

Product: 2008 HP Pavilion dv7 Entertainment PC Service Repair Workshop Manual  
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# HP Pavilion dv7 Entertainment PC Maintenance and Service Guide



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## Safety warning notice

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- ⚠ **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

Category	Description	Computer models equipped with AMD processors and graphics subsystems with discrete memory	Computer models equipped with AMD processors and graphics subsystems with UMA memory	Computer models equipped with Intel processors and graphics subsystems with discrete memory
<b>Product Name</b>	HP Pavilion dv7 Entertainment PC	√	√	√
<b>Processors</b>	<b>AMD processors:</b>			
	AMD Turion™ Ultra Dual-Core 35W ZM-86 2.40-GHz with 2-MB L2 cache	√	√	
	AMD Turion Ultra Dual-Core 35W ZM-82 2.20-GHz, with 2-MB L2 cache	√	√	
	AMD Turion Ultra Dual-Core 35W ZM-80 2.10-GHz, with 2-MB L2 cache	√	√	
	AMD Turion Dual-Core 35W RM-70 2.00-GHz with 1-MB L2 cache	√	√	
	AMD Athlon™ X2 Dual-Core 35W QL-60 1.90-GHz with 1-MB L2 cache	√	√	
	<b>Intel® processors:</b>			
	Intel Core™2 Duo T9600 2.80-GHz with 6-MB L2 cache and 1066-MHz front side bus (FSB)			√
	Intel Core2 Duo T9400 2.53-GHz with 6-MB L2 cache and 1066-MHz FSB			√
	Intel Core Duo T8600 2.40-GHz with 3-MB L2 cache and 1066-MHz FSB			√
	Intel Core Duo T8400 2.26-GHz with 3-MB L2 cache and 1066-MHz FSB			√
<b>Chipset</b>	Northbridge: AMD M770 chipset, ATI Radeon HD 3450 graphics	√		
	Northbridge: AMD M780G chipset, ATI Radeon HD 3200 graphics		√	
	Southbridge: AMD SB700	√	√	
	Northbridge: Intel PM45			√
	Southbridge: Intel ICH9M			√

Category	Description	Computer models equipped with AMD processors and graphics subsystems with discrete memory	Computer models equipped with AMD processors and graphics subsystems with UMA memory	Computer models equipped with Intel processors and graphics subsystems with discrete memory
<b>Graphics</b>	ATi Mobility Radeon HD 3450 with 256 MB of discrete graphics subsystem memory (32 MB × 16 DDR2 × 4 PCs)	√		
	Unified memory architecture (UMA) with shared video memory: <ul style="list-style-type: none"> <li>Up to 358 MB of graphics subsystem memory on computer models equipped with 2048 MB or more of main system memory</li> <li>Up to 251 MB of graphics subsystem memory on computer models equipped with 1024 MB</li> <li>Memory size is dynamic change</li> </ul>		√	
	Discrete graphics subsystem memory <ul style="list-style-type: none"> <li>GeForce 9650M GT, Nvidia NB9P-GS with 512 MB (32 MB × 16 DDR2 × 8 PCs)</li> <li>GeForce 9300M GS, Nvidia NB9M-GEB with 256 MB (32 MB × 16 DDR2 × 4 PCs)</li> </ul>			√
<b>Panels</b>	• 17.0-inch, WSXGA+ (1680 × 1050) AntiGlare	√	√	√
	• 17.0-inch, WSXGA+ (1680 × 1050) BrightView	√	√	√
	• 17.0-inch, WXGA+ (1440 × 900) AntiGlare	√	√	√
	• 17.0-inch, WXGA+ (1440 × 900) BrightView	√	√	√
	• AntiGlare glass panel cover support	√	√	√
	• Support for lighted logo on display enclosure	√	√	√
	• Typical brightness 200 nits	√	√	√
<b>Memory</b>	2 SODIMM slots	√	√	√
	Customer-accessible/upgradable	√	√	√
	PC2-6400, 800-MHz, DDR2	√	√	√
	Dual-channel support	√	√	√

Category	Description	Computer models equipped with AMD processors and graphics subsystems with discrete memory	Computer models equipped with AMD processors and graphics subsystems with UMA memory	Computer models equipped with Intel processors and graphics subsystems with discrete memory
	Supports up to 4096 MB system memory <ul style="list-style-type: none"> <li>4096-MB total system memory (2048 MB × 2, dual-channel)</li> <li>3072-MB total system memory (2048 MB × 1 + 1024 × 1)</li> <li>2048-MB total system memory (1024 MB × 2, dual-channel)</li> <li>2048-MB total system memory (2048 MB × 1)</li> <li>1024-MB total system memory (512 MB × 2, dual-channel)</li> <li>1024-MB total system memory (1024 MB × 1)</li> </ul>	√	√	√
<b>Hard drives</b>	Supports all Serial ATA (SATA) 9.5-mm, 2.5-inch hard drives	√	√	√
	Supports up to 2 hard drives	√	√	√
	Support for Accelerometer hard drive protection	√	√	√
	Support for solid-state drive (SSD) on dual hard drive configurations, with SSD set as the primary drive	√	√	√
	Dual hard drive configurations: <ul style="list-style-type: none"> <li>640-GB (320-GB, 5400-rpm × 2)</li> <li>500-GB (250-GB, 5400-rpm × 2)</li> <li>320-GB (160-GB, 7200-rpm × 2)</li> <li>320-GB (160-GB, 5400-rpm × 2)</li> <li>64-GB SSD + 320-GB, 5400-rpm</li> </ul>	√	√	√
	Single hard drive configurations: <ul style="list-style-type: none"> <li>320-GB, 5400-rpm</li> <li>250-GB, 5400-rpm</li> <li>160-GB, 7200-rpm</li> <li>160-GB, 5400-rpm</li> <li>120-GB, 5400-rpm</li> </ul>	√	√	√
<b>Optical drives</b>	12.7-mm tray load	√	√	√
	Parallel ATA	√	√	√

Category	Description	Computer models equipped with AMD processors and graphics subsystems with discrete memory	Computer models equipped with AMD processors and graphics subsystems with UMA memory	Computer models equipped with Intel processors and graphics subsystems with discrete memory
	Fixed (1 screw for removal)	√	√	√
	Support for the following optical drives:	√	√	√
	<ul style="list-style-type: none"> <li>DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive with LightScribe</li> <li>DVD±RW and CD-RW SuperMulti Double-Layer Combo Drive</li> <li>Blu-ray Disc ROM Drive with SuperMulti DVD±R/RW Double-Layer</li> </ul>			
<b>Webcam</b>	Low-light VGA camera	√	√	√
	Fixed (no tilt)	√	√	√
	Activity LED	√	√	√
	640 × 480 by 24 frames per second	√	√	√
<b>Microphone</b>	2 omnidirectional microphones, dual array with appropriate software (supports beam forming, echo cancellation, and noise suppression)	√	√	√
<b>Audio</b>	HD Audio (IDT)	√	√	√
	Integrated subwoofer	√	√	√
	Supports Microsoft Premium Requirements	√	√	√
	Pavilion-branded Altec Lansing speakers	√	√	√
<b>Modem</b>	56K V.92 data/fax modem	√	√	√
	Supports all world-wide certification requirements	√	√	√
<b>Ethernet</b>	Integrated Realtek 10/100/1000 network interface card (NIC)	√		√
	Integrated Realtek 10/100 NIC		√	
<b>Wireless</b>	<b>Integrated wireless local area network (WLAN) options by way of wireless module:</b>			
	Atheros AR9280 802.11a/b/g/n	√	√	
	Broadcom 4321 802.11a/b/g/n	√	√	
	Atheros AR2425 802.11b/g	√	√	
	Intel Wi-Fi Link 5100 802.11a/b/g/n WLAN module			√

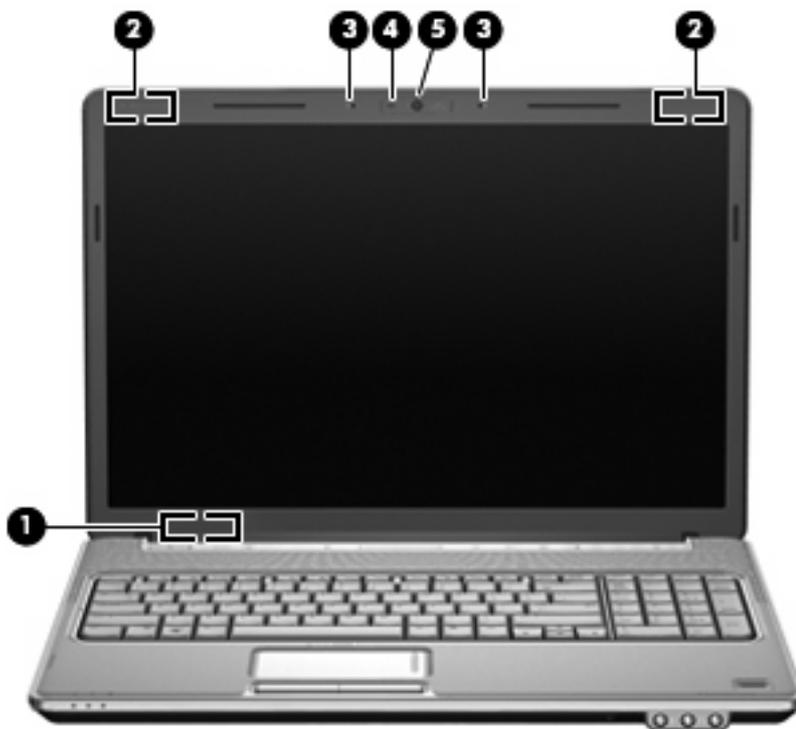
Category	Description	Computer models equipped with AMD processors and graphics subsystems with discrete memory	Computer models equipped with AMD processors and graphics subsystems with UMA memory	Computer models equipped with Intel processors and graphics subsystems with discrete memory
	Intel Wi-Fi Link 5100 802.11a/b/g WLAN module			√
	Broadcom 4322 802.11a/b/g/n WLAN module			√
	Broadcom BCM4312 802.11b/g WLAN module			√
<b>Wireless</b>	Integrated ATSC/NTSC/QAM hybrid TV tuner module	√	√	√
	Integrated world-wide analog DVB-T TV tuner module	√	√	√
	Support for TV tuner antennae for both DVB-T and ATSC/NTSC	√	√	√
<b>External media card</b>	One ExpressCard 54 slot	√	√	
	Digital Media Slot, supports SD, MMC, SD I/O, MS, MSP, xD	√	√	√
<b>Ports</b>	Audio-in (mono microphone)	√	√	√
	Audio-out (stereo headphone)	√	√	√
	Audio-out (stereo headphone with S/PDIF)	√	√	√
	Consumer infrared	√	√	√
	eSATA	√	√	√
	High-Definition Multimedia Interface (HDMI) v1.3 supporting 1080p with HDCP key	√	√	√
	IEEE 1394a	√		√
	RJ-11 (modem; select models only)	√	√	√
	RJ-45 (Ethernet, includes link and activity lights)	√	√	√
	TV tuner antenna (select models only)	√		√
	USB (4 on computer models not equipped with an eSATA port; 3 on computer models equipped with an eSATA port)	√	√	√
	VGA (Dsub 15-pin)	√	√	√
	2-pin AC power for 90-W AC adapter	√	√	√
<b>Docking</b>	Expansion port 3 supports the HP xb3000 Notebook Expansion Base and HP Notebook QuickDock	√	√	√

Category	Description	Computer models equipped with AMD processors and graphics subsystems with discrete memory	Computer models equipped with AMD processors and graphics subsystems with UMA memory	Computer models equipped with Intel processors and graphics subsystems with discrete memory
<b>Keyboard/ pointing devices</b>	17-inch full-size keyboard with numeric keypad	√	√	√
	Touchpad supports 2-way scrolling	√	√	√
	Taps enabled as default	√	√	√
<b>Power requirements</b>	8-cell 2.55-Ah Li-ion battery	√		√
	6-cell 2.20-Ah Li-ion battery		√	
	90-W AC adapter with localized cable plug support (2-wire plug with ground pin, supports 2-pin DC connector)	√		√
	65-W AC adapter with localized cable plug support (2-wire plug with ground pin, supports 2-pin DC connector)		√	
<b>Security</b>	Security cable slot	√	√	√
	Fingerprint reader (select models only)	√	√	√
<b>Operating system</b>	<b>Preinstalled:</b>			
	FreeDOS	√	√	√
	Linux Red Flag	√	√	√
	Windows Vista® Business (32 bit)	√	√	√
	Windows Vista Home Basic (32 bit) vvv			√
	Windows Vista Premium (32 bit)	√	√	√
	Windows Vista Ultimate (64 bit)	√	√	√
<b>Serviceability</b>	AC adapter	√	√	√
	Battery (system)	√	√	√
	Hard drives (2)	√	√	√
	Memory module	√	√	√
	Optical drive	√	√	√
	TV tuner module	√	√	√
	WLAN module	√	√	√

## 2 External component identification

### Top components

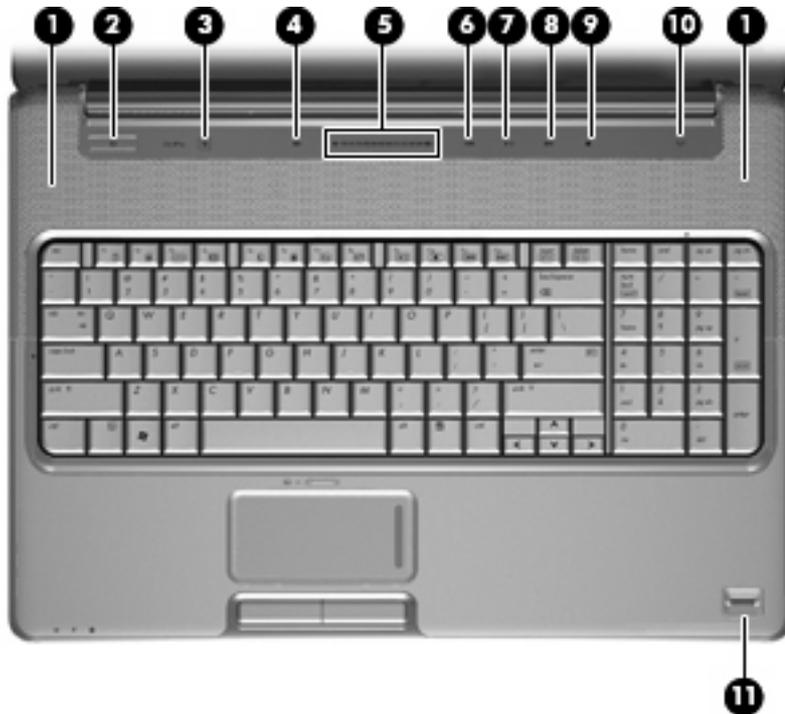
#### Display components



Item	Component	Description
(1)	Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on.
(2)	Wireless antennae (select models only)	Send and receive signals from one or more wireless devices. These antennae are not visible from the outside of the computer.  <b>NOTE:</b> For optimal transmission, keep the areas immediately around the antennae free from obstructions.  <b>NOTE:</b> To see wireless regulatory notices, refer to the section of the <i>Regulatory, Safety and Environmental Notices</i> that applies to your country or region. These notices are located in Help and Support.

<b>Item</b>	<b>Component</b>	<b>Description</b>
<b>(3)</b>	Internal microphones (2)	Record sound.
<b>(4)</b>	Integrated webcam light	On: The integrated webcam is in use.
<b>(5)</b>	Integrated webcam	Records video and captures still photographs.

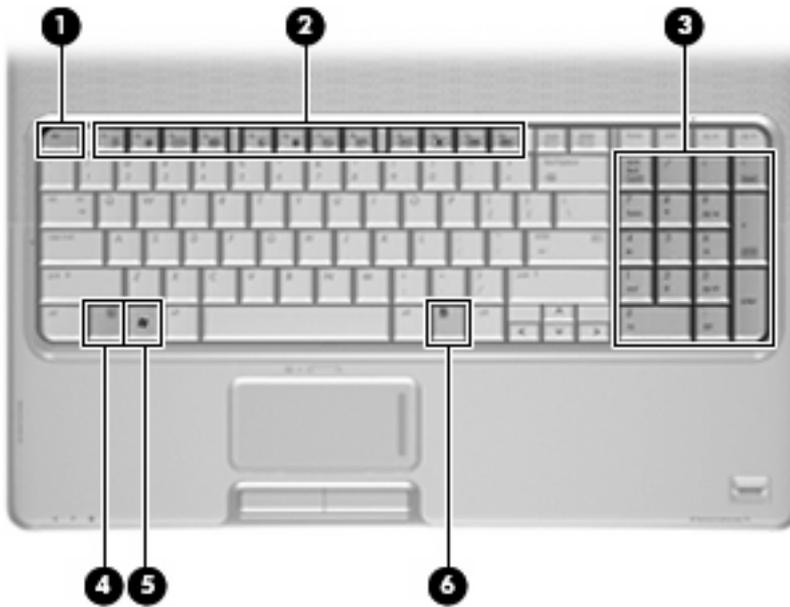
## Buttons, fingerprint reader, and speakers



Item	Component	Description
(1)	Speakers (2)	Produce sound.
(2)	Power button	<ul style="list-style-type: none"> <li>When the computer is off, press the button to turn on the computer.</li> <li>When the computer is on, press the button briefly to initiate Sleep.</li> <li>When the computer is in the Sleep state, press the button briefly to exit Sleep.</li> <li>When the computer is in Hibernation, press the button briefly to exit Hibernation.</li> </ul> <p>If the computer has stopped responding and Windows® shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, select <b>Start &gt; Control Panel &gt; System and Maintenance &gt; Power Options</b>.</p>
(3)	Media button	<ul style="list-style-type: none"> <li>Launches the QuickPlay program (for models with QuickPlay preinstalled).</li> <li>Launches the DVDPlay program (for models with DVDPlay preinstalled).</li> </ul> <p><b>NOTE:</b> If the computer has been set up to require a logon password, you may be asked to log on to Windows. QuickPlay launches after you log on. Refer to the QuickPlay software Help for more information.</p>

Item	Component	Description
(4)	Volume mute button	Mutes and restores speaker sound.
(5)	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.
(6)	Previous/rewind button	<ul style="list-style-type: none"> <li>Plays the previous track or chapter when the button is pressed once.</li> <li>Rewinds media when the button is pressed simultaneously with the <b>fn</b> key.</li> </ul>
(7)	Play/pause button	Plays or pauses the disc.
(8)	Next/fast forward button	<ul style="list-style-type: none"> <li>Plays the next track or chapter when the button is pressed once.</li> <li>Fast forwards media when pressed simultaneously with the <b>fn</b> key.</li> </ul>
(9)	Stop button	Stops playback.
(10)	Wireless button	<p>Turns the wireless feature on or off, but does not create a wireless connection.</p> <p><b>NOTE:</b> A wireless network must be set up in order to establish a wireless connection.</p>
(11)	Fingerprint reader	Allows a fingerprint logon to Windows, instead of a password logon.

## Keys



Item	Component	Description
(1)	esc key	Displays system information about your computer when pressed in combination with the <b>fn</b> key.
(2)	fn key	Executes frequently used system functions when pressed in combination with a function key or the <b>esc</b> key.
(3)	Windows logo key	Displays the Windows® Start menu.
(4)	Windows applications key	Displays a shortcut menu for items beneath the pointer.
(5)	Integrated numeric keypad keys	Can be used like the keys on an external numeric keypad.
(6)	Function keys	Execute frequently used system functions when pressed in combination with the <b>fn</b> key.

## TouchPad



Item	Component	Description
(1)	TouchPad light	<ul style="list-style-type: none"><li>• White: TouchPad is enabled.</li><li>• Amber: TouchPad is disabled.</li></ul>
(2)	TouchPad*	Moves the pointer and selects or activates items on the screen.
(3)	TouchPad left button*	Functions like the left button on an external mouse.
(4)	TouchPad on/off button	Enables/disables the TouchPad.
(5)	TouchPad scroll zone	Scrolls up or down.
(6)	TouchPad right button*	Functions like the right button on an external mouse.

\*This table describes factory settings. To view and change TouchPad preferences, select **Start > Control Panel > Hardware and Sound > Mouse**.

# Front components



Item	Component	Description
(1)	Power light	<ul style="list-style-type: none"><li>On: The computer is on.</li><li>Blinking: The computer is in the Sleep state.</li><li>Off: The computer is off or in Hibernation.</li></ul>
(2)	Battery light	<ul style="list-style-type: none"><li>On: A battery is charging.</li><li>Blinking: A battery that is the only available power source has reached a low battery level. When the battery reaches a critical battery level, the battery light begins blinking rapidly.</li><li>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 level.</li></ul>
(3)	Drive light	Blinking: The hard drive or optical drive is being accessed.
(4)	Consumer infrared lens	Receives a signal from the HP Remote Control.
(5)	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(6)	Audio-out (headphone) jacks (2)	Produce sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.

## Rear components



Component	Function
Vents (2)	Enables airflow to cool internal components.

**NOTE:** 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.

## Right-side components



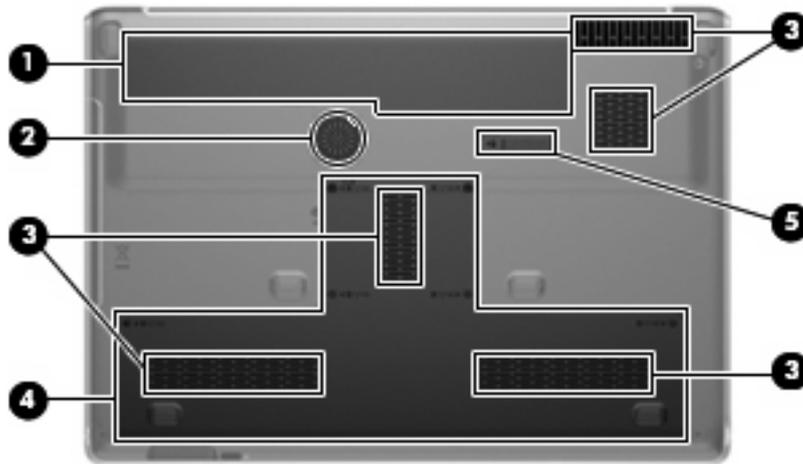
Item	Component	Description
(1)	USB ports (2)	Connect optional USB devices.
(2)	Optical drive light	Blinking: The optical drive is being accessed.
(3)	Optical drive	Reads optical discs and, on select models, also writes to optical discs.
(4)	TV antenna jack (select models only)	Connects a TV antenna, a digital cable device, or a satellite device that receives standard or high-definition TV broadcasts.
(5)	RJ-11 (modem) jack (select models only)	Connects a modem cable.
(6)	Power connector	Connects an AC adapter.

## Left-side components



Item	Component	Description
(1)	Security cable slot	Attaches an optional security cable to the computer.  <b>NOTE:</b> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(2)	External monitor port	Connects an external VGA monitor or projector.
(3)	Expansion port 3	Connects the computer to an optional docking device or an optional expansion product.  <b>NOTE:</b> The computer has only one expansion port. The term expansion port 3 describes the type of expansion port.
(4)	RJ-45 (network) jack	Connects a network cable.
(5)	HDMI port	Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio component.
(6)	eSATA/USB port	Connects an optional high-performance eSATA component, such as an eSATA external hard drive, or an optional USB device.
(7)	USB port	Connects an optional USB device.
(8)	1394 port (select models only)	Connects an optional IEEE 1394 or 1394a device, such as a camcorder.
(9)	Digital Media Slot light	On: A digital card is being accessed.
(10)	Digital Media Slot	Supports the following optional digital card formats: Secure Digital (SD) Memory Card, MultiMediaCard (MMC), Memory Stick (MS), Memory Stick Pro (MSP), xD-Picture Card (XD), xD-Picture Card (XD) Type H, xD-Picture Card (XD) Type M.
(11)	ExpressCard slot	Supports optional ExpressCard/54 cards.

## Bottom components



Item	Component	Description
(1)	Battery bay	Holds the battery.
(2)	Integrated subwoofer	Contains the subwoofer speaker.
(3)	Vents (5)	Enable airflow to cool internal components.  <b>NOTE:</b> 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.
(4)	Hard drive, memory module, and WLAN module compartment	Holds the hard drive, the memory module slots, and the WLAN module (select models only).  <b>CAUTION:</b> To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support.
(5)	Battery release latch	Releases the battery from the battery bay.

# 3 Illustrated parts catalog

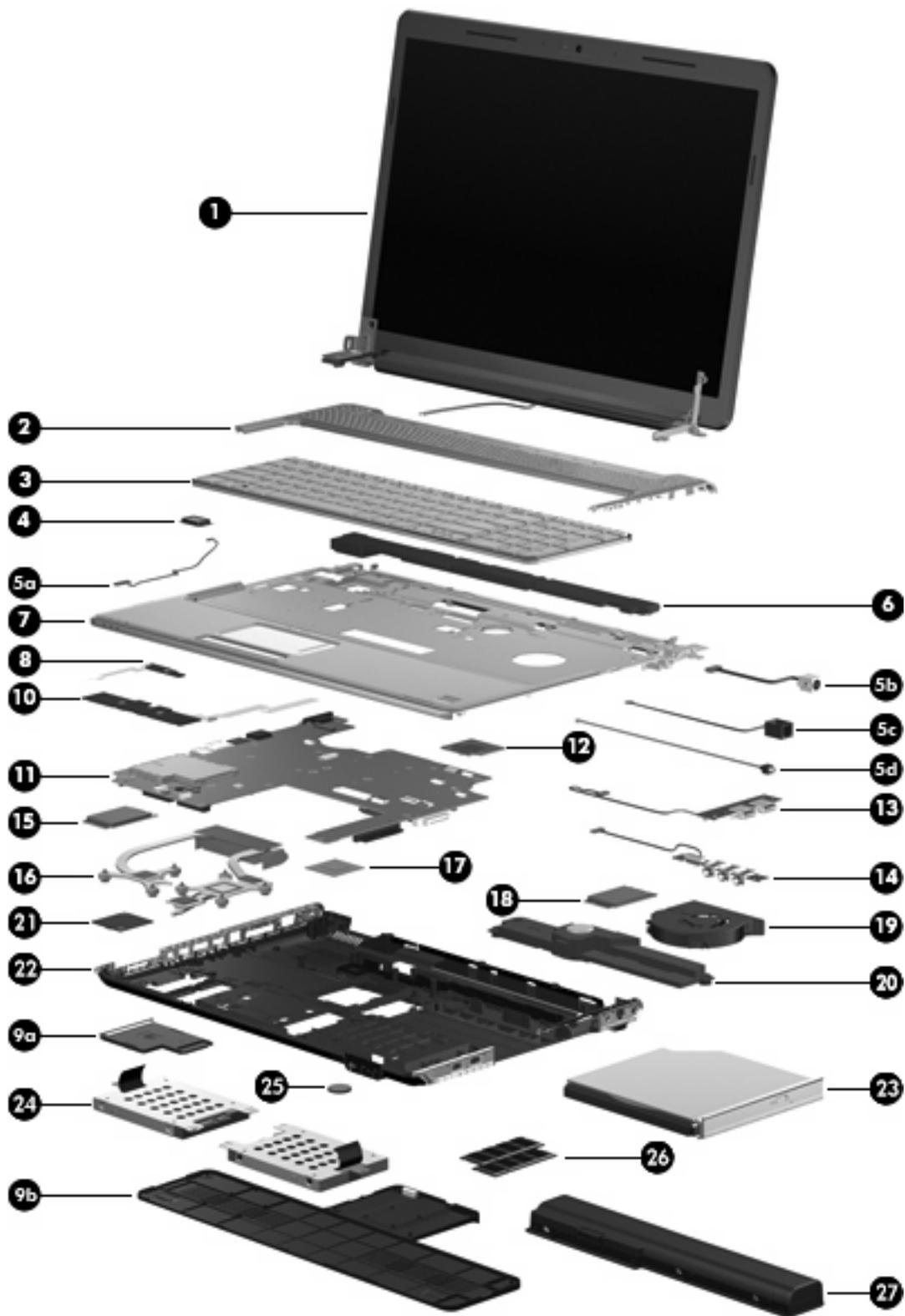
## Service tag

The service tag, affixed to the bottom of the computer, provides information that may be needed when troubleshooting system problems. The service tag provides the following information:

- (1) Product name: This is the product name affixed to the front of the computer.
- (2) Serial number (s/n): This is an alphanumeric identifier that is unique to each product.
- (3) Part number/Product number (p/n): This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
- (4) Model description: This is the number needed to locate documents, drivers, and support for the computer.
- (5) Warranty period: Describes the duration of the warranty period for the computer.



# Computer major components



Item	Description	Spare part number
<b>(1)</b>	<b>17.0-inch display assemblies</b> (include webcam, microphone, and wireless antenna transceivers and cables):	
	For use only with computer models equipped with AMD processors:	
	<ul style="list-style-type: none"> <li>WSXGA+ AntiGlare display assembly with webcam and 2 microphones</li> </ul>	497104-001
	<ul style="list-style-type: none"> <li>WXGA AntiGlare display assembly with webcam and 2 microphones</li> </ul>	497103-001
	<ul style="list-style-type: none"> <li>WSXGA+ BrightView display assembly with webcam and 2 microphones</li> </ul>	488881-001
	<ul style="list-style-type: none"> <li>WXGA BrightView display assembly with webcam and 2 microphones</li> </ul>	488880-001
	For use only with computer models equipped with Intel processors:	
	<ul style="list-style-type: none"> <li>WSXGA+ AntiGlare display assembly with webcam and 2 microphones</li> </ul>	480378-001
	<ul style="list-style-type: none"> <li>WXGA AntiGlare display assembly with webcam and 2 microphones</li> </ul>	480377-001
	<ul style="list-style-type: none"> <li>WSXGA+ BrightView display assembly with webcam and 2 microphones</li> </ul>	480376-001
	<ul style="list-style-type: none"> <li>WXGA BrightView display assembly with webcam and 2 microphones</li> </ul>	480375-001
	<b>NOTE:</b> See <a href="#">Display assembly components on page 27</a> for more information on display assembly spare part numbers.	
<b>(2)</b>	<b>Switch covers</b> (include power button board and cable and LED board and cable)	
	For use only with computer models equipped with AMD processors	480469-001
	For use only with computer models equipped with Intel processors	485605-001
<b>(3)</b>	<b>Keyboards:</b>	
	For use only with computer models equipped with AMD processors:	
	<ul style="list-style-type: none"> <li>For use in Denmark, Norway, and Sweden</li> </ul>	483275-DH1
	<ul style="list-style-type: none"> <li>For use in France</li> </ul>	483275-051
	<ul style="list-style-type: none"> <li>For use in French Canada</li> </ul>	483275-121
	<ul style="list-style-type: none"> <li>For use in Germany</li> </ul>	483275-041
	<ul style="list-style-type: none"> <li>For use in Italy</li> </ul>	483275-061
	<ul style="list-style-type: none"> <li>For use in the Netherlands</li> </ul>	483275-B31
	<ul style="list-style-type: none"> <li>For use in Portugal</li> </ul>	483275-131
	<ul style="list-style-type: none"> <li>For use in Saudi Arabia</li> </ul>	483275-171
	<ul style="list-style-type: none"> <li>For use in Spain</li> </ul>	483275-071
	<ul style="list-style-type: none"> <li>For use in Switzerland</li> </ul>	483275-111
	<ul style="list-style-type: none"> <li>For use in Turkey</li> </ul>	483275-141
	<ul style="list-style-type: none"> <li>For use in the United Kingdom</li> </ul>	483275-031
	<ul style="list-style-type: none"> <li>For use in the United States</li> </ul>	483275-001
	For use with all computer models:	
	<ul style="list-style-type: none"> <li>For use in Asia/Pacific countries and regions</li> </ul>	483275-371
	<ul style="list-style-type: none"> <li>For use in Belgium</li> </ul>	483275-A41

Item	Description	Spare part number
	<ul style="list-style-type: none"> <li>For use in Brazil</li> </ul>	483275-201
	<ul style="list-style-type: none"> <li>For use in the Czech Republic</li> </ul>	483275-221
	<ul style="list-style-type: none"> <li>For use in Europe, the Middle East, and Africa</li> </ul>	483275-021
	<ul style="list-style-type: none"> <li>For use in Greece</li> </ul>	483275-151
	<ul style="list-style-type: none"> <li>For use in Hong Kong</li> </ul>	483275-AC1
	<ul style="list-style-type: none"> <li>For use in Israel</li> </ul>	483275-BB1
	<ul style="list-style-type: none"> <li>For use in Japan</li> </ul>	483275-291
	<ul style="list-style-type: none"> <li>For use in Latin America</li> </ul>	483275-161
	<ul style="list-style-type: none"> <li>For use in the People's Republic of China</li> </ul>	483275-AA1
	<ul style="list-style-type: none"> <li>For use in Russia</li> </ul>	483275-251
	<ul style="list-style-type: none"> <li>For use in Thailand</li> </ul>	483275-281
<b>(4)</b>	<b>Bluetooth® module</b>	483113-001
	<b>NOTE:</b> The Bluetooth module spare part kit does not include a Bluetooth module cable. The Bluetooth module cable is included in the Cable Kit, spare part number 480474-001.	
	<b>Cable Kit</b> , includes:	480474-001
	<b>NOTE:</b> See <a href="#">Cable Kit on page 32</a> for more Cable Kit spare part information.	
<b>(5a)</b>	Bluetooth module cable	
<b>(5b)</b>	Power connector cable	
<b>(5c)</b>	Modem module cable (includes an RJ-11 jack)	
<b>(5d)</b>	TV tuner module cable	
<b>(6)</b>	<b>Speaker assembly</b>	480470-001
<b>(7)</b>	<b>Top covers:</b>	
	For use only with computer models equipped with a fingerprint reader	480466-001
	For use only with computer models not equipped with a fingerprint reader	480465-001
<b>(8)</b>	<b>TouchPad on/off button board</b> (includes cable)	481392-001
	<b>Plastics Kit</b> , includes:	480467-001
	<b>NOTE:</b> See <a href="#">Plastics Kit on page 31</a> for more Plastics Kit spare part information.	
<b>(9a)</b>	ExpressCard slot bezel	
<b>(9b)</b>	Accessory cover	
<b>(10)</b>	<b>TouchPad button board</b> (includes 2 cables)	491972-001
<b>(11)</b>	<b>System boards</b> (include replacement thermal material):	
	For use only with computer models equipped with AMD processors:	
	<ul style="list-style-type: none"> <li>With RX781 Northbridge and ATI HD3450 discrete graphics subsystem memory</li> </ul>	486541-001
	<ul style="list-style-type: none"> <li>With M780G Northbridge and UMA graphics subsystem memory</li> </ul>	486542-001

Item	Description	Spare part number
	For use only with computer models equipped with Intel processors:	
	<ul style="list-style-type: none"> <li>With PM45 Northbridge and nVidia NB9P-GS discrete graphics subsystem memory and 512-GB of graphics subsystem memory</li> </ul>	480365-001
	<ul style="list-style-type: none"> <li>With PM45 Northbridge and nVidia NB9M-GE discrete graphics subsystem memory and 256-GB of graphics subsystem memory</li> </ul>	480366-001
<b>(12)</b>	<b>Modem modules:</b>	
	<b>NOTE:</b> The modem module spare part kits do not include a modem module cable. The modem module cable is included in the Cable Kit, spare part number 480474-001.	
	For use in all countries and regions except Australia and New Zealand	461749-001
	For use only in Australia and New Zealand	461749-011
<b>(13)</b>	<b>USB boards</b> (includes cable):	
	For use only with computer models equipped with AMD processors	488886-001
	For use only with computer models equipped with Intel processors	480479-001
<b>(14)</b>	<b>Audio/infrared board</b> (includes cable)	480477-001
<b>(15)</b>	<b>WLAN modules:</b>	
	For use only with computer models equipped with AMD processors:	
	<ul style="list-style-type: none"> <li>Atheros AR9280 802.11a/b/g/n WLAN module for use in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States</li> </ul>	482260-001
	<ul style="list-style-type: none"> <li>Atheros AR9280 802.11a/b/g/n WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe</li> </ul>	482260-002

Item	Description	Spare part number
•	Broadcom 4321 802.11a/b/g/n WLAN module for use in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States	453730-001
•	Broadcom 4321 802.11a/b/g/n WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	453730-002
•	Atheros AR2425 802.11b/g for use in Antigua and Barbuda, Barbados, Belize, Canada, the Cayman Islands, Guam, Puerto Rico, Trinidad and Tobago, the U.S. Virgin Islands, and the United States	459339-001
•	Atheros AR2425 802.11b/g for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka,	459339-002