



HP Pavilion ¹¹ x360 PC

Maintenance and Service Guide
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Product notice

This user guide describes features that are common to most models. Some features may not be available on your computer.

Not all features are available in all editions of Windows. This computer may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. Go to <http://www.microsoft.com> for details.

Software terms

By installing, copying, downloading, or otherwise using any software product preinstalled on this computer, you agree to be bound by the terms of the HP End User License Agreement (EULA). If you do not accept these license terms, your sole remedy is to return the entire unused product (hardware and software) within 14 days for a full refund subject to the refund policy of your seller.

For any further information or to request a full refund of the price of the computer, please contact your seller.

This computer may require upgraded and/ or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See <http://windows.microsoft.com/en-us/windows7/get-know-windows-7> for details.

Safety warning notice


 **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

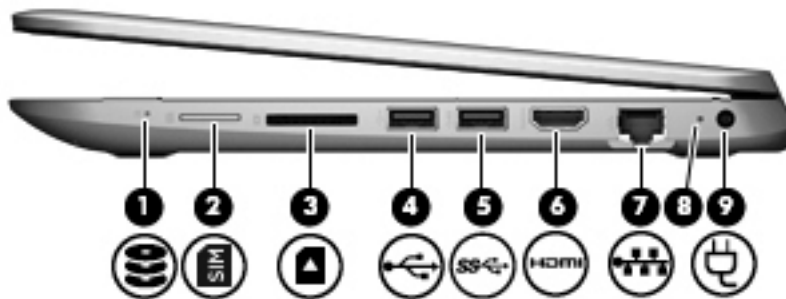
Category	Description
Product Name	HP Pavilion ¹¹ x360 PC
Processor	Intel® Core M 5Y10c processor (0.8 GHz/2.0GHz, 4 MB L3, 800 MHz), dual core Intel Pentium N3540 processor (2.16 GHz/2.66 GHz, 2 MB L2, 1333 MHz), quad core Intel Pentium N3530 processor (2.16 GHz/2.58 GHz, 2 MB L2, 1333 MHz), quad core Intel Pentium N3520 processor (2.17 GHz/2.42 GHz, 2 MB L2, 1333 MHz), quad core Intel Celeron N2840 processor (2.16 GHz/2.58 GHz, 1 MB L2, 1333 MHz), dual core Intel Celeron N2830 processor (1.83 GHz/2.41 GHz, 1 MB L2, 1333 MHz), dual core Intel Celeron N2820 processor (2.13 GHz/2.39 GHz, 1 MB L2, 1066 MHz), dual core
Chipset	Intel Bay Trail-M SoC
Graphics	Internal graphics: Intel HD Graphics Support for DX11 Support for HD playback, streaming, and recording @ 720p 30fps
Panel	11.6-in [29.5-cm] (1366×768), high-definition (HD), white light emitting diode (WLED), AntiGlare, TouchScreen with MultiTouch enabled; 16:9 ultra-wide aspect ratio; typical brightness: 200 nits; slim (3.6-mm) Supports low-voltage differential signaling (LVDS) (co-layout with eDP1.3+PSR)
Memory	One customer-accessible/upgradable memory module slot Support for DDR3L-1333-MHz (DDR3L-1600-MHz downgrade to DDR3L-1333-MHz) – for use with Pentium processors Support for DDR3L-1066-MHz (DDR3L-1600-MHz downgrade to DDR3L-1066-MHz) – for use with Celeron processors Support for 8192-MB of system RAM in the following configurations: <ul style="list-style-type: none">• 8192 MB × 1• 4096 MB × 1
Hard drive	Support for 6.35-cm (2.5-in) hard drives in 7.0-mm (.28-in) thickness Support for Serial ATA Support for Accelerometer hard drive protection Support for the following hard drives: <ul style="list-style-type: none">• 750-GB, 5400-rpm, 7.2-mm• 500-GB, 5400-rpm, 7.0-mm• 500-GB, 5400-rpm + 8 GB NAND Hybrid, 7.0-mm• 320-GB, 5400-rpm, 7.0-mm
Solid-state drives	Support M.2 SATA-3 (NGFF):










Category	Description
	128 GB 2280 M2 SATA-3 TLC 128 GB 2280 M2 SATA-3
Optical drive	Support for external 9.5 mm tray load, SATA, DVD+/-RW DL SuperMulti drive only
Audio and video	Integrated HP TrueVision camera: HD (1280×720 by 30 frames per second), fixed (no tilt), with activity light Realtek ALC3227-CG audio codec Two speakers Beats Audio Dual Speakers support 25 mm x 14 mm speaker Formats: MP3, AAC,AAC+, EAAC+ OGG, MIDI
Ethernet	Integrated 10/100 network interface card (NIC) Co-layout with Giga-LAN
Sensor	Sensor Hub (Accelerometer + Gyroscope + e-Compass) Support Proximity Sensor for SAR certification (WWAN option)
Wireless	Integrated wireless local area network (WLAN) options by way of wireless module Support for the following WLAN formats: <ul style="list-style-type: none"> • Atheros AR9485 802.11b/g/n WiFi Adapter with 1 antenna • Qualcomm QCA9565 802.11bgn 1x1 Wi-Fi + BT4.0 Combo Adapter with 1 antenna • Ralink RT3290LE 802.11b/g/n 1×1 WiFi and Bluetooth 4.0 Combo Adapter with 1 antenna • Realtek RTL8188EE 802.11bgn Wi-Fi Adapter with 1 antenna • Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 Wi-Fi + BT 4.0 Combo Adapter
	Integrated wireless wide area network (WWAN) options by way of wireless module Support for the following WWAN formats: HP hs3110 HSPA+ Mobile Broadband Module Compatible with Miracast-certified devices
External media cards	HP Multi-Format Digital Media Card Reader with push-push technology. Supports SD/SDHC/SDXC. SIM card slot
Ports	AC adapter: HP Smart pin plug (4.5-mm barrel) Audio: one combo audio-out (headphone)/audio-in (microphone) jack, supports jack auto-detection HDMI: v. 1.4, supporting up to 1080p, 1920×1080 at 60 Hz RJ-45/Ethernet (1) USB 3.0 (2) USB 2.0 Video: VGA (Dsub 15-pin) supporting 1920×1200 external resolution at 60 Hz, hot plug/unplug and auto-detection for correct output to wide-aspect vs. standard aspect video
Keyboard/pointing devices	97%-size, textured, island-style keyboard (no numerical keypad) Touchpad requirements: HP Imagepad - Clickpad with image sensor

Category	Description
	<p>Taps enabled as default</p> <p>Multitouch gestures enabled: 2-finger scroll, pinch</p> <p>Support for PS/2 and SMB interface</p> <p>Support for Windows 8.1 Modern TouchPad Gestures</p>
Power requirements	<p>Support for the following AC adapters:</p> <ul style="list-style-type: none"> • 45-W HP Smart AC adapter (non-PFC, MSH) (for Germany only) • 45-W HP Smart AC adapter (non-PFC, with 26.5 mm z-height adapter [non-slim]) (not for India/People's Republic of China) • 65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm) (only for India/People's Republic of China) <p>Support for the following battery:</p> <ul style="list-style-type: none"> • Embedded 2-cell, 29-Wh, Li-ion battery <p>Supports battery fast charge</p>
Security	<p>Kensington Lock slot</p> <p>TPM (Trusted Platform Module)</p>
Operating system	<p>Preinstalled:</p> <p>Windows 10</p> <p>Windows 8.1</p> <p>Windows 8.1 Small Screen Touch</p>
Serviceability	<p>End user replaceable parts:</p> <p>AC adapter</p> <p>WWAN SIM card</p>

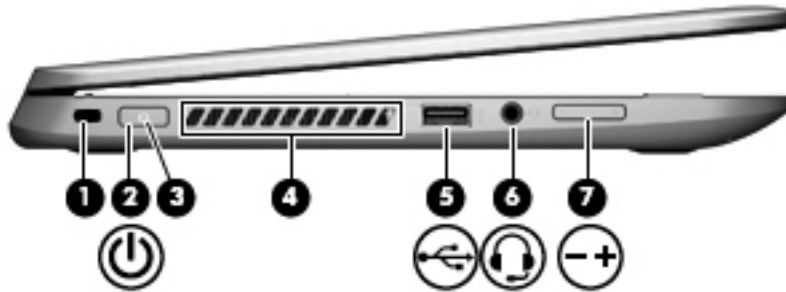
2 External component identification




Right side




Component	Description
(1)  Hard drive light	<ul style="list-style-type: none">Blinking white: The hard drive is being accessed.Amber: HP 3D DriveGuard has temporarily parked the hard drive.
(2)  SIM slot (select models only)	Supports a wireless subscriber identity module (SIM).
(3)  Memory card reader	<p>Reads optional memory cards that enable you to store, manage, share, or access information.</p> <p>To insert a card, hold the card label-side up, with connectors facing the slot, insert the card into the slot, and then push in on the card until it is firmly seated.</p> <p>To remove a card, press in on the card it until it pops out.</p>
(4)  USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)  USB 3.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(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 High-Definition Multimedia Interface (HDMI) device.
(7)  RJ-45 (network) jack/status lights	Connects a network cable. <ul style="list-style-type: none">White: The network is connected.Amber: Activity is occurring on the network.
(8)  AC adapter light	<ul style="list-style-type: none">On: The AC adapter is connected and the battery is charged.Off: The computer is using battery power.
(9)  Power connector	Connects an AC adapter.

Left side



Component	Description
(1) 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.
(2)  Power button	<ul style="list-style-type: none"> When the computer is off, press the button to turn on the computer. When the computer is on, press the button briefly to initiate Sleep. When the computer is in the Sleep state, press the button briefly to exit Sleep. When the computer is in Hibernation, press the button briefly to exit Hibernation. CAUTION: Pressing and holding down the power button will result in the loss of unsaved information. If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer. To learn more about your power settings, see your power options. From the Start screen, type <code>power</code> , select Power and sleep settings , and then select Power and sleep from the list of applications.
(3) Power light	<ul style="list-style-type: none"> On: The computer is on. Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components. Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
(4) Vent	Enables airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5)  USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(6)  Audio-out (headphone)/Audio-in (microphone) jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an

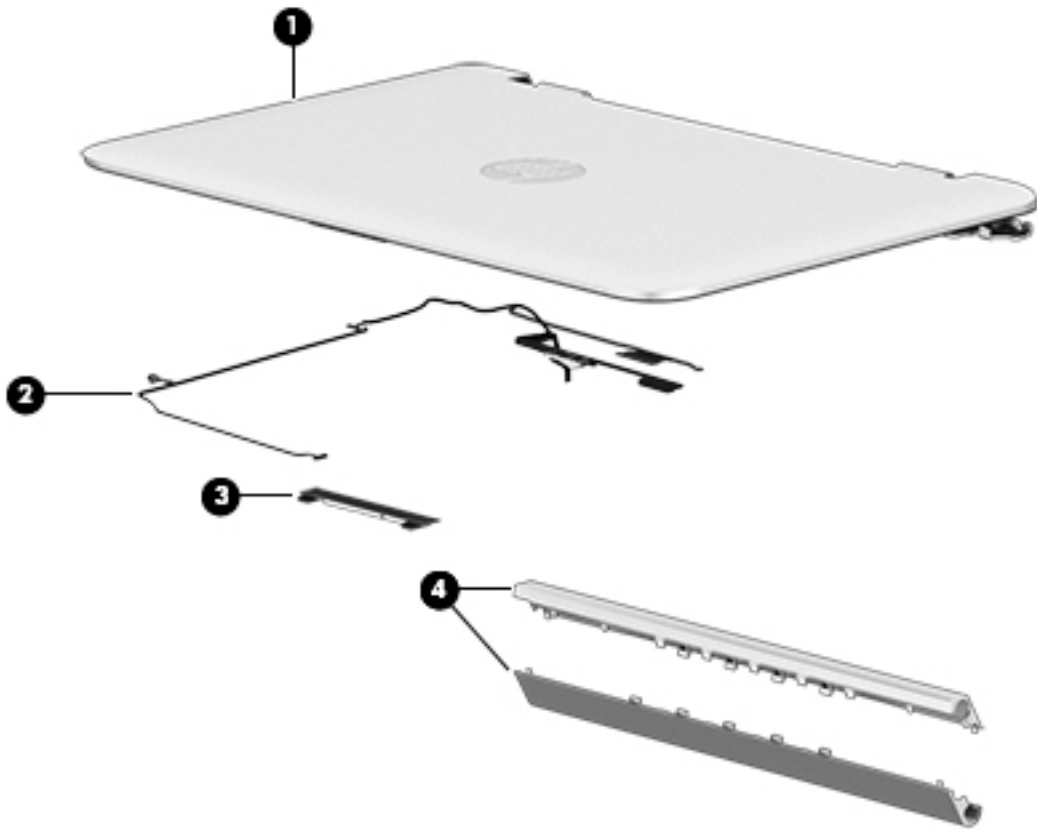
Component	Description
	<p>optional headset microphone. This jack does not support optional microphone-only devices.</p> <p>WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>To access this document:</p> <ul style="list-style-type: none"> From the Start screen, type <code>support</code>, and then select the HP Support Assistant app. — or — From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar. <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> <p>NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p>
<p>(7)  Volume button</p>	<p>Controls speaker volume.</p> <p>To decrease speaker volume, press the – edge of the button.</p> <p>To increase speaker volume, press the + edge of the button.</p>

Speakers



Component	Description
Speakers (2)	Produce sound.

Display



Component	Description
(1) Webcam light	On: The webcam is in use.
(2) Webcam	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video. To use the webcam, from the Start screen, type <code>camera</code> , and then select Camera from the list of applications.
(3) Internal microphone	Records sound.
(4) WLAN antenna*	Sends and receives wireless signals to communicate with wireless local area networks (WLANs).
(5) Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on. NOTE: The internal display switch is not visible from the outside of the computer.

*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 document:

From the Start screen, type `support`, and then select the **HP Support Assistant** app.

Your computer can function as a classic notebook, and in addition, the display can be rotated so that the computer transforms into an entertainment stand or a tablet.

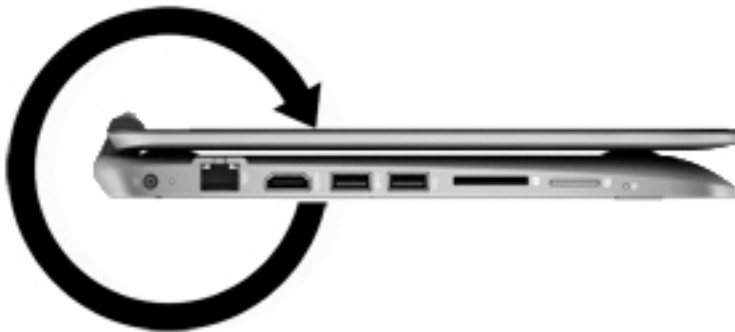
Changing your notebook to an entertainment stand

To change your notebook to an entertainment stand, raise the display, and then rotate the display backward to a stand position (about 315 degrees).



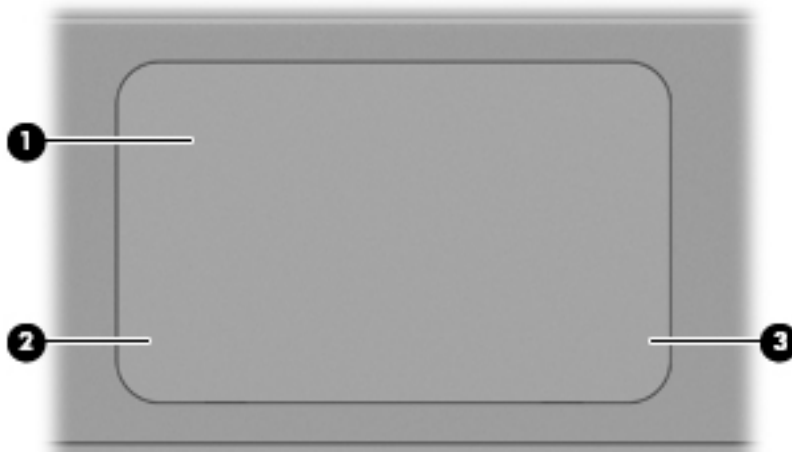
Changing your notebook to a tablet

To change your notebook to a tablet, raise the display, and then rotate the display backward until it is flush with the computer bottom (360 degrees).



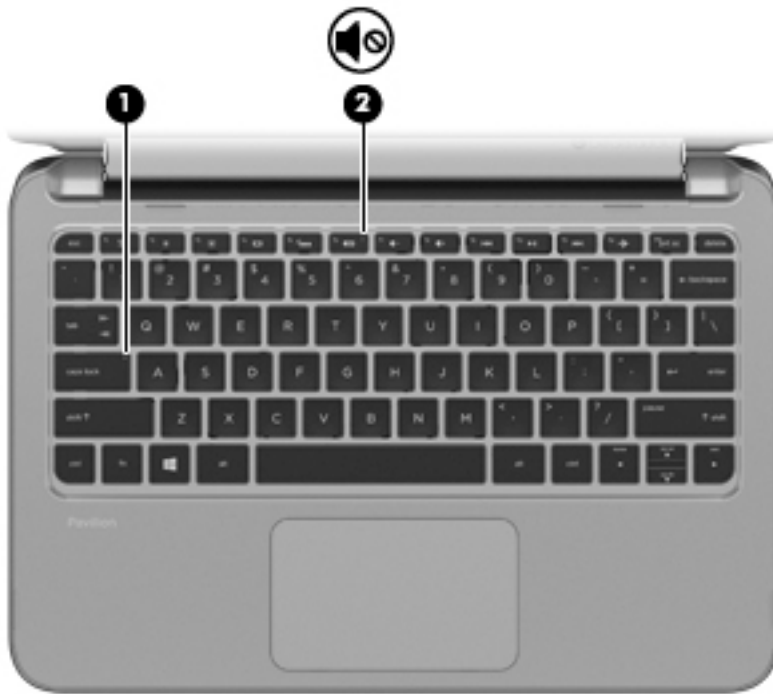
Top


TouchPad



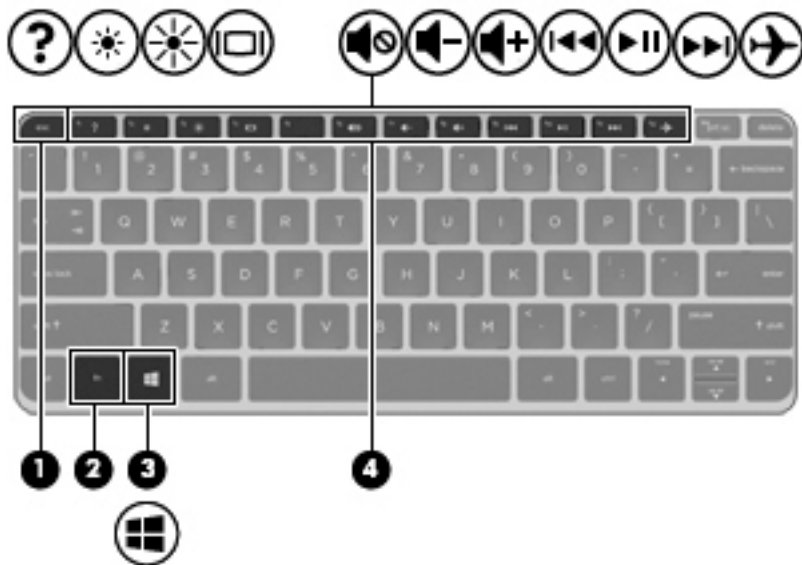
Component		Description
(1)	TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen. NOTE: The TouchPad also supports edge-swipe gestures.
(2)	Left TouchPad button	Functions like the left button on an external mouse.
(3)	Right TouchPad button	Functions like the right button on an external mouse.


Lights



Component		Description
(1)	Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.
(2)	 Mute light	<ul style="list-style-type: none">• Amber: Computer sound is off.• Off: Computer sound is on.

Keys

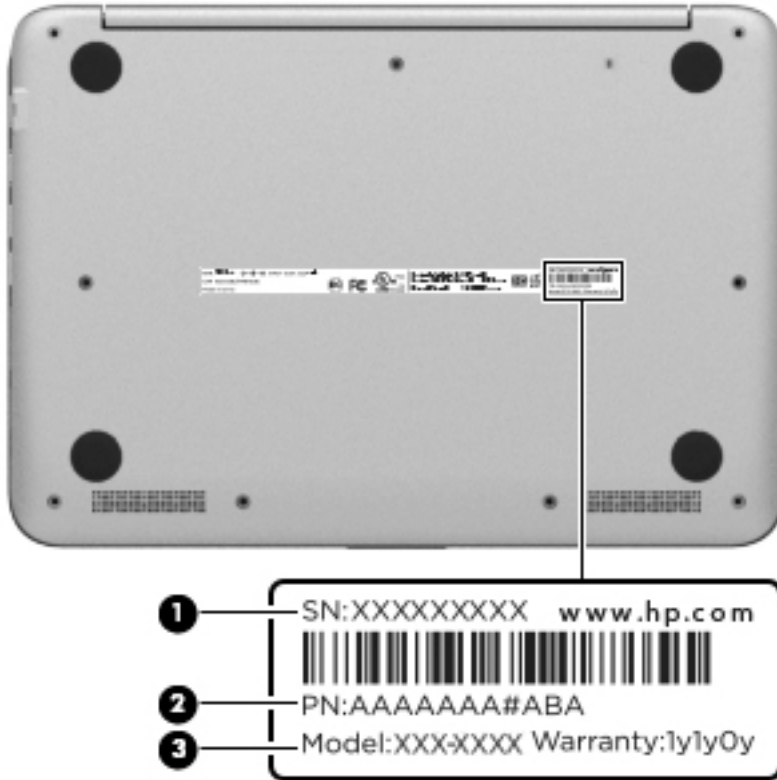


Component	Description
(1) esc key	Displays system information when pressed in combination with the fn key.
(2) fn key	Executes frequently used system functions when pressed in combination with the esc key, or on select models, the b key or the spacebar .
(3)  Windows key	Returns you to the Start screen from an open app or the Windows desktop. NOTE: Pressing the Windows key again will return you to the previous screen.
(4) Action keys	Execute frequently used system functions. NOTE: On select models, the f5 action key turns the radiance backlight keyboard feature off or on.

Service tag and PCID label

Service tag

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



- Serial number (s/n) **(1)**. This is an alphanumeric identifier that is unique to each product.
- Part number/Product number (p/n) **(2)**. 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.
- Model/Warranty period **(3)**.

Model is the alphanumeric identifier used to locate documents, drivers, and support for the computer.

Warranty describes the duration (in years) of the warranty period for the computer.

PCID label

The PCID label provides the information required to properly reset the notebook firmware (BIOS) back to factory shipped specifications when replacing the system board. The label may have a different number of characters depending on the operating system on the computer.

Windows 8 models



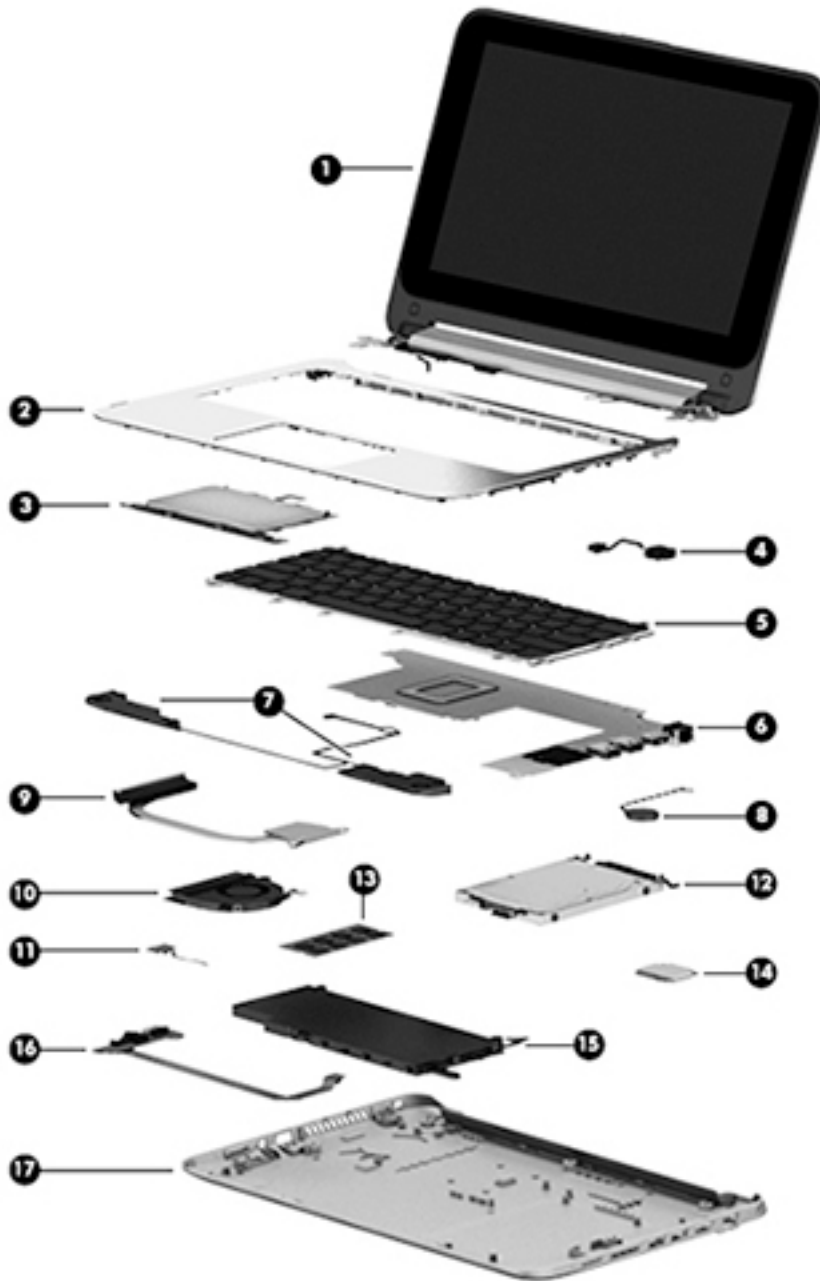
Non-Windows 8 models



3 Illustrated parts catalog

Computer major components

 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.



Item	Component	Spare part number
(1)	Display assembly (11.6-in [29.5-cm], AG, SVA, LED TouchScreen) (includes webcam/microphone module)	
	For use in model numbers Pavilion 11-n000 x360 ~ Pavilion 11-n099 x360 without WWAN	755730-001
	For use in model numbers Pavilion 11-n000 x360 ~ Pavilion 11-n099 x360 with WWAN	756108-001
	For use in model numbers Pavilion 11-n100 x360 ~ Pavilion 11-n199 x360 with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	800298-001
	For use in model numbers Pavilion 11-n100 x360 ~ Pavilion 11-n199 x360 without the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	802266-001
(2)	Top cover (includes TouchPad)	
	Silver	756116-001
	Red	759976-001
	Purple	777409-001
(3)	TouchPad button board (includes bracket and cable)	not spared
(4)	Power connector cable	755727-001
(5)	Keyboard	
	NOTE: For a list of keyboard country codes, see Keyboard on page 62 .	
	For use in models without WWAN	755896-xx1
	For use in models with WWAN	785454-xx1
(6)	System board equipped with (includes replacement thermal material):	
	Intel Pentium N3540 processor and the Windows 8.1 Standard operating system	789089-501
	Intel Pentium N3540 processor and a non-Windows 8 operating system	789089-001
	Intel Pentium N3530 processor and the Windows 10 operating system	764236-601
	Intel Pentium N3530 processor and the Windows 8.1 Standard operating system	764236-501
	Intel Pentium N3530 processor and a non-Windows 8 operating system	764236-001
	Intel Pentium N3520 processor and the Windows 8.1 Standard operating system	755724-501
	Intel Pentium N3520 processor and a non-Windows 8 operating system	755724-001
	Intel Celeron N2840 processor and the Windows 8.1 Standard operating system for use in models with WWAN	794106-501
	Intel Celeron N2840 processor and a non-Windows 8 operating system for use in models with WWAN	794106-001
	Intel Celeron N2840 processor and the Windows 8.1 Standard operating system for use in models without WWAN	789088-501
	Intel Celeron N2840 processor and a non-Windows 8 operating system for use in models without WWAN	789088-001
	Intel Celeron N2830 processor and the Windows 8.1 Standard operating system for use in models with WWAN	764237-501
	Intel Celeron N2830 processor and a non-Windows 8 operating system for use in models with WWAN	764237-001

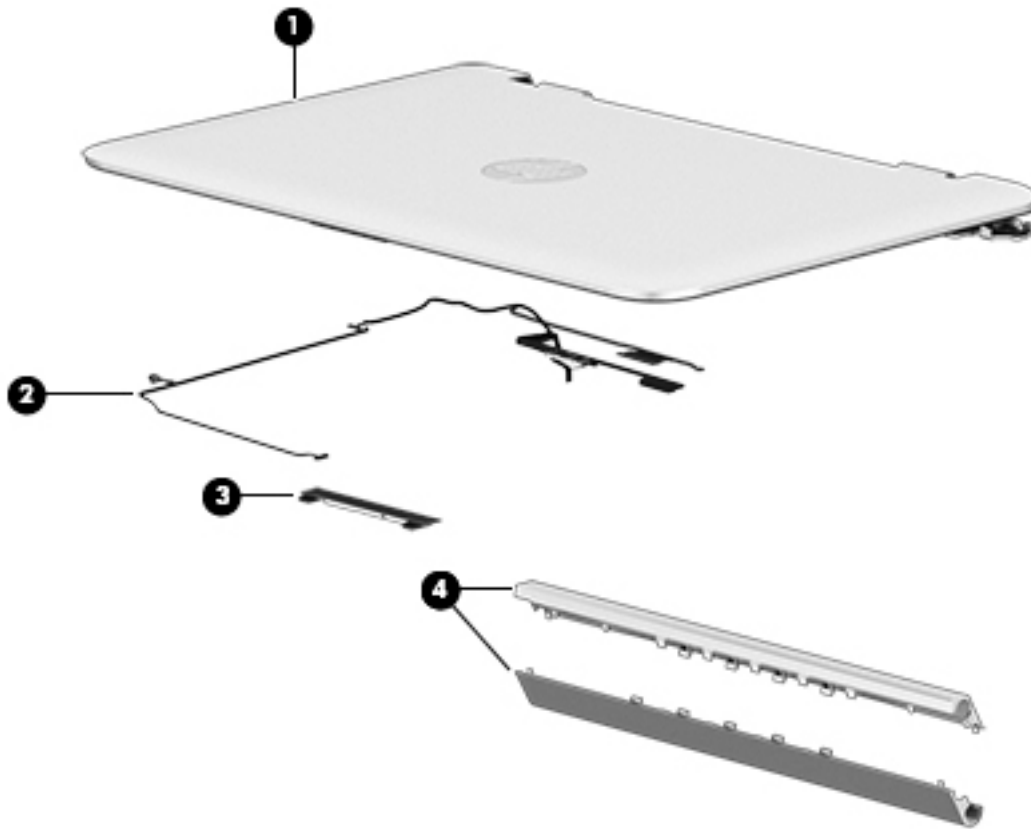
Item	Component	Spare part number
	Intel Celeron N2830 processor and the Windows 10 operating system for use in models without WWAN	764235-601
	Intel Celeron N2830 processor and the Windows 8.1 Standard operating system for use in models without WWAN	764235-501
	Intel Celeron N2830 processor and a non-Windows 8 operating system for use in models without WWAN	764235-001
	Intel Celeron N2820 processor and the Windows 8.1 Standard operating system	755723-501
	Intel Celeron N2820 processor and a non-Windows 8 operating system	755723-001
	Intel Core M 5Y10c processor and 8 GB on-board system memory with the Windows 8.1 Standard operating system	790757-501
	Intel Core M 5Y10c processor and 8 GB on-board system memory with a non-Windows 8 operating system	790757-001
	Intel Core M 5Y10c processor and 4 GB on-board system memory with the Windows 8.1 Standard operating system	790756-501
	Intel Core M 5Y10c processor and 4 GB on-board system memory with a non-Windows 8 operating system	790756-001
(7)	Speaker Kit (includes left and right speakers and cable)	755738-001
(8)	RTC battery (includes cable)	755735-001
(9)	Heat sink (includes replacement thermal material)	755728-001
(10)	Fan	755729-001
(11)	Power button board (includes cable)	755733-001
(12)	Hard drive (does not include hard drive bracket, hard drive connector cable, or screws):	
	750-GB, 5400-rpm, 7.0-mm	752099-001
	500-GB, 5400-rpm, 7.0-mm	778186-005
	500-GB, 5400-rpm, 8 GB hybrid SSD, 7.0-mm	732000-005
	Hard Drive Hardware Kit (not illustrated, includes hard drive bracket, hard drive connector cable, and screws)	755740-001
	Solid-State Drives	
	128 GB solid-state drive (SSD), M.2, TLC	777774-001
	128 GB solid-state drive (SSD), M.2	794310-001
	Solid-state Drive Hardware Kit	783845-001
(13)	Memory module (PC3L, 12800, 1600-MHz):	
	8-GB	693374-005
	4-GB	691740-005
(14)	WLAN module:	
	Ralink RT3290LE 802.11b/g/n 1×1 WiFi and Bluetooth 4.0 Combo Adapter	690020-005
	Realtek RTL8188EE 802.11bgn Wi-Fi Adapter	709848-005
	Ralink RT3290LE 802.11bgn 1×1 Wi-Fi + BT 4.0 Combo Adapter for use only in Brazil	699834-201

Item	Component	Spare part number
	Broadcom BCM43142 802.11 bgn 1x1 Wi-Fi + BT4.0 HMC Combo Adapter with 1 antenna	753076-005
	Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter with 2 antenna	784638-005
	Intel Dual Band Wireless-AC 3160 802.11a/b/g/n/ac (1x1) WiFi and Bluetooth 4.0 combination WLAN adapter for use in Brazil	710662-205
	Qualcomm Atheros AR9485 802.11bgn 1x1 Wi-Fi Adapter with 1 antenna	733476-005
	WWAN module (not illustrated)	
	HP hs3110 HSPA+ Mobile Broadband Module	748599-001
(15)	2-cell, 29-Wh, 3.82-Ah, Li-ion battery	751875-005
(16)	USB board (includes cable)	755734-001
(17)	Bottom cover	
	Red models with WWAN	755743-001
	Red models without WWAN	755725-001
	Red models with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	800295-001
	Silver models with WWAN	755744-001
	Silver models without WWAN	755726-001
	Silver models with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	800296-001
	Purple models with WWAN	777407-001
	Purple models without WWAN	777406-001
	Purple models with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	800297-001

Mass storage devices

Component	Spare part number
Hard drive (does not include hard drive bracket, hard drive connector cable, or screws):	
750-GB, 5400-rpm, 7.0-mm	752099-001
500-GB, 5400-rpm, 7.0-mm	778186-005
500-GB, 5400-rpm, 8 GB hybrid SSD, 7.0-mm	732000-005
Hard Drive Hardware Kit (includes hard drive bracket, connector cable, and screws)	755740-001
Solid-State Drives	
128 GB solid-state drive (SSD), M.2, TLC	777774-001
128 GB solid-state drive (SSD), M.2	794310-001
External DVD±RW Double-Layer with SuperMulti Drive	747080-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	Display enclosure	
	Silver models with WWAN	782925-001
	Silver models without WWAN	758845-001
	Red models with WWAN	782926-001
	Red models without WWAN	758846-001
	Purple models without WWAN	777405-001
	Purple models with WWAN	782927-001
(2)	Display cable	761350-001
(3)	Webcam	758848-001
(4)	Display hinge covers	
	For use in red models	758847-001
	For use in silver models	759503-001
	For use in purple models	777408-001
	Sensor board (not illustrated)	788218-001
	Antenna (not illustrated)	

Item	Component	Spare part number
	WLAN antenna for use on models with all WLAN modules except for Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	805106-001
	WLAN antenna for use on models with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	805725-001
	WWAN antenna	805726-001

Miscellaneous parts

Component	Spare part number
AC adapter	
45-W HP Smart AC adapter (non-PFC, 4.5-mm, non-slim)	741727-001
65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm)	714657-001
65-W HP Smart AC adapter for use in models in Brazil (non-PFC, EM, 4.5-mm, 3 prong)	710412-001
Power cord (3-pin, black, 1.83-m):	
For use in Argentina	755530-D01
For use in Australia	755530-011
For use in Brazil	755530-202
For use in the People's Republic of China	755530-AA1
For use in Denmark	755530-081
For use in Europe	755530-021
For use in India	755530-D61
For use in Israel	755530-BB1
For use in Italy	755530-061
For use in Japan	755530-291
For use in North America	755530-001
For use in South Africa	755530-AR1
For use in South Korea	755530-AD1
For use in Switzerland	755530-111
For use in Taiwan	755530-AB1
For use in Thailand	755530-201
For use in the United Kingdom and Singapore	755530-031
Rubber Feet Kit (includes 2 rear rubber feet)	755736-001
Screw Kit	755737-001

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.



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

Plastic parts



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

⚠ 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

⚠ 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.

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

5 Removal and replacement procedures for Authorized Service Provider parts

 **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.

 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

Component replacement procedures

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

There are as many as 76 screws that must be removed, replaced, and/or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Bottom cover

Description	Spare part number
Red models with WWAN	755743-001
Red models without WWAN	755725-001
Red models with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	800295-001
Silver models with WWAN	755744-001
Silver models without WWAN	755726-001
Silver models with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	800296-001
Purple models with WWAN	777407-001
Purple models without WWAN	777406-001
Purple models with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	800297-001
Rubber Kit (includes rear feet)	755736-001

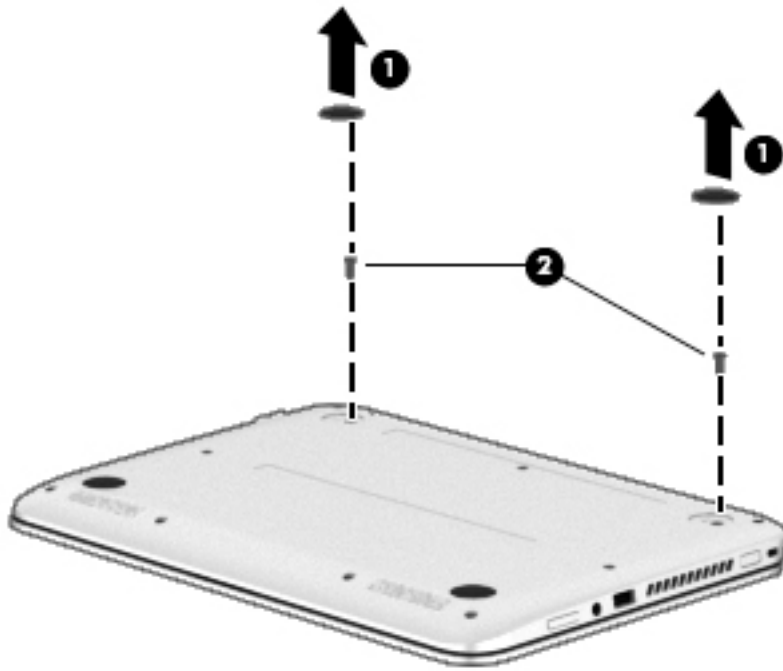
Before removing the bottom cover, follow these steps:

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.

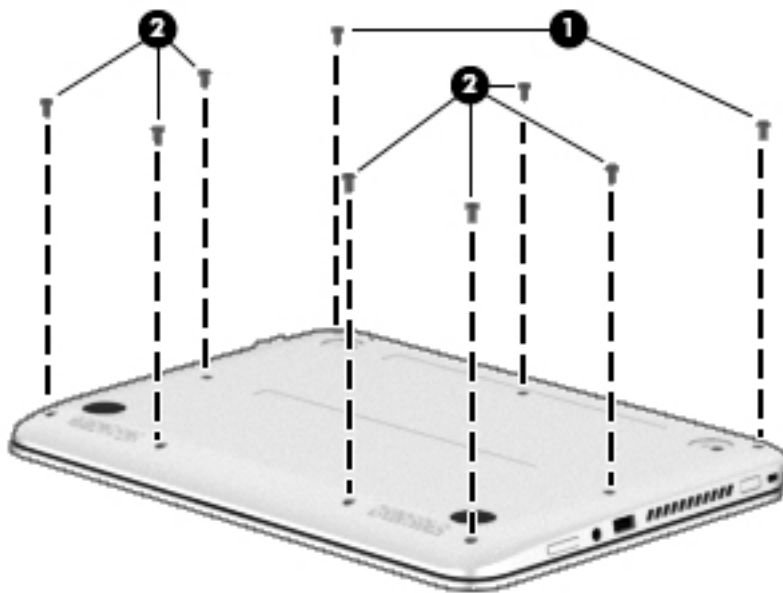
Remove the bottom cover:

1. Position the computer upside-down.
2. Pry the two rear rubber feet off the bottom cover **(1)**.


3. Remove the two Phillips PM2.5×8.0 screws **(2)** that secure the bottom cover to the computer.

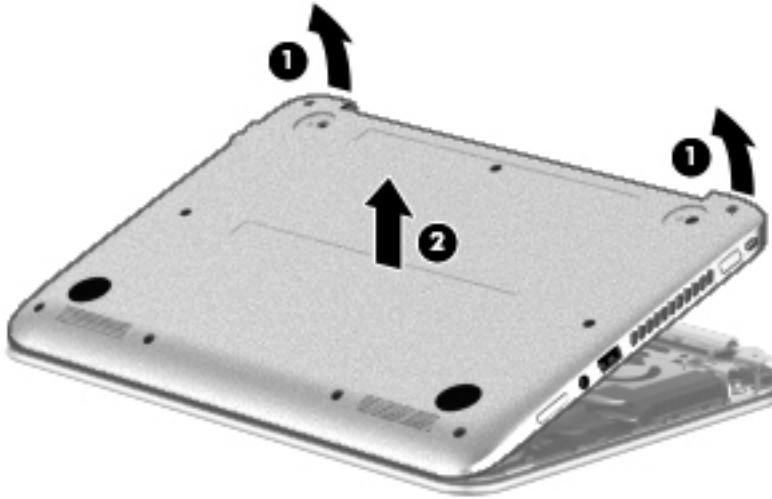


4. Remove the two Phillips PM2.5×8.0 screws **(1)** and the seven Phillips PM2.0×7.0 screws **(2)** that secure the bottom cover to the computer.

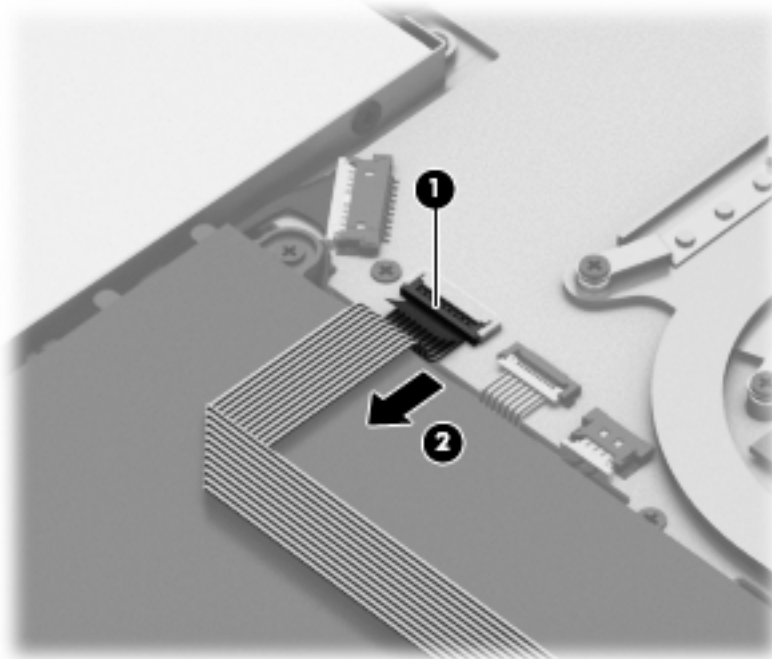


5. Separate the bottom cover from the computer by lifting up at the seam near the display hinges **(1)**, and then lift the cover up and off the computer **(2)** far enough to access the USB/audio board connector on the system board.

 **NOTE:** When you lift the bottom cover, a cable is connected from the USB/audio board (installed on the inside of the bottom cover) to the system board. Be sure not to pull the cable loose when lifting the bottom cover.



6. Disconnect the USB/audio board cable from the system board by lifting the ZIF connector **(1)**, and then removing the USB/audio board cable from the system board connector **(2)**.



Reverse this procedure to install the bottom cover.

USB/audio board

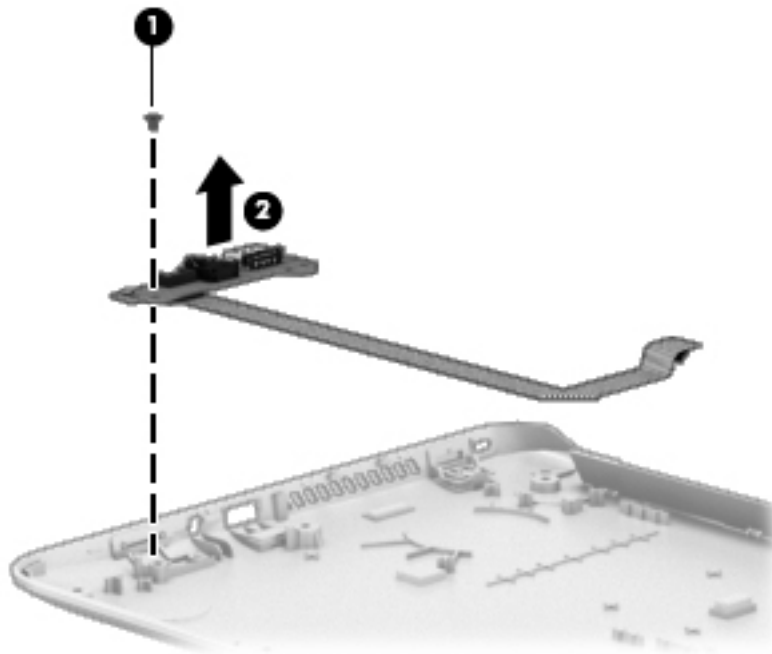
Description	Spare part number
USB/audio board (includes cable)	755734-001

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

1. 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.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 26](#)).

To remove the USB/audio board:

1. Position the bottom cover upside-down.
2. Remove the Phillips PM2.0×3.0 screw **(1)**.
3. Lift up on the rear of the board and lift the board off the bottom cover **(2)**.



Reverse this procedure to install the USB/audio board.

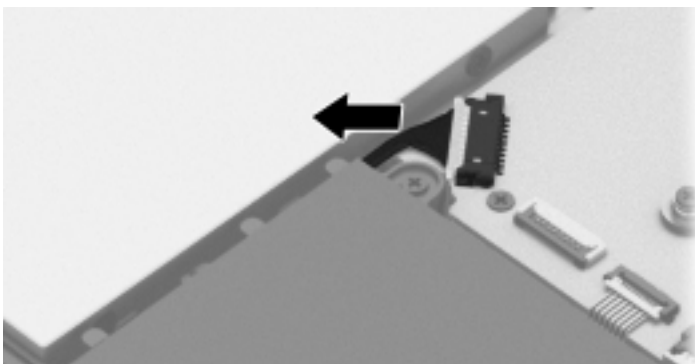
WLAN module

Description	Spare part number
Ralink RT3290LE 802.11b/g/n 1×1 WiFi and Bluetooth 4.0 Combo Adapter	690020-005
Realtek RTL8188EE 802.11bgn Wi-Fi Adapter	709848-005
Ralink RT3290LE 802.11bgn 1x1 Wi-Fi + BT 4.0 Combo Adapter for use only in Brazil	699834-201
Broadcom BCM43142 802.11 bgn 1x1 Wi-Fi + BT4.0 HMC Combo Adapter with 1 antenna	753076-005
Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter with 2 antennas	784638-005
Intel Dual Band Wireless-AC 3160 802.11a/b/g/n/ac (1x1) WiFi and Bluetooth 4.0 combination WLAN adapter for use in Brazil	710662-205
Qualcomm Atheros AR9485 802.11bgn 1x1 Wi-Fi Adapter with 1 antenna	733476-005

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 bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.



Remove the WLAN module:

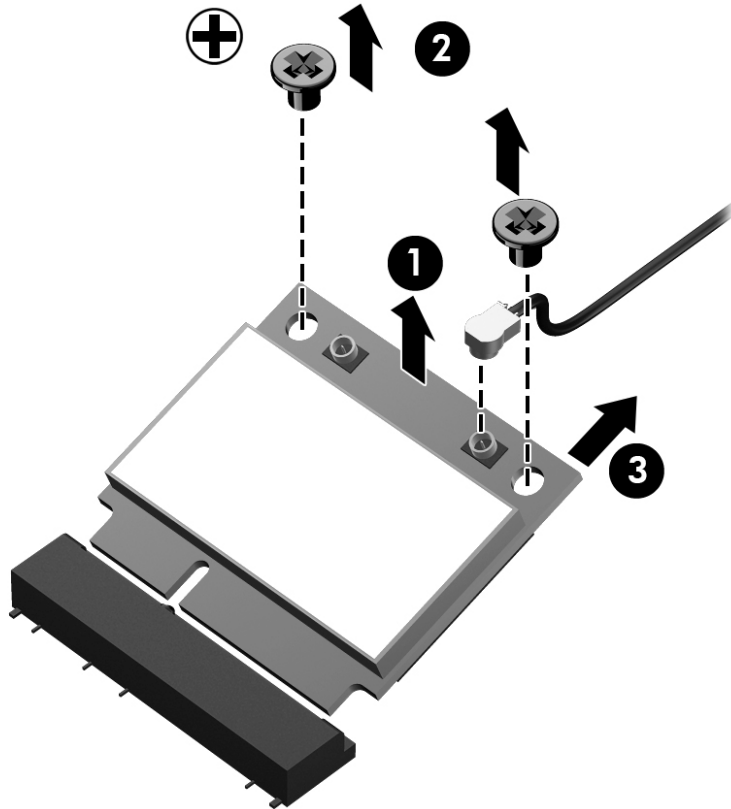
1. Disconnect the WLAN antenna cable **(1)** from the terminal on the WLAN module.




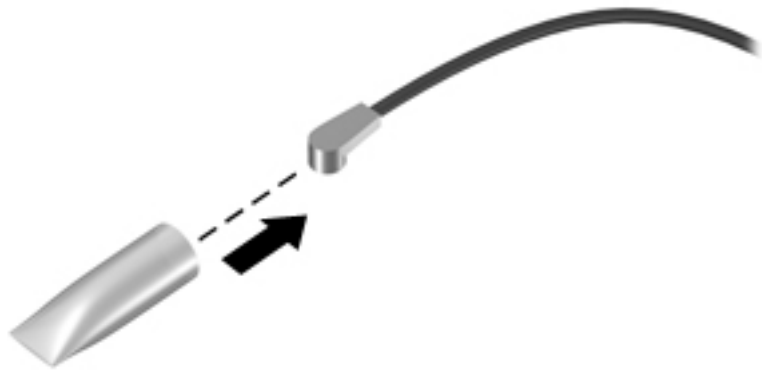
NOTE: The WLAN antenna cable connects to the WLAN module “Main” terminal labeled “1”.

2. Remove the two Phillips PM2.0×3.5 screws **(2)** that secure 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.

WWAN module

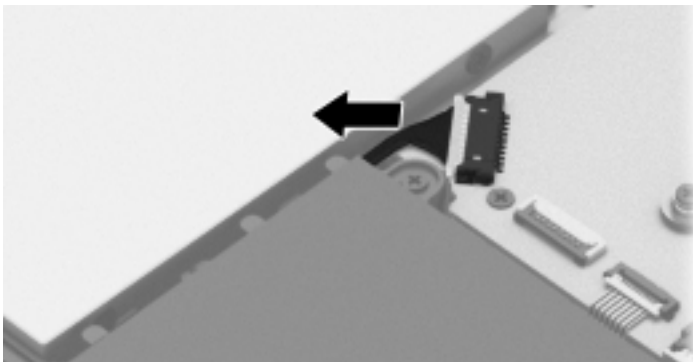


NOTE: The WWAN module and the WLAN module are not interchangeable.

Description	Spare part number
HP hs3110 HSPA+ Mobile Broadband Module	748599-001

Before removing the WWAN 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 bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.



Remove the WWAN module:


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

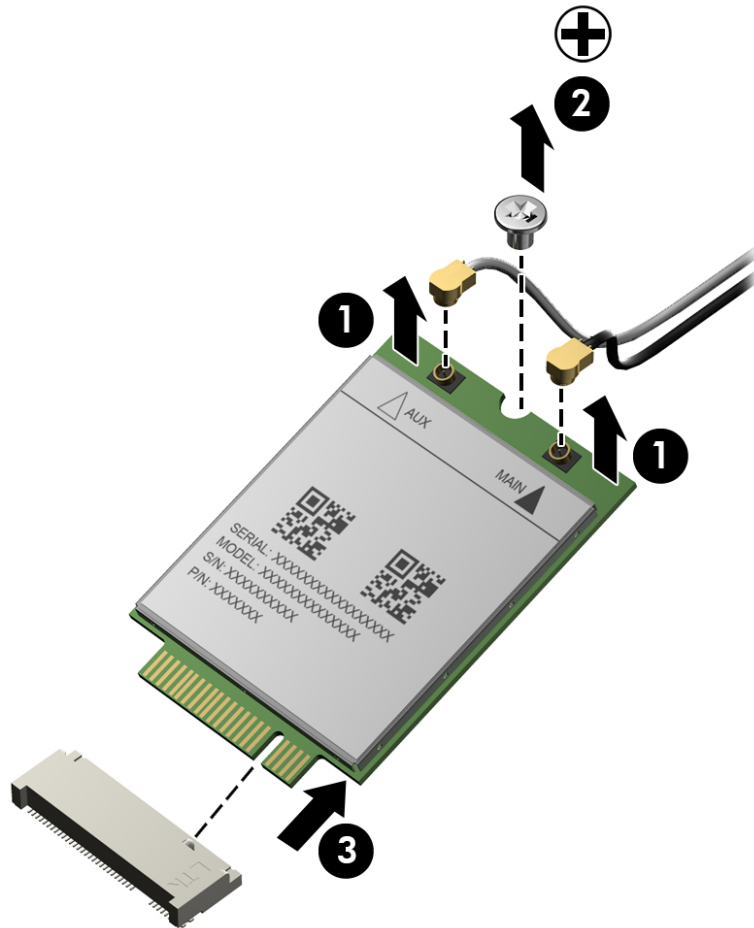



NOTE: The red WWAN antenna cable is connected to the WWAN module “Main” terminal. The blue WWAN antenna cable is connected to the WWAN module “Aux” terminal.

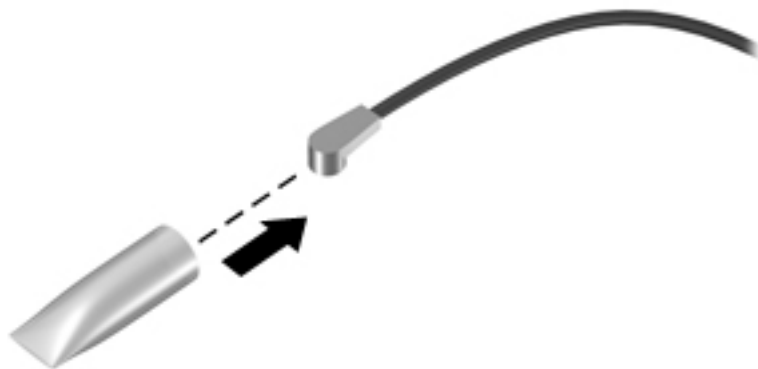
2. Remove the Phillips PM2.0×3.0 screw **(2)** that secures the WWAN module to the system board.

3. Remove the WWAN module (3) by pulling the module away from the slot.

 **NOTE:** WWAN modules are designed with a notch to prevent incorrect insertion.



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



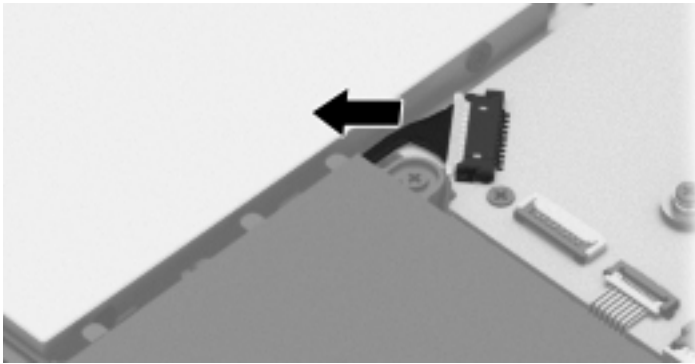
Reverse this procedure to install the WWAN module.

Solid-state drive (M.2)

Description	Spare part number
128 GB solid-state drive (SSD), M.2, TLC	777774-001
128 GB solid-state drive (SSD), M.2	794310-001

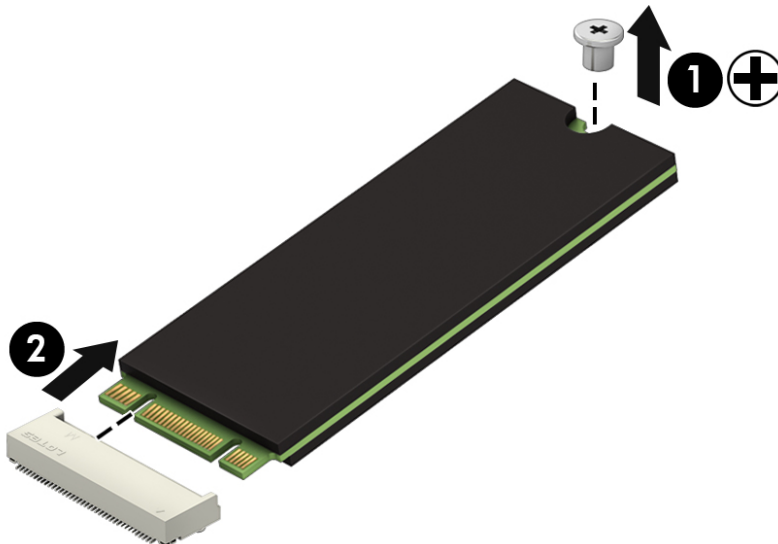
Before removing the solid-state drive, follow these steps:

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 bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.




Remove the solid-state drive:

1. Remove the Phillips PM2.0×3.5 screw **(1)** that secures the solid-state drive to the system board.
2. Remove the solid-state drive **(2)** by pulling the drive away from the slot at an angle.



Reverse this procedure to install the solid-state drive.

Hard drive

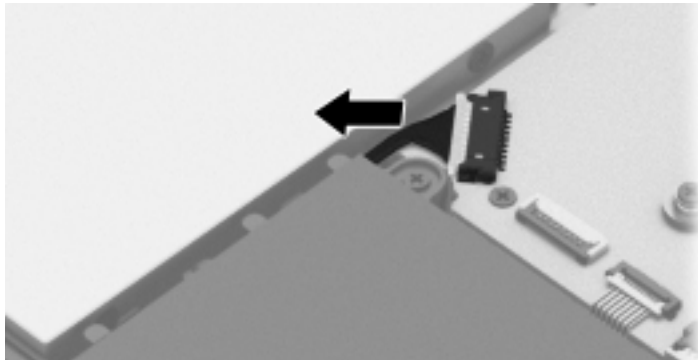
 **NOTE:** The Hard Drive Hardware Kit, spare part number 755740-001, includes the hard drive bracket, hard drive connector cable, and screws.

The Solid-State Drive Hardware Kit, spare part number 783845-001 includes the connector cable, top and bottom brackets, PCBA, and screws.

Description	Spare part number
750-GB, 5400-rpm, 7.0-mm	752099-001
500-GB, 5400-rpm, 7.0-mm	778186-005
500-GB, 5400-rpm, 8 GB hybrid SSD, 7.0-mm	732000-005

Before removing the hard drive, follow these steps:

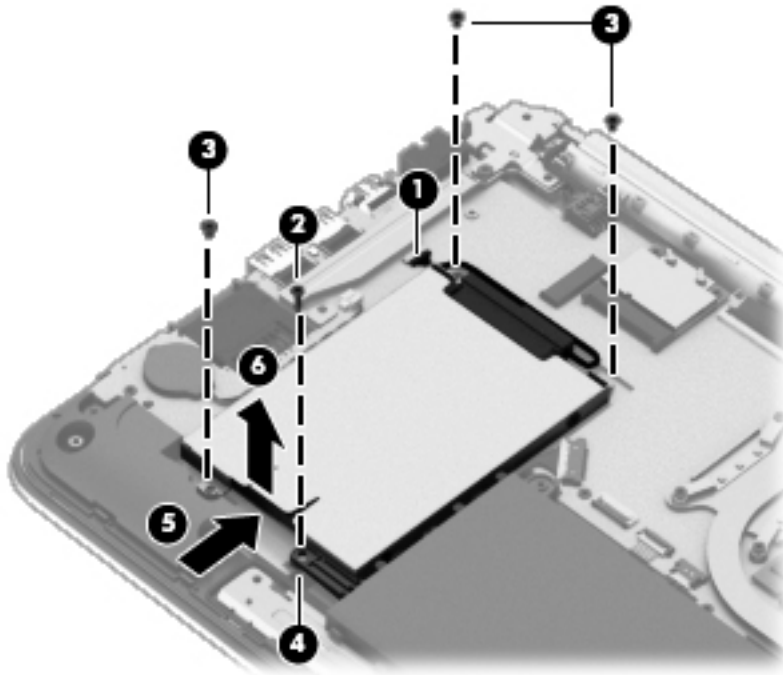
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.



Remove the hard drive:

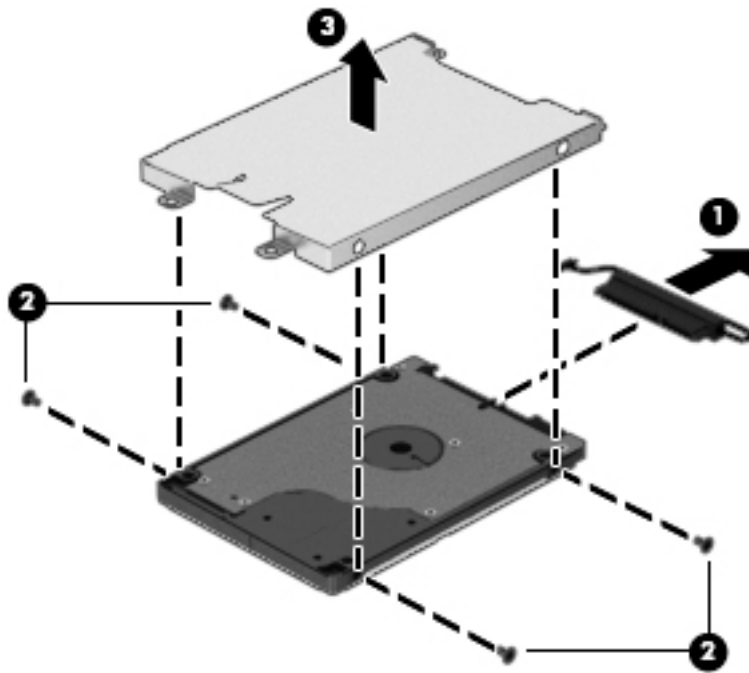
1. Disconnect the hard drive connector cable **(1)** from the system board.
2. Remove the Phillips PM2.0×7.0 screw **(2)** that secures the hard drive and battery to the computer.
3. Remove the three Phillips PM2.0×3.0 screws **(3)** that secure the hard drive to the computer.

4. A small part of the hard drive sits under one of the battery screw tabs (4). To remove it, slide the hard drive toward the top of the computer (5), and then lift it out of the computer (6).



5. If it is necessary to disassemble the hard drive, perform the following steps:
 - a. Disconnect the hard drive connector cable (1) from the hard drive.
 - b. Remove the four Phillips PM3.0×3.0 screws (2) that secure the hard drive bracket to the hard drive.
 - c. Remove the hard drive bracket (3) from the hard drive.

The hard drive bracket, hard drive connector cable, and screws are available in the Hard Drive Hardware Kit, spare part number 755740-001.



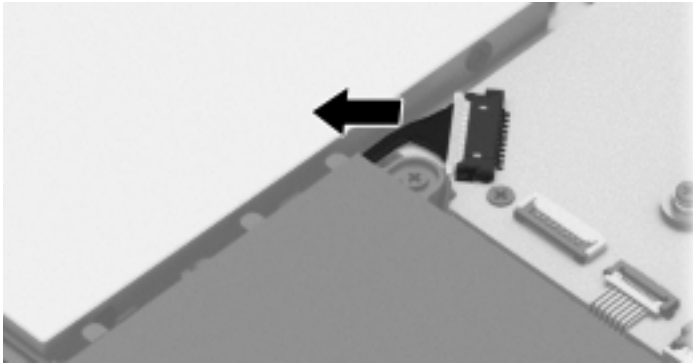
Reverse this procedure to install the hard drive.

RTC battery

Description	Spare part number
RTC battery (includes cable)	755735-001

Before removing the RTC battery, follow these steps:

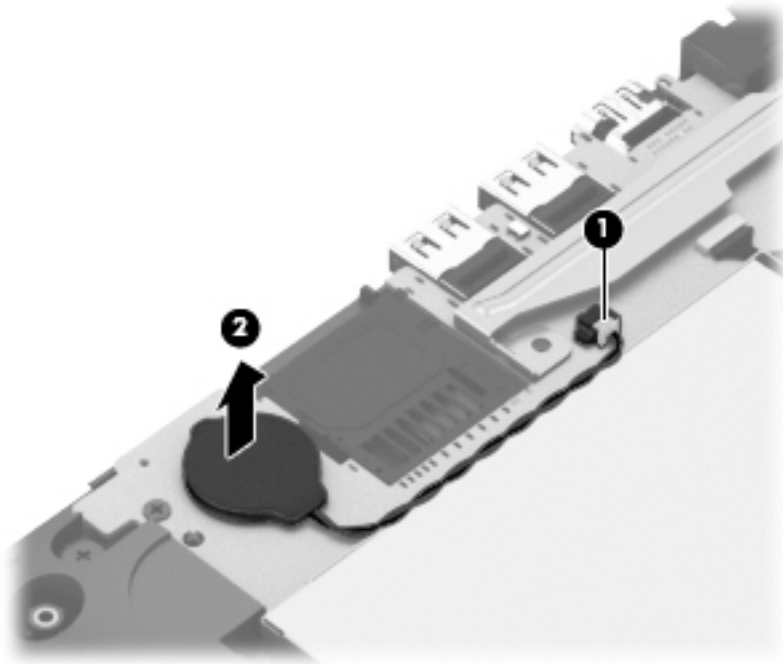
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.



Remove the RTC battery:

1. Disconnect the RTC battery cable **(1)** from the system board.

2. Detach the RTC battery (2) from the system board. (The RTC battery is secured with double-sided tape.)



3. Remove the RTC battery.

Reverse this procedure to install the RTC battery.

Memory module

Description	Spare part number
8-GB (PC3L, 12800, 1600-MHz)	693374-005
4-GB (PC3L, 12800, 1600-MHz)	691740-005

Update BIOS before adding memory modules

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

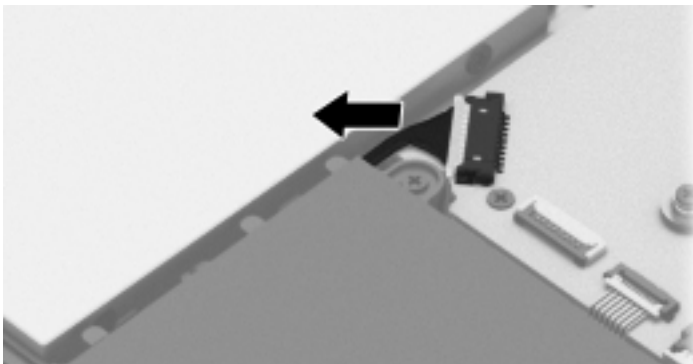
CAUTION: Failure to update the computer to the latest BIOS prior to installing new memory may result in various system problems.

To update BIOS:

1. Navigate to www.hp.com.
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.

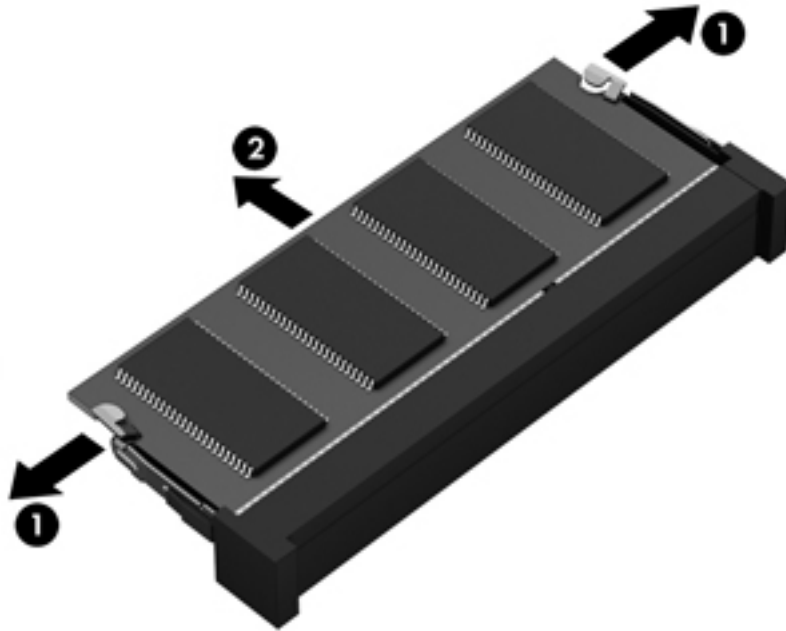
Before removing a memory module, follow these steps:

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 bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.



Remove the memory module:

1. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The memory module tilts up.)
2. Remove the memory module **(2)** by pulling the module away from the slot at an angle.



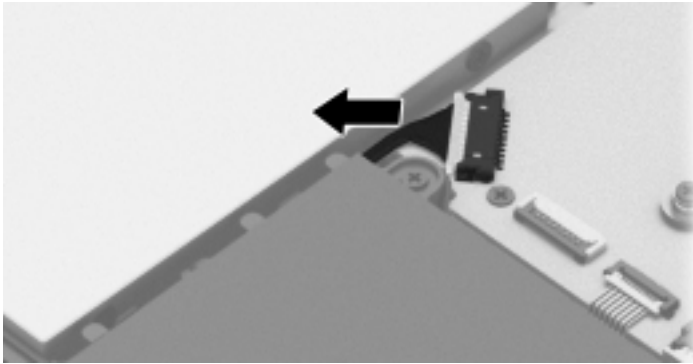
Reverse this procedure to install a memory module.

Power button board

Description	Spare part number
Power button board (includes cable)	755733-001

Before removing the power button board, follow these steps:

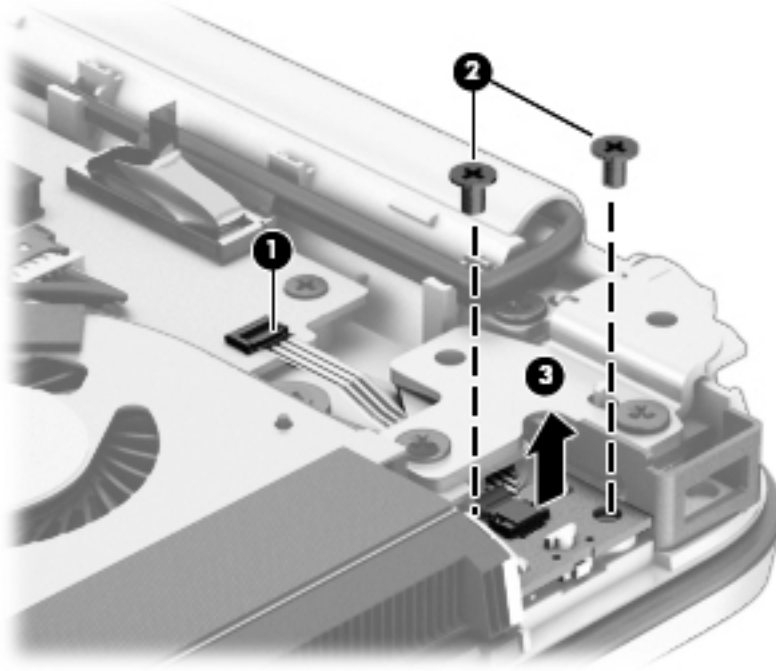
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.



Remove the power button board:

1. Disconnect the power button board cable **(1)** from the system board.
2. Remove the two Phillips PM2.0×3.0 screws **(2)** that secure the power button board to the computer.

3. Remove the power button board and cable (3).



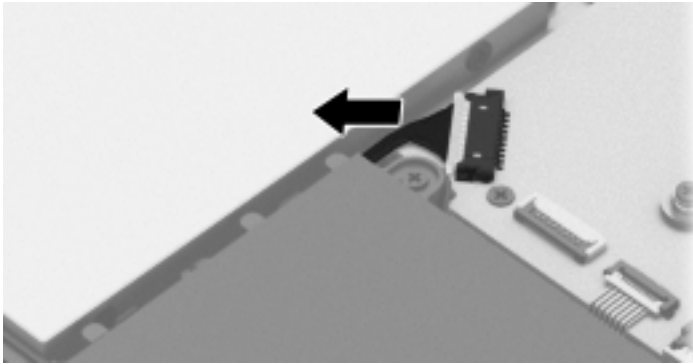
Reverse this procedure to install the power button board.

Fan

Description	Spare part number
Fan	755729-001

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 bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.



Remove the fan:



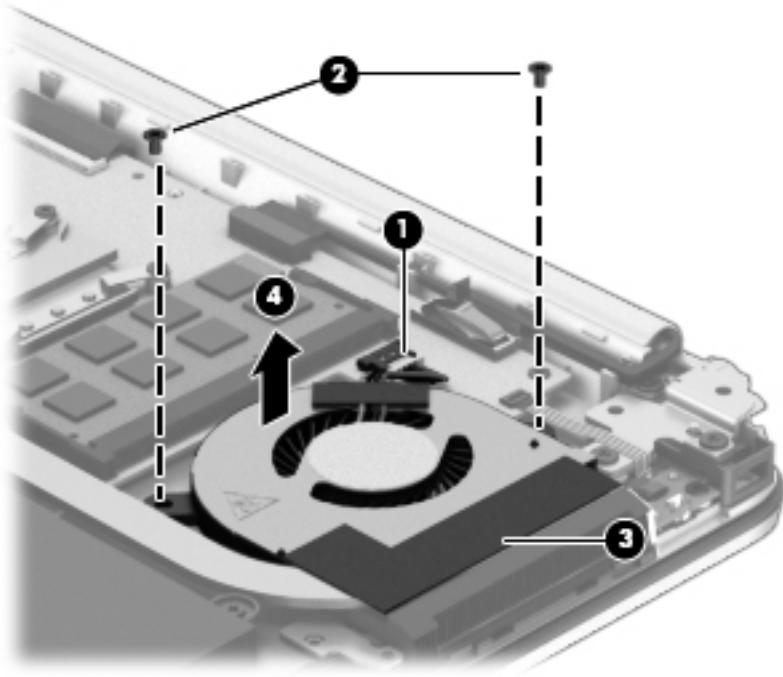
NOTE: You do not have to remove the heat sink to remove the fan. You must disengage the tape that secures the fan to the heat sink.

1. Disconnect the fan cable **(1)** from the system board.
2. Remove the two Phillips PM2.0×3.0 screws **(2)** that secure the fan to the system board.
3. Detach the tape **(3)** from the heat sink.



NOTE: You do not need to remove the tape from the fan.

4. Remove the fan (4).



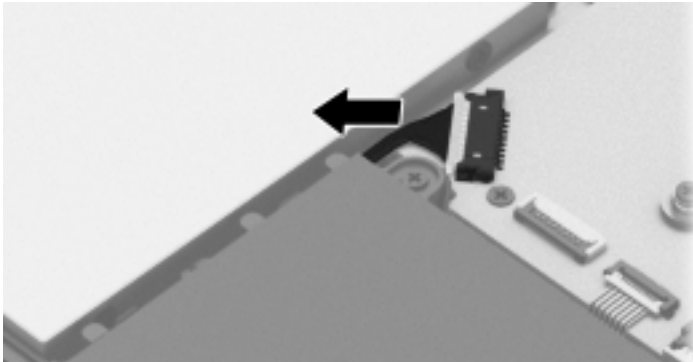
Reverse this procedure to install the fan.

Heat sink

Description	Spare part number
Heat sink (includes replacement thermal material)	755728-001


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 bottom cover (see [Bottom cover on page 26](#)).
5. Disconnect the battery.




6. Remove the fan (see [Fan on page 44](#)).

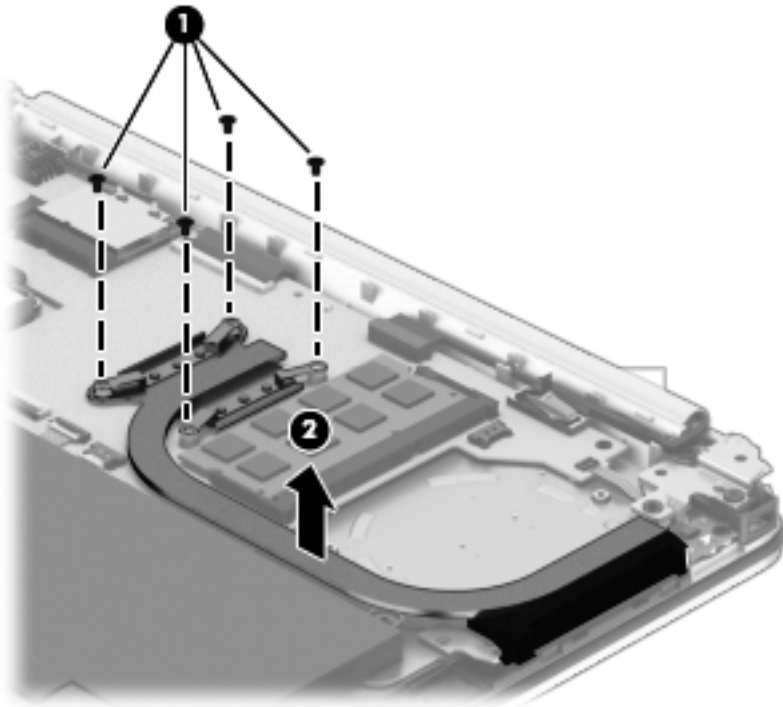
Remove the heat sink:


 **NOTE:** You do not have to remove the fan to remove the heat sink. You must disengage the tape that secures the heat sink to the fan.

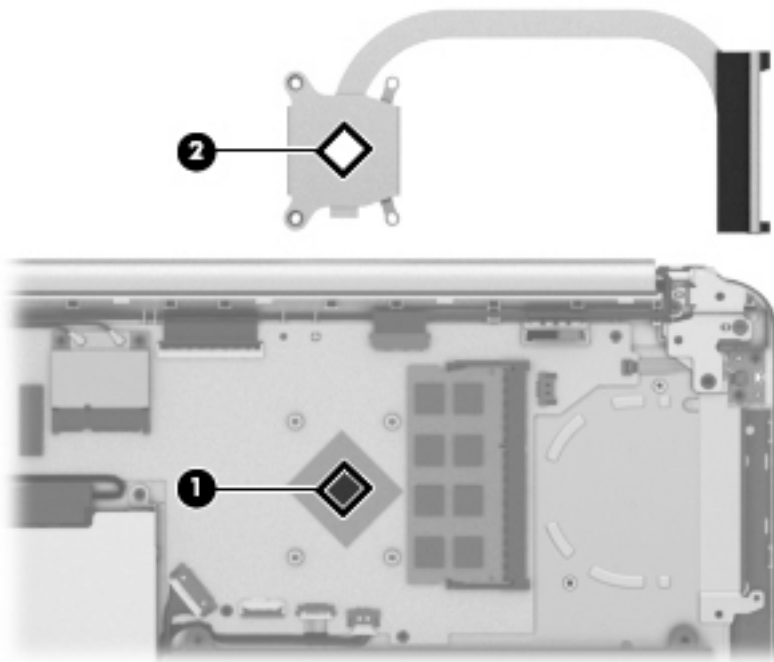
1. Following the 1 through 4 sequence stamped into the heat sink, remove the four Phillips PM2.0×3.0 screws (**1**) that secure the heat sink to the system board.

2. 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.



 **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. Thermal paste is used on the processor (1) and the heat sink section (2) that services it



Reverse this procedure to install the heat sink.

Battery

Description	Spare part number
2-cell, 29-Wh, 3.82-Ah, Li-ion battery	751875-005

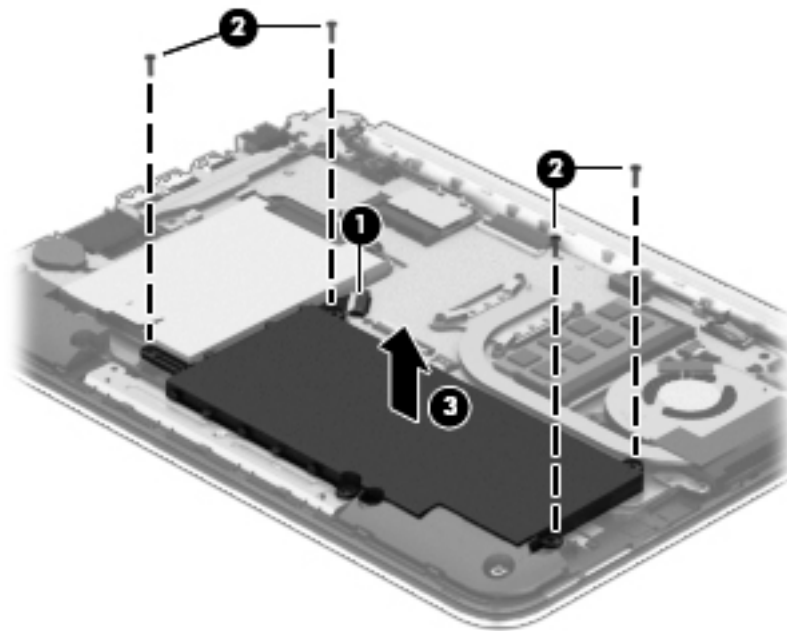
Before removing the battery, follow these steps:

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.
4. Remove the bottom cover (see [Bottom cover on page 26](#)).

Remove the battery:

⚠ WARNING! To reduce potential safety issues, use only the battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

1. Disconnect the battery cable from the system board (1).
2. Remove the four Phillips PM2.0×7.0 screws (2) that secure the battery to the computer.
3. Remove the battery (3).



Reverse this procedure to install the battery.

Speakers


Description	Spare part number
Speaker Kit (includes left and right speakers and cable)	755738-001

Before removing the speakers, follow these steps:

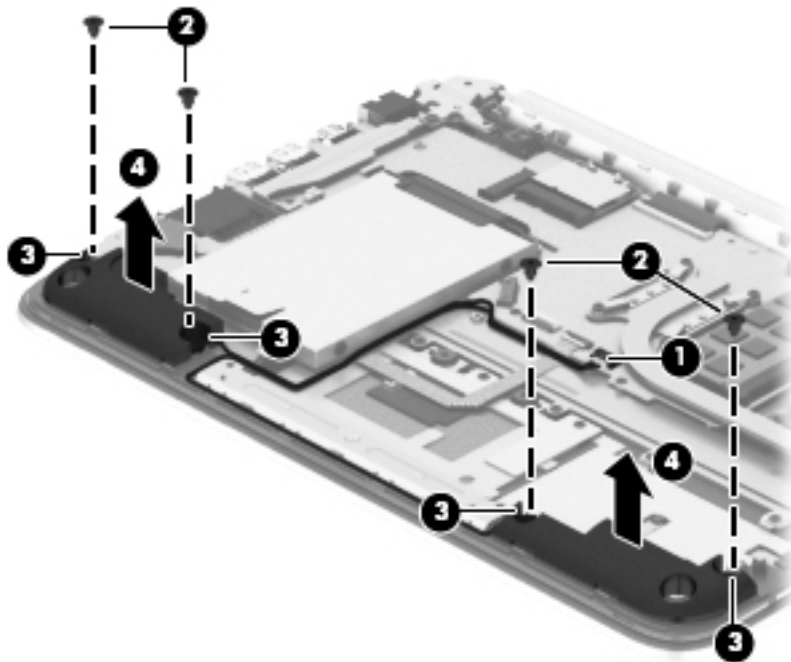
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Bottom cover on page 26](#)).
5. Remove the battery (see [Battery on page 48](#)).

Remove the speakers:

1. Disconnect the speaker cable from the system board **(1)**.
2. Remove the four Phillips PM2.0×6.0 broadhead screws **(2)** that secure the speakers to the computer.

 **NOTE:** Make note of the rubber gaskets **(3)** that fit around each screw. For installation, make sure the gaskets are properly installed.

3. Remove the speakers **(4)**.



Reverse this procedure to install the speakers.

TouchPad button board

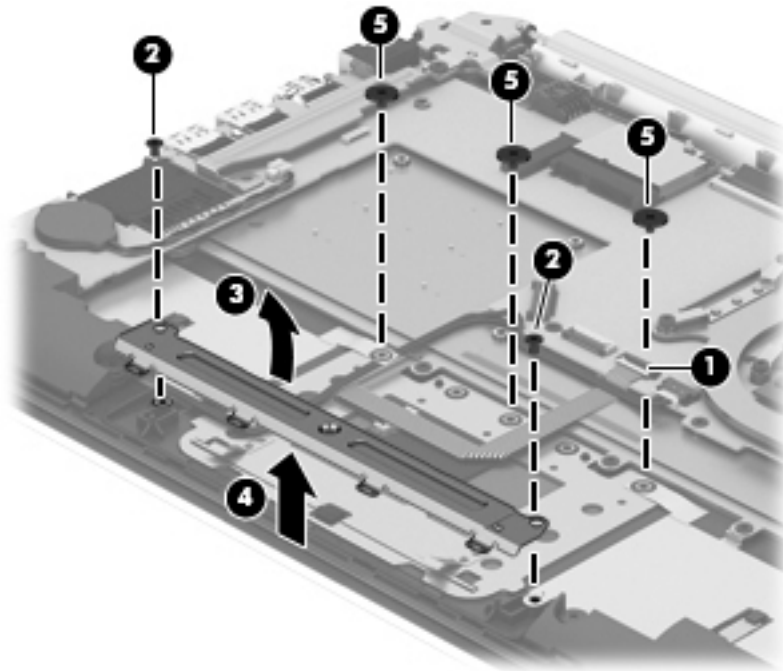
Description	Spare part number
TouchPad button board (includes bracket and cable)	not spared

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 bottom cover (see [Bottom cover on page 26](#)).
5. Remove the battery (see [Battery on page 48](#)).

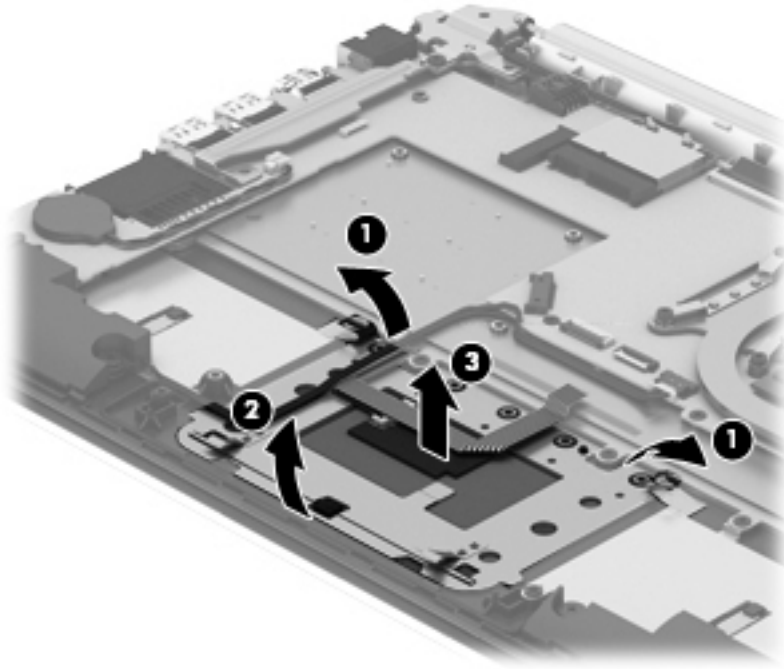
Remove the TouchPad button board:

1. Disconnect the TouchPad board cable from the system board **(1)**.
2. Remove the two Phillips PM2.0×3.0 screws **(2)** that secure the bracket, and then rotate the front of the bracket up and lift it off the computer **(4)**.
3. Remove the three Phillips PM2.0×2.0 broadhead screws **(5)** that secure the TouchPad button board to the computer.



4. Lift the foil and rubber gaskets from atop the left and right broadhead screw holes **(1)**.

5. Lift the bottom of the touchpad upward **(2)**, and then lift it off the computer **(3)**.



Reverse this procedure to install the TouchPad button board.

Display assembly

Description	Spare part number
Display assembly for use in model numbers Pavilion 11-n000 x360 ~ Pavilion 11-n099 x360 with WWAN	756108-001
Display assembly for use in model numbers Pavilion 11-n000 x360 ~ Pavilion 11-n099 x360 without WWAN	755730-001
Display assembly for use in model numbers Pavilion 11-n100 x360 ~ Pavilion 11-n199 x360 with the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	800298-001
Display assembly for use in model numbers Pavilion 11-n100 x360 ~ Pavilion 11-n199 x360 without the following WLAN module: Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	802266-001

Before removing the display assembly, follow these steps:

1. 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.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see [Bottom cover on page 26](#)).
5. Remove the battery (see [Battery on page 48](#)).

To remove the display assembly:

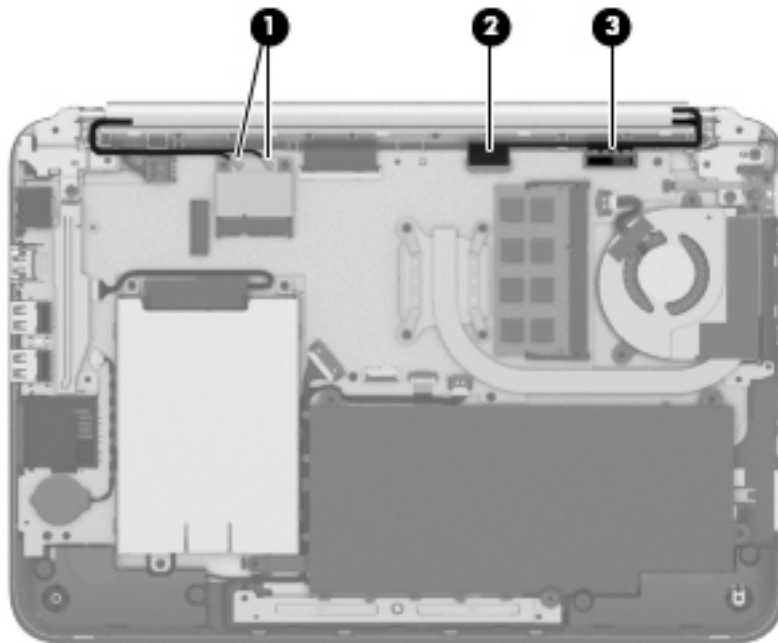
1. Release the wireless antenna cables from the clips **(1)** built into the base enclosure.



NOTE: The number of antenna cables may vary.

2. Disconnect the webcam cable **(2)** from the system board.

3. Disconnect the display panel cable **(3)** from the system board.

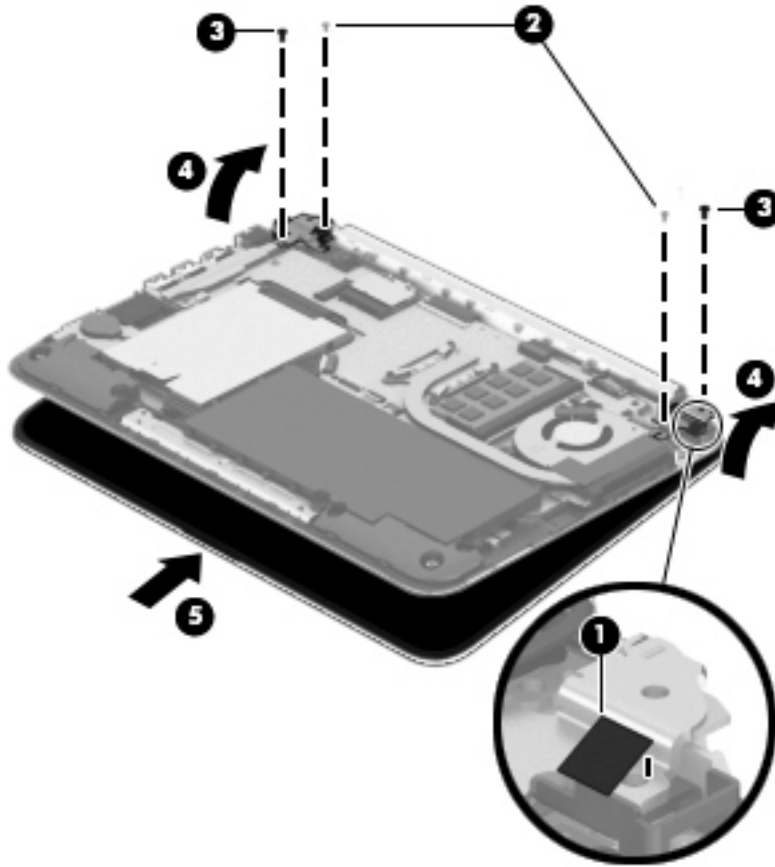


4. Lift the black foam piece that covers the right screw on the right hinge **(1)**.
5. Remove the two silver Phillips PM2.5×4.0 screws **(2)** and the two black Phillips PM2.5×5.0 screws **(3)** that secure the display assembly and bracket to the computer.

CAUTION: Support the display assembly when removing the screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.


6. Lift the computer to force the hinges to rotate upward to an angle **(4)**.

7. Separate the display assembly from the computer (5).



If it is necessary to replace any of the display assembly subcomponents:

1. To remove the display enclosure:

 **NOTE:** The display enclosure is available using the following spare part numbers:

758846-001 for red models without WWAN

758845-001 for silver models without WWAN

777405-001 for purple models without WWAN

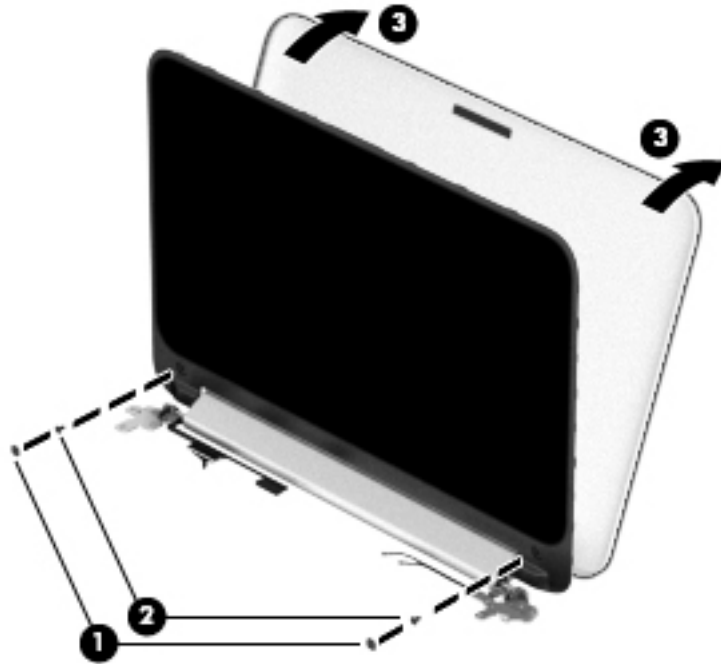
782925-001 for silver models with WWAN

782926-001 for red models with WWAN


782927-001 for purple models with WWAN

- a. Remove the two screw covers (1).
- b. Remove the two Phillips PM2.5×4.0 screws (2) that secure the enclosure to the display.

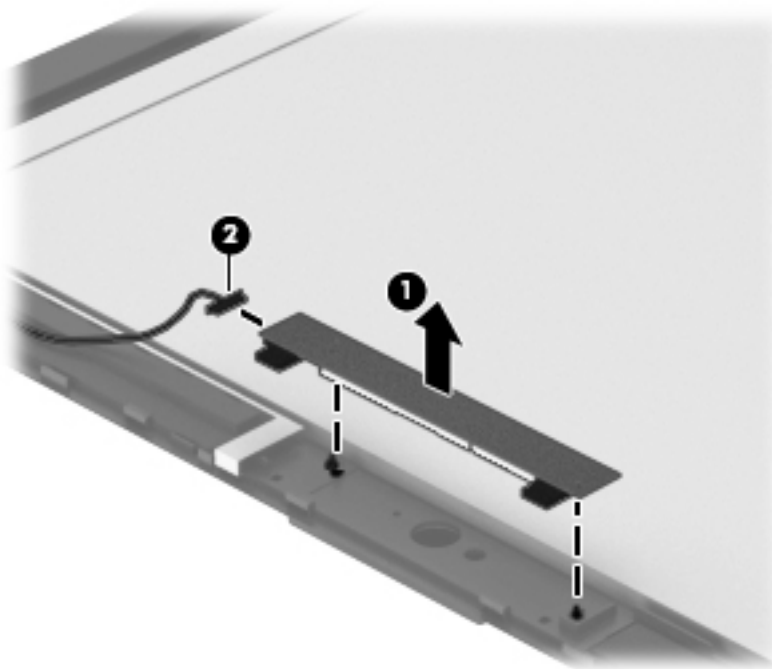
- c. Pry from the side to separate the enclosure from the display **(3)**.




2. To remove the webcam module:

 **NOTE:** The webcam is available using spare part number 758848-001.

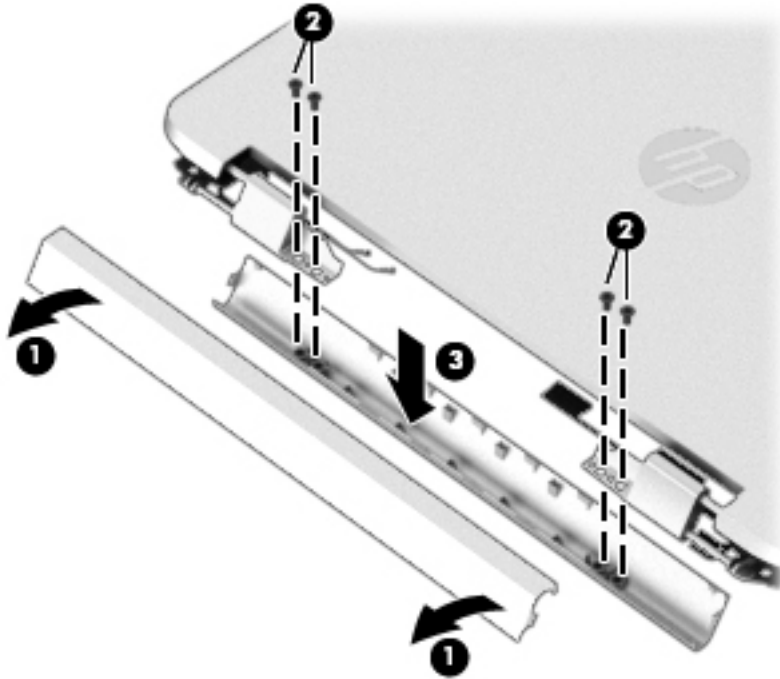
- a. Lift the webcam module **(1)** enough to gain access to the cable.
b. Disconnect the cable **(2)** from the module.




3. To remove the display hinge covers:

 **NOTE:** The display hinge covers are available using spare part number 758847-001 for red models, 759503-001 for silver models, and 777408-001 for purple models.

- a. Separate the top hinge cover by prying and rotating it off **(1)**.
- b. Remove the four Phillips PM2.5×5.0 screws **(2)** that secure the bottom hinge cover to the display.
- c. Remove the bottom display hinge cover from the display **(3)**.

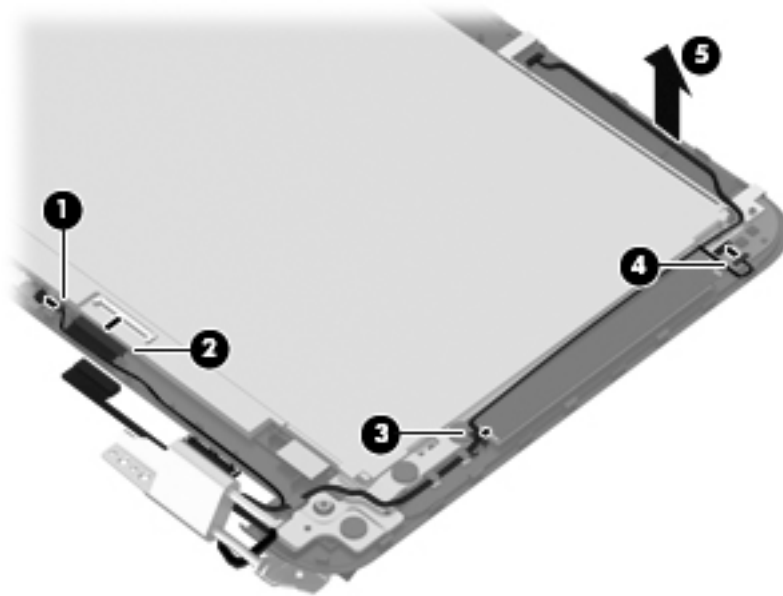


4. To remove the display cable:


 **NOTE:** The display cable is available using spare part number 761350-001.

- a. Disconnect the end of the display cable from the small connector at the bottom of the display panel **(1)**.
- b. Disconnect the display cable from the large connector on the bottom of the display panel **(2)**.

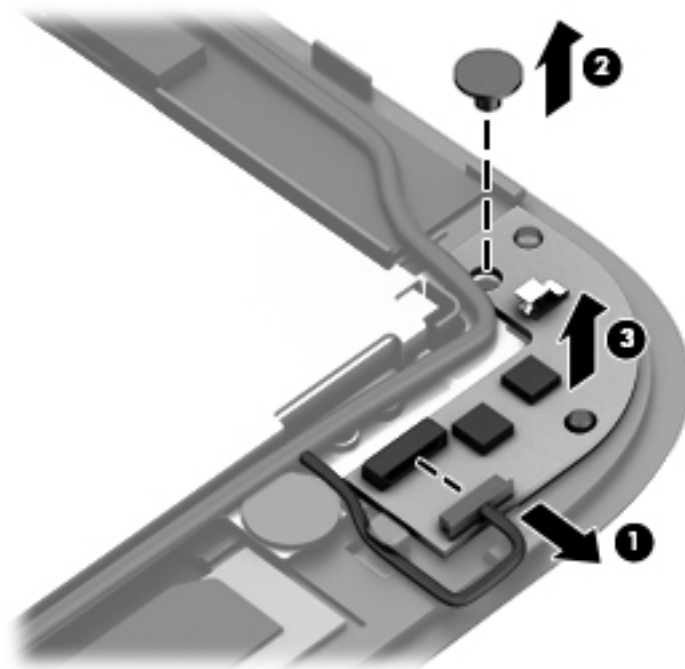
- c. Remove the cable from the tape **(3)** and clips **(4)** that secure it to the display enclosure , and then lift the display cable from the display enclosure **(5)**.



5. To remove the sensor board:

 **NOTE:** The sensor board is available using spare part number 788218-001.

- a. Disconnect the cable from the board **(1)**.
- b. Remove the Phillips PM2.0×3.0 screw that secures the board to the display enclosure **(2)**.
- c. Remove the sensor board from the display **(3)**.



Reverse this procedure to reassemble and install the display assembly.

Power connector cable

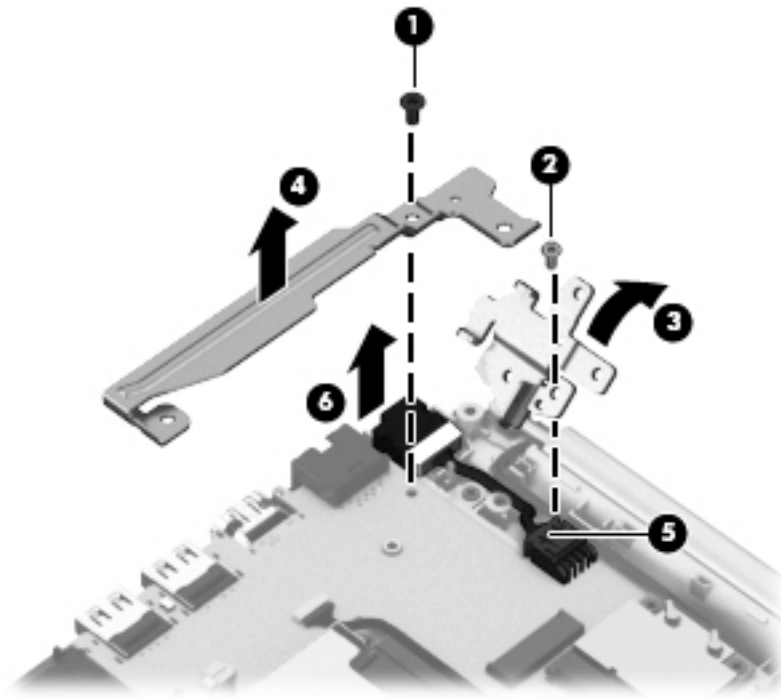
Description	Spare part number
Power connector cable	755727-001

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 bottom cover (see [Bottom cover on page 26](#)).
5. Remove the battery (see [Battery on page 48](#)).

Remove the power connector cable:

1. Remove the black Phillips PM2.5×6.0 screw **(1)** that secures the bracket to the computer and the silver Phillips PM3.0×5.0 screw **(2)** that secures the right display hinge.
2. Open the display assembly right hinge **(3)** as far as it will open.
3. Remove the bracket from the computer **(4)**.
4. Disconnect the power connector cable **(5)** from the system board.
5. Remove the power connector **(6)** from the computer.



6. Remove the power connector cable.

Reverse this procedure to install the power connector cable.

System board



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

Description	Spare part number
System board for use in models equipped with:	
Intel Pentium N3540 processor and the Windows 8.1 Standard operating system	789089-501
Intel Pentium N3540 processor and a non-Windows 8 operating system	789089-001
Intel Pentium N3530 processor and the Windows 10 operating system	764236-601
Intel Pentium N3530 processor and the Windows 8.1 Standard operating system	764236-501
Intel Pentium N3530 processor and a non-Windows 8 operating system	764236-001
Intel Pentium N3520 processor and the Windows 8.1 Standard operating system	755724-501
Intel Pentium N3520 processor and a non-Windows 8 operating system	755724-001
Intel Celeron N2840 processor and the Windows 8.1 Standard operating system for use in models with WWAN	794106-501
Intel Celeron N2840 processor and a non-Windows 8 operating system for use in models with WWAN	794106-001
Intel Celeron N2840 processor and the Windows 8.1 Standard operating system for use in models without WWAN	789088-501
Intel Celeron N2840 processor and a non-Windows 8 operating system for use in models without WWAN	789088-001
Intel Celeron N2830 processor and the Windows 8.1 Standard operating system for use in models with WWAN	764237-501
Intel Celeron N2830 processor and a non-Windows 8 operating system for use in models with WWAN	764237-001
Intel Celeron N2830 processor and the Windows 10 operating system for use in models without WWAN	764235-601
Intel Celeron N2830 processor and the Windows 8.1 Standard operating system for use in models without WWAN	764235-501
Intel Celeron N2830 processor and a non-Windows 8 operating system for use in models without WWAN	764235-001
Intel Celeron N2820 processor and the Windows 8.1 Standard operating system	755723-501
Intel Celeron N2820 processor and a non-Windows 8 operating system	755723-001
Intel Core M 5Y10c processor and 8 GB on-board system memory with the Windows 8.1 Standard operating system	790757-501
Intel Core M 5Y10c processor and 8 GB on-board system memory with a non-Windows 8 operating system	790757-001
Intel Core M 5Y10c processor and 4 GB on-board system memory with the Windows 8.1 Standard operating system	790756-501
Intel Core M 5Y10c processor and 4 GB on-board system memory with a non-Windows 8 operating system	790756-001

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 bottom cover (see [Bottom cover on page 26](#)).
5. Remove the battery (see [Battery on page 48](#)).

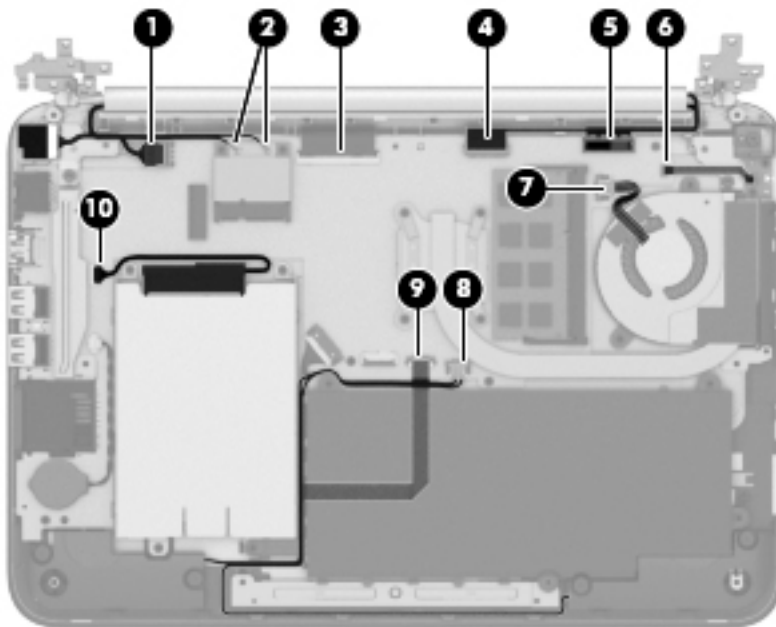


NOTE: When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- WLAN module (see [WLAN module on page 30](#))
- WWAN module (see [WWAN module on page 32](#))
- Memory module (see [Memory module on page 40](#))
- Solid-state drive (see [Solid-state drive \(M.2\) on page 34](#))
- Heat sink (see [Heat sink on page 46](#))
- Fan (see [Fan on page 44](#))

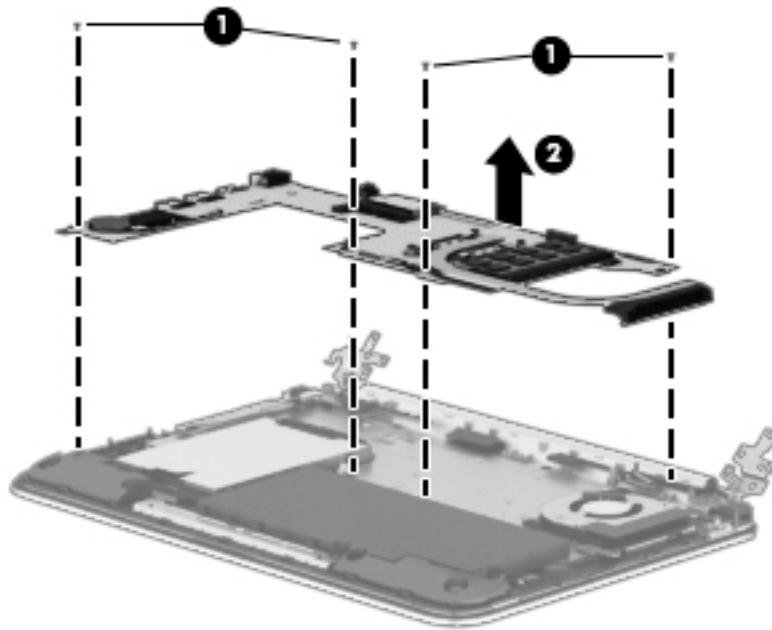
Remove the system board:

1. Disconnect the following cables from the system board:
 - (1): Power connector cable
 - (2): Wireless antennas (may include one or two antennas)
 - (3): Keyboard cable
 - (4): Webcam cable
 - (5): Display cable
 - (6): Power button board cable
 - (7): Fan cable
 - (8): Speaker cable
 - (9): Touchpad board cable
 - (10): Hard drive cable



2. Remove the four Phillips PM2.0×3.0 screws (1) that secure the system board to the computer.

3. Remove the system board (2) from the computer.



Reverse this procedure to install the system board.

Keyboard

In this section, the first table provides the main spare part number for the keyboards. The follow tables provide the country codes.

Description	Spare part number
Keyboard for use in models without WWAN (includes cable)	755896-xx1
Keyboard for use in models with WWAN (includes cable)	785454-xx1

Available keyboards for 755896-xx1:

For use in country or region	Spare part number	For use in country or region	Spare part number
Brazil	-201	South Korea	-AD1
Canada	-DB1	Taiwan	-AB1
Japan	-291	Thailand	-281
Latin America	-161	United States	-001

Available keyboards for 785454-xx1:

For use in country or region	Spare part number	For use in country or region	Spare part number	For use in country or region	Spare part number
Belgium	-A41	Hungary	-211	Slovenia	-BA1
Bulgaria	-261	Israel	-BB1	Spain	-071
Czech Republic and Slovakia	-FL1	Italy	-061	Switzerland	-BG1
Denmark, Finland, and Norway	-DH1	The Netherlands	-B31	Turkey	-141
France	-051	Portugal	-131	United Kingdom	-031
Germany	-041	Russia	-251	United States	-001
Greece	-151	Saudi Arabia	-171		

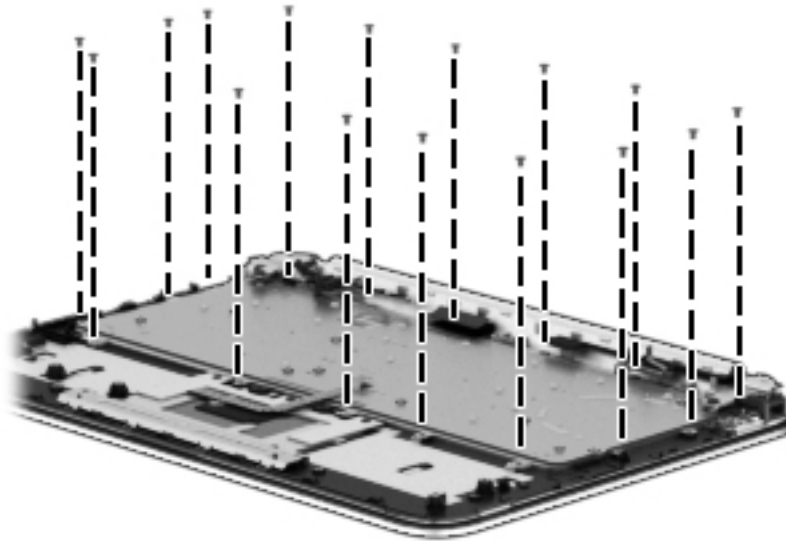
Before removing the keyboard, follow these steps:

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 bottom cover (see [Bottom cover on page 26](#)).
5. Remove the hard drive (see [Hard drive on page 35](#)).
6. Remove the fan (see [Fan on page 44](#)).

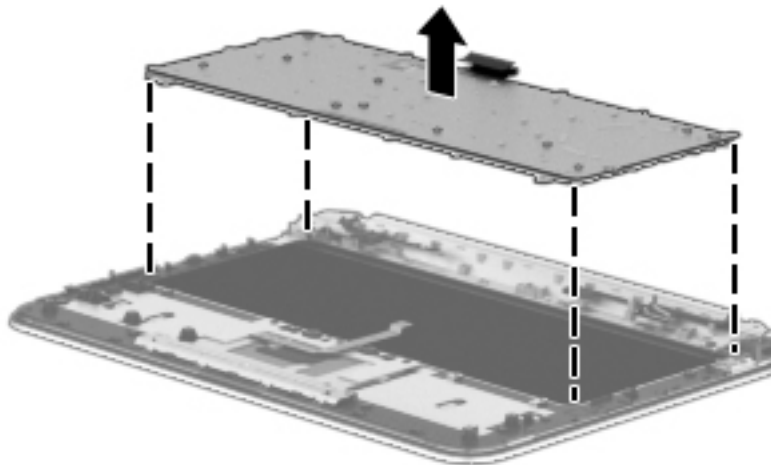
7. Remove the heat sink (see [Heat sink on page 46](#)).
8. Remove the battery (see [Battery on page 48](#)).
9. Remove the system board (see [System board on page 59](#)).

Remove the keyboard:

1. Remove the 16 Phillips PM2.0×3.0 screws that secure the keyboard to the top cover.



2. Remove the keyboard from the top cover.



Top covers are available using spare part numbers:

759976-001: Red models


756116-001: Silver models

777409-001: Purple models


Reverse this procedure to install the keyboard.


6 Using Setup Utility (BIOS) in Windows 10

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.

 **NOTE:** To start Setup Utility on convertible computers, your computer must be in notebook mode and you must use the keyboard attached to your notebook. The on-screen keyboard, which displays in tablet mode, cannot access Setup Utility.

Starting Setup Utility (BIOS)

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

 **NOTE:** To start Setup Utility on convertible computers, your computer must be in notebook mode and you must use the keyboard attached to your notebook. The on-screen keyboard, which displays in tablet mode, cannot access Setup Utility.

- Computers or tablets with keyboards:
 - ▲ Turn on or restart the computer, quickly press **esc**, and then press **f10**.
- Tablets without keyboards:
 1. Turn on or restart the tablet, and then quickly hold down the volume down button.
 - or -
 - Turn on or restart the tablet, and then quickly hold down the Windows button.
 2. Tap **f10**.

Updating Setup Utility (BIOS)

Updated versions of Setup Utility (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 decide whether you need to update Setup Utility (BIOS), first determine the BIOS version on your computer.

To reveal the BIOS version information (also known as *ROM date* and *System BIOS*):

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

- or -

- Click the question mark icon in the taskbar.
2. Select **My PC**, and then select **Specifications**.

– or –


- ▲ Use Setup Utility (BIOS).

To use Setup Utility (BIOS):


1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 64](#)).
2. Select **Main**, select System Information, and then make note of the BIOS version.
3. Select **Exit**, select **No**, and then follow the on-screen instructions.

To check for later BIOS versions, see [Downloading a BIOS update on page 65](#).

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.

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

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

– or –

Click the question mark icon in the taskbar.

2. Click **Updates**, and then click **Check for updates and messages**.
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. If the update is more recent than your BIOS version, 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.

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.

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

1. Type `file` in the taskbar search box, 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 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.

Synchronizing a tablet and keyboard (select products only)

For a tablet with a detachable keyboard, when you attach the tablet to the keyboard and restart the computer, Setup Utility (BIOS) checks to see if the Embedded Controller firmware on the keyboard needs to be synchronized. If so, synchronization begins. If the synchronization is interrupted, a notification screen displays for 10 seconds before the tablet restarts and attempts to synchronize again.





NOTE: The Embedded Controller firmware will synchronize **ONLY** if the tablet or keyboard battery is more than 50% charged, or if your tablet is connected to AC power.

7 Using Setup Utility (BIOS) in Windows 8.1

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)

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

 **NOTE:** If your tablet has a keyboard base, connect the tablet to the keyboard base before beginning the steps in this chapter.

- Computers or tablets with keyboards:
 - ▲ Turn on or restart the computer, quickly press **esc**, and then press **f10**.
- Tablets without keyboards:
 1. Turn on or restart the tablet, and then quickly hold down the volume down button.
- or -
Turn on or restart the tablet, and then quickly hold down the Windows button.
 2. Tap **f10**.

Updating the BIOS

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

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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 the one currently installed on the computer, you need to know the version of the system BIOS that is installed.


BIOS version information (also known as *ROM date* and *System BIOS*) can be revealed from the Start screen by typing `support`, selecting the **HP Support Assistant** app, and then selecting **System Information**, or by using Setup Utility (BIOS).

1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 67](#)).
2. Select **Main**, and then make note of your BIOS version.
3. Select **Exit**, select **Exit Discarding Changes**, and then follow the on-screen instructions.

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.

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

1. From the Start screen, type `support`, and then select the **HP Support Assistant** app.

– or –

From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.

2. Click **Updates and tune-ups**, and then click **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. If the update is more recent than your BIOS, 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.

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


1. From the Start screen, type `file`, and then select **File Explorer**.

– or –

From the Windows desktop, right-click the **Start** button, 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.

Synchronizing a tablet and keyboard (select models only)


When you attach a tablet to the keyboard and restart the computer, the BIOS checks to see if the Embedded Controller firmware on the keyboard needs to be synchronized. If so, BIOS will start the synchronization. If the synchronization is interrupted, a notification screen displays for 10 seconds before the tablet restarts and attempts to synchronize again.



NOTE: The Embedded Controller firmware will synchronize **ONLY** if the tablet or keyboard battery is more than 50% charged, or if your tablet is connected to AC power.

8 Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

 **NOTE:** To start BIOS on a convertible computer, your computer must be in notebook mode and you must use the keyboard attached to your tablet. The on-screen keyboard, which displays in tablet mode, cannot access BIOS.


To start HP PC Hardware Diagnostics UEFI:

1. Start BIOS:
 - Computers or tablets with keyboards:
 - ▲ Turn on or restart the computer, quickly press **esc**.
 - Tablets without keyboards:
 - ▲ Turn on or restart the tablet, and then quickly hold down the volume down button.
 - or -
 - Turn on or restart the tablet, and then quickly hold down the Windows button.

2. Press or tap **f2**.

The BIOS searches three places for the diagnostic tools, in the following order:


- a. Connected USB drive

 **NOTE:** To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 71](#).

- b. Hard drive

- c. BIOS

3. When the diagnostic tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions. On a tablet, press the volume down button to stop a diagnostic test.

 **NOTE:** If you need to stop a diagnostic test on computers or tablets with a keyboard, press **esc**.

Downloading HP PC Hardware Diagnostics (UEFI) to a USB device

There are two options to download HP PC Hardware Diagnostics to a USB device:

Download the latest UEFI version:

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the HP PC Hardware Diagnostics section, click the **Download** link, and then select **Run**.

Download any version of UEFI for a specific product:

1. Go to <http://www.hp.com/support>, and then select your country. The HP Support page is displayed.
2. Click **Drivers & Downloads**.
3. In the text box, enter the product name, and then click **Go**.

– or –

Click **Find Now** to let HP automatically detect your product.

4. Select your computer, and then select your operating system.
5. In the **Diagnostic** section, follow the on-screen instructions to select and download the UEFI version you want.

9 Backing up, restoring, and recovering in Windows 10

This chapter provides information about the following processes. The information in the chapter is standard procedure for most products.

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

For additional information, refer to the HP support assistant app.

▲ Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

– or –

Click the question mark icon in the taskbar.



IMPORTANT: If you will be performing recovery procedures on a tablet, the tablet battery must be at least 70% charged before you start the recovery process.

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning any recovery process.

Creating recovery media and backups

The following methods of creating recovery media and backups are available on select products only. Choose the available method according to your computer model.

- Use HP Recovery Manager to create HP Recovery media after you successfully set up the computer. 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. For information on creating recovery media, see [Creating HP Recovery media \(select products only\) on page 72](#). For information on the recovery options that are available using the recovery media, see [Using Windows tools on page 73](#).

- Use Windows tools to create system restore points and create backups of personal information.

For more information, see [Recovering using HP Recovery Manager on page 74](#).



NOTE: If storage is 32 GB or less, Microsoft System Restore is disabled by default.

Creating HP Recovery media (select products only)


If possible, check for the presence of the Recovery partition and the Windows partition. From the **Start** menu, select **File Explorer**, and then select **This PC**.

- If your computer does not list the Windows partition and the Recovery partition, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

You can use Windows tools to create system restore points and create backups of personal information, see [Using Windows tools on page 73](#).

- If your computer does list the Recovery partition and the Windows partition, you can use HP Recovery Manager 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 software programs that were installed at the factory and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.
 - Only one set of 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 media 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, or 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. 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. If you cannot create DVD media yourself, you can obtain recovery discs for your computer from HP. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.
 - Be sure that the computer is connected to AC power before you begin creating the recovery media.
 - The creation process can take 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.

To create HP Recovery media:

 **IMPORTANT:** For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
2. Select **Create recovery media**, and then follow the on-screen instructions.

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 74](#).

Using Windows tools

You can create recovery media, system restore points, and backups of personal information using Windows tools.


 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.

For more information and steps, see the Get started app.

- ▲ Select the **Start** button, and then select the **Get started** app.

Restore and recovery

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

 **IMPORTANT:** Not all methods are available on all products.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see the Get started app.
 - ▲ Select the **Start** button, and then select the **Get started** app.
- If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/or applications option (select products only) of HP Recovery Manager to reinstall the individual application or driver.
 - ▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 74](#). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 72](#).
- On select products, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 74](#).
- On select products, if you want 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 \(select products only\) on page 76](#).

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from HP, or by using the HP Recovery partition (select products only). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 72](#).


What you need to know before you get started

- 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.


 **IMPORTANT:** 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. If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 72](#).
- To use the Factory Reset option (select products only), you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 72](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP

website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

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

Using HP Recovery media, you can choose from one of the following recovery options:

 **NOTE:** Only the options available for your computer display when you start the recovery process.


- System Recovery—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- Factory Reset—Restores the computer to 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 products only) allows System Recovery only.

Using the HP Recovery partition (select products only)

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

To start HP Recovery Manager from the HP Recovery partition:

 **IMPORTANT:** For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select products only).

1. Type `recovery` in the taskbar search box, select **Recovery Manager**, and then select **HP Recovery Environment**.

- or -

For computers or tablets with keyboards attached, press **f11** while the computer boots, or press and hold **f11** as you press the power button.

For tablets without keyboards:

Turn on or restart the tablet, and then quickly hold down the volume down button; then select **f11**.

- or -


Turn on or restart the tablet, and then quickly hold down the Windows button; then select **f11**.

2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, and then 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 HP Recovery media, 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 76](#).

3. Follow the on-screen instructions.

Changing the computer boot order

If your 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 to an optical drive or a USB flash drive.

To change the boot order:

 **IMPORTANT:** For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1. Insert the HP Recovery media.
2. Access BIOS:

For computers or tablets with keyboards attached:

- ▲ Turn on or restart the computer or tablet, quickly press **esc**, and then press **f9** for boot options.

For tablets without keyboards:

- ▲ Turn on or restart the tablet, and then quickly hold down the volume down button; then select **f9**.


- or -


Turn on or restart the tablet, and then quickly hold down the Windows button; then select **f9**.

3. Select the optical drive or USB flash drive from which you want to boot.
4. Follow the on-screen instructions.

Removing the HP Recovery partition (select products only)

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

 **IMPORTANT:** After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP recovery media from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media \(select products only\) on page 72](#).

 **NOTE:** The Remove Recovery Partition option is only available on products that support this function.

Follow these steps to remove the HP Recovery partition:

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.

10 Backing up, restoring, and recovering in Windows 8.1

This chapter provides information about the following processes. The information in the chapter is standard procedure for most models.


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

For additional information, refer to the HP Support Assistant.

- ▲ From the Start screen, type `support`, and then select the **HP Support Assistant** app.

- or -

From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.

 **IMPORTANT:** If you will be using F11 startup recovery or USB media recovery to recover your system, the tablet battery must have at least 70% battery power remaining before starting the recovery process.

Creating recovery media and backups


The following methods of creating recovery media and backups are available on select models only. Choose the available method according to your computer model.

- Use HP Recovery Manager after you successfully set up the computer to 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. For information on creating recovery media, see [Creating HP Recovery media \(select models only\) on page 77](#). For information on the recovery options that are available using the recovery media, see [Recovering using HP Recovery Manager on page 79](#).
- Use Windows tools to create system restore points and create backups of personal information.

For more information, see [Using Windows tools on page 78](#).

 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.


Creating HP Recovery media (select models only)

 **IMPORTANT:** If your computer does not list a Recovery Media Creation option, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

HP Recovery Manager is a software program that allows you 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 restore the factory image if you replace the hard drive.

- Only one set of 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 media 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, or 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 support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions. 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 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:

 **IMPORTANT:** For tablets with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select models only).

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

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 79](#).

Using Windows tools

You can create system restore points and create backups of personal information using Windows tools.

 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.

- ▲ From the Start screen, type `help`, and then select **Help and Support**.


– or –

From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.

For more information and steps, see Help and Support.

Restore and recovery

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

 **IMPORTANT:** Not all methods are available on all models.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see Help and Support.
 - ▲ From the Start screen, type `support`, and then select the **HP Support Assistant** app.
 - or -
 - From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.
- 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**, select **Drivers and Applications Reinstall**, and then follow the on-screen instructions.
- On select models, 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 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 79](#).

- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select models only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 79](#). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 77](#).
- On select models, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 79](#).
- On select models, if you want 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 \(select models only\) on page 81](#).

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from support, or by using the HP Recovery partition (select models only). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 77](#).


What you need to know before you get started

- 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.


 **IMPORTANT:** 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. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 77](#).

- To use the Factory Reset option (select models only), you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 77](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

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

Using HP Recovery media, you can choose from one of the following recovery options:

 **NOTE:** Only the options available for your computer display when you start the recovery process.


- System Recovery—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- Minimized Image Recovery (select models only)—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- Factory Reset—Restores the computer to 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 System Recovery and Minimized Image Recovery (select models only).

Using the HP Recovery partition (select models only)

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

To start HP Recovery Manager from the HP Recovery partition:

 **IMPORTANT:** For tablets with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select models only).

1. From the Start screen, type `recovery`, select **Recovery Manager**, and then select **HP Recovery Environment**.

- or -

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 **Recovery Manager**, and then 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 HP Recovery media, 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 81](#).

3. Follow the on-screen instructions.

Changing the computer boot order

If your 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:



IMPORTANT: For tablets with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select models only).

1. Insert the HP Recovery media.
2. Start Computer Setup:

For computers or tablets with keyboards attached:

- ▲ Turn on or restart the computer or tablet, quickly press **esc**, and then press **f9** for boot options.

For computers or tablets without keyboards attached:

- ▲ Turn on or restart the computer, quickly press the volume down button, and then tap **f9** for boot options.

- or -

Turn on or restart the computer, quickly press the Windows button, and then tap **f9** for boot options.

3. Select the optical drive or USB flash drive from which you want to boot.
4. Follow the on-screen instructions.

Removing the HP Recovery partition (select models only)

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



IMPORTANT: After you remove the HP Recovery partition, you can no longer use the Windows Refresh option or the Windows option to remove everything and reinstall Windows. In addition, you will not be able to perform System Recovery or Minimized Image Recovery from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media \(select models only\) on page 77](#).

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 then follow the on-screen instructions.

11 Specifications

Computer specifications

	Metric	U.S.
Dimensions		
Width	308 mm	12.13 in
Depth	215.1 mm	8.47 in
Height	21.9 mm	0.86 in
Weight	1.4 kg	3.08 lbs
Input power		
Operating voltage and current	19.5 V dc @ 3.33 A – 65 W	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

Hard drive specifications

	750-GB, 5400-rpm*	500-GB, 5400-rpm*	320-GB, 5400-rpm*
Dimensions			
Height	7.0 mm	7.0 mm	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
Interface type	SATA	SATA	SATA
Transfer rate (synchronous, maximum)	1.2 GB/sec	1.1 GB/sec	1.1 GB/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	1.1 ms	1.5 ms	1.5 ms
Average (read/write)	11 ms	11/13 ms	11/13 ms
Maximum	18 ms	22 ms	22 ms
Logical blocks	1,285,971	976,773,168	628,142,448
Disk rotational speed	5400 rpm	5400 rpm	5400 rpm
Operating temperature	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)
*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.			
NOTE: Certain restrictions and exclusions apply. Contact technical support for details.			

12 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 all countries 113

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

Country/region	Accredited agency	Applicable note number
South Korea	EK	4
Sweden	CEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

- 1.** The flexible cord must be Type H05VV-F, 3-conductor, 1.0-mm² 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-mm² 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-mm² 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-mm² 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.

13 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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