



# HP Pavilion m4 Notebook 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 device, do not place the device directly on your lap or obstruct the device air vents. Use the device 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 device 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
<b>Product Name</b>	HP Pavilion m4 Notebook PC
<b>Processors</b>	<ul style="list-style-type: none"><li>• Intel® Quad Core® i7-3632QM 2.20-GHz processor (SC turbo up to 3.20-GHz; 1600-MHz FSB; 6.0-MB L3 cache, 35 W)</li><li>• Intel Dual Core i5-3230M 2.60-GHz processor (SC turbo up to 3.20-GHz; 1600-MHz FSB, 3.0-MB L3 cache, 35 W)</li><li>• Intel Dual Core i5-3210M 2.50-GHz processor (SC turbo up to 3.10-GHz; 1600-MHz FSB, 3.0-MB L3 cache, 35 W)</li><li>• Intel Dual Core i3-3120M 2.40-GHz processor (1600-MHz FSB, 3.0-MB L3 cache, 35 W)</li><li>• Intel Dual Core i3-3110M 2.40-GHz processor (1600-MHz FSB, 3.0-MB L3 cache, 35 W)</li><li>• Intel Pentium 2020M 2.40-GHz processor (1600-MHz FSB, 2.0-MB L3 cache, 35 W)</li></ul>
<b>Chipset</b>	Intel HM77 Express chipset
<b>Graphics</b>	<p><b>Internal graphics:</b> Intel HD Graphics 4000</p> <p><b>Switchable Discrete Graphics:</b></p> <ul style="list-style-type: none"><li>• nVidia N14M-GS GeForce 730M with up to 2-GB of dedicated video memory (256×16 DDR3 1-GHz×4PCs)</li><li>• Support for muxless hybrid graphics</li><li>• Support for Optimus 2012/2013</li><li>• Support for HD decode, DX11, and HDMI</li></ul>
<b>Panel</b>	<p>14.0-in high-definition (HD), light-emitting diode (LED), BrightView (BV), (1366×768), slim (3.6-mm) display with webcam and microphone</p> <p>Support for low-voltage differential signalling LVDS</p> <p>Typical brightness: 200 nits</p>

<b>Category</b>	<b>Description</b>
<b>Memory</b>	<p>Two customer-accessible/upgradable memory module slots</p> <p>Support for DDR3L (1600-MHz) dual channel</p> <p>Support for 8192-MB of system RAM in the following configurations:</p> <ul style="list-style-type: none"> <li>• 8192-MB (4096-MB × 2)</li> <li>• 6144-MB (4096-MB + 2048-MB)</li> <li>• 4096-MB (4096-MB × 1, 2048-MB × 2)</li> <li>• 2048-MB (2048-MB × 1)</li> </ul>
<b>Hard drive</b>	<p>Support for 6.35-cm (2.5-in) hard drives in 7.0-mm (.28-in) and 9.5-mm (.37-in) thickness</p> <p>Support for Serial ATA</p> <p>Support Intel Smart Response Technology</p> <p>Support for Accelerometer hard drive protection</p> <p>Support for the following hard drives:</p> <ul style="list-style-type: none"> <li>• 1-TB, 5400-rpm, 9.5-mm</li> <li>• 750-GB, 5400-rpm, 9.5-mm</li> <li>• 500-GB, 5400-rpm, 9.5- and 7.0-mm</li> </ul>
<b>Solid-state drive</b>	Support for 32-GB mSATA solid-state drive
<b>Optical drive</b>	<p>Fixed (not modular)</p> <p>9.5-mm tray load</p> <p>SATA</p> <p>DVD±RW Double-Layer with SuperMulti Drive</p> <p>Support for zero power optical drive function</p>
<b>Audio and video</b>	<p>Dual speakers</p> <p>Subwoofer</p> <p>Single digital microphone with appropriate beam-forming, echo-cancellation, noise-suppression software</p> <p>HD Audio</p> <p>DTS Sound+</p> <p>Integrated HP TrueVision HD webcam (fixed [no tilt], activity LED, 1280×720 by 30 frames per second)</p>
<b>Ethernet</b>	Integrated 10/100/1000 network interface card (NIC)

<b>Category</b>	<b>Description</b>
<b>Wireless</b>	<p>Integrated wireless local area network (WLAN) options by way of wireless module</p> <p>Two WLAN antennas built into display assembly</p> <p>Support for the following WLAN formats:</p> <ul style="list-style-type: none"> <li>• Mediatek MT7630E 802.11bgn Wi-Fi Adapter and Mediatek Bluetooth 4.0 Adapter</li> <li>• Ralink RT5390R 802.11b/g/n 1×1 WiFi Adapter</li> <li>• Ralink RT3290LE 802.11b/g/n 1×1 WiFi and Bluetooth 4.0 Combo Adapter</li> </ul>
<b>External media cards</b>	<p>HP 2-in-1 multifunction Digital Media Reader Slot with push-push technology (uses the Realtek RTS5239-GR card reader controller). Reads data from and writes data to digital memory cards such as Secure Digital (SD).</p>
<b>Ports</b>	<ul style="list-style-type: none"> <li>• AC adapter, HP Smart</li> <li>• Audio-in (mono microphone)/audio-out (stereo headphone) combo jack</li> <li>• HDMI v1.4 supporting up to 1920×1080 @ 60Hz</li> <li>• RJ-45 (Ethernet)</li> <li>• USB: two USB 3.0 ports on one side, one USB 2.0 port on the other side</li> <li>• VGA (Dsub 15 pin) supporting: 2048×1536 external resolution @ 75 Hz, hot plug and unplug and autodetection for correct output to wide-aspect vs. standard aspect video</li> </ul>
<b>Keyboard/pointing devices</b>	<p>Full-size, island-style Windows 8 keyboard (no numeric keypad)</p> <p>Gesture support: MultiTouch gestures enabled, two-finger scrolling, and pinch-zoom as default</p> <p>Taps enabled by default</p> <p>Support for Windows 8 modern trackpad</p>
<b>Power requirements</b>	<p>Support for the following AC adapters:</p> <ul style="list-style-type: none"> <li>• 90-W AC adapter (PFC, S-3P, 4.5-mm)</li> <li>• 90-W AC adapter (PFC SMT-3P, EM, 4.5-mm)</li> </ul> <p>Support for 4-cell, 41-Wh, 2.80-Ah, Li-ion battery</p>
<b>Security</b>	<p>Support for security cable lock</p>

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<b>Category</b>	<b>Description</b>
<b>Operating system</b>	<b>Preinstalled:</b> <ul style="list-style-type: none"><li>• Windows 8 Chinese Simplified (64-bit)</li><li>• Ubuntu Linux (64-bit)</li></ul> <b>Drivers support:</b> <ul style="list-style-type: none"><li>• Windows 8 drivers (64-bit)</li><li>• Windows 7 drivers (32- and 64-bit)</li><li>• Windows XP drivers (32-bit)</li></ul>
<b>Serviceability</b>	<b>End user replaceable parts:</b> <ul style="list-style-type: none"><li>• AC adapter</li><li>• Battery (system)</li><li>• Hard drive</li><li>• Memory modules (expansion and primary)</li><li>• Optical drive</li><li>• Solid-state drive</li><li>• WLAN module</li></ul>

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## 2 External component identification

### Display



Item	Component	Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with WLANs.
(2)	Webcam light	On: The webcam is in use.
(3)	Webcam	Records video and captures still photographs.  To use the webcam, from the Start screen, type <b>c</b> , and then select <b>CyberLink YouCam</b> from the list of applications.

Item	Component	Description
(4)	Internal microphone	Records sound.

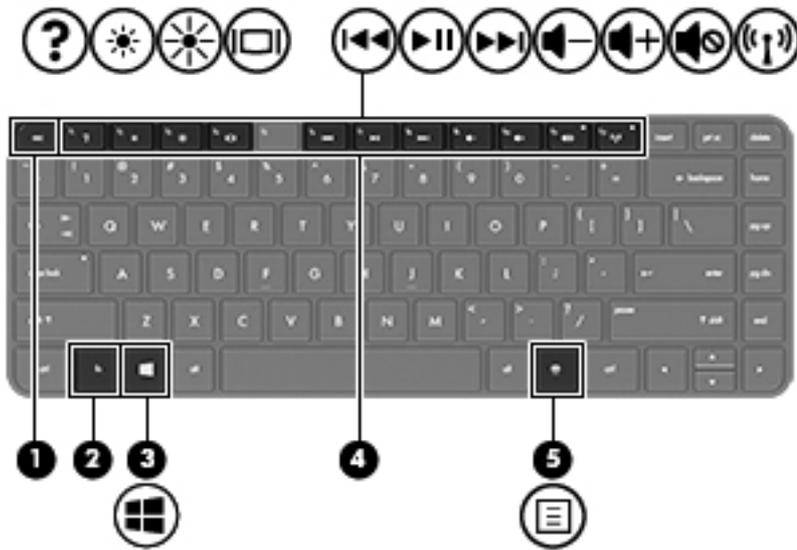
\*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region. To access this guide, from the Start screen, select the **HP Support Assistant** app, select **My computer**, and then select **User guides**.

## Button



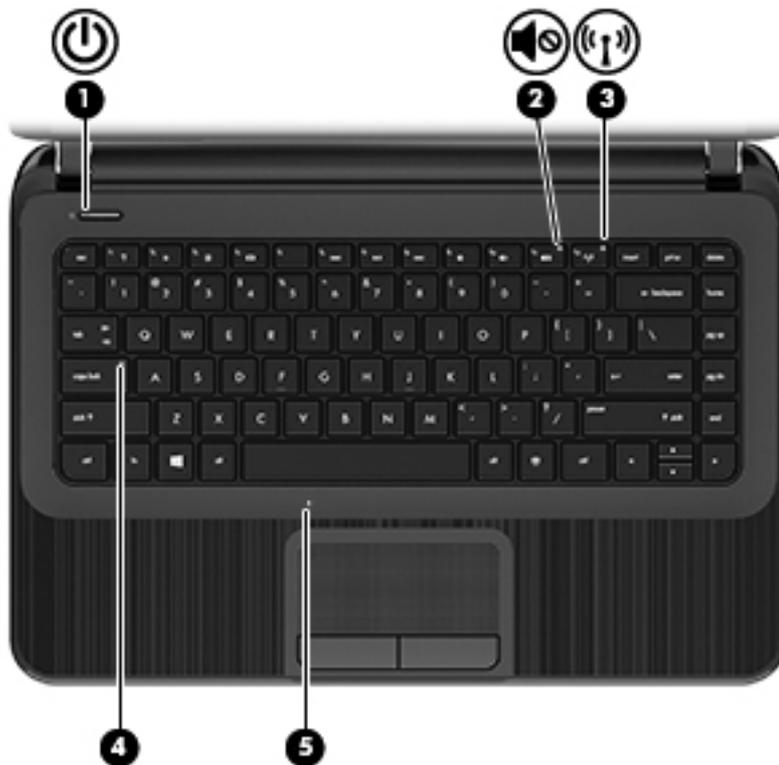
Component	Description
Power button	<ul style="list-style-type: none"> <li>When the computer is off, press the button to turn on the computer.</li> <li>When the computer is in the Sleep state, press the button briefly to exit Sleep.</li> <li>When the computer is in Hibernation, press the button briefly to exit Hibernation.</li> </ul> <p><b>CAUTION:</b> Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Microsoft Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p> <p><b>NOTE:</b> For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.</p> <p>To learn more about your power settings, see your power options. From the Start screen, type <code>power</code>, select <b>Settings</b>, and then select <b>Power Options</b> from the list of applications.</p>

# Keys



Item	Component	Description
(1)	esc key	Reveals system information when pressed in combination with the <b>fn</b> key.
(2)	fn key	Executes frequently used system functions when pressed in combination with the <b>esc</b> key.
(3)	Windows key	Returns you to the Start screen from an open app or the Windows desktop.  <b>NOTE:</b> Pressing the Windows logo key again will return you to the previous screen.
(4)	Action keys	Execute frequently used system functions.
(5)	Windows applications key	Displays options for a selected object.

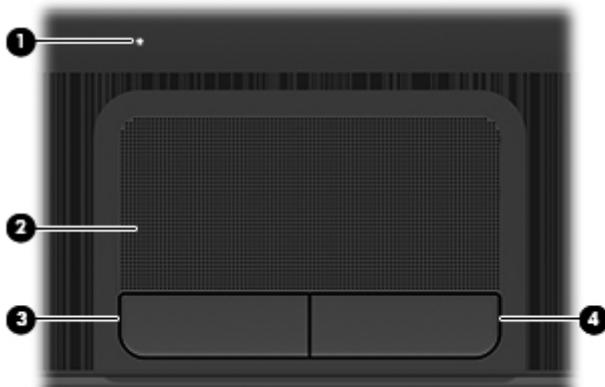
# Lights



Item	Component	Description
(1)	Power light	<ul style="list-style-type: none"><li>• White: The computer is on.</li><li>• Blinking white: The computer is in the Sleep state, which is an energy-saving mode. The computer shuts off power to the display and other unneeded components.</li><li>• Off: The computer is off or in Hibernation. Hibernation is an energy-saving mode that uses the least amount of power to preserve your work.</li></ul> <p><b>NOTE:</b> For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.</p>
(2)	Mute light	<ul style="list-style-type: none"><li>• Amber: Computer sound is off.</li><li>• Off: Computer sound is on.</li></ul>
(3)	Wireless light	<p>On: An integrated wireless device, such as a WLAN device and/or a Bluetooth device, is on.</p> <p><b>NOTE:</b> On some models, the wireless light is amber when all wireless devices are off.</p>

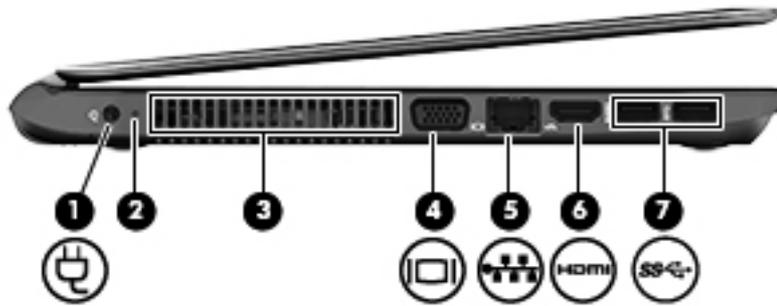
Item	Component	Description
(4)	Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.
(5)	TouchPad light	<ul style="list-style-type: none"> <li>On: The TouchPad is off.</li> <li>Off: The TouchPad is on.</li> </ul>

## TouchPad



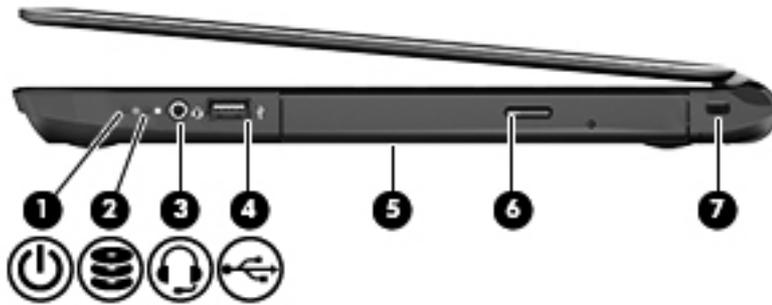
Item	Component	Description
(1)	TouchPad light	<ul style="list-style-type: none"> <li>On: The TouchPad is off.</li> <li>Off: The TouchPad is on.</li> </ul>
(2)	TouchPad on/off button	Turns the TouchPad off or on when you quickly double-tap the button.
(3)	TouchPad zone	Moves the on-screen pointer and selects or activates items on the screen.  <b>NOTE:</b> The TouchPad also supports edge-swipe gestures.
(4)	Left TouchPad button	Functions like the left button on an external mouse.
(5)	Right TouchPad button	Functions like the right button on an external mouse.

## Left side



Item	Component	Description
(1)	Power connector	Connects an AC adapter.
(2)	AC adapter light	<ul style="list-style-type: none"><li>• White: The AC adapter is connected and the battery is charged.</li><li>• Amber: The AC adapter is connected and the battery is charging.</li><li>• Off: The computer is using battery power.</li></ul>
(3)	Vent	Enables 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)	External monitor port	Connects an external VGA monitor or projector.
(5)	RJ-45 (network) jack	Connects a network cable.
(6)	HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI device.
(7)	USB 3.0 ports (2)	Connect optional USB 3.0 devices and provide enhanced USB power performance.

## Right side



Item	Component	Description
(1)	Power light	<ul style="list-style-type: none"> <li>White: The computer is on.</li> <li>Blinking white: The computer is in the Sleep state, which is an energy-saving mode. The computer shuts off power to the display and other unneeded components.</li> <li>Off: The computer is off or in Hibernation. Hibernation is an energy-saving mode that uses the least amount of power to preserve your work.</li> </ul> <p><b>NOTE:</b> For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.</p>
(2)	Hard drive light	<ul style="list-style-type: none"> <li>Blinking white: The hard drive is being accessed.</li> <li>Amber: HP 3D DriveGuard has temporarily parked the hard drive.</li> </ul>
(3)	Audio-out (headphone) jack/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable.</p> <p><b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety and Environmental Notices</i>. To access this guide, from the Start screen, select the <b>HP Support Assistant</b> app, select <b>My computer</b>, and then select <b>User guides</b>.</p> <p><b>NOTE:</b> When a device is connected to a headphone jack, the computer speakers are disabled.</p>
(4)	USB 2.0 port	Connects an optional USB device.
(5)	Optical drive	Reads and writes (select models only) to an optical disc.

Item	Component	Description
(6)	Optical drive eject button	Releases the disc tray.
(7)	Security cable slot	Attaches an optional security cable to the computer.

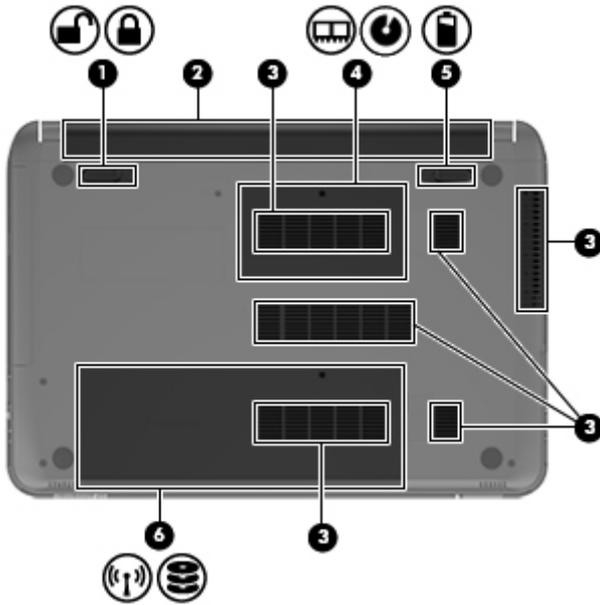
**NOTE:** The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.

## Front



Item	Component	Description
(1)	Speakers (2)	Produce sound.
(2)	Digital Media Card Reader	Reads data from and writes data to digital memory cards such as Secure Digital (SD).

# Bottom



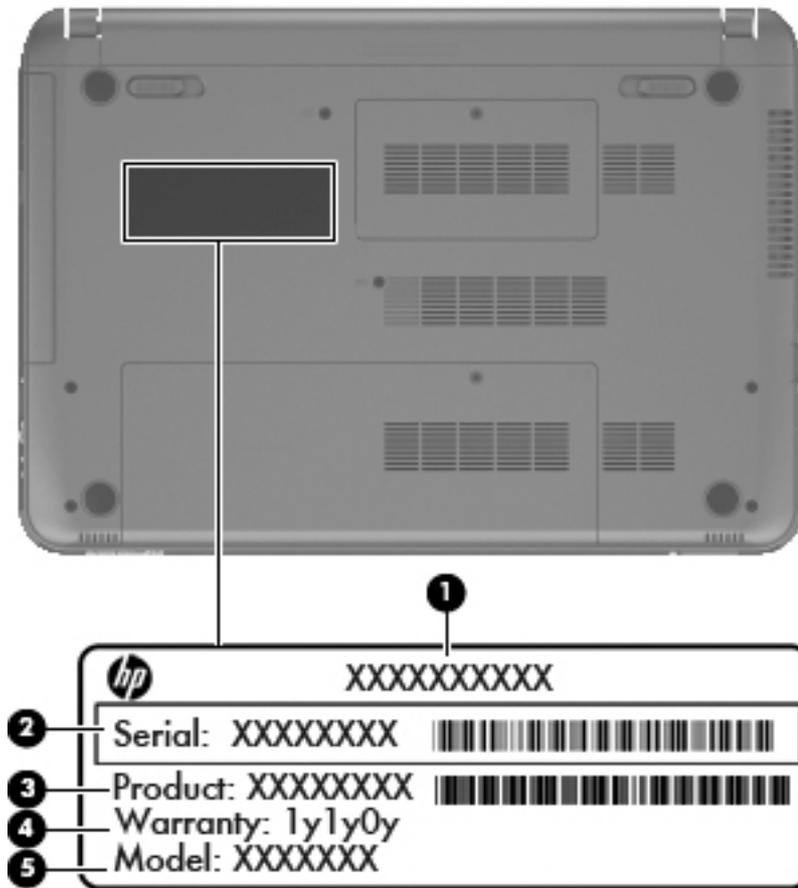
Item	Component	Description
(1)	Battery lock	Locks the battery in the battery bay.
(2)	Battery bay	Holds the battery.
(3)	Vents (6)	Enables airflow to cool internal components.  <b>NOTE:</b> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(4)	Memory module service cover	Provides access to the memory module compartments and the optical drive bay.
(5)	Battery release latch	Releases the battery from the battery bay.
(6)	Hard drive service cover	Provides access to the hard drive bay and the WLAN module slot.  <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 support through Help and Support. From the Start screen, type h, and then select <b>Help and Support</b> .

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# 3 Illustrated parts catalog

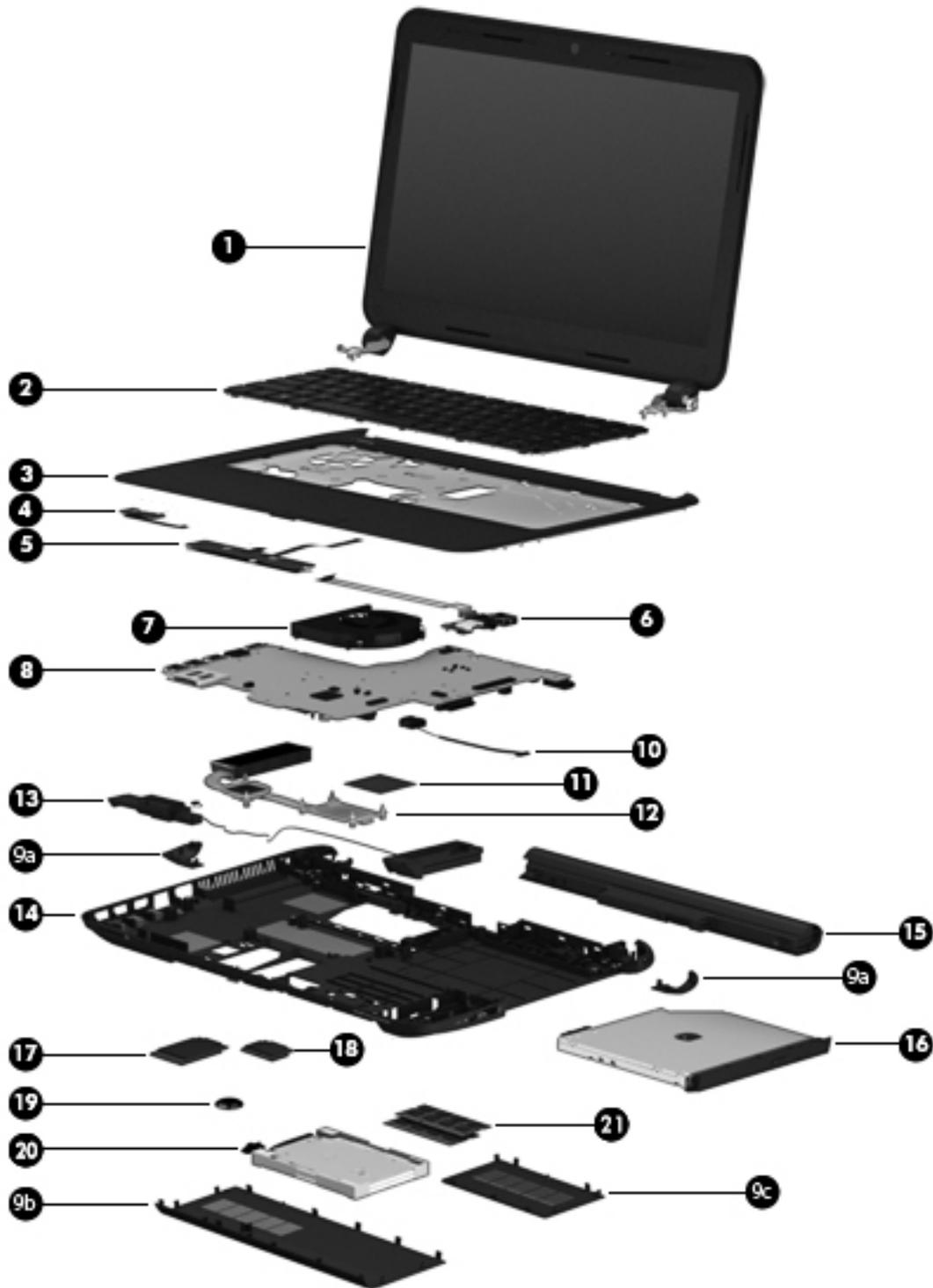
# Service tag

When ordering parts or requesting information, provide the computer serial number and model number provided on the service tag.



Item	Description	Function
(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)	Warranty period	This number describes the duration of the warranty period for the computer.
(5)	Model description	This is the alphanumeric identifier used to locate documents, drivers, and support for the computer.

# Computer major components

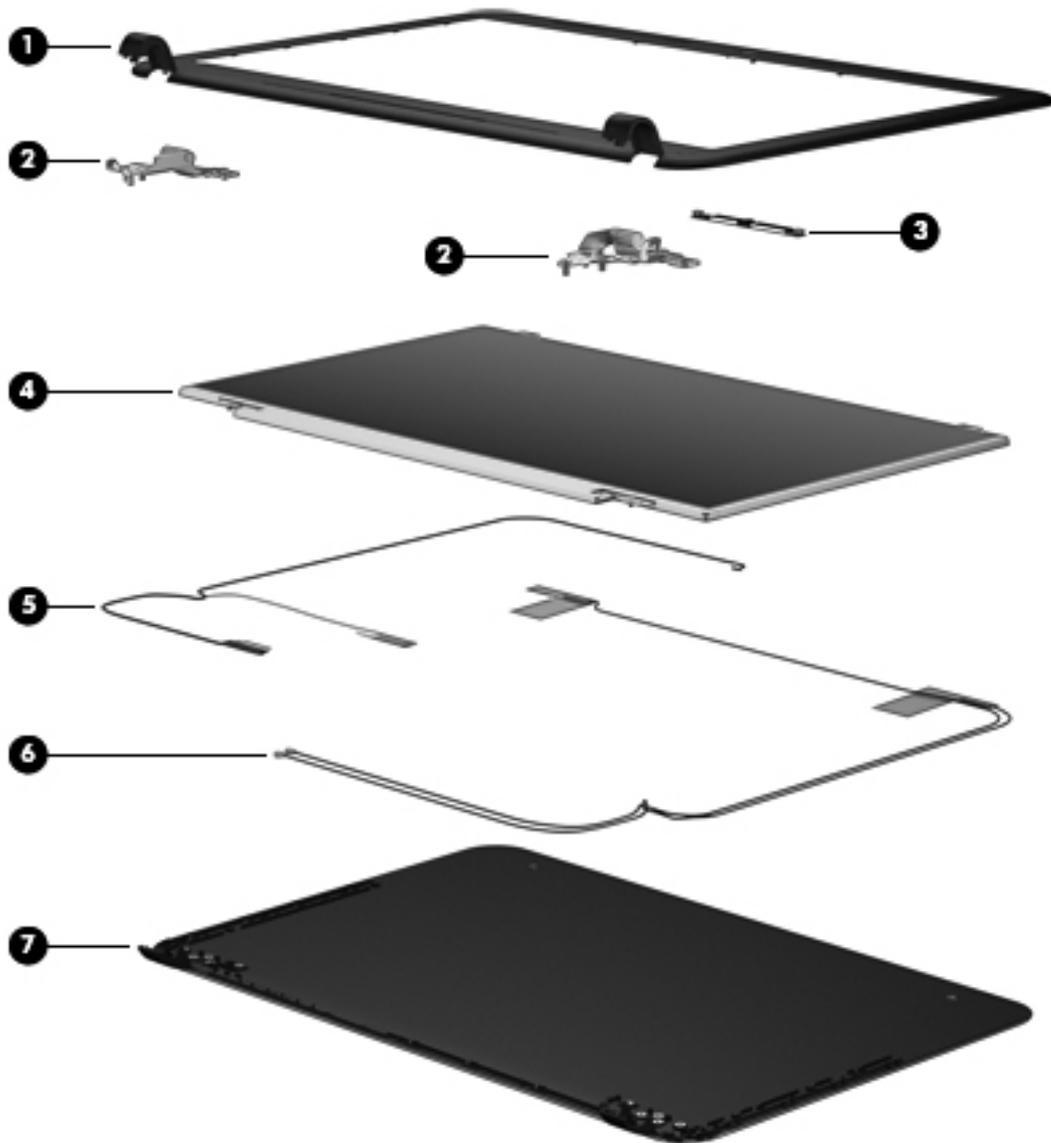


Item	Component	Spare part number
(1)	<b>Display assembly:</b> The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see <a href="#">Display assembly subcomponents on page 19</a> .	

<b>Item</b>	<b>Component</b>	<b>Spare part number</b>
<b>(2)</b>	<b>Keyboard</b> (includes keyboard cable):	
	For use in Taiwan	697904-AB1
	For use in Thailand	697904-281
	For use in the United States	697904-001
<b>(3)</b>	<b>Top cover</b> (includes TouchPad)	718446-001
<b>(4)</b>	<b>Power button board</b> (includes cable)	718436-001
<b>(5)</b>	<b>TouchPad button board</b> (includes TouchPad button board bracket, TouchPad button board cable, and TouchPad board cable)	718437-001
<b>(6)</b>	<b>Audio/USB board</b> (includes cable)	718435-001
<b>(7)</b>	<b>Fan</b> (includes cable)	718430-001
<b>(8)</b>	<b>System board</b> (includes replacement thermal material):	
	Equipped with the Intel HM77 Express Chipset, nVidia N14M-GS GeForce 730M discrete graphics subsystem with 2-GB of memory, and the Windows 8 Standard operating system	718445-501
	Equipped with the Intel HM77 Express Chipset, nVidia N14M-GS GeForce 730M discrete graphics subsystem with 2-GB of memory, and the Windows 7 operating system	718445-001
	<b>Plastics Kit:</b>	718438-001
<b>(9a)</b>	Left and right rear corner covers	
<b>(9b)</b>	Hard drive cover	
<b>(9c)</b>	Memory module compartment cover	
<b>(10)</b>	<b>Power connector cable</b>	718429-001
<b>(11)</b>	<b>Processor</b> (includes replacement thermal material):	
	Intel Quad Core i7-3632QM 2.20-GHz processor (SC turbo up to 3.20-GHz; 1600-MHz FSB; 6.0-MB L3 cache, 35 W)	701658-001
	Intel Dual Core i5-3230M 2.60-GHz processor (SC turbo up to 3.20-GHz; 1600-MHz FSB, 3.0-MB L3 cache, 35 W)	711903-001
	Intel Dual Core i5-3210M 2.50-GHz processor (SC turbo up to 3.10-GHz; 1600-MHz FSB, 3.0-MB L3 cache, 35 W)	680645-001
	Intel Dual Core i3-3120M 2.40-GHz processor (1600-MHz FSB, 3.0-MB L3 cache, 35 W)	700627-001
	Intel Dual Core i3-3110M 2.40-GHz processor (1600-MHz FSB, 3.0-MB L3 cache, 35 W)	682417-001
	Intel Pentium 2020M 2.40-GHz processor (1600-MHz FSB, 2.0-MB L3 cache, 35 W)	700628-001
<b>(12)</b>	<b>Heat sink</b> (includes replacement thermal material)	718431-001
<b>(13)</b>	<b>Speakers</b> (include left and right speakers and cables)	718443-001
<b>(14)</b>	<b>Base enclosure</b> (includes 4 rubber feet, battery lock latch, and battery release latch)	718426-001

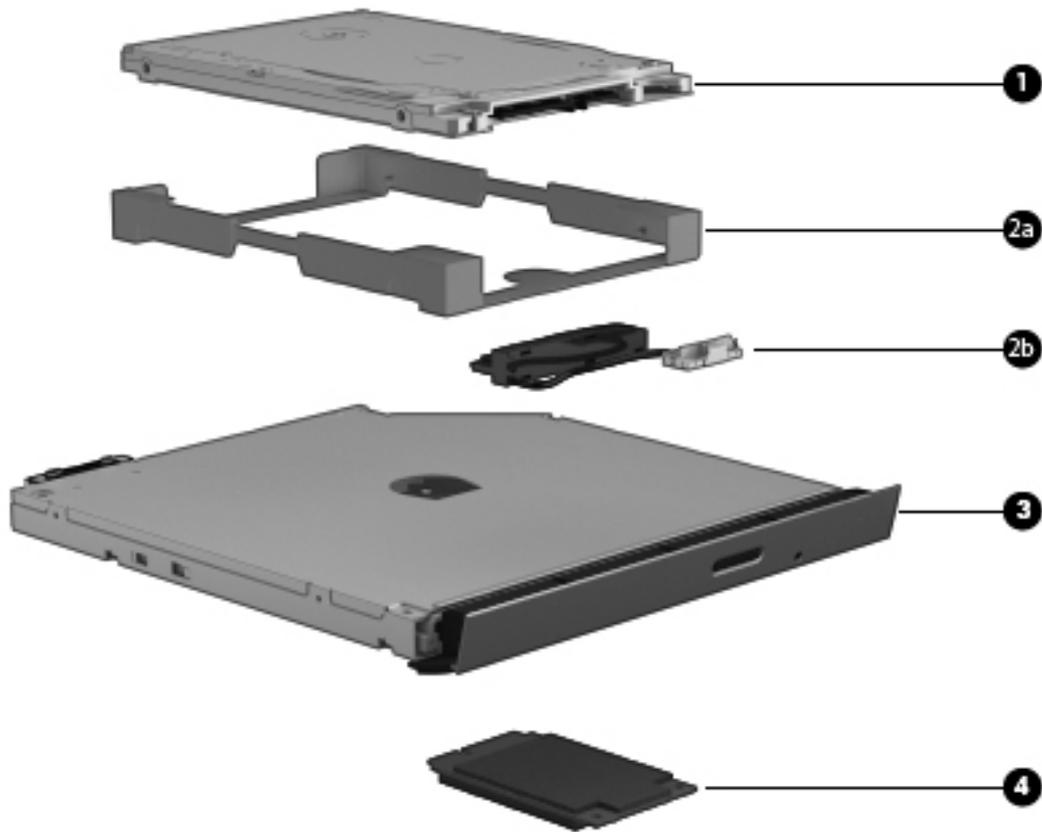
<b>Item</b>	<b>Component</b>	<b>Spare part number</b>
<b>(15)</b>	<b>4-cell, 41-Wh, 2.80-Ah, Li-ion battery</b>	708462-001
<b>(16)</b>	<b>DVD±RW Double-Layer with SuperMulti Drive</b> (includes bezel and bracket)	718434-001
<b>(17)</b>	<b>32-GB solid-state drive</b>	718444-001
<b>(18)</b>	<b>WLAN module:</b>	
	Mediatek MT7630E 802.11bgn Wi-Fi Adapter and Mediatek Bluetooth 4.0 Adapter	710418-001
	Ralink RT5390R 802.11b/g/n 1×1 WiFi Adapter	691415-001
	Ralink RT3290LE 802.11b/g/n 1×1 WiFi and Bluetooth 4.0 Combo Adapter	690020-001
<b>(19)</b>	<b>RTC battery</b>	718440-001
<b>(20)</b>	<b>Hard drive</b> (does not include hard drive bracket or hard drive connector cable):	
	1-TB, 5400-rpm, 9.5-mm	676521-001
	750-GB, 5400-rpm, 9.5-mm	634250-001
	500-GB, 5400-rpm, 9.5- and 7.0-mm	683802-001
	<b>Hard Drive Hardware Kit</b> (not illustrated, includes hard drive bracket and hard drive connector cable)	718432-001
<b>(21)</b>	<b>Memory module</b> (PC3L, 12800, 1600-MHz):	
	4-GB	691740-001
	2-GB	691739-001

## Display assembly subcomponents



Item	Component	Spare part number
(1)	<b>Display bezel</b>	718427-001
(2)	<b>Display hinges</b>	718433-001
(3)	<b>Webcam/microphone module</b> (includes double-sided adhesive)	718447-001
(4)	<b>14.0-in, BrightView (1366x768), HD, LED display panel</b>	718439-001
(5)	<b>Display panel cable</b> (includes webcam/microphone module cable)	718428-001
(6)	<b>Antenna Kit</b> (includes left and right wireless antenna cables and transceivers)	718424-001
(7)	<b>Display enclosure</b>	718425-001

# Mass storage devices



Item	Component	Spare part number
<b>(1)</b>	<b>Hard drive</b> (does not include hard drive bracket or hard drive connector cable):	
	1-TB, 5400-rpm, 9.5-mm	676521-001
	750-GB, 5400-rpm, 9.5-mm	634250-001
	500-GB, 5400-rpm, 9.5- and 7.0-mm	683802-001
	<b>Hard Drive Hardware Kit</b> , includes:	718432-001
<b>(2a)</b>	Hard drive bracket	
<b>(2b)</b>	Hard drive connector cable	
<b>(3)</b>	<b>DVD±RW Double-Layer with SuperMulti Drive</b> (includes bezel and bracket)	718434-001
<b>(4)</b>	<b>32-GB solid-state drive</b>	718444-001

## Miscellaneous parts

Component	Spare part number
<b>AC adapter:</b>	
90-W AC adapter (PFC, S-3P, 4.5-mm)	710413-001
90-W AC adapter (PFC SMT-3P, EM, 4.5-mm)	710414-001
<b>Digitizer pen</b>	716746-001
<b>Power cord</b> (3-pin, black, 1.83-m):	
For use in Europe	490371-021
For use in India	490371-D61
For use in North America	490371-001
For use in the People's Republic China	490371-AA1
For use in Taiwan	490371-AB1
For use in Thailand	490371-201
For use in the United Kingdom and Singapore	490371-031
<b>Rubber Kit</b> (includes 2 display bezel screw covers)	718441-001
<b>Screw Kit</b>	718442-001

## Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America (3-pin, black, 1.83-m)
490371-021	Power cord for use in Europe (3-pin, black, 1.83-m)
490371-031	Power cord for use in the United Kingdom and Singapore (3-pin, black, 1.83-m)
490371-201	Power cord for use in Thailand (3-pin, black, 1.83-m)
490371-AA1	Power cord for use in the People's Republic of China (3-pin, black, 1.83-m)
490371-AB1	Power cord for use in Taiwan (3-pin, black, 1.83-m)
490371-D61	Power cord for use in India (3-pin, black, 1.83-m)
634250-001	750-GB, 5400-rpm, SATA, 9.5-mm hard drive (does not include hard drive bracket or hard drive connector cable)
	<b>NOTE:</b> The hard drive bracket and screws are included in the Hard Drive Hardware Kit, spare part number 718432-001.

Spare part number	Description
676521-001	1-TB, 5400-rpm, SATA, 9.5-mm hard drive (does not include hard drive bracket or hard drive connector cable)  <b>NOTE:</b> The hard drive bracket and screws are included in the Hard Drive Hardware Kit, spare part number 718432-001.
680645-001	Intel Dual Core i5-3210M 2.50-GHz processor (SC turbo up to 3.10-GHz; 1600-MHz FSB, 3.0-MB L3 cache, 35 W; includes replacement thermal material)
682417-001	Intel Dual Core i3-3110M 2.40-GHz processor (1600-MHz FSB, 3.0-MB L3 cache, 35 W; includes replacement thermal material)
683802-001	500-GB, 5400-rpm, SATA, 9.5- and 7.0-mm hard drive (does not include hard drive bracket or hard drive connector cable)  <b>NOTE:</b> The hard drive bracket and screws are included in the Hard Drive Hardware Kit, spare part number 718432-001.
690020-001	Ralink RT3290LE 802.11b/g/n 1×1 WiFi and Bluetooth 4.0 Combo Adapter
691415-001	Ralink RT5390R 802.11b/g/n 1×1 WiFi Adapter
691739-001	2-GB memory module (PC3L, 12800, 1600-MHz)
691740-001	4-GB memory module (PC3L, 12800, 1600-MHz)
697904-001	Keyboard for use in the United States (includes keyboard cable)
697904-281	Keyboard for use in Taiwan (includes keyboard cable)
697904-AB1	Keyboard for use in Thailand (includes keyboard cable)
700627-001	Intel Dual Core i3-3120M 2.40-GHz processor (1600-MHz FSB, 3.0-MB L3 cache, 35 W; includes replacement thermal material)
700628-001	Intel Pentium 2020M 2.40-GHz processor (1600-MHz FSB, 2.0-MB L3 cache, 35 W; includes replacement thermal material)
701658-001	Intel Quad Core i7-3632QM 2.20-GHz processor (SC turbo up to 3.20-GHz; 1600-MHz FSB; 6.0-MB L3 cache, 35 W; includes replacement thermal material)
708462-001	4-cell, 41-Wh, 2.80-Ah, Li-ion battery
710413-001	90-W AC adapter (PFC, S-3P, 4.5-mm)
710414-001	90-W AC adapter (PFC SMT-3P, EM, 4.5-mm)
710418-001	Mediatek MT7630E 802.11bgn Wi-Fi Adapter and Mediatek Bluetooth 4.0 Adapter
711903-001	Intel Dual Core i5-3230M 2.60-GHz processor (SC turbo up to 3.20-GHz; 1600-MHz FSB, 3.0-MB L3 cache, 35 W; includes replacement thermal material)
718424-001	Antenna Kit (includes left and right wireless antenna cables and transceivers)
718425-001	Display enclosure
718426-001	Base enclosure (includes 4 rubber feet, battery lock latch, and battery release latch)
718427-001	Display bezel
718428-001	Display panel cable (includes webcam/microphone module cable)
718429-001	Power connector cable

<b>Spare part number</b>	<b>Description</b>
718430-001	Fan (includes cable)
718431-001	Heat sink (includes replacement thermal material)
718432-001	Hard Drive Hardware Kit (includes hard drive bracket and hard drive connector cable)
718433-001	Display hinges (includes left and right hinges)
718434-001	DVD±RW Double-Layer with SuperMulti Drive (includes bezel and bracket)
718435-001	Audio/USB board (includes cable)
718436-001	Power button board (includes cable)
718437-001	TouchPad button board (includes TouchPad button board bracket, TouchPad button board cable, and TouchPad board cable)
718438-001	Plastics Kit (includes hard drive cover, memory module compartment cover, and left and right rear corner covers)
718439-001	14.0-in, BrightView (1366×768), HD, LED display panel
718440-001	RTC battery
718441-001	Rubber Kit (includes 2 display bezel screw covers)
718442-001	Screw Kit
718443-001	Speakers (includes left and right speakers and cables)
718444-001	32-GB solid-state drive
718445-001	System board equipped with the Intel HM77 Express Chipset, nVidia N14M-GS GeForce 730M discrete graphics subsystem with 2-GB of memory, and the Windows 7 operating system (includes replacement thermal material)
718445-501	System board equipped with the Intel HM77 Express Chipset, nVidia N14M-GS GeForce 730M discrete graphics subsystem with 2-GB of memory, and the Windows 8 Standard operating system (includes replacement thermal material)
718446-001	Top cover (includes TouchPad)
718447-001	Webcam/microphone module (includes double-sided adhesive)

---

# 4 Removal and replacement procedures preliminary requirements

## Tools required

You will need the following tools to complete the removal and replacement procedures:

- Flat-bladed screw driver
- Magnetic screw driver
- Phillips P0 and P1 screw drivers

## Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.



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**NOTE:** As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

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## Plastic parts



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**CAUTION:** Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

---

## Cables and connectors

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**⚠ CAUTION:** When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

---

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

## Drive handling

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**⚠ CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

---

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

Avoid exposing an internal hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE."

---

# Grounding guidelines

## Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

**⚠ CAUTION:** To prevent damage to the computer when you are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

**⚠ CAUTION:** A product can be degraded by as little as 700 V.

Typical electrostatic voltage levels			
Event	Relative humidity		
	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

## Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

## Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screw drivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

## Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm  $\pm 10\%$  resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.

<b>Material</b>	<b>Use</b>	<b>Voltage protection level</b>
Antistatic plastics	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

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# 5 Removal and replacement procedures for Customer Self-Repair parts

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 **NOTE:** The Customer Self-Repair program is not available in all locations. Installing a part not supported by the Customer Self-Repair program may void your warranty. Check your warranty to determine if Customer Self-Repair is supported in your location.

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## Component replacement procedures

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 **NOTE:** Please read and follow the procedures described here to access and replace Customer Self-Repair parts successfully.

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See Service tag on page 16 for details.

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This chapter provides removal and replacement procedures for Customer Self-Repair parts.

There are as many as 5 screws that must be removed, replaced, and/or loosened when servicing Customer Self-Repair parts. Make special note of each screw size and location during removal and replacement.

## Battery

Description	Spare part number
4-cell, 41-Wh, 2.80-Ah, Li-ion battery	708462-001

Before removing the battery, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.

Remove the battery:

- ⚠ **WARNING!** To reduce potential safety issues, use only the user-replaceable battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.
- ⚠ **CAUTION:** Removing a user-replaceable battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work or shut down the computer through Windows before removing the battery.

1. Turn the computer upside down, with the rear toward you.
2. Place the computer on a flat surface, free of obstacles, with ample work space.
3. Slide the battery lock latch **(1)**, and then slide the battery release latch **(2)** to release the battery.
4. Remove the battery **(3)** from the computer.



Reverse this procedure to install the battery.

## Hard drive

 **NOTE:** The hard drive spare part kit does not include the hard drive bracket or hard drive connector cable. These components are included in the Hard Drive Hardware Kit, spare part number 718432-001.

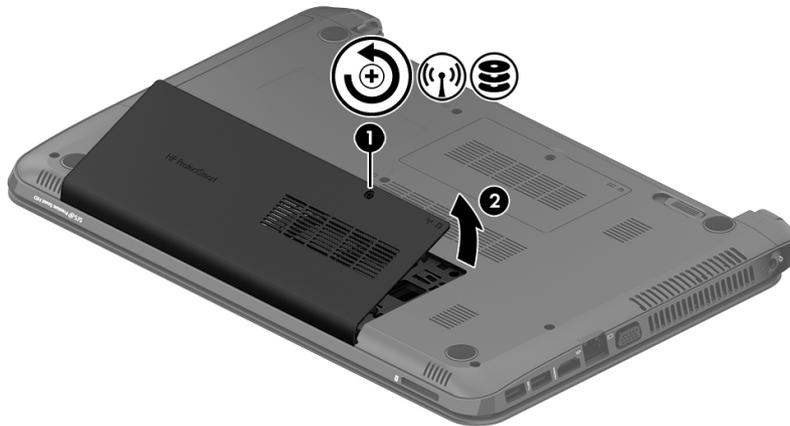
Description	Spare part number
1-TB, 5400-rpm, 9.5-mm	676521-001
750-GB, 5400-rpm, 9.5-mm	634250-001
500-GB, 5400-rpm, 9.5- and 7.0-mm	683802-001

Before removing the hard drive, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)).

Remove the hard drive:

1. Loosen the Phillips PM2.5×4.5 captive screw **(1)** that secures the hard drive service cover to the computer.
2. Lift the rear edge of the hard drive service cover **(2)** and swing it up and forward until it disengages from the computer.

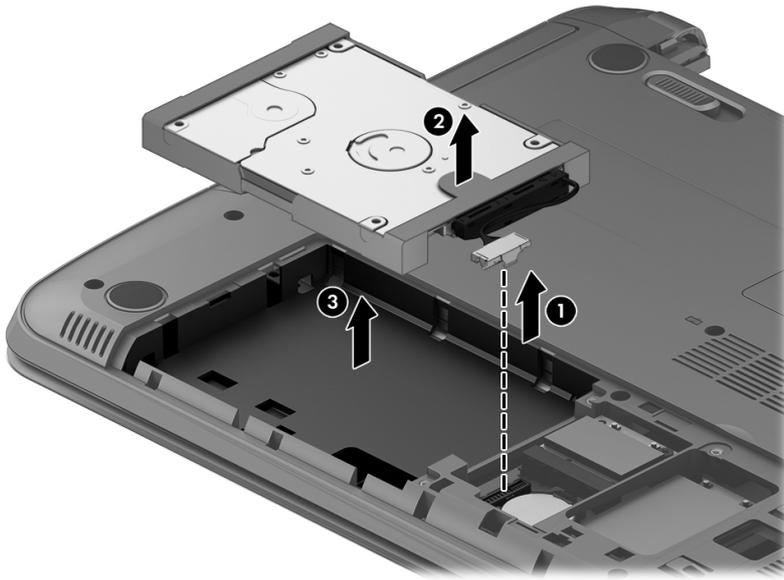


3. Remove the hard drive service cover.

The hard drive service cover is included in the Plastics Kit, spare part number 718432-001.

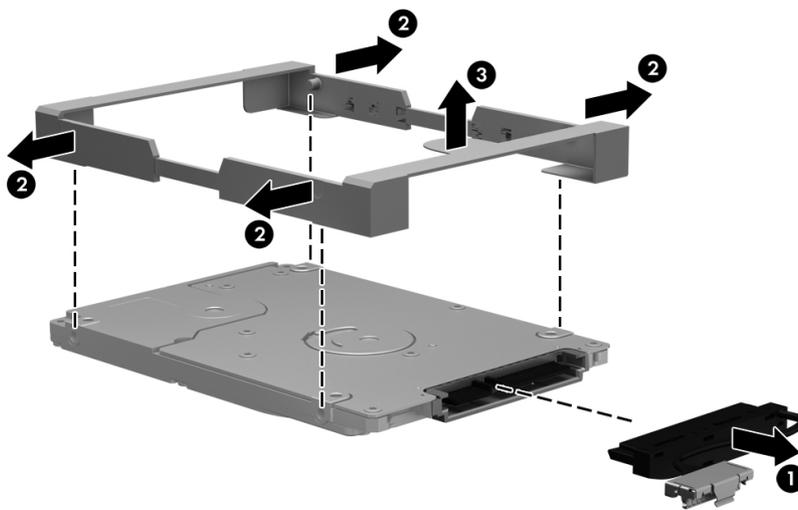
4. Disconnect the hard drive connector cable **(1)** from the system board.

5. Lift up on the hard drive tab **(2)** to remove the hard drive **(3)** from the hard drive bay.



6. If it is necessary to disassemble the hard drive, perform the following steps:
  - a. Position the hard drive with the connector toward you.
  - b. Disconnect the hard drive connector cable **(1)** from the hard drive.
  - c. Spread the left and right sides **(2)** of the hard drive bracket outward to separate the bracket from the hard drive.
  - d. Remove the hard drive bracket **(3)** from the hard drive.

The hard drive bracket and hard drive connector cable are available in the Hard Drive Hardware Kit, spare part number 718432-001.



Reverse this procedure to reassemble and install the hard drive.

## WLAN module

Description	Spare part number
Mediatek MT7630E 802.11bgn Wi-Fi Adapter and Mediatek Bluetooth 4.0 Adapter	710418-001
Ralink RT5390R 802.11b/g/n 1×1 WiFi Adapter	691415-001
Ralink RT3290LE 802.11b/g/n 1×1 WiFi and Bluetooth 4.0 Combo Adapter	690020-001

**⚠ CAUTION:** 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 device functionality, and then contact technical support.

Before removing the WLAN module, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)).
5. Remove the hard drive service cover (see [Hard drive on page 31](#)).

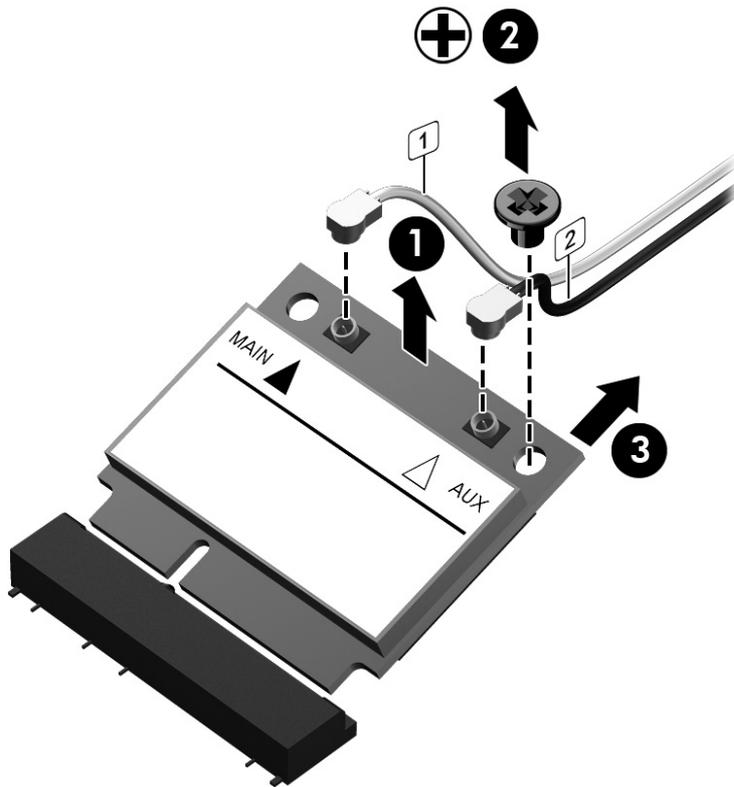
Remove the WLAN module:

1. Disconnect the WLAN antenna cables **(1)** from the terminals on the WLAN module.

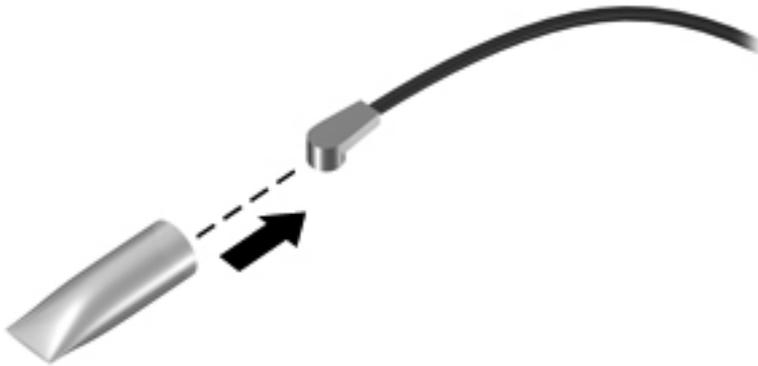
**NOTE:** The WLAN antenna cable labeled “1” connects to the WLAN module “Main” terminal labeled “1”. The WLAN antenna cable labeled “2” connects to the WLAN module “Aux” terminal labeled “2”.

2. Remove the Phillips PM2.0×2.0 screw **(2)** that secures the WLAN module to the system board. (The WLAN module tilts up.)

3. Remove the WLAN module **(3)** by pulling the module away from the slot at an angle.



 **NOTE:** If the WLAN antenna cables are not connected to the terminals on the WLAN module, the protective sleeves must be installed on the antenna connectors, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

## Solid-state drive

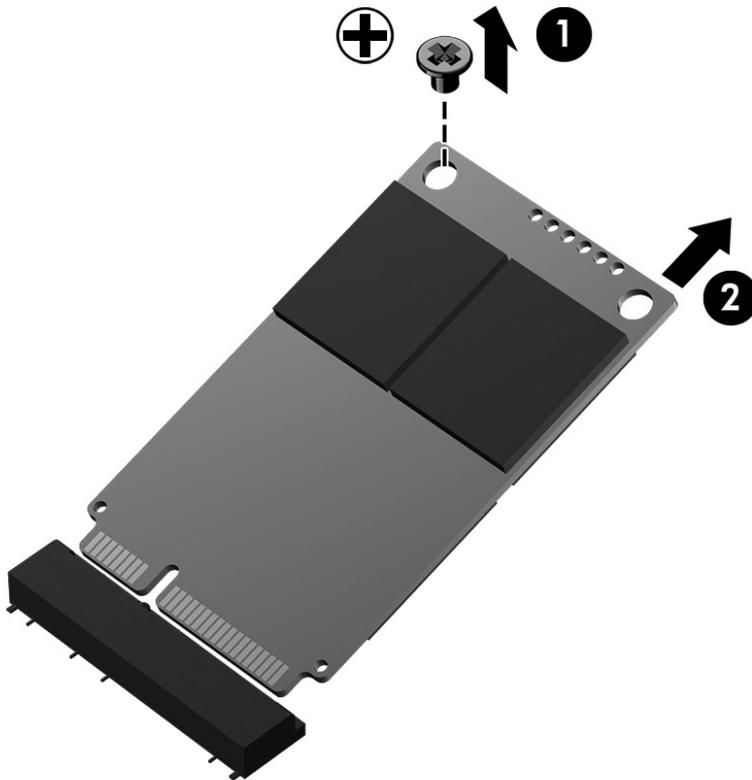
Description	Spare part number
32-GB solid-state drive	718444-001

Before removing the solid-state drive, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)).
5. Remove the hard drive service cover (see [Hard drive on page 31](#)).

Remove the solid-state drive:

1. Remove the Phillips PM2.0×2.0 screw **(1)** that secures the solid-state drive to the system board. (The solid-state drive tilts up.)
2. Remove the solid-state drive **(2)** by pulling the module away from the slot at an angle.



Reverse this procedure to install the solid-state drive.

## Memory module

Description	Spare part number
4-GB (PC3L, 12800, 1600-MHz)	691740-001
2-GB (PC3L, 12800, 1600-MHz)	691739-001

### Update BIOS before adding memory modules

Before adding new memory, make sure you update the computer to the latest BIOS.

 **CAUTION:** Failure to update the computer to the latest BIOS prior to installing new memory may result in various system problems.

To update BIOS:

1. Navigate to [www.hp.com](http://www.hp.com).
2. Click **Support & Drivers > click Drivers & Software**.
3. In the **Enter a product name/number box**, type the computer model information, and then click **Search**.
4. Click the link for the computer model.
5. Select the operating system, and then click **Next**.
6. Under **Step 2: Select a Download**, click the **BIOS** link.
7. Click the link for the most recent BIOS.
8. Click the **Download** button, and then follow the on-screen instructions.

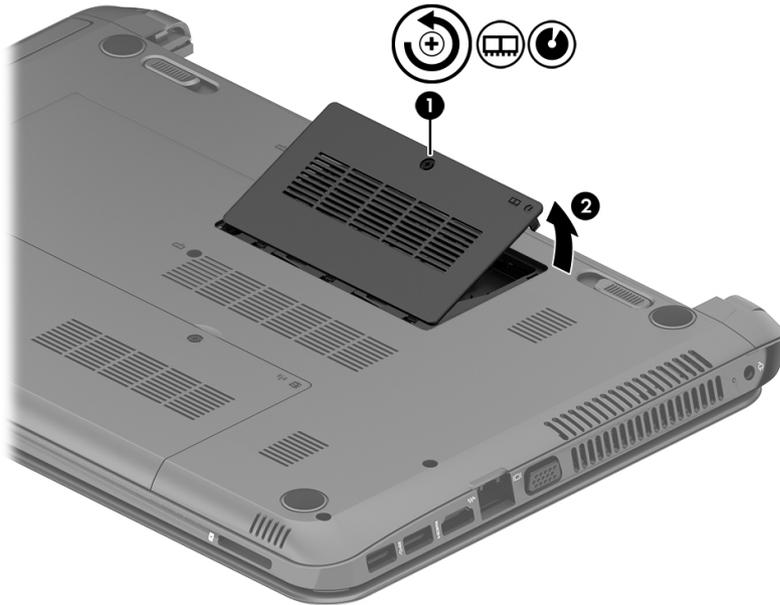
Before removing a memory module, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)).

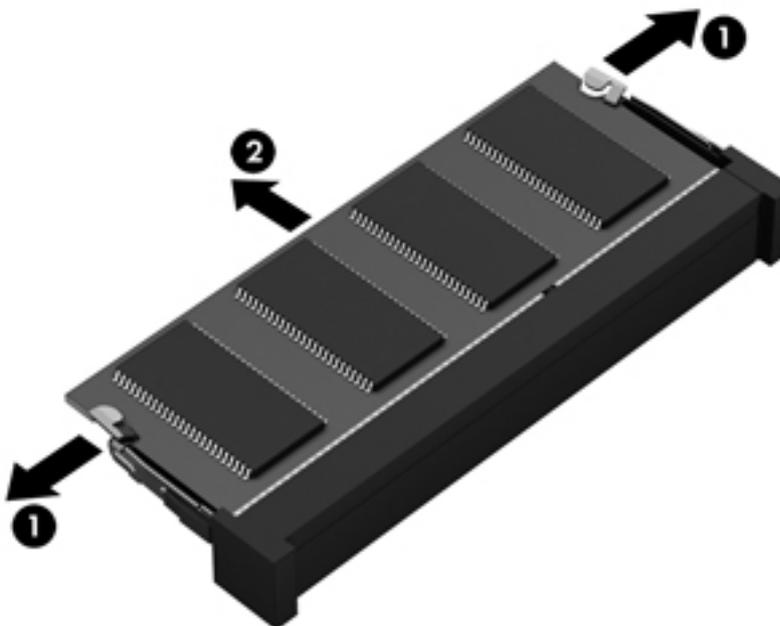
Remove the memory module:

1. Loosen the Phillips PM2.5×4.5 captive screw **(1)** that secures the memory module service cover to the computer.

2. Lift the rear edge of the memory module service cover **(2)** and swing it up and forward until it disengages from the computer.



3. Remove the memory module service cover.  
The memory module service cover is included in the Plastics Kit, spare part number 718438-001.
4. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The memory module tilts up.)
5. Remove the memory module **(2)** by pulling the module away from the slot at an angle.



Reverse this procedure to install a memory module.

## Optical drive

Description	Spare part number
DVD±RW Double-Layer with SuperMulti Drive	718434-001

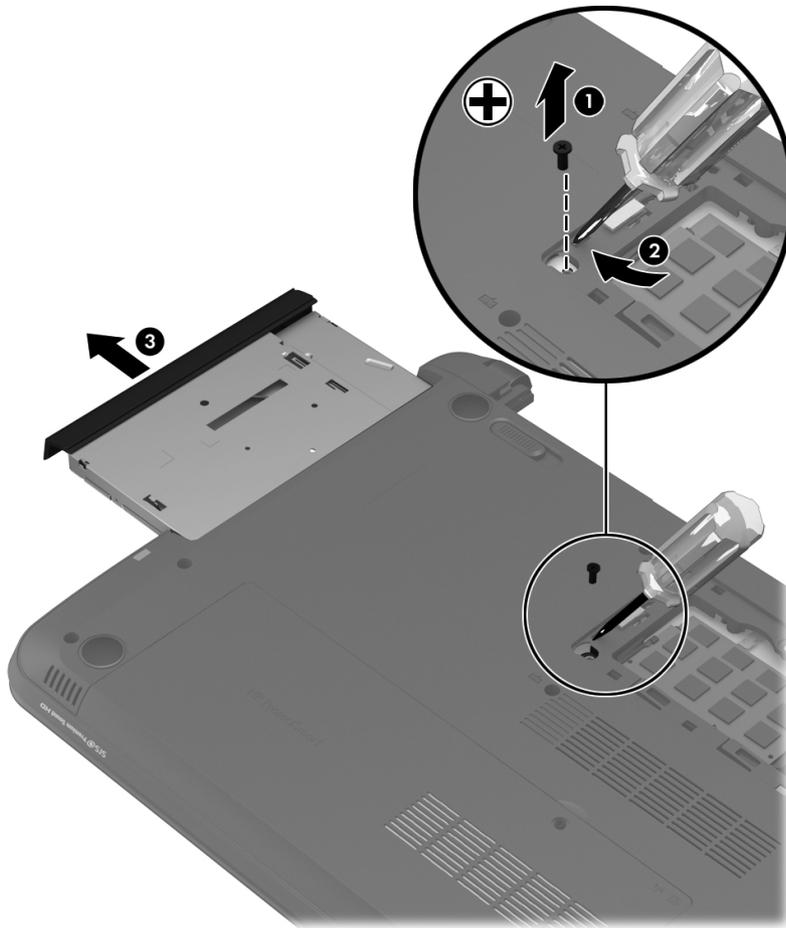
Before removing the optical drive, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)).
5. Remove the memory module service cover (see [Memory module on page 36](#)).

Remove the optical drive:

1. Remove the Phillips PM2.5×4.5 screw **(1)** that secures the optical drive to the computer.
2. Insert a flat-bladed screwdriver or similar tool into the optical drive tab access **(2)** and press the tab to the left to release the optical drive from the computer.

3. Remove the optical drive **(3)**.



Reverse this procedure to install the optical drive.

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# 6 Removal and replacement procedures for Authorized Service Provider parts

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 **CAUTION:** Components described in this chapter should only be accessed by an authorized service provider. Accessing these parts can damage the computer or void the warranty.

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## Component replacement procedures

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 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Service tag on page 15](#) for details.

---

This chapter provides removal and replacement procedures for Authorized Service Provider only parts.

There are as many as 48 screws that must be removed, replaced, and/or loosened when servicing Authorized Service Provider only parts. Make special note of each screw size and location during removal and replacement.

## RTC battery

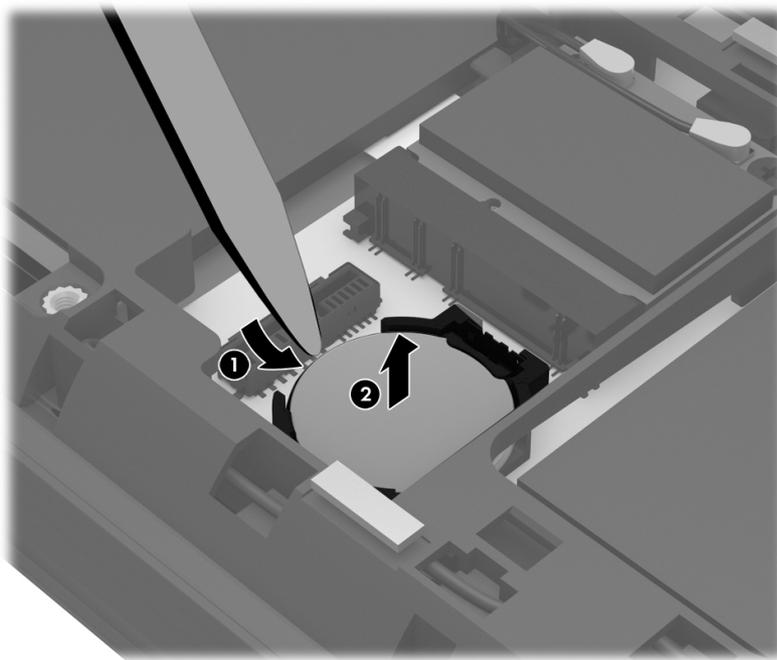
Description	Spare part number
RTC battery	718440-001

Before removing the RTC battery, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)).
5. Remove the hard drive service cover (see [Hard drive on page 31](#)).

Remove the RTC battery:

- ▲ Remove the RTC battery from the socket on the system board.



Reverse this procedure to install the RTC battery. When installing the RTC battery, make sure the “+” sign faces up.

## Keyboard

 **NOTE:** The keyboard spare part kit includes a keyboard cable.

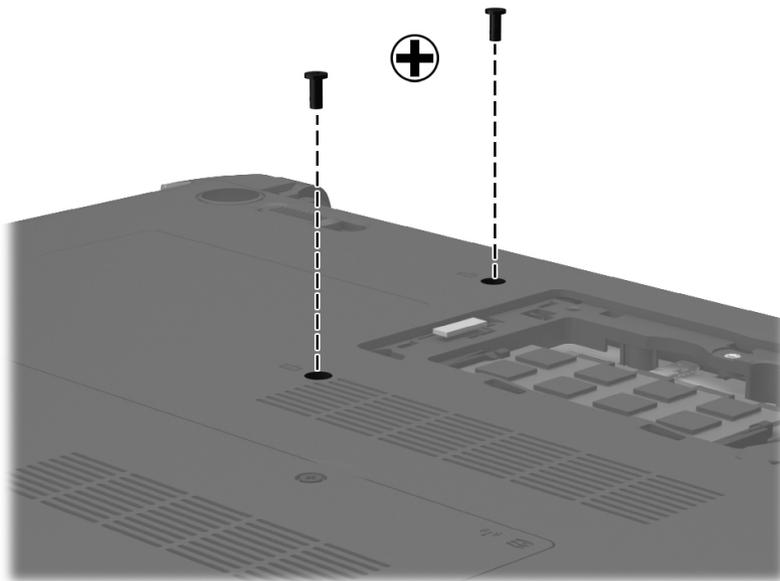
For use in country/region	Spare part number
For use in Taiwan	697904-AB1
For use in Thailand	697904-281
For use in the United States	697904-001

Before removing the keyboard, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)).
5. Remove the memory module service cover (see [Memory module on page 36](#)).

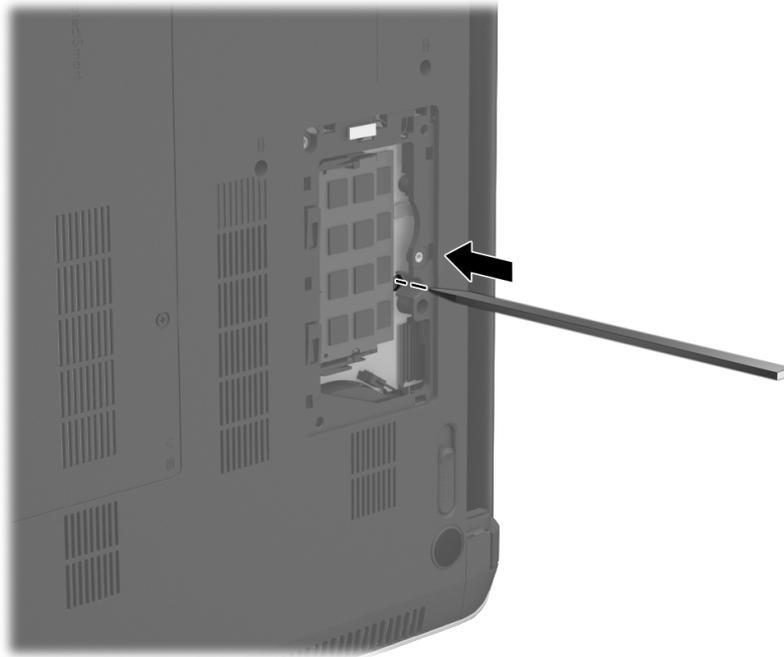
Remove the keyboard:

1. Remove the two Phillips PM2.5×6.5 screws that secure the keyboard to the computer.



2. Rest and secure the computer on its left side.
3. Partially open the computer.

4. Insert a thin tool into the keyboard release hole in the memory module compartment, and then press on the back of the keyboard until the keyboard disengages from the computer.



5. Turn the computer right-side up with the front toward you.
6. Lift the rear edge of the keyboard, and then swing the keyboard up and forward until it rests upside down on the palm rest.



7. Release the zero insertion force (ZIF) connector **(1)** to which the keyboard cable is attached, and then disconnect the keyboard cable **(2)** from the system board.

8. Remove the keyboard (3).



Reverse this procedure to install the keyboard.

## Top cover

Description	Spare part number
Top cover (includes TouchPad)	718446-001

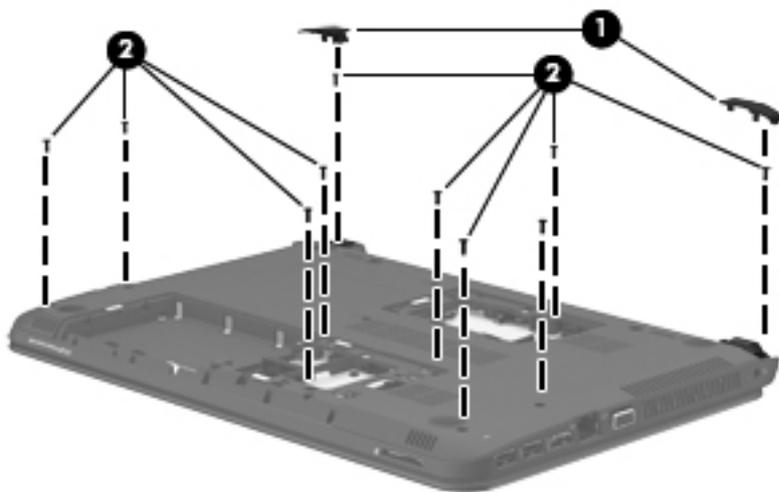
Before removing the top cover, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. Memory module service cover (see [Memory module on page 36](#))
  - c. Optical drive (see [Optical drive on page 38](#))
  - d. Keyboard (see [Keyboard on page 42](#))

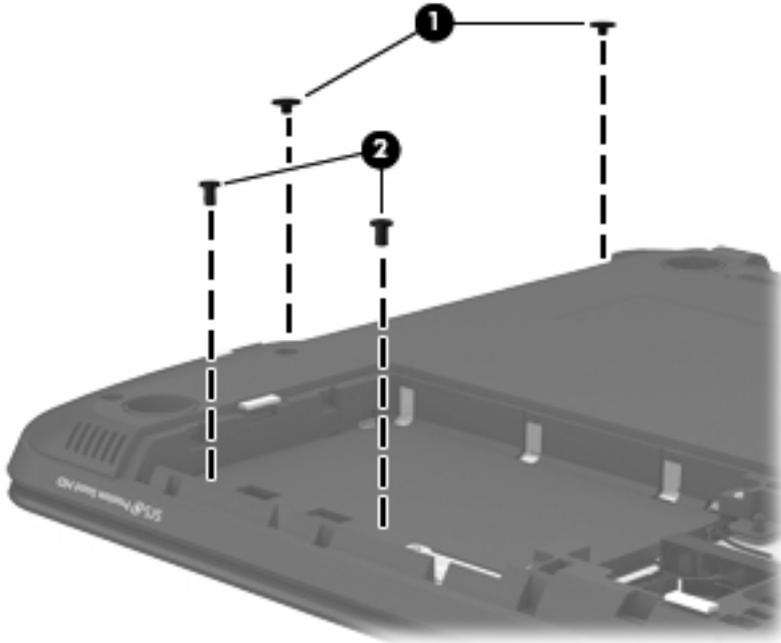
When replacing the top cover, be sure that the power button board (see [Power button board on page 48](#)) and TouchPad button board (see [TouchPad button board on page 50](#)) are removed from the defective top cover and installed on the replacement top cover.

Remove the top cover:

1. Remove the rear corner covers **(1)**.  
The rear corner covers are included in the Plastics Kit, spare part number 718438-001.
2. Remove the ten Phillips PM2.5×6.5 screws **(2)** that secure the top cover to the computer.



3. Remove the two Phillips PM2.0×2.0 broad head screws **(1)** in the optical drive bay that secure the top cover to the computer.
4. Remove the two Phillips PM2.5×4.0 screws **(2)** in the hard drive bay that secure the top cover to the computer.



5. Turn the computer right side, with the front toward you.
6. Open the computer.
7. Release the ZIF connector **(1)** to which the power button board cable is attached, and then disconnect the power button board cable from the system board.

8. Release the ZIF connector **(2)** to which the TouchPad button board cable is attached, and then disconnect the TouchPad button board cable from the system board.



9. Lift the rear edge of the top cover **(1)** and swing it up and forward until it detaches from the computer.
10. Remove the top cover **(2)**.



Reverse this procedure to install the top cover.

## Power button board

Description	Spare part number
Power button board (includes cable)	718436-001

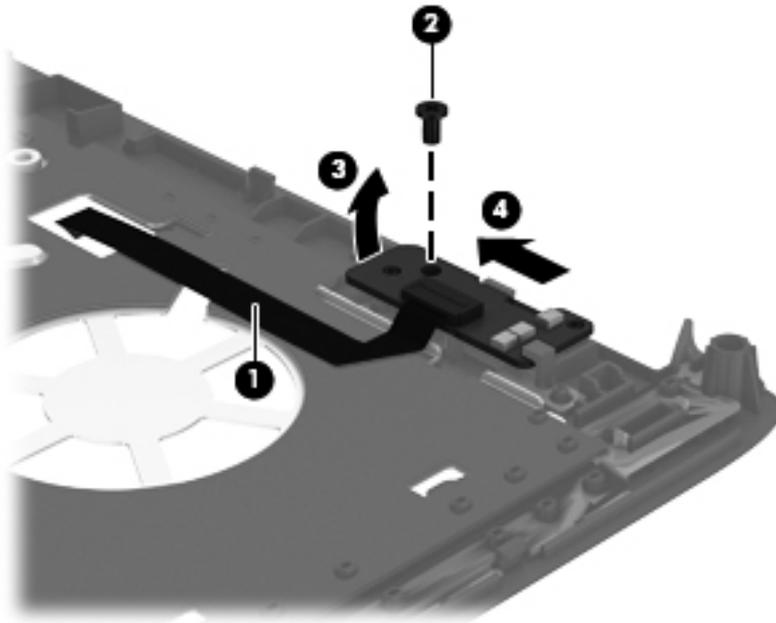
Before removing the power button board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. Memory module service cover (see [Memory module on page 36](#))
  - c. Optical drive (see [Optical drive on page 38](#))
  - d. Keyboard (see [Keyboard on page 42](#))
  - e. Top cover (see [Top cover on page 45](#))

Remove the power button board:

1. Detach the power button board cable **(1)** from the top cover. (The power button board cable is attached to the top cover with double-sided tape.)
2. Remove the Phillips PM2.5×4.0 screw **(2)** that secures the power button board to the top cover.

3. Lift the left side of the power button board (3) until it rests at an angle, and then remove the power button board by sliding it up and to the left (4).



Reverse this procedure to install the power button board.

## TouchPad button board

Description	Spare part number
TouchPad button board (includes TouchPad button board bracket, TouchPad button board cable, and TouchPad board cable)	718437-001

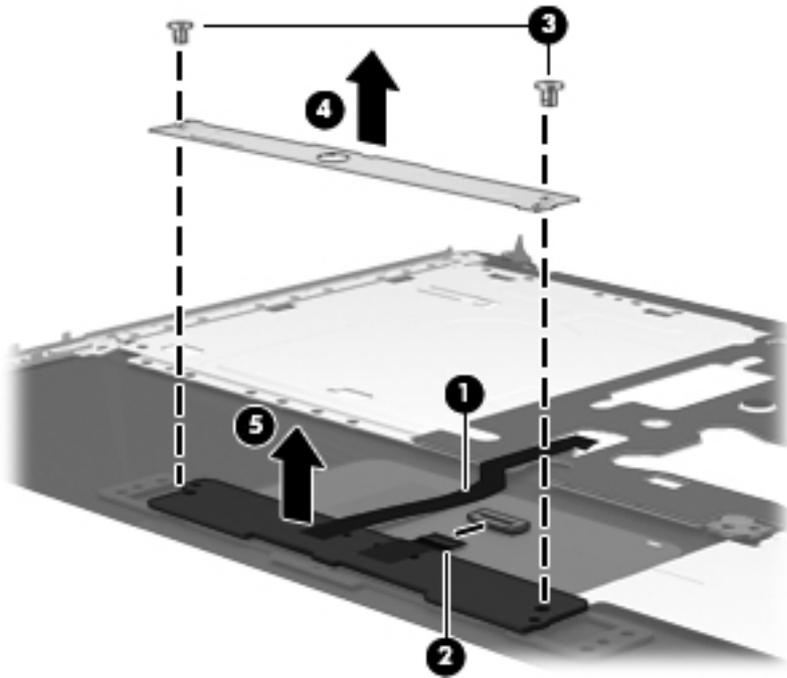
Before removing the TouchPad button board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. Memory module service cover (see [Memory module on page 36](#))
  - c. Optical drive (see [Optical drive on page 38](#))
  - d. Keyboard (see [Keyboard on page 42](#))
  - e. Top cover (see [Top cover on page 45](#))

Remove the TouchPad button board:

1. Detach the TouchPad button board cable **(1)** from the TouchPad. (The TouchPad button board cable is attached to the TouchPad with double-sided tape.)
2. Release the ZIF connector **(2)** to which the TouchPad cable is attached, and then disconnect the TouchPad cable from the TouchPad board.
3. Remove the two Phillips PM2.5×4.0 screws **(3)** that secure the TouchPad button board to the top cover.
4. Remove the TouchPad button board bracket **(4)**.

5. Remove the TouchPad button board (5).



Reverse this procedure to install the TouchPad button board.

## Fan

Description	Spare part number
Fan (includes cable)	718430-001

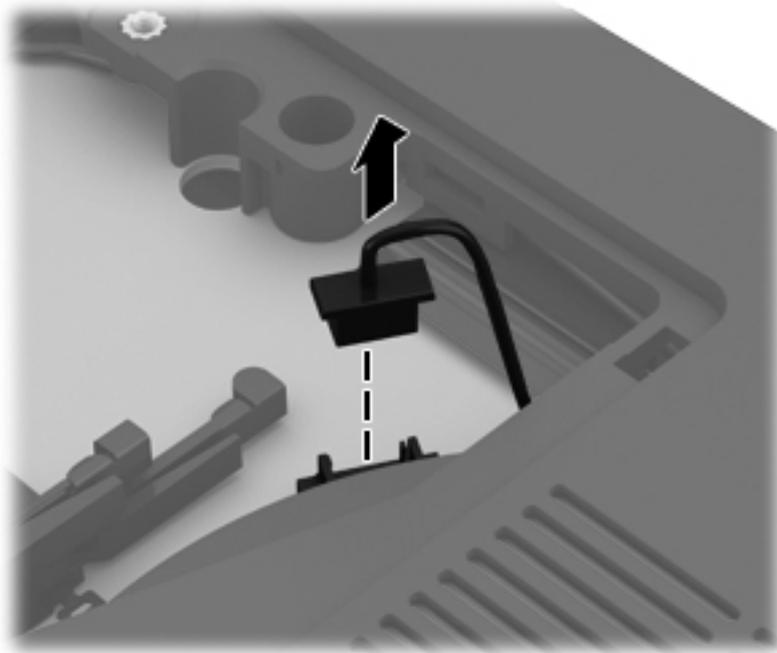
Before removing the fan, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. Memory module service cover (see [Memory module on page 36](#))
  - c. Optical drive (see [Optical drive on page 38](#))
  - d. Keyboard (see [Keyboard on page 42](#))
  - e. Top cover (see [Top cover on page 45](#))

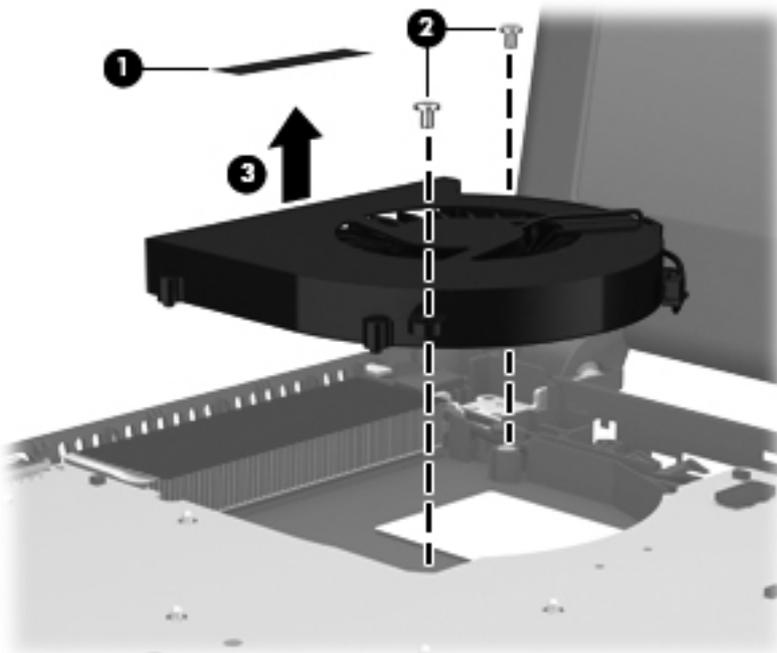
Remove the fan:

1. Close the computer.
2. Turn the computer upside down, with the front toward you.

3. Disconnect the fan cable from the system board.



4. Turn the computer right side up, with the front toward you.
5. Open the computer.
6. Remove the tape **(1)** that attaches the fan to the heat sink.
7. Remove the two Phillips PM2.0x4.5 screws **(2)** that secure the fan to the base enclosure.
8. Remove the fan **(3)** from the base enclosure.



Reverse this procedure to install the fan.

## Audio/USB board

Description	Spare part number
Audio/USB board (includes cable)	718435-001

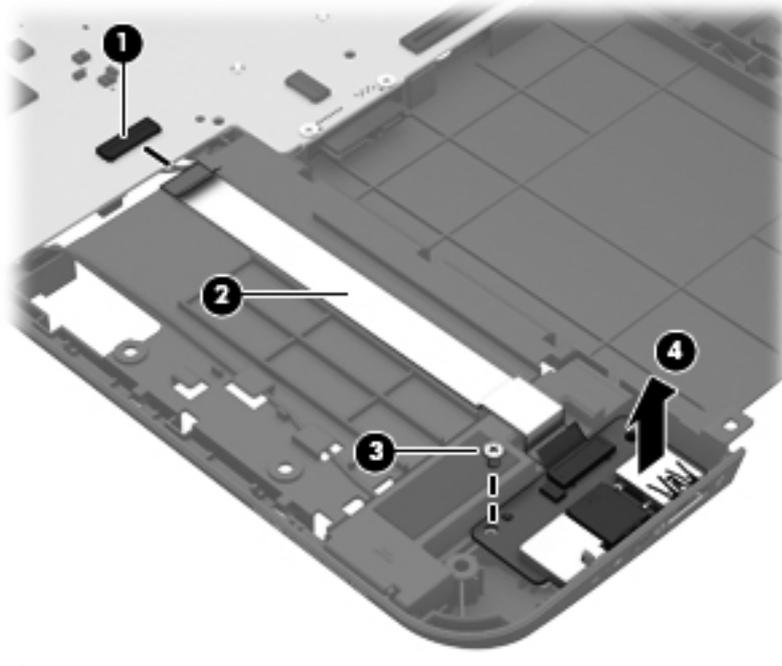
Before removing the audio/USB board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. Memory module service cover (see [Memory module on page 36](#))
  - c. Optical drive (see [Optical drive on page 38](#))
  - d. Keyboard (see [Keyboard on page 42](#))
  - e. Top cover (see [Top cover on page 45](#))

Remove the audio/USB board:

1. Release the ZIF connector **(1)** to which the audio/USB board cable is attached, and then disconnect the audio/USB board cable from the system board.
2. Detach the audio/USB board cable **(2)** from the base enclosure. (The audio/USB board cable is attached to the base enclosure with double-sided tape.)
3. Remove the Phillips PM2.5×4.0 screw **(3)** that secures the audio/USB board to the base enclosure.

4. Remove the audio/USB **(4)** from the base enclosure.



Reverse this procedure to install the audio/USB board.

## System board

 **NOTE:** The system board spare part kit includes replacement thermal material.

Description	Spare part number
Equipped with the Intel HM77 Express Chipset, nVidia N14M-GS GeForce 730M discrete graphics subsystem with 2-GB of memory, and the Windows 8 Standard operating system	718445-501
Equipped with the Intel HM77 Express Chipset, nVidia N14M-GS GeForce 730M discrete graphics subsystem with 2-GB of memory, and the Windows 7 operating system	718445-001

Before removing the system board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. WLAN module (see [WLAN module on page 33](#))

- c. Solid-state drive (see [Solid-state drive on page 35](#))
- d. Memory module service cover (see [Memory module on page 36](#))
- e. Optical drive (see [Optical drive on page 38](#))
- f. Keyboard (see [Keyboard on page 42](#))
- g. Top cover (see [Top cover on page 45](#))
- h. Fan (see [Fan on page 52](#))

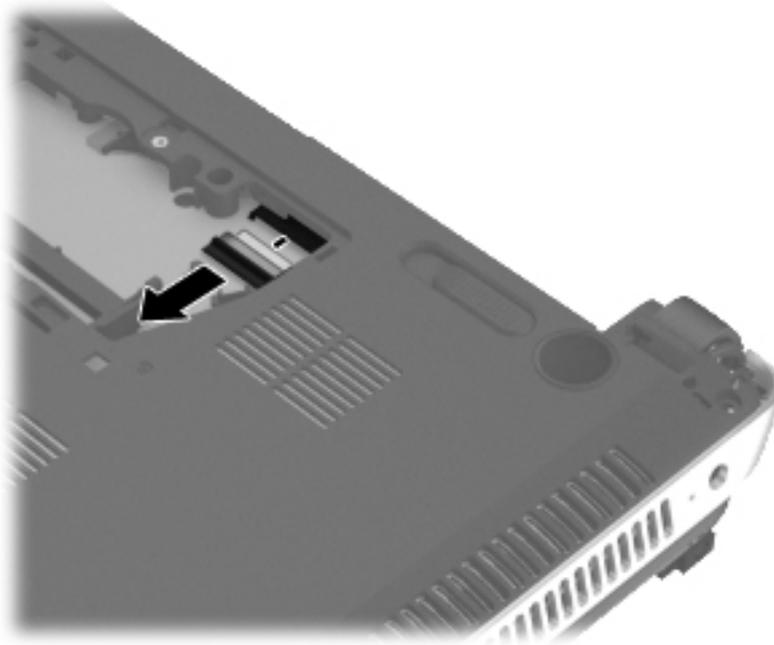
 **NOTE:** When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

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- Memory module (see [Memory module on page 36](#))
- Heat sink (see [Heat sink on page 59](#))
- Processor (see [Processor on page 61](#))

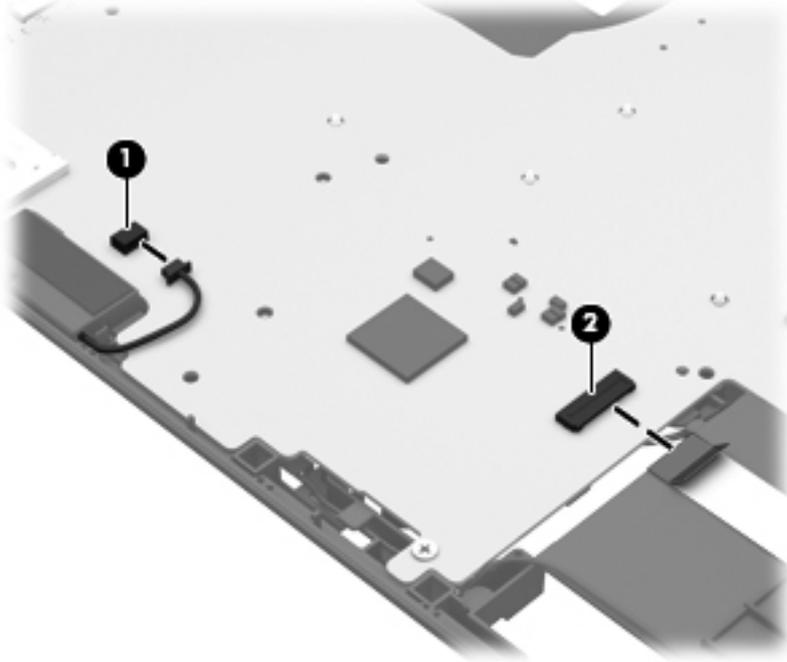
Remove the system board:

1. Close the computer.
2. Turn the computer upside down, with the front toward you.
3. Disconnect the display panel cable from the system board.

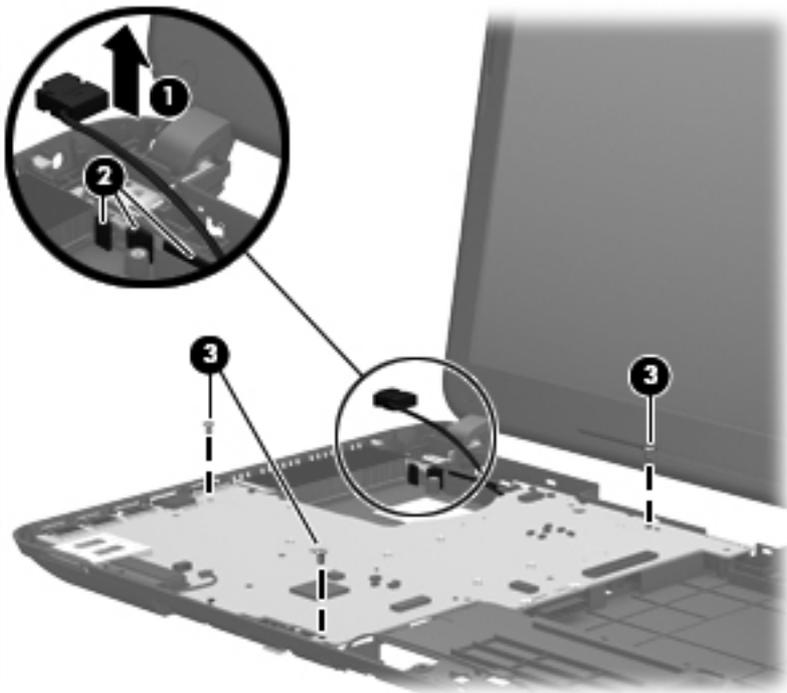


4. Turn the computer right side up, with the front toward you.
5. Open the computer.
6. Disconnect the speaker cable **(1)** from the system board.

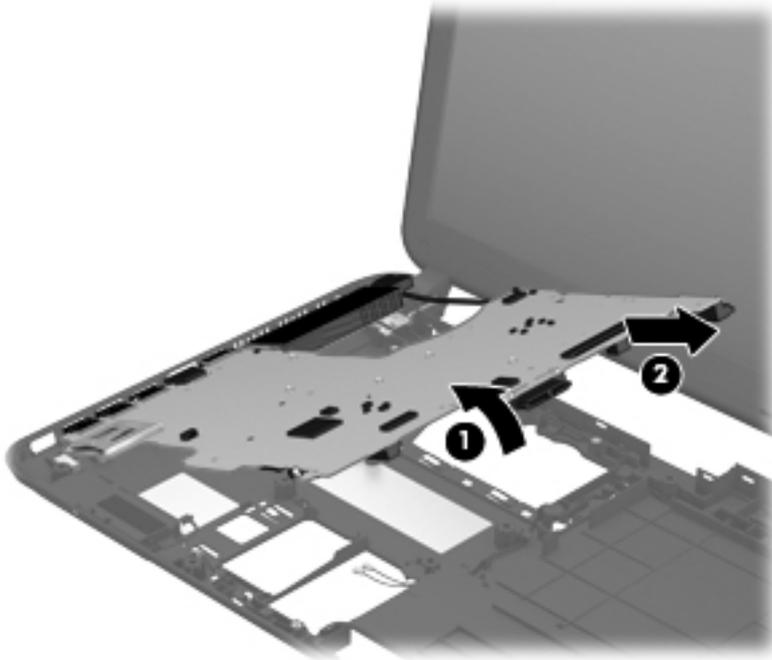
7. Release the ZIF connector **(2)** to which the audio/USB board cable is attached, and then disconnect the audio/USB board cable from the system board.



8. Release the power connector **(1)** from the clips and molding built into the base enclosure.
9. Release the power connector cable **(2)** from the routing channel built into the base enclosure.
10. Remove the three Phillips PM2.5×4.5 screws **(3)** that secure the system board to the base enclosure.



11. Lift the right side of the system board (1) until it rests at an angle.
12. Remove the system board by sliding it up and to the right an angle (2).



Reverse this procedure to install the system board.

## Power connector cable

Description	Spare part number
Power connector cable	718429-001

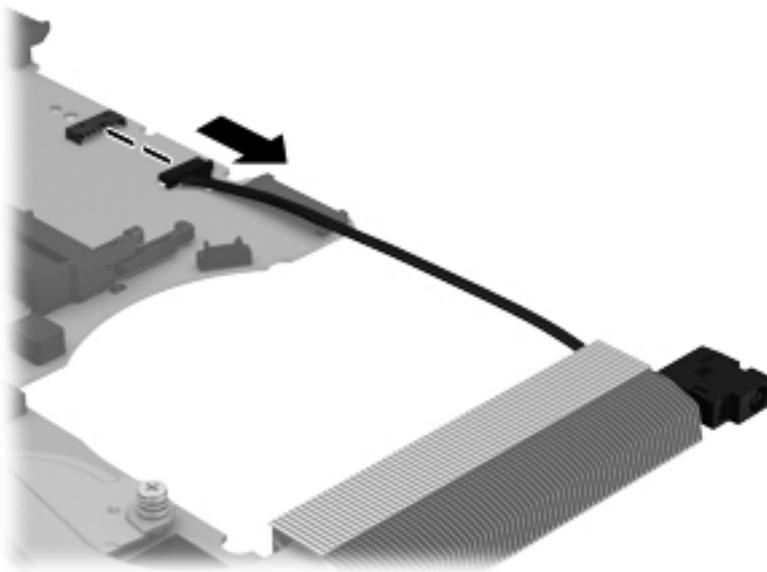
Before removing the power connector cable, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. WLAN module (see [WLAN module on page 33](#))
  - c. Solid-state drive (see [Solid-state drive on page 35](#))
  - d. Memory module service cover (see [Memory module on page 36](#))
  - e. Optical drive (see [Optical drive on page 38](#))

- f. Keyboard (see [Keyboard on page 42](#))
- g. Top cover (see [Top cover on page 45](#))
- h. Fan (see [Fan on page 52](#))
- i. System board (see [System board on page 55](#))

Remove the power connector cable:

1. Turn the system board upside down, with the front toward you.
2. Disconnect the power cable from the system board.



Reverse this procedure to install the power connector cable.

## Heat sink

Description	Spare part number
Heat sink (includes replacement thermal material)	718431-001

Before removing the heat sink, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.

3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. WLAN module (see [WLAN module on page 33](#))
  - c. Solid-state drive (see [Solid-state drive on page 35](#))
  - d. Memory module service cover (see [Memory module on page 36](#))
  - e. Optical drive (see [Optical drive on page 38](#))
  - f. Keyboard (see [Keyboard on page 42](#))
  - g. Top cover (see [Top cover on page 45](#))
  - h. Fan (see [Fan on page 52](#))
  - i. System board (see [System board on page 55](#))

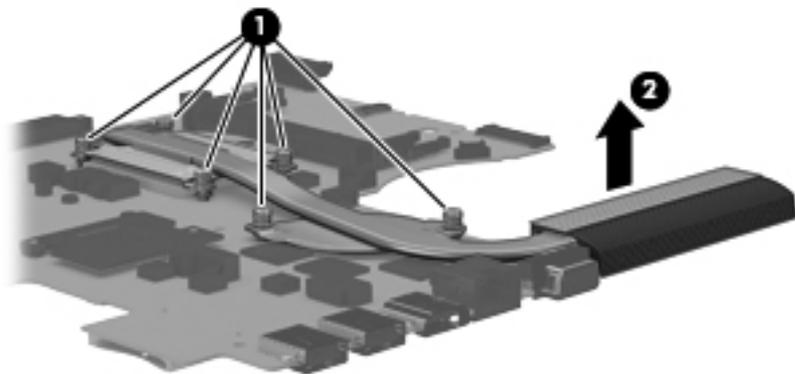
Remove the heat sink:

1. Turn the system board upside down, with the front toward you.
2. Following the 1, 2, 3, 4, 5, 6 sequence stamped into the heat sink, remove the six Phillips PM2.0×4.5 screws **(1)** that secure the heat sink to the system board.
3. Remove the heat sink **(2)**.

---

 **NOTE:** Due to the adhesive quality of the thermal material located between the heat sink and the system board components, it may be necessary to move the heat sink from side to side to detach it.

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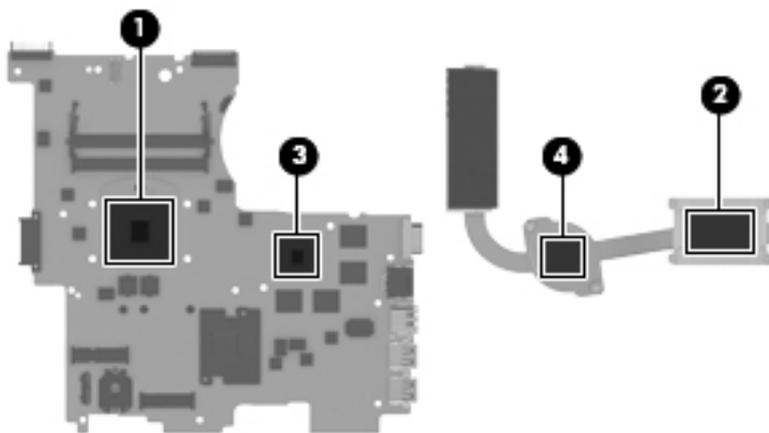


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 **NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board components each time the heat sink is removed. Replacement thermal material is included with the heat sink, processor, and system board spare part kits.

---

- Thermal paste is used on the processor **(1)** and the heat sink section **(2)** that services it
- A thermal pad is used on the Northbridge chip **(3)** and the heat sink section **(4)** that services it



Reverse this procedure to install the heat sink.

## Processor

 **NOTE:** The processor spare part kit includes replacement thermal material.

Description	Spare part number
Intel Quad Core i7-3632QM 2.20-GHz processor (SC turbo up to 3.20-GHz; 1600-MHz FSB; 6.0-MB L3 cache, 35 W)	701658-001
Intel Dual Core i5-3230M 2.60-GHz processor (SC turbo up to 3.20-GHz; 1600-MHz FSB, 3.0-MB L3 cache, 35 W)	711903-001
Intel Dual Core i5-3210M 2.50-GHz processor (SC turbo up to 3.10-GHz; 1600-MHz FSB, 3.0-MB L3 cache, 35 W)	680645-001
Intel Dual Core i3-3120M 2.40-GHz processor (1600-MHz FSB, 3.0-MB L3 cache, 35 W)	700627-001
Intel Dual Core i3-3110M 2.40-GHz processor (1600-MHz FSB, 3.0-MB L3 cache, 35 W)	682417-001
Intel Pentium 2020M 2.40-GHz processor (1600-MHz FSB, 2.0-MB L3 cache, 35 W)	700628-001

Before removing the processor, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. WLAN module (see [WLAN module on page 33](#))
  - c. Solid-state drive (see [Solid-state drive on page 35](#))
  - d. Memory module service cover (see [Memory module on page 36](#))

- e. Optical drive (see [Optical drive on page 38](#))
- f. Keyboard (see [Keyboard on page 42](#))
- g. Top cover (see [Top cover on page 45](#))
- h. Fan (see [Fan on page 52](#))
- i. System board (see [System board on page 55](#))
- j. Heat sink (see [Heat sink on page 59](#))

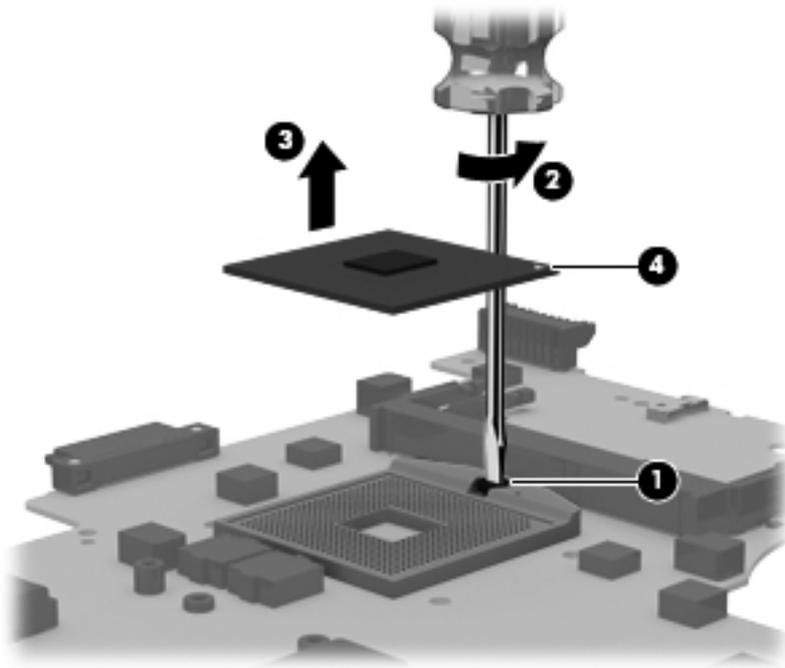
Remove the processor:

1. Turn the system board upside down, with the front toward you.
2. Use a flat-bladed screw driver **(1)** to turn the processor locking screw one-half turn counterclockwise **(2)**, until you hear a click.
3. Lift the processor **(3)** straight up, and remove it.

---

 **NOTE:** The gold triangle **(4)** on the processor must be aligned with the triangle icon embossed on the processor socket when you install the processor.

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Reverse this procedure to install the processor.

## Speakers

Description	Spare part number
Speakers (include left and right speakers and cables)	718443-001

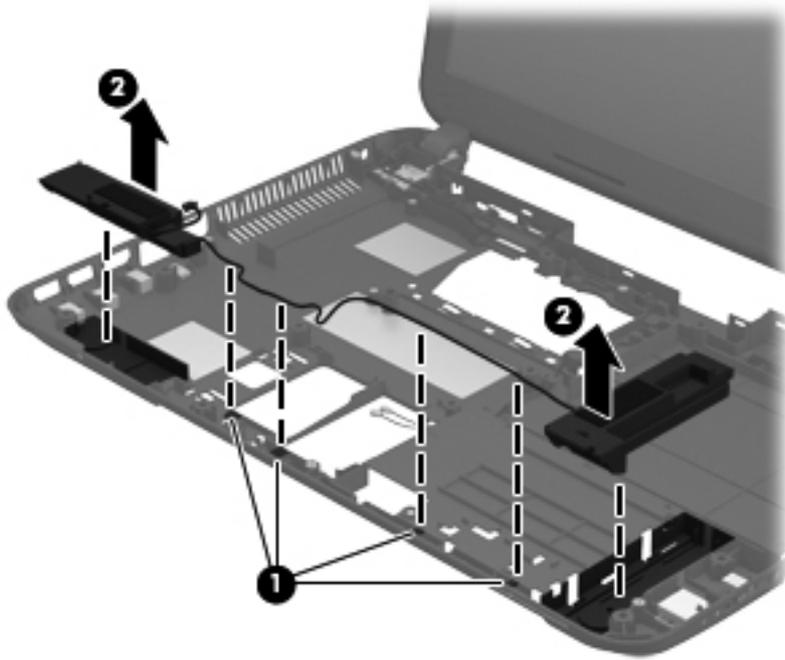
Before removing the speakers, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. WLAN module (see [WLAN module on page 33](#))
  - c. Solid-state drive (see [Solid-state drive on page 35](#))
  - d. Memory module service cover (see [Memory module on page 36](#))
  - e. Optical drive (see [Optical drive on page 38](#))
  - f. Keyboard (see [Keyboard on page 42](#))
  - g. Top cover (see [Top cover on page 45](#))
  - h. Fan (see [Fan on page 52](#))
  - i. System board (see [System board on page 55](#))

Remove the speakers:

1. Release the front speaker cables **(1)** from the clips built into the base enclosure.

2. Remove the speakers **(2)**.



Reverse this procedure to install the speakers.

## Display assembly subcomponents

 **NOTE:** The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see the individual removal subsections.

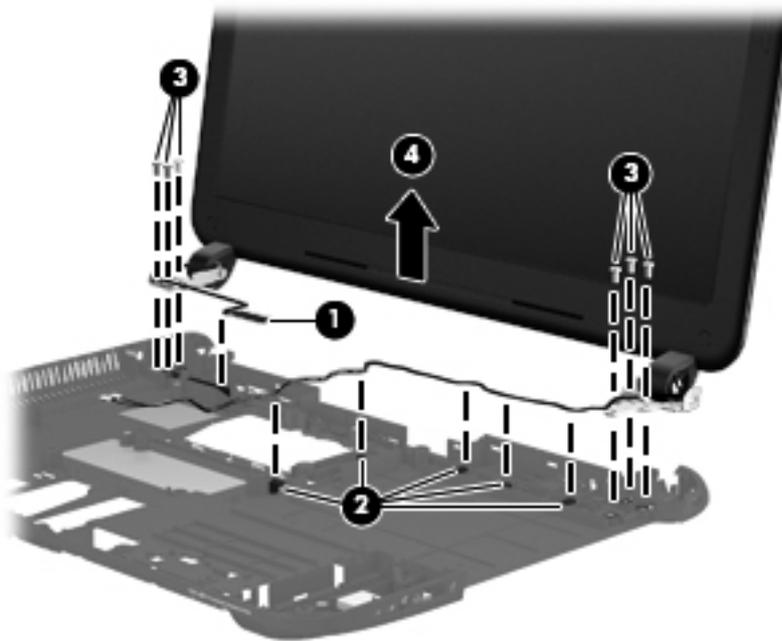
To remove the display assembly and access the display assembly subcomponents, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the battery (see [Battery on page 30](#)) and then remove the following components:
  - a. Hard drive (see [Hard drive on page 31](#))
  - b. WLAN module (see [WLAN module on page 33](#))
  - c. Solid-state drive (see [Solid-state drive on page 35](#))
  - d. Memory module service cover (see [Memory module on page 36](#))
  - e. Optical drive (see [Optical drive on page 38](#))
  - f. Keyboard (see [Keyboard on page 42](#))
  - g. Top cover (see [Top cover on page 45](#))

- h. Fan (see [Fan on page 52](#))
- i. System board (see [System board on page 55](#))

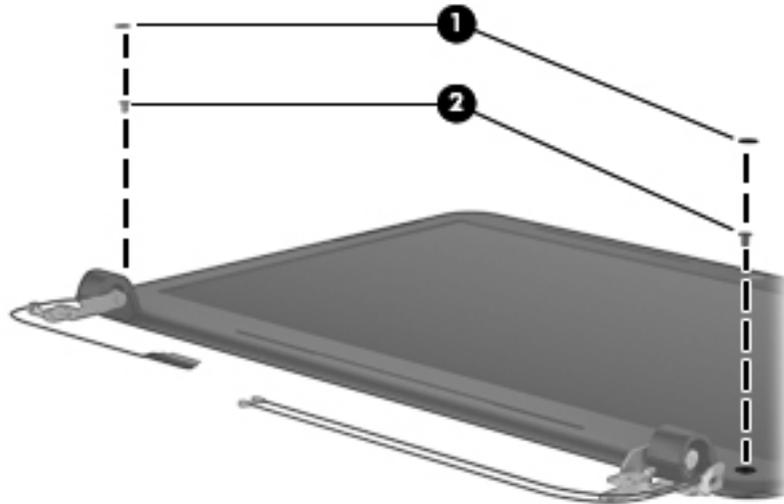
Remove the display assembly:

1. Release the display panel cable **(1)** from the clips and routing channel built into the base enclosure.
2. Release the wireless antenna cables **(2)** from the clips and routing channel built into the base enclosure and right display hinge.
3. Remove the six Phillips PM2.5×4.5 screws **(3)** that secure the display assembly to the top cover.
4. Remove the display assembly **(4)** from the computer.



5. If it is necessary to replace the display bezel or any of the display assembly subcomponents:
- Remove the two crew covers **(1)** and the two Phillips PM2.5×3.5 screws **(2)** that secure the display bezel to the display assembly.

The screw covers are available in the Rubber Kit, spare part number 718441-001.



- Flex the inside edges of the top edge **(1)**, the left and right sides **(2)**, and the bottom edge **(3)** of the display bezel until the bezel disengages from the display enclosure.
- Remove the display bezel **(4)**.

The display bezel is available using spare part number 718427-001.



6. If it is necessary to replace the webcam/microphone module:

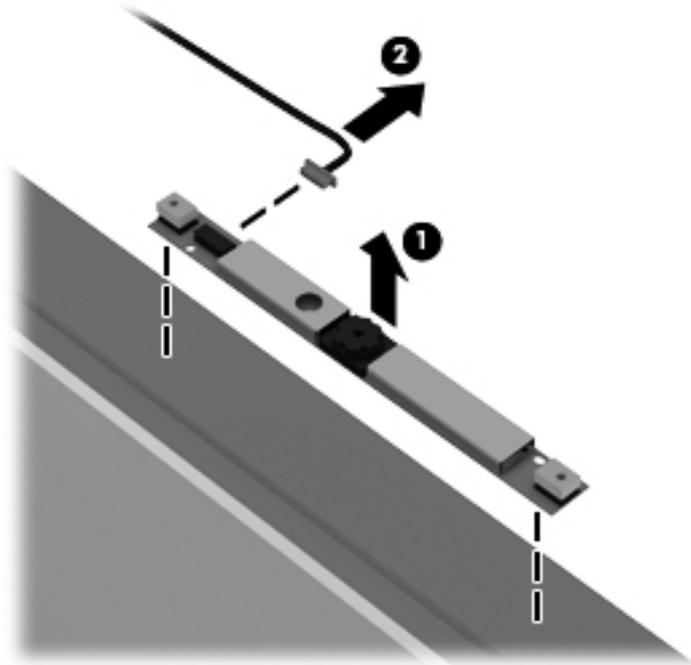
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**⚠ CAUTION:** Handle the webcam/microphone module with caution. This module has a thin profile and is susceptible to damage when not handled carefully.

---

- Detach the webcam/microphone module **(1)** from the display enclosure. (The webcam/microphone module is attached to the display enclosure with double-sided adhesive.)

- b.** Disconnect the webcam/microphone module cable **(2)** from the webcam/microphone module.



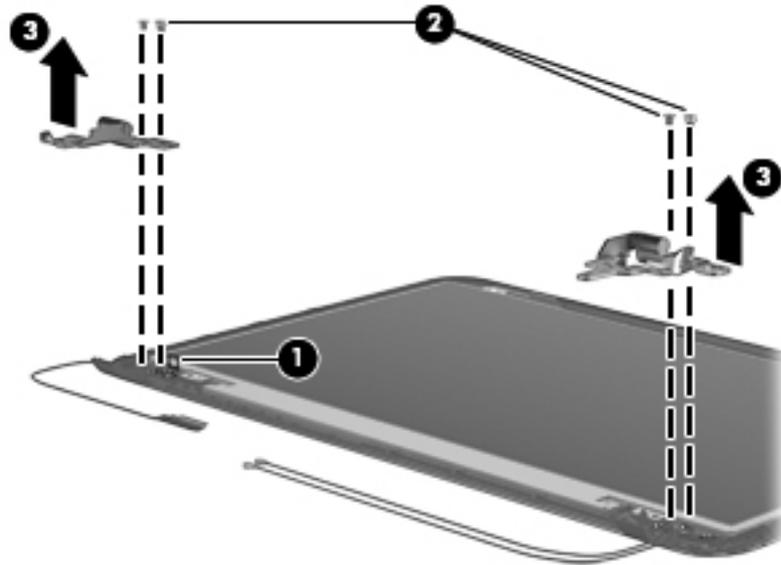
- c.** Remove the webcam/microphone module.

The webcam/microphone module is available using spare part number 718447-001.

- 7.** If it is necessary to replace the display hinges:
  - a.** Release the grounding tape **(1)** that secures the left display hinge to the display enclosure.
  - b.** Remove the four Phillips PM2.5×3.0 screws **(2)** that secure the display hinges to the display enclosure.

- c. Remove the display hinges **(3)**.

The display hinges are available using spare part number 718433-001.

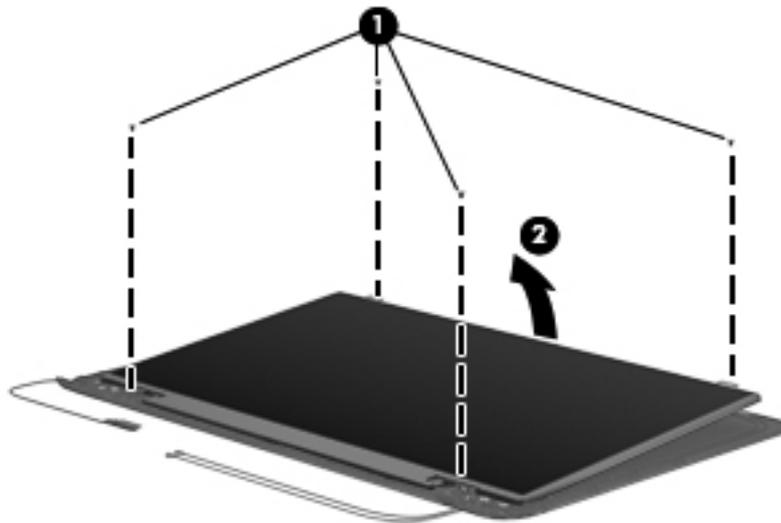


- 8. If it is necessary to replace the display panel:

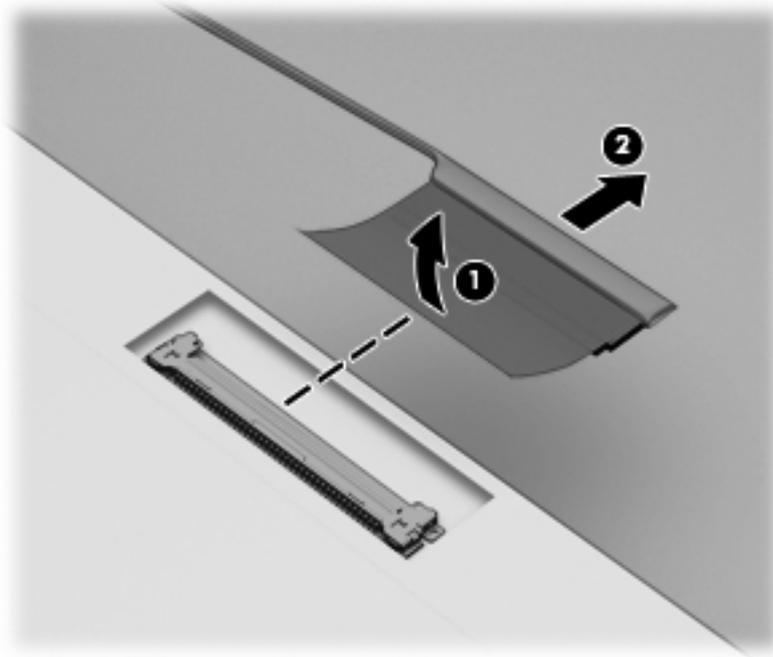
- a. Remove the four Phillips PM2.0x2.5 screws **(1)** that secure the display panel to the display enclosure.

**CAUTION:** Before turning the display panel upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display panel.

- b. Lift the top edge of the display panel **(2)**, and then swing it up and forward until it rests upside down in front of the display enclosure.



- c. Release the adhesive strip **(1)** that secures the display panel cable to the display panel, and then disconnect the display panel cable **(2)** from the display panel.



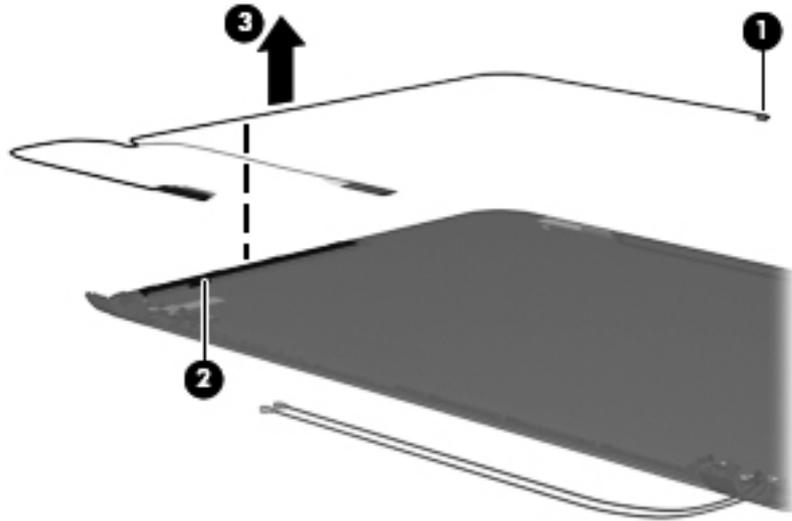
- d. Remove the display panel.

The display panel is available using spare part number 718439-001.

- 9. If it is necessary to replace the display panel cable:
  - a. Disconnect the webcam/microphone module cable **(1)** from the webcam/microphone module.
  - b. Release the display panel cable from the clips **(2)** and routing channel built into the top edge and left side of the display enclosure.

- c. Remove the display panel cable (3).

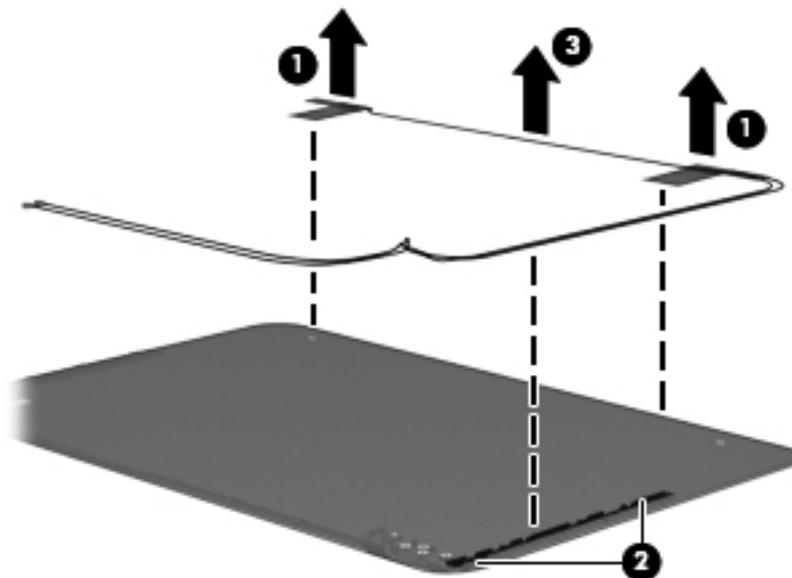
The display panel cable is available using spare part number 718428-001.



- 10. If it is necessary to replace the wireless antenna:

- a. Detach the wireless antenna transceivers (1) from the display enclosure. (The wireless antenna transceivers are attached to the display enclosure with double-sided adhesive.)
- b. Release the wireless antenna cables from the clips (2) and routing channel built into the top edge and right side of the display enclosure.
- c. Remove the wireless antenna (3).

The wireless antenna are available using spare part number 718424-001.



Reverse this procedure to reassemble and install the display assembly.

---

# 7 Using Setup Utility (BIOS) and System Diagnostics

Setup Utility, or Basic Input/Output System (BIOS), controls communication between all the input and output devices on the system (such as disk drives, display, keyboard, mouse, and printer). Setup Utility (BIOS) includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

## Starting Setup Utility (BIOS)

To start Setup Utility (BIOS), turn on or restart the computer, quickly press [esc](#), and then press [f10](#).

Information about how to navigate in Setup Utility (BIOS) is located at the bottom of the screen.

---

 **NOTE:** Use extreme care when making changes in Setup Utility (BIOS). Errors can prevent the computer from operating properly.

---

## Updating the BIOS

Updated versions of the BIOS may be available on the HP website.

Most BIOS updates on the HP website are packaged in compressed files called SoftPaqs.

Some download packages contain a file named Readme.txt, which contains information regarding installing and troubleshooting the file.

## Determining the BIOS version

To determine whether available BIOS updates contain later BIOS versions than those currently installed on the computer, you need to know the version of the system BIOS currently installed.

BIOS version information (also known as *ROM date* and *System BIOS*) can be displayed by pressing [fn +esc](#) (if you are already in Windows) or by using Setup Utility (BIOS).

1. Start Setup Utility (BIOS).
2. Use the arrow keys to select **Main**.
3. To exit Setup Utility (BIOS) without saving your changes, use the arrow keys to select **Exit**, select **Exit Discarding Changes**, and then press [enter](#).

## Downloading a BIOS update

 **CAUTION:** To reduce the risk of damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:

Do not disconnect power from the computer by unplugging the power cord from the AC outlet.

Do not shut down the computer or initiate Sleep.

Do not insert, remove, connect, or disconnect any device, cable, or cord.

1. From the Start screen, select the **HP Support Assistant** app.
2. Select **Updates and tune-ups**, and then select **Check for HP updates now**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
  - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. Make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
  - b. Follow the on-screen instructions to download your selection to the hard drive.

If the update is more recent than your BIOS, make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

 **NOTE:** If you connect your computer to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

BIOS installation procedures vary. Follow any instructions that are displayed on the screen after the download is complete. If no instructions are displayed, follow these steps:

1. From the Start screen, type *e*, and then select **File Explorer**.
2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.
4. Double-click the file that has an .exe extension (for example, *filename.exe*).

The BIOS installation begins.

5. Complete the installation by following the on-screen instructions.

 **NOTE:** After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

# Using System Diagnostics

System Diagnostics allows you to run diagnostic tests to determine if the computer hardware is functioning properly.

To start System Diagnostics:

1. Turn on or restart the computer, quickly press `esc`, and then press `f2`.
2. Click the diagnostic test you want to run, and then follow the on-screen instructions.



---

**NOTE:** If you need to stop a diagnostic test while it is running, press `esc`.

---

# 8 Specifications

## Computer specifications

<b>34.7cm, 24.5cm, 2.45cm, and 2.0kg</b>	<b>Metric</b>	<b>U.S.</b>
<b>Dimensions</b>		
Width	<b>34.7 cm</b>	13.66 in
Depth	<b>24.5 cm</b>	9.66 in
Height (front to rear)	<b>2.45 cm</b>	0.97 in
<b>Weight</b>	<b>2.0 kg</b>	4.41 lbs
<b>Input power</b>		
Operating voltage and current	19.5 V dc @ 4.62 A – 90 W	
<b>Temperature</b>		
Operating	<b>5°C to 35°C</b>	41°F to 95°F
Nonoperating	<b>-20°C to 60°C</b>	-4°F to 140°F
<b>Relative humidity</b> (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
<b>Maximum altitude</b> (unpressurized)		
Operating	<b>-15 m to 3,048 m</b>	-50 ft to 10,000 ft
Nonoperating	<b>-15 m to 12,192 m</b>	-50 ft to 40,000 ft
<b>NOTE:</b> Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

## 14.0-inch display specifications

	<b>Metric</b>	<b>U.S.</b>
<b>Dimensions</b>		
Height	<b>17.60 cm</b>	6.93 in
Width	<b>31.20 cm</b>	12.28 in
Diagonal	<b>35.70 cm</b>	14.06 in
<b>Number of colors</b>	Up to 16.8 million	
<b>Contrast ratio</b>	200:1 (typical)	
<b>Brightness</b>	200 nits (typical)	
<b>Pixel resolution</b>		
Pitch	<b>0.197 × 0.197 mm</b>	
Format	1366 × 768	
Configuration	RGB vertical stripe	
<b>Backlight</b>	LED	
<b>Character display</b>	80 × 25	
<b>Total power consumption</b>	2.00 W	
<b>Viewing angle</b>	±65° horizontal, ±50° vertical (typical)	

## Hard drive specifications

	1-TB, 5400-rpm*	750-GB, 5400-rpm**	500-GB, 5400-rpm**
<b>Dimensions</b>			
Height	9.5 mm	9.5 mm	9.5 and 7.0 mm
Length	100.4 mm	100.4 mm	100.4 mm
Width	69.9 mm	69.9 mm	69.9 mm
Weight	110 g	110 g	110 g
<b>Interface type</b>	SATA	SATA	SATA
<b>Transfer rate</b>			
Synchronous (maximum)	1.1 GB/sec	1.1 GB/sec	1.1 GB/sec
Security	ATA security	ATA security	ATA security
<b>Seek times</b> (typical read, including setting)			
Single track	1.5 ms	1.5 ms	1.5 ms
Average (read/write)	11/13 ms	11/13 ms	11/13 ms
Maximum	22 ms	22 ms	22 ms
<b>Logical blocks</b>	1,953,525,168	1,465,149,168	976,773,168
<b>Disk rotational speed</b>	5400 rpm		
<b>Operating temperature</b>	0°C to 60°C (32°F to 140°F)		
* 1 TB = 1 trillion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.			
** 1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.			
<b>NOTE:</b> Certain restrictions and exclusions apply. Contact technical support for details.			

---

# 9 Backing up, restoring, and recovering

Your computer includes tools provided by HP and the operating system to help you safeguard your information and retrieve it if you ever need to. These tools will help you return your computer to a proper working state or even back to the original factory state, all with simple steps.

This chapter provides information about the following processes:

- Creating recovery media and backups
- Restoring and recovering your system

---

 **NOTE:** This guide describes an overview of backing up, restoring and recovering options. For more details about the tools provided, see Help and Support. From the Start screen, type **h**, and then select **Help and Support**.

---

## Creating recovery media and backups

Recovery after a system failure is only as good as your most recent backup.

1. After you successfully set up the computer, create HP Recovery media. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced.

HP Recovery media you create will provide the following recovery options:

- **System Recovery**—Reinstalls the original operating system and the programs that were installed at the factory.
- **Minimized Image Recovery**—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- **Factory Reset**—Restores the computer to the state its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

See [Creating HP Recovery media on page 78](#).

2. As you add hardware and software programs, create system restore points. A system restore point is a snapshot of certain hard drive contents saved by Windows System Restore at a specific time. A system restore point contains information that Windows uses, such as registry settings. Windows creates a system restore point for you automatically during a Windows update and during other system maintenance (such as a software update, security scanning, or system diagnostics). You can also manually create a system restore point at any time. For more information and steps for creating specific system restore points, see Windows Help and Support. From the Start screen, type **h**, and then select **Help and Support**.
3. As you add photos, video, music, and other personal files, create a backup of your personal information. Windows File History can be set to regularly and automatically back up files from libraries, Desktop, contacts, and favorites. If files are accidentally deleted from the hard drive and they can no longer be restored from the Recycle Bin, or if files become corrupted, you can restore the files that you backed up using File History. Restoring files is also useful if you ever choose to reset the computer by reinstalling Windows or choose to recover using HP Recovery Manager.



**NOTE:** File History is not enabled by default, so you must turn it on.

For more information and steps for enabling Windows File History, see Windows Help and Support. From the Start screen, type **h**, and then select **Help and Support**.

## Creating HP Recovery media

HP Recovery Manager is a software program that offers a way to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and the software programs installed at the factory, and then configures the settings for the programs. HP Recovery media can also be used to customize the system or aid in the replacement of a hard drive.

- Only one set of HP Recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
- HP Recovery Manager examines the computer and determines the required storage capacity for the blank USB flash drive or the number of blank DVD discs that will be required.
- To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or instead you can use a high-quality blank USB flash drive.
- If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs, or you can obtain recovery discs for your computer from the HP website. For U.S. support, go to <http://www.hp.com/go/contactHP>. For worldwide support, go to [http://welcome.hp.com/country/us/en/wwcontact\\_us.html](http://welcome.hp.com/country/us/en/wwcontact_us.html). If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub.

- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take up to an hour or more. Do not interrupt the creation process.
- If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue, and the remaining discs will be burned.

To create HP Recovery media:

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Recovery Media Creation**, and follow the on-screen instructions to continue.

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 81](#).

## Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:

- If you need to restore your personal files and data, you can use Windows File History to restore your information from the backups you created. For more information and steps for using File History, see Windows Help and Support. From the Start screen, type `h`, and then select **Help and Support**.
- If you need to correct a problem with a preinstalled application or driver, use the Drivers and Applications Reinstall option of HP Recovery Manager to reinstall the individual application or driver.

From the Start screen, type `recovery`, select **HP Recovery Manager**, and then select **Drivers and Applications Reinstall**, and follow the on-screen instructions.

- If you want to restore the system to a previous state without losing any personal information, Windows System Restore is an option. System Restore allows you to restore without the requirements of Windows Refresh or a reinstallation. Windows creates system restore points automatically during a Windows update and other system maintenance events. Even if you did not manually create a restore point, you can choose to restore to a previous point, automatically created. For more information and steps for using Windows System Restore, see Windows Help and Support. From the Start screen, type `h`, and then select **Help and Support**.
- If you want a quick and easy way to recover the system without losing your personal information, settings, or apps that came preinstalled on your computer or were purchased from the Windows Store, consider using Windows Refresh. This option does not require backing up data to another drive. See [Using Windows Refresh for quick and easy recovery on page 80](#).
- If you want to reset your computer to its original state, Windows provides an easy way to remove all personal data, apps, and settings, and reinstall Windows.

For more information, see [Remove everything and reinstall Windows on page 81](#).

- If you want to reset your computer using a minimized image, you can choose the HP Minimized Image Recovery option from the HP Recovery partition (select models only) or HP Recovery media.

Minimized Image Recovery installs only drivers and hardware-enabling applications. Other applications included in the image continue to be available for installation through the Drivers and Applications Reinstall option in HP Recovery Manager.

For more information, see [Recovering using HP Recovery Manager on page 81](#).

- If you want to recover the computer's original factory partitioning and content, you can choose the System Recovery option from the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 81](#).
- If you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media to restore the factory image to the replacement drive. For more information, see [Recovering using HP Recovery Manager on page 81](#).
- If you wish to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see [Removing the HP Recovery partition on page 83](#).

## Using Windows Refresh for quick and easy recovery

When your computer is not working properly and you need to regain system stability, the Windows Refresh option allows you to start fresh and keep what is important to you.

---

 **IMPORTANT:** Refresh removes any traditional applications that were not originally installed on the system at the factory.

 **NOTE:** During Refresh, a list of removed traditional applications will be saved so that you have a quick way to see what you might need to reinstall. See Help and Support for instructions on reinstalling traditional applications. From the Start screen, type **h**, and then select **Help and Support**.

 **NOTE:** You may be prompted for your permission or password when using Refresh. See Windows Help and Support for more information. From the Start screen, type **h**, and then select **Help and Support**.

---

To start Refresh:

1. On the Start screen, point to the far-right upper or lower corner of the screen to display the charms.
2. Click **Settings**.
3. Click **Change PC settings** in the bottom-right corner of the screen, and then select **General** from the PC settings screen.
4. Under **Refresh your PC without affecting your files**, select **Get started**, and follow the on-screen instructions.

## Remove everything and reinstall Windows

Sometimes you want to perform detailed reformatting of your computer, or you want to remove personal information before you give away or recycle your computer. The process described in this section provides a speedy, simple way to return the computer to its original state. This option removes all personal data, apps, and settings from your computer, and reinstalls Windows.

 **IMPORTANT:** This option does not provide backups of your information. Before using this option, back up any personal information you wish to retain.

You can initiate this option by using the **f11** key or from the Start screen.

To use the **f11** key:

1. Press **f11** while the computer boots.  
– or –  
Press and hold **f11** as you press the power button.
2. Select **Troubleshoot** from the boot options menu.
3. Select **Reset your PC**, and follow the on-screen instructions.

To use the Start screen:

1. On the Start screen, point to the far-right upper or lower corner of the screen to display the charms.
2. Click **Settings**.
3. Click **Change PC settings** in the bottom-right corner of the screen, and then select **General** from the PC settings screen.
4. Under **Remove everything and reinstall Windows**, select **Get started**, and follow the on-screen instructions.

## Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state. Using the HP Recovery media you created, you can choose from one of the following recovery options:

- **System Recovery**—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- **Minimized Image Recovery**—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- **Factory Reset**—Restores the computer to the state its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select models only) allows Minimized Image Recovery.

## What you need to know

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.
- Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.
- HP Recovery media must be used if the computer hard drive fails.
- To use the Factory Reset or System Recovery options, you must use HP Recovery media.
- If the HP Recovery media do not work, you can obtain recovery media for your system from the HP website. For U.S. support, go to <http://www.hp.com/go/contactHP>. For worldwide support, go to [http://welcome.hp.com/country/us/en/wwcontact\\_us.html](http://welcome.hp.com/country/us/en/wwcontact_us.html).



---

**IMPORTANT:** HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you wish to retain.

---

## Using the HP Recovery partition to recover a minimized image (select models only)

The HP Recovery partition (select models only) allows you to perform a minimized image recovery without the need for recovery discs or a recovery USB flash drive. This type of recovery can only be used if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:

1. Press **f11** while the computer boots.  
– or –  
Press and hold **f11** as you press the power button.
2. Select **Troubleshoot** from the boot options menu.
3. Select **HP Recovery Manager**, and follow the on-screen instructions.

## Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.
2. Insert the first HP Recovery disc you created into the optical drive on your computer or into an optional external optical drive, and then restart the computer.

– or –

Insert the HP Recovery USB flash drive you created into a USB port on your computer, and then restart the computer.

---

 **NOTE:** If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See [Changing the computer boot order on page 83](#).

---

3. Follow the on-screen instructions.

## Changing the computer boot order

If computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices listed in BIOS where the computer looks for startup information. You can change the selection for an optical drive or a USB flash drive.

To change the boot order:

1. Insert the HP Recovery media you created.
2. Restart the computer.
3. Press and hold **esc** while the computer is restarting, and then press **f9** for boot options.
4. Select the optical drive or USB flash drive you want to boot from.
5. Follow the on-screen instructions.

## Removing the HP Recovery partition

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.

---

 **IMPORTANT:** Removing the HP Recovery partition means you can no longer use Windows Refresh, the Windows Remove everything and reinstall Windows option, or the HP Recovery Manager option for minimized image recovery. Create HP Recovery media before removing the Recovery partition to ensure you have recovery options; see [Creating HP Recovery media on page 78](#).

---

Follow these steps to remove the HP Recovery partition:

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and follow the on-screen instructions to continue.

---

# 10 Power cord set requirements

The wide-range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC, or from 220 to 240 volts AC.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries and regions must meet the requirements of the country or region where the computer is used.

## Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least **1.0 m** (3.3 ft) and no more than **2.0 m** (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

# Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	COC	5
South Korea	EK	4
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm<sup>2</sup> conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

---

# 11 Recycling

When a non-rechargeable or rechargeable battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal.

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, see the HP Web site at <http://www.hp.com/recycle>.

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