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Maintenance and Service Guide

HP Pavilion zd7000 Series Notebook PC
HP Media Center zd7000 Series
Notebook PC
HP Compaq nx9500 Series
Business Notebook

Document Part Number: 333621-003

August 2004

This guide is a troubleshooting reference used for maintaining and servicing the notebook. It provides comprehensive information on identifying notebook features, components, and spare parts; troubleshooting notebook problems; and performing notebook disassembly procedures.

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Maintenance and Service Guide
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HP Compaq nx9500 Series Business Notebook
Third Edition August 2004
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Product Description

The HP Pavilion zd7000 Series Notebook PC, the HP Media Center zd7000 Series Notebook PC, and the HP Compaq nx9500 Series Business Notebook offer advanced modularity, Intel® Pentium® processors with 64-bit architecture, industry-leading NVIDIA graphics controllers, and extensive multimedia support.



*HP Pavilion zd7000 Series Notebook PC,
HP Media Center zd7000 Series Notebook PC, and
HP Compaq nx9500 Series Business Notebook*

1.1 Models

Notebook model information is shown in Tables 1-1 and 1-2.

Table 1-1

**HP Pavilion zd7000 Series Notebook PC,
HP Media Center zd7000 Series Notebook PC, and
HP Compaq nx9500 Series Business Notebook
Model Naming Conventions**

Key										
V	P	32 0	Y7	80	Y	Gg	10	H	a	XXXXXX-XXX
1	2	3	4	5	6	7	8	9	10	11
Key	Description			Options						
1	Brand/Series designator			V = Pavilion C = Compaq						
2	Processor type			P = Intel Pentium 4						
3	Processor speed			340 = 3.40 GHz 320 = 3.20 GHz 306 = 3.06 GHz				280 = 2.80 GHz 266 = 2.66 GHz		
4	Display type/size/resolution			Y = wide SXGA+ (1680 × 1050) W = wide XGA (1280 × 800) H = wide SXGA+ WVA				7 = 17.1 in 5 = 15.4 in		
5	Hard drive size*			80 = 80 GB				60 = 60 GB		
6	Optical drive designator			Y = DVD+RW/R and CD-RW Combo Drive				W = DVD/CD-RW Combo Drive		
7	Integrated communication/wireless device			G = combination modem + GB NIC g = 802.11g Bluetooth® N = none						

Table 1-1
HP Pavilion zd7000 Series Notebook PC,
HP Media Center zd7000 Series Notebook PC, and
HP Compaq nx9500 Series Business Notebook
Model Naming Conventions (*Continued*)

Key	Description	Options	
8	RAM	10 = 1024 MB 76 = 768 MB	51 = 512 MB
9	Operating system	H = Microsoft® Windows® XP Home C = Microsoft Windows XP Media Center P = Microsoft Windows XP Professional	
10	Warranty	a = 1/1/0 (1 year parts, 1 year labor, no onsite support)	
11	SKU#		

*1 GB = one billion bytes when referring to hard drive storage capacity.
 Accessible capacity is less.

Table 1-2
HP Pavilion zd7000 Series Notebook PC and
HP Media Center zd7000
Series Notebook PC Models

All HP Pavilion zd7000 Series Notebook PC and HP Media Center zd7000 Series Notebook PC models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

V7001	P	320	Y7	80	Y	Gg	76	H	
France			DP353E ABF			Spain		DP353E ABE	
Germany			DP763E ABD			Switzerland		DP353E UUZ	
Italy			DP353E ABZ			United Kingdom		DP353E ABU	
V7066	P	320	Y7	80	Y	Gg	51	H	
Switzerland			DV277E UUZ						
V7070	P	320	Y7	80	Y	Gg	10	H	
United Kingdom			DP766E ABU						
V7080	P	320	Y7	80	Y	Gg	10	H	
United Kingdom			DY626E ABU						
V7168	P	320	Y7	80	Y	Gg	51	H	
Germany			PB941EA ABD						
V7169	P	320	Y7	80	Y	Gg	10	H	
Sweden/Finland			PB943EA AK8						
V7170	P	320	Y7	80	Y	Gg	51	H	
Spain			PB942EA ABE			United Kingdom		PB942 EA ABU	
V7180	P	320	Y7	80	Y	Gg	10	C	
United States			DS492U ABA						

Table 1-2
HP Pavilion zd7000 Series Notebook PC and
HP Media Center zd7000
Series Notebook PC Models (Continued)

All HP Pavilion zd7000 Series Notebook PC and HP Media Center zd7000 Series Notebook PC models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

V7188	P	320	Y7	80	Y	Gg	51	H	
United States			DS492U ABA						
V7198	P	320	Y7	80	Y	Gg	51	C	
United States			DV601U ABA						
V7260	P	320	Y7	80	Y	Gg	51	H	a
United States			PF163UA ABA						
V7269	P	320	W7	80	Y	Gg	10	H	a
United States			PF167UA ABA						
V7280	P	320	Y7	80	Y	Gg	10	C	
United States			PF164UA ABA						
V7999	P	320	Y7	80	Y	Gg	10	H	
United States			DP446U ABA						
V7167	P	320	Y7	60	Y	Gg	51	H	
Germany			PB952EA ABD						
V7001	P	306	Y7	80	W	GN	51	H	
United States			DM793A ABA						
7030	P	306	Y7	80	Y	Gg	51	C	
United States			DM790A ABA						

Table 1-2
HP Pavilion zd7000 Series Notebook PC and
HP Media Center zd7000
Series Notebook PC Models (Continued)

All HP Pavilion zd7000 Series Notebook PC and HP Media Center zd7000 Series Notebook PC models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

7065	P	306	Y7	80	Y	Gg	51	H	
United Kingdom		DY624E ABU							
V7168	P	306	Y7	80	W	Gg	51	H	
United States		DS491U ABA							
V7015	P	306	Y7	60	Y	Gg	51	C	
United States		DT859U ABA							
V7055	P	306	Y7	80	Y	Gb	51	H	
Spain		DV274E ABE							
V7060	P	306	Yu	60	Y	Gg	51	H	
Switzerland		DV271E UUZ				United Kingdom		DV271E ABU	
V7063	P	300	Y7	80	Y	Gg	51	H	
United States		DS488U ABA							
V7141	P	300	Y7	80	Y	Gb	51	H	
Italy		PB949EA ABZ							
V7143	P	300	Y7	80	Y	Gb	51	H	
United Kingdom		PB944EA ABU							
V7144	P	300	Y7	80	Y	Gb	51	H	
France		PB947EA ABF							

Table 1-2
HP Pavilion zd7000 Series Notebook PC and
HP Media Center zd7000
Series Notebook PC Models (Continued)

All HP Pavilion zd7000 Series Notebook PC and HP Media Center zd7000 Series Notebook PC models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

V7145	P	300	Y7	80	Y	Gb	51	H	
United Kingdom			PB950EA ABU						
V7150	P	300	Y7	80	Y	Gg	51	H	
United States			DS488U ABA						
V7160	P	300	Y7	80	Y	Gg	51	H	
United States			DS488U ABA						
V7249	P	300	W7	80	Y	Gg	51	P	a
United States			PF166UA ABA						
V7139	P	300	Y7	60	Y	Gg	51	H	
Sweden/Finland			PB951EA AK8						
V7140	P	300	Y7	60	W	Gg	51	H	
United States			DS487U ABA						
V7160	P	300	Y7	60	W	Gg	51	H	
United States			DZ379U ABC						
V7020	P	280	Y7	80	Y	Gg	51	H	
United States			DR089 ABA						
V7045	P	280	Y7	80	Y	Gg	51	H	
France			DY625E ABF						

Table 1-2
HP Pavilion zd7000 Series Notebook PC and
HP Media Center zd7000
Series Notebook PC Models (Continued)

All HP Pavilion zd7000 Series Notebook PC and HP Media Center zd7000 Series Notebook PC models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

V7058	P	280	Y7	80	W	Gg	51	H	
United States			DP791A ABA						
V7131	P	280	Y7	80	Y	Gg	51	H	
France			PB946EA ABF						
V7005	P	280	Y7	60	Y	Gg	51	C	
United States			DP448U ABA						
V7038	P	280	Y7	60	W	GN	51	H	
Italy			DR770E ABZ						
V7040	P	280	Yu	60	Y	GN	51	H	
France			DP761E ABT			Spain		DP761E ABE	
Germany			DP652E ABD			Switzerland		DP761E UUZ	
Italy			DP761E ABZ			United Kingdom		DP761E ABU	
v7040	P	280	Y7	60	Y	Gg	51	H	
United States			DM789A ABA						
v7040	P	280	Y7	60	Y	Gg	51	H	
United States			DM789A ABA						
V7048	P	280	Y7	60	y	Gg	51	H	
United States			DV275E ABZ						
V7049	P	280	Y7	60	Y	Gg	51	H	
Switzerland			DY627E UUZ						

Table 1-2
HP Pavilion zd7000 Series Notebook PC and
HP Media Center zd7000
Series Notebook PC Models (*Continued*)

All HP Pavilion zd7000 Series Notebook PC and HP Media Center zd7000 Series Notebook PC models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

V7050	P	280	Y7	60	Y	Gg	51	H	
Germany			DP770E ABD			Spain		DP767E ABE	
Italy			DP767E ABZ			United Kingdom		DP767E ABU	
V7101	P	280	Y7	60	W	Gg	51	H	
United States			DP684AS ABA						
V7112	P	280	Y7	60	W	GN	51	H	
France			PB945EA ABF						
V7120	P	280	Y7	60	W	Gg	51	H	
Sweden			DV287E AK8						
V7128	P	280	Y7	60	W	Gg	51	H	
Italy			PB948EA ABZ						
V7020	P	280	Y7	40	W	Gg	51	H	
Germany			DV268E ABD						
V7102	P	280	Y7	40	W	Gg	51	H	
United States			DZ378U ABA						
V7128	P	280	Y7	40	W	Gg	51	H	
Italy			PB948EA ABZ						
V7035	P	280	Y7	40	W	GN	51	H	
Italy			DP768E ABZ			United Kingdom		DP768E ABU	

Table 1-2
HP Pavilion zd7000 Series Notebook PC and
HP Media Center zd7000
Series Notebook PC Models (*Continued*)

All HP Pavilion zd7000 Series Notebook PC and HP Media Center zd7000 Series Notebook PC models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

V7101	P	280	Y7	40	W	GN	51	H	
United States			DS490U ABA						
V7005	P	266	Y7	60	W	GN	25	H	
France			DV269E ABF						
V7010	P	266	Y7	60	W	Gg	51	H	
United States			DM788A ABA						
V7030	P	266	Y7	60	Y	Gg	51	H	
France			DP765E ABF			Switzerland		DP765E UUZ	
V7050	P	266	Y7	60	Y	Gg	51	H	
United States			DT860U ABA						
V7129	P	266	Y7	60	Y	GN	51	H	
France			DV270E ABF						
v7998	P	266	W5	60	W	Gg	51	H	
United States			DP447U ABA						
V7005	P	266	W5	40	W	Gg	51	H	
United States			DR341U ABA						
V7009	P	266	Y7	40	W	GN	51	H	
France			DR768E ABF						

Table 1-2
HP Pavilion zd7000 Series Notebook PC and
HP Media Center zd7000
Series Notebook PC Models (*Continued*)

All HP Pavilion zd7000 Series Notebook PC and HP Media Center zd7000 Series Notebook PC models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

V7010	P	266	Y7	40	W	Gg	51	H	
Canada/English			DR340U ABL			Canada/French			DR340U ABC
V7010	P	266	Y7	40	W	GN	51	H	
Italy			DP764E ABZ			Switzerland			DP764E UUZ
Spain			DP764E ABE			United Kingdom			DP764E ABU
V7012	P	266	Y7	40	Y	GN	51	H	
France			DR769E ABF						
V7015	P	266	Y7	40	Y	GN	51	H	
Germany			DP769E ABD						

Table 1-3

HP Compaq nx9500 Series Business Notebook Models

All HP Compaq nx9500 Series Business Notebook models feature

- TouchPad pointing device.
- 12-cell lithium-ion (Li-Ion) battery pack.
- 1-year warranty on parts and labor.

C9500	P	320	W7	80	Y	Gg	10	P	
Canada - French			PF032UA ABC			United States			PF032UA ABA
C9500	P	300	W7	60	Y	Gg	51	P	
Canada - French			PF031UA ABC			United States			PF031UA ABA
C9500	P	300	W7	60	W	Gg	51	P	
Canada - French			PF030UA ABC			United States			PF030UA ABA

1.2 Features

- The following processors, all with 512-KB L2 cache, are available, varying by notebook model:
 - ❑ Intel® Pentium® 4 3.4-, 3.2-, 3.0-, and 2.8-GHz processors with 800-MHz FSB and Hyper-Threading
 - ❑ Intel Pentium 4 3.06-, 2.8-, and 2.66-GHz processors with 533-MHz FSB
- 17.0-inch wide XGA (1440 × 900), 15.4-inch wide XGA (1280 × 800) TFT display with over 16.7 million colors, or 17.0-inch wide WSXGA (1680 x 1050) TFT display, varying by notebook model
- NVIDIA GeForce FX Go5200 Ultra with 128-MB video memory, NVIDIA GeForce FX Go5200 Ultra with 64-MB video memory, NVIDIA GeForce FX Go5600 Ultra with 128-MB video memory, NVIDIA GeForce FX Go5600 Ultra with 64-MB video memory, NVIDIA GeForce FX Go5700 with 128-MB video memory, or NVIDIA GeForce FX Go5700 with 64-MB video memory, varying by notebook model
- 100-, 80-, 60-, or 40-GB high-capacity 4200-rpm hard drive, 80-, 60-, or 40-GB high-capacity 5400-rpm hard drive, or 60-GB high-capacity 7200-rpm hard drive, varying by notebook model
 -  1 GB = one billion bytes when referring to hard drive storage capacity. Accessible capacity is less.

- 1024-, 512-, or 256-MB DDR synchronous DRAM (SDRAM) at 333 MHz, expandable to 2.0 GB
- Microsoft® Windows® XP Home Edition, Microsoft Windows XP Professional, or Microsoft Windows XP Media Center Edition, varying by notebook model
- Full-size Windows keyboard with integrated numeric keypad
- TouchPad pointing device with on/off button and dedicated vertical scroll up/down pad
- Integrated Secure Digital (SD) Memory Card slot
- Integrated 10/100BASE-T Ethernet local area network (LAN) network interface card (NIC) with RJ-45 (network) connector
- Integrated wireless support for Mini PCI 802.11b/g and Bluetooth® LAN devices
- One Type II PC Card slot with support for both 32-bit (CardBus) and 16-bit PC Cards
- External 135- or 120-watt AC adapter with power cord
- 12-cell Li-Ion battery pack
- Harman/Kardon stereo speakers

- Support for the following optical drives:
 - ❑ 24X Max DVD/CD-RW Combo Drive
 - ❑ 8X Max DVD-ROM Drive
 - ❑ Generic multi-speed DVD+RW/R and CD-RW Combo Drive
 - ❑ 8X Max DVD+RW/R and CD-RW Combo Drive
 - ❑ 4X Max DVD+RW/R and CD-RW Combo Drive
 - ❑ 2X Max DVD+RW/R and CD-RW Combo Drive
- Connectors:
 - ❑ SD Card slot
 - ❑ Infrared port
 - ❑ One Type II PC Card slot
 - ❑ RJ-11 (modem) jack
 - ❑ RJ-45 (network) jack
 - ❑ 4 Universal Serial Bus (USB) v. 2.0 ports
 - ❑ S-Video jack
 - ❑ Parallel port
 - ❑ External monitor port
 - ❑ Power connector
 - ❑ Docking connector
 - ❑ IEEE 1394 digital port
 - ❑ Audio-in (microphone) jack
 - ❑ Audio-out (headphone) jack

1.3 Clearing a Password

If the notebook you are servicing has an unknown password, follow these steps to clear the password. These steps also clear CMOS:

1. Prepare the notebook for disassembly (refer to [Section 5.3, “Preparing the Notebook for Disassembly,”](#) for more information).
2. Remove the real time clock (RTC) battery (refer to [Section 5.13, “RTC Battery,”](#) for more information).
3. Wait approximately 5 minutes.
4. Replace the RTC battery and reassemble the notebook.
5. Connect AC power to the notebook. Do **not** reinsert any battery packs at this time.
6. Turn on the notebook.

All passwords and all CMOS settings have been cleared.

1.4 Power Management

The notebook comes with power management features that extend battery operating time and conserve power. The notebook supports the following power management features:

- Standby
- Hibernation
- Setting customization by the user
- Hotkeys for setting the level of performance
- Battery calibration
- Lid switch Standby/resume
- Power/Standby button
- Advanced Configuration and Power Management (ACPM) compliance

1.5 External Components

The external components on the front panel and right side of the notebook are shown below and described in Table 1-4.



The notebook component locations are identical for all models of the HP Pavilion zd7000 Series Notebook PC, HP Media Center zd7000 Series Notebook PC, and HP Compaq nx9500 Series Business Notebook. Plastic components of the HP Compaq nx9500 Series Business Notebook appear different from the HP Pavilion and HP Media Center zd7000 models only by color.

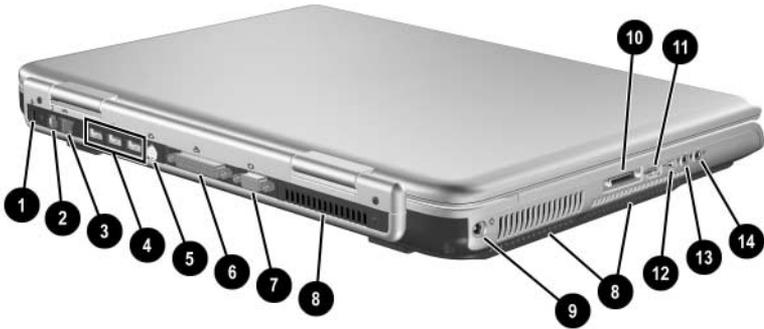


Front Panel and Right-Side Components

Table 1-4
Front and Right Side Components

Item	Component	Function
1	Display release latch	Opens the notebook.
2	Stereo speakers (2)	Produce stereo sound.
3	Integrated Drive Electronics (IDE) drive LED	On: The internal hard drive or optical drive is being accessed.
4	Battery LED	<ul style="list-style-type: none">■ On: The notebook is receiving battery power.■ Amber: A battery pack is charging.■ Green: A battery pack is fully charged.■ Flashing: A battery pack is malfunctioning and might need to be replaced.
5	Power LED	On: The notebook is receiving AC power.
6	Power/standby LED	On: Notebook is turned on. Flashing: Notebook is in Standby.
7	Digital Media Slot	Supports SD Card, MultiMediaCard, Memory Stick, and SmartMedia digital memory cards.
8	Infrared port	Provides wireless communication between the notebook and an optional IrDA-compliant device.
9	Optical drive	Supports an optical disc.
10	PC Card eject button	Ejects an optional PC Card from the PC Card slot.
11	PC Card slot	Supports an optional Type I or Type II 32-bit (CardBus) or 16-bit PC Card.

The external components on the rear panel and left side are shown below and described in Table 1-5.



Rear Panel and Left-Side Components

Table 1-5

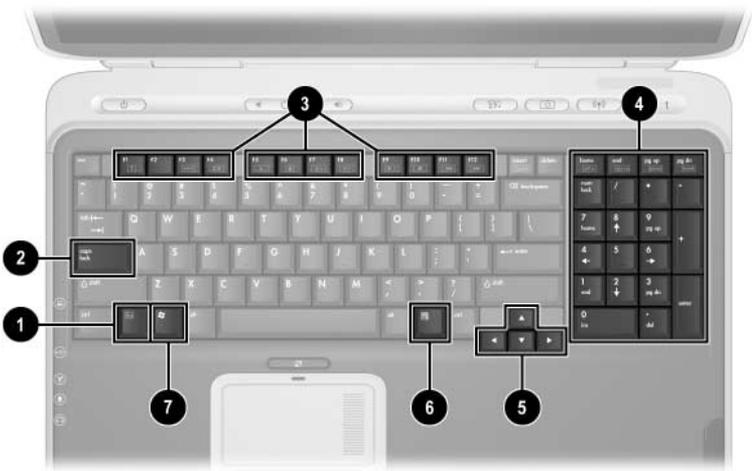
Rear Panel and Left-Side Components

Item	Component	Function
1	Security cable slot	Attaches an optional security cable to the notebook.  The purpose of security solutions is to act as a deterrent. These solutions do not prevent the product from being mishandled or stolen.
2	RJ-11 (modem) jack	Connects a modem cable.
3	RJ-45 (network) jack	Connects an Ethernet network cable.
4	USB ports (3)	Connect optional USB 2.0-compliant devices.
5	S-Video jack	Connects an optional S-Video device, such as a television, VCR, camcorder, projector, or video capture card.

Table 1-5
Rear Panel and Left-Side Components (Continued)

Item	Component	Function
6	Parallel port	Connects an optional parallel device such as a printer.
7	External monitor port	Connects an optional VGA external monitor or projector.
8	Vents (3)	<p>Allow airflow to cool internal components.</p> <p> To prevent overheating, use the notebook only on hard surfaces that cannot obstruct the vents. Do not allow a soft surface, such as bedding, clothing, or a thick rug, to block airflow.</p>
9	Power connector	Connects an AC adapter cable.
10	HP Notebook Expansion Base connector	Connects to an optional expansion base.
11	USB port	Connects optional USB 2.0-compliant devices.
12	1394 port	Connects an optional 1394 device such as a camcorder or digital camera.
13	Audio-in (microphone) jack	Connects an optional monaural or stereo microphone.
14	Audio-out (headphone) jack	Connects optional headphone or powered stereo speakers. Also connects the audio function of an audio/video device such as a television or VCR.

The notebook keyboard components are shown below and described in Table 1-6.

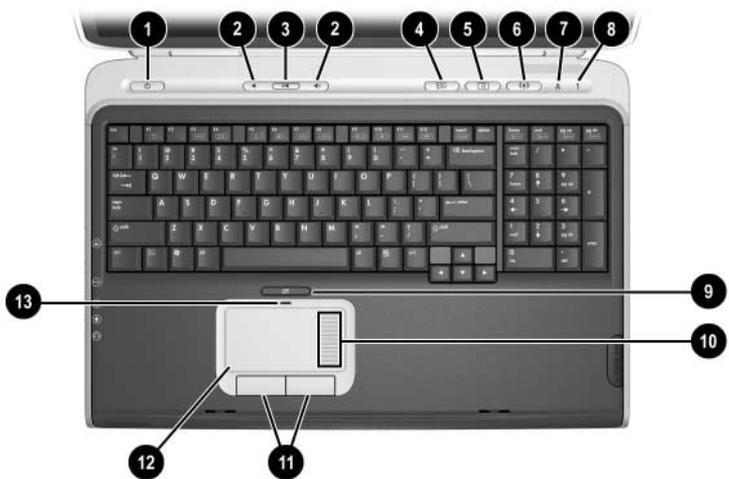


Keyboard Components

Table 1-6
Keyboard Components

Item	Component	Function
1	fn key	Executes frequently used system functions when pressed in combination with another key.
2	caps lock key	Enables caps lock and turns on the caps lock LED.
3	f1 through f12 function keys	Perform system and application tasks. When combined with the fn key, the function keys f1 and f3 through f12 perform additional tasks as hotkeys.
4	Keypad keys (17)	Standard numeric keypad.
5	Cursor control keys	Move the cursor around the screen.
6	Windows applications key	Displays a shortcut menu for items beneath the pointer.
7	Windows logo key	Displays the Windows Start menu.

The notebook top components are shown below and described in Table 1-7.



Top Components

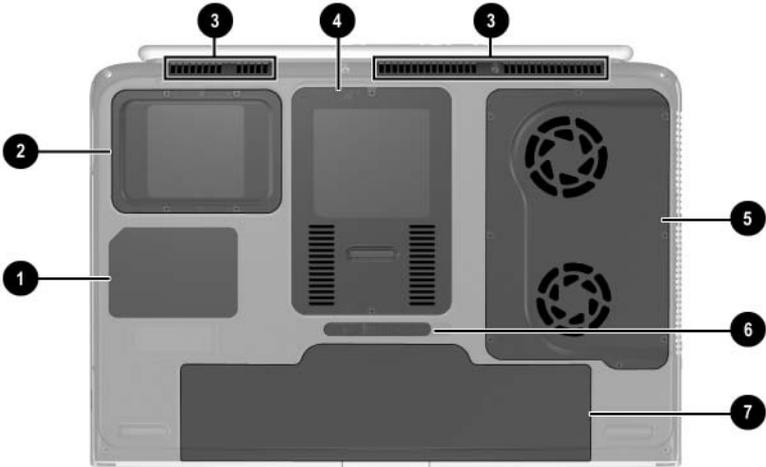
Table 1-7
Top Components

Item	Component	Function
1	Power button	When the notebook is: <ul style="list-style-type: none">■ Off, press to turn on the notebook.■ On, briefly press to initiate Hibernation.■ In Standby, briefly press to resume from Standby.■ In Hibernation, briefly press to restore from Hibernation.
	Power/standby LED	<ul style="list-style-type: none">■ On: Notebook is turned on.■ Flashing: Notebook is in Standby.
2	Volume control buttons (2)	Increase or decrease system volume.

Table 1-7
Top Components (Continued)

Item	Component	Function
3	Mute button	Mutes or restores volume.
	Mute LED	On: Volume is muted.
4	Media button	Launches a multimedia application.
5	Picture button	Launches a digital imaging application.
		 The settings for the media and picture buttons can be changed. Refer to the “Using Custom Assignments and Schemes” section in Chapter 3 of the <i>Startup and Reference Guide</i> for information on reassigning these buttons to other applications.
6	Wireless button	Turns the wireless network device on and off.
	Wireless LED	On: an integrated wireless device has been enabled.
7	Caps lock LED	On: Caps lock is on.
8	Num lock LED	On: Num lock is on.
9	TouchPad on/off button	Enables/disables the TouchPad.
10	TouchPad scroll zone	Scrolls upward or downward.
11	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
12	TouchPad	Moves the pointer and selects or activates items on the screen.
13	TouchPad LED	On: TouchPad is enabled.

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The external components on the bottom of the notebook are shown below and described in Table 1-8.



Bottom Components

Table 1-8

Bottom Components

Item	Component	Function
1	Labels area	Contains the notebook serial number and other applicable regulatory labels.
2	Hard drive bay	Holds the internal hard drive.

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