



**HP Pavilion Notebook 17
Models 17-g000 – 17-g099
AMD Models**

Maintenance and Service Guide

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Product notice

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

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

To access the latest user guide, go to <http://www.hp.com/support>, and select your country. Select **Drivers & Downloads**, and then follow the on-screen instructions.

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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

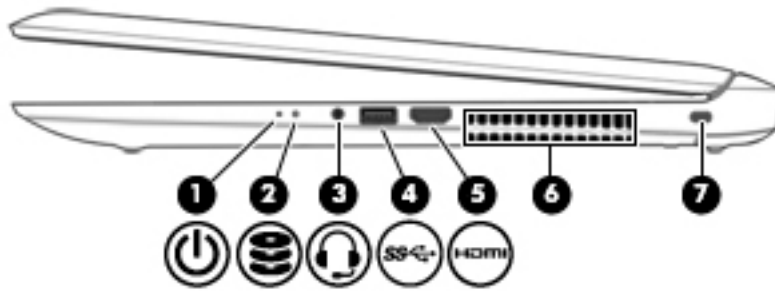
Category	Description
Product name	HP Pavilion Notebook 17
Processors	AMD™ A8-7410 (2.2 GHz, SC turbo up to 2.5 GHz), Max 1600 MHz/2 MB L2, quad core 15 W A10-8700P (1.8 GHz, SC turbo up to 3.2 GHz), Max1600 MHz/2 MB L2, quad core 15 W A4-6210 (1.8 GHz), 1600 MHz/2 MB L2, quad core 15 W A6-6310 (1.8 GHz, up to 2.4 GHz), 1600 MHz/2 MB L2, quad core 15 W
Chipset	AMD Integrated SOC FCH
Graphics	Internal graphics: AMD Radeon™ R5 Graphics AMD Radeon R6 Graphic AMD Radeon R3 Graphics AMD Radeon R4 Graphics Switchable discrete graphics: AMD Radeon R7 M360 (Meso-XT) with up to 2048 MB of dedicated video memory (256 Mx16 DDR3 900 MHz x 4 PCs, 1 GHz bridge to 900 MHz), TDP 25 W AMD R7 M360 (Meso-XT) with up to 2048 MB of dedicated video memory (256Mx16 DDR3 900MHz x 4 PCs, 1GHz bridge to 900MHz) (i5/i7 processors) Support HD Decode, DX11, and PX7
	Support Dual Graphics AMD Radeon R8 M355DX M365DX Dual Graphics
Panel	16:9 Ultra Wide Aspect Ratio (43.9-cm 17.3in), HD, WLED, SVA, LVDS BrightView, (1600x900) wedge display, 6.0 mm; typical brightness: 220 nits (non-touch screen only) 16:9 Ultra Wide Aspect Ratio (43.9-cm 17.3in), HD, WLED, SVA, LVDS, AntiGlare, (1600x900) wedge display, 6.0 mm; typical brightness: 220 nits (Touch screen only) 16:9 Ultra Wide Aspect Ratio (43.9-cm 17.3in), FHD, WLED, SVA, AntiGlare, (1920x1080) flat display, 4.0 mm; UWVA, eDP typical brightness: 220 nits (non-touch/touch screen) Touch screen with flush glass, multi-touch enabled (select models only) Supports LVDS (co-layout with eDP1.3+PSR) Supports eDP1.3 without PSR
Memory	Two SODIMM slots - NON customer accessible / upgradeable DDR3L-1600-MHz Single Channel Support DDR3L-1600-MHz Dual Channel Support Supports up to 16 GB of system RAM in the following configurations: <ul style="list-style-type: none">• 16384-MB total system memory (8192x2)• 12288-MB total system memory (8192x1) + (4096x1)







Category	Description
	<ul style="list-style-type: none"> 8192-MB total system memory (8192×1) or (4096×2) 6144-MB total system memory (4096×1) + (2048×1) 4096-MB total system memory (4096×1) or (2048×2)
Hard drives	<p>Supports 6.35-cm (2.5-in) SATA hard drives in 9.5 mm (.37 in) and 7.0 mm (.28 in) thicknesses</p> <p>7 mm/9.5 mm share the same bracket</p> <p>Accelerometer / HDD protection support</p> <p>Single HDD configurations:</p> <ul style="list-style-type: none"> 2-TB, 5400-rpm, 9.5-mm 1-TB, 5400-rpm, 9.5-mm 750-GB, 5400-rpm, 9.5-mm 500-GB, 5400-rpm, 7.0-mm <p>Hybrid HDD configurations:</p> <ul style="list-style-type: none"> 1-TB, 5400-rpm, 9.5-mm SSHD w/8GB NAND
Optical drive	<p>Fixed, serial SATA, 9.5-mm tray load</p> <p>DVD+/-RW Double-Layer SuperMulti</p> <p>Supports M-disc</p>
Audio/video	<p>HP TrueVision HD: HD camera (fixed, no tilt with activity LED, 1280×720 by 30 frames per second)</p> <p>Dual array digital microphone with appropriate software - beam forming, echo cancellation, noise suppression</p> <p>Dual speakers</p> <p>Enable HP Noise Cancellation</p> <p>HD audio</p> <p>B&O Play</p>
Sensors	Accelerometer
Ethernet	Integrated 10/100 network interface card (NIC)
Wireless	<p>Intel WiDi support</p> <p>Compatible with Miracast-certified devices</p> <p>Integrated Wireless options with single antenna (M.2/PCIe):</p> <ul style="list-style-type: none"> Broadcom BCM43142 802.11 b/g/n 1x1 Wi-Fi + Bluetooth 4.0 M.2 Combo Adapter Realtek RTL8723BE 802.11b/g/n 1x1 Wi-Fi + Bluetooth 4.0 Combo Adapter Realtek RTL8188EE 802.11b/g/n 1x1 Wi-Fi Adapter Realtek RTL8723BE 802.11b/g/n 1x1 Wi-Fi + Bluetooth 4.0 Combo Adapter <p>Integrated Wireless options with dual antenna (M.2/PCIe):</p> <ul style="list-style-type: none"> Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + Bluetooth 4.0 Combo Adapter Intel Dual Band Wireless-AC 3165 802.11 ac 1x1 WiFi + Bluetooth 4.0 Combo Adapter for use with Windows 10 <p>Compatible with Miracast-certified devices</p>
Internal card expansion	One M.2 slot for WLAN

Category	Description
External media card	<p>HP Multi-Format Digital Media Card Reader</p> <p>Support SD/SDHC/SDXC</p> <p>Push-Push Insertion/Removal</p>
Ports	<p>HDMI version 1.4 supporting 1920 × 1200 @ 60Hz</p> <p>Hot Plug/unplug and auto detect for correct output to wide-aspect vs. standard aspect video</p> <p>RJ-45 (Ethernet, includes link and activity lights)</p> <p>USB 3.0 (1 on left side, one on right side)</p> <p>USB 2.0 (1 on left side)</p> <p>AC Smart Pin adapter plug</p> <p>Headphone jack/Microphone jack</p>
Keyboard/ pointing devices	<p>Full size standard textured island-style keyboard with numeric keypad</p> <p>Full size standard three coat paint island-style backlit keyboard with numeric keypad</p> <p>ClickPad with multi-touch gestures, 2-finger scrolling, and pinch-zoom enabled</p> <p>Taps enabled by default</p> <p>Support Win8 Modern Trackpad Gestures</p>
Power requirements	<p>Battery:</p> <p>4-cell, 41-Whr, 2.8Ah, li-ion battery</p> <p>AC adapters:</p> <p>AC Adapter 65-W Smart nPFC, 3 pin, RC 4.5mm connector (models with discrete graphics only)</p> <p>AC Adapter 65-W EM Smart nPFC, 3 pin, RC 4.5mm connector (models with discrete graphics in India/China only)</p> <p>AC Adapter 45-W Smart nPFC, 3 pin, RC 4.5mm connector (models with UMA graphics only)</p> <p>1 meter power cord</p> <p>Battery life enhancement</p>
Security	<p>Security Lock</p>
Operating system	<p>Preinstalled:</p> <p>Windows 10</p> <ul style="list-style-type: none"> • Windows 8.1 • Ubuntu • FreeDOS 2.0
Serviceability	<p>End-user replaceable parts:</p> <ul style="list-style-type: none"> • AC adapter • Battery • Optical drive

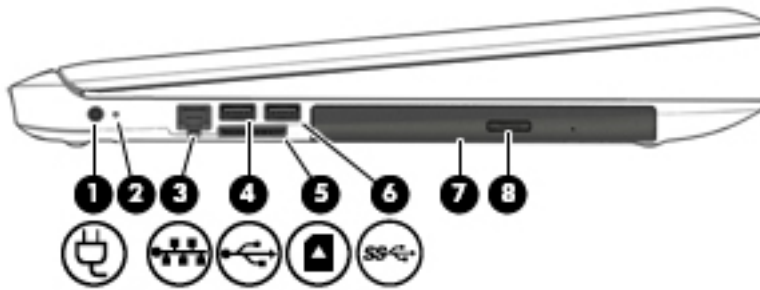
2 Internal components identification







Right side



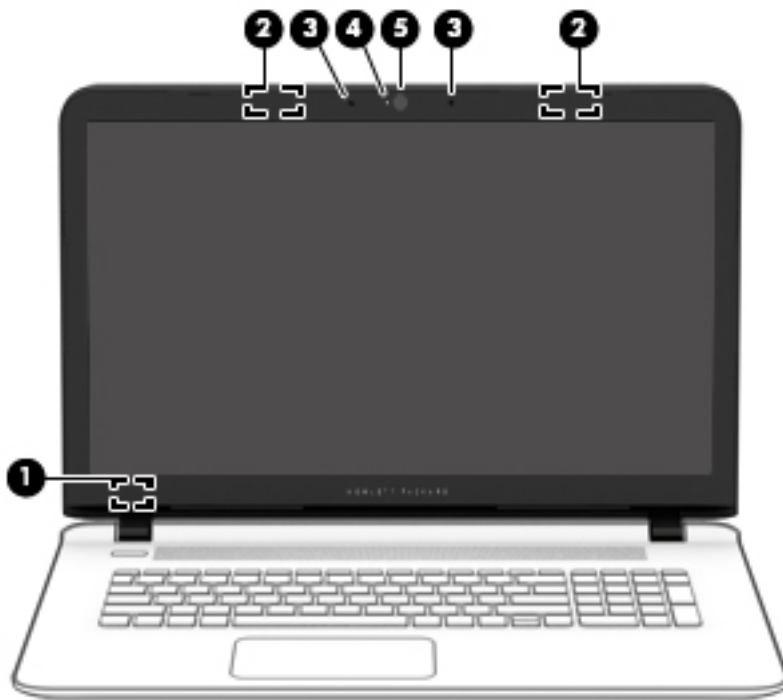
Component	Description
(1)  Power light	<ul style="list-style-type: none"> On: The computer is on. Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components. Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
(2)  Hard drive light	<ul style="list-style-type: none"> Blinking white: The hard drive is being accessed.
(3)  Audio-out (headphone)/Audio-in (microphone) combo 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>.</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>
(4)  USB 3.0 port	<p>Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.</p>
(5)  HDMI port	<p>Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High-Definition Multimedia Interface (HDMI) device.</p>
(6) Vent	<p>Enables airflow to cool internal components.</p> <p>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.</p>
(7)  Security cable slot	<p>Attaches an optional security cable to the computer.</p> <p>NOTE: The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.</p>

Left side



Component	Description
(1)  Power connector	Connects an AC adapter.
(2)  AC adapter/battery light	<ul style="list-style-type: none"> • White: The AC adapter is connected and the battery is fully charged. • Blinking white: The AC adapter is disconnected and the battery has reached a low battery level. • Amber: The AC adapter is connected and the battery is charging. • Off: The battery is not charging.
(3)  RJ-45 (network) jack/status lights	<p>Connects a network cable.</p> <ul style="list-style-type: none"> • White: The network is connected. • Amber: Activity is occurring on the network.
(4)  USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)  Memory card reader	<p>Reads optional memory cards that enable you to store, manage, share, or access information.</p> <p>To insert a card:</p> <ol style="list-style-type: none"> 1. Hold the card label-side up, with connectors facing the computer. 2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated. <p>To remove a card:</p> <ul style="list-style-type: none"> ▲ Press in on the card, and then remove it from the memory card reader.
(6)  USB 3.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(7) Optical drive	Depending on your computer model, reads an optical disc or reads and writes to an optical disc.
(8) Optical drive eject button	Opens the optical drive tray.

Display (dual WLAN)

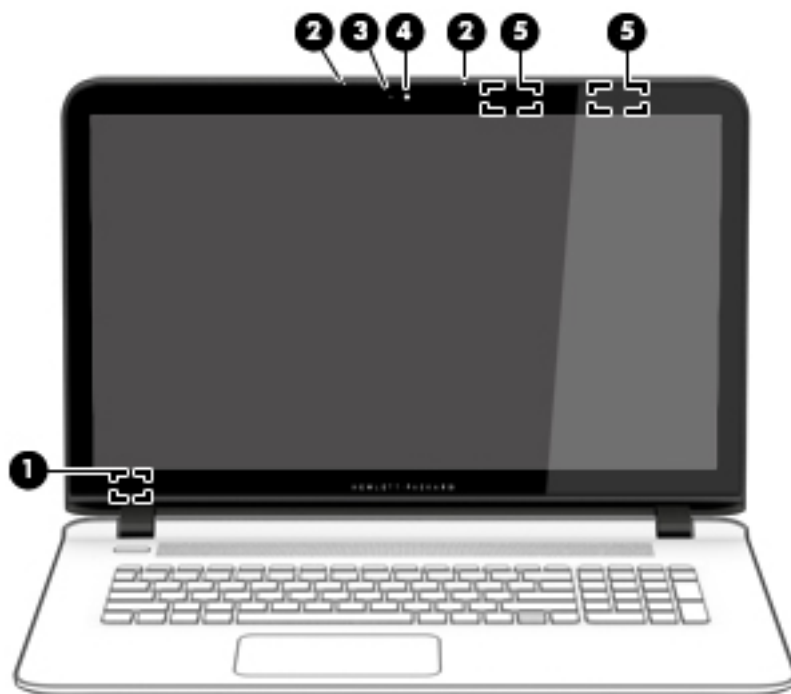


Component	Description
(1) Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on. NOTE: The internal display switch is not visible from the outside of the computer.
(2) WLAN antennas* (2)	Sends and receives wireless signals to communicate with wireless local area networks (WLANs).
(3) Internal microphones (2)	Records sound.
(4) Webcam light	On: The webcam is in use.
(5) Webcam – or – 3D camera (select products only)	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video.

*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.

Display (Touchscreen)



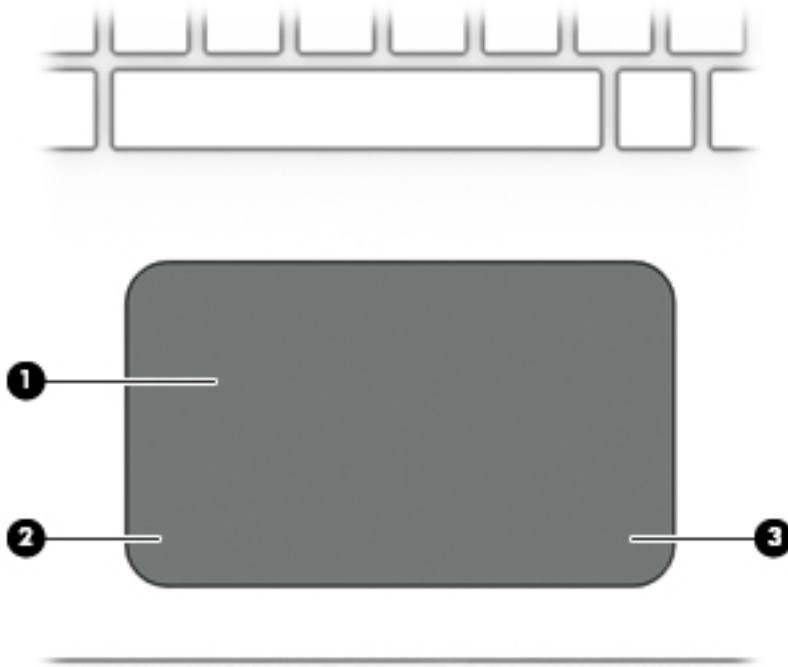
Component	Description
(1) Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on. NOTE: The internal display switch is not visible from the outside of the computer.
(2) Internal microphones (2)	Records sound.
(3) Webcam light	On: The webcam is in use.
(4) Webcam – or – 3D camera (select products only)	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video.
(5) WLAN antennas* (2)	Sends and receives wireless signals to communicate with wireless local area networks (WLANs).

*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.

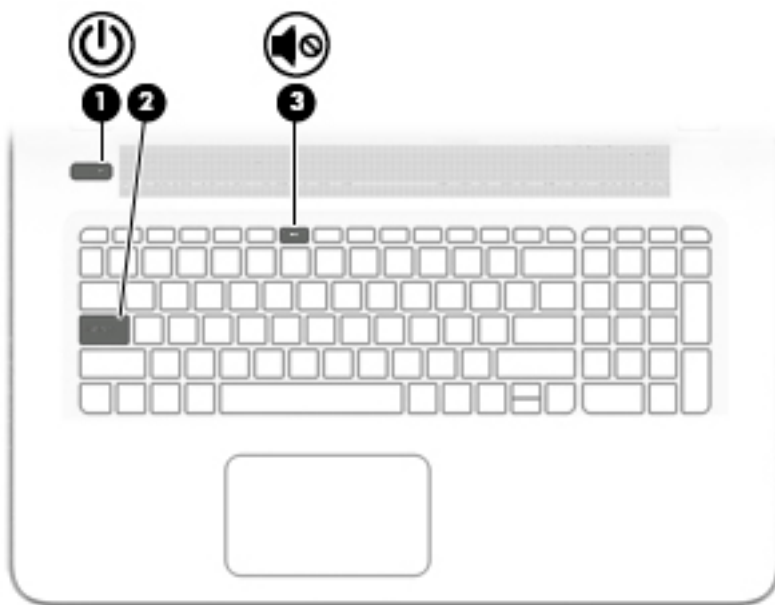
Top



TouchPad



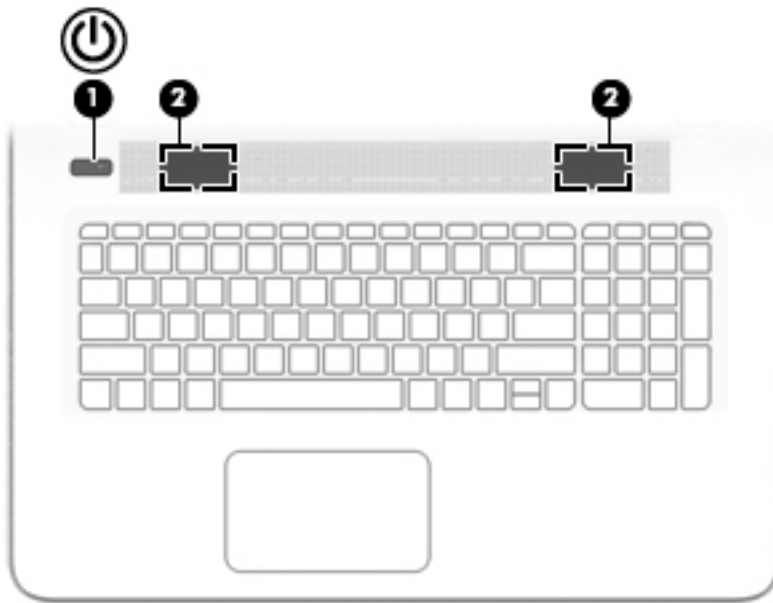
Component	Description
(1) TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2) Left TouchPad button	Functions like the left button on an external mouse.
(3) Right TouchPad button	Functions like the right button on an external mouse.


Lights



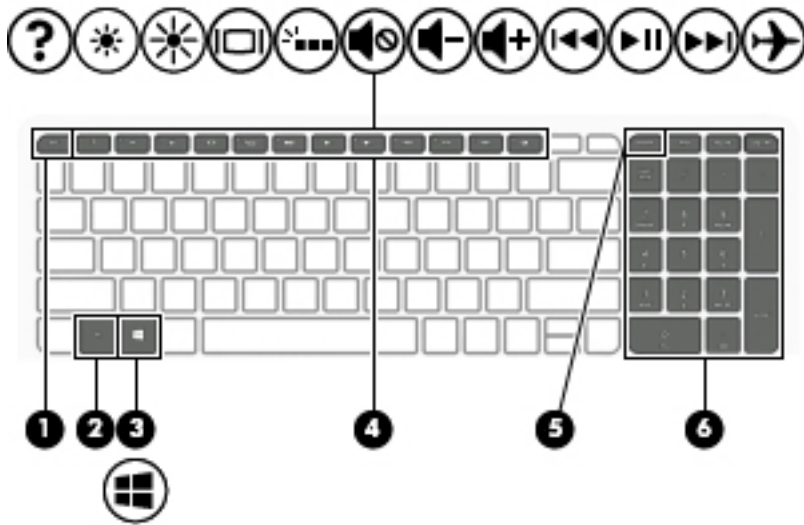
Component	Description
(1)  Power light	<ul style="list-style-type: none">• On: The computer is on.• Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components.• Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
(2) Caps lock light	On: Caps lock is on, which switches the key input to all capital letters.
(3)  Mute light	<ul style="list-style-type: none">• Amber: Computer sound is off.• Off: Computer sound is on.


Buttons and speakers



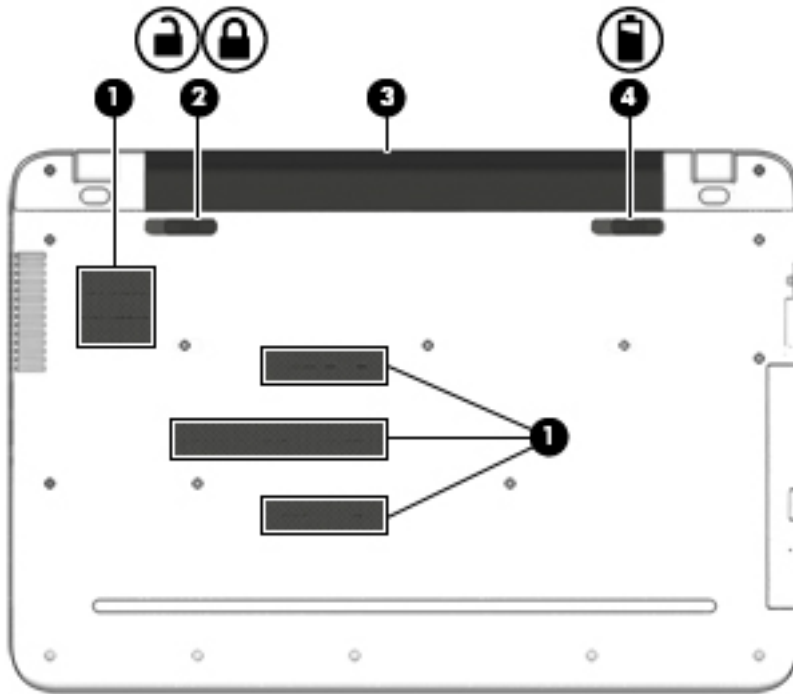
Component	Description
(1)  Power button	<ul style="list-style-type: none">• When the computer is off, press the button to turn on the computer.• When the computer is on, press the button briefly to initiate Sleep.• When the computer is in the Sleep state, press the button briefly to exit Sleep.• When the computer is in Hibernation, press the button briefly to exit Hibernation. <p>CAUTION: Pressing and holding down the power button results in the loss of unsaved information.</p> <p>If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p>
(2) Speakers (2)	Produce sound.



Keys



Component	Description
(1) esc key	Displays system information when pressed in combination with the fn key.
(2) fn key	Executes frequently used system functions when pressed in combination with the esc key, action keys, or the spacebar .
(3)  Windows key	Opens the Start menu. NOTE: Pressing the Windows key again will close the Start menu.
(4) Action keys	Execute frequently used system functions. NOTE: On select models, the f5 action key turns the backlight keyboard feature off or on.
(5) num lock key	Alternates between the navigational and numeric functions on the integrated numeric keypad.
(6) Integrated numeric keypad	When num lock is on, the keypad can be used like an external numeric keypad.


Bottom

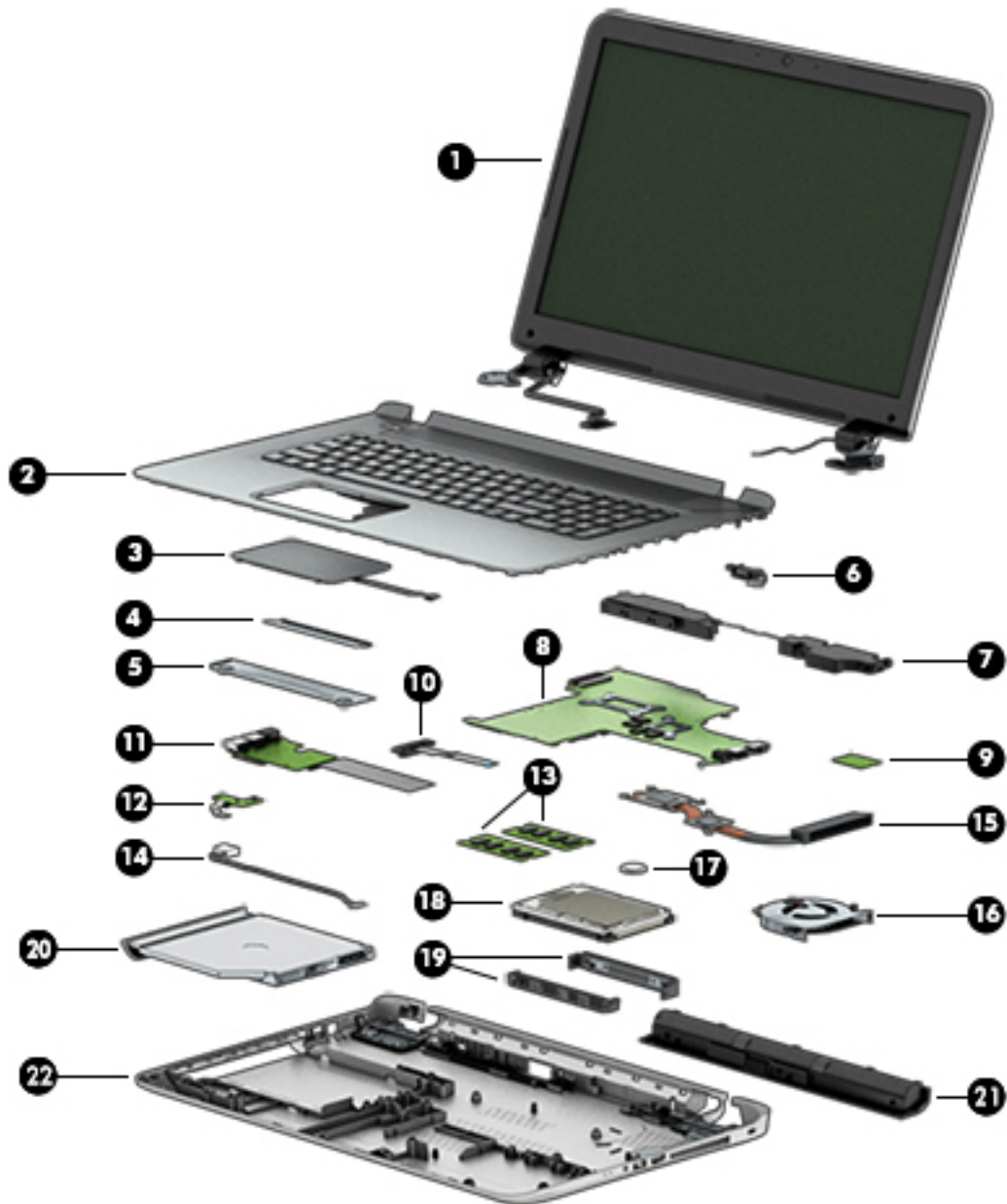


Component	Description
(1)	Vents (4) Enable airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(2) 	Battery lock Locks the battery in the battery bay.
(3)	Battery bay Holds the battery.
(4) 	Battery release latch Releases the battery.

3 Illustrated parts catalog

Computer major components

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

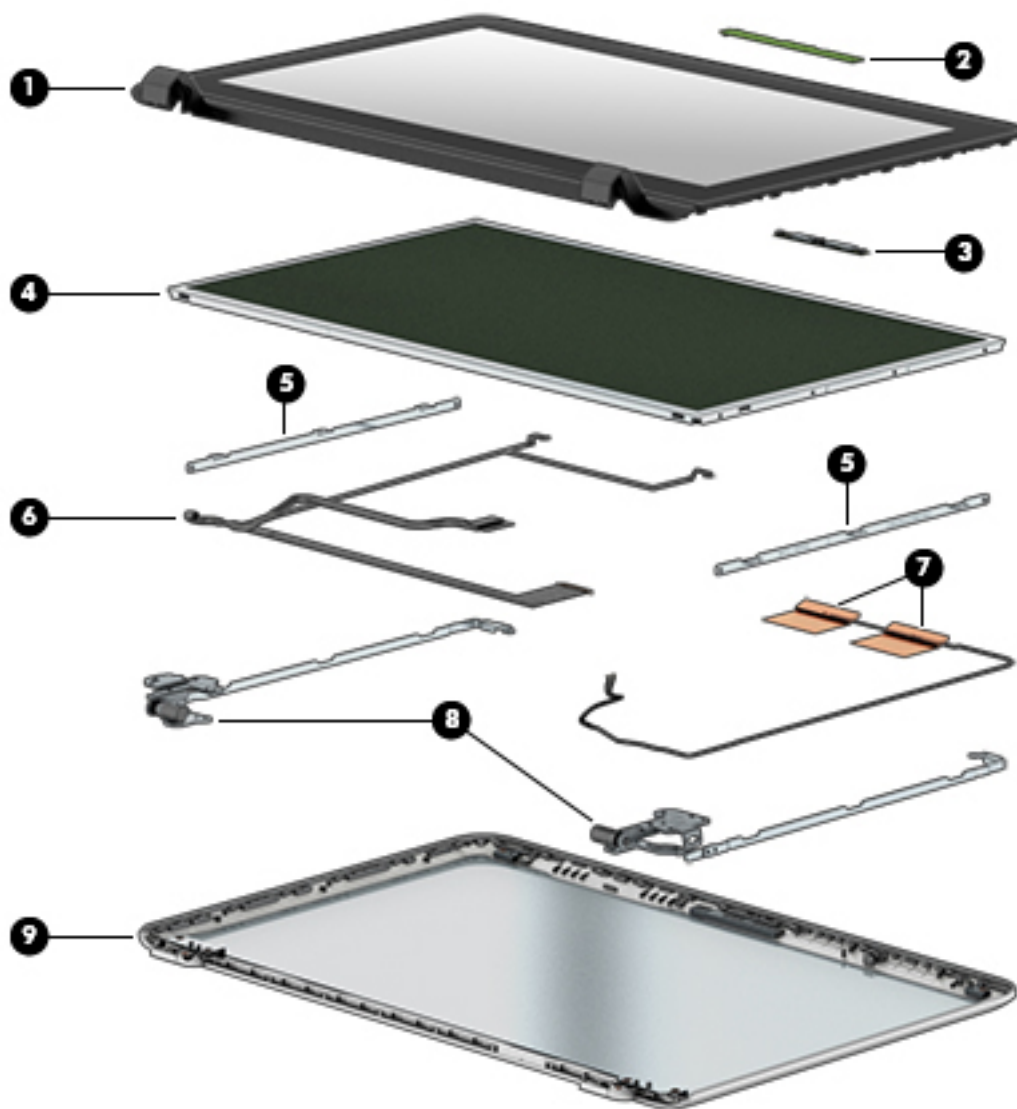


Item	Component	Spare part number
(1)	Display assembly [43.9-cm 17.3-in] HD/FHD, touch, non-touchscreen NOTE: Touch displays are spared both as entire hinge-ups and at the subcomponent level. Non-touch displays are only spared at the subcomponent level. NOTE: For display assembly spare part information, see Display assembly subcomponents on page 19 .	
(2)	Top cover/keyboard (ash silver) (the keyboard and top cover are spared together)	
	For use in Belgium	809302-A41
	For use in the Czech Republic and Slovakia	809302-FL1
	For use in Denmark, Finland, and Norway	809302-DH1
	For use in French Canada	809302-DB1
	For use in France	809302-051
	For use in Germany	809302-041
	For use in Greece	809302-151
	For use in Hungary	809302-211
	For use in Italy	809302-061
	For use in the Netherlands	809302-B31
	For use in Portugal	809302-131
	For use in Romania	809302-271
	For use in Russia	809302-251
	For use in Saudi Arabia	809302-171
	For use in Slovenia	809302-BA1
	For use in Switzerland	809302-BG1
	For use in Turkey	809302-141
	For use in the United Kingdom	809302-031
	For use in the United States	809302-001
	For use in Spain	809302-071
	Top cover/keyboard (black)	
	For use in the United States (non-touchscreen)	809303-001
	For use in French Canada (non-touchscreen)	809303-DB1
	For use in the United States (touchscreen)	836859-001
	For use in French Canada (touchscreen)	836860-001
(3)	Touchpad (includes bracket)	811552-001
	Touchpad for pale gold models (includes bracket)	836868-001
(4)	Touchpad bracket (included with Touchpad)	
(5)	Touchpad rear bracket (included with Touchpad)	

Item	Component	Spare part number
(6)	Battery connector cable (includes the optical drive connector cable)	810928-001
(7)	Speakers (includes left and right speakers and cable)	809316-001
(8)	System board (includes replacement thermal materials): All system boards use the following part numbers: xxxxxx-001: Without the Windows operating system xxxxxx-501: Windows 8.1 Standard xxxxxx-601: Windows 10 For use in models with UMA graphics	
	<ul style="list-style-type: none"> AMD A4-6210 UMA LVDS (1.8 GHz), 1600 MHz/2 MB L2, quad core 15 W 	809397-xxx
	<ul style="list-style-type: none"> AMD A6-6310 UMA LVDS (1.8 GHz, up to 2.4 GHz), 1600 MHz/2 MB L2, quad core 15 W 	809398-xxx
	<ul style="list-style-type: none"> AMD A8-7410 UMA LVDS (2.2 GHz, SC turbo up to 2.5 GHz), Max 1600 MHz/2 MB L2, quad core 15 W 	809399-xxx
	<ul style="list-style-type: none"> AMD A10-8700P LVDS (1.8 GHz, SC turbo up to 3.2 GHz), Max 1600 MHz/2 MB L2, quad core 15 W 	809400-xxx
	<ul style="list-style-type: none"> AMD A10-8700P (1.8 GHz, SC turbo up to 3.2 GHz), Max 1600 MHz/2 MB L2, quad core 15 W eDP 	809402-xxx
	For use in models with discrete graphics (AMD R7 M360 (Meso-XT)):	
	<ul style="list-style-type: none"> AMD A8-7410 discrete R7M360 LVDS (2.2 GHz, SC turbo up to 2.5 GHz), Max 1600 MHz/2 GB L2, quad core 15 W 	809401-xxx
	<ul style="list-style-type: none"> AMD A8-7410 discrete R7M360 LVDS (2.2 GHz, SC turbo up to 2.5 GHz), Max 1600 MHz/2 GB L2, quad core 15 W eDP 	810937-xxx
	<ul style="list-style-type: none"> AMD A10-8700P R7M360 (1.8 GHz, SC turbo up to 3.2 GHz), Max 1600 MHz/2 MB L2, quad core 15 W eDP 	809403-xxx
	<ul style="list-style-type: none"> AMD A10-8700P R7M360 LVDS (1.8 GHz, SC turbo up to 3.2 GHz), Max 1600 MHz/2 MB L2, quad core 15 W 	810936-xxx
(9)	WLAN module:	
	Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + Bluetooth 4.0 Combo Adapter	784644-005
	Realtek RTL8188EE 802.11 b/g/n 1x1 Wi-Fi Adapter	792609-005
	Broadcom BCM43142 802.11 b/g/n 1x1 Wi-Fi + Bluetooth 4.0 M.2 Combo Adapter	792608-005
	Intel Dual Band Wireless-AC 3165 802.11 ac 1x1 WiFi + Bluetooth 4.0 Combo Adapter for Windows 10	806723-005
(10)	Optical Drive Connector Cable Kit (includes the battery connector cable)	810928-001
(11)	USB board (includes cable)	809927-001
(12)	Power button board (includes cable)	809310-001
(13)	Memory module (PC3L, 12800, 1600-MHz):	
	8-GB	693374-005
	4 GB	691740-005
	2 GB	691739-005
(14)	Power connector cable	809295-001

Item	Component	Spare part number
(15)	Heat sink assembly (includes replacement thermal materials):	
	For use in models with discrete AMD Radeon R7 M360 (Meso-XT) graphics	806760-001
	For use in models with discrete graphics	809105-001
	For use in models with UMA graphics AMD Radeon R5	806759-001
	For use in models with UMA AMD Radeon R6 graphics	809104-001
(16)	Fan	806747-001
(17)	RTC battery	811080-001
(18)	Hard drive (does not include bracket):	
	For spare part numbers and details, see Mass storage devices on page 22 .	
(19)	Hard drive bracket	809296-001
(20)	DVD+/-RW Double-Layer SuperMulti Drive	
	For spare part numbers and details, see Mass storage devices on page 22 .	
(21)	Battery (4-cell, 41-Whr, 2.8-Ah Li-ion)	800049-001
(22)	Bottom cover	
	For use in violet purple models	809290-001
	For use in sunset red models	809286-001
	For use in blizzard white models	809287-001
	For use in cobalt blue models	809288-001
	For use in natural silver models	809285-001
	For use in peachy pink models	809289-001
	For use in sparkling black models	810949-001
	For use in pale gold models	836858-001
	Base enclosure hinge caps (not pictured), (left and right)	809312-001
	Rubber screw covers (not pictured)	809314-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	Display bezel (includes screw covers)	809291-001
(2)	Touch screen sensor touch screen sensor is spared with the display panel	
(3)	Webcam/microphone module touch screen	810961-001
	Webcam/microphone module touch screen and non-touch screen	806758-001
(4)	Display panel (16:9 Ultra Wide Aspect Ratio [43.9-cm 17.3-in]; includes screw covers)	
	Antiglare HD+ touch screen	809300-001
	Antiglare FHD+ touch screen	809301-001
	WLED Brightview HD+ non-touch screen	809313-001
	WLED Antiglare FHD non-touch screen	809347-001

Item	Component	Spare part number
(5)	Panel Bracket (included with the Display Panel touch screen)	
(6)	Display cable HD non-touch screen (includes screw covers)	809292-001
	Display cable FHD non-touch screen (includes screw covers)	809293-001
	Display cable FHD touch screen (includes screw covers)	809294-001
	Display cable HD touch screen (includes screw covers)	809932-001
(7)	Antennas touch screen (includes wireless antenna cables and transceivers; includes screw covers)	809272-001
	Antennas non-touch screen (includes wireless antenna cables and transceivers; includes screw covers)	809271-001
(8)	Hinges touch screen (left and right, includes screw covers)	809299-001
	Hinges HD non-touch screen (left and right, includes screw covers)	809297-001
	Hinges FHD non-touch screen (left and right, includes screw covers)	809298-001
(9)	Display enclosure:	
	Cobalt blue models touch screen	809281-001
	Sunset red models touch screen	809280-001
	Blizzard white models touch screen	809284-001
	Natural silver models touch screen	809279-001
	Violet purple models touch screen	809283-001
	Peachy pink models touch screen	809282-001
	Cobalt blue models non-touchscreen	809275-001
	Sunset red models non-touchscreen	809274-001
	Blizzard white models non-touchscreen	809278-001
	Natural silver models non-touchscreen	809273-001
	Violet purple models non-touchscreen	809277-001
	Peachy pink models non-touchscreen	809276-001
	Sparkling black models non-touch screen	810947-001
	Sparkling black models for use with touch screen	810948-001
	Pale gold models non-touch screen	836856-001
	Pale gold models for use with touch screen	836857-001

Miscellaneous parts

Component	Spare part number
HP Smart AC adapter:	
65-W, non-PFC, 3P 4.5 mm	710412-001

Component	Spare part number
45-W non-PFC, non-slim HP Smart AC adapter (for use in all countries and regions except for the People's Republic of China and India)	741727-001
Power cord (3-pin, black, 1.0-m):	
For use in Denmark	755530-081
For use in Europe, the Middle East, and Africa	755530-021
For use in North America	755530-001
For use in Switzerland	755530-111
For use in the United Kingdom and Singapore	755530-031
For use in Australia	755530-011
Rubber Kit (includes front and rear feet)	809314-001
Screw Kit	809315-001
HDMI to VGA adapter	701943-001

Mass storage devices



Item	Component	Spare part number
(1)	DVD+/-RW Double-Layer SuperMulti Drive	
	For use in natural silver models	809304-001
	For use in blizzard white models	809305-001
	For use in cobalt blue models	809307-001
	For use in peachy pink models	809308-001
	For use in violet purple models	809309-001
	For use in sunset red models	809306-001
	For use in sparkling black models	810950-001
	Battery/Optical drive cable kit	810928-001
(2)	Hard drive (does not include bracket):	
	2-TB, 5400-rpm, 2.5-inch	801808-005
	1-TB, 5400-rpm, 2.5-inch, hybrid 8 GB SSD	731999-005
	1-TB, 5400-rpm, 2.5-in	778192-005
	750-GB, 5400-rpm, 2.5-in	778190-005
	500-GB, 5400-rpm, 2.5 inch	778186-005
	Hard drive hardware kit (not illustrated)	809296-001
(2a)	Side brackets (left and right)	
(2b)	Connector	

4 Removal and replacement procedures preliminary 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 non-conductive 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


5 Removal and replacement procedures for Customer Self-Repair parts

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

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

Component replacement procedures

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

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

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

There are as many as 3 screws that must be removed, replaced, or loosened when servicing Customer Self-Repair parts. Make special note of each screw size and location during removal and replacement.

Battery

Description	Spare part number
4-cell, 41-Whr, 2.8-Ah Li-ion battery	800049-001

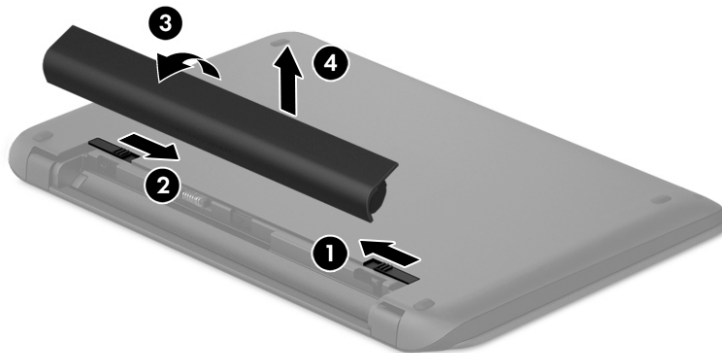
Before disassembling the computer, follow these steps:

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.

To remove the battery:

1. Position the computer upside down on a flat surface.
2. Slide the battery lock latch **(1)**, and then slide the battery release latch **(2)** to release the battery.

3. Rotate the battery upward **(3)**, and then remove the battery from the computer **(4)**.



Optical drive

Description	Spare part number
Optical drive (DVD+/-RW Double-Layer SuperMulti)	
For use in natural silver models	809304-001
For use in blizzard white models	809305-001
For use in cobalt blue models	809307-001
For use in peachy pink models	809308-001
For use in violet purple models	809309-001
For use in sunset red models	809306-001
For use in sparkling black models	810950-001

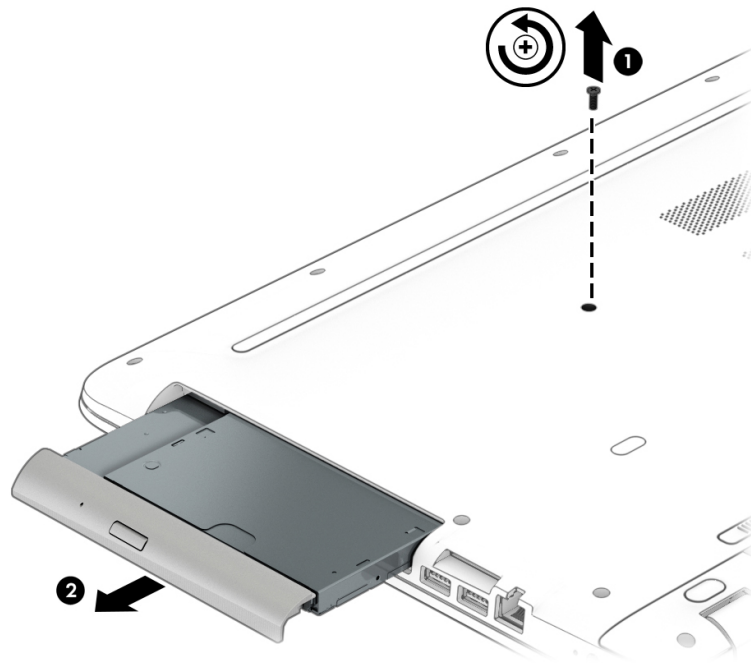
Before removing the optical drive, follow these steps:

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 battery (see [Battery on page 27](#)).

To remove the optical drive:


1. Remove the Phillips PM2.5×7.0 screw **(1)** that secures the optical drive to the computer.


2. Remove the optical drive **(2)** by sliding it out of the optical drive bay.




Reverse this procedure to reassemble and install the optical drive.

6 Removal and replacement procedures for Authorized Service Provider parts

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

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

Component replacement procedures

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

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

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

Bottom cover

Description	Spare part number
Bottom cover hinge caps	809312-001
Rubber screw covers	809314-001
Bottom cover	
For use in violet purple models	809290-001
For use in sunset red models	809286-001
For use in blizzard white models	809287-001
For use in cobalt blue models	809288-001
For use in natural silver models	809285-001
For use in peachy pink models	809289-001
For use in twinkling black models	810949-001
Top cover/keyboard ash silver	
For use in Belgium	809302-A41
For use in the Czech Republic and Slovakia	809302-FL1
For use in Denmark, Finland, and Norway	809302-DH1
For use in French Canada	809302-DB1
For use in France	809302-051
For use in Germany	809302-041
For use in Greece	809302-151
For use in Italy	809302-061
For use in the Netherlands	809302-B31
For use in Portugal	809302-131
For use in Romania	809302-271
For use in Russia	809302-251
For use in Spain	809302-071
For use in Slovenia	809302-BA1
For use in Switzerland	809302-BG1
For use in the United Kingdom	809302-031
For use in the United States	809302-001
For use in Hungary	809302-211
Top cover/keyboard black	
For use in the United States	809303-001
For use in French Canada	809303-DB1

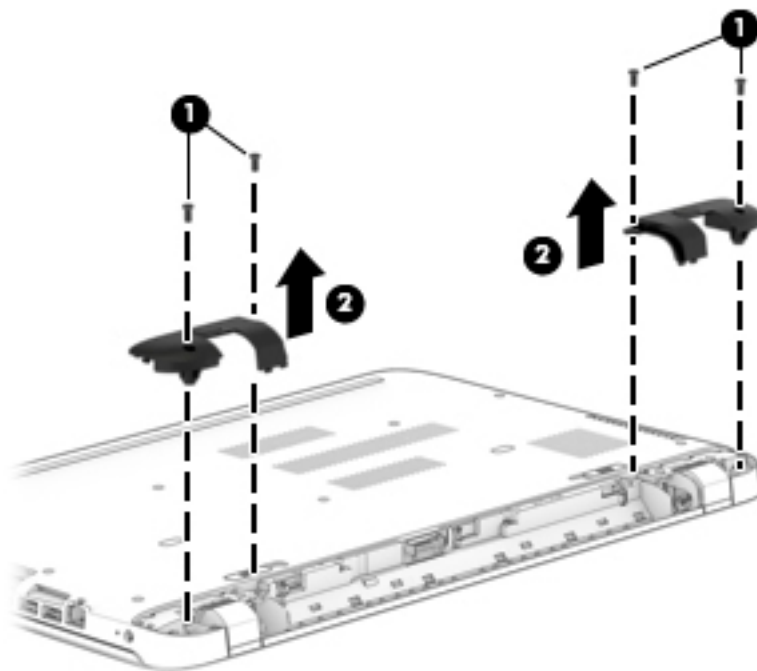
Description	Spare part number
For use in the United States (touchscreen)	836859-001
For use in French Canada (touchscreen)	836860-001

Before removing the bottom cover, follow these steps:

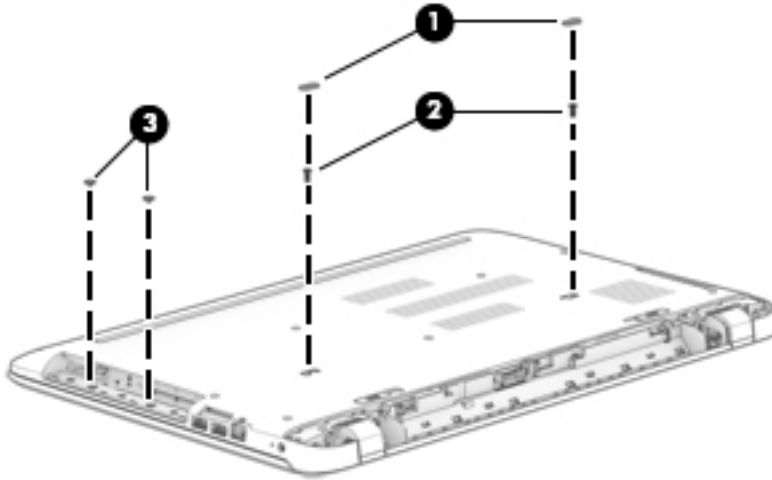
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).

To remove the bottom cover:

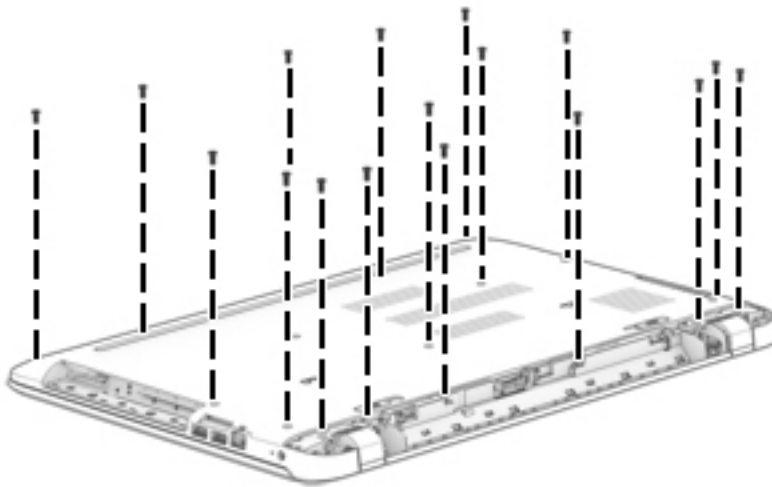
1. Position the computer upside down with the front toward you.
2. Remove the four Phillips PM2.5×12.0 screws (1) that secure the hinge covers to the computer, and then lift the covers off the computer (2).



3. Remove the two screw covers **(1)** from near the battery bay.
Remove the two Phillips PM2.5×6.5 screws from near the battery bay **(2)**.
Remove the two Phillips PM2.0×2.0 flat screws from the optical drive bay **(3)**.

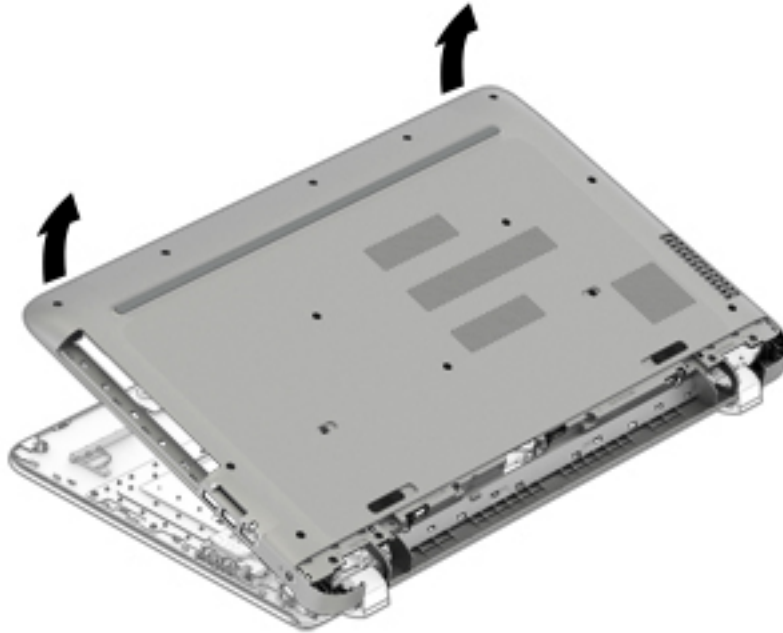


4. Remove the seventeen Phillips PM screws that secure the top cover to the computer.



5. Use a non-marking tool to disengage the bottom cover from the computer. Work around the seams on all sides of the computer.

⚠ CAUTION: To avoid damaging the cover, do not pry the cover near the optical drive bay.



Reverse this procedure to install the bottom cover.

Remove Display

📝 NOTE: The display panel can be removed once the bottom cover is removed. See the [Display assembly, touch on page 62](#) or the [Display assembly, non-touch on page 57](#) sections for disassembling the non touch screen and the touch screen display.

Hard drive



NOTE: The hard drive spare part kit does not include the hard drive bracket.

Description	Spare part number
2-TB, 5400-rpm, 2.5-inch	801808-005
1-TB, 5400-rpm, 2.5-inch, hybrid 8 GB SSD	731999-005
1-TB, 5400-rpm, 2.5-in	778192-005
750 GB, 5400 rpm, 2.5 in	778190-005
500-GB, 5400-rpm, 7 mm, hybrid 8 GB SSD	778186-005
Hard Drive Hardware Kit (brackets and connector)	809296-001

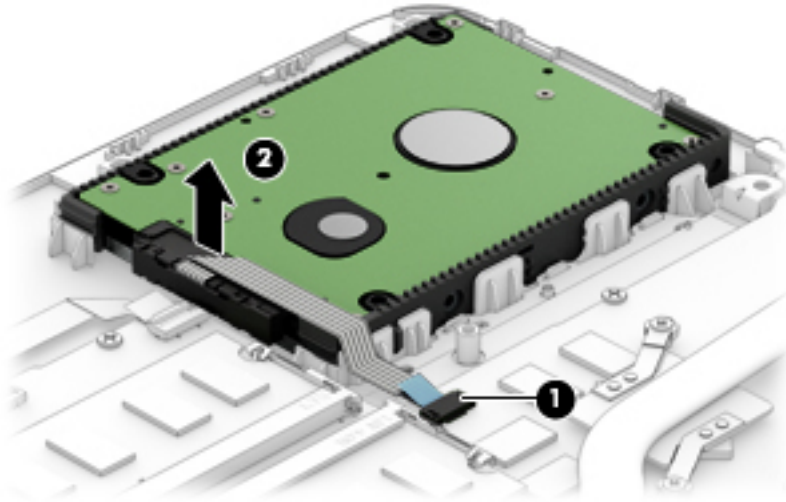
Before removing the hard drive, follow these steps:

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).

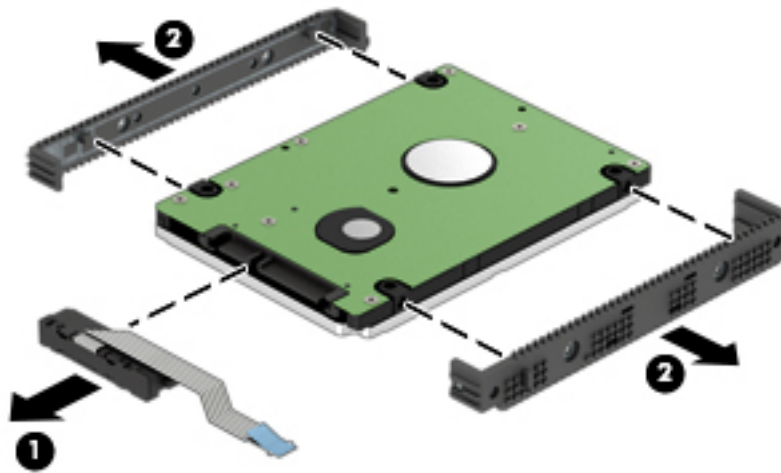
To remove the hard drive:

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

2. Lift the hard drive from the computer **(2)**.



3. Disconnect the hard drive connector and cable **(1)** from the hard drive.
4. To disassemble the hard drive, pull the brackets away from each side of the hard drive **(2)**.




Reverse this procedure to reassemble and install the hard drive.

WLAN module

Description	Spare part number
Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + Bluetooth 4.0 Combo Adapter	784644-005
Realtek RTL8188EE 802.11b/g/n 1x1 Wi-Fi Adapter	792609-005

Description	Spare part number
Broadcom BCM43142 802.11 b/g/n 1x1 Wi-Fi + Bluetooth 4.0 M.2 Combo Adapter	792608-005
Intel Dual Band Wireless-AC 3165 802.11 ac 1x1 WiFi + Bluetooth 4.0 Combo Adapter	806723-005

 **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 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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).

To remove the WLAN module:

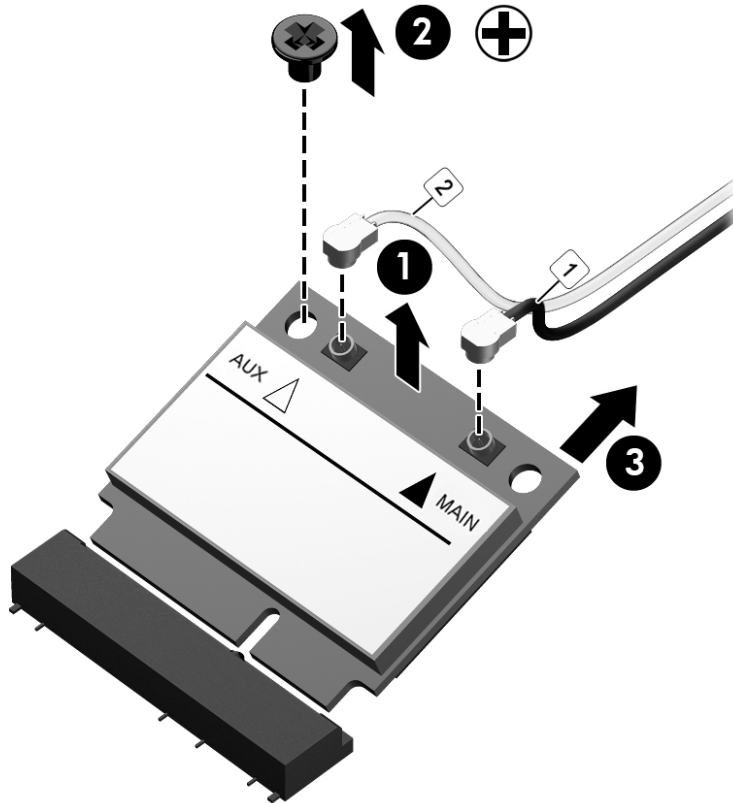
1. Disconnect the WLAN antenna cables (**1**) from the terminals on the WLAN module.




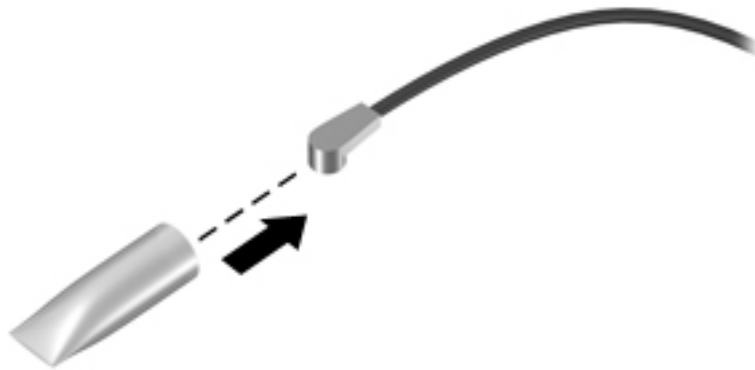
NOTE: The #1 WLAN antenna cable is connected to the WLAN module Main terminal. The #2 WLAN antenna cable is connected to the WLAN module Aux terminal.

2. Remove the Phillips PM2.0×3.0 screw (**2**) that secures the WLAN module to the system board. (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, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

RTC battery

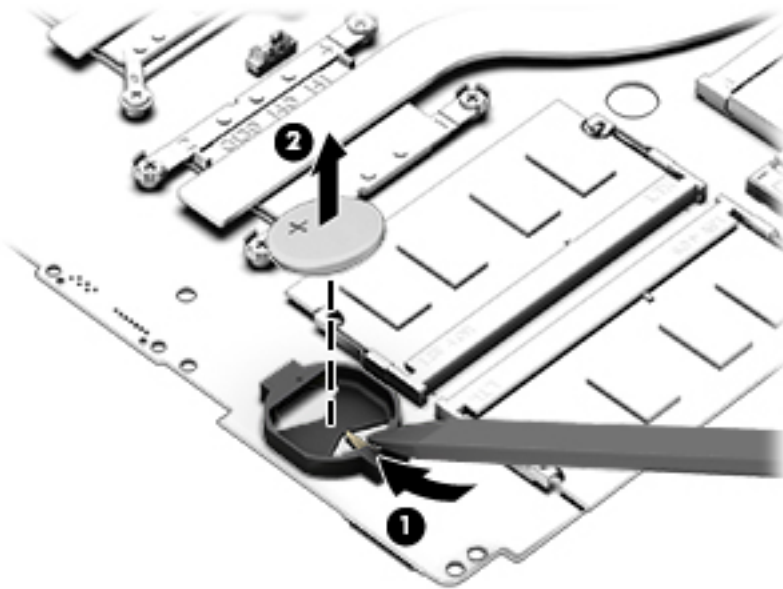
Description	Spare part number
RTC battery	811080-001

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).

To remove the RTC battery:

1. Access the system board.
2. Using a thin tool or screwdriver, disengage the battery from the socket **(1)**, and then remove the battery **(2)**.



Reverse this procedure to install the RTC battery.

Memory module

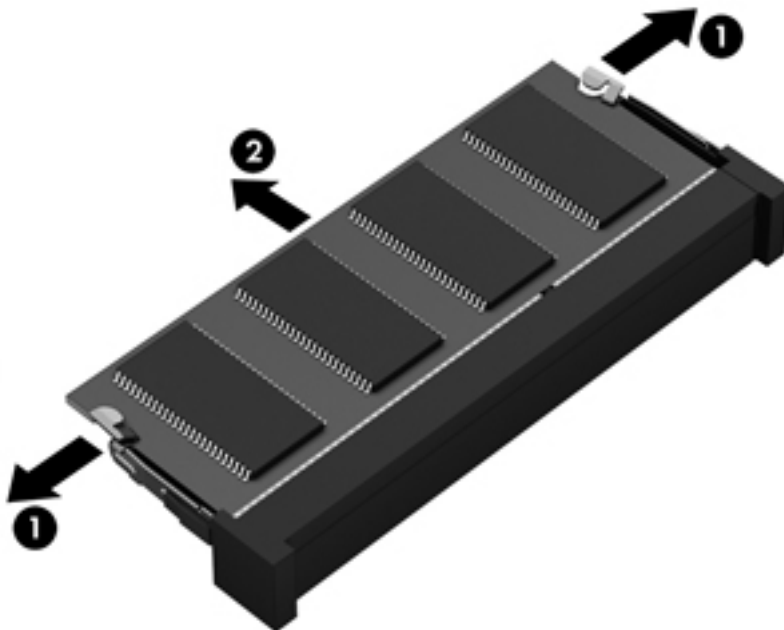
Description	Spare part number
8-GB (PC3L, 12800, 1600-MHz)	693374-005
4-GB (PC3L, 12800, 1600-MHz)	691740-005
2-GB (PC3L, 12800, 1600-MHz)	691739-005

Before removing a memory 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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).


To remove a 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 it away from the slot at an angle.




Reverse this procedure to install a memory module.

Fan

 **NOTE:** The fan spare part kit includes replacement thermal materials.

Description	Spare part number
Fan	806747-001

 **NOTE:** To properly ventilate the computer, allow at least **7.6 cm** (3.0 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.

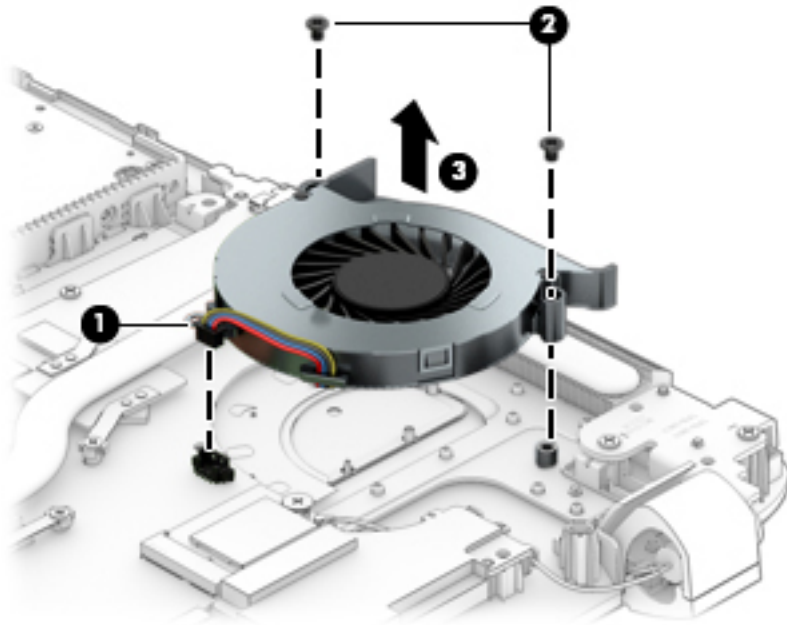
Before removing the fan/heat sink assembly, follow these steps:

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).

To remove the fan:


1. Position the computer upright and open it.
2. Disconnect the fan cable **(1)** from the system board.
3. Remove the two Phillips PM3.0×3.0 screws **(2)** that secure the fan to the computer.

4. Remove the fan from the computer (3).




Reverse this procedure to install the fan.

Heat sink assembly

 **NOTE:** The heat sink assembly spare part kit includes replacement thermal materials.

Description	Spare part number
For use in models with UMA graphics AMD Radeon R5	806759-001
For use in models with discrete AMD Radeon R7 M360 (Meso-XT) graphics	806760-001
For use in models with UMA AMD Radeon R6 graphics	809104-001
For use in models with discrete graphics	809105-001

 **NOTE:** To properly ventilate the computer, allow at least **7.6 cm (3.0 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.

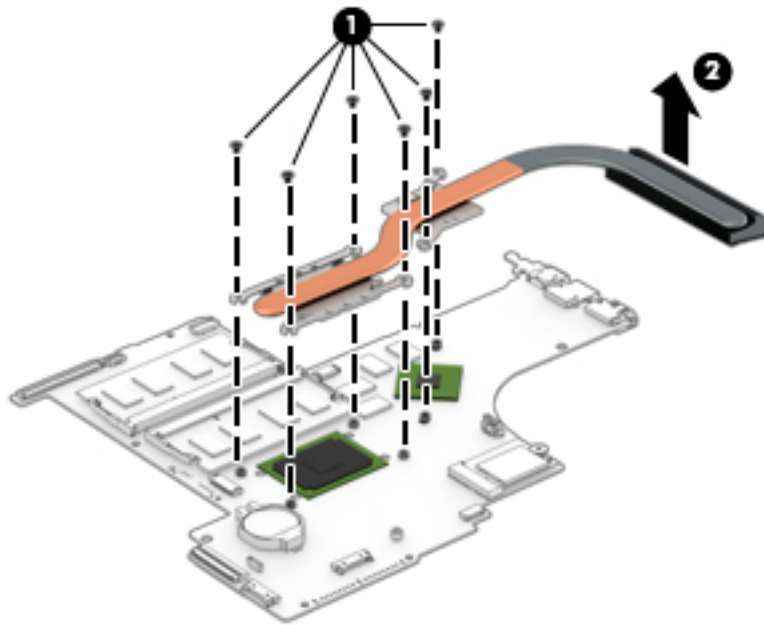
Before removing the heat sink assembly, follow these steps:

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).
7. Remove the fan (see [Fan on page 42](#)).

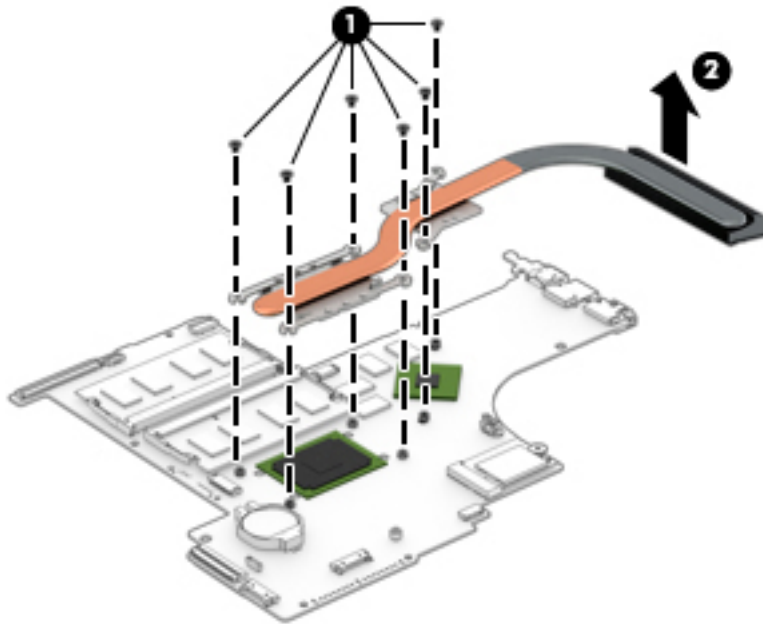
To remove the heat sink assembly:

1. Position the computer upright and open it..
2. If you have a model with discrete graphics, In the order indicated, remove the six Phillips PM2.0×3.0 screws **(1)** that secure the heat sink to the system board.
3. Remove the heat sink **(2)** from the system board.

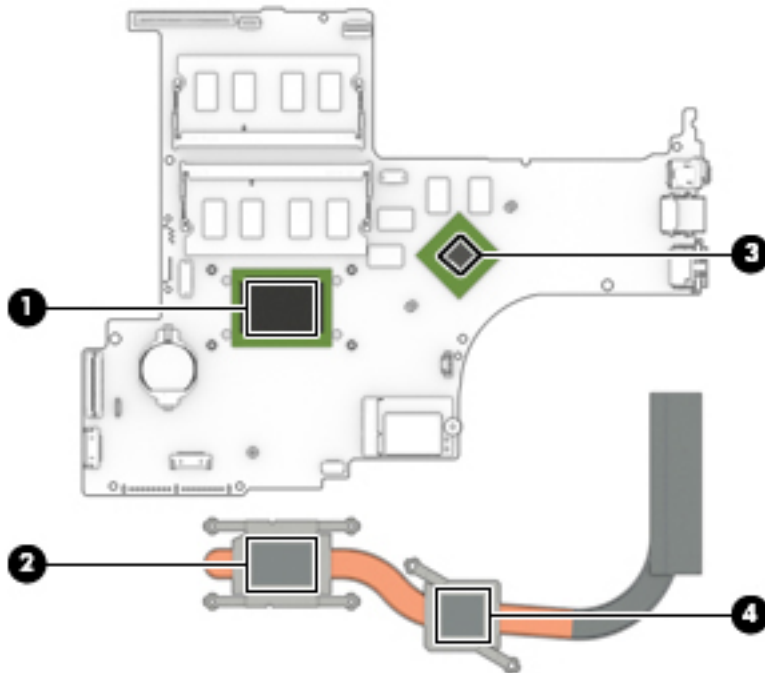


4. If you have a model with UMA graphics, In the order indicated, remove the six Phillips PM2.0×3.0 screws **(1)** that secure the heat sink to the system board.

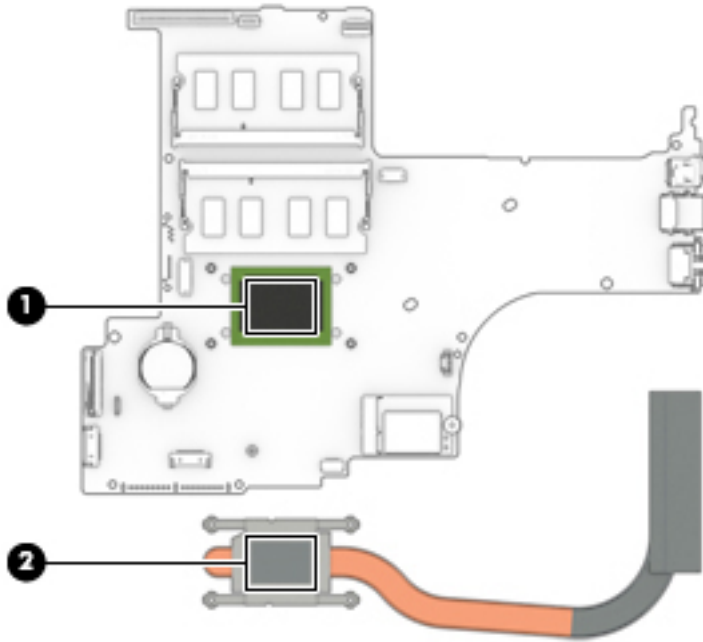
5. Remove the heat sink (2) from the system board.



- **Discrete graphics:** Thermal paste is used on the processor and associated heat sink area (1)(2), as well as the graphics chip and associated heat sink area (3)(4).



- **UMA graphics:** Thermal paste is used on the heat sink (1) and the processor (2).



Reverse this procedure to reassemble and install the heat sink assembly.

Optical drive connector

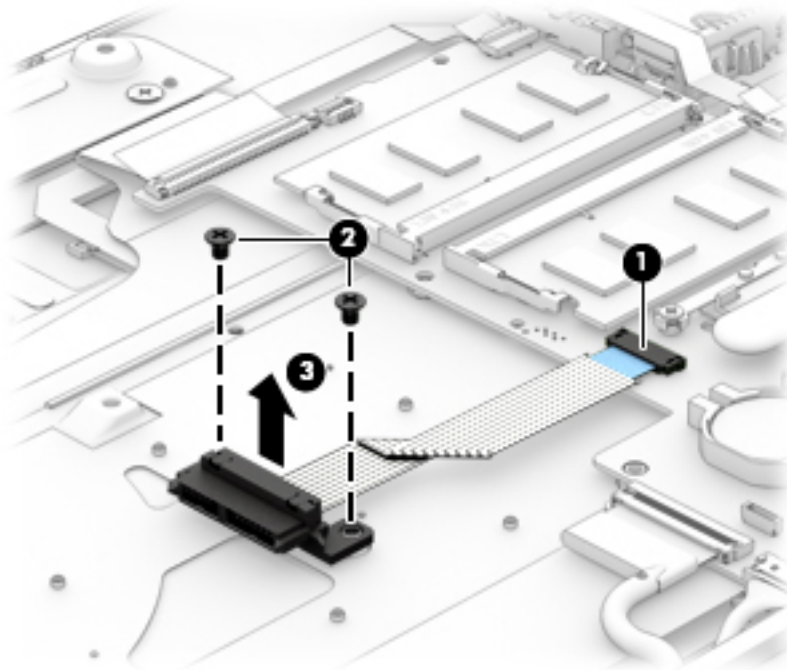
Description	Spare part number
Optical drive connector (included in the power connector kit)	810928-001

Before removing the optical drive connector, 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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).

To remove the optical drive connector:

1. Position the computer upright.
2. Disconnect the optical drive connector cable from the system board **(1)**.
3. Remove the two Phillips PM2.5×3.0 screws **(2)** that secure the optical drive connector to the computer.
4. Remove the optical drive connector and cable **(3)**.



Reverse this procedure to install the optical drive connector.

System board



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

Description	Spare part number
System board (includes replacement thermal materials):	
All system boards use the following part numbers:	
xxxxxx-001: Without the Windows operating system	
xxxxxx-501: Windows 8.1 Standard	
xxxxxx-601: Windows 10	
<ul style="list-style-type: none">AMD A4-6210 UMA LVDS (1.8 GHz), 1600 MHz/2 MB L2, quad core 15 W	809397-xxx
<ul style="list-style-type: none">AMD A6-6310 UMA LVDS (1.8 GHz, up to 2.4 GHz), 1600 MHz/2 MB L2, quad core 15 W	809398-xxx
<ul style="list-style-type: none">AMD A8-7410 UMA LVDS (2.2 GHz, SC turbo up to 2.5 GHz), Max 1600 MHz/2 MB L2, quad core 15 W	809399-xxx
<ul style="list-style-type: none">AMD A10-8700P LVDS (1.8 GHz, SC turbo up to 3.2 GHz), Max1600 MHz/2 MB L2, quad core 15 W	809400-xxx
<ul style="list-style-type: none">AMD A10-8700P (1.8 GHz, SC turbo up to 3.2 GHz), Max1600 MHz/2 MB L2, quad core 15 W eDP	809402-xxx
For use in models with discrete graphics (AMD R7 M360 (Meso-XT)):	
<ul style="list-style-type: none">AMD A8-7410 discrete R7M360 LVDS (2.2 GHz, SC turbo up to 2.5 GHz), Max 1600 MHz/2 GB L2, quad core 15 W	809401-xxx
<ul style="list-style-type: none">AMD A8-7410 discrete R7M360 LVDS (2.2 GHz, SC turbo up to 2.5 GHz), Max 1600 MHz/2 GB L2, quad core 15 W eDP	810937-xxx
<ul style="list-style-type: none">AMD A10-8700P R7M360 (1.8 GHz, SC turbo up to 3.2 GHz), Max1600 MHz/2 MB L2, quad core 15 W eDP	809403-xxx
<ul style="list-style-type: none">AMD A10-8700P R7M360 (1.8 GHz, SC turbo up to 3.2 GHz), Max1600 MHz/2 MB L2, quad core 15 W LVDS	810936-xxx

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).
7. Remove the fan (see [Fan on page 42](#)).
8. Remove the heat sink (see [Heat sink assembly on page 43](#)).



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

- Memory modules (see [Memory module on page 41](#))
- WLAN module (see [WLAN module on page 37](#))

- Heat sink assembly (see [Heat sink assembly on page 43](#))
- Fan (see [Fan on page 42](#))

To remove the system board:

1. Position the computer upright, and then disconnect the following cables from the system board:

(1): Clickpad cable

(2): Touchpad cable

(3): Hard drive cable

(4): Optical drive cable

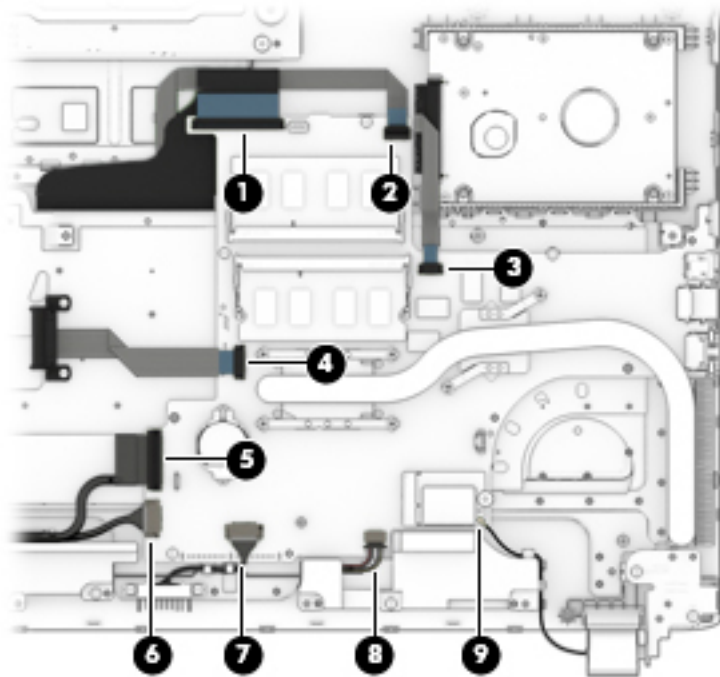
(5): Keyboard cable

(6): Power connector cable

(7): Display cable

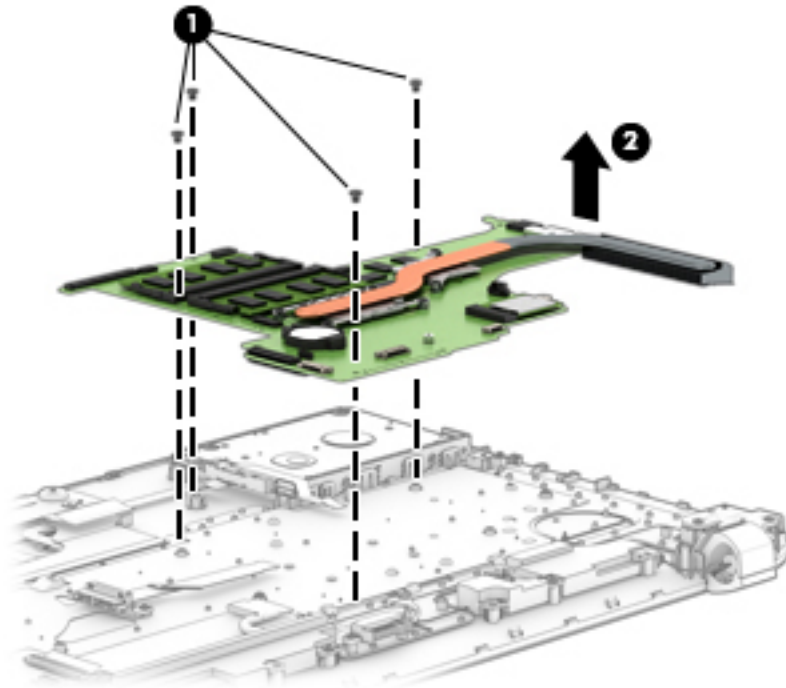
(8): Speaker cable

(9): Power button board



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

3. Lift the right side of the system board, and then lift the right side of the system board up to gain access to the USB board cable and connector underneath **(2)**.



4. Disconnect the USB board cable from the connector under the system board. See [USB board on page 51](#) for cable removal instructions.

Reverse this procedure to install the system board.

USB board

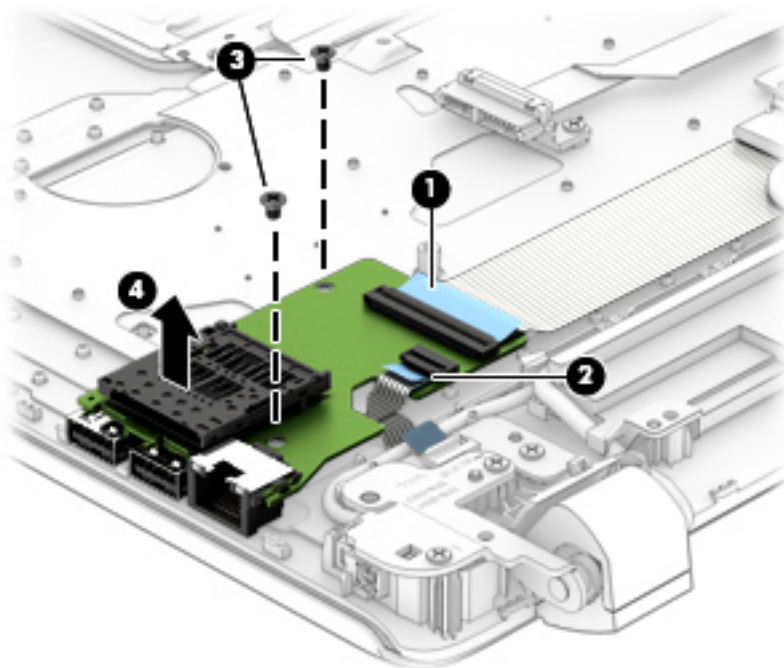
Description	Spare part number
USB board (includes cable)	809927-001

Before removing the USB 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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).

To remove the USB board:

1. Position the computer upright.
2. Disconnect the larger cable from the system board **(1)**.
3. Disconnect the smaller cable from the USB board that routes to the power button board **(2)**.
4. Remove the two Phillips PM2.5×3.0 screws **(3)** that secure the USB board to the computer.
5. Remove the USB board **(4)**.



Reverse this procedure to install the USB board.

Speakers

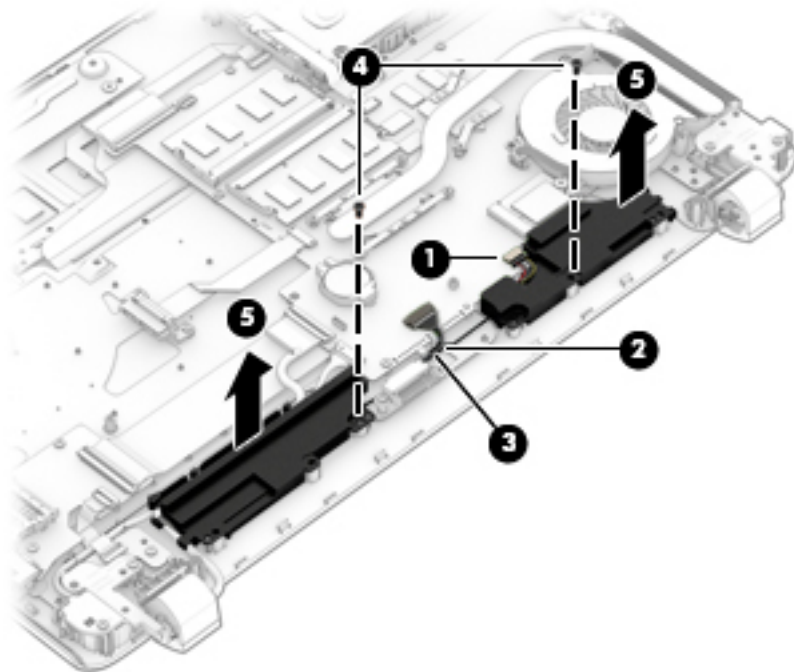
Description	Spare part number
Speakers (includes left and right speakers and cable)	809316-001

Before removing the 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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).
7. Remove the system board (see [System board on page 48](#)).

To remove the speakers:

1. Remove the speaker wire from the clips between the speakers **(1)**.
2. Remove the display cable from the channel at the top of the left speaker **(2), (3)**.
3. Remove the two Phillips screws **(4)**.
4. Remove the speakers from the computer **(5)**.



Reverse this procedure to install the speakers.

Power button board

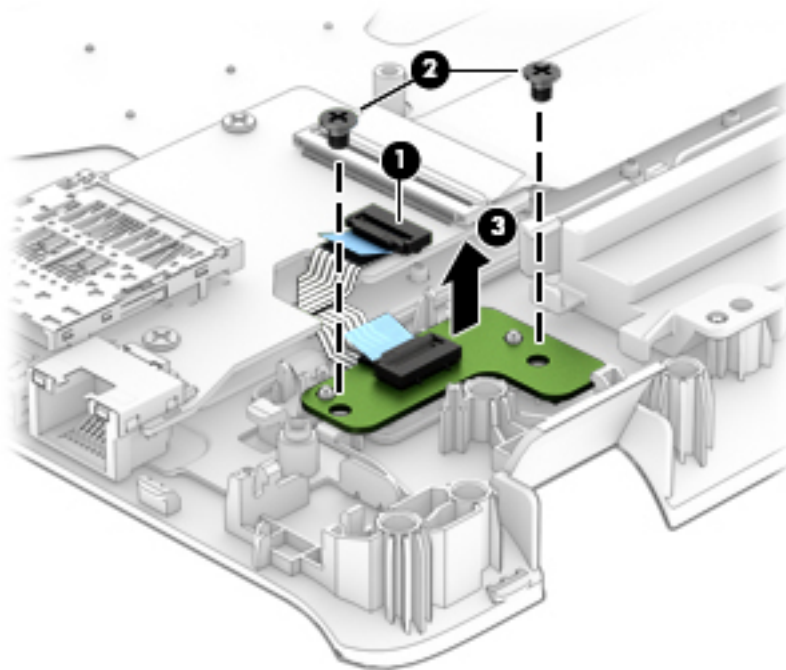
Description	Spare part number
Power button board (includes cable)	809310-001

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).
7. Remove the system board (see [System board on page 48](#)).

To remove the power button board:

1. Disconnect the cable **(1)**.
2. Remove the Phillips PM2.0×2.5 screw **(2)** that secures the power button board to the computer.
3. Remove the power button board from the computer **(3)**.



Reverse this procedure to install the power button board and cable.

Power connector

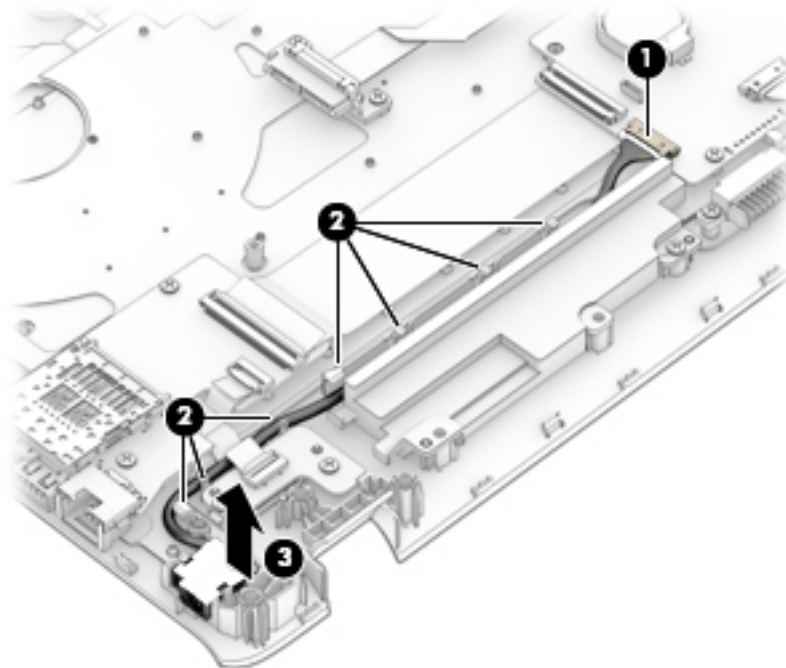
Description	Spare part number
Power connector cable	809295-001

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).
7. Remove the system board (see [System board on page 48](#)).

To remove the power connector cable:

1. Pull the tab away from the connector **(1)**.
2. Remove the cable **(2)** from the left hinge that sits above the power connector.
3. Remove the power connector **(3)** from the computer.



Reverse this procedure to install the power connector cable.

TouchPad

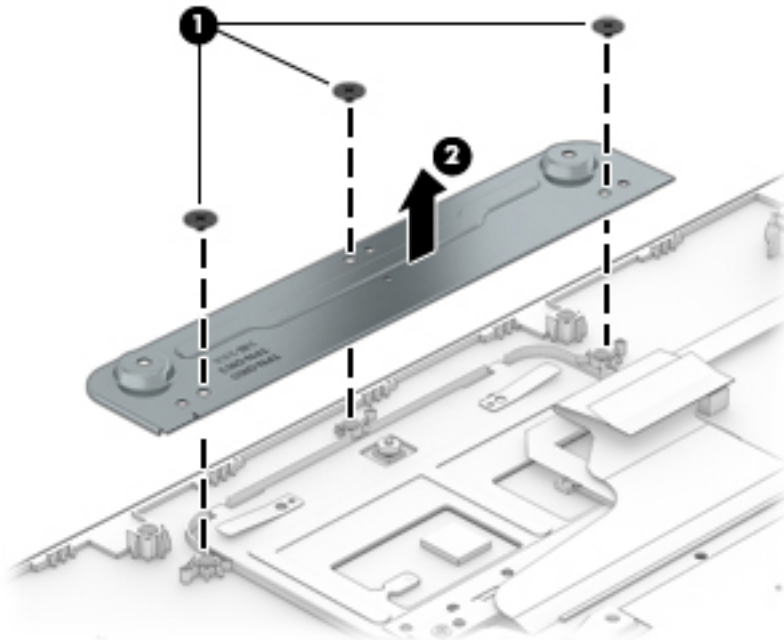
Description	Spare part number
TouchPad board (includes bracket)	811552-001
TouchPad board in pale gold (includes bracket)	836868-001

Before removing the TouchPad, 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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).
7. Remove the system board (see [System board on page 48](#)).


To remove the TouchPad:

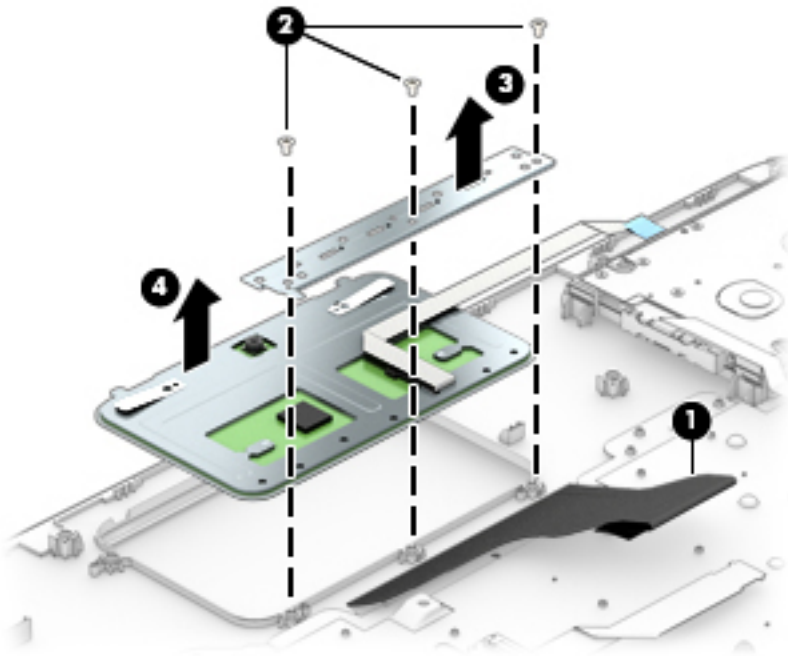
1. Remove the three Phillips PM2.5×3.0 screws **(1)** that secure the TouchPad bracket to the computer.
2. Remove the bracket **(2)**.



3. Lift the keyboard cable **(1)** to gain access to the TouchPad screws.
4. Remove the three broadhead Phillips PM2.0×2.0 screws **(2)** that secure the rear bracket and the TouchPad to the computer.

5. Lift the bottom of Touchpad and rear bracket up, and then pull it away from computer.(3).

 **NOTE:** When installing the TouchPad, note that the metal protrusion that extends from the touchpad is installed UNDER the keyboard shield (4).



Reverse this procedure to install the touchpad.

Display assembly, non-touch

Component	Spare part number
Display bezel (includes screw covers)	809291-001
Webcam/microphone module non-touch screen	806758-001
Raw display panel (16:9 Ultra Wide Aspect Ratio [43.9-cm 17.3-in]; includes screw covers)	
WLED Brightview HD+ non-touch screen	809313-001
WLED Antiglare FHD non-touch screen	809347-001
Display cable HD non-touch screen (includes screw covers)	809292-001
Display cable FHD non-touch screen (includes screw covers)	809293-001
Antennas non-touch screen (includes wireless antenna cables and transceivers; includes screw covers)	809271-001
Hinges HD non-touch screen (left and right, includes screw covers)	809297-001
Hinges FHD non-touch screen (left and right, includes screw covers)	809298-001
Display enclosure:	
Cobalt blue models	809275-001
Sunset red models	809274-001
Blizzard white models	809278-001
Natural silver models	809273-001
Violet purple models	809277-001
Peachy pink models	809276-001
Sparkling black models non-touch screen	810947-001
Pale gold models non-touch screen	836856-001

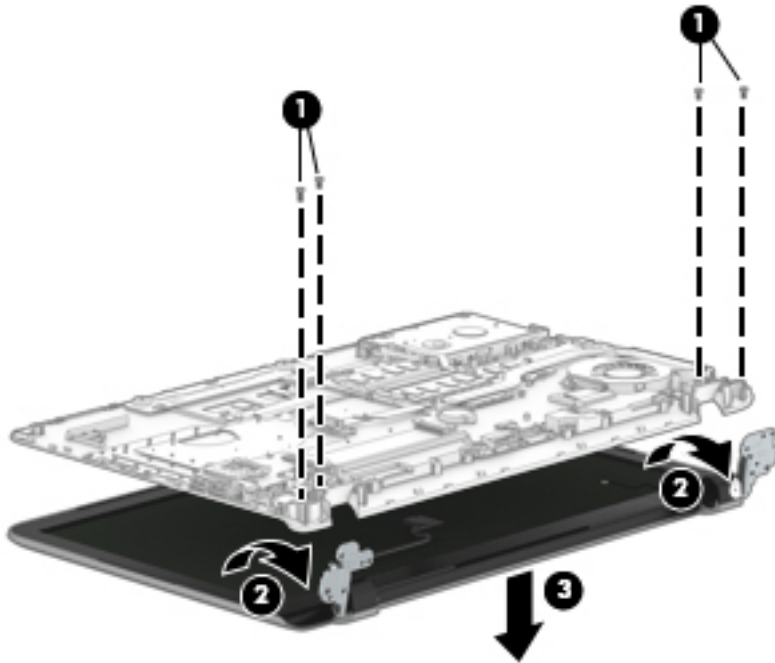
Before removing the display assembly, follow these steps:

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).

To remove the display assembly:

1. Position the computer upside down with the display partially open.
2. Remove the four Phillips PM2.5×5.0 screws **(1)** that secure the display assembly to the computer.
3. Open the display to rotate the hinges upward to an angle **(2)**.

4. Separate the display assembly from the computer (3).

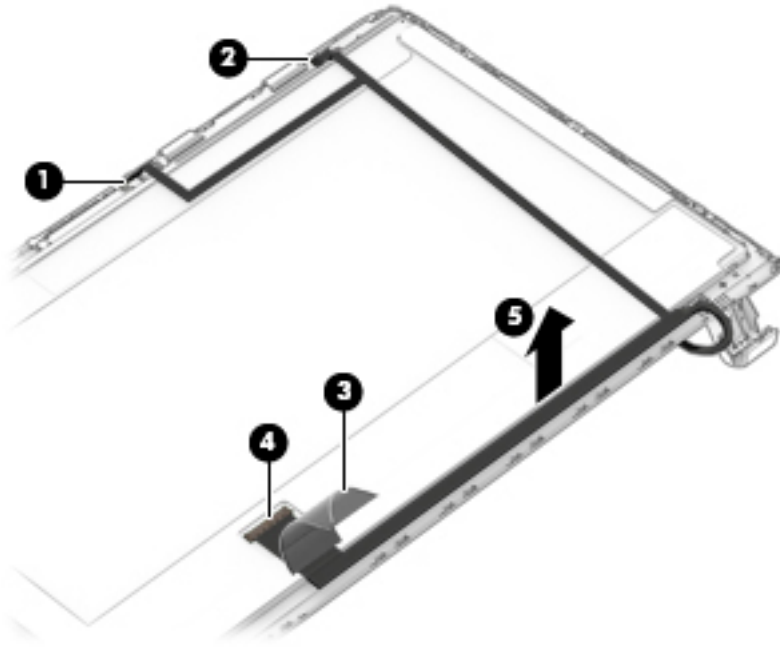


If it is necessary to replace any of the display assembly subcomponents:

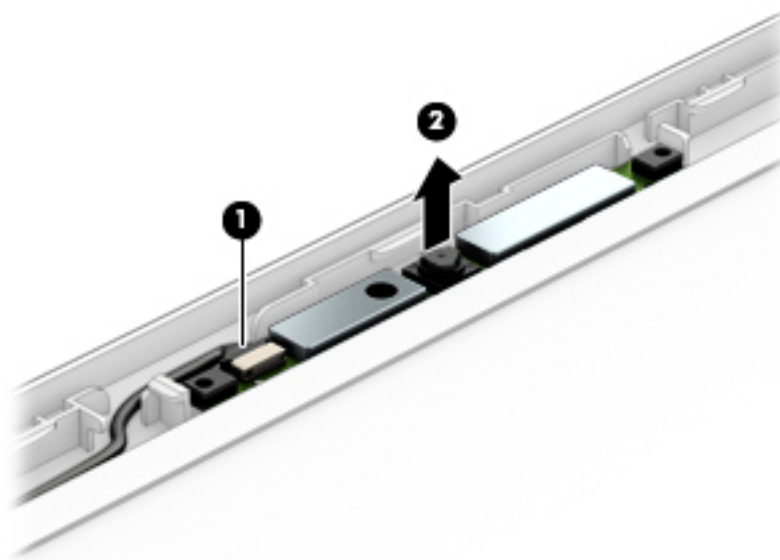
1. Pry up on each side of the display to disengage the cover and remove the display cover.



2. Turn the display with the bezel down and the back of the panel up. Disconnect the display cables from the panel and bezel **(1)**, **(2)**. Release the connections **(3)**, **(4)** and lift the panel **(5)**.

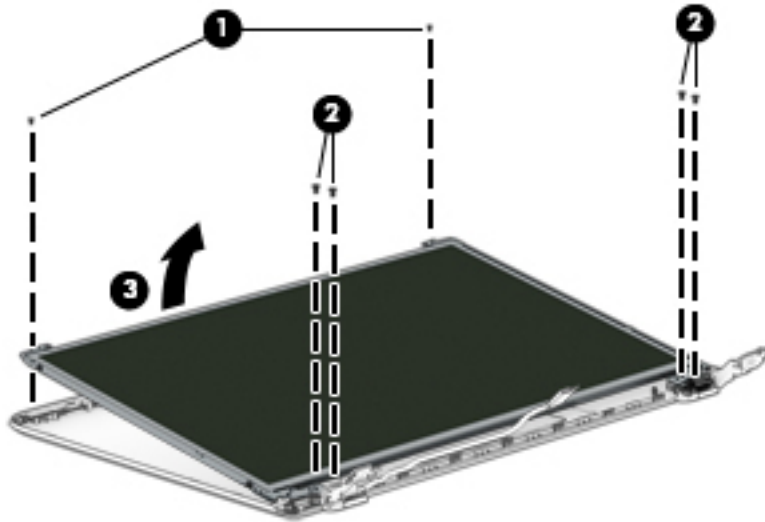


3. To remove the webcam/microphone module, position the display assembly with the top edge toward you.
4. Disconnect the webcam/microphone module **(1)** and remove from the display **(2)**.

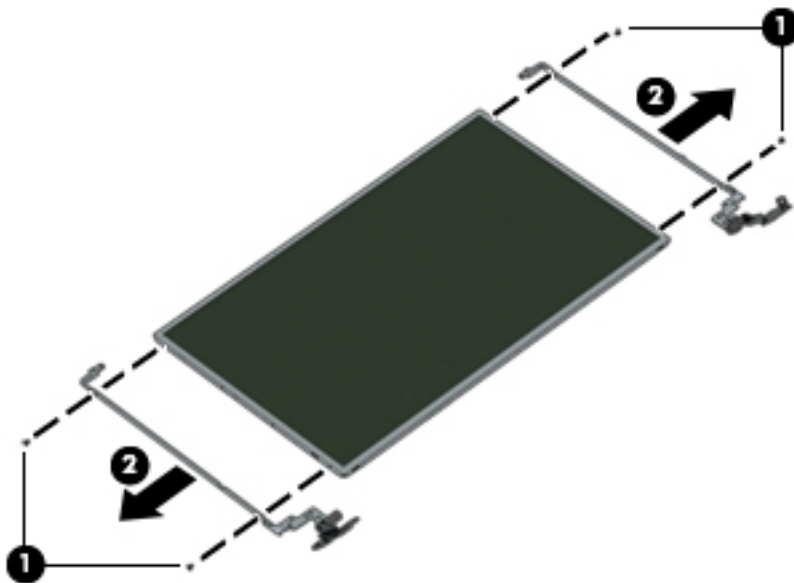


1. To remove the display from the bezel.

- a. Position the display assembly with the top edge toward you.
- b. Remove the two Phillips PM2.0×3.0 screws that secure the display panel to the top of the bezel **(1)**.
- c. Remove the four Phillips PM2.0×3.0 screws that secure the display panel to the base of the bezel **(2)**.
- d. Lift the top of the panel **(3)**.




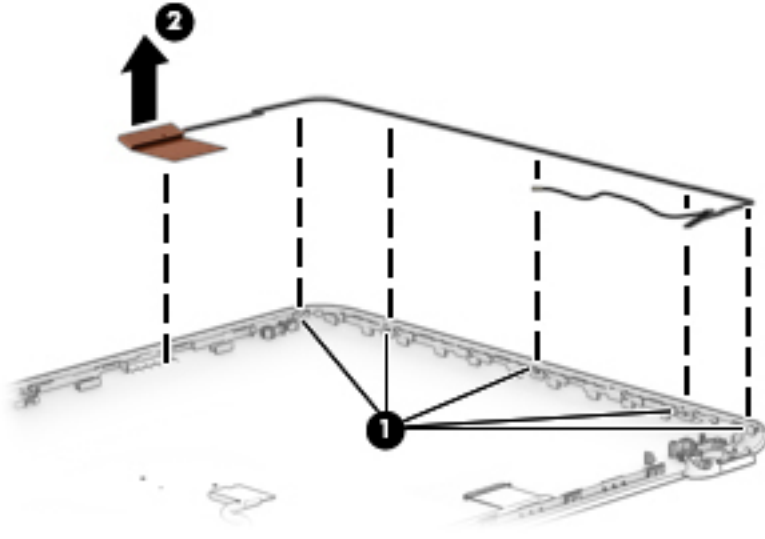
2. To remove the display hinges:
 - ▲ Remove the four screws on the display hinges **(1)** and slide the display hinges off of the panel **(2)**.



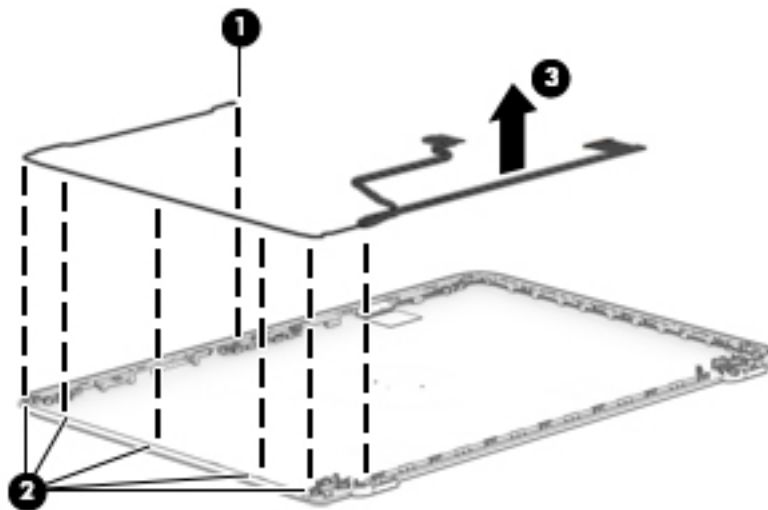
3. To remove the wireless antenna cables and transceivers, release the wireless antenna cables from the clips **(1)** built into the back of the display, and then remove the antenna cables and transceivers **(2)**.

Antennas for non-touch models are available using spare part number 809271-001.

 **NOTE:** Number of antennas and transceivers may vary.



4. To remove the display/webcam cable, disconnect the cable **(1)**.
5. Remove the cable from the clips built into the display panel **(2)**, and then remove the cable from the display **(3)**.



6. If replacing the display enclosure, be sure that the subcomponents (including the webcam/microphone module, the antenna receivers, and all associated cables and hardware) are transferred to the new enclosure.

Reverse this procedure to reassemble and install the display assembly.

Display assembly, touch

Component	Spare part number
Display bezel (includes screw covers)	809291-001
Touch screen connector board spared with the display panel	
Webcam/microphone module touch screen	810961-001
Raw display panel (16:9 Ultra Wide Aspect Ratio [43.9-cm 17.3-in]; includes screw covers)	
Antiglare HD+ touch screen	809300-001
Antiglare FHD+ touch screen	809301-001
Panel Bracket (included with the Display Panel touch screen)	
Display cable FHD touch screen (includes screw covers)	809294-001
Display cable HD touch screen (includes screw covers)	809932-001
Antennas touch screen (includes wireless antenna cables and transceivers; includes screw covers)	809272-001
Hinges touch screen (left and right, includes screw covers)	809299-001
Display enclosure:	
Cobalt blue models touch screen	809281-001
Sunset red models touch screen	809280-001
Blizzard white models touch screen	809284-001
Natural silver models touch screen	809279-001
Violet purple models touch screen	809283-001
Peachy pink models touch screen	809282-001
Sparkling black models for use with touch screen	810948-001
Pale gold models for use with touch screen	836857-001

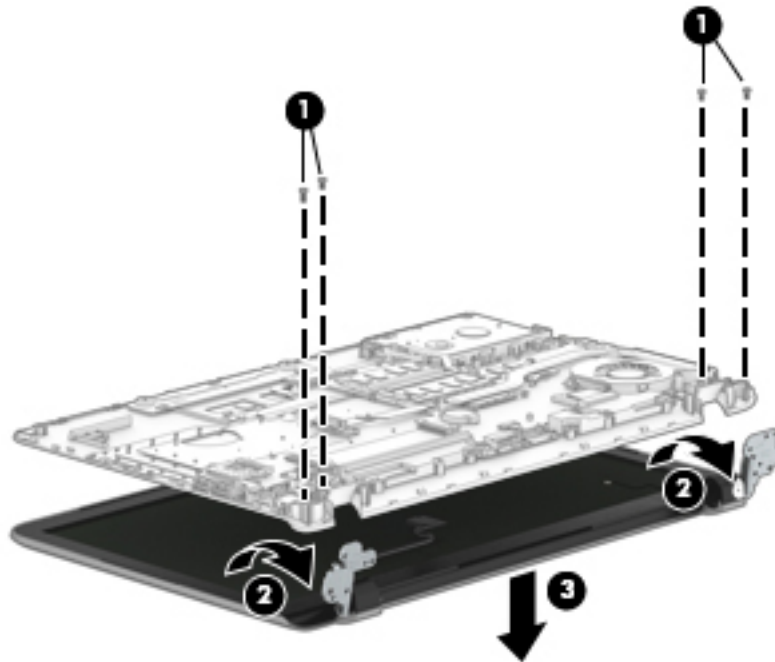
Before removing the display assembly, follow these steps:

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 battery (see [Battery on page 27](#)).
5. Remove the optical drive (see [Optical drive on page 28](#)).
6. Remove the bottom cover (see [Bottom cover on page 32](#)).

To remove the display assembly:

1. Position the computer on its side, partially open.
2. Remove the four Phillips PM2.5×5.0 screws **(1)** that secure the display assembly to the computer.

3. Open the display to rotate the hinges upward to an angle (2).
4. Separate the display assembly from the computer (3).

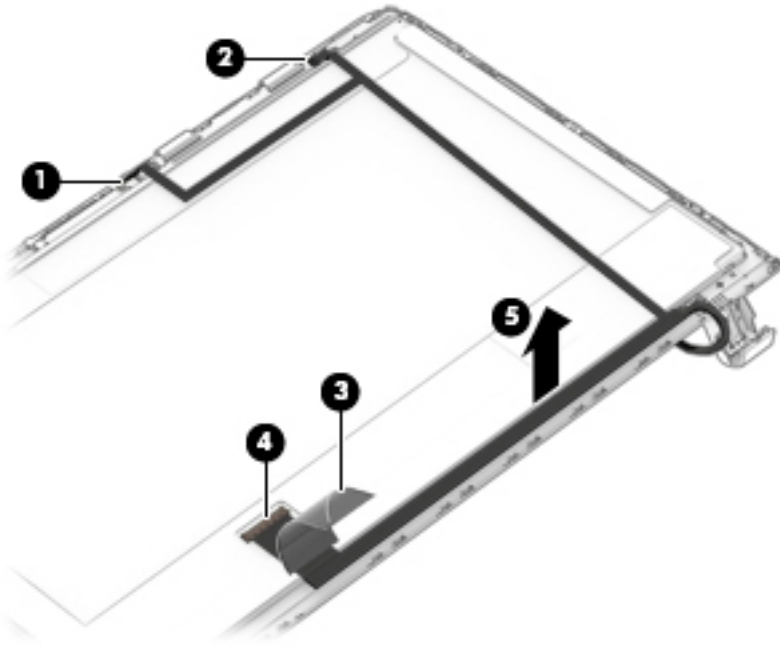


If it is necessary to replace any of the display assembly subcomponents:

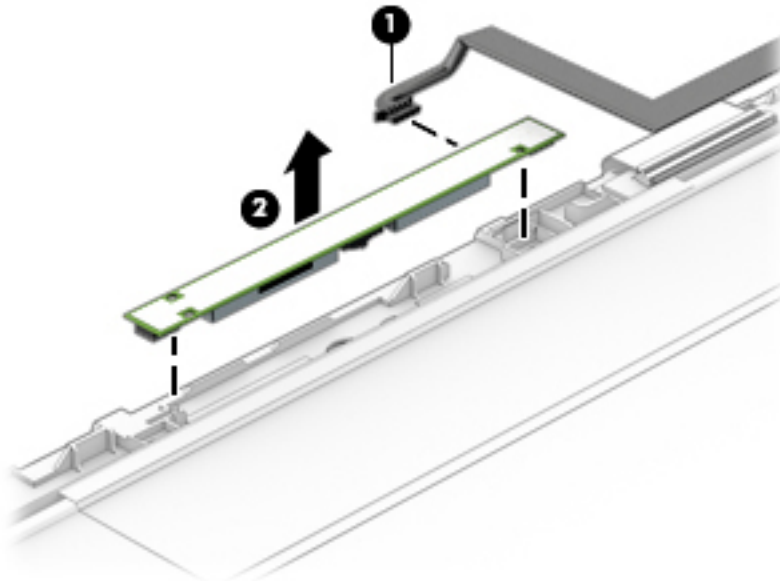
1. To remove the display cover:
 - a. Pry up on each side of the display to disengage the cover and remove the back cover.



- b. Turn the display with the bezel down and the back of the panel up. Disconnect the display cables from the panel and bezel **(1), (2)**. Release the connections **(3), (4)** and lift the panel **(5)**.

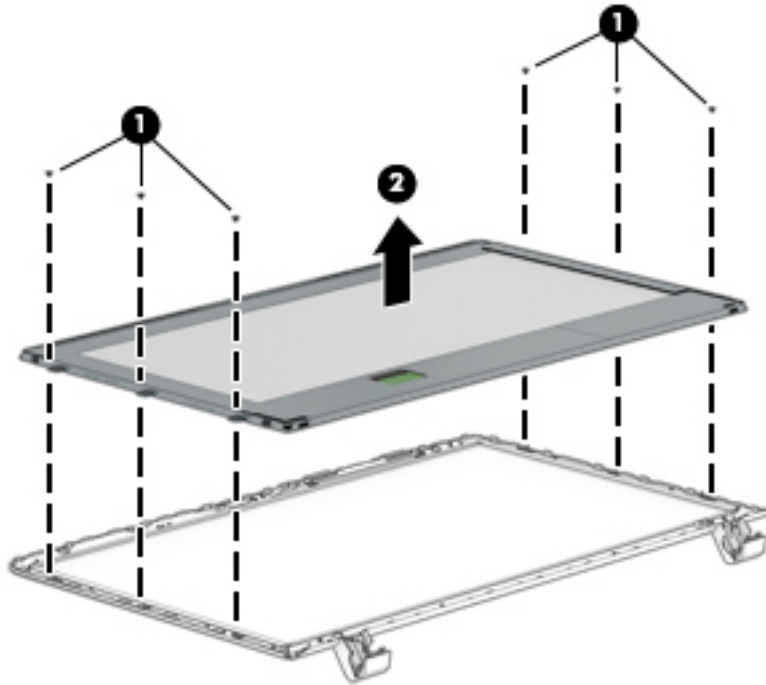


2. To remove the webcam/microphone module, position the display assembly with the top edge toward you.
- Disconnect the cable **(1)** from the module.
 - Remove the webcam/microphone module from the display **(2)**.



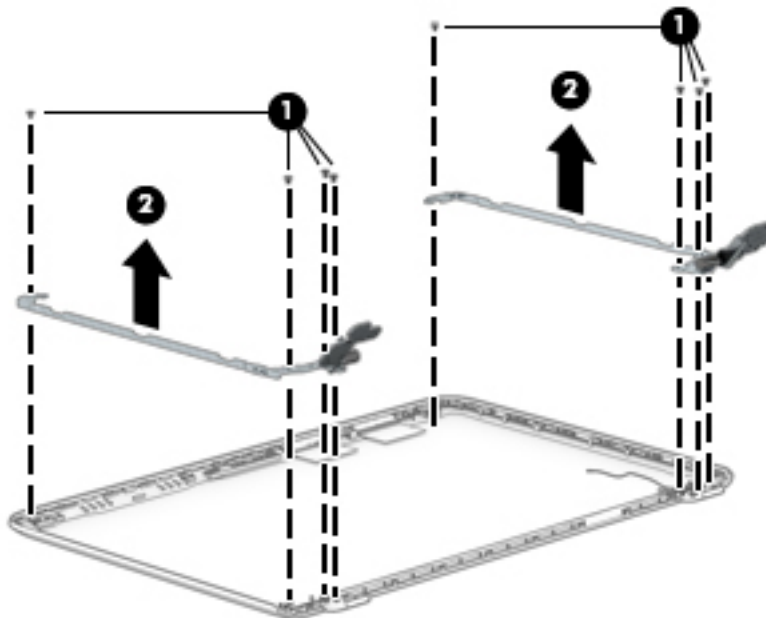
3. To remove the display panel:
- Position the display assembly with the top edge toward you.
 - Remove the six Phillips PM2.0×1.5 screws **(1)** that secure the display panel to the bezel.

- c. Lift the top of the panel (2).




4. To remove the display hinges:

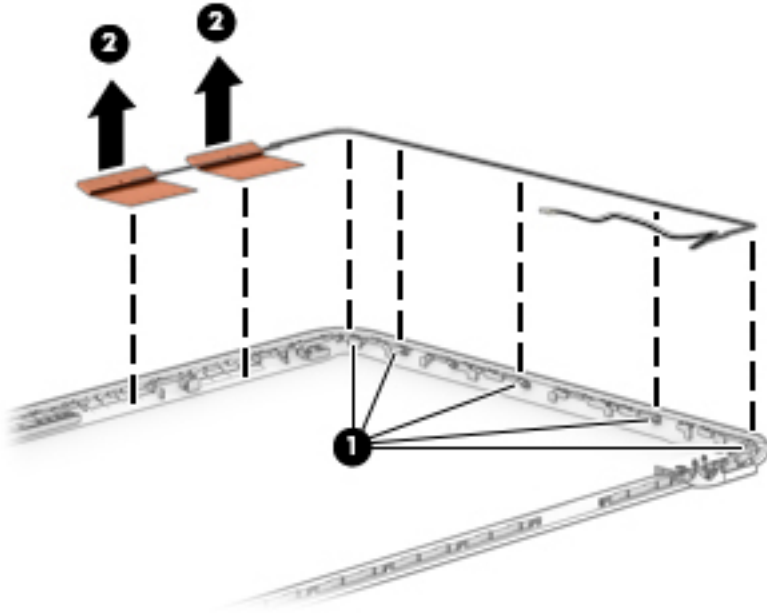
- a. Remove the six Phillips PM2.5×2.0 screws (1) from the bottom of the hinges, and the two Phillips PM2.0×2.5 screws from the top of the hinges that secure the display hinges to the display.
- b. Remove the display hinges (2).



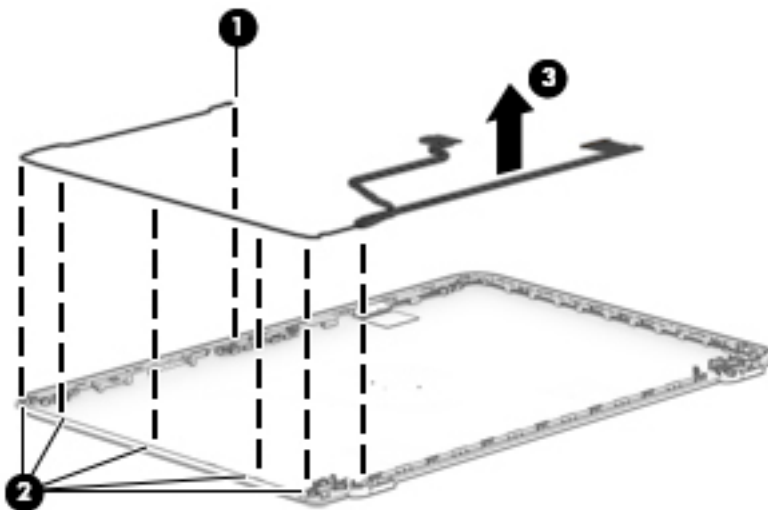
5. To remove the wireless antenna cables and transceivers, release the wireless antenna cables from the clips **(1)** built into the display enclosure, peel the transceivers from the enclosure **(2)**, and then remove the antenna cables and transceivers.

The antennas are available using spare part number 811201-001.

 **NOTE:** Number of antennas and transceivers may vary.



6. To remove the display/webcam cable, disconnect the cable **(1)**.
7. Remove the cable from the clips built into the display panel **(2)**, and then remove the cable from the display **(3)**.

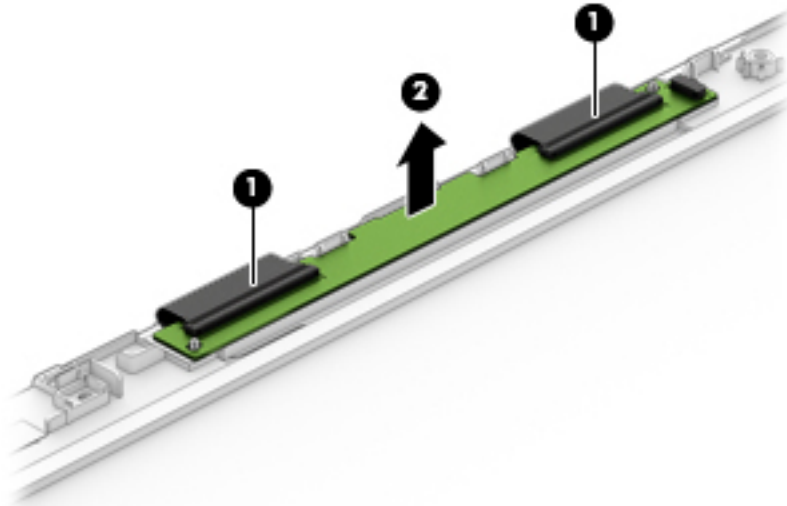


8. If replacing the display enclosure, be sure that the subcomponents (including the webcam/microphone module, the antenna receivers, and all associated cables and hardware) are transferred to the new enclosure.

Reverse this procedure to reassemble and install the display assembly.

Remove the touch screen sensor

1. Place the panel bezel face down.
2. Release the sensor clips **(1)** and remove the sensor **(2)**.




7 Computer Setup (BIOS), TPM, and HP Sure Start – Windows 10

Using Computer Setup

Computer Setup, 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). Computer Setup includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

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

Starting Computer Setup

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

To start Computer Setup, follow these steps:

- ▲ Start Computer Setup.
 - Computers or tablets with keyboards:
 - ▲ Turn on or restart the computer, and when the HP logo appears, press **f10** to enter Computer Setup.
 - Tablets without keyboards:
 - ▲ Turn off the tablet. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap **F10** to enter Computer Setup.

Navigating and selecting in Computer Setup

- 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 select the item.



NOTE: On tablets without keyboards, you can use your finger to make selections.

- To scroll up and down, select 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 on the keyboard.
- To close open dialog boxes and return to the main Computer Setup screen, press **esc**, and then follow the on-screen instructions.

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

- To exit Computer Setup menus without saving your changes:

Select the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Select **Main**, select **Ignore Changes and Exit**, and then press **enter**.

- To save your changes and exit Computer Setup menus:

Select the Save icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Select **Main**, select **Save Changes and Exit**, and then press **enter**.

Your changes go into effect when the computer restarts.

Restoring factory settings in Computer Setup



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

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

1. Start Computer Setup. See [Starting Computer Setup on page 69](#).
2. Select **Main**, and then select **Apply Factory Defaults and Exit**.



NOTE: On select products, the selections may display **Restore Defaults** instead of **Apply Factory Defaults and Exit**.

3. Follow the on-screen instructions.
4. To save your changes and exit, select the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Select **Main**, select **Save Changes and Exit**, 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.

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

To decide whether you need to update Computer Setup (BIOS), first determine the BIOS version on your computer.

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


1. Start Computer Setup. See [Starting Computer Setup on page 69](#).
2. Select **Main**, and then select **System Information**.
3. To exit Computer Setup without saving your changes, select the Exit icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Select **Main**, select **Ignore Changes and Exit**, and then press **enter**.

To check for later BIOS versions, see [Downloading a BIOS update on page 71](#).

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 on 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. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
Select the question mark icon in the taskbar.
2. Select **Updates**, and then select **Check for updates and messages**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
 - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. 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 revealed on the screen after the download is complete. If no instructions are revealed, follow these steps:

1. Type `file` in the taskbar search box, and then select **File Explorer**.
2. Select your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder that contains the update.
4. Double-click the file that has an `.exe` extension (for example, `filename.exe`).
The BIOS installation begins.
5. Complete the installation by following the on-screen instructions.




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

Changing the boot order using the f9 prompt


To dynamically choose a boot device for the current startup sequence, follow these steps:

1. Access the Boot Device Options menu:
 - Computers or tablets with keyboards:
 - ▲ Turn on or restart the computer, and when the HP logo appears, press `f9` to enter the Boot Device Options menu.
 - Tablets without keyboards:
 - ▲ Turn off the tablet. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap `F9` to enter the Boot Device Options menu.
2. Select a boot device, then press `enter`.

TPM BIOS settings (select products only)

 **IMPORTANT:** Before enabling Trusted Platform Module (TPM) functionality on this system, you must ensure that your intended use of TPM complies with relevant local laws, regulations and policies, and approvals or licenses must be obtained if applicable. For any compliance issues arising from your operation/usage of TPM which violates the above mentioned requirement, you shall bear all the liabilities wholly and solely. HP will not be responsible for any related liabilities.

TPM provides additional security for your computer. You can modify the TPM settings in Computer Setup (BIOS).

 **NOTE:** If you change the TPM setting to Hidden, TPM is not visible in the operating system.

To access TPM settings in Computer Setup:

1. Start Computer Setup. See [Starting Computer Setup on page 69](#).
2. Select **Security**, select **TPM Embedded Security**, and then follow the on-screen instructions.

Using HP Sure Start (select products only)

Select computer models are configured with HP Sure Start, a technology that continuously monitors the computer's BIOS for attacks or corruption. If the BIOS becomes corrupted or is attacked, HP Sure Start automatically restores the BIOS to its previously safe state, without user intervention.

HP Sure Start is configured and already enabled so that most users can use the HP Sure Start default configuration. The default configuration can be customized by advanced users.

To access the latest documentation on HP Sure Start, go to <http://www.hp.com/support>, and select your country. Select **Drivers & Downloads**, and then follow the on-screen instructions.


8 Computer Setup (BIOS), MultiBoot, and System Diagnostics – Windows 8

Using Computer Setup

Computer Setup, 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). Computer Setup includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

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

Starting Computer Setup

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

To start Computer Setup, 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 Computer Setup.

Navigating and selecting in Computer Setup

To navigate and select in Computer Setup, 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.

 **NOTE:** You can use either a pointing device (TouchPad, pointing stick, or USB mouse) or the keyboard to navigate and make selections in Computer Setup.

2. Press **f10** to enter Computer Setup.
 - 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 on the keyboard.
 - To close open dialog boxes and return to the main Computer Setup screen, press **esc**, and then follow the on-screen instructions.

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

- To exit Computer Setup menus without saving your changes:
Click the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Use the **tab** key and the arrow keys to select **File > Ignore Changes and Exit**, and then press **enter**.

- To save your changes and exit Computer Setup menus:

Click the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Use the **tab** key and the arrow keys to select **File > Save Changes and Exit**, and then press **enter**.

Your changes go into effect when the computer restarts.

Restoring default settings in Computer Setup



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

To return all settings in Computer Setup 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 Computer Setup.
3. Use a pointing device or the arrow keys to select **File > Restore Defaults**.
4. Follow the on-screen instructions.
5. To save your changes and exit, click the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Use the arrow keys to select **File > Save Changes and Exit**, 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 default settings.

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 Computer Setup.

1. Start Computer Setup.
2. Use a pointing device or the arrow keys to select **File > System Information**.
3. To exit Computer Setup without saving your changes, click the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Use the **tab** key and the arrow keys to select **File > Ignore Changes and Exit**, 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 on the computer by unplugging the power cord from the AC outlet.

Do not shut down the computer or initiate Sleep.

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

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

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

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

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

1. From the Start screen, type `e`, and then click **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 MultiBoot

About the boot device order

As the computer starts, the system attempts to boot from enabled devices. The MultiBoot utility, which is enabled at the factory, controls the order in which the system selects a boot device. Boot devices can include optical drives, diskette drives, a network interface card (NIC), hard drives, and USB devices. Boot devices contain bootable media or files that the computer needs to start and operate properly.



NOTE: Some boot devices must be enabled in Computer Setup before they can be included in the boot order.

You can change the order in which the computer searches for a boot device by changing the boot order in Computer Setup. You can also press `esc` while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen, and then press `f9`. Pressing `f9` displays a menu that shows the current boot devices and allows you to select a boot device. Or, you can use MultiBoot Express to set the computer to prompt you for a boot location each time the computer turns on or restarts.

Choosing MultiBoot preferences

You can use MultiBoot in the following ways:

- To set a new boot order that the computer uses each time it is turned on, by changing the boot order in Computer Setup.
- To dynamically choose the boot device, by pressing `esc` while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen, and then pressing `f9` to enter the Boot Device Options menu.
- To use MultiBoot Express to set variable boot orders. This feature prompts you for a boot device each time the computer is turned on or restarted.

Setting a new boot order in Computer Setup

To start Computer Setup and set a boot device order that the computer uses each time it is turned on or restarted, 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 Computer Setup.
3. Use a pointing device or the arrow keys to select the **Legacy Boot Order** list, and then press **enter**.
4. To move the device up in the boot order, use a pointing device to click the up arrow, or press the **+** key.
– or –
To move the device down in the boot order, use a pointing device to click the down arrow, or press the **-** key.
5. To save your changes and exit Computer Setup, click the **Save** icon in the lower-left corner of the screen, and then follow the on-screen instructions.
– or –
Use the arrow keys to select **File > Save Changes and Exit**, and then press **enter**.

Dynamically choosing a boot device using the f9 prompt

To dynamically choose a boot device for the current startup sequence, follow these steps:

1. Open the Select Boot Device menu by turning on or restarting the computer, and then pressing **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
2. Press **f9**.
3. Use a pointing device or the arrow keys to select a boot device, then press **enter**.

Setting a MultiBoot Express prompt

To start Computer Setup and set the computer to display the MultiBoot startup location menu each time the computer is started or restarted, 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 Computer Setup.
3. Use a pointing device or the arrow keys to select **System Configuration > Boot Options**, and then press **enter**.
4. In the **MultiBoot Express Popup Delay (Sec)** field, enter the length of time in seconds that you want the computer to display the startup location menu before it defaults to the current MultiBoot setting. (When 0 is selected, the Express Boot startup location menu is not displayed.)
5. To save your changes and exit Computer Setup, click the **Save** icon in the lower-left corner of the screen, and then follow the on-screen instructions.

– or –

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

Your changes go into effect when the computer restarts.

Entering MultiBoot Express preferences

When the Express Boot menu is displayed during startup, you have the following choices:

- To specify a boot device from the Express Boot menu, select your preference within the allotted time, and then press **enter**.
- To prevent the computer from defaulting to the current MultiBoot setting, press any key before the allotted time expires. The computer will not start until you select a boot device and press **enter**.
- To allow the computer to start according to the current MultiBoot settings, wait for the allotted time to expire.

Using System Diagnostics

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

- **System Tune-Up**—This group of additional tests checks your computer to make sure that the main components are functioning correctly. System Tune-Up runs longer and more comprehensive tests on memory modules, hard drive SMART attributes, the hard drive surface, the battery (and battery calibration), video memory, and the WLAN module status.
- **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 and calibrates the battery if necessary. If the battery fails the test, contact HP support to report the issue and purchase a replacement battery.
- **BIOS Management**—You can update or rollback the version of the BIOS on the system. Do not shut down or remove external power during the process. You will be given a confirmation screen before your BIOS is modified. Select **BIOS update**, **BIOS Rollback**, or **Back to main menu**.

You can view system information and error logs or select languages 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**.

9 Using HP PC Hardware Diagnostics (UEFI) in Windows 10

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

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


To start HP PC Hardware Diagnostics UEFI:

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

2. Press or tap [f2](#).

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


- a. Connected USB drive

 **NOTE:** To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 83](#).

- b. Hard drive

- c. BIOS

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

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

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

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

Download the latest UEFI version:

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

Download any version of UEFI for a specific product:

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

– or –

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

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

10 Using HP PC Hardware Diagnostics (UEFI) in Windows 8.1

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

To start HP PC Hardware Diagnostics (UEFI):

1. Start Setup Utility:

- ▲ Turn on or restart the computer, quickly press [esc](#).

2. Press or tap **f2**.

The BIOS searches 3 places for the diagnostic tools, in the following order:

a. Connected USB drive



NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 83](#).

b. Hard drive

c. BIOS

3. When the diagnostic tool opens, use the keyboard arrow keys to select the type of diagnostic test you want to run, and then follow the on-screen instructions.



NOTE: If you need to stop a diagnostic test, press or tap [esc](#).

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



NOTE: Instructions for downloading HP PC Hardware Diagnostics (UEFI) are provided in English only.

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

Option 1: HP PC Diagnostics homepage— Provides access to the latest UEFI version

- 1.** Go to <http://hp.com/go/techcenter/pcdiags>.
- 2.** Click the UEFI **Download** link, and then select **Run**.

Option 2: Support and Drivers pages—Provide downloads for a specific product for earlier and later versions

- 1.** Go to <http://www.hp.com>.
- 2.** Point to **Support**, located at the top of the page, and then click **Download Drivers**.
- 3.** In the text box, enter the product name, and then click **Go**.

– or –

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

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, click **HP UEFI Support Environment**.
– or –
Click **Download**, and then select **Run**.

11 Specifications

Computer specifications

	Metric	U.S.
Dimensions (touch models)		
Depth	286.75 mm	11.28 in
Width	418.8 mm	15.14 in
Height (rear)	27.15 mm	1.06 in
Weight		
Touch	2.795 kg	6.17 lb
Non-touch		
Input power		
Operating voltage and current	18.5 V dc @ 3.5 A or 19.5 V dc @ 3.33 A – 65 W 19.5 V dc @ 2.31 A – 45 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.		

43.9-cm (17.3-in) display specifications

	Metric	U.S.
Active diagonal size	43.9-cm	17.3-in
Thickness	6.0 mm or 4.0 mm	0.157 inch or 0.236 inch
Resolution	1920x1080 (FHD) 1600x900 (HD)	
Surface treatment	AntiGlare or BrightView	
Contrast ratio	300:1 (typical)	
Brightness	220 nits (typical)	
Viewing angle	SVA	
Backlight	WLED	
Companion standard	eDP	

Hard drive specifications

	2-TB*	1-TB*	750-GB*	500-GB*
Dimensions				
Height	9.5 mm	9.5 mm	9.5 mm	7.0 mm or 9.5 mm
Length	100.4 mm	100.4 mm	100.4 mm	100.6 mm
Width	69.9 mm	69.9 mm	69.9 mm	70.1 mm
Weight	115.0 g	115.0 g	115.0 g	92.0 g
Interface type	SATA	SATA	SATA	SATA
Transfer rate				
Synchronous (maximum)	300 MB/sec	300 MB/sec	300 MB/sec	300 MB/sec
Security	ATA security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)				
Single track	1.4 ms	1.4 ms	1.5 ms	3 ms
Average (read/write)	10 ms	10 ms	11 ms	13 ms
Maximum	12 ms	12 ms	14 ms	24 ms
Logical blocks	3,877,842,922	1,938,921,461	1,465,149,168	1,048,576,000
Disk rotational speed	5400 rpm	5400 rpm	5400 rpm	5400 rpm
Operating temperature	0°C to 60°C (32°F to 140°F)			
*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.				
NOTE: Certain restrictions and exclusions apply. Contact technical support for details.				

DVD±RW SuperMulti DL Drive specifications

Applicable disc	Read: CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	Write: CD-R and CD-RW DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM
Center hole diameter	1.5 cm (0.59 in)	
Disc diameter		
Standard disc	12 cm (4.72 in)	
Mini disc	8 cm (3.15 in)	
Disc thickness	1.2 mm (0.047 in)	
Track pitch	0.74 µm	
Access time	CD	DVD
Random	< 175 ms	< 230 ms
Full stroke	< 285 ms	< 335 ms
Audio output level	Line-out, 0.7 Vrms	
Cache buffer	2 MB	
Data transfer rate		
24X CD-ROM	3,600 KB/sec	
8X DVD-ROM	10,800 KB/sec	
24X CD-R	3,600 KB/sec	
16X CD-RW	2,400 KB/sec	
8X DVD+R	10,800 KB/sec	
4X DVD+RW	5,400 KB/sec	
8X DVD-R	10,800 KB/sec	
4X DVD-RW	5,400 KB/sec	
2.4X DVD+R(9)	2,700 KB/sec	
5X DVD-RAM	6,750 KB/sec	
Transfer mode	Multiword DMA Mode	
Startup time	< 15 seconds	
Stop time	< 6 seconds	

12 Backup and recovery – Windows 10

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


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

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

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

– or –

Click the question mark icon in the taskbar.

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


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

Creating recovery media and backups

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

- Use HP Recovery Manager to create HP Recovery media after you successfully set up the computer. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. For information on creating recovery media, see [Creating HP Recovery media \(select products only\) on page 92](#). For information on the recovery options that are available using the recovery media, see [Using Windows Tools on page 93](#).
- Use Windows tools to create system restore points and create backups of personal information.

For more information, see [Recovering using HP Recovery Manager on page 94](#).

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

Creating HP Recovery media (select products only)

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

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

You can use Windows tools to create system restore points and create backups of personal information, see *Using Windows tools on page 61*.

- If your computer does list the Recovery partition and the Windows partition, you can use HP Recovery Manager to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and software programs that were installed at the factory and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.
 - Only one set of recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
 - HP Recovery Manager examines the computer and determines the required storage capacity for the media that will be required.
 - To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or, instead, you can use a high-quality blank USB flash drive.
 - If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub. If you cannot create DVD media yourself, you can obtain recovery discs for your computer from HP. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.
 - Be sure that the computer is connected to AC power before you begin creating the recovery media.
 - The creation process can take an hour or more. Do not interrupt the creation process.
 - If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue.

To create HP Recovery media:



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

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

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 94](#).

Using Windows Tools

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



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

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

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

Restore and recovery

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



IMPORTANT: Not all methods are available on all products.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see the Get started app.
 - ▲ Select the **Start** button, and then select the **Get started** app.
- If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/or applications option (select products only) of HP Recovery Manager to reinstall the individual application or driver.
 - ▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 94](#). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 92](#).
- On select products, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 94](#).
- On select products, if you want to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.


For more information, see Removing the [Removing the HP Recovery partition \(select products only\) on page 96](#).

Recovering using HP Recovery Manager


HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from HP, or by using the HP Recovery partition (select products only). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 92](#).

What you need to know before you get started


- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.

 **IMPORTANT:** Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.

- To use the Factory Reset option (select products only), you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 92](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

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

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

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

- **System Recovery**—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- **Factory Reset**—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select products only) allows System Recovery only.

Using the HP Recovery partition (select products only)

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

To start HP Recovery Manager from the HP Recovery partition:



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

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

– or –

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

For tablets without keyboards:

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

– or –

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

2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, and then follow the on-screen instructions.

Using HP Recovery media to recover

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

1. If possible, back up all personal files.
2. Insert the HP Recovery media, and then restart the computer.




NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See [Changing the computer boot order on page 96](#).

3. Follow the on-screen instructions.

Changing the computer boot order

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

To change the boot order:

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

1. Insert the HP Recovery media.

2. Access BIOS:

For computers or tablets with keyboards attached:

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

For tablets without keyboards:

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

– or –


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


3. Select the optical drive or USB flash drive from which you want to boot.

4. Follow the on-screen instructions.

Removing the HP Recovery partition (select products only)

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

 **IMPORTANT:** After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP recovery media from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media \(select products only\) on page 92](#).

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

Follow these steps to remove the HP Recovery partition:

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

2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.


13 Backup and recovery – Windows 8

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.


In Windows 8, from the Start screen, type `restore`, click **Settings**, and then select from the list of displayed options.

- or -

In Windows 8.1, from the Start screen, type `restore`, 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 Backup and Restore in Windows 8.0:

 **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`, and then click **Settings**.
2. Click **Save backup copy of your files with file history**.
File History windows are launched.
3. Follow the on-screen instructions to use file history to backup files.
- or -
Click **recovery** to create a recovery drive using a USB flash drive.
- or -
Click **Windows 7 file recovery**, and then click **create a system image** to create a system image.

To create a backup using Backup and Restore in Windows 8.1:



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`.
2. Click **Save backup copy of your files with file history**.
File History windows are launched.
3. Follow the on-screen instructions to use file history to backup files.
- or -
Click **recovery** to create a recovery drive using a USB flash drive.
- or -
Click **System Image Backup** to create a system image.


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.

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 Recovery Image partition: From the Start screen, type **C**, and then select **Computer**.

 **NOTE:** If the Recovery Image 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).


3. If the Recovery Image 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. Choose your language.
6. Choose your keyboard layout.
7. Select **Troubleshoot** from the boot options menu.
8. Select **Reset your PC**, and 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. Power off the computer.
4. Power on the computer, and then press **F9** to show the BIOS boot menu.
5. When the DVD is booting, select the DVD from the **UEFI Boot Sources**.
6. When prompted, press any keyboard key.
7. Follow the on-screen instructions.

After the installation 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.
4. In Windows 8.0, select **General** from the PC settings screen.
- or -
In Windows 8.1, select **Update and Recovery**, and then select **Recovery**.
5. Scroll the right-side choices down to display **Refresh your PC without affecting your files**.
6. 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. Choose your language.
3. Choose your keyboard layout.
4. Select **Troubleshoot** from the boot options menu.
5. 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.
4. In Windows 8.0, select **General** from the PC settings screen.
- or -
In Windows 8.1, select **Update and Recovery**, and then select **Recovery**.
5. Scroll the right-side choices down to display **Remove everything and reinstall Windows**.
6. 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.

14 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 **1.5 m** (5.0 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
The United States	UL	2

1. The flexible cord must be Type H05VV-F, 3-conductor, 0.75mm² 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 ac) or NEMA 6-15P (15 A, 250 V ac) configuration. CSA or C-UL mark. UL file number must be on each element.

Country/region	Accredited agency	Applicable note number
		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, 0.75mm ² or 1.25mm ² 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, 0.75mm ² 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 3X0.75mm ² 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 3X1.25mm ² 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 3X0.75/1.00mm ² conductor size, with plug BS 1363/A with BSI or ASTA marks.

15 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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