different version of Windows.

- Download the latest drivers for your computer from www.hp.com/go/support.

Follow the instructions included with the drivers.

Service and Support

Hewlett-Packard Limited Warranty Statement

1. HP warrants to you, the end-user customer, that HP hardware, accessories, and supplies will be free from defects in materials and workmanship after the date of purchase, for the period specified in the Warranty Duration table below. HP Pavilion and Omnibook XE Series Notebooks typically come with a standard one-year warranty. Please see the Warranty Duration table for more details. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or equivalent in performance to new.
2. HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified in the Warranty Duration table below, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software which does not execute its programming instructions due to such defects.
3. HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.
4. HP's limited warranty is valid in any country or locality where HP has a support presence for this product and where HP has marketed this product. The level of warranty service you receive may vary according to local standards. HP will not alter form, fit or function of the product to make it operate in a country for which it was never intended to function for legal or regulatory reasons.
5. Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts, or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.

6. TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. Some countries, states, or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country to country, state to state, or province to province.

7. TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries, states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

Product	Duration of Limited Warranty
HP Notebook with "1YR" or similar mark on serial-number label	1 year, or number of years marked.
HP Notebook with "90D" or similar mark on serial-number label	90 days or number of days marked.
HP Notebook accessories and batteries	1 year.
Non-HP accessories, Non-HP "Distributed by HP" accessories	Not warranted by HP. Refer to manufacturer's warranty.
HP Software, Microsoft Software	90 days.

Getting Support for Your HP Notebook PC

HP offers a number of ways that you can get technical support for your computer. If you have questions or problems, here are the resources available to you:

- Look up information in this *Reference Guide*.
- Visit the HP notebook web site.
- Use HP Instant Support on your notebook.
- Call HP support.
- Look up information in Microsoft Windows Help and the printed Windows manual.

To use the *Reference Guide*

To locate information in the guide, use the Contents, Index, and Search tabs:

- The Contents tab lists the headings of all the topics in the guide.
- The Index tab provides an alphabetical list of the keywords in the guide; you can locate a keyword either by typing it in the box or by scrolling through the list.
- The Search tab allows you to find specific words and phrases.

To get help from the HP notebook web site

HP has a web site on the Internet dedicated to HP notebook owners: www.hp.com/notebooks. This web site contains information about the various HP notebook models, warranties, support, and special promotions.

To get help with your computer at this web site, click on Technical Support. In the technical support area, you will have access to:

- answers to frequently asked questions
- software, driver, and BIOS updates
- electronic manuals
- troubleshooting solutions

- self-help tools
- the basic services included with your warranty, as well as descriptions of enhanced and custom services
- latest support telephone numbers for HP products

To use HP Instant Support

Available at no charge, HP Instant Support is a value-added service, featuring web-based automated diagnosis and resolution capabilities. It can be personalized to meet your business needs, delivering the support experience that works for you and accelerating the resolution of computing problems.

Choose either automated Self-Service, for online delivery of answers, or Smart Solutions, which utilizes Instant Support's "smart search" function. This intelligent tool allows you to describe problems in everyday language, then wizards you through a variety of user-friendly support options. Find more information about Instant Support on our external web site at www.hp.com/hps/instant/index.htm.

To call HP for service and support

If you are unable to solve a problem with your computer, you can call the HP Customer Care Center. The Customer Care Center will assist you at no charge during the term of the warranty, for warranty-related questions; you are responsible only for cost of the telephone call. During the free assistance period, HP will assist with questions about:

- applications and operating systems included with your computer
- HP-described operation environments and conditions
- HP accessories, HP upgrades, and basic operation and troubleshooting

HP will not be able to help with questions about:

- non-HP hardware, software, operating systems, or usage not intended for—or not included by HP with—the product
- how to repair the product yourself
- product development or custom installations
- consulting

Service and Support
Getting Support for Your HP Notebook PC

To locate the Customer Care Center in your area, check the following table. HP Customer Care Centers will assist you for free during the term of the warranty; you are responsible only for the cost of the telephone call. Check the HP notebook web site (www.hp.com/notebooks) for the most complete and current list of phone numbers. If the HP notebook product is not normally sold and supported by HP in the country of use, the customer must call one of the supported HP Customer Care Centers located nearest the region. Currently, Omnibook XE3 and Pavilion notebook service and support assistance is only provided in the following countries:

Pavilion Series Notebooks (limited to the following)

United States:	+1 (970) 635-1000
France:	+33 (0) 1 43 62 34
United Kingdom:	+44 (0) 207 512 52
Mexico City:	+52 58 9922
Mexico (outside Mexico City):	+52 01 800 472

Omnibook XE3 Series Notebooks

North America

United States +1 (970) 635-1000
Canada +1 (905) 206-4663

Latin America

Mexico City +52 58 9922
Mexico (outside Mexico) +52 01 800 472

South America

Argentina +0810 555 5520
Brazil (São Paulo) (11) 3747 7799
Brazil (outside São Paulo) 0800 157751
Venezuela 0800 157751

Asia Pacific

Australia +61 (0)3 8877 8000
Hong Kong +852 800 96 7729
India +91 11 682 6035
Indonesia +62 21 350 3408
Japan +81 (0)3 3335 8333
Korea +82 2 3270 0700
Malaysia +60 (0)3 295 2566
New Zealand +64 (0)9 356 6640
People's Republic of China +86 800 810 5959
Philippines +63 2 867 3551
Singapore +65 272 5300
Taiwan +886(2)2717 0055
Thailand +66 2 661 4000
Vietnam +84 8 823 4530

Africa/Middle East

Dubai +971 (0)4 8839 292
Israel +972 (0)9 952 4848
Republic of South Africa +27 (0)86-000-1030

Europe

Austria +43 (0)7114 20
Belgium (Dutch) +32 (0)2 626 8806
Belgium (French) +32 (0)2 626 8807
Czech Republic +42 (0)2 6130 7310
Denmark +45 39 29 4099
English (from outside UK) +44 (0)171 512 52
Finland +358 (0)203 47 288
France +33 (0)1 43 62 34
Germany +49 (0)180 52 58
Greece +30 (0)1 619 64 11
Hungary +36 (0)1 382 1111
Ireland +353 (0)1 662 5525
Italy +39 02 264 10350
Netherlands +31 (0)20 606 8751
Norway +47 22 11 6299
Poland +48 22 519 06 00
Portugal +351 21 317 6333
Russia (Moscow) +7 095 797 3520
Russia (St. Petersburg) +7 812 346 7997
Spain +34 902 321 123
Sweden +46 (0)8 619 2170
Switzerland +41 (0)848 80 11 11
Turkey +90 216 579 71 71
Ukraine +7 380 44 490 3520
United Kingdom +44 (0)207 512 52

Obtaining Repair Service

To receive warranty repair service

To receive warranty repair service for Omnibook XE3 and Pavilion Notebook Series, contact the appropriate HP Customer Care Center. Check “To call HP for service and support” on page 83 for the phone number.

Note

HP Pavilion notebooks have regional support and service in selected countries. Currently, HP Pavilion notebook PCs are supported only in the country in which they are purchased and marketed. If you are outside the country of purchase, you must cover the cost of shipping your notebook to the appropriate HP authorized repair site.

For example, if you purchased a Pavilion notebook in the United Kingdom, and then traveled to Russia, you would be responsible for shipping the unit to the United Kingdom for repair and service under warranty. If you are uncertain about the support, please contact our Customer Care Center—see “To call HP for service and support” on page 83.

The support technician will help qualify your unit for warranty repair, based on the warranty applicable to your unit and original purchase date, and will provide you with repair processes. If the HP notebook product is not normally sold and supported by HP in the country of use, it must be returned to a supported country for services. Warranty service may include the cost of shipping, handling, duties, taxes, freight, or fees to or from the service location.

To repair your computer outside the warranty period

If your PC is no longer in the warranty period, contact the appropriate Customer Care Center. The HP support person will let you know about repair charges and processes.

To prepare your computer for shipment

1. **Important.** Back up the contents of your hard disk drive to floppy disks, tape, or a network drive.

While your computer is being repaired, the hard disk may be replaced or reformatted.

2. Hewlett-Packard cannot guarantee the return of removable components. Please remove the following before you send your computer for service:
 - PC cards
 - AC adapter and power cord
 - CDs in the CD player
 - floppy disks in the floppy disk drive
3. When shipping your computer to Hewlett-Packard, please use the original product packaging or other substantial packaging in order to avoid damage in transit. Make sure to wrap at least three inches of protection around the unit and the courier will put it into one of their boxes.

Solving Problems with Your Computer

Troubleshooting Techniques

This section contains solutions to a few common problems and troubleshooting techniques for your HP notebook PC.

Audio problems

If sound is not audible

- Press Fn+Up arrow several times.
- Press the volume control up button several times.
- Click the speaker icon on the taskbar (if present) to ensure that Mute is not checked and the Volume Control slider is not set to the bottom.
- When you are operating your computer in MS-DOS mode (for example, when running MS-DOS games), you may find that the sound does not operate properly. Use Windows applications for full use of sound capabilities.

If sound does not record

- Check software controls for recording sound: Click Start, All Programs, Accessories, Multimedia (or Entertainment), Sound Recorder.
- In Volume Control, click Options, Properties, and make sure the microphone is enabled in the recording controls.

If the PC card detection beep(s) at startup are very loud and volume cannot be adjusted

- Download the latest audio driver from the technical support area of the HP notebook web site www.hp.com/notebooks.

You may also want to test the speakers and sound with diagnostics. See “Testing Hardware Operation” on page 111.

CD and DVD problems

If you can't boot from a CD in the CD/DVD drive

- Make sure the CD is bootable, such as the *Recovery CD*.
- Restart the computer: click Start, Turn Off Computer, Restart.
- If you want to boot from a CD whenever one is present, check the boot order in BIOS Setup and change it.
 1. Click Start, Turn Off Computer, Restart.
 2. When you see the HP logo, press Esc to open the Boot menu. The default boot order is (1) Hard Drive, (2) Floppy Drive, and (3) CD-ROM/DVD Drive.
 3. Select the CD-ROM/DVD Drive as the boot device.
 4. Exit the BIOS Setup utility.
- Test the CD/DVD drive with the e-Diagtools diagnostics—see “Testing Hardware Operation” on page 111.

If the computer cannot read a CD or DVD

- For a single-sided CD or DVD, make sure the disc is placed in the drive with the label facing up.
- Wait 5 to 10 seconds after closing the tray to give the computer time to recognize the disc.
- Clean the disc.
- Restart the system: remove the disc from the drive, then click Start, Turn Off Computer, Restart.
- If you created the CD on a CD-RW drive module, try using HP certified media. Read and write quality may vary for other media.

If a CD or DVD plays erratically

- Dirt or smudges can cause a disc to skip. Clean the disc with a soft cloth. If the disc is badly scratched, it will have to be replaced.
- Some DVDs include software called “PC Friendly”. You do not need to install this software, as it can make the player unstable, and cause errors or erratic play. If needed, uninstall the PC Friendly software and restart your computer.

Solving Problems with Your Computer Troubleshooting Techniques

If a DVD movie stops playing in the middle

- The DVD may be double-sided. Open the DVD tray and read the text near the center hole of the disc. If it says Side A, flip the disc over, close the tray, and then press the Play button to continue playing the movie.
- You may have accidentally paused the DVD movie. Press the Play button to resume playing the movie.

If you get a Region Code error when playing a DVD movie

- DVDs can have regional codes embedded in the disc data. These codes prevent DVD movies from being played outside the region of the world in which they are sold. If you get a Region Code error, you are trying to play a DVD intended for a different region.

Important: most DVD drives let you change the region code only a limited number of times (usually no more than four). Please note that when you reach this limit, your last change to the region code will be hard-coded on the DVD drive, and will be permanent. Refer to the help for your DVD player software for details.

If the DVD movie doesn't fill the screen

- Each side of a double-sided DVD has a different format (standard or widescreen). In widescreen format, black bands appear at the top and bottom of the screen. To view the standard format, flip the disc over and play the other side.

If a DVD doesn't play with two displays

- Before starting the DVD player, press Fn+F5 to switch to one display. You cannot switch displays once the DVD player is started.
- If you're using both displays, the DVD image will not appear on any display set up as "secondary". Open Display in Control Panel, click Advanced on the Settings tab, and change settings.

If you have problems with display resolution or color depth when playing DVDs

- Set the resolution or color depth before starting the DVD player. You cannot change these settings once the DVD player is started.
- Some combinations of color depth and resolution are not supported in DVD playback. If you receive an error message with a DVD, reduce color depth or display resolution.

Display problems

If the computer is on, but the screen is blank

- Move the mouse or tap the touch pad. This will wake the display if it is off.
- Try pressing Fn+F2 or Fn+F4 to increase the brightness.
- Press Fn+F5 in case the internal display was disabled. (Do this three times to return to the state you started from.)
- If the computer is cold, allow it to warm up.

If the screen is difficult to read

- Check whether the display resolution is set to its default setting—800×600 for 12" TFT and 13" HPA displays or 1024×768 for 13", 14", and 15" TFT displays: click Start, Control Panel, Appearance and Themes, Display, Settings.
- Try adjusting the size of the desktop icons and labels—see “To adjust the display” on page 32.

If part of the Windows desktop is not visible and you have to scroll down to see the taskbar, or does not fill the entire display and has a black border

- Your display resolution may be set incorrectly. Adjust the resolution as needed—see “To adjust the display” on page 32.

If an external display does not work

- Check the connections.
- Press Fn+F5 in case the external monitor was disabled. (Do this three times to return to the state you started from.)
- The external monitor may not be detected. In the BIOS Setup utility, try setting Video Display Device to Both in the Main menu—see “Using the BIOS Setup Utility” on page 74.

You may also want to test the display with diagnostics. See “Testing Hardware Operation” on page 111.

Solving Problems with Your Computer Troubleshooting Techniques

If one or more pixels look bad on a TFT display

TFT display manufacturing is a highly precise but imperfect technology, and manufacturers cannot produce displays that are cosmetically perfect. Most, if not all, TFT displays exhibit some level of cosmetic imperfection. These cosmetic imperfections may be visible under varying display conditions, and can appear as bright, dim, or dark spots. *This issue is common across all vendors supplying TFT displays in their products and is not specific to the HP notebook display.*

HP notebook TFT displays meet or exceed all HP standards for cosmetic quality of TFT displays. HP does not warrant that the displays will be free of cosmetic imperfections. *TFT displays can have a small number of cosmetic imperfections and still conform to HP's cosmetic quality specifications, including the following:*

- No more than 6 pixels remain on (always one color, such as white, red, green, or blue dots).
- No more than 6 pixels remain off (always dark).
- No more than a total of 8 pixels stuck on or off.
- No other stuck pixel within 15 mm of a stuck pixel.

Contact HP Customer Care if you have a display quality problem and require a more comprehensive explanation of HP display quality—see “To call HP for service and support” on page 83. We expect that over time the industry will continue to produce displays with fewer inherent cosmetic imperfections, and we will adjust our HP guidelines as these improvements are implemented.

If a TV display does not work properly after resuming from standby

- In the BIOS Setup utility, try setting Video Display Device to Auto in the Main menu—see “Using the BIOS Setup Utility” on page 74.

If you cannot switch to a TV display by pressing Fn+F5

- Fn+F5 switches between the internal LCD and an external display connected to the VGA port only. It does not switch to a TV display connected to the TV output port.

Hard disk drive problems

The hard drive's reported capacity is less than its actual size

- The hard disk drive is preconfigured to allocate some space to diagnostic software, which is used in support and service of your computer. This part of the hard drive is unavailable for other uses, and so is not included in the capacity of the hard drive as reported by Windows (My Computer, Properties).

If the computer's hard drive doesn't spin

- Make sure the computer has power. If necessary, connect the AC adapter, making sure it is plugged into a power source and into the rear of the computer.

If the hard disk makes a buzzing or whining noise

- Back up the drive immediately.
- Check for alternate noise sources, such as the fan or a PC card drive.

If files are corrupted

- Run the virus-scanning program.
- Check your disk using error-checking (open My Computer, select the disk you want to scan, click File, click Properties, select the Tools tab, and click Check Now).
- Test the hard disk drive with diagnostics. See “Testing Hardware Operation” on page 111.
- If necessary, format the hard disk and reinstall the original factory software—see “To recover the factory installation of your hard disk” on page 113.

Heat problems

Your computer normally gets warm during routine operation.

If the computer gets abnormally hot

- Always set the computer on a flat, firm surface, so that air can flow freely around and underneath it.
- Make sure the air vents are clear.

Solving Problems with Your Computer Troubleshooting Techniques

- Make sure the fan is working properly.
- Keep in mind that charging the battery and running games and other programs that drive CPU usage toward 100% can increase the computer's temperature.

You may also want to test the fan with diagnostics. See “Testing Hardware Operation” on page 111.

Keyboard, touch pad, and mouse problems

If the touch pad is difficult to control

- Customize the touch pad by modifying Mouse properties: click Start, Control Panel, Printers and Other Hardware, Mouse.

If the pointing devices don't work

- Don't touch the touch pad while booting or resuming. If this happens, try the following:
 - Press a key on the keyboard to restore normal operation.
 - Suspend and resume operation using the blue standby button.
- Restart the computer: click Start, Turn Off Computer, Restart.

If an external mouse doesn't work

- Standby or shut down the computer before you attach the mouse, to ensure that it will be detected properly.

If you want to go back to using the touch pad, you must standby or shut down the computer before you detach the mouse.

If the embedded numeric keypad doesn't work

- Make sure Num Lock is on—that you have pressed Fn+F8 to activate the numeric keypad and that you have pressed the Lock key to turn on number lock.
- Don't touch the touch pad while booting or resuming—see above.

If a special feature on a PS/2 mouse doesn't work

- Make sure you installed any drivers included with the mouse.
- Restart the computer, so that the system will detect the PS/2 mouse: click Start, Turn Off Computer, Restart.

You may also want to test the keyboard and pointing devices with diagnostics. See “Testing Hardware Operation” on page 111.

Note

If you experience difficulty using internal and external pointing devices (touch pad and PS/2 mouse) together, check the pointing device BIOS setting, in the System Devices menu. See “Using the BIOS Setup Utility” on page 74.

If you can’t type the euro symbol

- Hold ALT GR when you press the marked key.
- The euro symbol is not on the U.S. English keyboard. Make sure the embedded keypad is active (Fn+F8) and Num Lock is on, then hold ALT while typing 0128 on the numeric keypad.
- Support for the euro symbol requires software available from Microsoft. This software is installed in the factory software, but may not be included with retail Windows.

LAN problems

If the built-in network adapter doesn’t connect to the LAN

- Check all cables and connections. Try connecting at a different network station, if available.
- If the green light next to the LAN port does not light, the LAN cable may not be connected to the network or the network may be down. Try connecting a different computer to the cable.
- Make sure the LAN cable is Category 3, 4, or 5 for 10Base-T operation, or Category 5 for 100Base-TX operation. Maximum cable length is 100 meters (330 feet).
- Click Start, Help and Support, and use the Networking troubleshooter.
- Open the hardware Device Manager: click Start, Control Panel, Performance and Maintenance, System. If the network interface is disabled, try to enable it. If it has a conflict, try disabling another device.
- If available, run the LAN diagnostic software—run C:\hp\Drivers\Lan\Windiag\Setup.exe to install the software.

Solving Problems with Your Computer Troubleshooting Techniques

If you can't browse the Network Neighborhood or My Network Places

- Check with your network administrator to make sure NetBEUI protocol is supported on the network.
- Click Start, Search, Computers or People to look for a computer.

If you can't log in to Netware servers

- If a Netware server is using IPX/SPX protocol, you may need to force your frame type to match the server's frame type. Check with your network administrator.

If the computer stops responding after booting

- Check whether you have a TCP/IP network with no DHCP server. This can cause a long delay at startup because DHCP is enabled. Contact your network administrator to determine the proper TCP/IP configuration.

Memory problems

If a message says you are out of memory

- Make sure drive C is not running low on free space.
- If you are having memory problems running MS-DOS programs, use the MS-DOS or Application and Software troubleshooter in Windows Help: click Start, Help and Support.
- Not all third-party memory cards have been tested for use with the computer. Please check the HP Notebook web site (www.hp.com/notebooks) for a list of approved and tested memory cards.

If memory doesn't increase after adding RAM

- Make sure your computer is using only PC-100 or higher RAM modules.

You may also want to test memory with the diagnostics. See "Testing Hardware Operation" on page 111.

Modem problems

If the modem seems slow

- Check for excess static or noise on the line, which reduces the overall transmission speed. If necessary, contact your telephone company about fixing this type of problem.
- If you're dialing internationally, line noise is often difficult or impossible to eliminate.
- If you have call-waiting, disable it—your telephone company can provide instructions. Call waiting can cause symptoms similar to static.
- Eliminate extra connections in the line. If possible, connect directly to the wall jack.
- Try another telephone line, preferably one normally used for a fax machine or modem.

If the modem doesn't dial or no dial tone is detected

- Check all cables and connections.
- Connect a standard telephone to the phone line and make sure the line is working.
- Make sure someone else isn't using the same phone line.
- Try another telephone line, preferably one normally used for a fax machine or modem.
- If you're in a foreign country, the dial tone may not be recognized by the modem. In Control Panel, open Phone and Modem Options, and try disabling the option that waits for a dial tone.

If the modem dials incorrectly

- Check the telephone number you entered, including any digits required for outside access or long distance.
- In Control Panel, open Phone and Modem Options. Check the dialing options—look for duplicate digits for outside access or long distance.
- Make sure the number you're calling isn't busy.
- If you're in a foreign country, the dial tone may not be recognized by the modem. In Control Panel, open Phone and Modem Options, and try disabling the option that waits for a dial tone.

Solving Problems with Your Computer Troubleshooting Techniques

- If you have call-waiting, disable it—your telephone company can provide instructions.

If the modem will not connect at 56K speed

- The host modem may not support a 56K (V.90) connection speed.
- The speed at which you connect depends on several factors, such as the current condition of the telephone line. Try connecting another time.

If the modem will not connect at any speed

- Make sure you're using an analog telephone line. You must not use a digital line. In a hotel, ask for a data line.
- Make sure the telephone line goes from the RJ-11 modem phone jack on the right side of the computer to the telephone jack on the wall.
- If you have a single telephone line for voice and modem use, make sure no one else is using the line and that the phone is not off the hook.
- Try another telephone line, preferably one normally used for a fax machine or modem.
- Contact your Internet Service Provider (ISP). It's possible that service may be unavailable temporarily or that your settings are incorrect.
- Try restarting your computer and attempt another connection.
- Try an alternative dial-in number.
- Try disabling error correction and data compression.
- Download the latest modem driver from the technical support area of the HP notebook web site www.hp.com/notebooks.
- Run the modem diagnostics:
 1. Click Start, Control Panel, Printer and Other Hardware, Phone and Modem Options.
 2. Click the Modems tab, and select the modem you want to test.
 3. Click Properties, Diagnostics, Query Modem.
- In Windows Help and Support, use the Modem troubleshooter.

If the modem isn't detected

- Check the modem setup. In Control Panel, open Phone and Modem Options. Check the COM port.
- Open the hardware Device Manager: click Start, Control Panel, Performance and Maintenance, System. If the modem is disabled, try to enable it. If it has a conflict, try disabling another device.
- If you're running fax software using fax Class 2, try using Class 1.

If the modem dials but you can't hear it

- Check the speaker volume setting and mute setting.
- In Control Panel, open Phone and Modem Options. Select the modem and click Properties, then check the volume setting on the General tab.

If the modem connects, but transferred data is bad

- In Control Panel, open Phone and Modem Options. Make sure the parity, speed, word length, and stop bits match on sending and receiving modems.
- Try disabling error correction and data compression.

If the modem causes an ERROR message

- A string of AT commands may contain an incorrect command. If you entered commands as extra settings for the modem in Control Panel or in your communications software, check the commands.

If the modem doesn't fax

- If you're using fax Class 2 in the fax software, try using Class 1.
- Close any other communications programs.
- If you're faxing by printing from an application, make sure you've selected the fax printer.
- Try turning off power management features temporarily.

If excessive line current is detected

- Make sure you're using an analog telephone line. You must not use a digital line. In a hotel, ask for a data line.

Solving Problems with Your Computer Troubleshooting Techniques

If the modem clicks repeatedly but doesn't connect

- Make sure you're using an analog telephone line. You must not use a digital line. In a hotel, ask for a data line.
- Check all cables and connections.

If the modem connection is dropped when transferring large files

- There may be static or interference on the phone line. Try connecting later.
- If a serial or PC card modem is not working, disable the internal modem.
 1. Click Start, Control Panel, Printer and Other Hardware, Phone and Modem Options.
 2. Select the Modems tab, and select the internal modem.
 3. Click Remove.
 4. Click OK.

One-Touch button problems

If One-Touch buttons are not working properly

- Make sure the applications associated with the buttons are the ones you want.
 1. Click Start, Control Panel, Printers and Other Hardware, Keyboard.
 2. Select the One-Touch buttons tab.
 3. Click the button of the key you want to reconfigure.
 4. Select the application or web site you want associated with the button. (See "To configure a One-Touch button" on page 36 for more details.)
 5. Click Done or OK, then OK.

If the onscreen display does not appear when pressing a One-Touch button

- Make sure the Onscreen Display is enabled.
 1. Click Start, Control Panel, Printers and Other Hardware, Keyboard.
 2. Select the One-Touch buttons tab.
 3. Click Change Onscreen Display.
 4. Check Enable if it is not checked.
 5. Click Done, then OK.

PC card (PCMCIA) problems

If the notebook doesn't recognize a PC card

- Remove and reinsert the PC card.
- Restart the computer: click Start, Turn Off Computer, Restart.
- If the card requires an IRQ, make sure one is available: look in Control Panel, Performance and Maintenance, System, Hardware, Device Manager, View, Resources by Type.
- Check the HP Customer Care web site (www.hp.com/go/support) for information about installing certain PC Cards.
- Make sure your computer supports the problem PC Card: check the HP Notebook web site (www.hp.com/notebooks) for a list of approved and tested PC Cards.
- Try the card in another computer.
- Certain Xircom CE2 (Ips) LAN cards may conflict with the game port device. Contact Xircom to see if your card is one of these.

If an I/O card stops communicating properly

- The card may have been reset if the computer is on standby or turned off. Exit any applications, then remove and reinsert the card.

If a PC card modem is not working

- Disable the internal modem:
 1. Open the hardware Device Manager: click Start, Control Panel, Performance and Maintenance, System.
 2. Double-click Modem to list the current modem devices.
 3. Double-click the internal modem, then select the option to disable the modem.

You may also want to test the PC card with diagnostics. See “Testing Hardware Operation” on page 111.

Solving Problems with Your Computer Troubleshooting Techniques

Performance problems

For best performance with Windows XP, your computer should have at least 96 to 128 MB of memory (RAM).

If the computer pauses or runs sluggishly

- This may be normal Windows behavior. Background processing can affect response time.
- Press CTRL+ALT+DEL to see if an application is not responding.
- Restart the computer click Start, Turn Off Computer, Restart.
- Certain background operations (such as virus-scanning software) can affect performance.
- Some file browsers may be unresponsive while they're processing a graphic image or waiting for broken network connections to time out.
- If the computer's hard disk drive frequently runs (as indicated by the hard drive light on the front of the computer) while the computer appears to be paused or running slowly, Windows is likely spending excess time writing to its swap file on the computer's hard disk. If this occurs frequently, consider installing additional memory.
- Check the amount of available free disk space. Delete temporary and unneeded files.

If the computer stops responding

- Press CTRL+ALT+DEL to end any application that is not responding.
- Slide and hold the power switch for at least four seconds to turn off and reset the computer. Then press the blue standby button to turn the computer back on.
- If nothing happens, insert a straightened paper clip into the system-off button on the left side of the computer. Then press the blue standby button to turn the computer back on.

Power and battery problems

If the computer turns off immediately after it turns on

- Battery power is probably extremely low. Plug in the AC adapter or insert a newly charged battery.

If the computer keeps beeping

- The computer beeps repeatedly or displays a warning when the battery is low. Save your work, shut down the computer immediately, and insert a charged battery or plug in the AC adapter.

If the computer has a short operating time

- Try conserving power by setting power timeouts to shorter periods. In Windows, you can adjust these settings in the Power Management (or Power Options) Properties window in Control Panel.
- If you are running any applications with an automatic save feature, such as MS Word for Windows, you can extend the save time or disable this feature to reduce hard disk access.
- If the operating time has become shorter and the battery is more than a year or two old, you may need to replace the battery.
- Set the display brightness to the lowest comfortable level.
- Heavy modem use can affect battery operating time.
- PC card use can affect battery operating time.
- The battery gauge may need to be calibrated. Restart the computer, press F6 when the HP logo appears, and follow the instructions that appear onscreen. This process calibrates the battery, and requires four to five hours. You cannot use the computer during this process.

If the battery doesn't charge

- Make sure the AC adapter is plugged into the power source and that the light on the adapter is on.
- If you're using a power strip, remove the AC adapter from the power strip and plug it directly into a wall outlet.
- Make sure the battery is fully installed and locked in place.

Solving Problems with Your Computer Troubleshooting Techniques

- Turn off the computer, then make sure the battery contacts are clean and that the AC adapter cables are fully plugged in.
- Move the computer away from any nearby heat source. Unplug the AC adapter and allow the battery to cool down. An elevated battery temperature prevents charging.
- If another battery is available, try it.
- If another AC adapter is available, try it.

If the Time Remaining percentage for the battery is not correct

- The Time Remaining value on the power (battery) icon is an estimate based on your current usage, not a precise value.

If the computer doesn't standby as expected

- If you have a connection to another computer, the computer doesn't standby if the connection is actively in use.
- If the computer is performing an operation, it normally waits for the operation to finish.

If the computer doesn't automatically hibernate as expected

- Make sure hibernate support is enabled: from Control Panel, open Power Options, then click the Hibernate tab.

Printing problems

Hint

You will usually be able to solve most printing problems by using the Print troubleshooter in Windows Help: click Start, Help and Support.

If a serial or parallel printer doesn't print

- Make sure the printer is on and has paper in it.
- Make sure you are using a proper cable or cable adapter, and that it is securely attached at both ends.
- Check for printer errors.

If the left edge of printed output is missing

- If the printer you are using is a 600-dpi (dots per inch) printer, try selecting a compatible printer driver for a 300-dpi printer. For example, for a 600-dpi HP LaserJet printer, try using the HP LaserJet IIIsi driver (300-dpi). Certain applications may not work properly with 600-dpi printers.

Serial, parallel, and USB problems

If a serial mouse doesn't work

- Make certain you completely followed the manufacturer's installation instructions to install the mouse properly.
- Make sure the port connection is secure.
- Press the blue standby button to suspend and resume.
- Restart the computer: click Start, Turn Off Computer, Restart.
- Check mouse settings in Control Panel: click Start, Control Panel, Printers and Other Hardware, Mouse.
- Check the port settings in Control Panel: open the hardware Device Manager, then double-click Ports (COM & LPT).

If a serial modem doesn't work properly

- See "Modem problems" on page 99.
- In Windows Help and Support use the Modem troubleshooter.
- Make sure the port connection is secure.
- In Control Panel, open Phone and Modem Options, and check the modem settings.
- Disable the internal modem:
 1. Open the hardware Device Manager: click Start, Control Panel, Performance and Maintenance, System.
 2. Double-click Modem to list the current modem devices.
 3. Double-click the internal modem, then select the option to disable the modem.

Solving Problems with Your Computer Troubleshooting Techniques

If the serial or parallel port is not working

- Make sure the port connection is secure.
- Check the port settings in Control Panel: open the hardware Device Manager, then double-click Ports (COM & LPT).
- Test the ports with the e-Diagtools diagnostics—see “Testing Hardware Operation” on page 111.

If the USB port is not working

- Contact the vendor of the peripheral device or check the HP notebook web site (www.hp.com/notebooks) for the latest versions of the USB drivers and the driver for the device.
- Check the port settings in Control Panel: open the hardware Device Manager, then double-click Universal Serial Bus Controller.

You may also want to test the USB port with diagnostics. See “Testing Hardware Operation” on page 111.

Startup problems

If the computer doesn't respond when you turn it on

- Connect the AC adapter.
- Slide the power switch to try turning on the unit.
- Reset the computer by inserting a straightened paper clip into the system-off button on the left side of the computer. Then turn it on by pressing the blue standby button.
- Don't use the touch pad while booting or resuming.
- If you get no response, remove the battery and AC adapter, remove any PC cards, and undock the computer. Then plug in the AC adapter, reset the computer using the system-off button, and turn it on by pressing the blue standby button.
- If you still get no response, call HP for assistance.

If the computer doesn't boot from battery power

- Make sure the battery is properly inserted and fully charged.
- Check battery contacts.
- If another battery is available, try it.

If the computer doesn't boot from the floppy disk drive

- Make sure the floppy disk drive is selected as the boot device in the BIOS Setup utility.
 1. Click Start, Turn Off Computer, Restart.
 2. When you see the HP logo, press F2 to start the BIOS Setup utility.
 3. Tab to the Boot menu. The default boot order is (1) Hard Drive, (2) Floppy Drive, and (3) CD-ROM/DVD Drive.
 4. Select Floppy Drive for first boot device.
 5. Exit the BIOS Setup utility.
- Make sure the floppy disk drive controller is enabled in BIOS Setup—see “Using the BIOS Setup Utility” on page 74.

Standby and resume problems

If the computer takes a long time to resume after being on standby

- The computer can take a minute or longer to resume if a network card is installed. A blinking cursor appears on the display while the system is loading and checking hardware and network connections. As soon as the hardware is reinitialized, the Windows desktop appears.

If the operating system hangs after you have gone on standby or resumed

- Your system may hang if you dock or undock your notebook while you are going on standby or resuming the computer. Make sure your computer has completely finished going on standby or completely resumed before you dock or undock it.

Solving Problems with Your Computer Troubleshooting Techniques

If you have general problems resuming from standby or hibernation

- Close all applications before going into standby or hibernate mode.
- If the problems appeared after you installed new software (including drivers, such as printer drivers), uninstall the software.

If recently installed applications or drivers cause the problems, try contacting the software application or device vendor for additional support.

Video file playback problems

If an AVI or MPEG video file doesn't play with two displays

- Before playing the video file, press Fn+F5 to switch to one display. You cannot switch displays after play begins.
- If you're using both displays, the video file image will not appear on any display set up as "secondary". Open Display in Control Panel, click Advanced on the Settings tab, and change settings.

If you have problems with display resolution or color depth when playing an AVI or MPEG video file

- Set the resolution or color depth before starting the video file player. You cannot change these settings after play begins.
- Some combinations of color depth and resolution are not supported in video file playback. If you receive an error message, reduce color depth or display resolution.

Testing Hardware Operation

The e-Diagtools program included with your computer provides two levels of testing:

- Automated testing using the basic hardware test.
- Advanced testing using individual hardware tests.

The tests are designed to run after the system reboots. This ensures that the computer will be in a predictable state, so the diagnostic program can properly test the hardware components. The tests are nondestructive and are intended to preserve the state of the computer. The computer reboots when you exit the program, so drivers can be loaded.

To run the diagnostic test

1. Restart the computer: click Start, Turn Off Computer, Restart.
2. Press F10 when you see the HP logo.
3. When the menu appears, press Enter to run e-Diagtools.

The first time you run the program, you will be prompted to select the language for the program.

4. Follow the prompts to run e-Diagtools.
5. When the Configuration Description appears, check the list of detected hardware.

If a device is not detected, it may be configured incorrectly in the BIOS. You can confirm the problem by running BIOS Setup utility and checking the settings.

6. **Run the basic test.** Press F2 to start the basic hardware test. The results appear when the test is complete.
7. If you intend to exit without running the advanced tests, press F4 to view the Support Ticket. Press F3 to exit e-Diagtools.
8. **Optional: run the advanced tests.** Press F2 to open the advanced test screen.

Solving Problems with Your Computer

Testing Hardware Operation

9. Select and run the appropriate tests. Tests are listed only for detected hardware. Press the following keys to run tests:

Enter	Runs the highlighted test.
F5 or Space	Marks or unmarks the highlighted test.
F6	Marks or unmarks all tests in the current menu.
F7	Marks or unmarks all tests in all menus.
F10	Run all marked tests.

10. **Save the Support Ticket.** Press T to update and display a Support Ticket containing system and test information.
11. When you have finished running advanced tests, press ESC to exit.
12. Optional: to save the Support Ticket to a floppy disk, press F7 then ALT+C.
13. **Exit.** Press F3 and then any key to exit and reboot.
14. **Optional: open the Support Ticket.** In Windows, click Start, All Programs, HP e-Diagtools, e-Diagtools for Windows.
15. Click View to display the Support Ticket.
16. To add information about your problem, click Comments and type the information, then click OK.

To save or print the Support Ticket, click Save As or Print.

To e-mail the Support Ticket to your support agent, click e-Mail. The first time you make an e-mail connection from this program, click Change Settings in the Connect window and enter the settings recommended by your support agent.

e-Diagtools for Windows can also update the version of e-Diagtools on your computer's hard disk. In e-Diagtools for Windows, use the e-Diagtools menu.

If you have trouble running e-Diagtools diagnostics from the hard disk, you can also run it from the *Recovery CD*. Boot from the CD and select the diagnostics option.

Recovering and Reinstalling Software

You can use the *Recovery CD* to recover an original build. If you need to recover a specific application, you can reinstall the software directly from your hard drive; for instructions, see “To recover an application” on page 115.

The *Recovery CD* provides the HP notebook–specific Windows drivers to configure your custom system. You can find drivers:

- On the hard drive under `c:\hp\drivers`.
- On the *Recovery CD*, under `\hp\drivers`.
- On the HP notebook web site at www.hp.com/notebooks. This web site contains the latest updates of software drivers for your computer.

To recover the factory installation of your hard disk

The following procedure describes how to recover the original Windows software and operating system that came with your computer.

CAUTION

This procedure formats the hard disk drive. After the hard disk drive is formatted, you’ll need to reinstall any applications. Reformatting the hard disk drive will erase all data on the disk.

Do not interrupt the following process or unplug the AC adapter until the process is complete.

1. **Important:** back up all data from your hard disk. The following steps delete all data from the disk.
2. Connect the AC adapter to the computer.
3. Insert the *Recovery CD* (disc 1) in the CD-ROM drive. *If the computer is turned off*, insert a straightened paper clip into the hole on the drive door to open it.
4. Turn on or restart the computer. If the computer is running, click Start, Turn Off Computer, Restart.
5. When you see the HP logo, press ESC to display the Boot menu.
6. Use the arrow keys to select the CD-ROM drive as the boot device, and press Enter.

Solving Problems with Your Computer

Recovering and Reinstalling Software

7. When the *Recovery CD* dialog box appears, follow the displayed instructions. If prompted, accept the recommended partition size. If you install the factory software, the recovery process can take up to 15 minutes.

If you want to create the hibernate partition without installing the factory software, click Advanced and select not to install the operating system.

If your hard disk is partitioned into several drives, you can install the factory software on drive C without affecting other drives. Click Advanced and select to restore only the C partition.

8. When prompted to reboot the computer, press CTRL+ALT+DEL and follow any instructions that appear.

You can find more details about recovering the factory installation of Windows on the *Recovery CD*: the file readme.txt is in the CD's root directory.

Note

Windows XP supports the NTFS file system.

To replace a damaged *Recovery CD*

If you lose or damage the *Recovery CD*, call the HP Customer Care Center for information about replacing it. See “To call HP for service and support” on page 83 for the phone number.

To update the HP notebook BIOS

Hewlett-Packard may provide updates to the BIOS to enhance the capabilities of the computer. You can use e-Diagtools for Windows to download and install BIOS these updates as they become available.

CAUTION

A BIOS update replaces the previous version, so it is important that you follow these instructions exactly. Otherwise, the computer may be damaged. The BIOS update process resets the configuration settings in the BIOS Setup utility, except for BIOS passwords.

1. In Windows, exit any programs that are running.
2. Remove any PC cards.
3. If the notebook is docked, undock it.
4. Connect the AC adapter to the notebook.

5. Connect any cables or equipment needed to connect to the Internet.
6. Click Start, All Programs, HP e-Diagtools, e-Diagtools for Windows.
7. Click Update, select Download New and click OK. Follow the instructions that appear. **Once the update process begins, do not interrupt it.**

The first time you make an Internet connection from this program, click Change Settings in the Connect window to define your connection settings.

8. When the process is completed, reset the system: insert a pin or straightened paper clip into the recess on the left side of the computer, underneath the PC card eject buttons.

BIOS updates are also available from the HP Customer Care web site (www.hp.com/go/support).

To recover an application

If you remove an application from your hard disk and later decide you want it back, or if you accidentally delete application files, you can reinstall the original software. The setup programs for most of the applications that were factory-installed on your system are included on your hard drive in `c:\hp\programs`. Each application has its own folder that includes a file of instructions (`readme.txt`).

A few factory-installed applications do not have installation programs on the hard drive. If your computer came with one of these applications (for example, Microsoft Works, Microsoft Encarta, or Microsoft Money), you can reinstall it by using the appropriate CD-ROM.

Note

The *Recovery CD* restores all the software that was originally on your HP notebook PC, but the recovery program erases the hard drive in the process. Therefore, to reinstall only specific applications and *not* the original system, do not use the *Recovery CD*.

Specifications and Regulatory Information

Hardware and BIOS Specifications

Because we are constantly improving our products, the specifications shown below are subject to change. For the latest specifications, go to the HP notebook web site (www.hp.com/notebooks).

BIOS Setup utility options

The pointing devices are not active in the BIOS Setup utility. Press the Right and Left arrow keys to move from one menu to another. Press the Down and Up arrow keys to move among parameters in a menu. Press F5 or F6 to move through values for the current parameter or press Enter to change a setting. See the tables below for more information.

Main Menu		Default
BIOS Revision	Shows the current BIOS version.	Detected automatically.
System Time	Sets the time using 24-hour format. Values set take effect immediately.	
System Date	Sets the date using mm/dd/yyyy format.	
Floppy Drive	Sets the floppy drive type.	Detected and set automatically.
Internal Hard Disk	Sets the hard disk drive size. Note that the drive size is larger than the drive "capacity" reported by Windows because the hard drive is preconfigured to reserve space for diagnostic software.	Detected and set automatically.
Quiet Boot	When enabled, hides summary of power-on self-test and messages during boot.	Enabled

Specifications and Regulatory Information
Hardware and BIOS Specifications

Video Display Device	Switches between sending video signals to both the built-in LCD display and an external CRT display (Both) and automatically switching to the external CRT if one is attached (Auto).	Auto
Video Expansion	When enabled, expands video image to cover entire LCD at lower resolutions. To expand everything, first decrease screen size in Control Panel, Display Settings before expanding video.	Disabled
Television Type	NTSC or PAL standard.	NTSC
System Memory	Shows the system memory size.	Detected automatically.
Extended Memory	Shows the extended memory size.	Detected automatically.
CPU Serial Number (on selected models)	When enabled, reports Intel CPU serial number to application software.	Enabled

System Devices Menu

Default

PS/2 Pointing Device	When an external PS/2 mouse is connected, enables internal pointing device also (Both) or disables it (External Only or Auto).	Auto
External Fn key	Not on all models. Enables or disables Left CTRL+Left ALT on external keyboard to simulate notebook keyboard Fn key.	Enabled
IDE Controller (on selected models)	Configures local bus IDE controller to enable primary channel (Primary), primary and secondary channel (Both), or neither (Disabled).	Both
FDD Controller	Enables or disables floppy disk drive controller.	Enabled
LCD Status Panel Display	Enables or disables display of the status panel.	Enabled

Specifications and Regulatory Information
Hardware and BIOS Specifications

LCD Status Panel Date Format	Set date format on the status panel.	mm/dd/yy (month/date/year)
LCD Status Panel Time Format	Set time format on the status panel.	hh:mm

Security Menu

Default

User Password Is	Shows if a user password is set.	Clear
Administrator Password Is	Shows if a supervisor password is set.	Clear
Set User Password	Sets, changes, or clears user password, after supervisor password is set. Password length can be no longer than 8 characters, 0-9, A-Z.	
Set Supervisor Password	Sets, changes, or clears supervisor password. This password protects BIOS Setup settings.	
Password Required to Boot	Sets whether a user password is required when the computer boots.	Enabled

Boot Menu

Default

	Indicates boot order of drives (change order with F5 and F6 keys).	Hard Drive Floppy Drive CD-ROM Drive
--	--	--

Exit Menu

Saving Changes and Exit	Saves Setup changes to CMOS, exits, and restarts.	
Discarding Changes and Exit	Discards Setup changes since last save, exits, and restarts. Does not affect security, date, or time changes.	
Get Default Values	Restores default settings, stays in Setup. Does not affect security, date, or time changes.	

Load Previous Values	Discards Setup changes since last save, stays in Setup. Does not affect security, date, or time changes.	
Save Changes	Saves Setup changes to CMOS and stays in Setup. Security settings are saved when changed.	

Hardware specifications

Note Technology codes identify different models of a notebook PC. These two-letter codes are found near the serial number on the bottom of the computer.

Physical Attributes	Size: 13.03"x10.72"x1.59" (331x272.3x40.5mm) for 12.1"–14.1" 13.46"x10.92"x1.65" (342x276.6x42.0mm) for 15" Weight: 6.5lbs (3.0kg) minimum
CPU	Technology code GE: AMD Duron and Athlon, 200MHz FSB
Chip Set	Technology code GE: Ali M1647 + M1535
RAM	100MHz SDRAM (PC100) Maximum memory upgrade to 512MB by two 256MB SODIMM (144-pin/3.3V) modules in two 1.25" slots
Mass Storage	9.5mm, 2.5" hard disk drive 1.44-MB floppy disk drive
CD-DVD drive	24x CD-ROM, 24x8x DVD, 8x4x24x DVD/CD-RW (or higher)
Display	13" SVGA (800x600) HPA LCD (in some models) 12.1" SVGA (800x600), 13.3"/14.1"/15" XGA (1024x768), or 15" SXGA+ (1400x1050) TFT LCD
Video chip	S3 Savage/IX – Integrated 4MB or 8MB SGRAM or Trident CBXP + 8 MB video RAM
Keyboard and Pointing Devices	87/88/90-key spill-proof QWERTY keyboard with 101/102 key emulation Embedded numeric keypad 12 function (Fn) keys Touch pad with on/off button Left and right click buttons, center scroll button

Specifications and Regulatory Information
Hardware and BIOS Specifications

Audio	Built-in microphone Two stereo speakers CD player with built-in control buttons and status display (selected models) Headphone-out and microphone-in
Power	Rechargeable lithium-ion battery (11.1V) or NiMH battery (10.8V) Battery life: up to 3 hrs depending on settings, usage, battery, and other factors Charging time: 2.2 hr (system off), 3 hr (system on) Low-battery warning Suspend/resume capability Universal AC adapter: 100–240 Vac (50/60 Hz) input, 19 Vdc output, 60-65 W
I/O Ports	Serial port: 9 pins (RS232), 16550 compatible High-speed bidirectional parallel port: 25 pins, EPP/ECP capability VGA port: 15 pins PS/2: 6 pins, for keyboard, keypad or PS/2 mouse (Y adapter compatible) Microphone-in, headphone-out jacks Internal microphone Two USB ports DC-in jack Composite TV-out
Expandability	Two Type II or one Type III 16-/32-bit PCMCIA slots.
Options	64/128/256MB PC-100 SODIMM: 3.3V, 144-pin, SDRAM Mini-PCI modem, supporting Wake up on Ring# from D3 (cold) with AC-in Mini-PCI modem/LAN combo, supporting Wake up on Ring# & PME# from D3 (cold) with AC-in
Environment	Operating temperature: 0 to 40°C (32 to 104°F) Storage temperature: -20 to 65°C (-4 to 149°F) Operating humidity: 20% (10% on some models) to 90% RH (5 to 35°C) Operating altitude: up to 3,000m (10,000 ft) Storage altitude: up to 12,000m (40,000 ft)

Modem Reference Information

If your computer has a built-in modem, you can customize the operation of the modem using AT commands and S-registers. You can do this from Phone and Modem Options in Control Panel, from most communications software, or by using terminal mode in your software. See “To change your modem settings” on page 62.

Note

You should have a good understanding of modems and how they operate before you change default settings.

This section contains summary information about AT commands, S-registers, and selected result codes for the built-in modem (with an Ambit chip), which is included with selected models of the HP notebook PC.

AT commands (Ambit)

In the following AT command table, default settings are shown in bold. All listed AT commands except A/ must be preceded by “AT.”

Command	Function (Ambit)
A/	Re-execute command (not preceded by AT)
A	Go off-hook and attempt to answer a call
B0	Select V.22 connect @1200 bps
B1	Select Bell 212A connect @1200 bps
C1	Return OK message
Dn	Dial modifier
E0	Turn off command echo
E1	Turn on command echo
H0	Initiate a hang-up sequence
H1	If on-hook, go off-hook and enter command mode
I0	Report product code
I1	Report pre-computed checksum
I2	Report “OK” if the calculated checksum equals the prestored checksum or if the prestored checksum value is FFh
I3	Report firmware revision, model, and interface type
I4	Report response programmed by OEM
I5	Report the country code parameter
I6	Report modem data pump model and code revision
I7	Report the DAA code
L0	Set low speaker volume
L1	Set low speaker volume
L2	Set medium speaker volume
L3	Set high speaker volume

Specifications and Regulatory Information
Modem Reference Information

Command	Function (Ambit)
M0	Turn speaker off
M1	Turn speaker on during handshaking and turn speaker off while receiving carrier
M2	Turn speaker on during handshaking and while receiving carrier
M3	Turn speaker off during dialing and receiving carrier and turn speaker on during answering
N0	Turn off automode detection
N1	Turn on automode detection
O0	Go on-line
O1	Go on-line and initiate a retrain sequence
P	Force pulse dialing
Q0	Allow result codes to DTE
Q1	Inhibit result codes to DTE
Sn	Select S-Register n as default
Sn?	Return the value of S-Register n
Sn=v	Set default S-Register n to value v
T	Force DTMF dialing
V0	Report short form result codes
V1	Report long form result codes
W0	Report DTE speed only
W1	Report line speed, EC protocol and DTE speed
W2	Report DCE speed only
X0	Report basic call progress result codes, i.e., Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer and Error
X1	Report basic call progress result codes and connections speeds (Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer, Connect XXXX, and Error
X2	Report basic call progress result codes and connections speeds, i.e., Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer, Connect XXXX, and Error
X3	Report basic call progress result codes and connections rate, i.e., Ok, Connect, Ring, No Carrier, No Answer, Connect XXXX, Busy, and Error
X4	Report all call progress result codes and connections rate, i.e., Ok, Connect, Ring, No Carrier, No Answer, Connect XXXX, Busy, No Dial Tone and Error
Y0	Disable long space disconnect before on-hook
Y1	Enable long space disconnect before on-hook
Z0	Restore stored profile 0 after warm reset
Z1	Soft reset and restore stored profile 1 after warm reset
&C0	Soft reset and force RLSD active regardless of the carrier state
&C1	Allow RLSD to follow the carrier state
&D0	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q5, &Q6: The modem ignores DTR &Q1, &Q4: The modem hangs up &Q2, &Q3: The modem hangs up
&D1	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q1, &Q4, &Q5, &Q6: Asynchronous escape &Q2, &Q3: The modem hangs up
&D2	Interpret DTR On-to-OFF transition per &Qn &Q0 through &Q6: The modem hangs up
&D3	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q1, &Q4, &Q5, &Q6: Soft reset &Q2, &Q3: The modem hangs up
&F0	Restore factory configuration 0

Specifications and Regulatory Information
Modem Reference Information

Command	Function (Ambit)
&F1	Restore factory configuration 1
&G0	Disable guard tone
&G1	Disable guard tone
&G2	Enable 1800 Hz guard tone
&J0	Set S-Register response only for compatibility
&J1	Set S-Register response only for compatibility
&K0	Disable DTE/DCE flow control
&K3	Enable RTS/CTS DTE/DCE flow control
&K4	Enable XON/XOFF DTE/DCE flow control
&K5	Enable transparent XON/ XOFF low control
&K6	Enable both RTS/CTS and XON/XOFF flow control
&L0	Select dial up line operation
&M0	Select direct asynchronous mode
&M1	Select sync connect with async off-line command mode
&M2	Select sync connect with async off-line command mode and enable DTR dialing of directory zero
&M3	Select sync connect with async off-line command mode and enable DTR to act as Talk/Data switch
&P0	Set 10 pps pulse dial with 39%/61% make/break
&P1	Set 10 pps pulse dial with 33%/67% make/break
&P2	Set 20 pps pulse dial with 39%/61% make/break
&P3	Set 20 pps pulse dial with 33%/67% make/break
&Q0	Select direct asynchronous mode
&Q1	Select sync connect with async off-line command mode
&Q2	Select sync connect with async off-line command mode and enable DTR dialing of directory zero
&Q3	Select sync connect with async off-line command mode and enable DTR to act as Talk/Data switch
&Q4	Select Hayes AutoSync mode
&Q5	Modem negotiates an error corrected link
&Q6	Select asynchronous operation in normal mode
&R0	CTS tracks RTS (sync) or CTS is normally ON and will turn OFF only if required by flow control (async)
&R1	CTS is always active (sync) or CTS is normally ON and will turn OFF only if required by flow control (async)
&S0	DSR is always active
&S1	DSR will become active after answer tone has been detected and inactive after the carrier has been lost
&T0	Terminate any test in progress
&T1	Initiate local analog loopback
&T2	Returns ERROR result code
&T3	Initiate local digital loopback
&T4	Allow remote digital loopback (RDL)
&T5	Disallow remote digital loopback request
&T6	Request an RDL without self-test
&T7	Request an RDL with self-test
&T6	Request an RDL without self-test
&T7	Request an RDL with self-test
&T8	Initiate local analog loop with self-test
&V	Display current configuration and stored profiles
&V1	Display last connection statistics
&W0	Store the current configuration as profile 0
&W1	Store the current configuration as profile 1
&X0	Select internal timing for the transmit clock
&X1	Select external timing for the transmit clock
&X2	Select slave receive timing for the transmit clock

Specifications and Regulatory Information
Modem Reference Information

Command	Function (Ambit)
&Y0	Recall stored profile 0 upon power up
&Y1	Recall stored profile 1 upon power up
&Zn=x	Store dial string x (up to 34 digits) to location n (0 to 3)
%E0	Disable line quality monitor and auto retrain
%E1	Enable line quality monitor and auto retrain
%E2	Enable line quality monitor and fallback/fall forward
%L	Return received line signal level
%Q	Report the line signal quality
%TTn	PTT testing of signal level: 00-09=DTMF dial 0-9, 0A=DTMF *, 0B=DTMF #, 0C=DTMF A, 0D=DTMF B, 0E=DTMF C, 0F=DTMF D, 10=V.21 Channel 1mark symbol, 11=V.21 Channel 2mark symbol, 15=V.22 originate signaling at 1200bps, 16=V.22bis originate signaling at 2400bps, 17=V.22 answering signaling, 18=V.22bis answer signaling, 19=V.21 Channel 1space symbol, 1A=V.21 Channel 2 space symbol, 20=V.32 9600bps, 21=V.32bis 14400bps, 30=Silence, 31=V.25 answer tone, 32=1800Hz guard tone, 33=V.25 calling tone (1300Hz), 34=Fax calling tone (1100Hz), 40=V.21 channel 2, 41=V.27ter 2400bps, 42=V.27ter 4800bps, 43=V.29 7200bps, 44=V.29 9600bps, 45=V.17 7200bps long, 46=V.17 7200bps short, 47=V.17 9600bps long, 48=V.17 9600bps short, 49=V.17 12000bps long, 4A=V.17 12000bps short, 4B=V.17 14400bps long, 4C=V.17 14400bps short, 60=2400bps (V.34 only), 61=4800bps (V.34 only), 62=7200bps (V.34 only), 63=9600bps (V.34 only), 64=12000bps (V.34 only), 65=14400bps, 66=16800bps, 67=19200bps, 68=21600bps, 69=24000bps, 6A=26400bps, 6B=28800bps, 6C=31200bps, 6D=33600bps
When modem receives a break from the DTE:	
\K0,2,4	Enter on-line command mode, no break sent to the remote modem
\K1	Clear buffers and send break to remote modem
\K3	Send break to remote modem immediately
\K5	Send break to remote modem in sequence with transmitted data
When modem receives \B in on-line command state:	
\K0,1	Clear buffers and send break to remote modem
\K2,3	Send break to remote modem immediately
\K4,5	Send break to remote modem in sequence with transmitted data
When modem receives break from the remote modem:	
\K0,1	Clear data buffers and send break to DTE
\K2,3	Send a break immediately to DTE
\K4,5	Send a break with received data to the DTE
\N0	Select normal speed buffered mode
\N1	Select direct mode
\N2	Select reliable link mode
\N3	Select auto reliable mode
\N4	Force LAPM mode
\N5	Force MNP mode
\V0	Connect messages are controlled by the command settings X, W, and S95
\V1	Connect messages are displayed in the single line format
+MS=a,b,c,d	Select modulation (b, c, and d are optional) a is the mode (bps): 0=V.21 (300), 1=V.22 (1200), 2=V.22bis (2400, 1200), 3=V.23 (1200, 300), 9=V.32 (9600, 4800), 10=V.32bis (14400, 12000, 9600, 7200, 4800), 11=V.34 (33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, 2400), 17=X2, V.90 (57333-33333), 64=Bell 103 (300) b is autmode: 0=disabled, 1=enabled c is minimum rate (bps): 300-33600 d is maximum rate (bps): 300-33600
+H0	Disable Rockwell Protocol Interface (RPI)/video ready mode
+H1	Enable RPI and set DTE speed to 19200 bps

Specifications and Regulatory Information
Modem Reference Information

Command	Function (Ambit)
+H2	Enable RPI and set DTE speed to 38400 bps
+H3	Enable RPI and set DTE speed to 57600 bps
+H11	Enable RPI+ mode
+H16	Enable Video Ready mode
**0	Download to flash memory at last sensed speed
**1	Download to flash memory at 38.4 kbps
**2	Download to flash memory at 57.6 kbps
-SDR=0	Disable distinctive ring
-SDR=1	Enable distinctive ring type 1
-SDR=2	Enable distinctive ring type 2
-SDR=3	Enable distinctive ring type 1 and 2
-SDR=4	Enable distinctive ring type 3
-SDR=5	Enable distinctive ring type 1 and 3
-SDR=6	Enable distinctive ring type 2 and 3
-SDR=7	Enable distinctive ring type 1, 2 and 3

ECC Commands

%C0	Disable data compression
%C1	Enable MNP 5 data compression
%C2	Enable V.42 bis data compression
%C3	Enable both V.42 bis and MNP 5 compression
\A0	Set maximum block size in MNP to 64
\A1	Set maximum block size in MNP to 128
\A2	Set maximum block size in MNP to 192
\A3	Set maximum block size in MNP to 256
\Bn	Send break of n × 100 ms

MNP 10 Commands

-K0	Disable MNP 10 extended services
-K1	Enable MNP 10 extended services
-K2	Disable MNP 10 extended services detection only
-SEC=0	Disable MNP 10-EC
-SEC=1, [<tx level>]	Enable MNP 10-EC and set transmit level <tx level> 0 to 30 (0 dBm to -30 dBm)

FAX Class 1

+Fclass=1	Service class
+FAE=0	Disable data/fax auto answer
+FAE=1	Enable data/fax auto answer
+FRH=n	Receive data with HDLC framing
+FRM=n	Receive data
+FRS=n	Receive silence, n×10 ms
+FTH=n	Transmit data with HDLC framing
+FTM=n	Transmit data
+FTS=n	Stop transmission and wait, n×10 ms

AT* Commands

*B	Display black-listed number
*Cn	Data calling tone selection

Specifications and Regulatory Information
Modem Reference Information

Command	Function (Ambit)
*NCn	Select country parameters: 0=US, 1=Japan, 2=Germany, 3=UK, 4=France, 5=Netherlands, 6=Italy, 7=Australia, 8=Sweden, 9=Denmark, 10=New Zealand, 11=Korea, 12=China, 13=Singapore, 14=Malaysia, 15=South Africa, 16=Poland, 17=Czech Republic, 18=Hungary, 19=Hong Kong, 20=Turkey, 21=Spain.

S-registers (Ambit)

Register	Function (Ambit)	Range/units	Default
S0	Rings to auto-answer	0-255/rings	0
S1	Ring counter	0-255/rings	0
S2	Escape character	0-255/ASCII	43
S3	Carriage return character	0-127/ASCII	13
S4	Line feed character	0-127/ASCII	10
S5	Backspace character	0-255/ASCII	8
S6	Wait time for dial tone	2-255/s	2
S7	Wait time for carrier	1-255/s	50
S8	Pause time for dial delay modifier	0-255/s	2
S9	Carrier detect response time	1-255/.1 s	6
S10	Carrier loss disconnect time	1-255/.1 s	14
S11	DTMF tone duration	50-255/.001 s	95
S12	Escape prompt delay	0-255/.02 s	50
S14	General bit mapped options status		138 (8Ah)
S16	Test mode bit mapped options status (&T)		0
S18	Test timer	0-255/s	0
S19	AutoSync options		0
S20	AutoSync HDLC address or BSC Sync character	0-255	0
S21	V.24/general bit mapped options status		52 (34h)
S22	Speaker/results bit mapped options status		117 (75h)
S23	General bit mapped options status		62 (3Dh)
S24	Sleep inactivity timer	0-255/s	0
S25	Delay to DTR off	0-255/s or .01s	5
S26	RTS-to-CTS delay	0-255/.01 s	1
S27	General bit mapped options status		73 (49h)
S28	General bit mapped options status		0
S29	Flash dial modifier time	0-255/10 ms	70
S30	Disconnect inactivity timer	0-255/10 s	0
S31	General bit mapped options status		194 (C2h)
S32	XON character	0-255/ASCII	17 (11h)
S33	XOFF character	0-255/ASCII	19 (13h)
S36	LAPM failure control		7
S37	Line connection speed		0
S38	Delay before forced hangup	0-255/s	20
S39	Flow control bit mapped options status		3
S40	General bit mapped options status		104 (68h)
S41	General bit mapped options status		195(C3h)
S46	Data compression control		138
S48	V.42 negotiation control		7

Specifications and Regulatory Information
Modem Reference Information

Register	Function (Ambit)	Range/units	Default
S82	LAPM break control		128 (40h)
S86	Call failure reason code		0-255
S91	PSTN transmit attenuation level	0-15/dBm	10 (country dependent)
S92	Fax transmit attenuation level	0-15/dBm	10 (country dependent)
S95	Result code messages control		0

Selected result codes (Ambit)

Code	Meaning
0	OK
1	CONNECT
2	RING
3	NO CARRIER
4	ERROR
5	CONNECT 1200
6	NO DIAL TONE
7	BUSY
8	NO ANSWER

Safety Information

Power cords

The power cord supplied with the notebook AC adapter should match the plug and voltage requirements for your local area. Regulatory approval for the AC adapter has been obtained using the power cord for the local area. However, if you travel to a different area or need to connect to a different outlet or voltage, you should use one of the power cords listed below. To purchase a power cord (including one for a country not listed below) or a replacement AC adapter, contact your local Hewlett-Packard dealer or sales office. For any power cord with a fused plug, if you have to replace the fuse, be sure to install an approved fuse.

Country	Rated Voltage and Current	HP Part Number
Canada Mexico Philippines Taiwan United States	125 Vac (3 A)	8120-6313
Europe Egypt Israel Saudi Arabia	250 Vac (2.5 A)	8120-6314
Hong Kong Singapore United Kingdom	250 Vac (2.5 A)	8120-8699
Australia New Zealand	250 Vac (2.5 A)	8120-6312
Japan	125 Vac (3 A)	8120-6316
India	250 Vac (2.5 A)	8121-0702
South Africa	250 Vac (2.5 A)	8120-6317
Argentina	250 Vac (2.5 A)	8120-8367
Chile	250 Vac (2.5 A)	8120-8452
People's Republic of China	250 Vac (2.5 A)	8120-8373

Battery safety

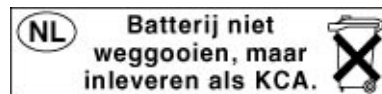
Note

The following batteries are compatible only with selected HP notebook computers:

- HP F2109/NiMH
- HP F2024A/LiIon 9-cell
- HP F2193/LiIon 6-cell

While your computer may be shipped with any of these batteries, only the HP F2024A/LiIon 9-cell battery is available as a replacement after purchasing your notebook.

- To avoid risk of fire, burns, or damage to your battery pack, do not allow a metal object to touch the battery contacts.
- The battery pack is suitable for use only with compatible HP notebook models. Check the “Support and Service” section of this *Reference Guide* for your local HP contact.
- Do not disassemble. There are no serviceable parts inside. Do not dispose of the battery pack in fire or water.
- Handle a damaged or leaking battery with extreme care. If you come in contact with the electrolyte, wash the exposed area with soap and water. If it contacts the eye, flush the eye with water for 15 minutes and seek medical attention.
- Do not expose the battery pack to high storage temperatures, above 60° C (140° F).
- When discarding a battery pack, contact your local waste disposal provider regarding local restrictions on the disposal or recycling of batteries.
- To obtain a replacement battery, contact your local dealer or HP sales office.
- Do not charge the battery pack if the ambient temperature exceeds 45° C (113° F).
- When discarding a battery pack, contact your local waste disposal provider regarding local restrictions on the disposal or recycling of batteries.



Laser safety

The CD-ROM and DVD drives used with the HP notebook PC are certified as Class 1 laser devices according to the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard and International Standards IEC 825 / IEC 825-1 (EN60825 / EN60825-1). These devices are not considered harmful, but the following precautions are recommended:

- Ensure proper use by reading and following the instructions carefully.
- If the unit requires service, contact an authorized HP representative—see the “Support and Service” section of this *Reference Guide*.
- Do not attempt to make any adjustment of the unit.
- Avoid direct exposure to the laser beam—do not disassemble the drive.

CLASS 1 LASER PRODUCT LASER KLASSE 1

Regulatory Information

This section presents information that shows how the HP notebook PC complies with regulations in certain regions. Any modifications to the computer not expressly approved by Hewlett-Packard could void the authority to operate the HP notebook PC in these regions.

U.S.A.

This computer has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This computer generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this computer does cause harmful interference to radio or television reception (which can be determined by removing the unit's batteries and AC adapter), try the following:

- Reorienting or relocating the receiving antenna.
- Relocating the computer with respect to the receiver.
- Connecting the computer's AC adapter to another power outlet.

Connections to Peripheral Devices

To maintain compliance with FCC Rules and Regulations, use properly shielded cables with this device.

For more information, consult your dealer, an experienced radio/television technician, or the following booklet, prepared by the Federal Communications Commission: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock Number 004-000-00345-4. At the first printing of this manual, the telephone number was (202) 512-1800.

Specifications and Regulatory Information
Regulatory Information

Declaration of Conformity (U.S.A.)

Responsible Party: Hewlett-Packard Company
Manager of Corporate Product Regulations
3000 Hanover Street
Palo Alto, CA 94304, U.S.A.
+1 (650) 857-1501

declares that the product

Trade name: Hewlett-Packard Company
Product name: Notebook PC
Model Number(s): Omnibook XE3 (OB XE3), Pavilion N5D series
Notebook PC (*D* is any number 0–9)

complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

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

Canada

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes : (1) il ne doit pas produire de brouillage et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

European Union

The equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In event of problems, you should contact your equipment supplier in the first instance.

This equipment has been designed to work in all of the countries of the European Economic Area (Public Switched Telephone Networks). Network compatibility is dependent on internal software settings. Contact your equipment supplier if it is necessary to use the equipment on a different telephone network. For further product support, contact Hewlett-Packard at the phone numbers provided in your *Reference Guide*.

Belgium: For outdoor usage only channels 10 (2457 MHz) and 11 (2462 MHz) is allowed. For private usage outside buildings across public grounds over less than 300m, no special registration with IBPT/BIPT is required. Registration to IBPT/BIPT is required for private usage outside buildings across public grounds over more than 300m. An IBPT/BIPT license is required for public usage outside building. For registration and license please contact IBPT/BIPT.

France: Restricted frequency band: only channels 10 and 11 (2457 MHz and 2462 MHz respectively) may be used in France. License required for every installation, indoor and outdoor installations. Please contact ART for the procedure to follow. Use with outdoor installations not allowed.

Germany: License required for outdoor installations. Check with reseller for procedure to follow.

Netherlands: License required for outdoor installations. Check with reseller for procedure to follow.

Italy: License required for indoor use. Use with outdoor installations not allowed.

Specifications and Regulatory Information

Regulatory Information

Die Geräte wurden gemäß Ratsentscheidung 98/482/EC für den Anschluss an eine einzelne Telefonbuchse im europäischen Raum (Public Switched Telephone Network) und drahtlose Funknetzwerke zertifiziert. In Anbetracht der Unterschiede zwischen den einzelnen Telefonnetzen bietet die Zertifizierung für sich genommen keine absolute Sicherheit, dass die Geräte bei Anschluss an jeder beliebigen Telefonbuchse funktionieren.

Sollten Probleme auftreten, wenden Sie sich zunächst an den Gerätehersteller.

Diese Geräte wurden zum Betrieb in allen Ländern der europäischen Wirtschaftsgemeinschaft entwickelt (Public Switched Telephone Networks). Die Kompatibilität zum Netz ist von internen Software-Einstellungen abhängig. Wenden Sie sich an den Gerätehersteller, wenn Sie die Geräte in einem anderen Telefonnetz einsetzen müssen. Weitere Informationen zur Unterstützung für das Produkt erhalten Sie bei Hewlett-Packard.

Cet équipement a été reconnu conforme aux décisions du Conseil 98/482/EC relatives à la connexion pan-européenne de terminal simple au réseau téléphonique public commuté (RTPC) et à un réseau sans fil RF. Cependant, des différences existant entre les RTPC nationaux présents dans les différents pays, cette homologation en elle-même ne garantit pas la réussite de toutes les opérations sur tous les points de terminaison du réseau téléphonique public commuté.

En cas de problème, prenez contact avec le fournisseur auprès duquel vous vous êtes procuré votre équipement.

Cet équipement a été conçu pour fonctionner dans tous les pays membres de la zone d'échange européenne (Réseaux Téléphoniques Public Commutés).

La compatibilité entre réseaux dépend des paramètres internes du logiciel.

Prenez contact avec le fournisseur auprès duquel vous vous êtes procuré votre équipement pour savoir s'il est préférable d'utiliser ce dernier sur un autre réseau téléphonique. Si vous souhaitez obtenir de l'aide, prenez contact avec Hewlett-Packard.

Questa apparecchiatura è stata approvata in conformità alla Decisione del Consiglio 98/482/EC che regola, in seno all'Unione Europea, la connessione di singoli terminali alla rete telefonica pubblica commutata (PSTN) e alla rete wireless in radio frequenza. Tuttavia, a causa delle differenze esistenti tra i singoli servizi PSTN forniti nei diversi paesi, l'approvazione in sé stessa non rappresenta una garanzia assoluta di funzionamento su ogni singolo punto di terminazione della rete PSTN.

In caso di problemi, per prima cosa rivolgersi al fornitore dell'apparecchiatura.

Questa apparecchiatura è stata progettata per funzionare in tutti i paesi dell'Area Economica Europea (reti telefoniche pubbliche commutate). La compatibilità della rete dipende dalle impostazioni interne del software. Rivolgersi al fornitore dell'apparecchiatura qualora sia necessario utilizzare quest'ultima su una rete telefonica diversa. Per ulteriore assistenza sul prodotto, contattare Hewlett-Packard.

Japan

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると受信障害を引き起こすことがあります。

取り扱い説明書に従って正しい取り扱いをして下さい。

Japan Telecommunications Approval

JATE approval number: A00-0143JP, A00-0434JP

Name of Equipment: T18M038.00, T18N040.00

Russia

Продукт сертифицирован в системе ГОСТ Р

Модем сертифицирован в системе ЭЛЕКТРОСВЯЗЬ



International

Products sold internationally by Hewlett-Packard and its authorized dealers meet the specifications listed on the following pages.

Specifications and Regulatory Information
Regulatory Information

Declaration of Conformity (according to ISO/IEC Guide 22 and EN 45014)

Manufacturer's Name: Hewlett-Packard Company
Manufacturer's Address: Hewlett-Packard Company
Mobile Computing Division
19310 Pruneridge Ave.
Cupertino, CA 95014, U.S.A.

declares that the following product

Product Name: Notebook PC
Model Numbers: Omnibook XE3 (OB XE3), Pavilion N5D series Notebook PC (*D* is any number 0–9)
Product Options: All

conforms to the following product specifications

Safety: IEC 950: 1991 +A1,A2,A3,A4 / EN 60950: 1992 +A1,A2,A3,A4,A11
IEC 60825-1: 1993 +A1/EN60825-1: 1994 +A11 Class 1 (LED)
GB4943-1995

EMC: CISPR 22: 1997 / EN 55022: 1998 Class B [1]
CISPR 24:1997 / EN 55024: 1998

IEC 61000-3-2:1995 / EN 61000-3-2:1995 +A1: 1998 +A2: 1998
IEC 61000-3-3:1994 / EN 61000-3-3:1995
GB9254-1988
FCC Title 47 CFR, Part 15 Class B/ANSI C63.4: 1992
AS/NZS 3548: 1995 Rules and Regulations of Class

Telecom: TBR 21: 1998, EG 201 121: 1998

Supplementary Information: The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, amended by 92/31/EEC & 93/68/EEC, and the R&TTE Directive 1999/5/EC (Annex II) and carries the CE marking accordingly.

[1] The product was tested in a typical configuration with Hewlett-Packard Personal Computer peripherals.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The HP F1454A and F1781A ac/dc adapter used with this product is designed to operate on all power systems, other than IT power systems.

Corvallis, OR, July 1, 2001




Jerry Erickson, R&D Product Execution Manager

European Contact for regulatory topics only: Hewlett Packard GmbH, HQ-TRE, Herrenberger Straße 130, 71034 Boeblingen, Germany. Fax: +49 7031 143143).
USA Contact: Hewlett Packard Co., Corporate Product Regulations Manager, 3000 Hanover Street, Palo Alto, CA 94304, U.S.A. Phone: +1 (415) 857-1501.

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