



HP ENVY m6 Sleekbook

HP ENVY Touchsmart m6 SleekBook

HP ENVY TouchSmart m6 Ultrabook

Maintenance and Service Guide

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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	Intel models	AMD models
Product Names	HP ENVY TouchSmart m6 Ultrabook	✓	
	HP ENVY TouchSmart m6 Sleekbook	✓	
	HP ENVY m6 Sleekbook		✓
Processors	Intel® Core™ i7-4500U (1.8 GHz, turbo up to 3.0 GHz) 1600 MHz/4 MB Cache, Dual 15W	✓	
	Intel Core i5-4200U (1.6 GHz, turbo up to 2.6 GHz) 1600 MHz/3 MB Cache, Dual 15W	✓	
	Intel Core i3-4010U (1.7 GHz), 1600 MHz/3 MB L3, Dual 15W	✓	
	AMD® A10-5745M (2.9 GHz/2.1 GHz, 4 MB L2, DDR3L-1333MH) Quad 25W		✓
Chipset	Intel Lynx Point - LP PCH (Integrated in MCP)	✓	
	AMD A76M FCH		✓
Graphics	Intel HD Graphics 5000 and Intel HD Graphics 4400. Supports HP Decode, DX11, and HDMI.	✓	
	AMD Radeon™ HD 8610G graphics. Supports DX11, HD Decoder and HDMI, and PX 7.0.		✓
Panels	39.6-mm (15.6-inch) HD LED BrightView (1366x768) (Slim 3.2mm) SVA, Color Gamut 45%, 200 nits	✓	✓
	39.6-mm (15.6-inch) FHD WLED BrightView (1920x1080) (Slim 3.2mm) SVA, TN, Color Gamut 60%, 300 nits	✓	✓
	39.6-mm (15.6-inch) FHD WLED BrightView (1920x1080) (Slim 3.2mm) SVA, TN, Color Gamut 60%, 300 nits Touchscreen	✓	✓
	Supports 16:9 wide aspect ratio and 16:9 ultra wide aspect ratio	✓	✓
	Supports LVDS	✓	✓

Category	Description	Intel models	AMD models
Memory	Supports up to 16 GB max system memory (DDR3L-1600MHz Dual Channel Support) in the following configurations: <ul style="list-style-type: none"> • 16384 MB (8192 MB x 2) • 12288 MB (8192 MB +4096 MB) • 8192 MB (8192 MB x 1) • 8192 MB (4096 MB x 2) • 6144 MB (2048 MB x 1 + 4096 MB x 1) • 4096 MB (4096 MB x 1) • 4096 MB (2048 MB x 2) 	√	
	Supports up to 8 GB max system memory (DDR3L-1333MHz at 1.35V Dual Channel Support (DDR3L-1600 downgrade to DDR3L-1333)) in the following configurations: <ul style="list-style-type: none"> • 8192 MB (4096 MB x 2) • 6144 MB (2048 MB x 1 + 4096 MB x 1) • 4096 MB (4096 MB x 1) 		√
Drives	Supports single 7/9.5mm, SATA 2.5" HDD with Accelerometer/HDD protection support: <ul style="list-style-type: none"> • 500 GB, 5400 rpm, 7 mm • 750 GB, 5400 rpm, 9.5 mm • 1 TB, 5400 rpm, 9.5 mm 	√	√
	Supports mSATA SSD configurations with Intel Smart Response Technology (SRT) support: <ul style="list-style-type: none"> • 24-GB mSATA SSD • 32-GB mSATA SSD • 128-GB mSATA SSD 	√	
Audio and video	Dual array digital microphones	√	√
	Subwoofer, Beats audio, dual speakers	√	√
	HD audio	√	
	Voice support recognition	√	
	HP TrueVision high-definition webcam (fixed, no tilt, 1280x720 by 30 frames per second)	√	√
Ethernet	Integrated 10/100/1000 GB network interface card (NIC)	√	√
Wireless	Integrated WLAN options by way of wireless module	√	√
	Supports Intel Smart Connect Technology	√	√

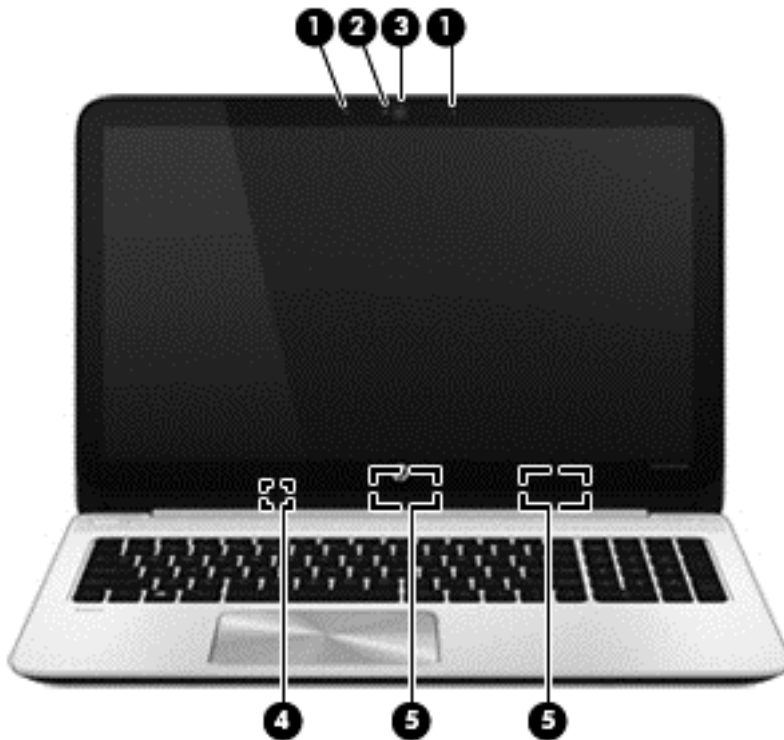
Category	Description	Intel models	AMD models
	Supports Intel Wireless Display (WiDi/WiFi Direct support)	√	√
	2 WLAN antennas built into display assembly	√	√
	Supports the following WLAN formats: <ul style="list-style-type: none"> Intel Wireless-N 7260BN 802.11 bgn 2x2 WiFi + BT 4.0 combo Adapter Ralink RT3290LE 802.11bgn 1x1 Wi-Fi + BT 4.0 Combo Adapter Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter Qualcomm QCA9565 802.11bgn 1x1 Wi-Fi + BT4.0 Combo Adapter Broadcom 4352 + Bluetooth combo w/ *2 antennas (802.11 a/b/g/n, Bluetooth 4.0) 	√	
	Supports the following WLAN formats: <ul style="list-style-type: none"> Ralink RT3290LE 802.11bgn 1x1 Wi-Fi + BT 4.0 Combo Adapter Qualcomm QCA9565 802.11bgn 1x1 Wi-Fi + BT4.0 Combo Adapter 		√
External media card	Push-push insertion/removal	√	√
	HP Multi-Format Media Reader supports the following digital card formats: <ul style="list-style-type: none"> Secure Digital (SD) Card Secure Digital High-Capacity (SDHC) Card Secure Digital Extended Capacity (SDxC) Card 	√	
	HP Multi-Format Media Reader supports the following digital card formats: <ul style="list-style-type: none"> Secure Digital (SD) Card Secure Digital High-Capacity (SDHC) Card Secure Digital Extended Capacity (SDxC) Card with UHS 		√
Internal card expansion	One half-size mini-card slot for WLAN	√	
	One full-size mini-card slot for Intel mSATA Cache		
	One NGFF slot for WLAN		
	One NGFF slot for WWAN		
	One half-size mini-card slot for WLAN		√

Category	Description	Intel models	AMD models
Ports	<ul style="list-style-type: none"> 3-pin AC Smart Pin adapter plug 	√	√
	<ul style="list-style-type: none"> Audio-in (mono microphone)/Audio-out (stereo headphone) combo jack, supports jack detection 		
	<ul style="list-style-type: none"> HDMI version 1.4 supporting 1920 × 1200 @ 60Hz 		
	<ul style="list-style-type: none"> RJ-45 (Ethernet, includes link and activity lights) 		
	<ul style="list-style-type: none"> USB 3.0 port 		
	<ul style="list-style-type: none"> USB 2.0 port 		
Keyboard/pointing devices	Full-size, backlit, island style keyboard with numeric keypad	√	√
	TouchPad with multi-touch gestures and image sensors	√	√
	Support Windows 8 Modern TouchPad Gestures	√	√
	Taps enabled as default	√	√
Power requirements	Supports the following HP AC adapters:	√	√
	<ul style="list-style-type: none"> 65W (4.5mm connector) (Smart-Pin) 65W (4.5mm connector) (Smart-Pin), EM 65W (4.5mm connector) (Smart-Pin), MSG 		
	Supports the following batteries:	√	√
	<ul style="list-style-type: none"> 3-Cell battery - (50Whr, 4.56AH) Polymer 		
Security	Kensington Security Lock	√	
	Intel AT-p Ready support		
	IPT support		
	Kensington Security Lock		√
	HP SimplePass/OTP support		

Category	Description	Intel models	AMD models
Operating system	Preinstalled: <ul style="list-style-type: none"> • Windows 8.1 (64 bit) • Windows 8 (64 bit) • Windows 8 Standard • Windows 8 Professional 	√	√
Serviceability	End-user replaceable parts: <ul style="list-style-type: none"> • Memory • Hard drive • AC adapter • Battery • MiniCard components 	√	√

2 External component identification

Display



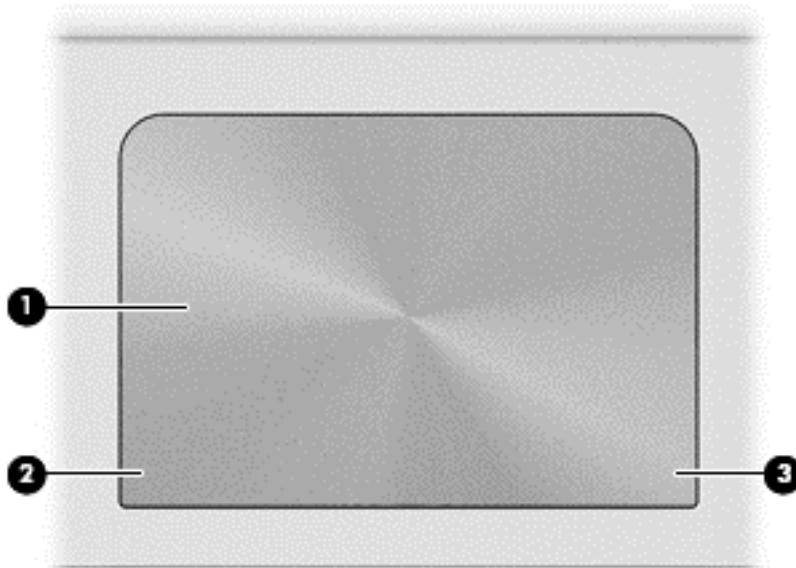
Component	Description
(1) Internal microphones (2)	Record sound.
(2) Webcam light	<ul style="list-style-type: none">On: The webcam is in use.Off: The webcam is not in use.
(3) HP TrueVision HD Webcam	Records video, captures still photographs, and provides access to video conferences and online chat by means of streaming video. To use the webcam, from the Start screen, type c , and then select CyberLink YouCam from the list of applications.

Component	Description
(4) Internal display switch	<p data-bbox="852 226 1433 281">Turns off the display and initiates Sleep if the display is closed while the power is on.</p> <p data-bbox="852 310 1433 363">NOTE: The internal display switch is not visible from the outside of the computer.</p>
(5) WLAN antennas (2)*	<p data-bbox="852 392 1445 447">Send and receive wireless signals to communicate with wireless local area networks (WLANs).</p> <p data-bbox="852 476 1445 615">NOTE: To set up a WLAN and connect to the Internet, you need a broadband modem (either DSL or cable) (purchased separately), high-speed Internet service purchased from an Internet service provider, and a wireless router (purchased separately).</p>

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

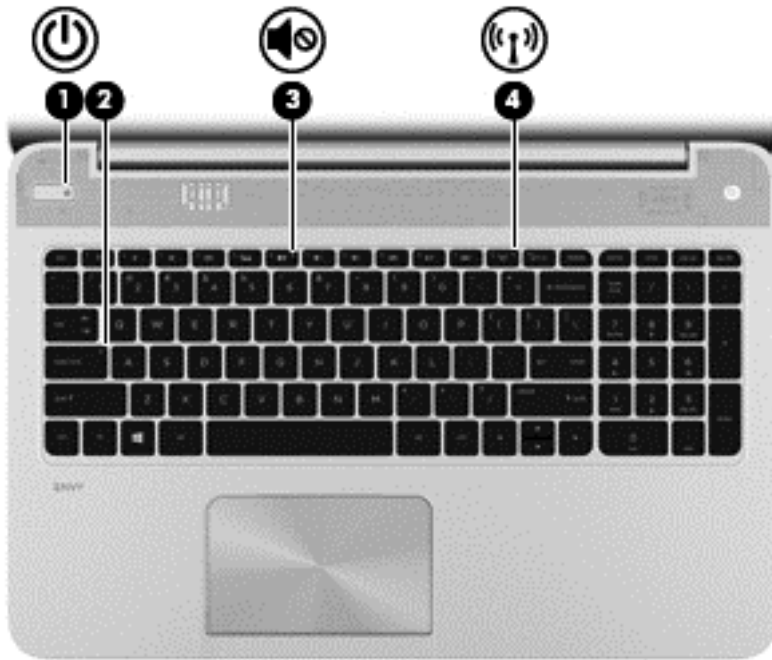
Top




TouchPad



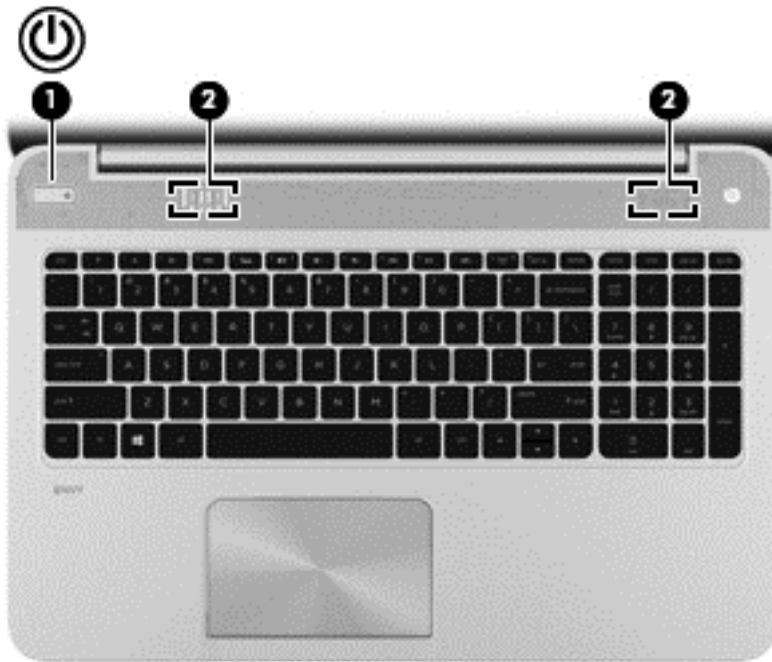
Component	Description
(1) TouchPad zone	Moves the on-screen pointer and selects or activates items on the screen. NOTE: The TouchPad also supports edge-swipe gestures.
(2) Left TouchPad button	Functions like the left button on an external mouse.
(3) Right TouchPad button	Functions like the right button on an external mouse.


Lights



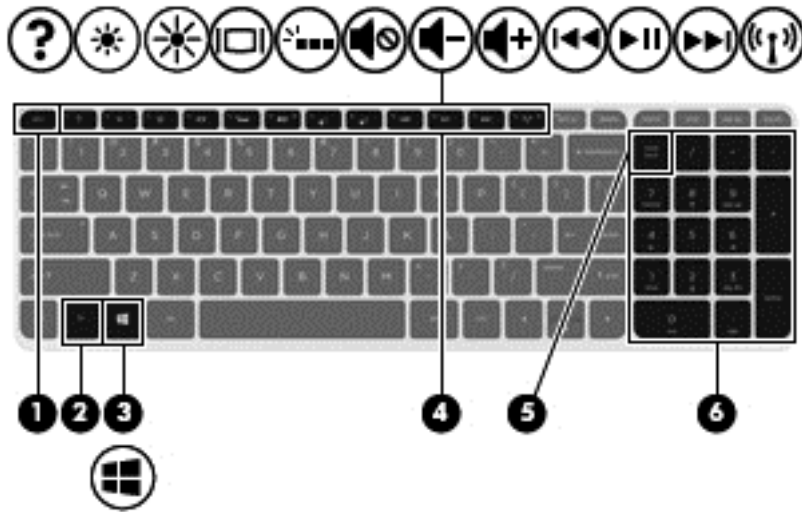
Component	Description
(1)  Power light	<ul style="list-style-type: none">• On: The computer is on.• Blinking: The computer is in the Sleep state, which is an energy-saving mode. The computer shuts off power to the display and other unneeded components.• Off: The computer is off or in Hibernation. Hibernation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


Buttons and speakers



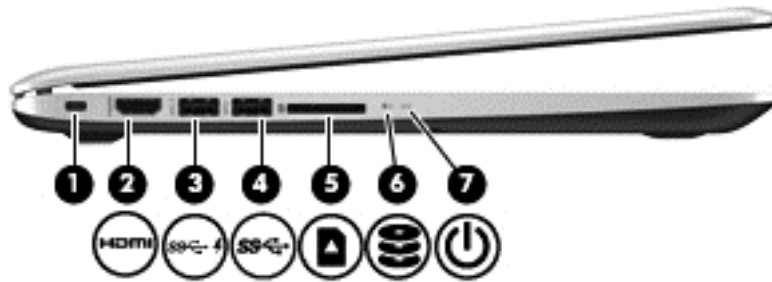
Component	Description
(1)  Power button	<ul style="list-style-type: none">• When the computer is off, press the button to turn on the computer.• When the computer is in the Sleep state, press the button briefly to exit Sleep.• When the computer is in Hibernation, press the button briefly to exit Hibernation. <p>CAUTION: Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Microsoft® Windows® shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p> <p>NOTE: For select models, the Intel® Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.</p> <p>To learn more about your power settings, see the User guide.</p>
(2) Speakers (2)	Produce sound.






Keys





Component	Description
(1) <code>esc</code> key	Reveals system information when pressed in combination with the <code>fn</code> key.
(2) <code>fn</code> key	Executes frequently used system functions when pressed in combination with the <code>b</code> key or the <code>esc</code> key.
(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.
(5) <code>num lock</code> key	Controls the function of the integrated numeric keypad. Press the key to alternate between the standard numeric function found on an external keypad (this function is turned on at the factory) and the navigational function (indicated by the directional arrows on the keys). NOTE: The keypad function that is active when the computer is turned off is reinstated when the computer is turned back on.
(6) Integrated numeric keypad	Set at the factory to function like an external numeric keypad. To alternate between this numeric function and the navigational function (indicated by the directional arrows on the keys), press the <code>num lock</code> key.

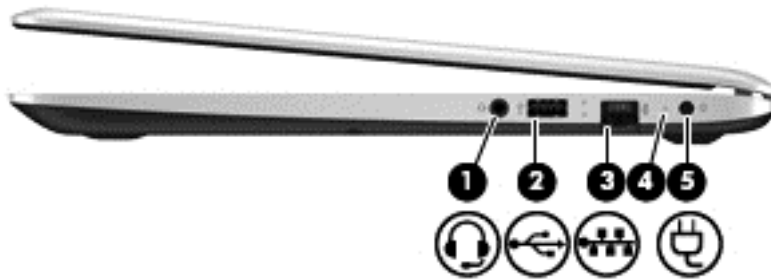
Left side







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)  HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI device.
(3)  USB 3.0 charging (powered) port	Connects an optional USB device. USB charging ports allow you to charge connected USB devices. Standard USB ports will not charge all USB devices or will charge using a low current. Some USB devices require power and require you to use a powered port. NOTE: USB charging ports can also charge select models of cell phones and MP3 players, even when the computer is off.
(4)  USB 3.0 port	Connects an optional USB 3.0 device.
(5)  Media Card Reader	Supports the following digital media formats: <ul style="list-style-type: none">• Secure Digital (SD) Memory Card• Secure Digital High Capacity (SDHC) Memory Card• Secure Digital Extended Capacity (SDxC) Memory Card

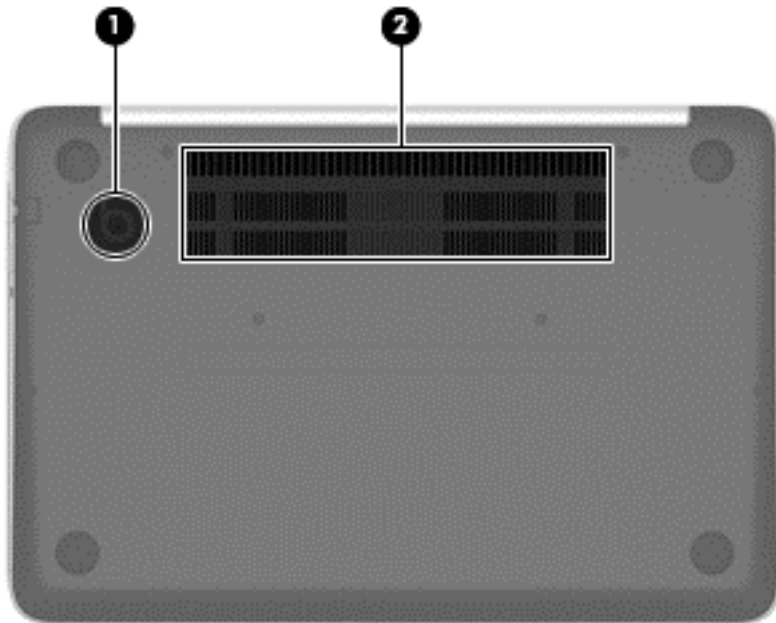
Component	Description
(6)  Hard drive light	<ul style="list-style-type: none"> • Blinking white: The hard drive is being accessed. • Amber: HP 3D DriveGuard has temporarily parked the hard drive.
(7)  Power light	<ul style="list-style-type: none"> • On: The computer is on. • Blinking: The computer is in the Sleep state, which is an energy-saving mode. The computer shuts off power to the display and other unneeded components. • Off: The computer is off or in Hibernation. Hibernation is an energy-saving mode that uses the least amount of power. <p>NOTE: For select models, the Intel® Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.</p>

Right side



Component	Description
(1)  Audio-out (headphone) jack/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an 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>. To access this guide, from the Start screen, type <code>support</code>, select the HP Support Assistant app, select My computer, and then select User guides.</p> <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>
(2)  USB 2.0 port	Connects an optional USB device.
(3)  RJ-45 (network) jack	Connects a network cable.
(4) AC adapter light	<ul style="list-style-type: none">• White: The AC adapter is connected and the battery is charged.• Amber: The AC adapter is connected and the battery is charging.• Off: The computer is using DC battery power.
(5)  Power connector	Connects an AC adapter.

Bottom



Component		Description
(1)	HP Triple Bass Reflex Subwoofer	Provides superior bass sound.
(2)	Vents (2)	Enable 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.

Service label

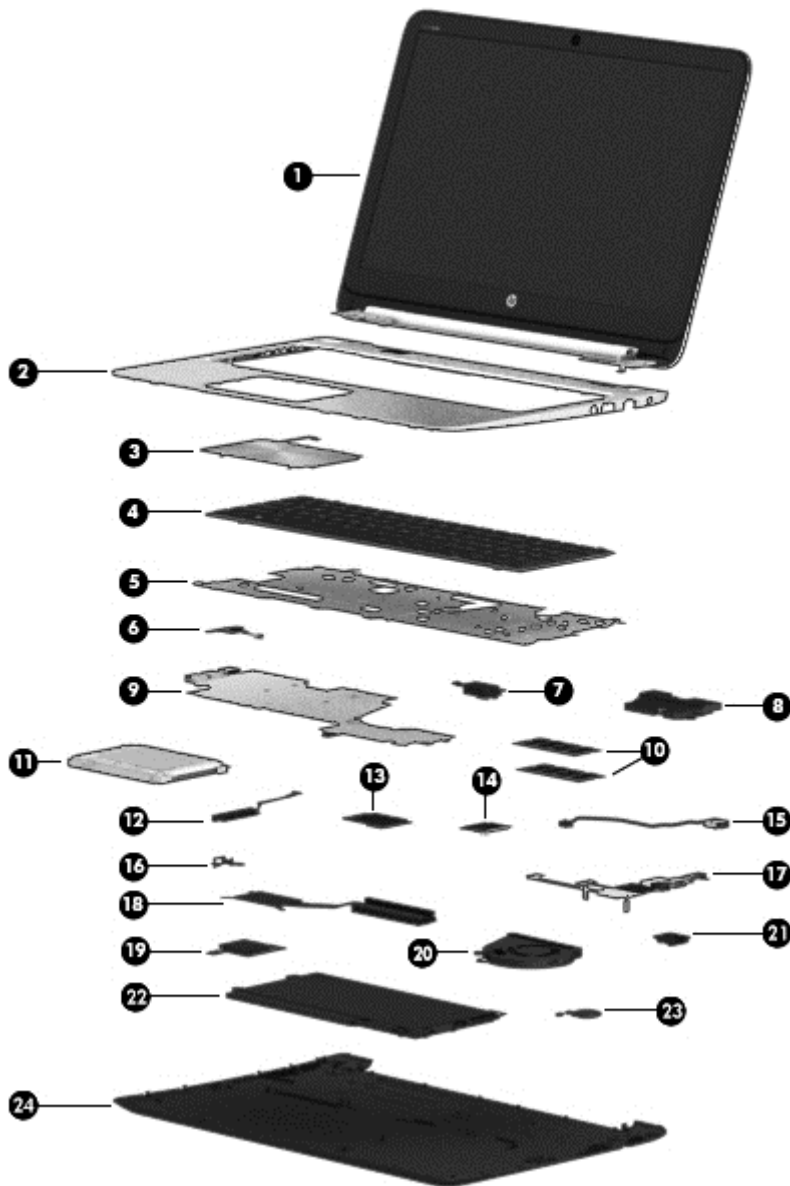
When ordering parts or requesting information, provide the computer serial number and model number provided on the service label, which is found on the bottom of the computer.



Item	Component	Description
(1)	Serial number (s/n)	This is an alphanumeric identifier that is unique to each product.
(2)	Part number/Product number (p/n)	This number provides specific information about the product's hardware components. The part number helps a service technician determine what components and parts are needed.
(3)	Warranty period	This number describes the duration of the warranty period for the computer.
(4)	Model description (select models only)	This is the alphanumeric identifier used to locate documents, drivers, and support for the computer.

3 Illustrated parts catalog

Computer major components

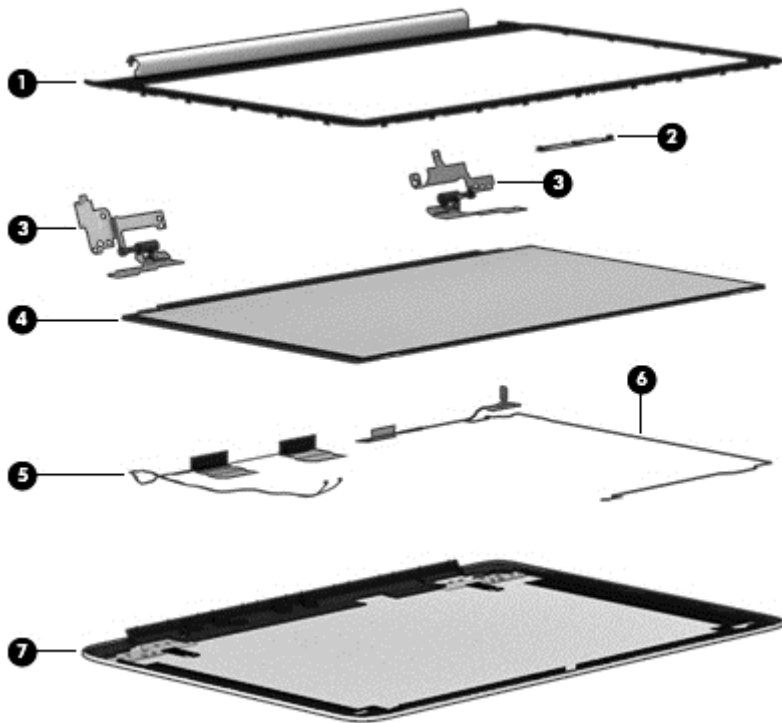


Item	Component	Spare part number
(1)	Display assembly (39.6 mm [15.6-in], Brightview, WLED)	
	Touchscreen models:	
	• FHD	727459-001
	• HD	727460-001
	Non-touchscreen models:	
	• FHD	727461-001
	• HD	727462-001
(2)	Top cover	
	For use in models with an AMD processor	725464-001
	For use in models with an Intel processor	734438-001
(3)	TouchPad assembly (includes cable)	not spared
(4)	Keyboard , backlit	
	For use in the United States	725450-001
	For use in Canada	725450-DB1
(5)	Keyboard bracket	725441-001
(6)	Power button board	725451-001
	Speaker Kit , includes:	725460-001
(7)	Left speaker	
(8)	Right speaker and subwoofer	
(9)	System board	
	For use in models with AMD processors:	
	• AMD A10-5745M processor for use in models with non-Windows 8 operating systems	725462-001
	• AMD A10-5745M processor for use in models with the Windows 8 Standard operating system	725462-501
	For use in models with Intel processors:	
	• Intel Core i5-4200U processor for use in models with non-Windows 8 operating systems	732775-001
	• Intel Core i5-4200U processor with the Windows 8 Standard operating system	732775-501
	• Intel Core i5-4200U processor with the Windows 8 Professional operating system	732775-601
	• Intel Core i5-4200U processor for use in models with non-Windows 8 operating systems (with upgraded CPU core power controller version)	745043-001
	• Intel Core i5-4200U processor with the Windows 8 Professional operating system (with upgraded CPU core power controller version)	745043-501
(10)	Memory module	

Item	Component	Spare part number
	2-GB memory module (PC3L, 12800, 1600-MHz)	691739-005
	4-GB memory module (PC3L, 12800, 1600-MHz)	691740-005
	8-GB memory module (PC3L, 12800, 1600-MHz) (Intel models only)	693374-005
(11)	Hard drive	
	750-GB, 5400 RPM, 2.5 in	634250-005
	1-TB, 5400 RPM, 2.5 in	676521-005
	500-GB, 5400 RPM, 7 mm	683802-005
(12)	Hard drive cable	725447-001
	Included in Hard Drive Hardware Kit (left and right brackets, hard drive cable, and screws)	
(13)	Solid-state drive (Intel models only)	
	24-GB SSD	727598-001
	128-GB SSD	727514-001
(14)	WLAN module	
	For use in Intel and AMD models:	
	<ul style="list-style-type: none"> Ralink RT3290LE 802.11bgn 1x1 Wi-Fi + BT 4.0 Combo Adapter 	690020-005
	<ul style="list-style-type: none"> Qualcomm QCA9565 802.11bgn 1x1 Wi-Fi + BT4.0 Combo Adapter 	733476-001
	For use only in Intel models:	
	<ul style="list-style-type: none"> Intel Dual Band Wireless-AC 3160 802.11 a/b/g/n/ac (1x1) WiFi with Bluetooth 4.0 combo 	710662-001
	<ul style="list-style-type: none"> Intel Centrino Wireless-N 2230 802.11bgn 2x2 WiFi + BT 4.0 Combo Adapter 	717384-005
	<ul style="list-style-type: none"> Mediatek MT7630E 802.11bgn 1x1 Wi-Fi + BT4.0 Combo Adapter 	710418-005
	<ul style="list-style-type: none"> Intel Centrino Wireless-N 1030 + Bluetooth combo w/ *2 antennas (802.11 b/g/n, Bluetooth 3.0) 	670290-005
	<ul style="list-style-type: none"> Broadcom 4352 + Bluetooth combo w/ *2 antennas (802.11 a/b/g/n, Bluetooth 4.0) 	724935-005
(15)	Power connector cable	725444-001
(16)	Security bracket	not spared
(17)	USB/audio board with cable	
	For use in Intel models	729621-001
	For use in AMD models	725452-001
(18)	Heat sink	
	For use in models with AMD processors	725446-001
	For use in models with Intel processors	728132-001
(19)	Media card reader	

Item	Component	Spare part number
	For use only in Intel models	728133-001
	For use only in AMD models	727465-001
(20)	Fan	725445-001
(21)	RJ-45 cover	727464-001
(22)	Battery (3-cell, 5.0WHr 4.52AH Li-ion)	715050-001
(23)	RTC battery	725458-001
(24)	Service cover	725453-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	Display bezel	725442-001
(2)	Webcam/microphone module	725465-001
(3)	Hinge brackets	
	For use in non-touch models	725448-001
	For use in touchscreen models	725449-001
(4)	Raw display panel, 39.6-mm (15.6-inch), HD, WLED, BrightView	
	HD, non-touch	725454-001
	HD, touchscreen	725455-001
	FHD, non-touch	725456-001
	FHD, touchscreen	725457-001
(5)	WLAN antenna	727460-001
(6)	Display/webcam cable	
	For use in touchscreen models	725443-001
	For use in non-touch models	725461-001
(7)	Display enclosure	

Item	Component	Spare part number
	For use in non-touch models	725439-001
	For use in touchscreen models	725440-001

Miscellaneous parts

Component	Spare part number
AC adapter (non-smart):	
65-W AC adapter (non-smart) for use in all countries and regions	710412-001
Power cord (3-pin, black, 1.83-m):	
For use in North America	490371-001
Screw Kit	
External optical drive , DVD+RW and CD-RW Super Multi Double-Layer Combo Drive	659940-001


Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America (3-pin, black, 1.83-m)
634250-005	Hard drive 750 GB, 5400 rpm, 2.5 in
659940-001	External optical drive, DVD+RW and CD-RW Super Multi Double-Layer Combo Drive
670290-005	Intel Centrino® Wireless-N 1030 + Bluetooth combo w/ *2 antennas (802.11 b/g/n, Bluetooth 3.0) for use only in Intel models
676521-005	Hard drive 1 TB, 5400 rpm, 2.5 in
683802-005	Hard drive 500 GB, 5400 rpm, 7 mm
690020-005	Ralink Wireless + Bluetooth combo w/ *2 antennas (802.11 b/g/n, Bluetooth 4.0) for use in both Intel and AMD models
691739-005	2-GB memory module (PC3L, 12800, 1600-MHz)
691740-005	4-GB memory module (PC3L, 12800, 1600-MHz)
693374-005	8-GB memory module (PC3L, 12800, 1600-MHz)(Intel models only)
701943-001	HDMI to VGA Adapter
710412-001	AC Adapter (smart) 65 W (non-BFR, PVC free)
710418-005	Mediatek 7630E 802.11 b/g/n 11 WiFi and Bluetooth 4.0 Combo Adapter for use only in Intel models
710662-001	Intel Dual Band Wireless-AC 3160 802.11 a/b/g/n/ac (1x1) WiFi with Bluetooth 4.0 combo for use only in Intel models

Spare part number	Description
715050-001	3 cell, 50 WHr 4.52AH Li-ion battery
717384-005	Intel Centrino Wireless-N 2230 + Bluetooth combo w/ *2 antennas (802.11 b/g/n, Bluetooth 4.0) for use only in Intel models
724935-005	Broadcom 4352 + Bluetooth combo w/ *2 antennas (802.11 a/b/g/n, Bluetooth 4.0) for use only in Intel models
725437-001	WLAN antennas
725438-001	WLAN antenna for touchscreen models
725439-001	Display back cover for use in non-touch models
725440-001	Display back cover for use in touchscreen models
725441-001	Keyboard bracket
725442-001	Display bezel
725443-001	Display cable for use in touchscreen models
725444-001	Power connector cable
725445-001	Fan
725446-001	Heat sink for use in models with AMD processors
725447-001	Hard Drive Hardware Kit (includes left and right brackets, hard drive cable, and screws)
725448-001	Display hinges for use in touchscreen models
725449-001	Display hinges for use in touchscreen models
725450-001	Backlit keyboard for use in the United States
725450-DB1	Backlit keyboard for use in Canada
725451-001	Power button board with cable
725452-001	USB/audio board with cable for use in AMD models
725453-001	Service cover
725454-001	Display panel, 39.6 mm (15.6-inch), Brightview,, HD, non-touch
725455-001	Display panel, 39.6 mm (15.6-inch), Brightview,, HD, touchscreen
725456-001	Display panel, 39.6 mm (15.6-inch), Brightview,, FHD, non-touch
725457-001	Display panel, 39.6 mm (15.6-inch), Brightview, FHD, touchscreen
725458-001	RTC battery
725459-001	Screw Kit
725460-001	Speaker Kit (includes left speaker/subwoofer and right speaker)
725461-001	Display cable for use in non-touch models
725462-001	System board with AMD A10-5745M processor for use in models with a non-Windows 8 operating system

Spare part number	Description
725462-501	System board with AMD A10-5745M processor for use with models with the Windows 8 Standard operating system
725464-001	Top cover for use in models with an AMD processor
725465-001	Webcam assembly
727459-001	Display assembly, FHD, touchscreen
727460-001	Display assembly, HD, touchscreen
727461-001	Display assembly, FHD, non-touch
727462-001	Display assembly, HD, non-touch
727464-001	RJ-45 cover
727465-001	Media card reader for use only in AMD models
727514-001	Solid state drive, 128-GB (Intel models only)
727598-001	Solid state drive, 24-GB (Intel models only)
728132-001	Heat sink for use in models with Intel processors
728133-001	Media card reader for use only in Intel models
729621-001	USB/audio board with cable for use in Intel models
732775-001	System board for use with computer models equipped with Intel i5-4200U processor and a non-Windows 8 operating system
732775-501	System board for use with computer models equipped with Intel i5-4200U processor and the Windows 8 Standard operating system
732775-601	System board for use with computer models equipped with Intel i5-4200U processor and the Windows 8 Professional operating system
733476-001	Qualcomm QCA9565 802.11bgn 1x1 Wi-Fi + BT4.0 Combo Adapter for use in both Intel and AMD models
734438-001	Top cover for use in models with an Intel processor
745043-001	System board for use only with computer models equipped with Intel Core i5-4200U processor and a non-Windows 8 operating system (with upgraded CPU core power controller version)
745043-501	System board for use only with computer models equipped with Intel Core i5-4200U processor with the Windows 8 Standard operating system (with upgraded CPU core power controller version)

4 Removal and replacement procedures

 **CAUTION:** This computer does not have user-replaceable parts. Only HP authorized service providers should perform the removal and replacement procedures described here. Accessing the internal part could damage the computer or void the warranty.

Preliminary replacement requirements


Tools required

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


- Flat-bladed screwdriver
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers

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, screwdrivers, 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

Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 114 screws that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Service cover

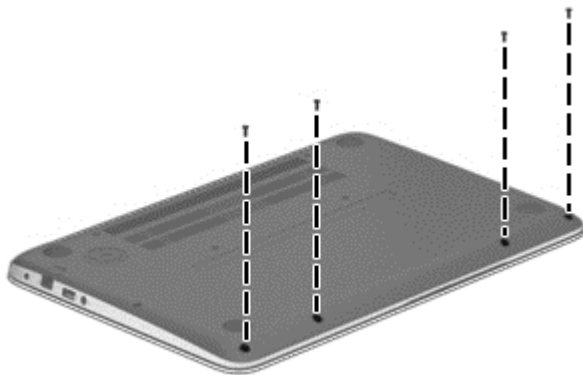
Description	Spare part number
Service cover	725453-001

Before disassembling the computer, follow these steps:

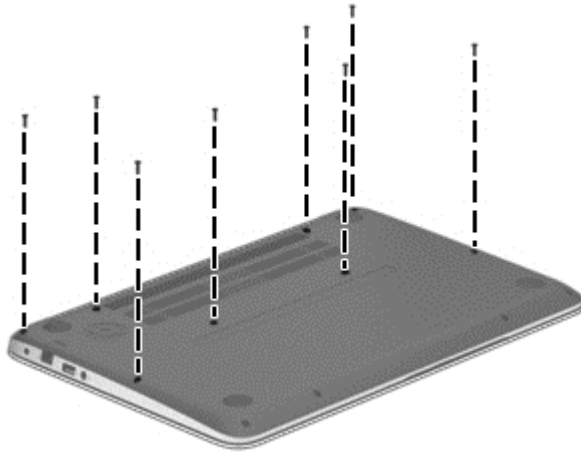
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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

Remove the service cover:

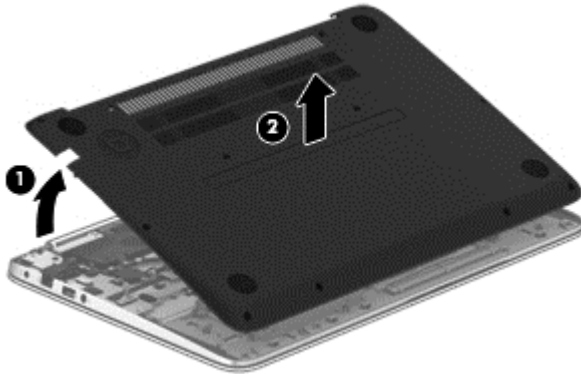
1. Position the computer face down, and then remove the 4 smaller Phillips screws from the front edge of the service cover.



2. Remove the 8 remaining larger Phillips screws from the back and the middle of the service cover.



3. Lift up the cover **(1)** from the unit at the rear edge and remove the service cover **(2)**.



Reverse this procedure to install the service cover.

Battery

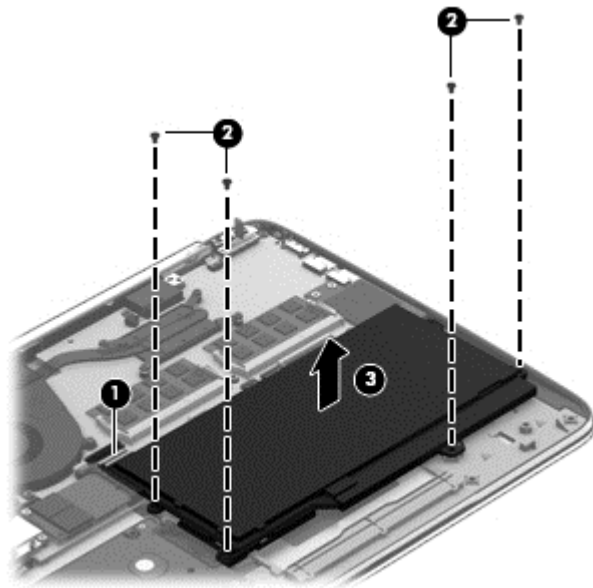
Description	Spare part number
3 cell, 50 WHr 4.52 AH Li-ion battery	715050-001

Before removing the battery, 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 service cover (see [Service cover on page 30](#)).

Remove the battery:

1. Turn the computer right-side up, with the front toward you.
2. Disconnect the battery cable **(1)** from the system board.
3. Remove the 4 Phillips PM2.5×3.5 screws **(2)** that secure the battery to the top cover.
4. Remove the battery from the computer **(3)**.



Reverse this procedure to install the battery.

RTC battery


Description	Spare part number
RTC battery	725458-001

Before removing the RTC battery, follow these steps:

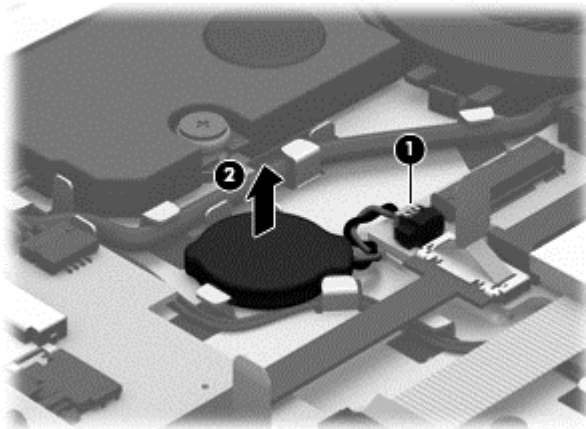
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the service cover (see [Service cover on page 30](#)).
5. Disconnect the battery cable (see [Battery on page 32](#)).

Remove the RTC battery:

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

 **NOTE:** Use a thin, non-conductive tool to remove the RTC battery from the socket on the system board.

2. Remove the RTC battery **(2)**. (The RTC battery is attached to the system board by double-sided adhesive.)



Reverse this procedure to install the RTC battery on computer models. When installing the RTC battery, make sure the "+" sign faces up.

Hard drive

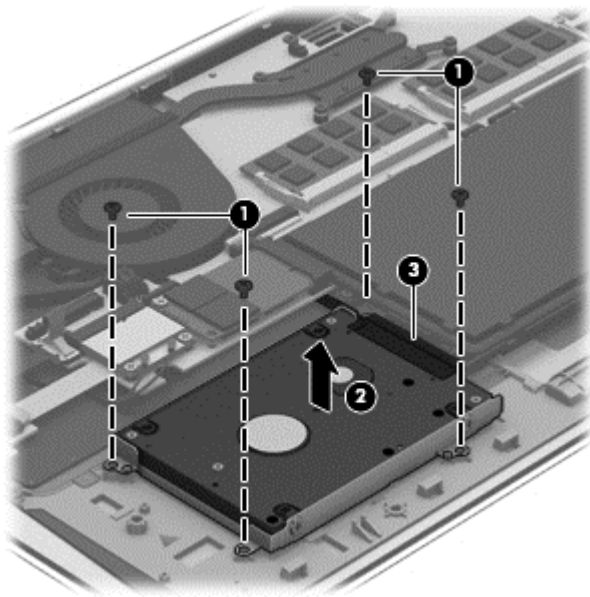
Description	Spare part number
1 TB, 5400 rpm, 2.5 in	676521-005
750 GB, 5400 rpm, 2.5 in	634250-005
500 GB, 5400 rpm, 7 mm	683802-005
Hard Drive Hardware Kit (includes left and right brackets, hard drive cable, and screws)	725447-001

Before removing the hard drive, 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 service cover (see [Service cover on page 30](#)).
5. Disconnect the battery cable (see [Battery on page 32](#)).

Remove the hard drive:

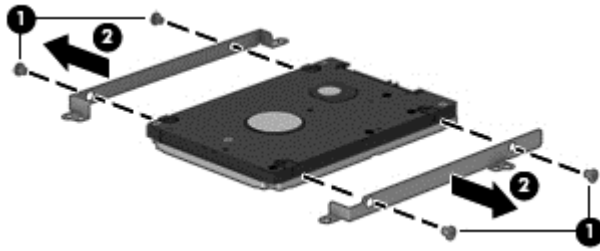
1. Remove the 4 Phillips PM2.5×3.5 screws **(1)** that secure the hard drive to the computer.
2. Lift the hard drive enough to gain access to the hard drive connector cable **(2)**
3. Disconnect the hard drive connector **(3)** from the hard drive.



4. Remove the hard drive from the computer.

Remove the hard drive bracket:

1. Remove the 4 PM2.0×3.0 screws **(1)** on the hard drive bracket.
2. Remove the hard drive brackets **(2)** from the hard drive.



Reverse these procedures to reassemble and install the hard drive.

Solid state drive (Intel models only)

Description	Spare part number
Solid state drive 24-GB	727598-001
Solid state drive 128-GB	727514-001

Before removing the SSD, 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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)).

Remove the solid-state drive:

1. Remove the Phillips PM2.0×2.0 screw **(1)** that secures the solid-state drive to the computer. The drive tilts upwards.


2. Remove the solid-state drive from the connector **(2)**.



Reverse this procedure to install the SSD.

WLAN module

Description	Spare part number
WLAN module for use in both Intel and AMD models:	
Ralink Wireless + Bluetooth combo w/ *2 antennas (802.11 b/g/n, Bluetooth 4.0)	690020-005
Qualcomm QCA9565 802.11bgn 1x1 Wi-Fi + BT4.0 Combo Adapter	733476-001
WLAN module for use only in Intel models:	
Intel Centrino® Wireless-N 1030 + Bluetooth combo w/ *2 antennas (802.11 b/g/n, Bluetooth 3.0)	670290-005
Mediatek 7630E 802.11 b/g/n 11 WiFi and Bluetooth 4.0 Combo Adapter	710418-005
Intel Dual Band Wireless-AC 3160 802.11 a/b/g/n/ac (1x1) WiFi with Bluetooth 4.0 combo	710662-001
Intel Centrino® Wireless-N 2230 + Bluetooth combo w/ *2 antennas (802.11 b/g/n, Bluetooth 4.0)	717384-005
Broadcom 4352 + Bluetooth combo w/ *2 antennas (802.11 a/b/g/n, Bluetooth 4.0)	724935-005

 **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. 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 service cover (see [Service cover on page 30](#)).
5. Disconnect the battery cable (see [Battery on page 32](#)).

Remove the WLAN module:

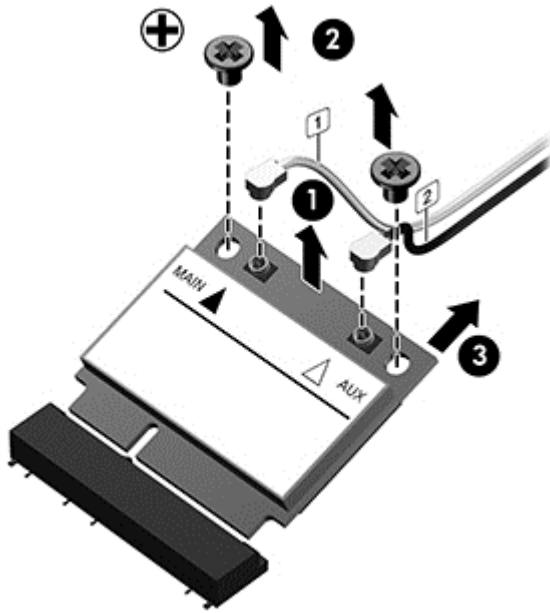
1. Disconnect the #1 and #2 WLAN antenna cables from the WLAN module **(1)**.




NOTE: The #1 WLAN antenna white cable is connected to the WLAN module #1 main terminal. The #2 WLAN antenna black cable is connected to the WLAN module #2 auxiliary terminal.

2. Remove the 2 PM 2.0x3.0 screws **(2)** that secure the WLAN module to the computer. (The WLAN module tilts up.)

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



 **NOTE:** If the WLAN antennas are not connected to the terminals on the WLAN module, the protective sleeves must be installed on the antenna connectors.

Memory modules

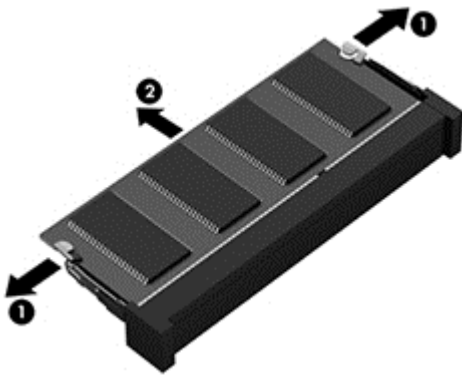
Description	Spare part number
2-GB memory module (PC3L, 12800, 1600-MHz)	691739-005
4-GB memory module (PC3L, 12800, 1600-MHz)	691740-005
8-GB memory module (PC3L, 12800, 1600-MHz)(Intel models only)	693374-005

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 service cover (see [Service cover on page 30](#)).
5. Disconnect the battery cable (see [Battery on page 32](#)).

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.

RJ-45 module cover

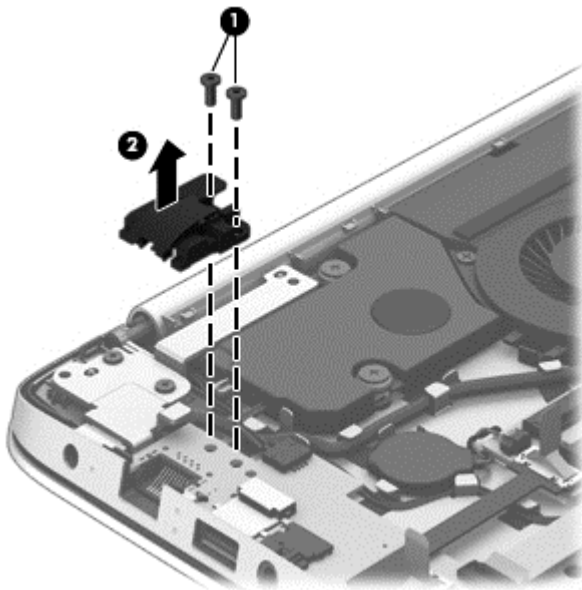
Description	Spare part number
RJ-45 module cover (plastics kit)	727464-001

Before removing the RJ-45 module cover:

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 service cover (see [Service cover on page 30](#)).
5. Disconnect the battery cable (see [Battery on page 32](#)).

Remove the RJ-45 module cover:

1. Remove the power connector cable and the antenna cables from the clip built into the side of the RJ-45 module cover.
2. Remove the 2 Phillips PM2.5×5.5 screws that secure the RJ-45 module cover **(1)** to the computer.
3. Remove the cover **(2)**.



Left speaker/subwoofer

Description	Spare part number
Speaker Kit (includes left speaker/subwoofer and right speaker)	725460-001

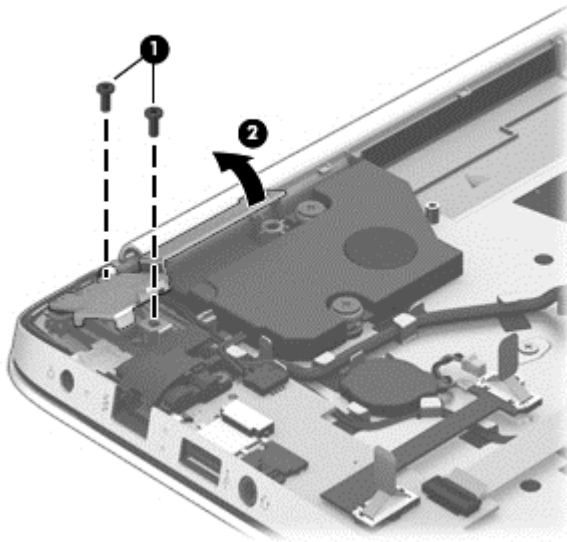
The computer includes two separate speakers — a speaker on the right side, and a speaker/subwoofer on the left side. You must remove the system board to remove the right speaker. You do not have to remove the system board to remove the left speaker/subwoofer. You do have to remove the RJ-45 module cover to remove the left speaker/subwoofer.

Before removing the left speaker, 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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)).
6. Remove the RJ-45 module cover (see [RJ-45 module cover on page 40](#)).


Remove the left speaker/subwoofer:

1. Remove the 2 Phillips PM2.5×5.5 screws that secure the left display hinge to the computer, and then rotate the hinge upward **(2)**.

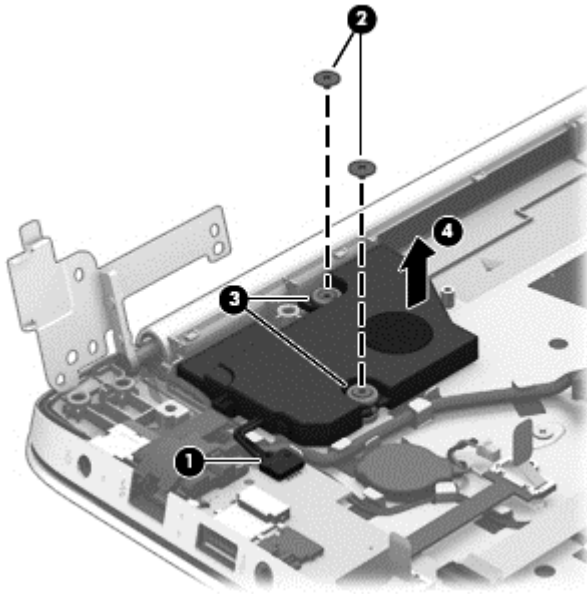


2. Disconnect the speaker cable from the USB/audio board **(1)**.

3. Remove the 2 Phillips PM2.0×2.0 broadhead screws **(2)** that secure the speaker/subwoofer to the computer.

 **NOTE:** Make sure the rubber grommets are installed in the screw holes **(3)** when installing the speaker/subwoofer.

4. Remove the subwoofer **(4)**.



Reverse this procedure to install the left speaker/subwoofer.

USB/audio board

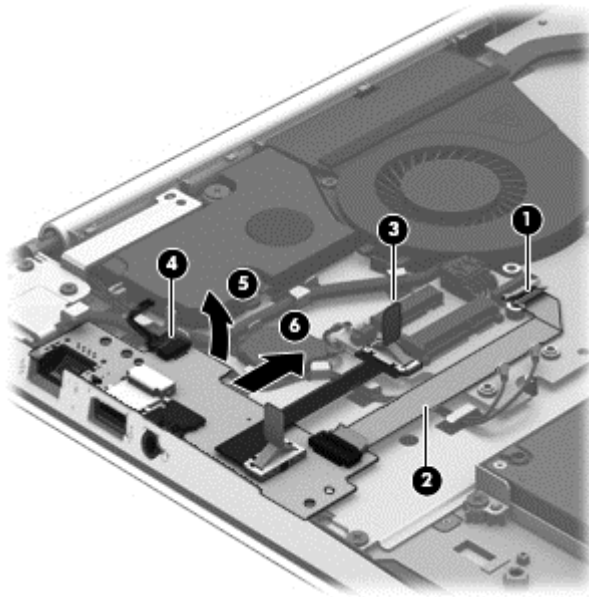
Description	Spare part number
USB/audio board for use in AMD models (includes cable)	725452-001
USB/audio board for use in Intel models (includes cable)	729621-001

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 service cover (see [Service cover on page 30](#)).
5. Disconnect the battery cable (see [Battery on page 32](#)).
6. Remove the RJ-45 module cover (see [RJ-45 module cover on page 40](#)).

Remove the USB/audio board:

1. Disconnect USB/audio connector cable **(1)** from the system board.
2. Remove the cable from the adhesive that secures it to the keyboard frame **(2)**.
3. Disconnect the USB/audio cable **(3)**.
4. Disconnect the subwoofer speaker cable **(4)**.
5. Pull up on the USB/audio board **(5)**, and pull it away from the computer side to remove it **(6)**.



Reverse this procedure to install the USB/audio board.

Power connector cable

Description	Spare part number
Power connector cable (includes bracket)	725444-001

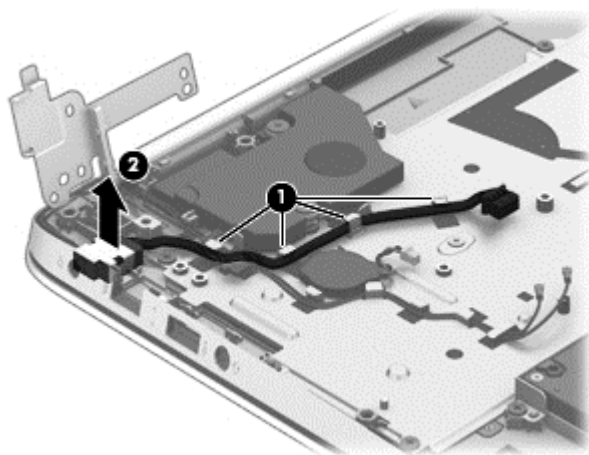
Before removing the power connector cable, follow these steps:

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 service cover (see [Service cover on page 30](#)).
5. Disconnect the battery cable (see [Battery on page 32](#)).

6. Remove the RJ-45 module cover (see [RJ-45 module cover on page 40](#)).
7. Remove the USB/audio board (see [USB/audio board on page 42](#)).

Remove the power connector cable:

- ▲ Remove the power connector cable from its routing path **(1)**, and then remove the power connector and cable **(2)** from the computer.



Reverse this procedure to install the power connector and cable.

Card reader board

Description	Spare part number
Card reader board for use only in Intel models	728133-001
Card reader board for use only in AMD models	727465-001

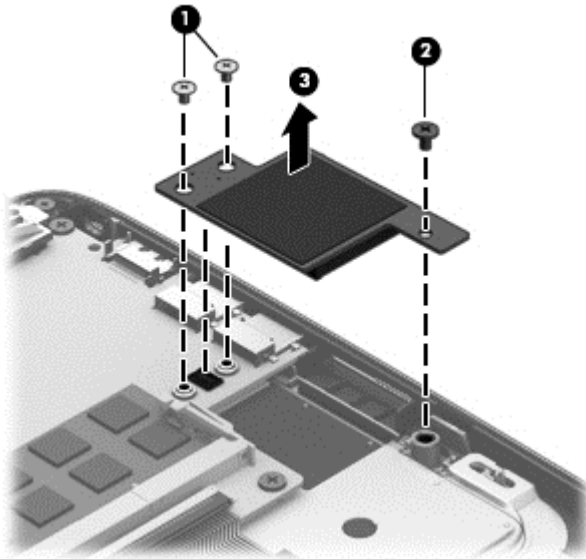
Before removing the card reader board, follow these steps:

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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)).

Remove the card reader board:

1. Remove the 2 Phillips PM2.0×2.0 screws that secure the card reader board to the system board **(1)**.
2. Remove the Phillips PM2.5×3.5 screw that secures the card reader board to the computer **(2)**.

3. Lift up on the board to disconnect the connector on the bottom of the board from the system board, and then remove the card reader board from the computer **(3)**.



Reverse this procedure to install the card reader board.

Fan

Description	Spare part number
Fan	725445-001

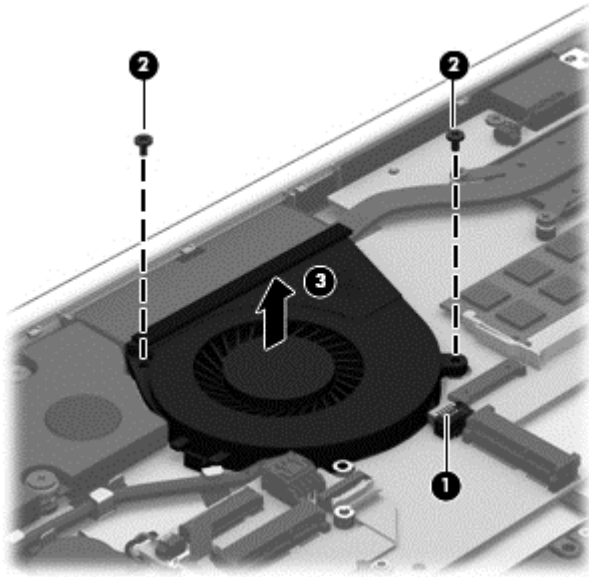
Before removing the fan:

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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)).

Remove the fan:

1. Disconnect the fan cable **(1)**.

2. Remove the 2 Phillips PM2.0×3.0 screws securing the fan to the computer **(2)**, and then lift the fan upwards **(3)**.



System board



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

Description	Spare part number
System board with AMD A10-5745M processor for use with computer models equipped with graphics subsystem with UMA memory	725462-001
System board with AMD A10-5745M processor for use with computer models equipped with graphics subsystem with UMA memory and the Windows 8 Standard operating system	725462-501
System board with Intel i5-4200U processor and graphics subsystem with UMA memory	732775-001
System board with Intel i5-4200U processor, graphics subsystem with UMA memory, and the Windows 8 Standard operating system	732775-501
System board with Intel i5-4200U processor, graphics subsystem with UMA memory, and the Windows 8 Professional operating system	732775-601
System board with Intel i5-4200U processor and graphics subsystem with UMA memory (with upgraded CPU core power controller version)	745043-001
System board with Intel i5-4200U processor, graphics subsystem with UMA memory, and the Windows 8 Standard operating (with upgraded CPU core power controller version)	745043-501

Before removing the system 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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)).
6. Remove the hard drive (see [Hard drive on page 34](#)).
7. Remove the card reader board (see [Card reader board on page 44](#)).
8. Remove the fan (see [Fan on page 45](#)).

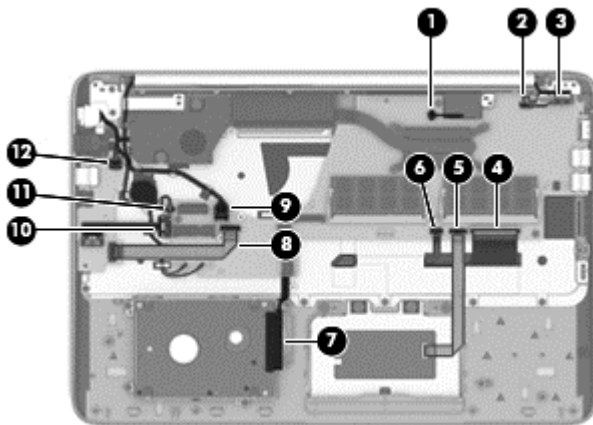
When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- RTC battery (see [RTC battery on page 33](#))
- Memory modules (see [Memory modules on page 39](#))
- Solid-state drive (see [Solid state drive \(Intel models only\) on page 35](#))

- Heat sink (see [Heat sink on page 50](#))
- WLAN module see (WLAN module).

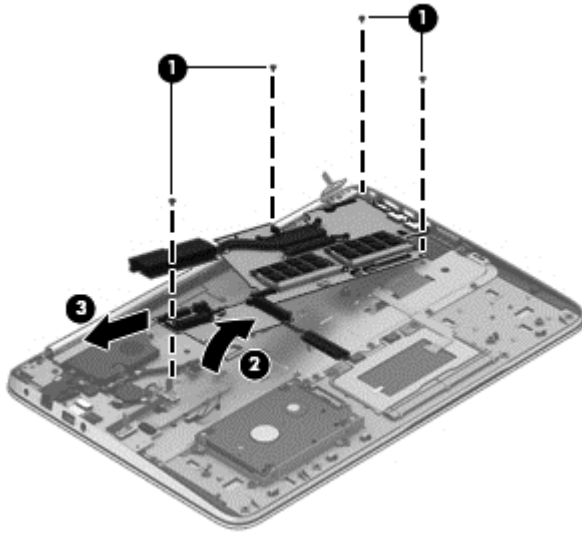
Remove the system board:

1. Remove the following cables:
 - Right speaker cable **(1)**
 - Power button board cable **(2)**
 - Display panel cable **(3)**
 - Keyboard connector cable **(4)**
 - TouchPad cable **(5)**
 - Keyboard backlight cable **(6)**
 - Hard drive cable **(7)**
 - USB/audio board connector cable **(8)**
 - Power connector cable **(9)**
 - USB/audio board cable **(10)**
 - RTC battery cable **(11)**
 - Left speaker and subwoofer cable **(12)**



2. Remove the 4 Phillips PM2.5×3.5 screws **(1)**.


3. Lift the system board up at an angle **(2)**, and then remove the system board **(3)**.



Reverse this procedure to install the system board.

Heat sink

Description	Spare part number
Heat sink for use in models with AMD processors	725446-001
Heat sink for use in models with Intel processors	728132-001


 **NOTE:** To properly ventilate the computer, allow at least 7.6 cm (3 in) of clearance on the left side of the computer. The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

Before removing the fan, follow these steps:

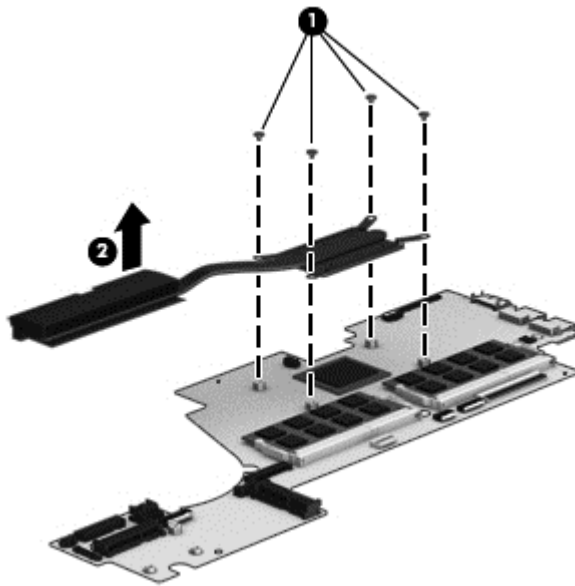
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)).
6. Remove the fan (see [Fan on page 45](#)).
7. Remove the card reader board (see [Card reader board on page 44](#)).
8. Remove the system board (see [System board on page 47](#)).

Remove the heat sink:

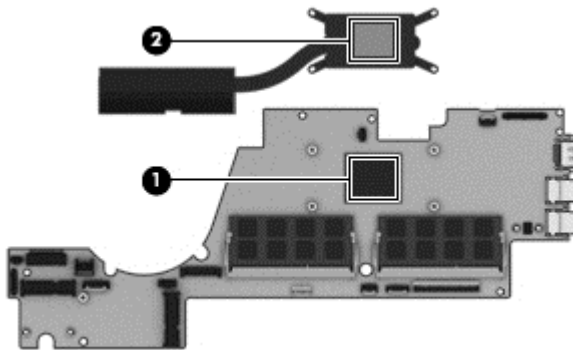
1. Remove the 4 broadhead Phillips PM2.5×2.5 screws securing the heat sink **(1)** to the system board.

 **CAUTION:** These screws must be removed in the sequence that is marked on the heat sink so that the correct pressure is applied to the processor and other components.

2. Remove the heat sink **(2)** from the system board.



3. Note the locations of thermal material over the soldered on processor on the system board **(1)** and the bottom of the heat sink that services it **(2)**.



Reverse this procedure to install the heat sink.

CAUTION: These screws must be installed in the sequence that is marked on the heat sink so that the correct pressure is applied to the processor and other components.

Power button board

Description	Spare part number
Power button board	725451-001

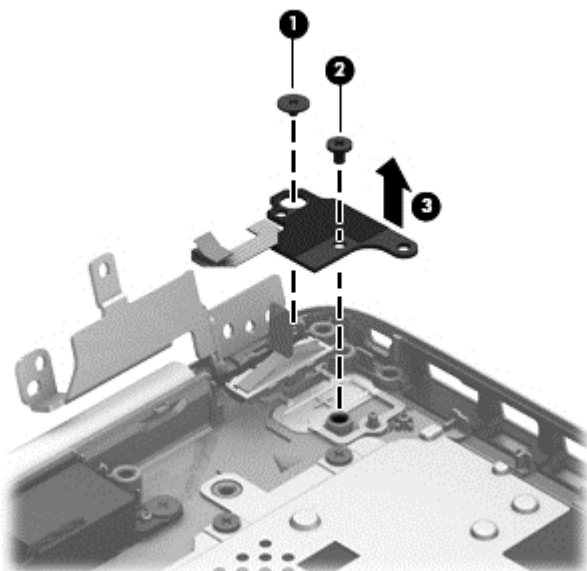
Before removing the power button board, follow these steps:

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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)).
6. Remove the fan (see [Fan on page 45](#)).
7. Remove the card reader board (see [Card reader board on page 44](#)).
8. Remove the system board (see [System board on page 47](#)).

Remove the power button board and cable:

1. Remove the Phillips PM2.0×2.0 broadhead screw **(1)** and the Phillips PM2.5×3.5 screw **(2)** that secures the right hinge to the computer.
2. Remove the power button board **(3)** from the computer.

 **NOTE:** The power button board cable is soldered onto the board.



Reverse this procedure to install the power button board.

Right speaker

Description	Spare part number
Speaker Kit (includes left speaker/subwoofer and right speaker)	725460-001

The computer includes two separate speakers — a speaker on the right side, and a speaker/subwoofer on the left side. You must remove the system board to remove the right speaker. You do not have to remove the system board to remove the left speaker/subwoofer. You do have to remove the RJ-45 module cover to remove the left speaker/subwoofer.

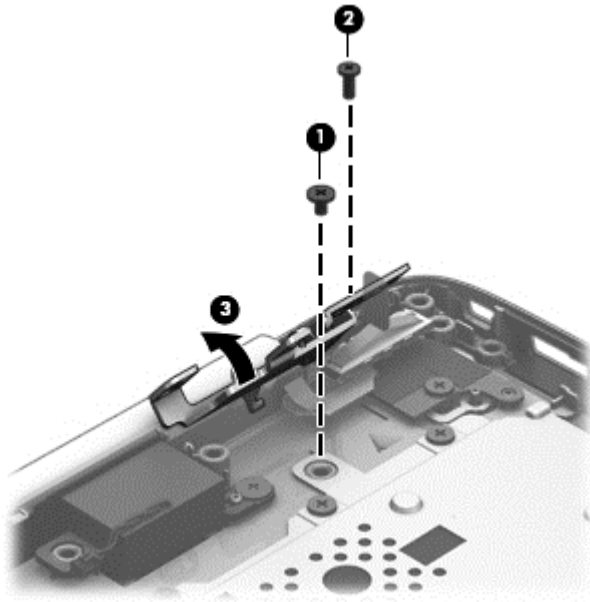
Before removing the front speakers, follow these steps:

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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)),
6. Remove the fan (see [Fan on page 45](#)).
7. Remove the card reader board (see [Card reader board on page 44](#)).
8. Remove the system board (see [System board on page 47](#)).

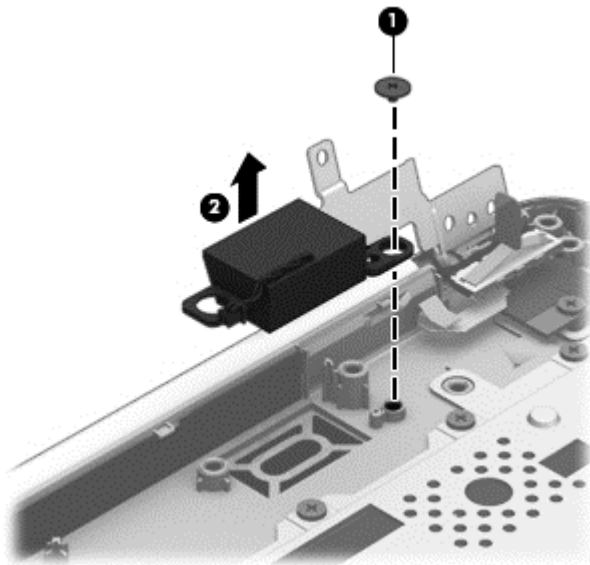
Remove the speakers:

1. Remove the Phillips PM2.5×3.5 screw **(1)** and the Phillips PM2.5×5.5 screw **(2)** that secures the right hinge to the computer.

2. Rotate the hinge upward to gain access to the speaker **(3)**.




3. Remove the Phillips PM2.0x3.5 broadhead screw that secures the right speaker **(1)**.
4. Remove the right speaker from the computer **(2)**.



Reverse this procedure to install the right speaker.

Keyboard

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

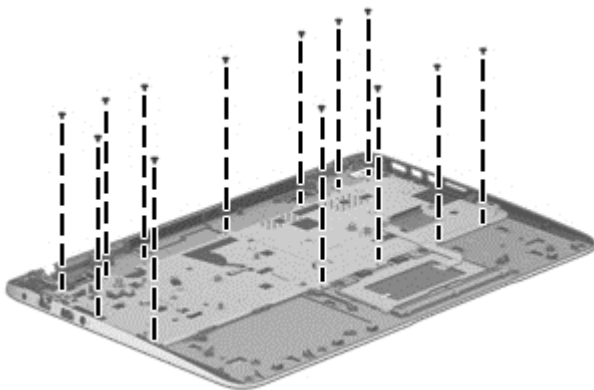
Description	Spare part number:
Keyboard bracket	725441-001
Backlit keyboard for use in the United States	725450-001
Backlit keyboard for use in Canada	725450-DB1

Before removing the keyboard, follow these steps:

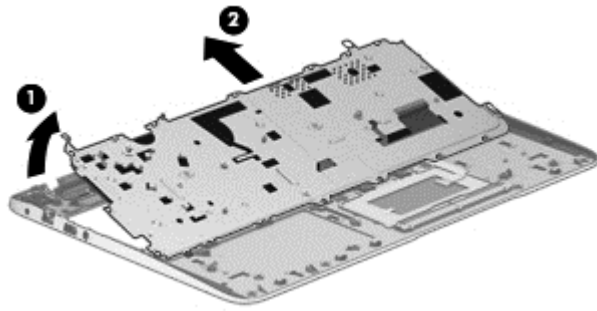
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)),
6. Remove the fan (see [Fan on page 45](#)).
7. Remove the card reader board (see [Card reader board on page 44](#)).
8. Remove the system board (see [System board on page 47](#)).

Remove the keyboard:

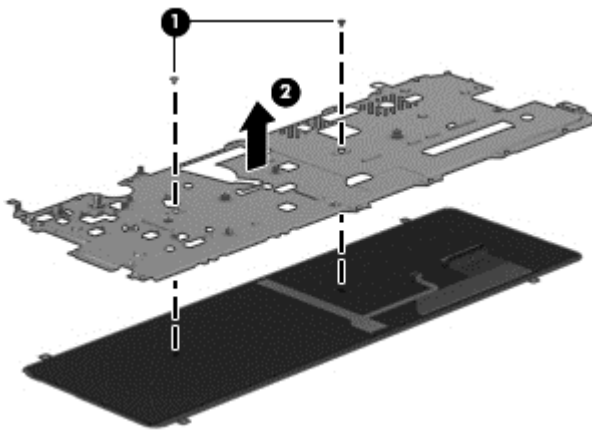
1. Remove the 13 Phillips PM2.5×3.5 screws that secure the keyboard bracket to the computer.



2. Lift up **(1)** to top of the bracket, and then remove the keyboard assembly **(2)** from the computer.



3. Remove the 2 silver Phillips PM2.0×3.0 screws **(1)** that secure the keyboard to the bracket, and then remove the keyboard from the bracket **(2)**.



Reverse this procedure to install the keyboard.

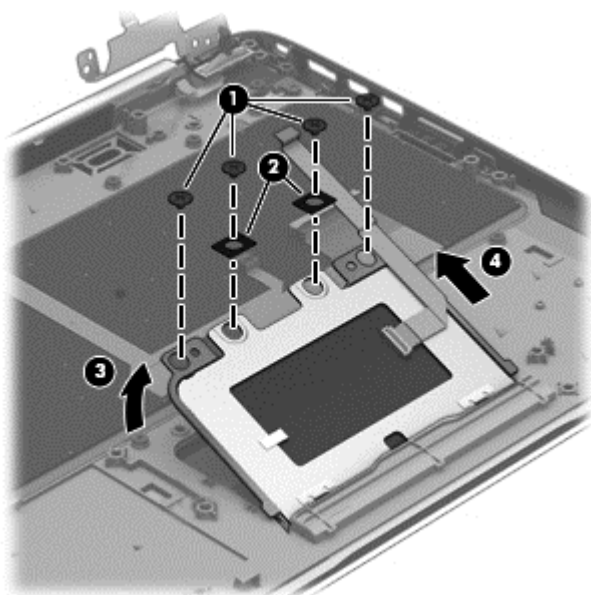
TouchPad module

Before removing the TouchPad button 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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)),
6. Remove the fan (see [Fan on page 45](#)).
7. Remove the card reader board (see [Card reader board on page 44](#)).
8. Remove the system board (see [System board on page 47](#)).
9. Remove the keyboard (see [Keyboard on page 55](#)).

Remove the TouchPad board:

1. Turn the top cover upside down, with the back edge toward you.
2. Remove the 4 Phillips PM2.5×3.0 PM screws **(1)** that secure the TouchPad to the top cover, and then remove the 2 mylar covers **(2)**.
3. Rotate the TouchPad board **(3)** upward.
4. Remove the TouchPad board and cable **(4)** from the top cover.



Reverse this procedure to install the TouchPad board and cable.

Display assembly, non-touchscreen

Description	Spare part number
Display assembly, FHD, non-touch	727461-001
Display assembly, HD, non-touch	727462-001

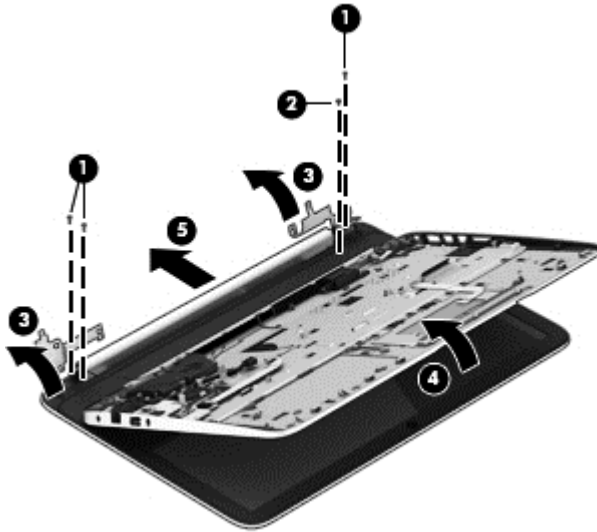
Before removing the display assembly, follow these steps:

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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)),
6. Remove the fan (see [Fan on page 45](#)).
7. Remove the card reader board (see [Card reader board on page 44](#)).
8. Remove the system board (see [System board on page 47](#)).

Remove the display assembly:

1. Remove the 3 Phillips PM2.5×5.5 screws from the hinges (2 from the left, 1 from the right hinge) **(1)**.
2. Remove the Phillips PM2.5×3.5 screw from right hinge **(2)**.
3. Rotate both hinges to the open position **(3)**.

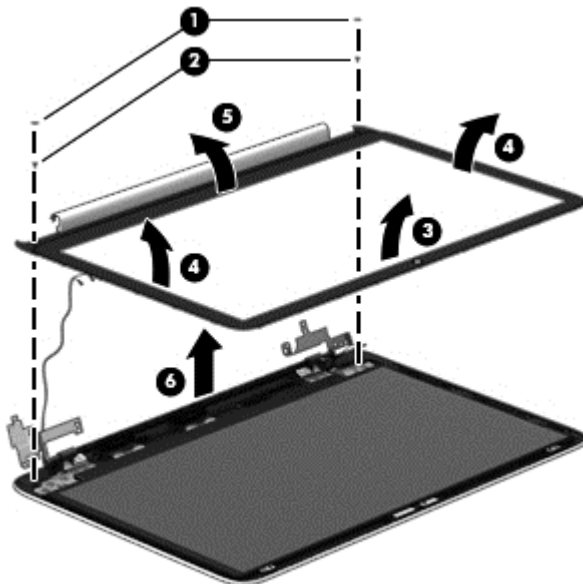
4. Lift the computer up to an angle **(4)**, and then pull the display assembly away from the computer **(5)**.



5. Remove the 2 screw covers **(1)** and the 2 PhillipsPM 2.0x2.5 screws **(2)** from the bottom corners of the bezel.
6. Loosen the top edge of the plastic bezel cover **(3)** from all four sides of the display panel.
7. Loosen the left and right side edges of the plastic bezel cover **(4)**, and then loosen the bottom edge of the plastic bezel cover **(5)**. Remove the plastic bezel cover **(6)**.

 **NOTE:** There is also adhesive that secures the bottom of the bezel to the display.

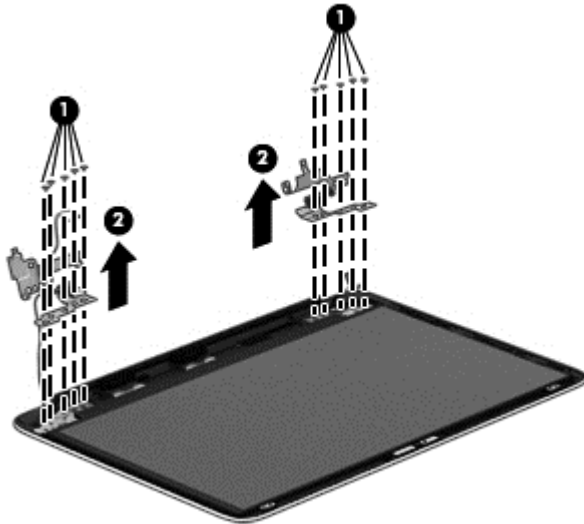
The display bezel is available using spare part number 725442-001.



8. If you need to remove the display hinges, remove the 5 Phillips PM2.5×3.0 screws **(1)** that secure each hinge to the display , and then lift the hinge off the display **(2)**.

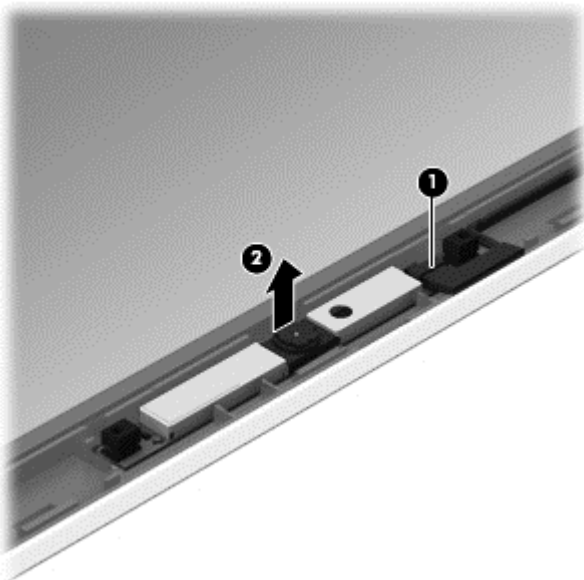
The display hinges are available using the following spare part numbers:

- 725448-001: Non-touchscreen models
- 725449-001: Touchscreen models



9. If you need to replace the webcam module, disconnect the webcam cable **(1)**, and then lift to disengage the adhesive that secures the webcam **(2)** to the display enclosure.

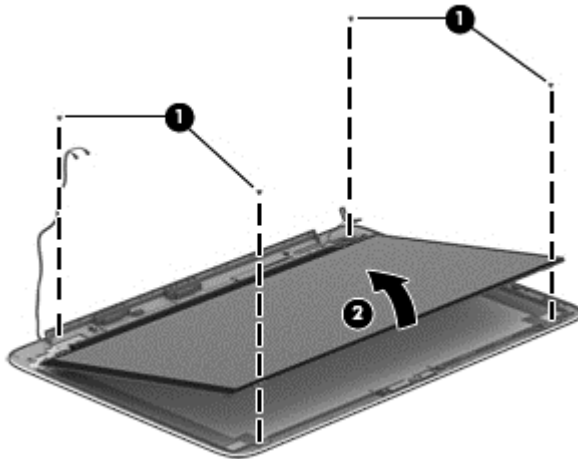
The webcam module is available using spare part number 725465-001.



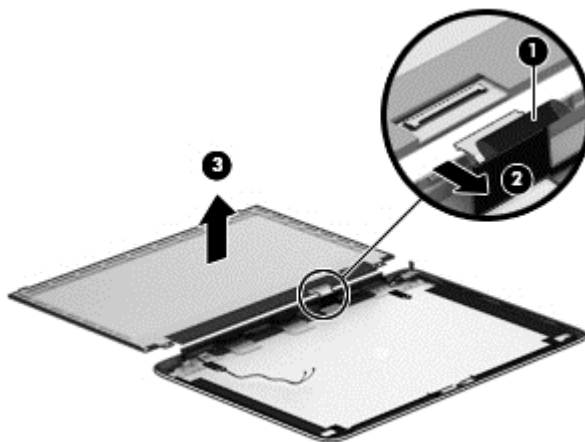
10. If you need to remove the raw display panel, remove the 4 Phillips PM 2.0x3.0 screws **(1)** that secure the panel to the display enclosure, and then rotate the panel upward **(2)** to gain access to the display cable connection on the back .

Raw display panels are available using the following spare part numbers:

- 725454-001: HD, non-touch
- 725455-001: HD, touchscreen
- 725456-001: FHD, non-touch
- 725457-001: FHD, touchscreen



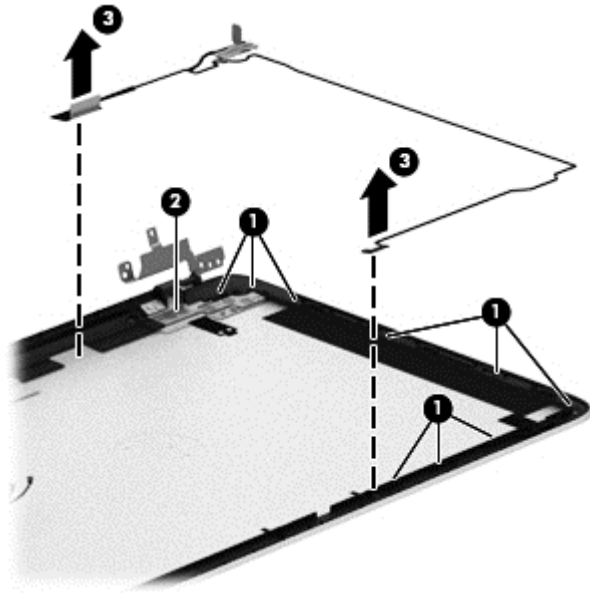
- 11.** Lift the adhesive strip atop the display panel connector on the back of the raw display panel **(1)**, and then disconnect the display cable. **(2)**. Remove the display panel from the display enclosure **(3)**.



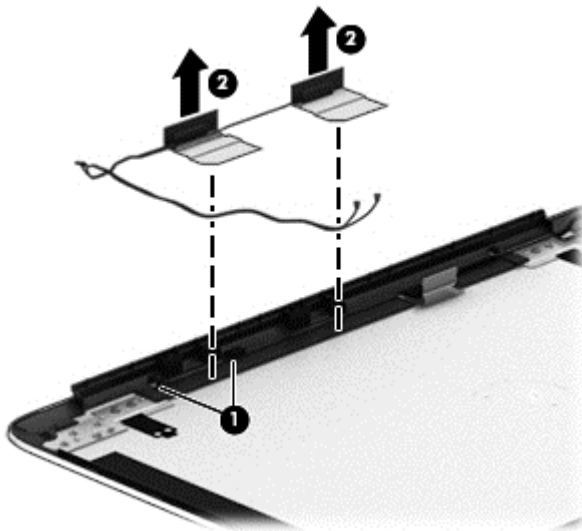
- 12.** Remove the cable from routing clips on the side of the display enclosure **(1)**, from underneath the hinge **(2)**, and then lift the cable out of the display enclosure **(3)**.

Display panel cables are available using the following spare part numbers:

- 725443-001: Touchscreen displays
- 725461-001: Non-touch displays



- 13.** If you need to replace the WLAN antennas and transceivers, remove the antennas from routing clips on the side of the display enclosure **(1)**, and then lift the antennas out of the display enclosure **(2)**. The WLAN antennas and transceivers route to the bottom of the display enclosure.



Reverse these procedures to reassemble the non-touchscreen display panel.

Display assembly, touchscreen

Description	Spare part number
Display assembly, FHD, touchscreen	727459-001
Display assembly, HD WLED, touchscreen	727460-001

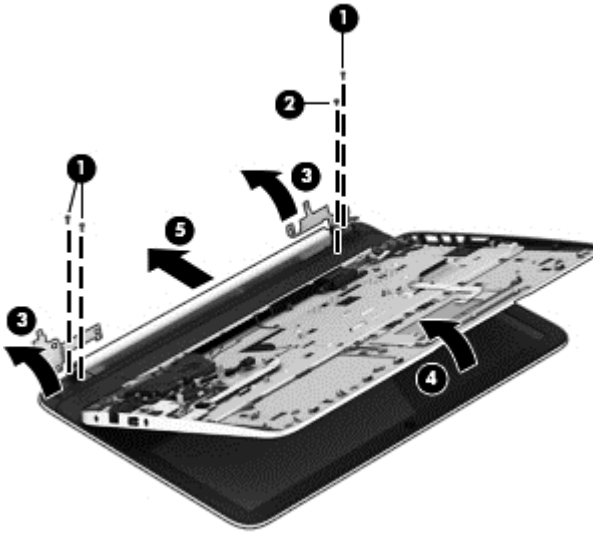
Before removing the display assembly, follow these steps:

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 service cover (see [Service cover on page 30](#)).
5. Remove the battery (see [Battery on page 32](#)),
6. Remove the fan (see [Fan on page 45](#)).
7. Remove the card reader board (see [Card reader board on page 44](#)).
8. Remove the system board (see [System board on page 47](#)).

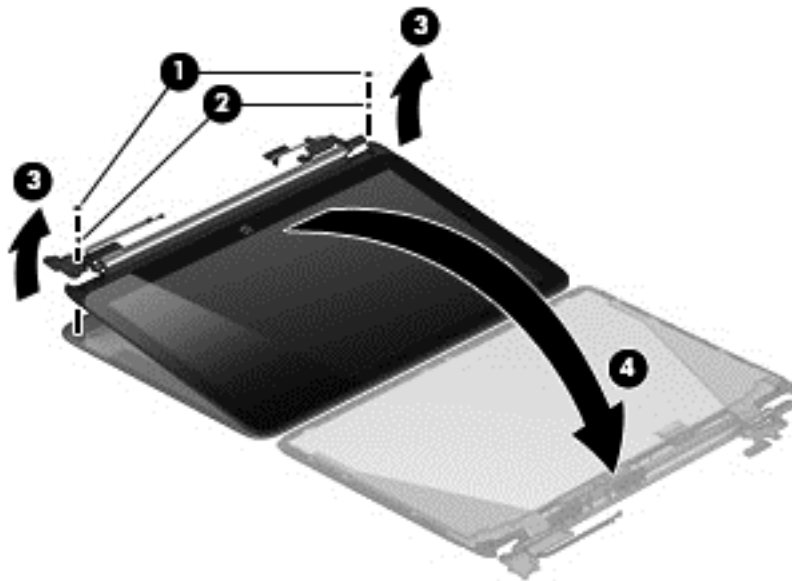
Remove the display assembly:

1. Remove the 3 Phillips PM2.5×5.5 screws from the hinges (2 from the left, 1 from the right hinge) **(1)**.
2. Remove the Phillips PM2.5×3.5 screw from right hinge **(2)**.
3. Rotate both hinges to the open position **(3)**.

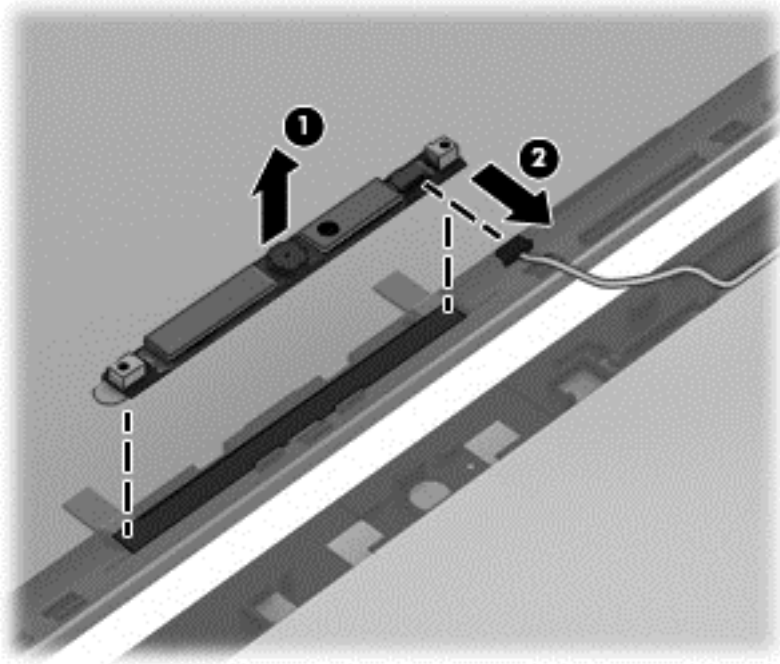
4. Lift the computer up to an angle **(4)**, and then pull the display assembly away from the computer **(5)**.



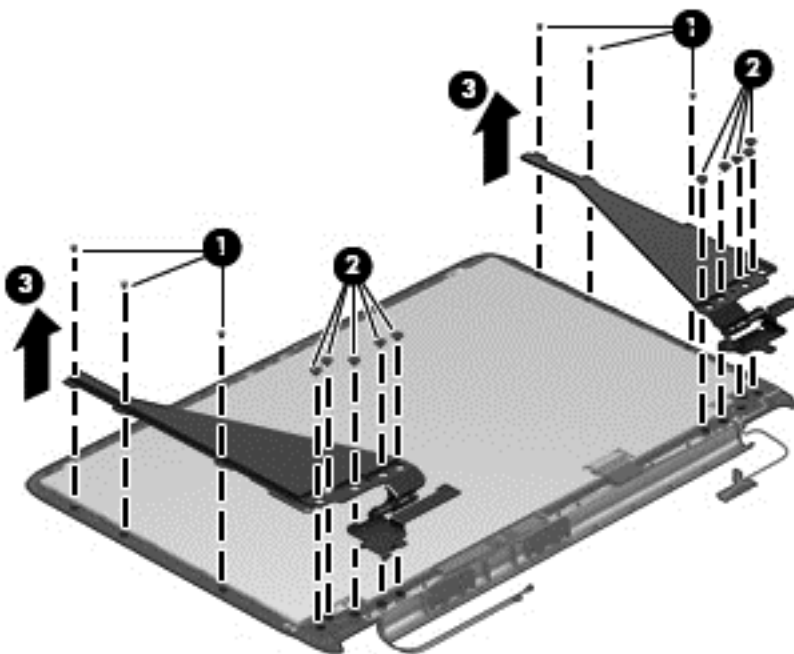
5. To separate the display enclosure, remove the 2 screw covers **(1)** and 2 silver Phillips PM 2.5x3.0 screws **(2)** from the bottom of the display panel assembly.
6. Lift the bottom of the display panel assembly upward to disengage it from the display enclosure **(3)**, and then lift the display panel assembly up and away from the enclosure **(4)**.



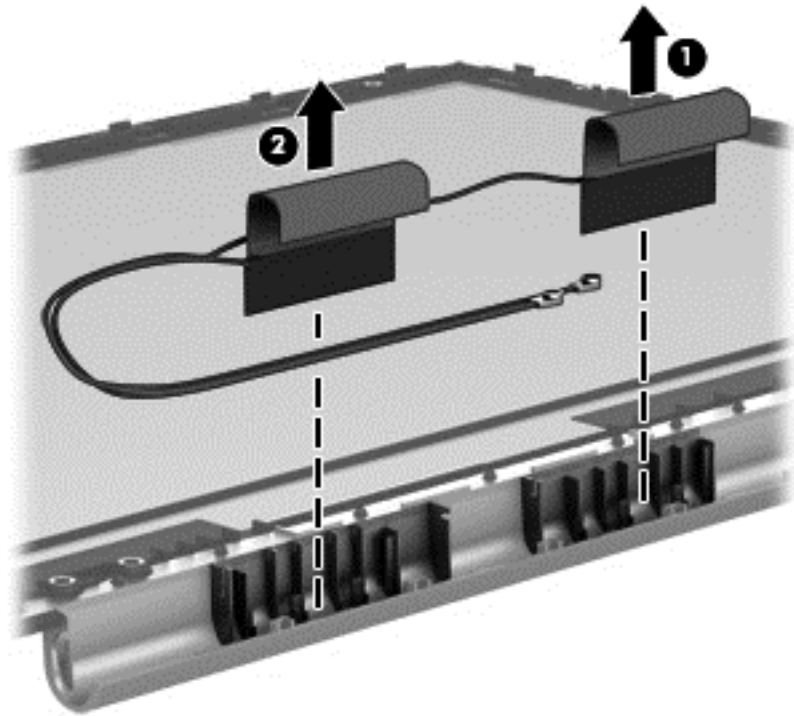
7. If you need to replace the webcam module from the display enclosure, lift the webcam up to disengage the adhesive tape that secures the webcam to the enclosure **(1)**, and then disconnect the webcam cable **(2)**.



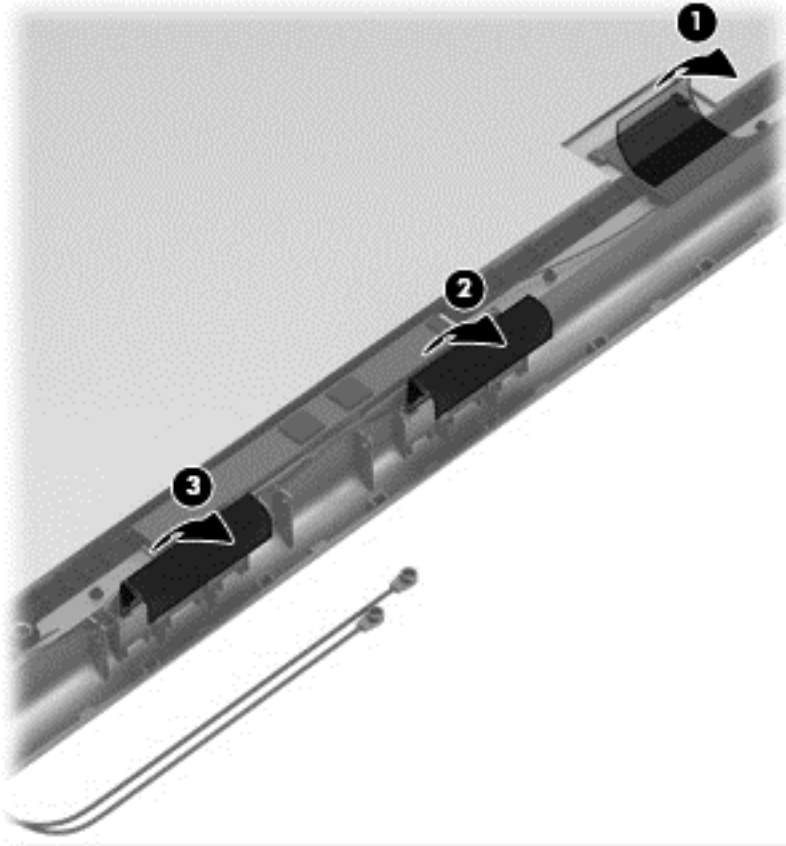
8. If you need to remove the display hinges, from each hinge remove the 3 Phillips PM 2.0x2.5 screws from the side of the hinge **(1)** and the 5 Phillips PM 2.5x2.5 broadhead screws from the bottom of the hinge **(2)**.
9. Remove the hinges from the display panel assembly **(3)**.



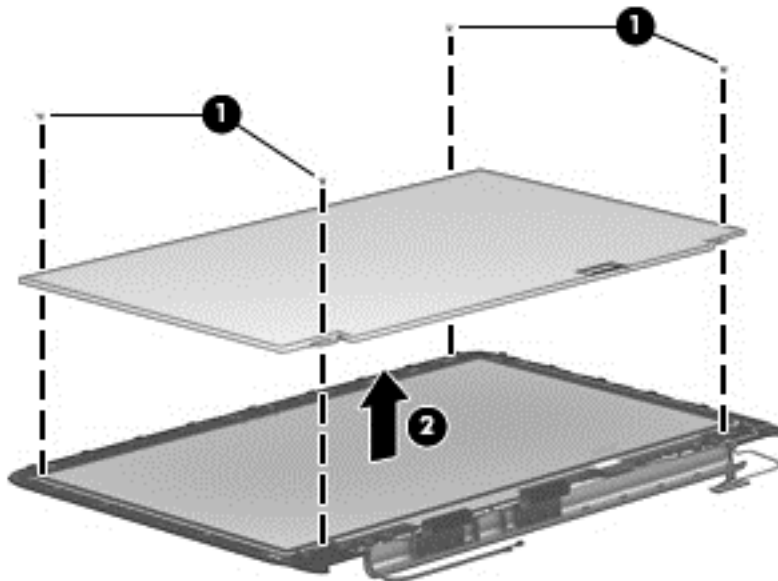
10. If you need to remove the WLAN antennas/transceivers, lift the tape that secures the transceivers to the display panel **(1)** **(2)**, and then lift the antennas/transceivers from the display panel assembly.



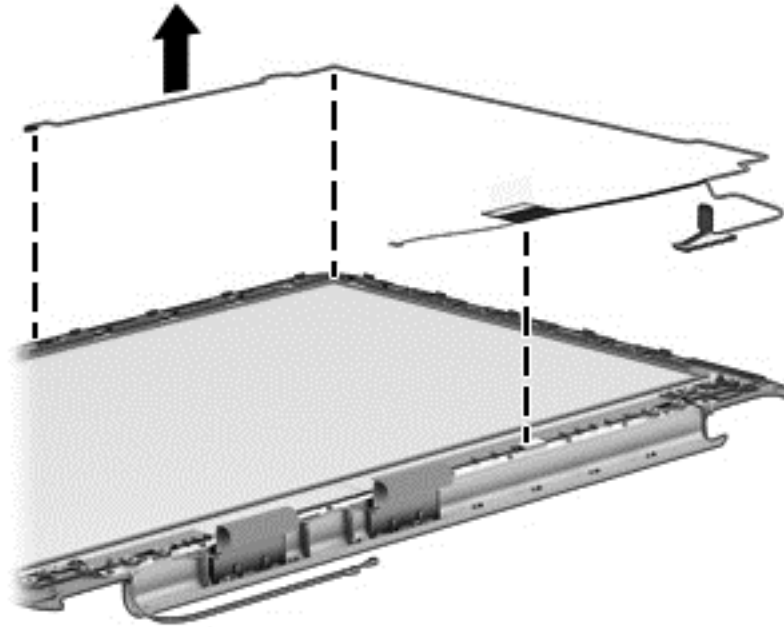
- 11.** If you need to remove the display panel, remove the display cable from the rear of the panel **(1)**, and (if necessary) remove the WLAN antenna transceiver tape from the display panel **(2) (3)**.



- 12.** Remove the 4 Phillips PM 2.0x3.0 screws **(1)** that secure the panel to the display enclosure, and then lift the panel from the display enclosure **(2)**.



- 13.** If you need to remove the display cable, noting the routing clips on the sides of the display enclosure, lift the cable from the display enclosure.




Reverse these procedures to reassemble the touchscreen display panel.


5 Setup Utility (BIOS) and System Diagnostics

Using Setup Utility

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 includes settings for the types of peripherals installed, the startup sequence of the computer, and the amount of system and extended memory.

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

Starting Setup Utility

 **NOTE:** An external keyboard or mouse connected to a USB port can be used with Setup Utility only if USB legacy support is enabled.

To start Setup Utility, follow these steps:

1. Turn on or restart the computer, and then press `esc` while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
2. Press `f10` to enter Setup Utility.

Changing the language of Setup Utility

1. Start Setup Utility.
2. Use the arrow keys to select **System Configuration > Language**, and then press `enter`.
3. Use the arrow keys to select a language, and then press `enter`.
4. When a confirmation prompt with your language selected is displayed, press `enter`.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press `enter`.

Your change takes effect immediately.

Navigating and selecting in Setup Utility

To navigate and select in Setup Utility, follow these steps:

1. Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
 - To select a menu or a menu item, use the tab key and the keyboard arrow keys and then press **enter**, or use a pointing device to click the item.
 - To scroll up and down, click the up arrow or the down arrow in the upper-right corner of the screen, or use the up arrow key or the down arrow key.
 - To close open dialog boxes and return to the main Setup Utility screen, press **esc**, and then follow the on-screen instructions.
2. Press **f10** to enter Setup Utility.

To exit Setup Utility menus, choose one of the following methods:


- To exit Setup Utility menus without saving your changes, press the **esc** key, and then follow the on-screen instructions.
- or -
Use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.
- To save your changes and exit Setup Utility menus, press **f10**, and then follow the on-screen instructions.
- or -
Use the tab key and the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

Your changes go into effect when the computer restarts.

Displaying system information

1. Start Setup Utility.
2. Select the **Main menu**. System information such as the system time and date, and identification information about the computer is displayed.
3. To exit Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

Restoring factory settings in Setup Utility

 **NOTE:** Restoring defaults will not change the hard drive mode.


To return all settings in Setup Utility to the values that were set at the factory, follow these steps:

1. Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
2. Press **f10** to enter Setup Utility.
3. Use the arrow keys to select **Exit > Load Setup Defaults**.
4. Follow the on-screen instructions.
5. To save your changes and exit, press **f10**, and then follow the on-screen instructions.

- or -

Use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

Your changes go into effect when the computer restarts.

 **NOTE:** Your password settings and security settings are not changed when you restore the factory settings.

Exiting Setup Utility

- To exit Setup Utility and save your changes from the current session:

If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

- To exit Setup Utility without saving your changes from the current session:

If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

Updating the BIOS

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

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

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


Determining the BIOS version

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

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

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

Downloading a BIOS update

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


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

Do not shut down the computer or initiate Sleep.

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

1. From the Start screen, select the **HP Support Assistant** app.
2. 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.

Make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

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


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

1. From the Start screen, type **e**, and then select **File Explorer**.
2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.

4. Double-click the file that has an .exe extension (for example, *filename.exe*).

The BIOS installation begins.

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

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

Using System Diagnostics


System Diagnostics allows you to run diagnostic tests to determine if the computer hardware is functioning properly. The following diagnostic tests are available in System Diagnostics:

- **Start-up test**—This test analyzes the main computer components that are required to start the computer.
- **Run-in test**—This test repeats the start-up test and checks for intermittent problems that the start-up test does not detect.
- **Hard disk test**—This test analyzes the physical condition of the hard drive, and then checks all data in every sector of the hard drive. If the test detects a damaged sector, it attempts to move the data to a good sector.
- **Memory test**—This test analyzes the physical condition of the memory modules. If it reports an error, replace the memory modules immediately.
- **Battery test**—This test analyzes the condition of the battery. If the battery fails the test, contact HP support to report the issue and purchase a replacement battery.

You can also view system information and error logs in the System Diagnostics window.

To start System Diagnostics:

1. Turn on or restart the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower-left corner of the screen, press **esc**. When the Startup Menu is displayed, press **f2**.
2. Click the diagnostic test you want to run, and then follow the on-screen instructions.

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

6 Specifications

Computer specifications

	Metric	U.S.
Dimensions		
Width	29.16 cm	11.48 in
Depth	2.15 cm	8.46 in
Height (front to back)	2.11 to 3.19 cm	0.83 to 1.26 in
Weight		
With 6-cell battery	1.60 kg	3.53 lb
With 3-cell battery	1.46 kg	3.22 lb
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.		


39.6-mm (15.6-inch) display specifications

	Metric	U.S.
Dimensions		
Height	16.50 cm	6.50 in
Width	25.34 cm	11.60 in
Diagonal	33.66 cm	15.60 in
Number of colors	262,144	
Contrast ratio	200:1 (typical)	
Brightness	200 nits (typical)	
Pixel resolution		
Pitch	0.197 mm × 0.197 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight	LED	
Character display	80 × 25	
Total power consumption	2.0 W	
Viewing angle	±65° horizontal, ±50° vertical (typical)	


7 Backup and recovery

To protect your information, use Windows Backup and Restore utilities to back up individual files and folders, back up your entire hard drive, create system repair media (select models only) by using the installed optical drive (select models only) or an optional external optical drive, or create system restore points. In case of system failure, you can use the backup files to restore the contents of your computer.

From the Start screen, type `restore`, click **Settings**, and then select from the list of displayed options.

 **NOTE:** For detailed instructions on various backup and restore options, perform a search for these topics in HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.

In case of system instability, HP recommends that you print the recovery procedures and save them for later use.

 **NOTE:** Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.

Backing up your information

Recovery after a system failure is as good as your most recent backup. You should create system repair media and your initial backup immediately after initial system setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup. The system repair media (select models only) are used to start up (boot) the computer and repair the operating system in case of system instability or failure. Your initial and subsequent backups allow you to restore your data and settings if a failure occurs.


On Start screen, type `backup`, click **Settings**, and then select **Save backup copies of your files with File History**.


You can back up your information to an optional external hard drive or a network drive.

Note the following when backing up:

- Store personal files in the Documents library, and back it up regularly.
- Back up templates that are stored in their associated programs.
- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

To create a backup using Windows Backup and Restore:

 **NOTE:** Be sure that the computer is connected to AC power before you start the backup process.


 **NOTE:** The backup process may take over an hour, depending on file size and the speed of the computer.

1. From the Start screen, type `backup`, click **Settings**, and then select from the list of displayed options.
2. Follow the on-screen instructions to set up your backup, create a system image (select models only), or create system repair media (select models only).

Performing a system recovery

In case of system failure or instability, the computer provides the following tools to recover your files:

- Windows recovery tools: You can use Windows Backup and Restore to recover information you have previously backed up. You can also use Windows Automatic Repair to fix problems that might prevent Windows from starting correctly.
- **f11** recovery tools: You can use the **f11** recovery tools to recover your original hard drive image. The image includes the Windows operating system and software programs installed at the factory.


 **NOTE:** If you are unable to boot (start up) your computer and you cannot use the system repair media you previously created (select models only), you must purchase Windows 8 operating system media to reboot the computer and repair the operating system. For additional information, see

Using the Windows recovery tools

To recover information you previously backed up:

- ▲ Access HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.

To recover your information using Automatic Repair, follow these steps:


 **CAUTION:** Some Automatic Repair options will completely erase and reformat the hard drive. All files you have created and any software installed on the computer are permanently removed. When reformatting is complete, the recovery process restores the operating system, as well as the drivers, software, and utilities from the backup used for recovery.

1. If possible, back up all personal files.
2. If possible, check for the presence of the HP Recovery partition and the Windows partition.


From the Start screen, type *e*, and then click **File Explorer**.

- or -


From the Start screen, type *c*, and then select **Computer**.

 **NOTE:** If the Windows partition and the HP Recovery partition are not listed, you must recover your operating system and programs using the Windows 8 operating system DVD and the *Driver Recovery* media (both purchased separately). For additional information, see [Using Windows 8 operating system media \(purchased separately\) on page 79](#).

3. If the Windows partition and the HP Recovery partition are listed, restart the computer. After Windows has loaded, press and hold the *shift* key while clicking **Restart**.
4. Select **Troubleshoot**, then select **Advanced Options**, and then select **Automatic Repair**.
5. Follow the on-screen instructions.


 **NOTE:** For additional information on recovering information using the Windows tools, perform a search for these topics in HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.

Using f11 recovery tools

 **CAUTION:** Using *f11* completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the computer are permanently removed. The *f11* recovery tool reinstalls the operating system and HP programs and drivers that were installed at the factory. Software not installed at the factory must be reinstalled.

To recover the original hard drive image using *f11*:

1. If possible, back up all personal files.
2. If possible, check for the presence of the HP Recovery partition: From the Start screen, type *C*, and then select **Computer**.


 **NOTE:** If the HP Recovery partition is not listed, you must recover your operating system and programs using the Windows 8 operating system media and the *Driver Recovery* media (both purchased separately). For additional information, see [Using Windows 8 operating system media \(purchased separately\) on page 79](#).

3. If the HP Recovery partition is listed, restart the computer, and then press *esc* while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.


4. Press **f11** while the "Press <F11> for recovery" message is displayed on the screen.
5. Follow the on-screen instructions.

Using Windows 8 operating system media (purchased separately)

To order a Windows 8 operating system DVD, go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions. You can also order the DVD by calling support. For contact information, see the *Worldwide Telephone Numbers* booklet included with the computer.

 **CAUTION:** Using a Windows 8 operating system media completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the computer are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as drivers, software, and utilities.

To initiate recovery using a Windows 8 operating system DVD:

 **NOTE:** This process takes several minutes.


1. If possible, back up all personal files.
2. Restart the computer, and then insert the Windows 8 operating system DVD into the optical drive before the Windows operating system loads.
3. When prompted, press any keyboard key.
4. Follow the on-screen instructions.


After the repair is completed:


1. Eject the Windows 8 operating system media and then insert the *Driver Recovery* media.
2. Install the Hardware Enabling Drivers first, and then install Recommended Applications.

Using Windows Refresh for quick and easy recovery

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

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

 **NOTE:** During Refresh, a list of removed traditional applications will be saved so that you have a quick way to see what you might need to reinstall. See HP Support Assistant for instructions on reinstalling traditional applications. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.


 **NOTE:** You may be prompted for your permission or password when using Refresh. See HP Support Assistant for more information. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.

To start Refresh:

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

Remove everything and reinstall Windows

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

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

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

To use the **f11** key:

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

To use the Start screen:

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

Using HP Software Setup

HP Software Setup can be used to reinstall drivers or select software that has been corrupted or deleted from the system.

1. From the Start screen, type `HP Software Setup`, and select **Apps**.
2. Open HP Software Setup.
3. Follow the on-screen directions to reinstall drivers or select software.

8 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 A and a nominal voltage rating of 125 or 250 V ac, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Argentina	IRAM	1
Australia	SAA	1
Austria	OVE	1
Belgium	CEBEC	1
Brazil	ABNT	1
Canada	CSA	2
Chile	IMQ	1
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
India	ISI	1
Israel	SII	1
Italy	IMQ	1
Japan	JIS	3
The Netherlands	KEMA	1
New Zealand	SANZ	1
Norway	NEMKO	1
The People's Republic of China	CCC	4
Saudi Arabia	SASO	7
Singapore	PSB	1
South Africa	SABS	1
South Korea	KTL	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	6
Thailand	TISI	1
The United Kingdom	ASTA	1

Country/region	Accredited agency	Applicable note number
The United States	UL	2
<ol style="list-style-type: none"> 1. The flexible cord must be Type HO5VV-F, 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. 2. The flexible cord must be Type SVT/SJT 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 ac) configuration. CSA or C-UL mark. UL file number must be on each element. 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 VCTF, 3-conductor, 0.75-mm² or 1.25-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V ac) 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 CCC certification mark. 5. The flexible cord must be Type H05VV-F 3X0.75-mm² conductor size. KTL logo and individual approval number must be on each element. Corset approval number and logo must be printed on a flag label. 6. The flexible cord must be Type HVCTF 3x1.25-mm² conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark. 7. For 127 V ac, the flexible cord must be Type SVT or SJT 3 x 18 AWG, with plug NEMA 5-15P (15 A, 125 V ac), with UL and CSA or C-UL marks. For 240 V ac, the flexible cord must be Type H05VV-F 3x0.75-/1.00-mm² conductor size, with plug BS 1363/A with BSI or ASTA marks. 		

9 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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