



Hardware Guide

Compaq Evo Notebook N410c Series

Document Part Number: 274039-001

July 2002

This guide provides comprehensive information on setting up the notebook's hardware and software, identifying notebook components, using the battery pack, connecting external devices, and adding upgrades and accessories.

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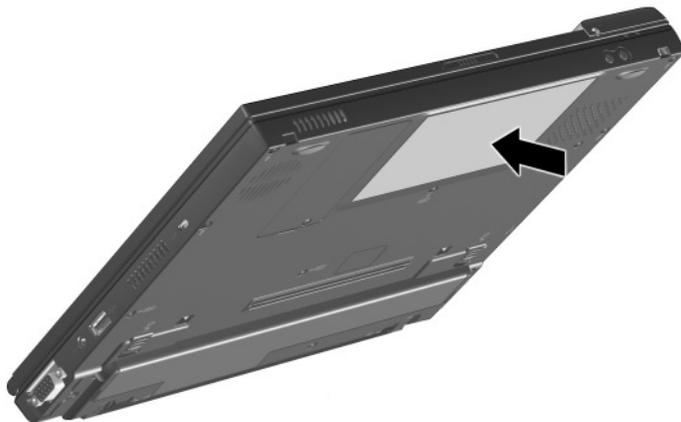
9 Specifications

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Hardware and Software Setup

Setting Up the Hardware

1. Record the operating system Product Key printed on the Certificate of Authenticity label on the bottom of the notebook. The Product Key is essential when you:
 - Set up the software.
 - Start the notebook for the first time.
 - Update or troubleshoot your operating system.





WARNING: This is a Class B digital device, pursuant to Part 15 of the FCC Rules. For more Class B information, refer to the *Regulatory and Safety Notices Guide* on the *Documentation Library CD*, included with the notebook.

To reduce the risk of personal injury, electric shock, fire, or damage to the equipment:

- Do not disable the power cord grounding plug. The plug is an important safety feature.
- Plug the equipment into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Disconnect power from the equipment by unplugging the power cord from the electrical outlet.
- Do not set up the notebook while it is docked in an optional Mobile Expansion Unit.

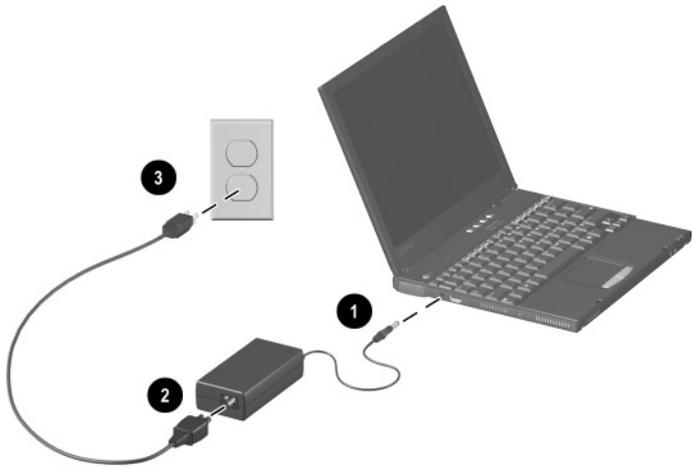
2. Place the notebook on a flat surface near an electrical outlet.

3. Connect the notebook to an external outlet.

Plug the AC adapter cable into the power connector **1**. Plug the power cord into the AC adapter **2** and into an electrical outlet **3**.



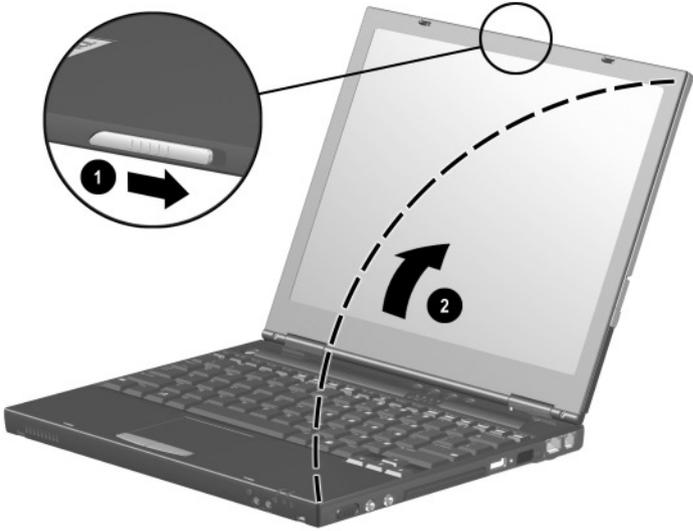
Power cords and electrical outlets vary by country.



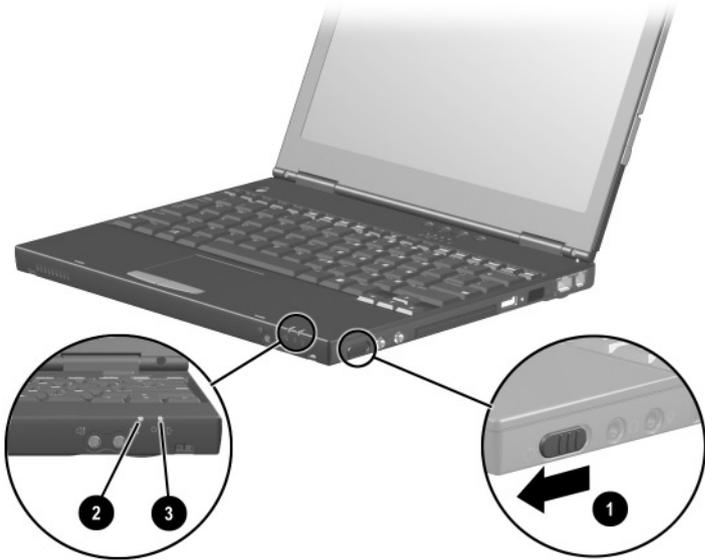
When power is turned on, the battery light:

- Remains on while the battery pack is charging.
- Turns off when the battery pack is fully charged.

4. Open the notebook by sliding the display latch to the right ❶ and raising the display ❷.



5. Turn on the notebook by sliding and momentarily holding, then releasing, the power switch ❶.



When power is turned on:

- ❑ The power/standby light ❷ turns on.
- ❑ The battery pack in the primary battery bay and the external battery pack (if attached) begin to charge and the battery light ❸ turns on. You are prompted to begin software setup.

Setting Up the Software

Read the following guidelines, then set up the software.



CAUTION: To prevent file corruption and ensure that the correct drivers install during initial setup:

- Do not unplug the notebook from the electrical outlet.
 - Do not shut down the notebook.
 - Do not remove or insert a drive.
-

- When you begin software setup, online instructions guide you through the setup process.
 - After you have begun software setup, you must complete the entire process. Setup time varies by notebook configuration.
 - If you are prompted to select a language or operating system, choose carefully.
-



CAUTION: The languages and operating systems that you do *not* choose will be deleted from the system and cannot be restored during initial setup. An operating system available during initial setup is enhanced by Compaq. When an operating system is deleted, the enhancements are also deleted.

After Software Setup

After the initial setup is complete, you may want to Install any optional applications.

You can install third-party applications or preloaded Compaq utilities at any time after initial setup is complete.

- To install a third-party application, refer to the documentation included with the application.
- To install a preloaded Compaq utility, select the Start > All Programs > Setup Compaq Software > Next. Select the check box for components you want to install; clear the components you do not want to install. Follow the instructions on the screen.

After initial setup is complete, select Start > Run. On the command line, type:

```
C:\cpqapps\setup.exe preload /s
```



To view the descriptions and space requirements of preloaded Compaq utilities without installing the utilities, Start > All Programs > Setup Compaq Software > then select Next. After viewing the utility information, select Cancel.

Compaq Help and Support provides links to the Compaq Web site where you can:

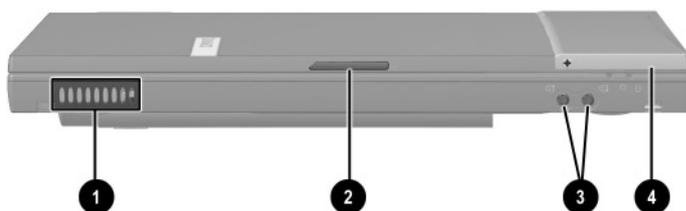
- Download the latest software and drivers for your notebook.
- Open an online service event with a Compaq support specialist.
- Get information about your notebook, including reference guides, specifications, white papers, part numbers, and customer advisories.

To access Compaq Help and Support, select Start > Compaq Info Center > Compaq Help and Support.

For information about choosing a workspace and creating a safe and comfortable work environment, refer to the *Safety & Comfort Guide* on the *Documentation Library* CD included with the notebook.

A Look at the Notebook

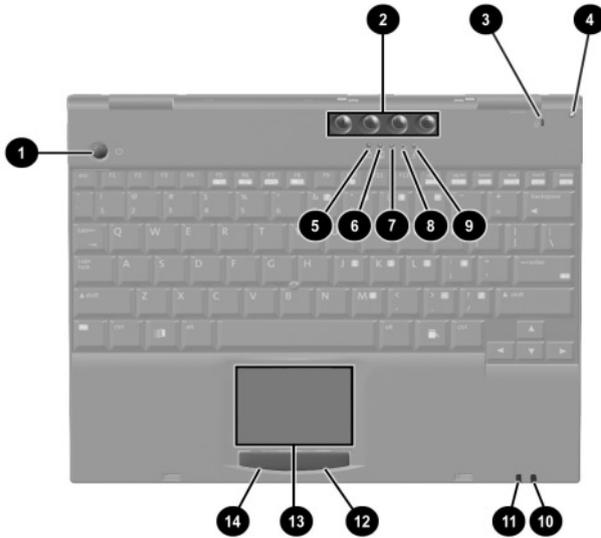
Front Panel Components



Front Panel Components

	Component	Function
❶	Vents	Allow airflow to cool internal components.
❷	Display release latch	Releases the display to open the notebook.
❸	Volume buttons (2)	Adjust or mute the system volume.
❹	MultiPort	Supports an optional USB-enabled wireless device such as a Bluetooth MultiPort, 802.11b Wireless LAN Multiport, and future wireless technologies.

Top Components



Top Components

❶	Light, Button, or Component	Function
❶	Standby button	<ul style="list-style-type: none">■ Turns on the notebook if it is off.■ Initiates and exits Standby.■ When pressed with the Fn key, initiates Hibernation.
❷	Easy Access buttons (4)	Four buttons that provide quick access to the Internet. See Chapter 3, "Pointing Devices and Keyboard," for information about these buttons.

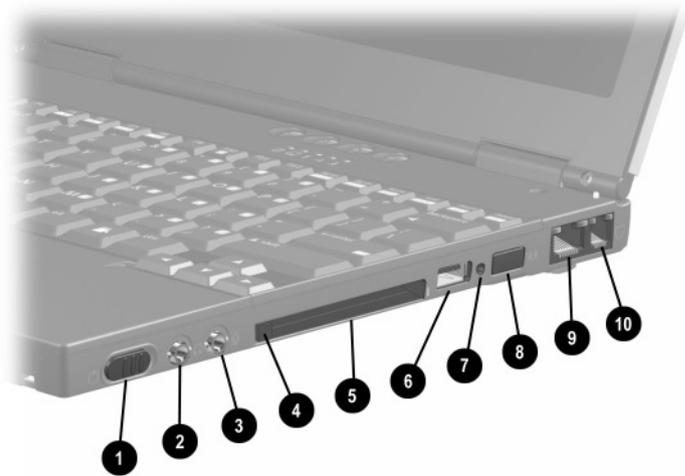
Top Components (Continued)

	Light, Button, or Component	Function
③	Microphone	Inputs single-channel sound to the notebook; can be used whether the notebook is open or closed.
④	Display switch	Can be set to turn off the notebook display if the notebook is closed while on.
⑤	IDE drive light	On: The main hard drive or any IDE (Integrated Drive Electronics) or optical device is being accessed.
⑥	Floppy light	On: A floppy drive in the optional Mobile Expansion Unit is being accessed.
⑦	Num lock light	On: Num lock is on and the embedded numeric keypad is enabled.
⑧	Caps lock light	On: Caps lock is on.
⑨	Scroll lock light	On: Scroll lock is on.
⑩	Battery light	On: A battery pack is charging. Blinking: A battery pack that is the only available power source has reached a low-battery condition.
⑪	Power/standby light	On: power is turned on. Blinking: notebook is in Standby.  The power/standby light also blinks if a battery pack that is the only available power source reaches a critical low-battery condition while Hibernation is disabled.

Top Components (Continued)

	Light, Button, or Component	Function
12	Right TouchPad button	Functions like the right mouse button on an external mouse.
13	TouchPad	Moves the mouse cursor, selects, and activates.
14	Left TouchPad button	Functions like the left mouse button on an external mouse.

Right Side Components



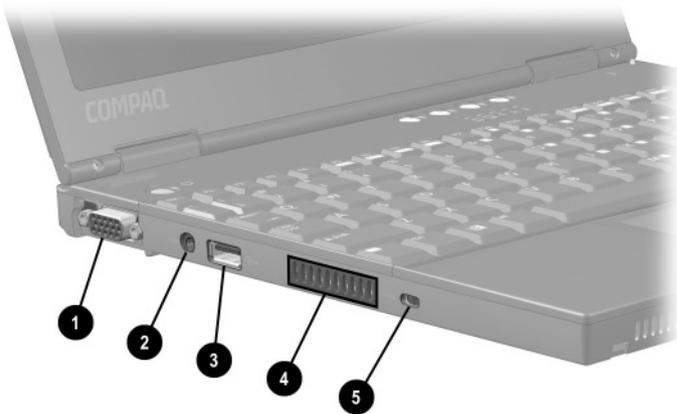
Right Side Components

	Component	Function
❶	Power switch	Initiates and resumes from Hibernation.
❷	Stereo speaker/headphone jack	Connects stereo speakers, headphones, headset, or television audio.
❸	Microphone jack	Connects a single-sound channel microphone.
❹	PC Card eject button	Ejects a PC Card from the PC Card slot.
❺	PC Card slot	Supports 32-bit (CardBus) and 16-bit PC Cards.

Right Side Components (Continued)

	Component	Function
6	Universal serial bus (USB) connector	Connects USB 2.0 and 1.1 compliant devices to the notebook using a standard USB cable.
6 7	External MultiBay connector	Connects an optional External MultiBay to the notebook using the External MultiBay-Powered USB Cable.
8	Infrared port	Links another IrDA-compliant device for wireless communication.
9	RJ-45 jack (network models only)	Connects the network cable.  A network cable is included with network models.
10	RJ-11 jack (internal modem models only)	Connects the modem cable to an internal modem.  A modem cable is included with internal modem models.

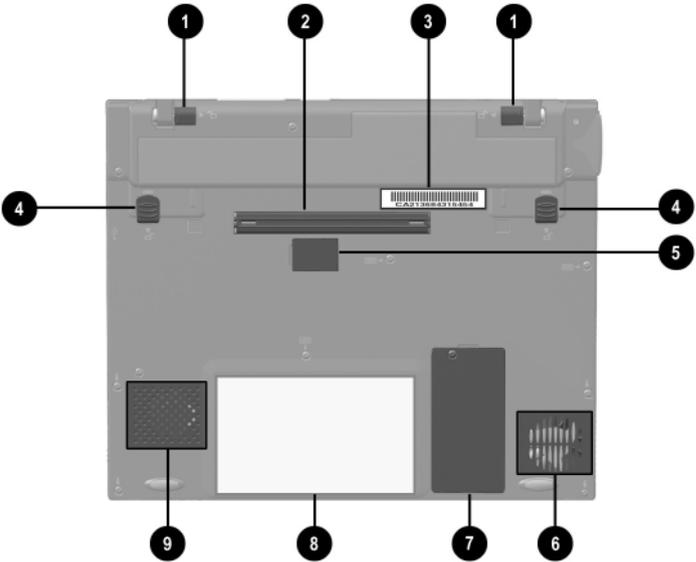
Left Side Components



Left Side Components

Component	Function
① External monitor connector	Connects an external monitor or overhead projector.
② AC power connector	Connects any one of the following: <ul style="list-style-type: none"> ■ AC Adapter ■ Optional Automobile Power Adapter/Charger ■ Optional Aircraft Power Adapter
③ Universal serial bus (USB) connector	Connects USB 2.0 and 1.1 compliant devices.
④ Vent	Allows airflow to cool internal components.
⑤ Security cable slot	Allows an optional security cable to be attached to the notebook.

Bottom Components



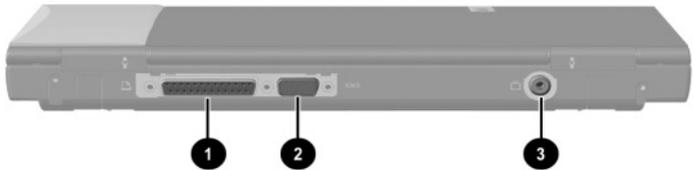
Bottom Components

Component	Function
❶ External battery release latches (2)	Release the optional external battery pack.
❷ Expansion connector	Connects the notebook to an optional Mobile Expansion Unit.
❸ Serial number	Identifies the notebook; needed when you call Compaq customer support.
❹ Primary battery release latches (2)	Release the primary battery pack from the primary battery bay.

Bottom Components (Continued)

	Component	Function
5	ROM Access Door	 Do not open or remove. This door is for factory use only.
6	Fan	Provides airflow to cool internal components.
7	Memory expansion compartment cover	Covers the memory expansion compartment that contains one memory expansion slot for a memory expansion board.
8	Certificate of Authenticity label	Contains the Product Key, which may need to be entered before using some Windows operating systems.
9	Speaker	Produces sound.
	 The appearance and position of labels vary by model.	

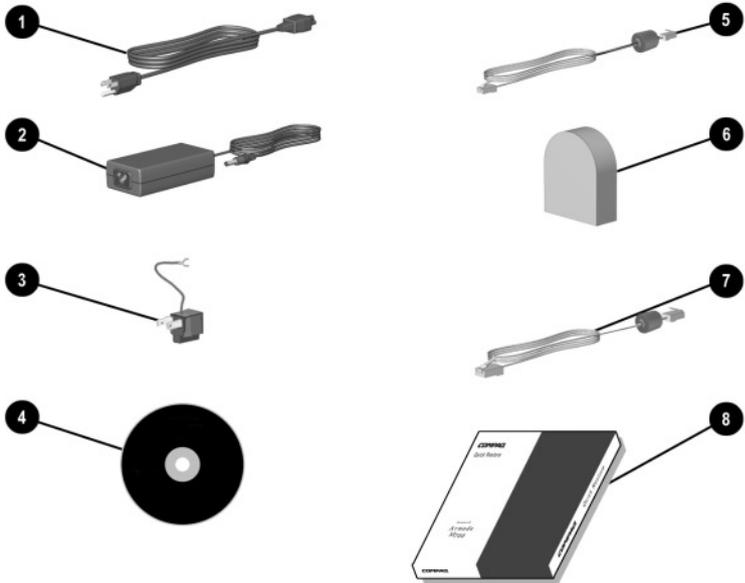
Rear Panel Components



Rear Components

	Component	Function
❶	Parallel connector	Connects a parallel device.
❷	Serial connector	Connects a serial device.  The notebook serial port is disabled when the notebook is connected to an optional Mobile Expansion Unit.
❸	Composite video-out jack	Connects a television, VCR, camcorder, overhead projector, or video capture card.  The connection requires an optional video cable.

Additional Standard Components



The components included with the notebook vary by geographic region and the notebook hardware configuration ordered.



Some components, such as the hard drive and the primary battery pack, ship inside notebook bays identified in previous sections and are not included in this illustration.

Additional Standard Components

	Component	Function
❶	Power cord	Connects the AC adapter to an AC electrical outlet.
❷	AC Adapter	Converts AC power to DC power.
❸	3-to-2-prong plug adapter (Japan only)	Adapts the U.S. power cord to a two-prong electrical outlet in Japan.
❹	<i>Documentation Library CD</i>	Contains the following guides: <ul style="list-style-type: none">■ <i>Hardware Guide</i>■ <i>Software Guide</i>■ <i>Modem and Networking</i>■ <i>Modem Command Guidelines (Advanced Users Only)</i>■ <i>Lucent/Agere Command Set</i>■ <i>Conexant Command Set</i>■ <i>Maintenance, Shipping and Travel</i>■ <i>Troubleshooting</i>■ <i>Regulatory and Safety Notices</i>■ <i>Safety & Comfort Guide</i>
❺	Modem cable (internal modem models only)*	Connects the modem to an RJ-11 telephone jack or to a country-specific adapter.

Additional Standard Components (Continued)

6	Component	Function
⑥	Country-specific modem adapter (included with internal modem models by region as required)	Adapts the modem cable to a non-RJ-11 telephone jack. (Adapters vary by region.)
⑦	Network cable (network models only) [†]	Connects the notebook to an Ethernet network jack.
⑧	<i>QuickRestore</i> kit	Contains the software preinstalled on the computer.

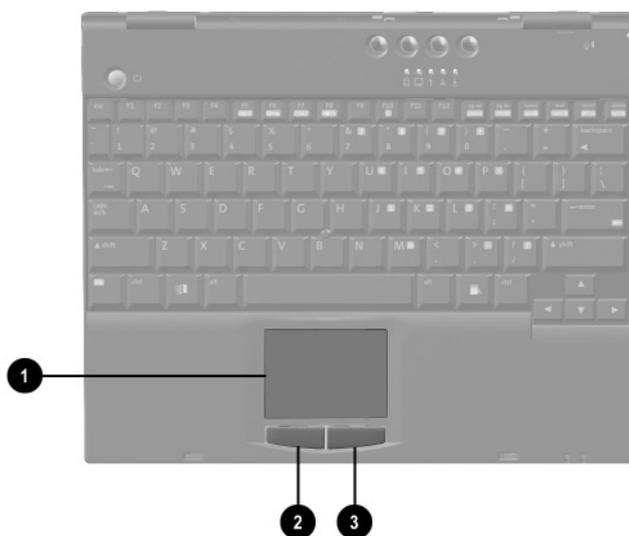
*The modem cable has a 6-pin RJ-11 connector at each end.

[†]The network cable has an 8-pin RJ-45 connector at each end.

Pointing Devices and Keyboard

Using the TouchPad

The TouchPad performs the same basic operations as a mouse. It functions with any software that supports a Microsoft-compatible mouse. The TouchPad **1** includes left **2** and right **3** TouchPad buttons for function or application selection. To operate the TouchPad, slide your finger across its surface in the direction you want to move the cursor, and click the left or right button to make a selection or complete an activity.



Using Hotkeys and Shortcut Keys

Hotkey and Shortcut Key Quick Reference

Function	Hotkey	Return to Original State
Turn on or off the wireless device connected to the MultiPort	Fn+F2	Fn+F2
Switch display and image	Fn+F4	Fn+F4
Adjust system volume	Fn+F5	Fn+F5
Initiate Quick Controls	Fn+F6	Enter power-on password
Set power conservation level	Fn+F7	Fn+F7
View battery charge	Fn+F8	Fn+F8
Adjust screen brightness	Fn+F10	Fn+F10
Display system information	Fn+esc	Fn+esc

Fn Key

Many commands are entered by simultaneously pressing the **Fn** key and a function key.

If you enable sequential **Fn** commands, all commands that can be entered by simultaneously pressing the **Fn** key and another key can also be entered by sequentially pressing **Fn** then the other key.

To enable the sequential feature, press the **Fn** key 5 times. A beep following the fifth pressing confirms that the feature is enabled. The feature remains enabled until you disable it.

To disable this feature, press the **Fn** key 5 times. To indicate that the feature has been disabled, rather than enabled, no beep sounds.

While this feature is enabled:

- Whenever you press the **Fn** key, the notebook beeps to indicate that the next key you press will be interpreted as the other key of an **Fn** command.
- **Fn** commands can still be entered by simultaneously pressing the **Fn** key and the other key of the **Fn** command.

Hotkeys

Hotkeys are preset combinations of the **Fn** key ❶ and another key that access or execute frequently used system functions. The icons on function keys **F2** to **F10** ❷ represent these functions.

Hotkeys can be used at anytime and from within any application.



To use hotkeys on an external keyboard, which does not have an **Fn** key, press the scroll lock key twice, then the other key only of the hotkey combination. For example, to use the **Fn+F10** hotkeys, press **scroll lock+scroll lock+F10**.



Only the **Fn+esc (scroll lock+scroll lock+esc)** shortcut keys work on an external keyboard connected through a USB connector.

Shortcut Keys

Shortcut keys are preset combinations of the **Fn** key and another key other than a function key.

Hotkey and Shortcut Key Procedures

Turning Wireless Devices On or Off (Fn+F2)

When a wireless device is connected to the MultiPort, press **Fn+F2** to turn the device on or off. The status light on the wireless device indicates whether power is on (light is on) or off (light is off).

Switch Display and Image (Fn+F4)

- Toggle **Fn+F4** to switch the image among:
 - Notebook display
 - External display
 - Simultaneous display (notebook and external displays)

The external monitor can be connected through the external monitor connector or the composite video-out jack.

Adjust System Volume (Fn+F5)

Press **Fn+F5** to display the system volume level slide bar. Click and drag the slide bar upward to increase volume or downward to decrease volume. You also can adjust the volume with the left and right arrow keys.

To mute volume, press **Fn+F5+M**. To restore volume, press **Fn+F5**, then clear the Mute check box.

Initiate Quick Controls (Fn+F6)

Quick Controls security features disable the keyboard and clear the display.

Before you can use the Quick Controls, you must set a power-on password and enable the Quick Control preferences. For instructions, refer to the “Security” chapter in the *Software Guide* on this CD.

To initiate Quick Controls manually, press **Fn+F6**. To exit Quick Controls, enter your power-on password.

The **Fn+F6** hotkeys cannot be used on an external keyboard connected through a USB connector on the notebook or optional docking base.

Set Power Conservation Level (Fn+F7)

To select the power conservation level, press **Fn+F7** and press the desired power management mode.

For information about the custom level, refer to the “Security” chapter in the *Software Guide* on this CD.

View Battery Charge (Fn+F8)

Battery pack locations are indicated by number: (1) notebook primary battery bay, (2) notebook external battery pack, (3) Mobile Expansion Unit right MultiBay, and (4) Mobile Expansion Unit left MultiBay.

Press **Fn+F8** to display the status of all installed battery packs.

Adjust Screen Brightness (Fn+F10)

Press **Fn+F10** to display the screen brightness control slide bar. Click and drag upward on the slide bar to increase screen brightness or downward to decrease screen brightness. You also can adjust the brightness with the left and right arrow keys.

Display System Information (Fn+esc)

Press **Fn+esc** to display information about system hardware components and software version numbers.

Press **Fn+esc** a second time to remove the system information from the screen.



In some operating systems, the System BIOS date, which may display in a decimal format, is the version number of the system ROM.

Using the Embedded Numeric Keypad

The embedded numeric keypad consists of a cluster of 16 keys **1**. The character in the upper right corner of each key identifies the keypad function of that key.

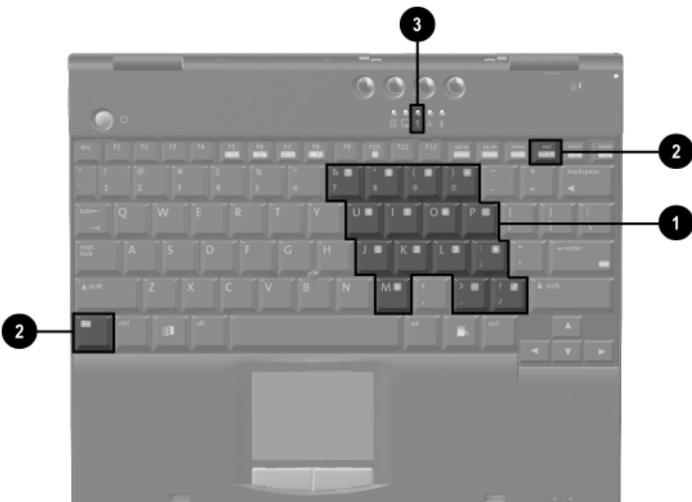
The standard keyboard functions of the keys in the keypad are disabled when the keypad is enabled.

Enabling the Numeric Keypad

To enable the keypad, press **Fn+num lk** **2**. The num lock light **3** turns on when the keypad is enabled.



The keypad cannot be enabled while an optional external keyboard or numeric keypad is connected to the notebook.



Disabling the Numeric Keypad

To disable the keypad and return the keys to their standard keyboard functions, press **Fn+num lk**.

Converting the Numeric Keypad Keys to Standard Keys

To use the keypad keys temporarily as standard keys while the keypad is enabled:

- Press and hold **Fn** to type in lowercase.
- Press and hold **Fn+shift** to type in uppercase.

When the **Fn** key is released, the keypad function returns.

Enabling the Numeric Keypad at Startup

To set the notebook to start up with the keypad enabled:

1. Turn on or restart the notebook, then press **F10** when the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.
2. To change the language, press **F2**.
3. For navigation instructions, press **F1**.
4. Select Advanced > Device Options and press **enter**.
5. Toggle on the Num Lock State at Boot field, then press **F10**.
6. To save your selections, select File > Save Changes and Exit, then follow the instructions on the screen.
7. When prompted to confirm your action, press **F10**.

To disable the embedded numeric keypad at startup, repeat the above procedure, toggling off the Num Lock State at Boot field.



The embedded numeric keypad can be enabled or disabled with **Fn+num lk** in either startup state.

Using the Easy Access Buttons

The 4 Easy Access buttons provide you with one-keystroke access to any Internet or network destination, software application, or data file in your system.

Using Default Settings

Until your Internet or network services are set up, all buttons launch the Internet setup wizard for your operating system.

After your Internet or network services are set up, each button opens your default Web browser and connects you to the default destination represented by the icon on the button.



Button Name	Default Assignment
① Information	Compaq informational Web site
② Home	Personal home page
③ Search	Launches Alta Vista search engine
④ Email	Launches Microsoft Outlook Express Email application

Each button can be assigned to an Internet or network destination of your choice or to any software application or data file in your system.

Button assignments can be grouped into schemes. When you select a scheme, only the button assignments within that scheme are active.

Button assignments and schemes can be set up, changed, or deleted in the Easy Access buttons window. To access the window in:

- **Windows 2000 Professional**—Select Start > Settings > Control Panel > Easy Access Keyboard icon.
- **Windows XP Professional**—Select Start > Control Panel > Easy Access Buttons.

For more information about using button assignments and schemes, open the Easy Access button window, then select the Help menu.

Battery Packs

Charging Battery Packs

The notebook supports up to two battery packs:

- Primary battery pack in the battery bay
- Optional external battery pack that can be attached to the notebook

When the notebook is docked in an optional Mobile Expansion Unit (MEU), the system supports up to four battery packs:

- Primary battery pack in the battery bay
- Optional external battery pack that can be attached to the notebook
- One battery pack in the left MultiBay of the MEU
- One battery pack in the right MultiBay of the MEU

Multiple battery packs in the system charge and discharge in a preset sequence determined by location.

■ Charge sequence:

- 1—Primary battery pack in the battery bay
- 2—Optional external battery pack
- 3—Battery pack in the left MultiBay of the MEU
- 4—Battery pack in the right MultiBay of the MEU

■ Discharge sequence:

- 1—Battery pack in the right MultiBay of the MEU
- 2—Battery pack in the left MultiBay of the MEU
- 3—Optional external battery pack
- 4—Primary battery pack in the battery bay

Using a New Battery Pack

Charge the battery pack in the notebook battery bay while connected to an external power source or while docked in the MEU.

A new battery pack should be fully charged before it is used for the first time. The battery pack will work without being fully charged, but the battery gauge will not show an accurate charge until the battery pack receives its first full charge.

Replacing a Battery Pack

You can resolve a low battery condition by replacing a discharged battery pack.



CAUTION: If you are removing a battery pack that is the only power source available to the system while the notebook is on, initiate Hibernation before removing the battery pack. Failure to do so will result in loss of information. If the notebook is on and connected to more than one power source, you can remove a battery pack without initiating Hibernation.

Replacing the Primary Battery Pack

1. If the battery pack in the battery bay is the only power source, initiate Hibernation.

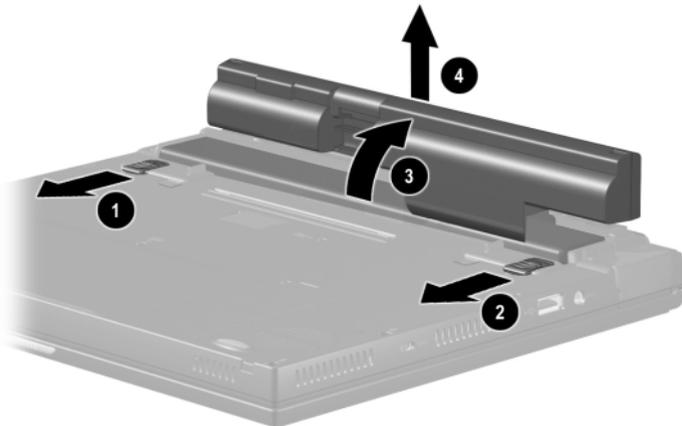


Drive activity may delay Hibernation.

2. Close the display.
3. Remove or insert the battery pack:

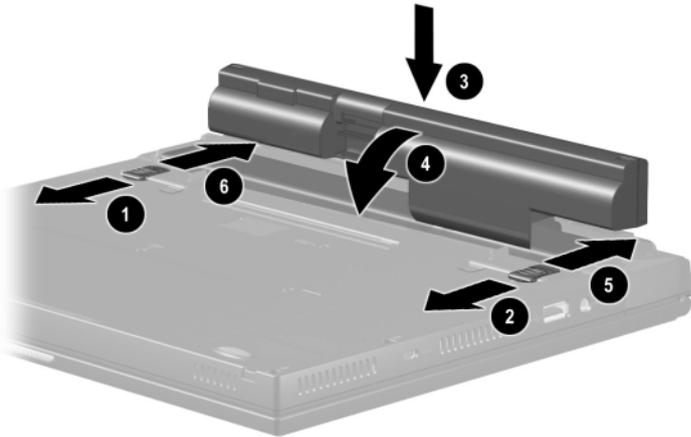
To remove the battery pack, turn the notebook bottom side up.

- a. Slide the left primary battery release latch forward ❶.
- b. Slide the right primary battery release latch forward and hold it in place ❷.
- c. Swing the front edge of the primary battery pack up and back ❸.
- d. Lift the primary battery pack out of the battery bay ❹.



To insert the battery pack, turn the notebook bottom side up.

- a. Slide the left primary battery release latch forward ❶.
- b. Slide the right primary battery release latch forward and hold it in place ❷.
- c. Insert the back edge of the battery pack into the battery bay ❸.
- d. Swing the front edge of the battery pack forward and down into the battery bay ❹.
- e. Release the right primary battery release latch ❺.
- f. Slide the left primary battery release latch toward the back of the notebook ❻.



4. Open the display.
5. If the notebook is in Hibernation, slide the power switch to resume operation.

Replacing an Optional External Battery Pack

1. If the optional external battery pack is the only power source, initiate Hibernation.

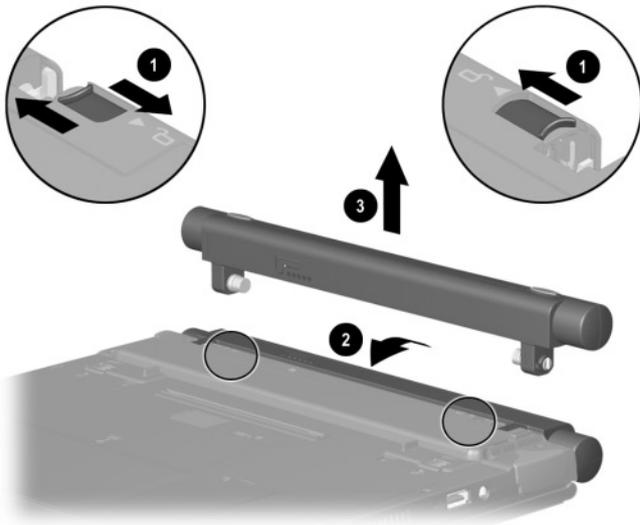


Drive activity may delay Hibernation.

2. Close the display.
3. Remove or insert the external battery pack:

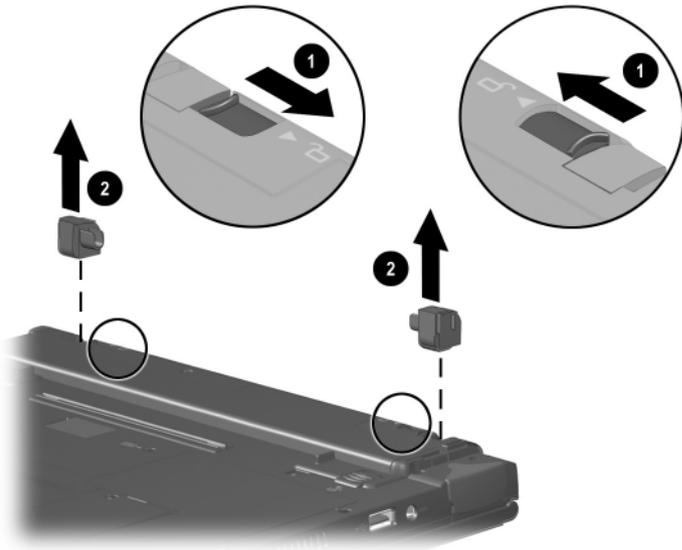
To remove the optional external battery pack, turn the notebook bottom side up.

- a. Make sure the external battery pack is located behind the notebook rear panel, then slide the external battery release latches toward the inside of the notebook ❶.
- b. Rotate the external battery pack 90 degrees toward the notebook ❷.
- c. Lift up the battery pack from the notebook ❸.



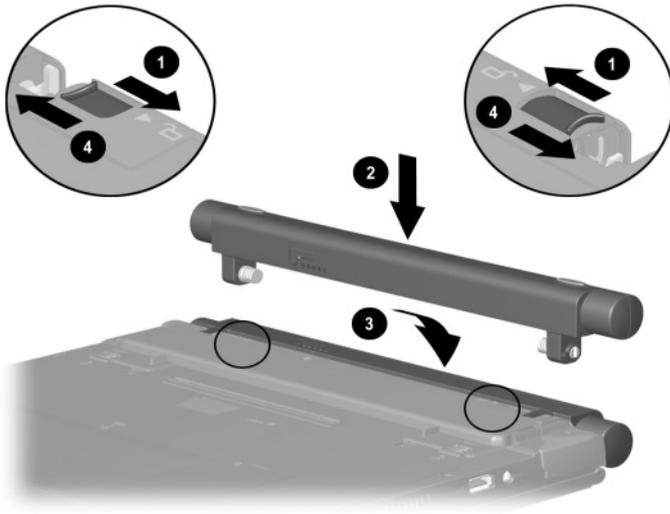
If the optional external battery pack is being inserted for the first time, make sure the external battery pack plugs are removed. To remove the plugs, turn the notebook bottom side up.

- a. Slide the external battery release latches toward the inside of the notebook ❶.
- b. Remove the plugs from the notebook ❷.



To insert the external battery pack, turn the notebook bottom side up.

- a. Slide the external battery release latches toward the inside of the notebook ❶.
- b. Align the green arrow on the notebook with the arrow on the battery contact post, then insert the external battery pack into the notebook until the contacts connect ❷.
- c. Rotate the battery pack 90 degrees toward the back of the notebook ❸.
- d. Slide the external battery release latches toward the outside of the notebook ❹.



Storing a Battery Pack

If a notebook will be unused and unplugged for more than 2 weeks, remove and store the battery pack.



CAUTION: To prevent damage to a battery pack, do not expose it to high temperatures for extended periods of time.

To prolong the charge of a stored battery pack, place it in a cool, dry place. High temperatures cause a battery pack to lose its charge more quickly, thus reducing battery life.

The recommended storage temperature range is from 32° F to 86° F (0° C to 30° C).

Caring for Drives

Drives are fragile computer components that must be handled with care.



CAUTION: To prevent damage to the computer and drive and loss of information, ensure that you are discharged of static electricity before handling a drive. Refer to the *Maintenance, Shipping, and Travel* guide on this CD for more cautions on handling drives. Refer to the *Regulatory and Safety Notices* guide on this CD for more information on preventing electrostatic discharge damage.

Removing a Hard Drive

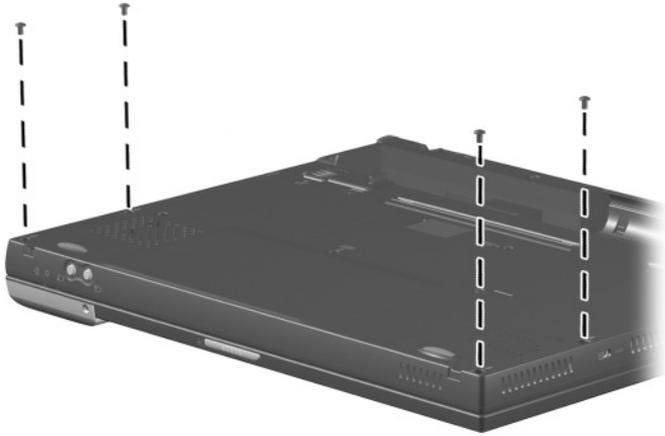


CAUTION: To prevent damage to the computer and hard drive and loss of information, shut down the computer before removing the hard drive from the hard drive compartment. Do not remove the hard drive while the computer is on, in Standby or in Hibernation. If you are not sure whether the computer is in Hibernation, turn the computer on, then shut it down. If the computer is running a retail version of a Windows operating system, shut down the computer before removing any drive.

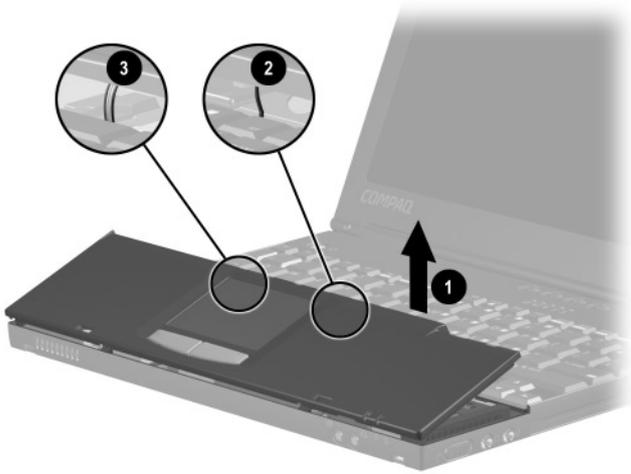
To remove the hard drive:

1. Save your work.
2. Shut down the computer and close the display.
3. Remove the AC Adapter and all battery packs.

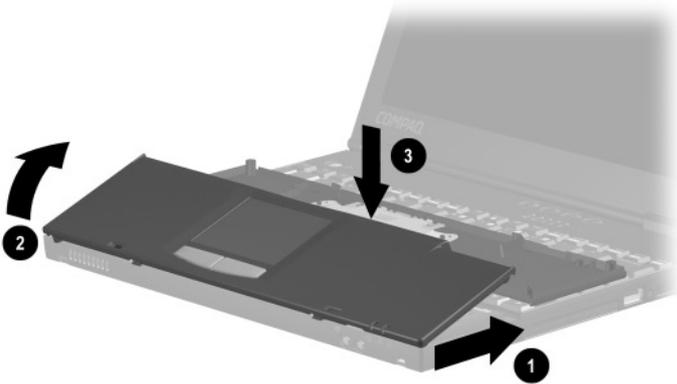
4. Turn the computer bottom side up.
5. Remove the Torx T8 screws securing the palm rest.



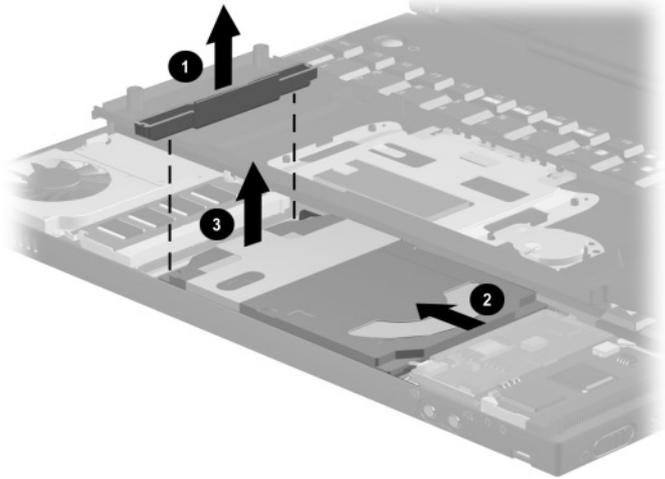
6. Turn the computer top side up with the front facing forward.
7. Open the computer.
8. Slowly lift up the inside edge of the palm rest **1** until the real time clock (RTC) battery **2** and pointing device cables **3** prevent the palm rest from lifting any farther.



9. While holding the palm rest at a 45-degree angle, slide the front edge of the palm rest away from the base of the notebook ❶.
10. After the front edge of the palm rest clears the base assembly, swing the outside edge of the palm rest up and back ❷, and rest the palm rest on the keyboard ❸.



11. Remove the hard drive spacer ❶ from the base assembly.
12. Grasp the hard drive tab and slide the hard drive to the left ❷.
13. Remove the hard drive ❸.



14. Place the removed hard drive in an electrostatic-safe container.

Inserting a Hard Drive



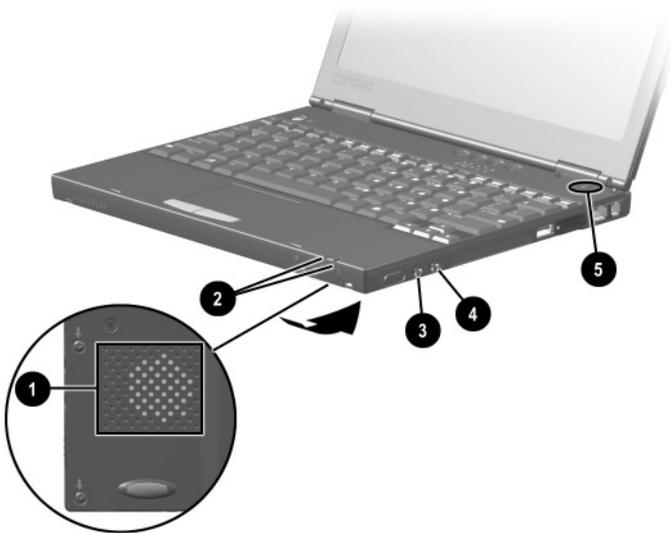
CAUTION: To prevent damage to the computer and hard drive and loss of information, shut down the computer before inserting the hard drive into the hard drive compartment. Do not insert the hard drive while the computer is on, in Standby or in Hibernation. If you are not sure whether the computer is in Hibernation, turn the computer on, then shut it down. If the computer is running a retail Windows operating system version, shut down the computer before inserting any drive.

1. Shut down the notebook and close the display.
2. Place the hard drive in the hard drive compartment, then slide it into the connector until it is firmly seated.
3. Replace the hard drive spacer.
4. Replace the palm rest and reinstall the screws.

Audio and Video

Using Audio Features

The notebook provides the internal and external audio features shown in the following figure and table.



Audio Components

	Feature	Function
❶	Speaker	Provides audio playback of multimedia applications. When using the notebook in an optional Mobile Expansion Unit (MEU), the speaker will be disabled and system sounds will be played through the MEU speakers. Refer to the documentation included with the MEU for additional information.
❷	Volume buttons (2)	Adjust or mute the system volume.
❸	Stereo speaker/headphone jack	Connects stereo speakers, headphones, or a headset to the notebook.
❹	Microphone jack	Supports a single-sound channel (monaural) microphone with a 3.5-mm plug.
❺	Microphone	Supports audio input when the display is open and has a standard sensitivity of -50 dB.

Connecting a Stereo Speaker or Headphone

When connecting a device to the stereo speaker/headphone jack:

- Use only a 3.5-mm stereo plug.
- Use industry-standard PC headphones or external-powered speakers.

The stereo speaker/headphone jack disables the notebook speaker when an external audio device is plugged into the jack.



WARNING: To reduce the risk of personal injury, turn down the volume control *before* putting on headphones.



CAUTION: To prevent possible damage to an external device, do not plug a single-sound channel (monaural) connector into the stereo speaker/headphone jack.

Connecting a Microphone

When connecting a device to the microphone jack, use an industry-standard PC microphone with a 3.5-mm plug.

Adjusting Volume

To increase, decrease, or mute the system volume, use the following methods:

- Notebook volume buttons
 - To decrease volume, press the left button.
 - To increase volume, press the right button.
 - To mute or restore volume, press both buttons simultaneously.

- Keyboard **Fn+F5** hotkeys
 - ❑ To raise or lower the volume, press **Fn+F5**, then move the on-screen slide rule or press the keyboard arrow keys.
 - ❑ To mute or restore volume, press **Fn+F5+M** or press **Fn+F5**, then select or clear the Mute check box.
- Windows Volume Control window
 - ❑ Double-click the volume icon on the taskbar, then make your adjustment.
 - ❑ To activate the Windows Volume Control window while it is open but inactive, press the **Fn+F5** hotkeys.



Volume can also be adjusted within some applications.

Using Video Features

The composite video-out jack supports any device that accepts video-in through a composite video connector, such as a television, VCR, camcorder, overhead projector, or video capture card.

The jack also supports video signals only. If you are setting up a configuration that combines audio and video functions, such as playing a DVD movie to a television, connect the device audio to the notebook stereo speaker/headphone jack.

When a composite video device is connected to the video-out jack, the notebook can simultaneously support an image on the display and on any other supported external displays.

Connecting a Device to the Composite Video-Out Jack

You will need a standard composite video cable available from most television, VCR, or electronics retailers.

To connect a video device to the composite video-out jack:

1. Connect the composite video cable to the composite video-out jack on the notebook.
2. Connect the other end of the composite video cable to the video device as instructed in the device documentation.

Changing the Video Mode



Color television standard modes vary even within regions. However, NTSC is common in North America; PAL in Europe, Africa, and the Middle East; NTSC-J in Japan; and PAL-M in Brazil. Other South and Central American regions may use NTSC, PAL, or PAL-M.

To change the color television standard mode from NTSC (the default):

Right-click the desktop then Properties > Settings > Advanced > ATI displays > TV tab > Format. The TV tab is available only when a TV is connected.

External Device Connections

The jacks and connectors described in this guide support the standard external devices that specify them.

- For information about which jack or connector to use, refer to the documentation included with the device.
- For information about installing or loading any software, such as drivers required by the device, refer to the device documentation, your operating system documentation, or the device manufacturer's Web site.

To connect a standard external device to the notebook:

1. If you are connecting a powered device, be sure the device is turned off.
2. Connect the device to a jack or connector on the notebook.
3. If you are connecting a powered device, plug the device power cord into a grounded electrical outlet.
4. Turn on the device.

Connecting an External Monitor



CAUTION: To prevent damage to the notebook, turn off the monitor before connecting it to the notebook or disconnecting it from the notebook. To prevent damage to the notebook display, do not place an external monitor or any other object on top of the notebook when the notebook is closed.

To connect an external monitor:

1. Turn off the monitor.
2. Plug the monitor signal cable into the external monitor connector on the rear panel of the notebook.
3. Plug the monitor power cord into a properly grounded electrical outlet.
4. Turn on the monitor.
5. To ensure that the notebook recognizes your monitor type, refer to the operating system documentation and select the appropriate manufacturer and model.

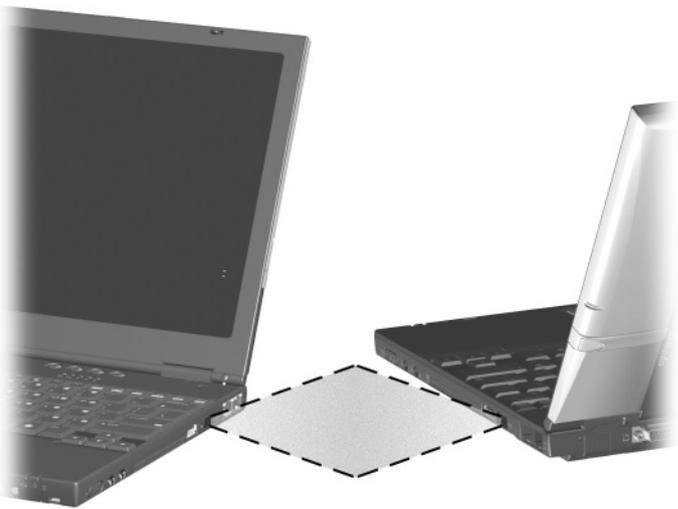
If the external monitor does not immediately show an image, try using the **Fn+F4** hotkeys. Refer to the documentation included with the monitor for additional setup information.

Connecting a Video Device

See Chapter 6, “Audio and Video,” in this guide for instructions about connecting a device such as a television, VCR, camcorder, overhead projector, or video capture card to the video-out jack.

Connecting Infrared Equipment

The infrared port allows communication between the notebook and another infrared-equipped device by producing an invisible beam of infrared light between the devices. Infrared performance varies depending on equipment, distance between infrared devices, and applications being used. The infrared port is IrDA-compliant and supports both low-speed connections up to 115 kilobits per second (Kbps) and high-speed connections up to 4 megabits per second (Mbps).



Infrared Connection Guidelines

- Be sure the infrared ports on both devices are turned on and facing each other at a distance no greater than 1.5 feet (about 0.5 meter).
- Avoid moving the infrared ports away from each other during data transmission.

- Avoid interference from remote control units, such as wireless headphones or audio devices, pointed at the infrared ports.
- Avoid direct sunlight, fluorescent light, or flashing incandescent light close to the infrared ports.
- Keep the path between the infrared ports free of any objects that might interfere with data transmission.
- Do not point one of the ports more than 30 degrees (plus or minus 15 degrees off the center line) away from the infrared port of the device you are connecting with.

Infrared Configuration Guidelines

- The infrared port default settings are as follows:
 - Port—COM3
 - Address—3
 - Interrupt request (IRQ)—3
- If you use Direct Cable Connection, and the utility prompts you to choose a port for the infrared connection, you can select Serial Cable on COM5 or, in:
 - Windows 2000 Professional**—Select Parallel Cable on LPT3.
 - Windows XP Professional**—Select DirectParallel Cable on LPT1.

Enabling the Infrared Port

The infrared port is enabled by default each time the notebook starts up.

- When the infrared port is enabled, the infrared icon appears on the taskbar and Infrared Monitor Search is enabled by default.

- While the Infrared Monitor Search is enabled:
 - ❑ You can establish an infrared link.
 - ❑ The system cannot initiate Standby. User-initiated Standby is not affected.
- When the Infrared Monitor Search is disabled:
 - ❑ Power is conserved.
 - ❑ You cannot establish an infrared link.
 - ❑ The system can initiate Standby.

Connecting USB Equipment

The notebook comes equipped with two USB 2.0 compliant connectors that support USB 2.0 and USB 1.1 devices.

The notebook supports certain USB devices without special drivers. These devices include hubs and keyboards. To connect USB devices for which the device manufacturer does not provide special drivers, you need an operating system with USB support, such as Windows 2000 Professional or Windows XP Professional, preinstalled by Compaq.

A USB keyboard and mouse, optionally connected through a hub, offer the same functionality as a standard keyboard and mouse connected through the keyboard, mouse, or single keyboard/mouse connector.

Connecting an Optional Mobile Expansion Unit

To connect an optional Mobile Expansion Unit (MEU) to the notebook, refer to the documentation included with the MEU.

Connecting a Modem

Using the RJ-11 Cable

The modem cable may have noise suppression circuitry that prevents interference with TV and radio reception. The modem cable must be connected to an analog telephone line.



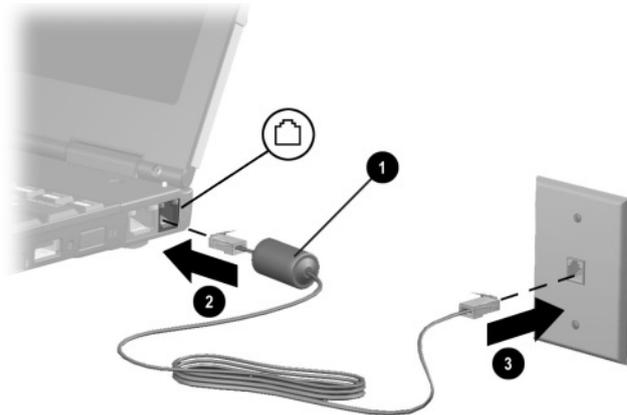
CAUTION: Jacks for digital PBX systems may resemble analog telephone jacks, but are not compatible with the modem.

1. If the modem cable has noise suppression circuitry ❶, orient the circuitry end of the cable toward the computer.
 2. Plug the cable into the RJ-11 telephone jack ❷ on the notebook.
-



WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug a telephone cable into the RJ-45 jack.

3. Plug the modem cable into the RJ-11 telephone jack ❸.



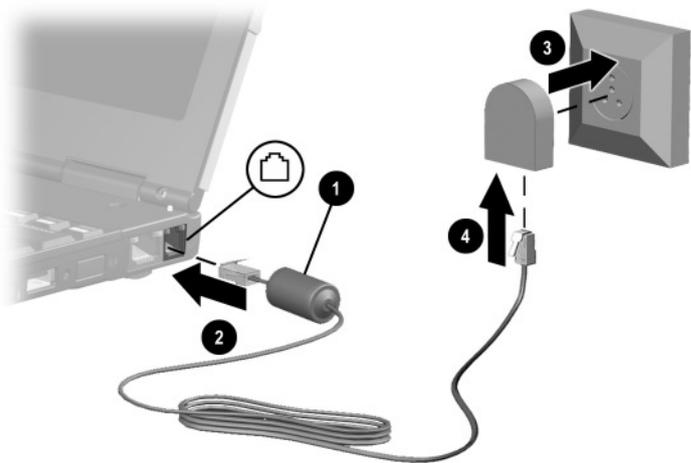
WARNING: To reduce the risk of electrical shock, always ensure that the modem line is disconnected from the telephone network when opening the notebook enclosure.

Using a Country-Specific Modem Cable Adapter

Software for the internal modem supports multiple countries, but telephone jacks vary by country. To use the modem and the RJ-11 cable outside the country in which you purchased the notebook, you must obtain a country-specific modem adapter and define your location in Dialing Properties.

To connect the modem to an analog telephone line that does not have an RJ-11 telephone jack:

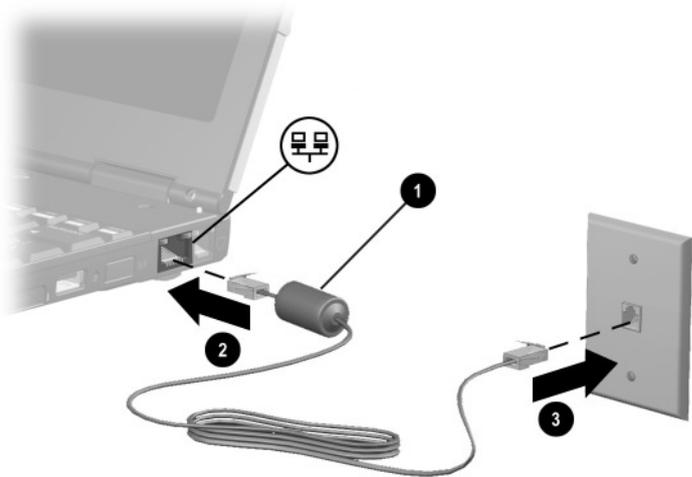
1. If the modem cable has noise suppression circuitry **1**, orient the circuitry end of the cable toward the notebook.
2. Plug the modem cable into the RJ-11 telephone jack **2** on the notebook.
3. Plug the modem cable into the country-specific modem cable adapter **4**.
4. Plug the country-specific modem cable adapter into the telephone jack **3**.



Connecting a Network Cable

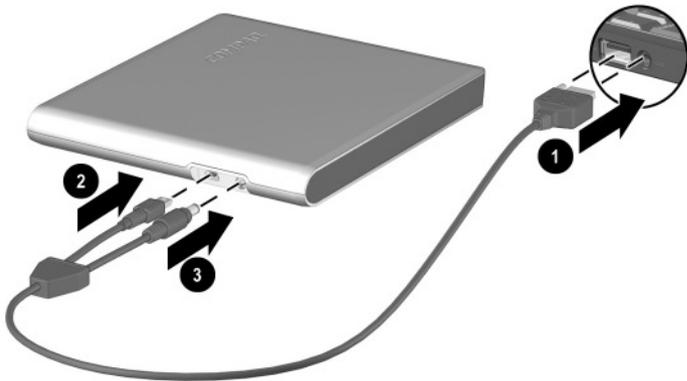
A network cable has an 8-pin RJ-45 network connector at each end and may contain noise suppression circuitry, which prevents interference with TV and radio reception.

1. Orient the end of a network cable with noise suppression circuitry **1** toward the RJ-45 network jack on the notebook.
2. Plug the network cable into the RJ-45 network jack **2** on the notebook.
3. Plug the other end of the cable into an RJ-45 network jack **3**.
4. Start or restart the notebook.
5. Connect to the network.



Connecting an Optional External MultiBay

1. Connect the single-connector end of the External MultiBay Powered USB Cable **1** to the external multibay connector. Be sure the pin on the connector is inserted completely in the pin slot.
2. Connect the USB connector on the other end of the cable **2** to the USB connector on the External MultiBay.
3. Connect the 5-volt plug **3** to the power connector on the External MultiBay.



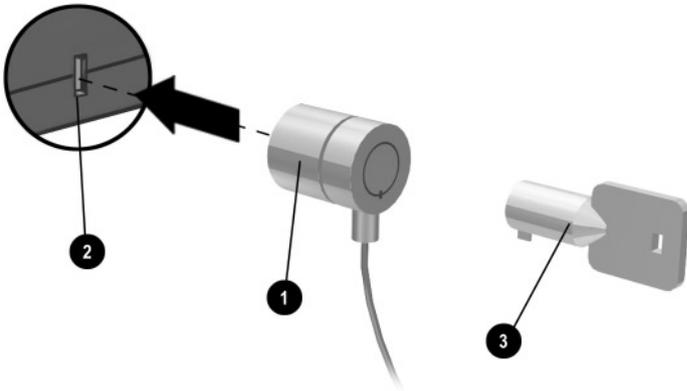
Connecting to Wireless Devices

The MultiPort allows you to connect a wireless device such as the 802.11b MultiPort Module or Bluetooth MultiPort Module to the notebook. The wireless device provides connection between the notebook and a networked access point.

Refer to the documentation included with the wireless device for hardware and software installation procedures, or consult an authorized Compaq dealer for information on using wireless connectivity with your notebook.

Connecting an Optional Cable Lock

Loop the cable around a secure object, then insert the security cable lock ❶ into the security cable slot ❷ and lock it with the cable lock key ❸.



Notebook Upgrades and Add-ons

The notebook supports several accessories for you to upgrade and add on to your system.

To order accessories, visit the Compaq Web site at <http://www.compaq.com>, or refer to the *Worldwide Telephone Numbers* booklet included with your notebook to contact a Compaq authorized dealer, reseller, or service provider.

Before Removing or Installing Components



CAUTION: Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, ensure that you are discharged of static electricity by touching a grounded metal object. For more information, refer to the *Regulatory and Safety Notices* guide on this CD.



WARNING: The procedures provided in this section are only for user-accessible internal compartments on the notebook. All other areas that require a tool to access should only be opened by a Compaq authorized service provider.

1. Shut down the notebook.
-



To ensure that the notebook is not in Hibernation, turn the notebook on, then shut it down.

2. Disconnect all external devices connected to the notebook.
3. Disconnect the AC adapter and remove all battery packs from the notebook.
4. Use a Torx T8 screwdriver to remove screws. As you remove screws from the notebook, store them away from the work area.

Upgrading Memory

The random access memory (RAM) is preinstalled in a memory expansion slot under the palm rest of the notebook. You can increase the RAM in the notebook with optional memory expansion boards or PC Cards. Memory expansion boards can be installed in the memory expansion slots on the bottom of the notebook or under the palm rest.

To view the amount of RAM in the system press **Fn+esc**.

If you experience problems with Hibernation after increasing RAM, verify that your hard drive has enough free space for the hibernation file. To view the amount of space required by the hibernation file in:

- **Windows 2000 Professional**—select Start > Settings > Control Panel > Compaq Diagnostics.
- **Windows XP Professional**—select Start > Control Panel > Performance and Maintenance > Power Options > Hibernate tab.

To view the amount of free space on your hard drive, select My Computer. Right-click your hard drive, then select Properties.

Inserting and Removing a Memory Expansion Board

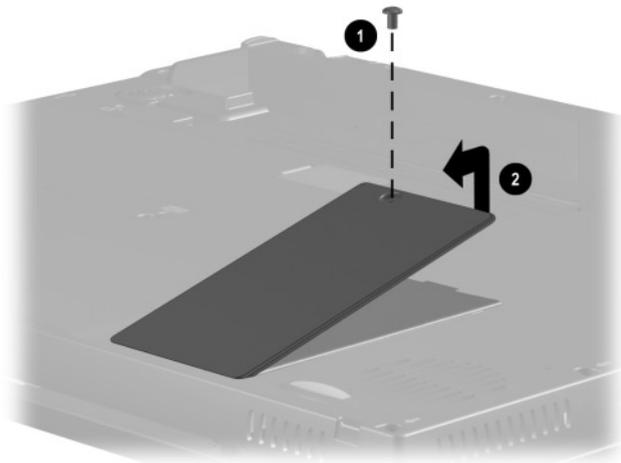


WARNING: Failure to unplug the power cord and remove all battery packs before installing a memory expansion board can damage the equipment and expose you to the risk of electrical shock.

If a memory board is already installed, remove it. See “Removing a Memory Expansion Board” later in this chapter.

Inserting a Memory Expansion Board in the Memory Expansion Compartment

1. Shut down the notebook.
2. Close the display.
3. Turn the notebook bottom side up and remove the screw **1** securing the memory expansion compartment cover to the base assembly.
4. Lift the back edge of the memory expansion compartment cover and swing it up and forward **2**.

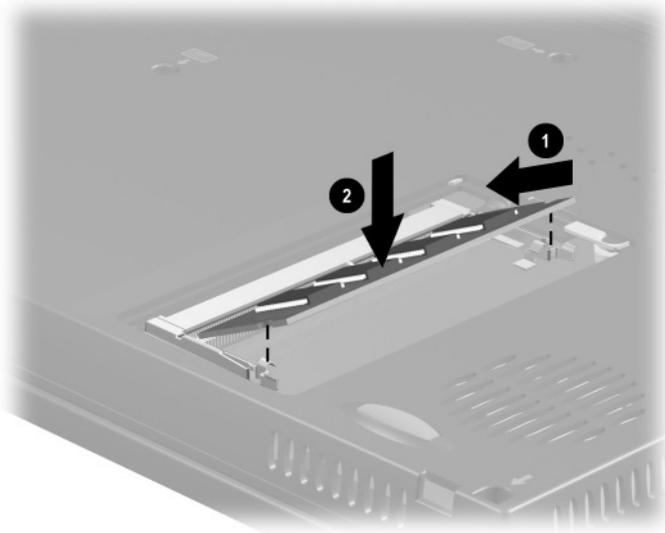


5. Insert the memory expansion board into the empty memory expansion slot at a 45-degree angle ❶, then slide it gently into place until it is seated while tilted.



All memory expansion boards supported by the notebook are keyed (notched) to ensure correct positioning.

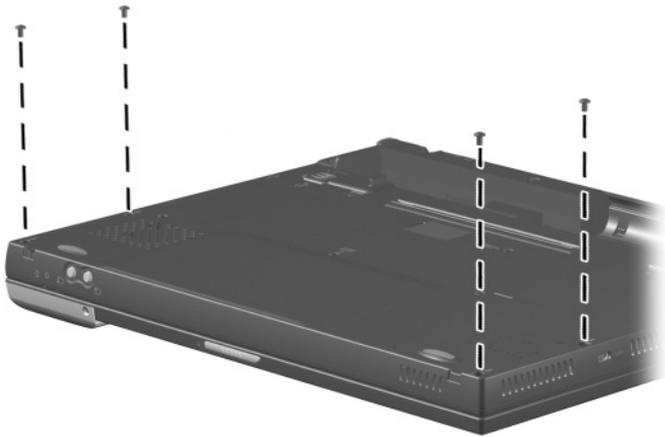
6. Push the memory expansion board down until the plastic retention clips ❷ snap into place.



7. Replace the memory expansion compartment cover and install the screw.

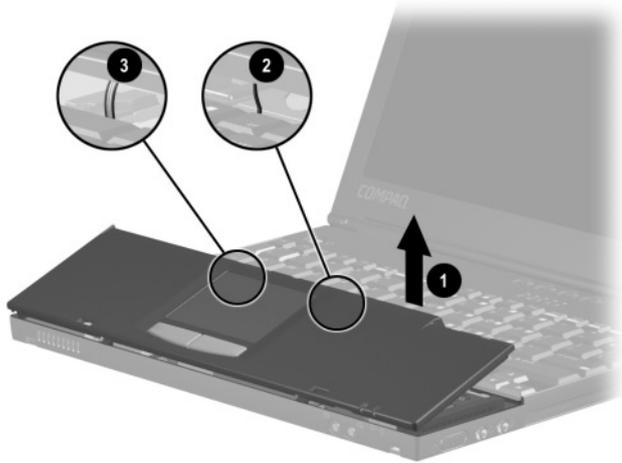
Inserting a Memory Expansion Board on the System Board

1. Shut down the notebook.
2. Close the display.
3. Remove the AC Adapter and all battery packs.
4. Turn the notebook bottom side up and remove the 4 screws securing the palm rest to the base assembly.

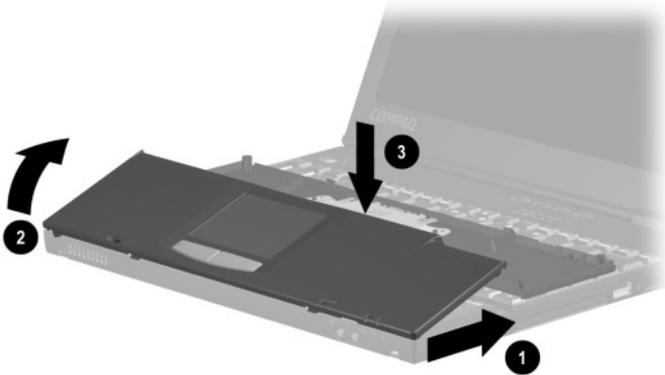


5. Turn the notebook top side up.
6. Open the notebook.

7. Slowly lift the inside edge of the palm rest **1** until the real time clock (RTC) battery **2** and pointing device cables **3** prevent it from lifting any further.



8. While holding the palm rest at a 45-degree angle, slide the outside edge of the palm rest away from the base assembly **1**.

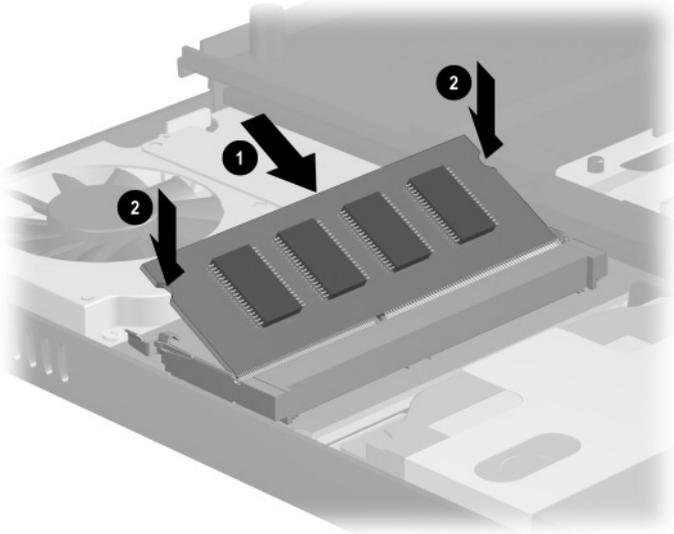


9. After the outside edge of the palm rest clears the base assembly, swing the outside edge of the palm rest up and back ❷, and rest the palm rest on the keyboard ❸. If a memory board is already installed, remove it. Refer to “Removing a Memory Expansion Board” in this chapter.
10. To add a memory expansion board, insert the board into the empty memory expansion slot at a 45-degree angle ❶, then slide it gently into place until it is seated while tilted.



All memory expansion boards supported by the notebook are keyed (notched) to ensure correct positioning.

11. Push the memory expansion board down until the plastic retention clips ❷ snap into place.

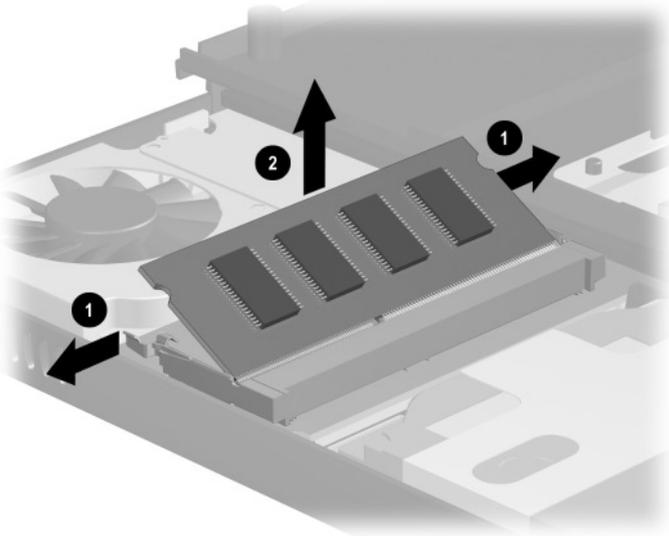


12. Replace the palm rest and reinsert all screws.

Removing a Memory Expansion Board

To remove a memory expansion board from the memory slot in the memory compartment or system board, follow the instructions for inserting a memory expansion board to access the memory slot, then:

1. Pull away the plastic retention clips **1** on each side of the memory expansion board. The memory expansion board tilts upward.
2. Lift the edge of the memory expansion board **2** and slide it gently out of the memory expansion slot at a 45-degree angle.



3. Place the memory expansion board in an electrostatic-safe container.



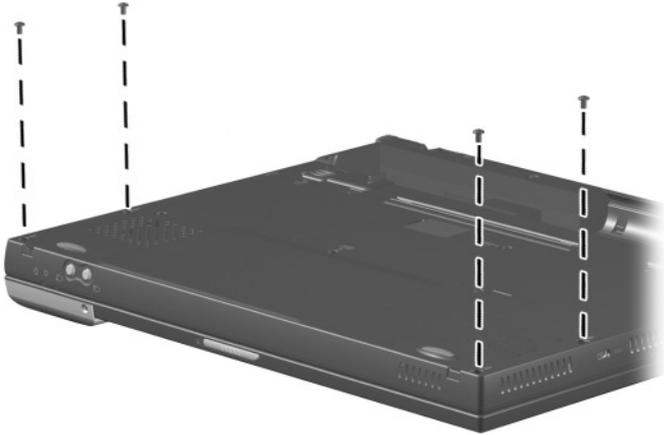
CAUTION: If memory is:

- Not working correctly, reseat the memory module.
 - Faulty, contact the manufacturer of the memory module.
-

Upgrading or Adding a Modem or NIC

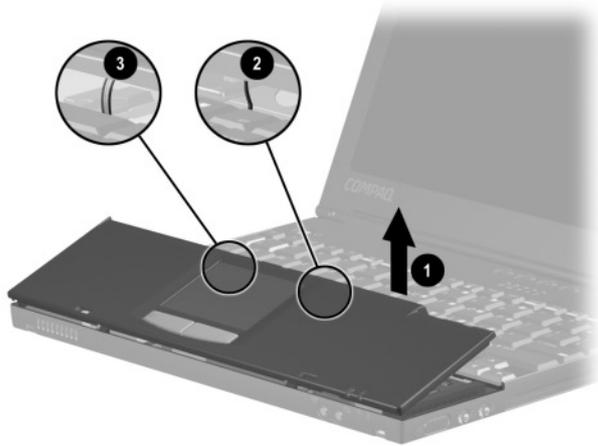
To remove or install a modem or network interface card (NIC):

1. Turn the notebook bottom side up and remove the screws securing the palm rest.

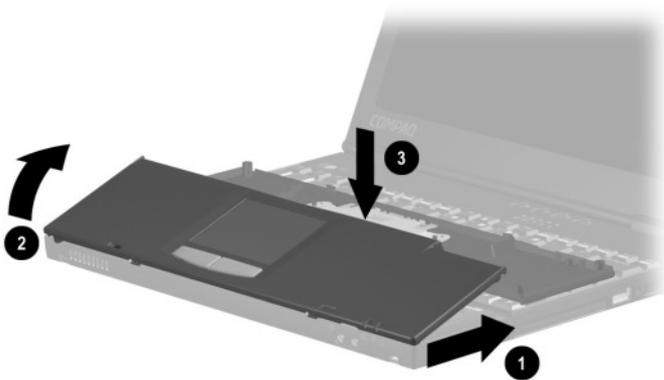


2. Turn the notebook top side up.
3. Remove the AC Adapter and all battery packs.
4. Open the notebook.

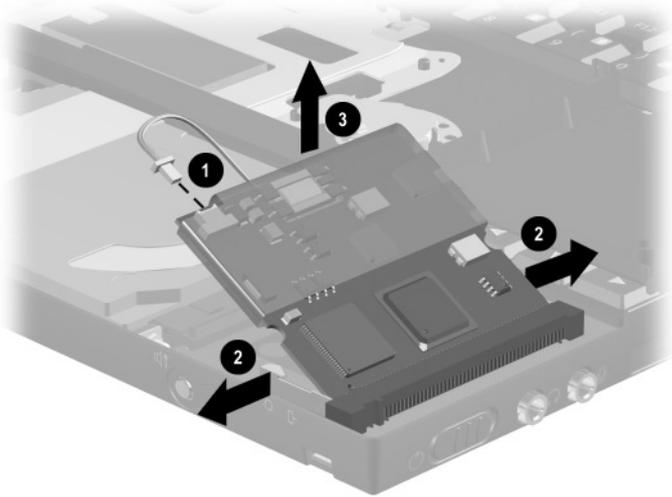
5. Slowly lift the inside edge of the palm rest ❶ until the real time clock (RTC) battery ❷ and pointing device cables ❸ prevent it from lifting any further.



6. While holding the palm rest at a 45-degree angle, slide the outside edge of the palm rest away from the base assembly ❶.
7. After the outside edge of the palm rest clears the base assembly, swing the outside edge of the palm rest up and back ❷, and rest the palm rest on the keyboard ❸.



8. If a modem/NIC board is already installed, disconnect the modem/NIC cable from the board ❶.
9. Remove the board by pulling away the plastic retention clips ❷ on each side of the board. The board tilts upward.
10. Lift the edge of the board ❸ and gently slide it out of the connector at a 45-degree angle.



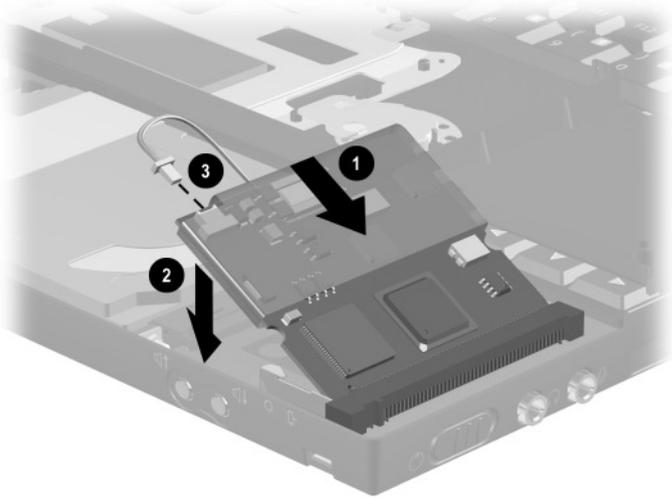
11. Place the board in an electrostatic-safe container.

12. To add a new modem/NIC board, align the keyed end of the board with the keyed area of the modem slot. Carefully insert the board into the modem slot ❶ at a 45-degree angle and press down on the board ❷. When properly seated, the retainer latches snap into place.



The board connectors are keyed (notched) to ensure correct positioning.

13. Plug the internal modem-to-RJ-11 cable ❸ (located inside the notebook) into the connector on the modem/NIC board.
14. Replace the palm rest and reinstall the screws.



15. Connect the modem or network cable to the appropriate jack on the notebook and to the wall. See “Connecting a Modem” in Chapter 7.

To find additional modem and NIC information, refer to the following documents:

- The installation and operation guide included with your new modem or NIC accessory kit.
- *Modem and Networking* guide, for configuring the modem and installing software.
- *Modem Command Guidelines (Advanced User Only)*, for AT Commands, including dial modifiers and instructions.

Adding and Using PC Cards

A PC Card is a credit card–sized accessory designed to conform to the standard specifications of the Personal Computer Memory Card International Association (PCMCIA). The notebook supports both 32-bit CardBus cards and 16-bit PC Cards.

PC Cards are classified as Type I, Type II, and Type III. The 3 types are about the same length and width, but vary in thickness.

Configuring a PC Card



CAUTION: If you install software or enablers provided by a PC Card manufacturer, you may not be able to use other PC Cards. If you are instructed by the documentation that comes with your PC Card to install device drivers:

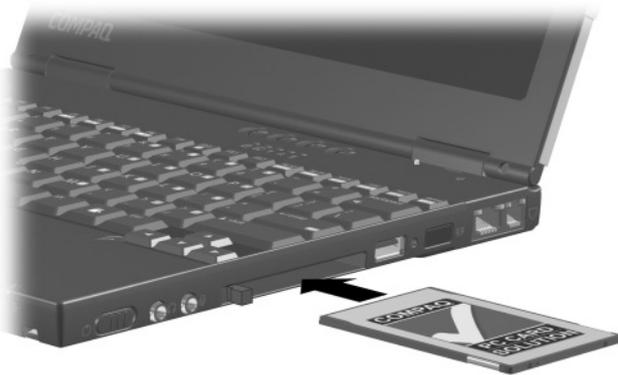
- Install only the device drivers for your operating system.
 - Do not install card services, socket services, or enablers.
-

The operating system will detect new hardware and look for the appropriate driver. If no driver is found, specify the location for the correct driver, that is, diskette, CD, or other directory.

Inserting a PC Card

 **CAUTION:** To prevent damage to the connectors, use minimal pressure as you insert a PC Card into a PC Card slot.

1. Eject the weight saver from the CardBus slot if you have not already done so.
2. Hold the PC Card label side up with the connector facing the notebook.
3. Gently push the card into the slot until the card is seated.



- If you are inserting a LAN, SCSI, or multifunction PC Card, you must restart the notebook.
- If you are inserting a modem, ATA, flash, or SRAM PC Card, it is usually not necessary to restart the notebook.

Removing a PC Card

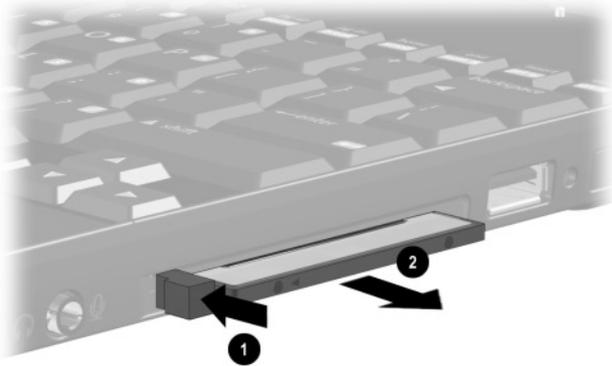
 **CAUTION:** Failure to remove a PC Card that extends beyond the notebook before transporting the notebook may cause permanent damage to the PC Card connectors.

If the notebook is on, click the command to stop the PC Card before you remove it. To stop a PC Card, select the PC Card icon in the taskbar, then select the PC Card you want to stop, then select Stop Card. A message displays when the PC Card can be safely removed.

 You must shut down the notebook before removing a LAN, SCSI, or multifunction PC Card. It is usually not necessary to shut down the notebook before removing a modem, ATA, flash, or SRAM PC Card.

To remove the PC Card:

1. Press the PC Card eject button **1** once to release. Press the PC Card eject button **1** a second time to eject the PC card.
2. Gently grasp the card and pull it out **2**.



Conserving Energy

When PC Cards are installed in your notebook, they draw power from the system even when they are not in use. To conserve power, remove PC Cards when they are not being used.

Installing Additional Device Drivers

Device drivers are programs or data files containing information needed to run a particular PC Card. Most of the device drivers you need are preinstalled by Compaq.



To save available memory, some device drivers are not turned on.

Some types of PC Cards, such as network cards, Global Positioning System (GPS) cards, SCSI cards, audio cards, and multifunction cards, require an additional software device driver to function properly. The device driver is provided by the PC Card manufacturer and should be installed according to the manufacturer's instructions.

Do not install other PC Card software that is provided by the manufacturer, even if prompted to do so. The other software may prevent the notebook from working properly with all of your PC Cards.

Upgrading the Hard Drive

Depending on your model, the primary hard drive can be upgraded to a larger capacity. Contact your authorized Compaq dealer for optional hard drives available for your notebook. See Chapter 5, “Drives,” for instructions on removing and installing a hard drive.

Adding a Second Battery Pack

A second battery can be used as a spare or, on some model configurations, to provide additional battery power to the primary battery pack.

Consult an authorized Compaq dealer for information on additional or replacement battery packs for your notebook. See Chapter 4, “Battery Packs,” in this guide or the documentation included with the battery pack accessory for information on installations.

Specifications

This product is a Class B digital device, pursuant to Part 15 of the FCC Rules. For more Class B information, refer to the *Regulatory and Safety Notices* guide on the *Documentation Library* CD included with your notebook.

Notebook Dimensions

Dimension	U.S.	Metric
Height	1.00 to 1.27 inch	25.0 to 31.7 mm
Width	10.84 inch	275.0 mm
Depth	8.97 inch	228.0 mm

Operating Environment

Factor	U.S.	Metric
Temperature		
Operating	50° to 95° F	10° to 35° C
Nonoperating	-4° to 140° F	-20° to 60° C
Relative Humidity (noncondensing)		
Operating	10 to 90%	10 to 90%
Nonoperating	5 to 95%	5 to 95%

Operating Environment (*Continued*)

Factor	U.S.	Metric
Maximum Altitude (nonpressurized)		
Operating	10,000 ft	3,048 m
Nonoperating	30,000 ft	9,144 m

Rated Power Input

Input Power	Rating
Operating voltage	100–120/220–240 VAC RMS
Operating current	2.7/0.6 A RMS
Operating frequency range	50–60 Hz AC
When powered by a DC source	18.5V MAX



This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 Vrms.

Port and COM Port Settings

Port	Port	Address	IRQ	DMA
Serial port		3F8h–3FFh	4	
USB connector		2400–241Fh	11	
Parallel port		378–3FFh	7	3
Serial I/O connector	COM1	3F8h–3FFh	4	
Infrared port	COM3	3E8h–3Efh	3	5
Internal modem	COM2	2F8h–2FFh	11	3

Modem Specifications

Temperatures

Operating	32° to 167° F (0° to 75° C)
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Storage	-40° to 167° F (-40° to 75° C)
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Relative Humidity (noncondensing)

Operating	-10 to 90% (-10 to 90%)
-----------	-------------------------

Storage	-5 to 95% @ 102° F (-5 to 95% @ 39° C)
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Interfaces

- Communications connector
 - Telephone, central office network
 - Standard RJ-11 telephone connector
 - Internal DAA
-

Power Requirements

+3.3 volts ±5%

+3.3 vaux ±5%

+5 volts ±5%

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