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Maintenance and Service Guide

HP Pavilion dv6000 Notebook PC

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April 2007

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

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Safety warning notice



WARNING: To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

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1

Product Description

The HP Pavilion dv6000 Notebook PC offers advanced modularity, Intel® Core™ Duo and Celeron® and AMD Turion™ 64 Mobile Technology and Mobile AMD Sempron™ processors, and extensive multimedia support.



HP Pavilion dv6000 Notebook PC

1.1 Features

- The following processors are available, varying by computer model:
 - ❑ Intel Core Duo T7200 (2.00-GHz)
 - ❑ Intel Core Duo T1350 (1.86-GHz)
 - ❑ Intel Core Duo T5600 (1.83-GHz)
 - ❑ Intel Core Duo T2350 (1.86-GHz)
 - ❑ Intel Core Duo T2250 (1.73-GHz)
 - ❑ Intel Core Duo T5500 (1.66-GHz)
 - ❑ Intel Core Duo T5200 (1.66-GHz)
 - ❑ Intel Core Duo T2060 (1.60-GHz)
 - ❑ Intel Core Duo T2300E (1.66-GHz)
 - ❑ Intel Core Duo T2050 (1.60-GHz)
 - ❑ Intel Celeron 440 (1.86-GHz)
 - ❑ Intel Celeron 430 (1.73-GHz)
 - ❑ Intel Celeron 420 (1.60-GHz)
 - ❑ AMD Turion ML-60 2.0-GHz
 - ❑ AMD Turion ML-56 1.8-GHz
 - ❑ AMD Turion ML-52 1.6-GHz
 - ❑ AMD Turion ML-50 1.6-GHz
 - ❑ Mobile AMD Sempron 3500+ (1.8-GHz)
 - ❑ Mobile AMD Sempron 3400+ (1.8-GHz)
 - ❑ Mobile AMD Sempron 3200+ (1.6-GHz)
- 15.4-inch WXGA (1280 × 768) TFT display with over 16.7 million colors, varying by computer model
- 200-, 160-, 120-, 100-, 80-, 60-, or 40-GB high-capacity hard drive, varying by computer model
- 256-MB DDR synchronous DRAM (SDRAM) at 667 MHz, expandable to 2.0 GB

- Microsoft® Windows Vista™ Business, Windows Vista Home Basic, and Windows® XP Professional
- Full-size Windows keyboard with embedded numeric keypad
- TouchPad pointing device with on/off button and dedicated two-way scroll zone
- Integrated 10/100 BASE-T Ethernet local area network (LAN) network interface card (NIC) with RJ-45 jack
- Integrated high-speed 56K modem with RJ-11 jack
- Integrated wireless support for Mini Card IEEE 802.11b and 802.11b/g WLAN device
- Support for ExpressCard
- External 90- or 65-watt AC adapter with 3-wire power cord
- 6-cell or 12-cell Li-Ion battery
- Stereo speakers with volume up and down buttons
- Integrated microphones (select models only)
- Support for the following optical drives:
 - DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe
 - DVD±RW/R and CD-RW Double-Layer Combo Drive
 - DVD/CD-RW Combo Drive
- Connectors:
 - Audio-in (microphone)
 - Audio-out (headphone)
 - Consumer infrared lens
 - Docking (select models only)
 - ExpressCard
 - External monitor
 - IEEE 1394 digital (select models only)
 - Digital Media Slot (select models only)
 - Power

- ❑ RJ-11 (modem)
- ❑ RJ-45 (network)
- ❑ S-Video-out (select models only)
- ❑ Universal Serial Bus (USB) v. 2.0

1.2 Resetting the Computer

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

1. Prepare the computer for disassembly (refer to [Section 5.3, “Preparing the Computer For Disassembly,”](#) for more information).
2. Remove the real-time clock (RTC) battery (refer to [Section 5.7, “RTC Battery,”](#) for more information).
3. Wait approximately 5 minutes.
4. Replace the RTC battery and reassemble the computer.
5. Connect AC power to the computer. Do not reinsert any batteries at this time.
6. Turn on the computer.

All passwords and all CMOS settings have been cleared.

1.3 Power Management

The computer comes with power management features that extend battery operating time and conserve power. The computer 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 button
- Advanced Configuration and Power Management (ACPM) compliance

1.4 External Components

The external components on the front of the computer are shown below and described in Table 1-1.



Front Components

Table 1-1

Front Components

Item	Component	Function
1	Power light	On: The computer is on. Blinking: The computer is in standby. Off: The computer is off or in hibernation.
2	Battery light	On: A battery is charging. Blinking: A battery that is the only available power source has reached a low-battery condition. When the battery reaches a <i>critical</i> low-battery condition, the battery light begins blinking rapidly. Off: If the computer is plugged into an external power source, the light is turned off when all batteries in the computer are fully charged. If the computer is not plugged into an external power source, the light stays off until the battery reaches a low-battery condition.

Table 1-1
Front Components (Continued)

Item	Component	Function
3	Drive light	Blinking: The hard drive or optical drive is being accessed.
4	Wireless switch	Turns the wireless feature on or off, but does not create a wireless connection.  A wireless network must be set up to establish a wireless connection.
5	Wireless light	Blue: An integrated wireless device, such as a wireless local area network (LAN) device and/or a Bluetooth® device, is turned on. Amber: All wireless devices are turned off.
6	Consumer infrared lens (select models only)	Receives a signal from the HP Remote Control.
7	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
8	Audio-out (headphone) jack	Provides sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.
	Audio-out (headphone) S/PDIF jack (select models only)	Provides enhanced audio performance, including surround sound and other high-end audio output.

The external components on the left side of the computer are shown below and described in Table 1-2.



Left-Side Components

Table 1-2

Left-Side Components

Item	Component	Function
1	Security cable slot	Attaches an optional security cable to the computer.  The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
2	S-Video-out jack	Connects an optional S-Video device such as a television, VCR, camcorder, overhead projector, or video capture card.
3	External monitor port	Connects an external VGA monitor or projector.

Table 1-2
Left-Side Components (Continued)

Item	Component	Function
4	Expansion port 3	Connects the computer to an optional expansion product.  The computer has only one expansion port. The term <i>expansion port 3</i> describes the type of expansion port.
5	RJ-45 (network) jack	Connects a network cable.  On select computer models, the network jack provides Gigabit Ethernet functionality.
6	RJ-11 (modem) jack	Connects a modem cable.
7	HDMI port (select models only)	Connects an optional audio or video device such as a high definition television, set-top box, DVD player, or any compatible digital or audio device.
8	USB ports (2)	Connect optional USB devices.
9	1394 port (select models only)	Connects an optional IEEE 1394 or 1394a device, such as a camcorder.
10	Digital Media Slot (select models only)	Supports the following optional digital card formats: Secure Digital (SD) Memory Card, MultiMediaCard (MMC), Secure Digital Input/Output (SD I/O), Memory Stick (MS), Memory Stick Pro (MSP), xDPicture Card (XD), xD-Picture Card (XD) Type M.

The external components on the right side of the computer are shown below and described in Table 1-3.

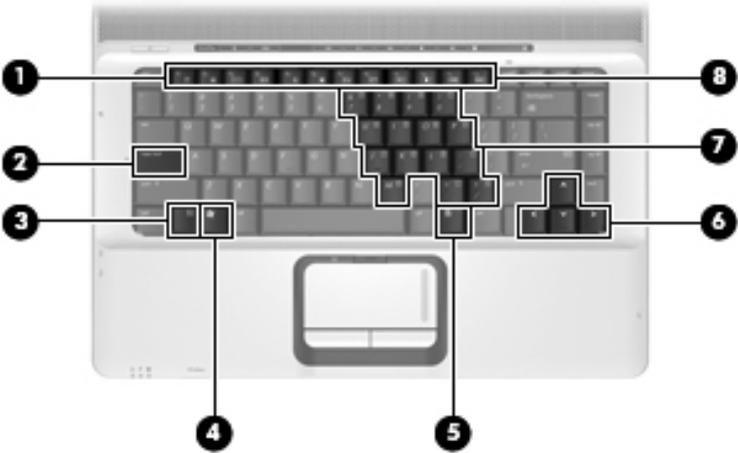


Right-Side Components

Table 1-3
Right-Side Components

Item	Component	Function
1	ExpressCard slot	Supports optional ExpressCard/54 cards.
2	Optical drive	Reads an optical disc.
3	USB port (select models only)	Connects an optional USB device.
4	Power connector	Connects an AC adapter.

The computer keyboard components are shown below and described in Table 1-4.

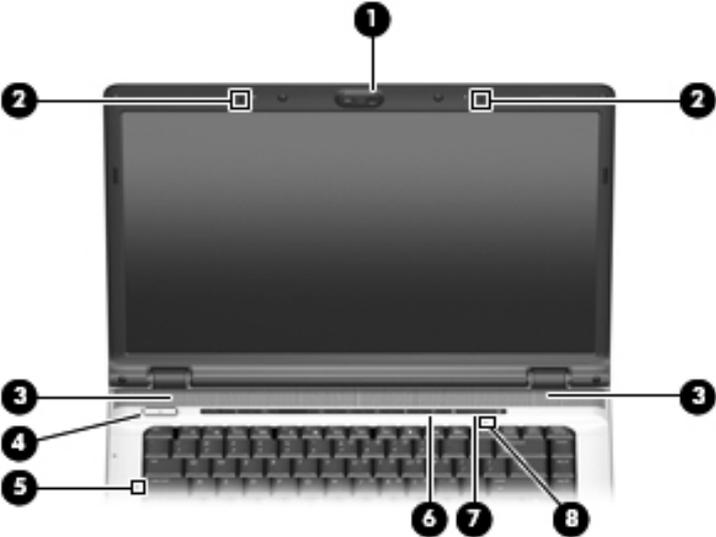


Keyboard Components

Table 1-4
Keyboard Components

Item	Component	Function
1	Function keys	Execute frequently used system functions when pressed in combination with the fn key.
2	caps lock key	Enables caps lock and turns on the caps lock light.
3	fn key	Executes frequently used system functions when pressed in combination with a function key or the esc key.
4	Windows logo key	Displays the Microsoft Windows Start menu.
5	Windows applications key	Displays a shortcut menu for items beneath the pointer.
6	Arrow keys	Move the cursor around the screen.
7	Embedded numeric keypad keys	Can be used like the keys on an external numeric keypad.
8	num lock key	Enables numeric lock, turns on the embedded numeric keypad, and turns on the num lock light.

The computer top components are shown below and described in Table 1-5.

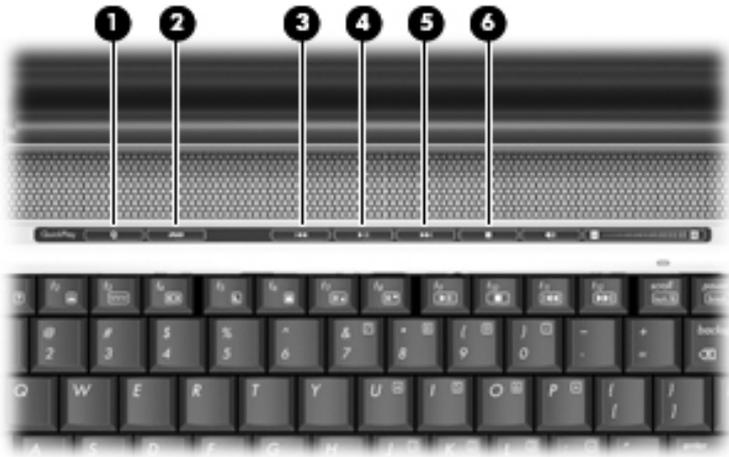


Top Components, Part 1

Table 1-5
Top Components, Part 1

Item	Component	Function
1	Integrated camera (select models only)	Records video and captures still photos.
2	Internal microphones (2, select models only)	Record sound.  A microphone icon next to each microphone opening indicates that the computer has internal microphones.
3	Speakers (2)	Produce sound.
4	Power button	When the computer is <ul style="list-style-type: none"> ■ Off, press to turn on the computer. ■ On, press to enter hibernation. ■ In standby, briefly press to exit standby. ■ In hibernation, briefly press to exit hibernation. If the computer has stopped responding and Microsoft® Windows® shutdown procedures cannot be used, press and hold the power button for at least 5 seconds to turn off the computer.
5	Caps lock light	On: Caps lock is on.
6	Volume mute button	Mutes and restores speaker sound.
7	Volume scroll zone	Adjusts speaker volume. Slide your finger to the left to decrease volume and to the right to increase volume. You can also tap the minus sign on the scroll zone to decrease volume, or tap the plus sign on the scroll zone to increase volume.
8	Num lock light	On: Num lock is on or the embedded numeric keypad is enabled.

The computer top components are shown below and described in Table 1-6.



Top Components, Part 2

Table 1-6
Top Components, Part 2

Item	Component	Function
1	Media button	<p>If QuickPlay is not installed and the computer is</p> <ul style="list-style-type: none"> ■ On, opens the music program or Media menu, which allows you to select a multimedia program. ■ Off, does not function. ■ In standby, resumes from standby into Windows. <p>If QuickPlay is installed and the computer is</p> <ul style="list-style-type: none"> ■ On, opens the music program or Media menu, which allows you to select a multimedia program. ■ Off, opens the music program or the Media menu, which allows you to select a multimedia program. ■ In standby, resumes from standby into Windows. <p> The media button does not affect the procedure for restoring from hibernation.</p>
2	DVD button	<p>When the computer is</p> <ul style="list-style-type: none">  On, opens the default DVD program to start a DVD in the optical drive.  Off, opens QuickPlay to start a DVD in the optical drive. If the QuickPlay software is not installed, the DVD button starts in Windows.  In hibernation, opens QuickPlay to start a DVD in the optical drive. If QuickPlay is not installed, the computer resumes from hibernation.

Table 1-6
Top Components, Part 2 (Continued)

Item	Component	Function
3	Previous/rewind button	When a disc is playing in the optical drive: <ul style="list-style-type: none">■ Plays the previous track or chapter, when pressed once.■ Rewinds when pressed with the fn key.
4	Play/pause button	When a disc is in the optical drive and is <ul style="list-style-type: none">■ Not playing, plays the disc.■ Playing, pauses the disc.
5	Next/fast forward button	When a disc is playing in the optical drive: <ul style="list-style-type: none">■ Play the next track or chapter, when pressed once.■ Fast forwards when pressed with the fn key.
6	Stop button	When a disc is playing in the optical drive, stops the current disc activity.

The computer TouchPad components are shown below and described in Table 1-7.

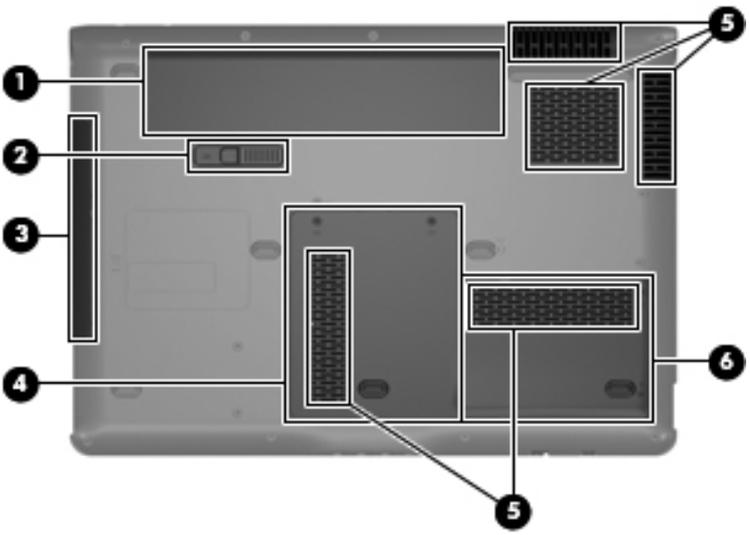


TouchPad Components

Table 1-7
Touchpad Components

Item	Component	Function
1	TouchPad light	Blue: TouchPad is enabled. Amber: TouchPad is disabled.
2	TouchPad	Moves the pointer and selects or activates items on the screen.
3	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
4	TouchPad on/off button	Enables/disables the TouchPad.
5	TouchPad vertical scroll zone	Scrolls up or down.

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



Bottom Components

Table 1-8
Bottom Components

Item	Component	Function
1	Battery bay	Holds the battery.
2	Battery release latch	Releases the battery from the battery bay.
3	Optical drive	Reads an optical disc.

Table 1-8
Bottom Components (*Continued*)

Item	Component	Function
4	Memory module compartment	Contains the memory module slots, the Mini Card slot, and the RTC battery.
5	Vents (5)	Enable airflow to cool internal components.  The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
6	Hard drive bay	Holds the hard drive.

1.5 Design overview

This section presents a design overview of key parts and features of the computer. Refer to [Chapter 3, “Illustrated Parts Catalog,”](#) to identify replacement parts, and [Chapter 5, “Removal and Replacement Procedures,”](#) for disassembly steps.

The system board provides the following device connections:

- AMD Turion and Mobile AMD Sempron processors
- Audio
- Display
- ExpressCard
- Fan
- Hard drive
- Intel Core Duo and Celeron processors
- Keyboard and TouchPad
- Memory module
- Mini Card module



CAUTION: To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the left and right sides of the computer.

The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

Troubleshooting



WARNING: Only authorized technicians trained by HP should repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly-/module-level repair. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indication of component replacement or printed wiring board modification may void any warranty or exchange allowances.

2.1 Setup Utility in Windows XP

The Setup Utility is a ROM-based information and customization utility that can be used even when your Windows operating system is not working or will not load.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

1. Turn on or restart the computer in Windows.
2. Before Windows opens and while the “Press <F10> to enter setup” prompt is displayed in the lower-left corner of the screen, press **f10**.

Using the Setup Utility

Changing the Language of the Setup Utility

The following procedure explains how to change the language of the Setup Utility. If the computer is not in the Setup Utility, begin at step 1. If the computer is in the Setup Utility, begin at step 2.

1. To open the Setup Utility, turn on or restart the computer in Windows, and then press **f10** while the prompt, “Press <F10> to enter setup,” is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **System Configuration > Language**, and then press **enter**.
3. Press **f5** or **f6** (or use the arrow keys) to select a language, and then press **enter** to select a language.
4. When a confirmation prompt with your preference selected is displayed, press **enter** to save your preference.
5. To set your preferences and exit the Setup Utility, press **f10** and then follow the instructions on the screen.

Your preferences go into effect when the computer restarts in Windows.

Navigating and Selecting in the Setup Utility

Because the Setup Utility is not Windows-based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a drop-down list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or **f5** or **f6**.
- To select an item, press **enter**.
- To close a text box or return to the menu display, press **f1**.
- To display additional navigation and selection information while the Setup Utility is open, press **f1**.

Displaying System Information

The following procedure explains how to display system information in the Setup Utility. If the Setup Utility is not open, begin at step 1. If the Setup Utility is open, begin at step 2.

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