



Maintenance and Service Guide

HP Pavilion x360 14m Convertible PC
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Product notice

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

Not all features are available in all editions of Windows 10. This computer may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 10 functionality. See for <http://www.microsoft.com> details.

Safety warning notice


 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap or obstruct the device air vents. Use the device only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The device and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950-1).

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1 Product description

Category	Description
Product Name	<ul style="list-style-type: none">HP Pavilion x360 14m Convertible PC (model number 14m-ba2xx)HP Pavilion x360 14m Convertible PC (model numbers 14-cc0xx and 14t-cc000)HP Pavilion x360 14m Convertible PC (model number 14m-ba0xx) and HP Pavilion x360 14 Convertible PC (model number 14-ba0xx)
Processors	<ul style="list-style-type: none">Intel® Core™ i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W)Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W)Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (1866-MHz FSB, 4.0-MB L3 cache, 15-W)Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (1866-MHz FSB, 3.0-MB L3 cache, 15-W)Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W)Intel Core i3-7100U 2.40-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W)Intel Pentium™ 4415U 2.36-GHz dual core processor (2133-MHz FSB, 2.0-MB L3 cache, 15-W)
Chipset	Integrated with soldered-on-circuit (SoC)
Graphics	<p>Switchable discrete graphics:</p> <p>NVIDIA N165-GTR (GeForce MX130 graphics controller) with up to 4096-MB of dedicated video memory</p> <p>NVIDIA N165-GTR (GeForce MX130 graphics controller) with up to 2048-MB of dedicated video memory</p> <p>Internal graphics: Intel UHD Graphics 620 and Intel HD Graphics 620</p> <p>Support for GPS (GPU Performance Scaling)</p> <p>Support for HD decode, DX12, and high-definition multimedia interface (HDMI)</p> <p>Support for Optimus</p>
Panel	<p>14.0-in, full high-definition (FHD), white light-emitting (WLED), BrightView (1920×1080), slim/flat (3.0-mm), UWVA, eDP, 250 nits, 16:9 ultra wide aspect ratio TouchScreen display assembly</p> <p>14.0-in, FHD, WLED, BrightView (1920×1080), slim/flat (3.0-mm), UWVA, eDP, 220 nits, 16:9 ultra wide aspect ratio TouchScreen display assembly</p> <p>14.0-in, high-definition (HD), white light-emitting (WLED), AntiGlare (1366×768), slim/flat (3.6-mm), SVA, eDP, 220 nits, 16:9 ultra wide aspect ratio TouchScreen display assembly</p>
Memory	<p>Two SODIMM memory module slots, non-customer-accessible/non-upgradable</p> <p>Supports up to 12-GB of system memory</p> <p>Supports the following configurations:</p> <ul style="list-style-type: none">12288 MB (8192 MB + 4096 MB)8192 MB (8192 MB × 1 or 4096 MB × 2)6144 MB (4096 MB + 2048 MB)

Category	Description
Memory <i>(continued)</i>	<ul style="list-style-type: none"> 4096 MB (4096 MB × 1 or 2048 MB × 2)
Storage	<p>Support for hard drive and solid-state drive</p> <p>Hard drive:</p> <p>Support for 6.35-cm (2.5-in) hard drives in 7.2-mm and 7.0-mm (0.28-in) thicknesses (all hard drives use the same bracket)</p> <p>Support for Accelerometer hard drive protection</p> <p>Support for 1-TB, 5400-rpm, 7.2-mm and 500-GB, 5400-rpm, 7.0-mm hard drives</p> <p>Support for Serial Advanced Technology Attachment (SATA)</p> <p>Solid-state drive: Support for the following solid-state drives:</p> <p>For use only on computer models with model number 14m-ba2xx: 16-GB, 2280, Peripheral Component Interconnect Express (PCIe)-3×2, Non-Volatile Memory Express (NVMe), 3S XP solid-state drive</p> <p>For use only on computer models with model numbers 14-cc0xx and 14t-cc000:</p> <ul style="list-style-type: none"> 512-GB, PCIe, NVMe solid-state drive 512-GB, M.2 SATA solid-state drive with triple-level cell (TLC) 256-GB, M.2 SATA solid-state drive with TLC 128-GB, M.2 SATA solid-state drive with TLC <p>For use on all computer models:</p> <ul style="list-style-type: none"> 512-GB, M.2 SATA solid-state drive with TLC 256-GB, M.2 SATA solid-state drive 128-GB, M.2 SATA solid-state drive <p>Support for M.2 SATA solid-state drive (support for storage function, port 1; not available on computer models equipped with an Intel Pentium processor)</p> <p>Dual storage configurations:</p> <p>1-TB, 5400-rpm, 7.2-mm hard drive with 128-GB solid-state drive with TLC</p> <p>500-GB, 5400-rpm, 7.0-mm hard drive with 128-GB solid-state drive with TLC</p> <p>Solid-state hard drive configurations:</p> <p>1-TB, 5400-rpm, 7.2-mm solid-state hard drive with 8-GB NAND</p> <p>500-GB, 5400-rpm, 7.0-mm solid-state hard drive with 8-GB NAND</p>
Optical drive	HP external DVD±RW DL SuperMulti Drive
Audio and video	<p>Support for the following cameras:</p> <ul style="list-style-type: none"> HP Wide Vision FHD infrared camera with indicator light and 2 infrared lights, USB 2.0, FHD hybrid BSI sensor, f2.2, WDR, 88° wide field of vision, 1080p by 30 frames per second HP Wide Vision HD infrared camera with indicator light and 2 infrared lights, USB 2.0, HD BSI sensor and infrared sensor, f2.0, WDR, 88° wide field of vision, 720p by 30 frames per second HP Wide Vision HD camera with indicator light, USB 2.0, HD BSI sensor, f2.0, WDR, 88° wide field of vision, 720p by 30 frames per second <p>Support for B&O Play</p> <p>Support for dual speakers</p> <p>Support for HP Audio Boost</p>

Category	Description
Sensors	<ul style="list-style-type: none"> Accelerometer (ST Micro HP2DC) Gyroscope/E-compass/Accelerometer (ST Micro HP9DS1) Integrated sensor hub
Wireless	<p>WLAN:</p> <p>Integrated wireless local area network (WLAN) options by way of wireless module</p> <p>Two M.2/PCIe WLAN antennas built into display assembly</p> <p>Integrated wireless personal area network (PAN) supported by Bluetooth® 4.2 combo card</p> <p>Compatible with Miracast-certified devices</p> <p>Support for the following WLAN formats:</p> <ul style="list-style-type: none"> Intel 2230 M2 AC 2×2 MIPI+BRI and Bluetooth 5.0 Combo Adapter (non-vPro) Intel Dual Band Wireless-AC 7265 802.11ac 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro) Intel Dual Band Wireless-AC 3168 802.11ac 1×1 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro) Realtek RTL8723DE 802.11bgn 1×1 WiFi + Bluetooth 4.2 Combo Adapter
External media cards	Micro-Secure Digital (SD®) media reader slot
Ports	<ul style="list-style-type: none"> AC Smart Pin adapter plug Audio-out (headphone)/audio-in (microphone) combo jack HDMI v1.4 supporting up to 1920×1080 @ 60Hz USB 3.x ports (2) USB Type-C port supporting data transfer
Keyboard/pointing devices	<p>Textured, backlit, island-style keyboard</p> <p>TouchPad requirements:</p> <ul style="list-style-type: none"> ClickPad with image sensor MultiTouch gestures enabled Support for Modern TrackPad gestures Taps enabled as default
Power requirements	<p>Support for a 3-cell, 41-Wh, Li-ion battery</p> <p>Support for the following AC adapters:</p> <p>For use only on computer models with model numbers 14-cc0xx and 14t-cc000:</p> <ul style="list-style-type: none"> 90-W AC adapter (PFC, S-3P, 4.5-mm) for use in all countries and regions <p>For use on all computer models:</p> <ul style="list-style-type: none"> 65-W HP Smart AC adapter (non-PFC, EM, RC, 4.5-mm) for use in all countries and regions 65-W AC adapter (non-PFC, S-3P, 4.5-mm) for use in all countries and regions 65-W AC adapter (non-PFC, SB, 4.5-mm) for use only in Argentina 45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm) for use in all countries and regions 45-W AC adapter (non-PFC, SB, 4.5-mm) for use only in Argentina <p>Support for a 1.00-m power cord with a C5 connector in 16 countries/regions.</p>

Category	Description
Security	Security cable mini-lock slot
	Support for Trusted Platform Module second factor authentication (U2F; TPM) 2.0
Operating system	Windows 10 Home 64-bit
	Windows 10 Home 64-bit Chinese Market CPPP
	Windows 10 Home 64-bit High-End Chinese Market CPPP
	Windows 10 Home 64-bit Plus
	Windows 10 Home 64-bit Plus Single Language
	Windows 10 Home 64-bit Plus Single Language APAC EM PPP
	Windows 10 Home 64-bit Plus Single Language India Market PPP
	Windows 10 Home 64-bit Plus Single Language Indonesia Market PPP
	Windows 10 Home 64-bit Plus Single Language SEAP
	Windows 10 Home 64-bit Single Language
	Windows 10 Home 64-bit Single Language APAC EM PPP
	Windows 10 Home 64-bit Single Language India Market PPP
	Windows 10 Home 64-bit Single Language Indonesia Market PPP
	Windows 10 Home 64-bit Single Language SEAP
	Windows 10 Professional 64-bit
Windows 10 Professional 64-bit StF MSNA Standard	
FreeDOS 2.0	
Serviceability	End user replaceable part: AC adapter

2 Getting to know your computer

Locating hardware

To find out what hardware is installed on the computer:

- ▲ Type `device manager` in the taskbar search box, and then select the **Device Manager** app.

A list displays all the devices installed on the computer.

For information about system hardware components and the system BIOS version number, press `fn+esc` (select products only).

Locating software

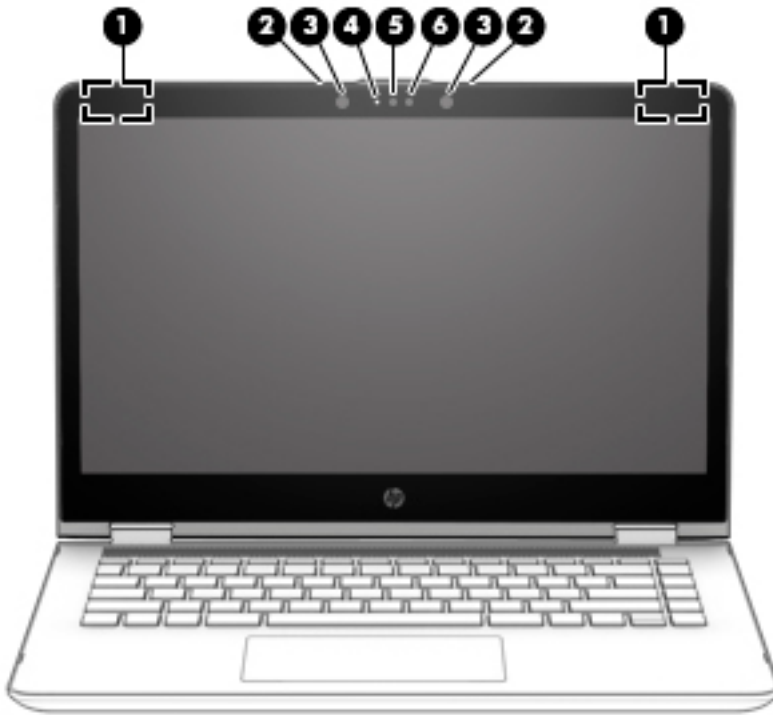
To find out what software is installed on your computer:

- ▲ Select the **Start** button.

– or –

Right-click the **Start** button, and then select **Programs and Features**.

Display



Item	Component	Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with WLANs.
(2)	Internal microphones (2)	Record sound.
(3)	Infrared camera lights (2)	On: The infrared camera is in use.
(4)	Camera light	On: The camera is in use.
(5)	Camera	Allows you to video chat, record video, and record still images.
(6)	Infrared camera	Allows a facial recognition logon to Windows, instead of a password logon.

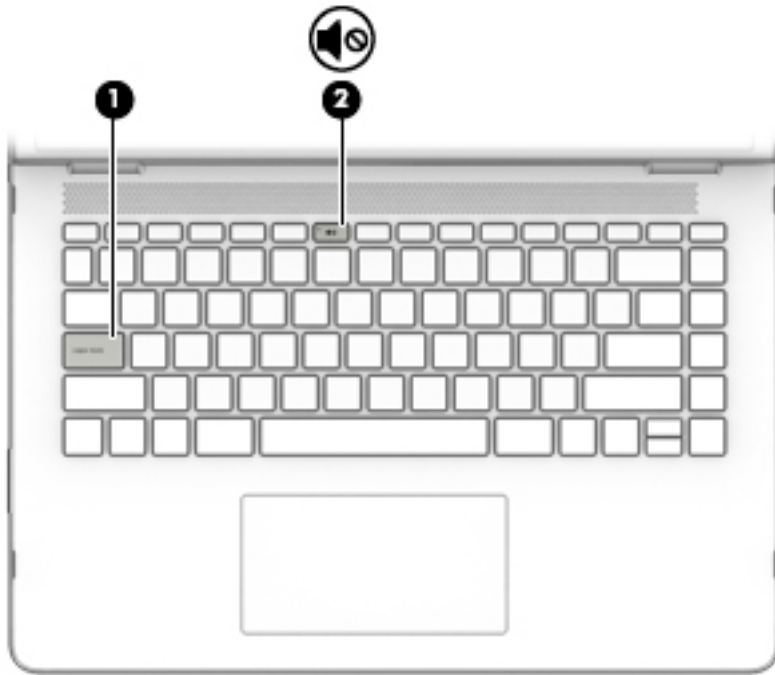
*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions.


For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this guide:

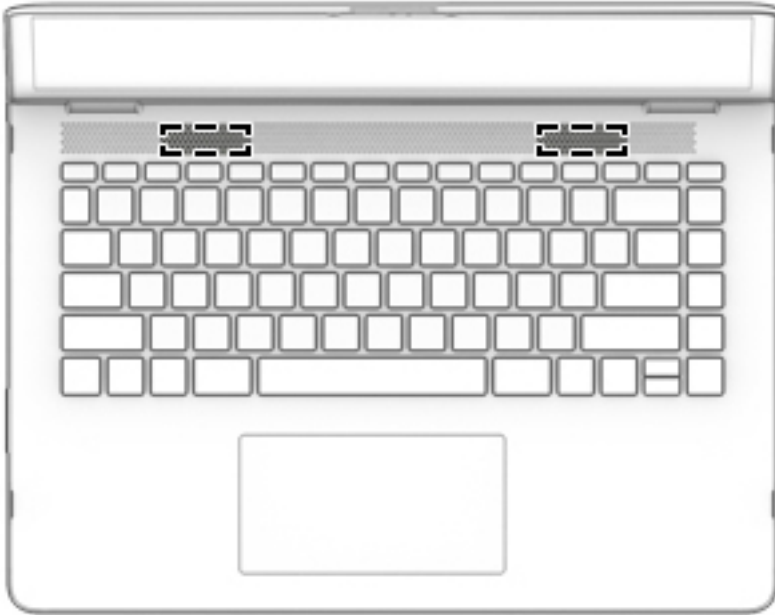
- ▲ Select the **Start** button, select **HP Help and Support**, and then select **HP Documentation**.

Lights



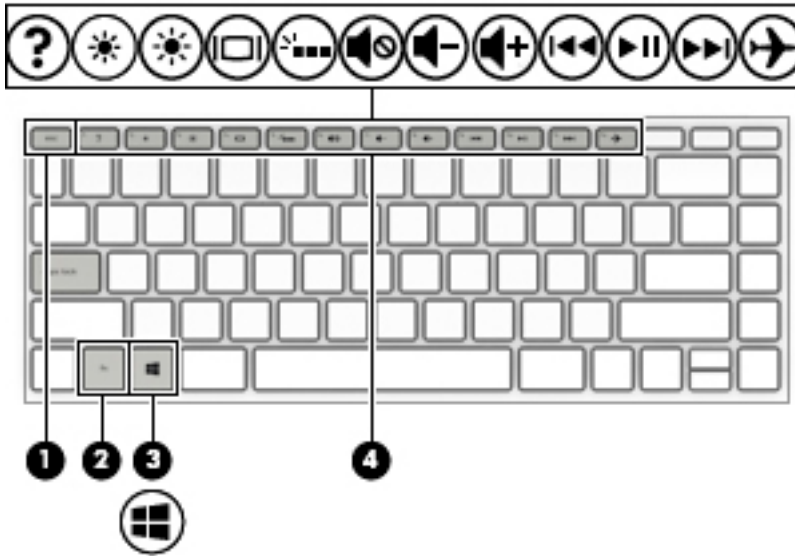
Item	Icon	Component	Description
(1)		Caps lock light	On: Caps lock is on, which switches the key input to all capital letters.
(2)		Mute light	<ul style="list-style-type: none">• On: Computer sound is off.• Off: Computer sound is on.


Speakers (select models only)



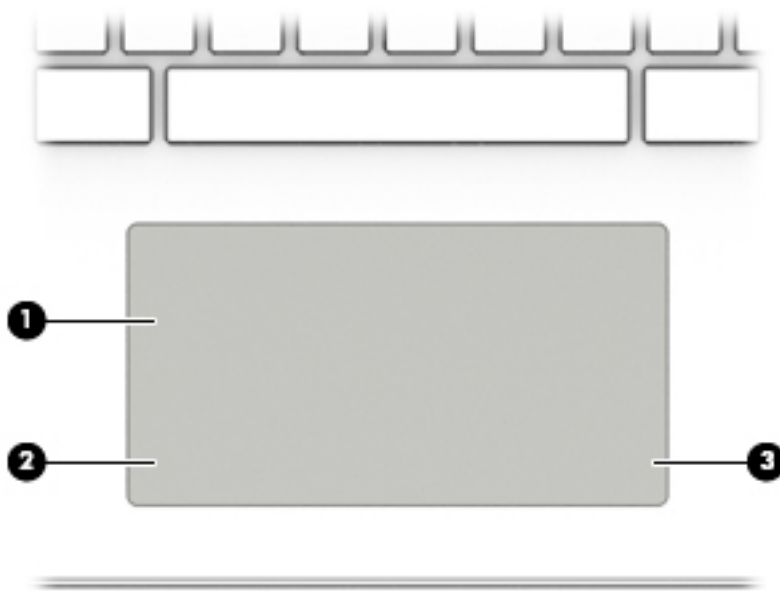
Component	Description
Speakers	Produce sound.

Special keys



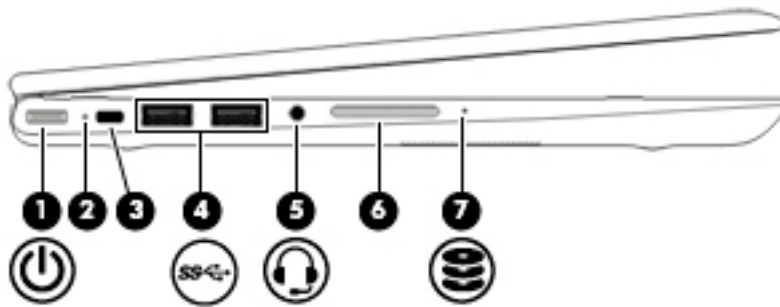
Item	Icon	Component	Description
(1)		esc key	Displays system information when pressed in combination with the fn key.
(2)		fn key	Displays system information when pressed in combination with another key.
(3)		Windows key	Opens the Start menu. NOTE: Pressing the Windows key again will close the Start menu.
(4)		Action keys	Execute frequently used system functions. NOTE: On select computer models, the f5 action key turns the keyboard backlight feature off or on.





TouchPad





Item	Component	Description
(1)	TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left control zone	Textured area that allows you to perform additional gestures.
(3)	Right control zone	Textured area that allows you to perform additional gestures.

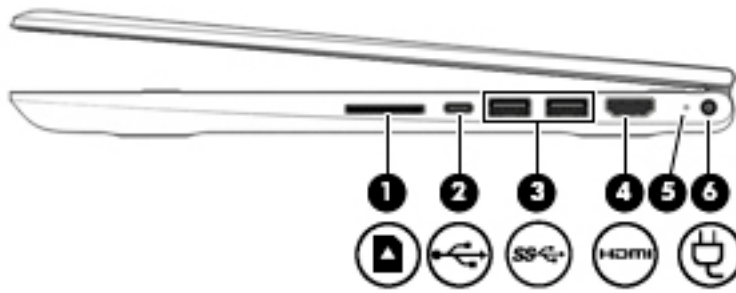
Left side








Item	Icon	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> <p>To learn more about your power settings, see your power options.</p> <ul style="list-style-type: none"> ▲ Type <code>power</code> in the taskbar search box, and then select Power & sleep options. – or – Right-click the Start button, and then select Power Options.
(2)		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.
(3)		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>
(4)		USB 3.x SuperSpeed ports (2)	<p>Connect a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provide high-speed data transfer.</p>
(5)		Audio-out (headphone)/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone devices.</p>

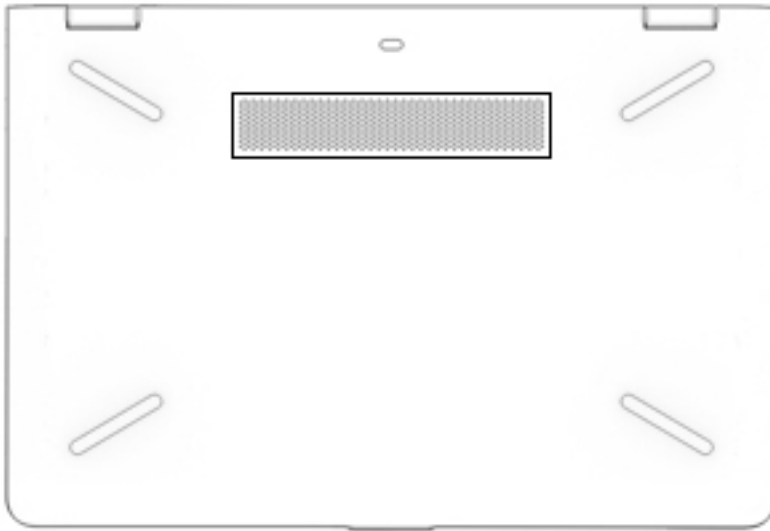
Item	Icon	Component	Description
(5)		Audio-out (headphone)/Audio-in (microphone) jack <i>(continued)</i>	<p>WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>To access this guide:</p> <ul style="list-style-type: none"> ▲ Select the Start menu, select HP Help and Support, and then select HP Documentation. <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p>
(6)		Volume button	Controls speaker volume on the computer.
(7)		Drive light	<p>Blinking white: The hard drive is being accessed.</p> <p>Amber: HP 3D DriveGuard has temporarily parked the hard drive.</p>

Right side




Item	Icon	Component	Description
(1)		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 the connectors facing the computer. 2. Insert the card into the memory card reader, and then press 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.
(2)		USB Type-C SuperSpeed port	<p>When the computer is on, connects and charges a USB device that has a Type-C connector, such as a cell phone, camera, activity tracker, or smartwatch, and provides high-speed data transfer.</p> <p>NOTE: Cables and/or adapters (purchased separately) may be required.</p>
(3)		USB 3.x SuperSpeed ports (2)	<p>Connect a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provide high-speed data transfer.</p>
(4)		HDMI port	<p>Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or an HDMI device.</p>
(5)		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 power off 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.
(6)		Power connector	<p>Connects an AC adapter.</p>

Bottom



Component	Description
Vent	Enables airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.

3 Illustrated parts catalog

 **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.

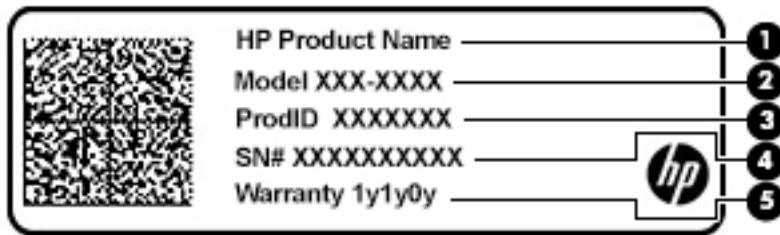
Labels

The labels affixed to the computer provide information that may be needed when troubleshooting system problems or travelling internationally with the computer.

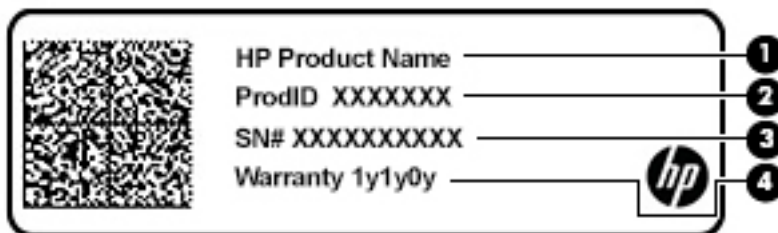
 **IMPORTANT:** Check the following locations for the labels described in this section: the bottom of the computer, inside the battery bay, under the service door, on the back of the display, or on the bottom of a tablet kickstand.

- Service label—Provides important information to identify your computer. When contacting support, you may be asked for the serial number, the product number, or the model number. Locate this information before you contact support.

Your service label will resemble one of the examples shown below. Refer to the illustration that most closely matches the service label on your computer.

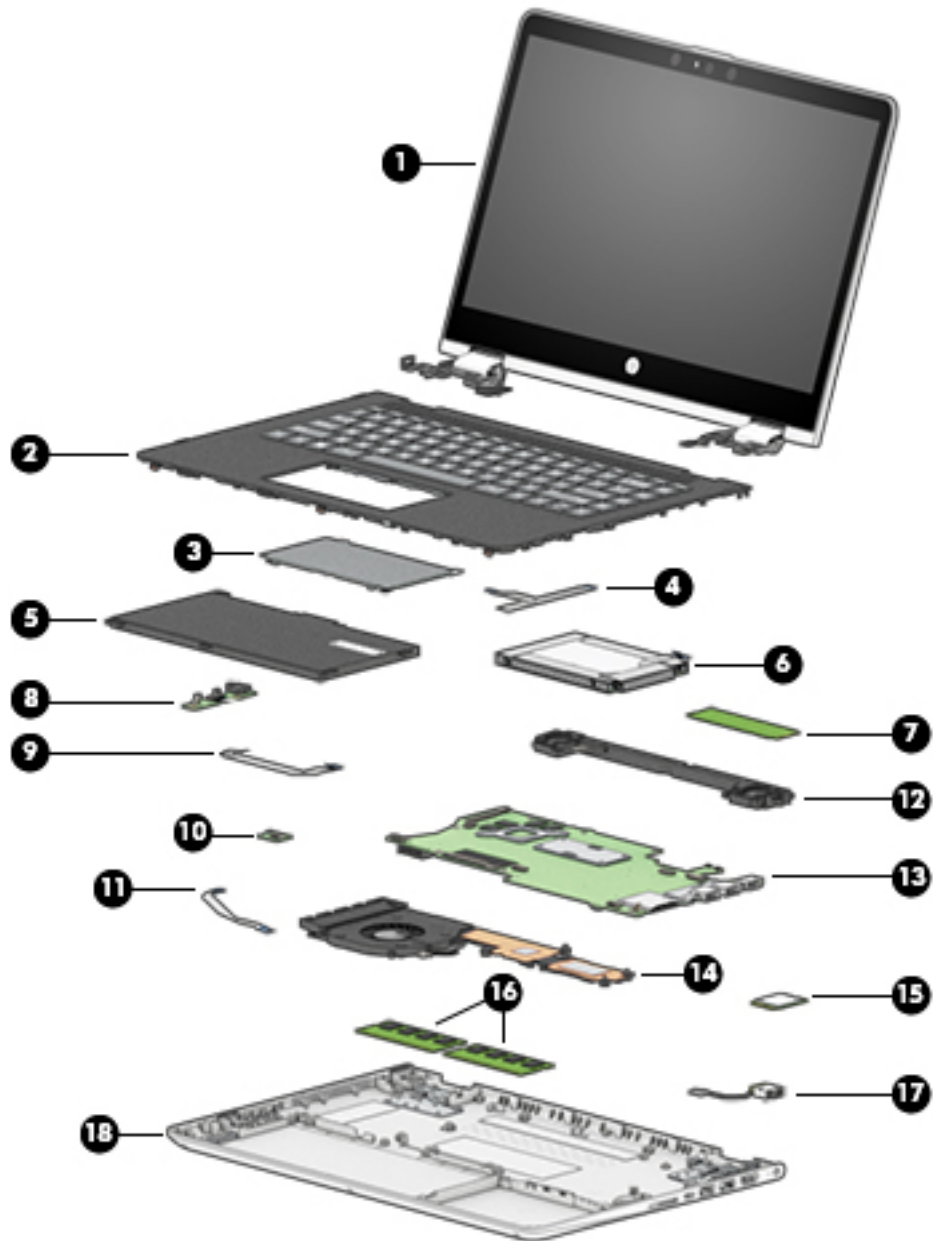


Component	
(1)	HP product name (select products only)
(2)	Model number
(3)	Product number
(4)	Serial number
(5)	Warranty period



Component	
(1)	HP product name (select products only)
(2)	Product number
(3)	Serial number
(4)	Warranty period

Computer major components



Item	Component	Spare part number
(1)	Display assembly: The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see Display assembly subcomponents on page 25 .	
(2)	Keyboard/top cover in ash silver finish with backlight (includes backlight cable and keyboard cable):	
	For use in Belgium	924116-A41
	For use in Bulgaria	924116-261
	For use in Canada	924116-DB1
	For use in the Czech Republic and Slovakia	924116-FL1
	For use in Denmark, Finland, and Norway	924116-DH1
	For use in France	924116-051
	For use in Germany	924116-041
	For use in Greece	924116-151
	For use in Hungary	924116-211
	For use in Israel	924116-BB1
	For use in Italy	924116-061
	For use in the Netherlands	924116-B31
	For use in Portugal	924116-131
	For use in Romania	924116-271
	For use in Russia	924116-251
	For use in Saudi Arabia	924116-171
	For use in Slovenia	924116-BA1
	For use in South Korea	924116-AD1
	For use in Spain	924116-071
	For use in Switzerland	924116-BG1
	For use in Taiwan	924116-AB1
	For use in Thailand	924116-281
	For use in Turkey	924116-141
	For use in the United Kingdom	924116-031
	For use in the United States	924116-001
	Keyboard/top cover in ash silver finish (includes keyboard cable):	
	For use in Belgium	924117-A41
	For use in Bulgaria	924117-261
	For use in Canada	924117-DB1
	For use in the Czech Republic and Slovakia	924117-FL1
	For use in Denmark, Finland, and Norway	924117-DH1

Item	Component	Spare part number
	For use in France	924117-051
	For use in Germany	924117-041
	For use in Greece	924117-151
	For use in Hungary	924117-211
	For use in Israel	924117-BB1
	For use in Italy	924117-061
	For use in Latin America	924117-161
	For use in the Netherlands	924117-B31
	For use in Portugal	924117-131
	For use in Romania	924117-271
	For use in Russia	924117-251
	For use in Saudi Arabia	924117-171
	For use in Slovenia	924117-BA1
	For use in South Korea	924117-AD1
	For use in Spain	924117-071
	For use in Switzerland	924117-BG1
	For use in Taiwan	924117-AB1
	For use in Thailand	924117-281
	For use in Turkey	924117-141
	For use in the United Kingdom	924117-031
	For use in the United States	924117-001
	Keyboard/top cover in Pike silver finish with speaker grille in mineral silver finish with backlight (includes backlight cable and keyboard cable):	
	For use in Belgium	924115-A41
	For use in Bulgaria	924115-261
	For use in Canada	924115-DB1
	For use in the Czech Republic and Slovakia	924115-FL1
	For use in Denmark, Finland, and Norway	924115-DH1
	For use in France	924115-051
	For use in Germany	924115-041
	For use in Greece	924115-151
	For use in Hungary	924115-211
	For use in Israel	924115-BB1
	For use in Italy	924115-061
	For use in Japan	924115-291

Item	Component	Spare part number
	For use in the Netherlands	924115-B31
	For use in Portugal	924115-131
	For use in Romania	924115-271
	For use in Russia	924115-251
	For use in Saudi Arabia	924115-171
	For use in Slovenia	924115-BA1
	For use in Spain	924115-071
	For use in Switzerland	924115-BG1
	For use in Taiwan	924115-AB1
	For use in Thailand	924115-281
	For use in Turkey	924115-141
	For use in the United Kingdom	924115-031
	For use in the United States	924115-001
	Keyboard/top cover in Pike silver finish with speaker grille in silk gold finish with backlight (includes backlight cable and keyboard cable):	
	For use in Belgium	928708-A41
	For use in Bulgaria	928708-261
	For use in Canada	928708-DB1
	For use in the Czech Republic and Slovakia	928708-FL1
	For use in Denmark, Finland, and Norway	928708-DH1
	For use in France	928708-051
	For use in Germany	928708-041
	For use in Greece	928708-151
	For use in Hungary	928708-211
	For use in Israel	928708-BB1
	For use in Italy	928708-061
	For use in Japan	928708-291
	For use in the Netherlands	928708-B31
	For use in Portugal	928708-131
	For use in Romania	928708-271
	For use in Russia	928708-251
	For use in Saudi Arabia	928708-171
	For use in Slovenia	928708-BA1
	For use in Spain	928708-071
	For use in Switzerland	928708-BG1

Item	Component	Spare part number
	For use in Taiwan	928708-AB1
	For use in Thailand	928708-281
	For use in Turkey	928708-141
	For use in the United Kingdom	928708-031
	For use in the United States	928708-001
	Keyboard/top cover in natural silver finish with speaker grille in mineral silver finish for use in Latin America (includes keyboard cable)	933302-161
	Keyboard/top cover in natural silver finish with speaker grille in silk gold finish for use in Latin America (includes keyboard cable)	933303-161
	Keyboard/top cover in silk gold finish (includes keyboard cable)	
	For use in Denmark, Finland, and Norway	937871-DH1
	For use in France	937871-051
	For use in Russia	937871-251
	For use in Saudi Arabia	937871-171
	For use in the United Kingdom	937871-031
(3)	TouchPad (does not include TouchPad bracket or TouchPad cable):	
	In ash silver finish	924295-001
	In Pike silver finish	924296-001
	NOTE: The TouchPad spare part kit does not include the TouchPad bracket or TouchPad cable. The TouchPad bracket is available using spare part number 924385-001. The TouchPad cable is available using spare part number 924275-001.	
	TouchPad bracket (not illustrated)	924385-001
(4)	TouchPad cable (includes double-sided adhesive)	924275-001
(5)	Battery (3-cell, 41-Wh, 3.6-Ah, Li-ion)	916811-855
(6)	Hard drive (does not include hard drive rubber sleeve):	
	1-TB, 5400-rpm, SATA, 8-GB hybrid hard drive	762888-858
	1-TB, 5400-rpm, SATA hard drive	924036-858
	500-GB, 5400-rpm, SATA, 8-GB hybrid hard drive	683839-858
	500-GB, 5400-rpm, SATA hard drive	731863-857
	NOTE: The hard drive spare part kit does not include the hard drive rubber sleeve. The hard drive rubber sleeve is available using spare part number 924283-001.	
(7)	Solid-state drive:	
	For use on all computer models:	
	16-GB, 2280, PCIe-3×2, NVMe, 3S XP solid-state drive	L39186-001
	For use only on computer models with model numbers 14-cc0xx and 14t-cc000:	
	512-GB, PCIe, NVMe solid-state drive	L02425-001
	512-GB, M.2 SATA solid-state drive with TLC	L02424-001

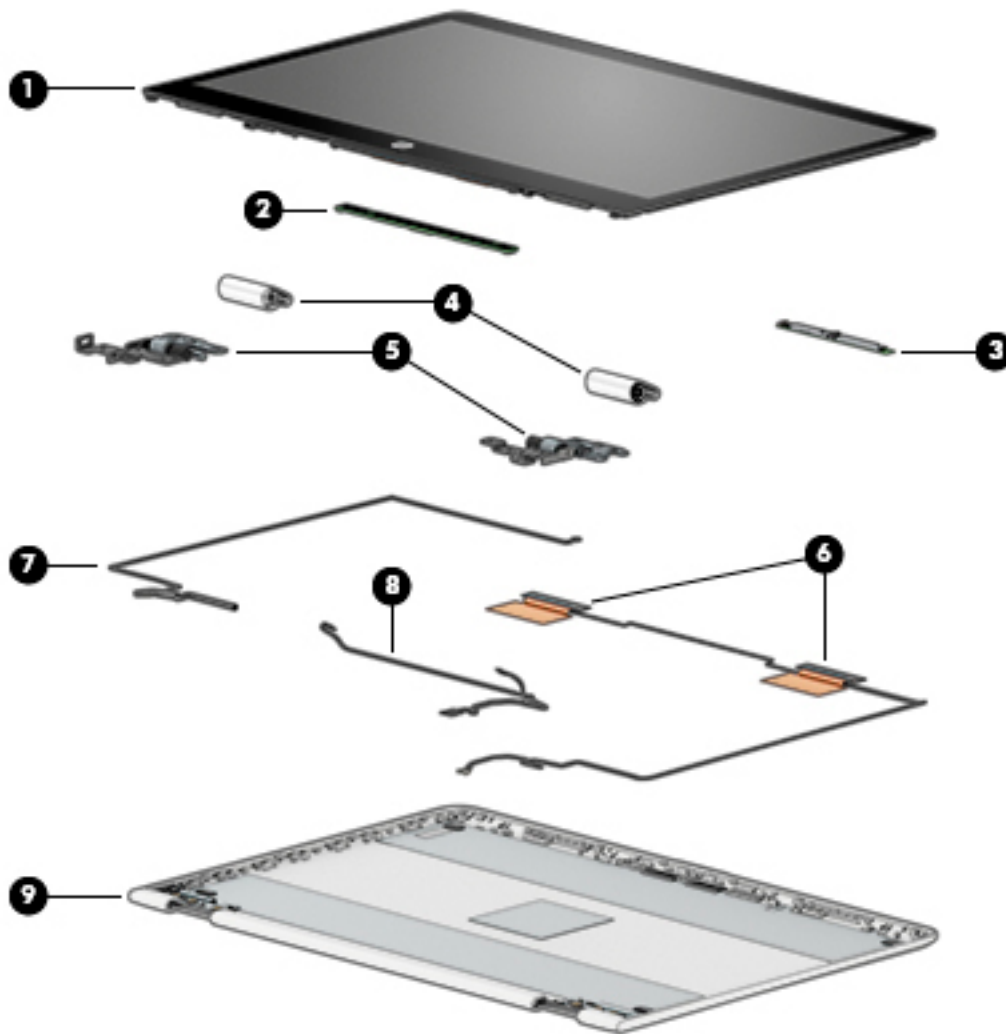
Item	Component	Spare part number
	256-GB, M.2 SATA solid-state drive with TLC	939842-001
	128-GB, M.2 SATA solid-state drive with TLC	939841-001
	For use on all computer models:	
	512-GB, M.2 SATA solid-state drive with TLC	923685-001
	256-GB, M.2 SATA solid-state drive	923684-001
	128-GB, M.2 SATA solid-state drive	923683-001
(8)	Audio jack board (includes audio jack, volume control actuators, and hard drive activity light; does not include audio jack board cable)	924293-001
(9)	Audio jack board cable (includes double-sided adhesive)	924278-001
(10)	Power button board (does not include power button board cable)	924294-001
(11)	Power button board cable (includes double-sided adhesive)	924279-001
(12)	Speakers (include cables and 3 rubber isolators)	924304-001
(13)	System board (includes processor and replacement thermal material):	
	Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce MX130) graphics subsystem with up to 4096-MB of dedicated video memory, and the Windows 10 operating system	L12078-601
	Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce MX130) graphics subsystem with up to 4096-MB of dedicated video memory, and the Windows 10 operating system	L12078-001
	Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce MX130) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	L12079-601
	Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce MX130) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	L12079-001
	Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	L39180-601
	Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	L12080-001
	Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce MX130) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	L12077-601
	Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce MX130) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	L12077-001
	Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 4096-MB of dedicated video memory, and the Windows 10 operating system	939382-601

Item	Component	Spare part number
	Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 4096-MB of dedicated video memory, and a non-Windows operating system	939382-001
	Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 4096-MB of dedicated video memory, and the Windows 10 operating system	939382-601
	Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 4096-MB of dedicated video memory, and a non-Windows operating system	939382-001
	Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	939381-601
	Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	939381-001
	Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), an Intel UHD Graphics 620 graphics subsystem with UMA video memory, and the Windows 10 operating system	939383-601
	Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), an Intel UHD Graphics 620 graphics subsystem with UMA video memory, and a non-Windows operating system	939383-001
	Equipped with an Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (4.0-MB L3 cache, 1866-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 4096-MB of dedicated video memory, and the Windows 10 operating system	923688-601
	Equipped with an Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (4.0-MB L3 cache, 1866-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 4096-MB of dedicated video memory, and a non-Windows operating system	923688-001
	Equipped with an Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (4.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	924093-601
	Equipped with an Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (4.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system	924093-001
	Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	923687-601
	Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	923687-001
	Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system for use only computer models equipped with an infrared camera	926714-601

Item	Component	Spare part number
	Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system for use only computer models equipped with an infrared camera	926714-001
	Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system for use only computer models equipped with a non-infrared camera	923690-601
	Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system for use only computer models equipped with a non-infrared camera	923690-001
	Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	L02826-601
	Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	L02826-001
	Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an Intel HD Graphics 620 graphics subsystem with UMA video memory, and the Windows 10 operating system	L02825-601
	Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an Intel HD Graphics 620 graphics subsystem with UMA video memory, and a non-Windows operating system	L02825-001
	Equipped with an Intel Core i3-7100U 2.40-GHz dual core processor (3.0-MB L3 cache, 2133-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	923686-601
	Equipped with an Intel Core i3-7100U 2.40-GHz dual core processor (3.0-MB L3 cache, 2133-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	923686-001
	Equipped with an Intel Core i3-7100U 2.40-GHz dual core processor (3.0-MB L3 cache, 2133-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	923689-601
	Equipped with an Intel Core i3-7100U 2.40-GHz dual core processor (3.0-MB L3 cache, 2133-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system	923689-001
	Equipped with an Intel Pentium 4415U 2.36-GHz dual core processor (2.0-MB L3 cache, 2133-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	923691-601
	Equipped with an Intel Pentium 4415U 2.36-GHz dual core processor (2.0-MB L3 cache, 2133-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system	923691-001
(14)	Fan/heat sink assembly (includes fan cable and replacement thermal material):	
	For use only on computer models with model numbers 14-cc0xx and 14t-cc000 and equipped with a graphics subsystem with discrete memory	924282-001
	For use only on computer models with model number 14m-ba2xx and equipped with a graphics subsystem with UMA memory	L39181-001
	For use only on computer models with model numbers 14-cc0xx and 14t-cc000 and equipped with a graphics subsystem with UMA memory	936277-001

Item	Component	Spare part number
	For use only on computer models with model numbers 14m-ba0xx and 14-ba0xx and equipped with a graphics subsystem with discrete memory	936276-001
	For use only on computer models with model numbers 14m-ba0xx and 14-ba0xx and equipped with a graphics subsystem with UMA memory	924281-001
(15)	WLAN module:	
	For use only on computer models with model number 14m-ba2xx:	
	Intel 2230 M2 AC 2×2 MIPI+BRI and Bluetooth 5.0 Combo Adapter (non-vPro)	L22634-005
	For use on all computer models:	
	Intel Dual Band Wireless-AC 7265 802.11ac 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro)	901229-855
	Intel Dual Band Wireless-AC 3168 802.11ac 1×1 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro)	863934-855
	Realtek RTL8723DE 802.11bgn 1×1 WiFi + Bluetooth 4.2 Combo Adapter	927230-855
(16)	Memory modules (2, DDR4-2400, 1.2-V; does not include memory bracket):	
	8-MB	862398-855
	4-MB	862397-855
	2-MB	864271-855
	NOTE: The memory module spare part kit does not include the memory module shield. The memory module shield is available using spare part number 925378-001.	
(17)	Power connector cable (does not include power connector cable bracket)	808155-019
	NOTE: The power connector cable spare part kit does not include the power connector cable bracket. The power connector cable bracket is available using spare part number 924385-001.	
	Power connector cable bracket (not illustrated)	924386-001
(18)	Base enclosure:	
	In Pike silver finish	924273-001
	In silk gold finish	924274-001
	Rubber Foot Kit (not illustrated, includes rear rubber feet):	
	In Pike silver finish	925561-001
	In silk gold finish	925562-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	Display panel assembly:	
	14.0-in, FHD, WLED, BrightView (1920×1080), slim/flat (3.0-mm), UWVA, eDP, 250 nits, 16:9 ultra wide aspect ratio TouchScreen equipped with an infrared camera	925447-001
	14.0-in, FHD, WLED, BrightView (1920×1080), slim/flat (3.0-mm), UWVA, eDP, 220 nits, 16:9 ultra wide aspect ratio TouchScreen TouchScreen equipped with a non-infrared camera	924297-001
	14.0-in, HD, WLED, AntiGlare (1366×768), slim/flat (3.6-mm), SVA, eDP, 220 nits, 16:9 ultra wide aspect ratio TouchScreen equipped with a non-infrared camera	924298-001
(2)	TouchScreen board (includes G-sensor board and double-sided adhesive)	928577-001
(3)	Webcam/microphone module (includes Mylar and double-sided adhesive):	
	FHD infrared webcam/microphone module	923692-001
	HD non-infrared webcam/microphone module	923693-001
(4)	Hinge covers (2):	

Item	Component	Spare part number
	Left hinge cap for use on computer models equipped with an FHD display panel	924289-001
	Right hinge cap for use on computer models equipped with an FHD display panel	924288-001
	Left hinge cap for use on computer models equipped with an HD display panel	924291-001
	Right hinge cap for use on computer models equipped with an HD display panel	924290-001
(5)	Hinges (2, includes left and right display hinges):	
	For use on computer models equipped with an FHD display panel	926895-001
	For use on computer models equipped with an HD display panel	926896-001
(6)	WLAN antenna (includes left and right WLAN cables and transceivers)	924104-001
(7)	Display panel cable (includes the webcam/microphone module cable)	
	For use on computer models equipped with an FHD infrared webcam/microphone module	924276-001
	For use on computer models equipped with an HD non-infrared webcam/microphone module	924277-001
(8)	TouchScreen board cable (includes the G-sensor board cable)	924280-001
(9)	Display enclosure (includes rubber padding and shielding):	
	For use on computer models equipped with an FHD display assembly:	
	In mineral silver finish	924271-001
	In Pike silver finish	929364-001
	In silk gold finish	924272-001
	For use on computer models equipped with an HD display assembly:	
	In Pike silver finish	924269-001
	In silk gold finish	924270-001

Miscellaneous parts

Component	Spare part number
AC adapter:	
For use only on computer models with model numbers 14-cc0xx and 14t-cc000:	
90-W AC adapter (PFC, S-3P, 4.5-mm)	710413-001
For use on all computer models:	
65-W HP Smart AC adapter (non-PFC, EM, RC, 4.5-mm) for use in all countries and regions	913691-850
65-W AC adapter (non-PFC, S-3P, 4.5-mm) for use in all countries and regions	710412-001
65-W AC adapter (non-PFC, SB, 4.5-mm) for use only in Argentina	710340-850
45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm) for use in all countries and regions	741553-850
45-W AC adapter (non-PFC, SB, 4.5-mm) for use only in Argentina	741553-852
HP HDMI-to-VGA adapter	701943-001
HP external DVD±RW DL SuperMulti Drive	747080-001
HP USB-to-Gigabit RJ45 adapter	829941-001
HP USB-C-to-USB-A dongle	833960-001
Pen tip (Sunwoda Cadillac)	L04536-001
Power cord (C5 connector, 1.00-m):	
For use in Argentina	920688-003
For use in Australia	920688-011
For use in Denmark	920688-007
For use in Europe	920688-005
For use in India	920688-016
For use in Israel	920688-008
For use in Italy	920688-002
For use in Japan	920688-017
For use in North America	920688-001
For use in the People's Republic of China	920688-014
For use in South Africa	920688-010
For use in South Korea	920688-013
For use in Switzerland	920688-009
For use in Taiwan	920688-015
For use in Thailand	920688-012
For use in the United Kingdom and Singapore	920688-006
Rubber Foot Kit (includes bottom cover rear feet):	
In Pike silver finish	925561-001

Component	Spare part number
In silk gold finish	925562-001
Screw Kit	924303-001
Screw Mylar Kit (includes bottom cover screw cover):	
In Pike silver finish	924301-001
In silk gold finish	924302-001
Stylus (active pen in Pike silver finish)	910942-001

4 Removal and replacement preliminary requirements


Tools required

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


- Flat-bladed screw driver
- Magnetic screw driver
- Phillips P0 screw driver

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 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 drive, place it in a static-proof bag.

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

Avoid exposing a drive to temperature extremes or liquids.

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

Grounding guidelines

Electrostatic discharge damage

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

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

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

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

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

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

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

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

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

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

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

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

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

Workstation guidelines

Follow these grounding workstation guidelines:

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

Equipment guidelines

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

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

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive computerop 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

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

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

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. See [Labels on page 15](#) for details.

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.

There are as many as 55 screws that must be removed, replaced, and/or loosened when servicing Authorized Service Provider only parts. Make special note of each screw size and location during removal and replacement.

Keyboard/top cover

For use in country/region	Spare part number	For use in country/region	Spare part number
In ash silver finish with backlight (includes backlight cable and keyboard cable):		For use in Portugal	924116-131
For use in Belgium	924116-A41	For use in Romania	924116-271
For use in Bulgaria	924116-261	For use in Russia	924116-251
For use in Canada	924116-DB1	For use in Saudi Arabia	924116-171
For use in the Czech Republic and Slovakia	924116-FL1	For use in Slovenia	924116-BA1
For use in Denmark, Finland, and Norway	924116-DH1	For use in South Korea	924116-AD1
For use in France	924116-051	For use in Spain	924116-071
For use in Germany	924116-041	For use in Switzerland	924116-BG1
For use in Greece	924116-151	For use in Taiwan	924116-AB1
For use in Hungary	924116-211	For use in Thailand	924116-281
For use in Israel	924116-BB1	For use in Turkey	924116-141
For use in Italy	924116-061	For use in the United Kingdom	924116-031
For use in the Netherlands	924116-B31	For use in the United States	924116-001
In ash silver finish (includes keyboard cable):			

For use in country/region	Spare part number	For use in country/region	Spare part number
For use in Belgium	924117-A41	For use in Portugal	924117-131
For use in Bulgaria	924117-261	For use in Romania	924117-271
For use in Canada	924117-DB1	For use in Russia	924117-251
For use in the Czech Republic and Slovakia	924117-FL1	For use in Saudi Arabia	924117-171
For use in Denmark, Finland, and Norway	924117-DH1	For use in Slovenia	924117-BA1
For use in France	924117-051	For use in South Korea	924117-AD1
For use in Germany	924117-041	For use in Spain	924117-071
For use in Greece	924117-151	For use in Switzerland	924117-BG1
For use in Hungary	924117-211	For use in Taiwan	924117-AB1
For use in Israel	924117-BB1	For use in Thailand	924117-281
For use in Italy	924117-061	For use in Turkey	924117-141
For use in the Netherlands	924117-B31	For use in the United Kingdom	924117-031
For use in Latin America	924117-161	For use in the United States	924117-001
In Pike silver finish with speaker grille in mineral silver finish with backlight (includes backlight cable and keyboard cable):		For use in Portugal	924115-131
For use in Belgium	924115-A41	For use in Romania	924115-271
For use in Bulgaria	924115-261	For use in Russia	924115-251
For use in Canada	924115-DB1	For use in Saudi Arabia	924115-171
For use in the Czech Republic and Slovakia	924115-FL1	For use in Slovenia	924115-BA1
For use in Denmark, Finland, and Norway	924115-DH1	For use in South Korea	924115-AD1
For use in France	924115-051	For use in Spain	924115-071
For use in Germany	924115-041	For use in Switzerland	924115-BG1
For use in Greece	924115-151	For use in Taiwan	924115-AB1
For use in Hungary	924115-211	For use in Thailand	924115-281
For use in Israel	924115-BB1	For use in Turkey	924115-141
For use in Italy	924115-061	For use in the United Kingdom	924115-031
For use in the Netherlands	924115-B31	For use in the United States	924115-001
In Pike silver finish with speaker grille in mineral silver finish with backlight (includes backlight cable and keyboard cable):		For use in Portugal	928708-131
For use in Belgium	928708-A41	For use in Romania	928708-271
For use in Bulgaria	928708-261	For use in Russia	928708-251
For use in Canada	928708-DB1	For use in Saudi Arabia	928708-171

For use in country/region	Spare part number	For use in country/region	Spare part number
For use in the Czech Republic and Slovakia	928708-FL1	For use in Slovenia	928708-BA1
For use in Denmark, Finland, and Norway	928708-DH1	For use in South Korea	928708-AD1
For use in France	928708-051	For use in Spain	928708-071
For use in Germany	928708-041	For use in Switzerland	928708-BG1
For use in Greece	928708-151	For use in Taiwan	928708-AB1
For use in Hungary	928708-211	For use in Thailand	928708-281
For use in Israel	928708-BB1	For use in Turkey	928708-141
For use in Italy	928708-061	For use in the United Kingdom	928708-031
For use in the Netherlands	928708-B31	For use in the United States	928708-001
Keyboard/top cover in natural silver finish with speaker grille in mineral silver finish for use in Latin America (includes keyboard cable)			933302-161
Keyboard/top cover in natural silver finish with speaker grille in silk gold finish for use in Latin America (includes keyboard cable)			933303-161
Keyboard/top cover in silk gold finish (includes keyboard cable):		For use in Russia	937871-251
For use in France	937871-051	For use in Saudi Arabia	937871-171
For use in Denmark, Finland, and Norway	937871-DH1	For use in the United Kingdom	937871-031

Before disassembling the computer, follow these steps:

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

Remove the keyboard/top cover:

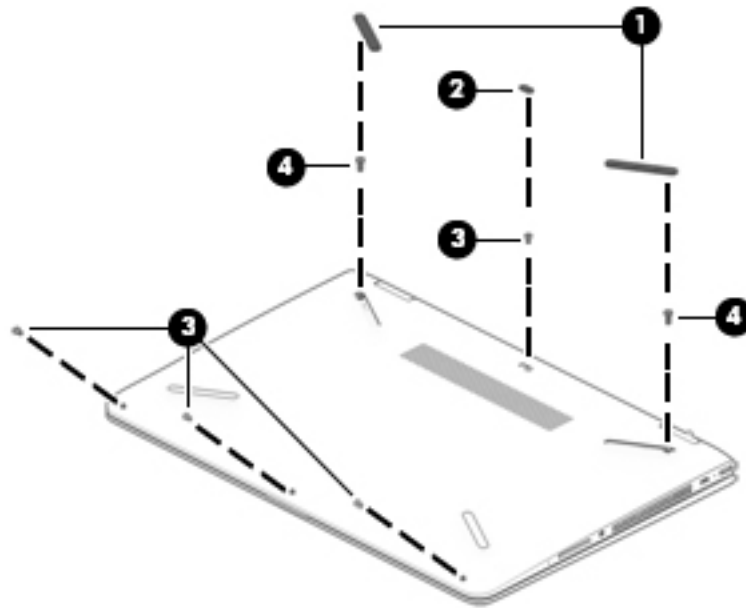
1. Turn the computer upside down on a flat surface.
2. Position the computer with the front toward you.
3. Remove the rear rubber feet **(1)**.

The rubber feet are available using spare part numbers 925561-001 (in Pike silver finish) and 925562-001 (in silk gold finish).

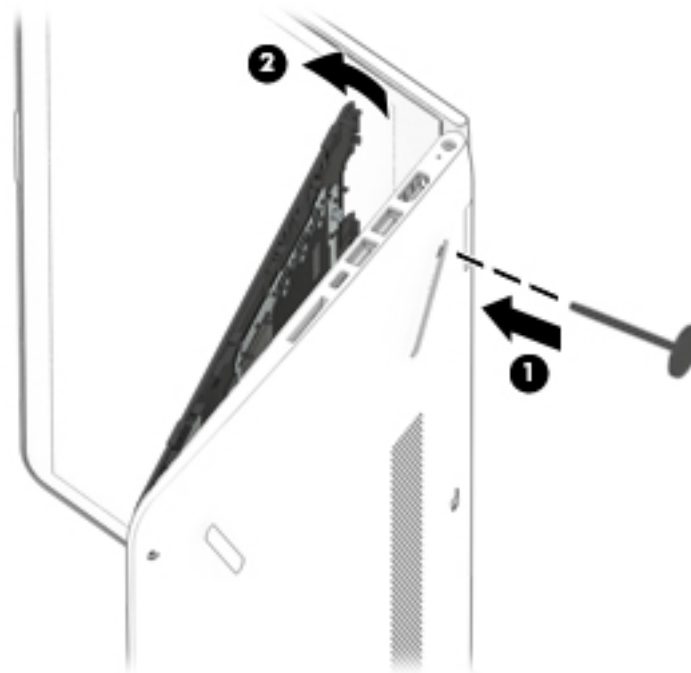
4. Remove the Mylar screw cover **(2)**.

The Mylar screw cover is available using spare part numbers 924301-001 (in Pike silver finish) and 924302-001 (in silk gold finish).

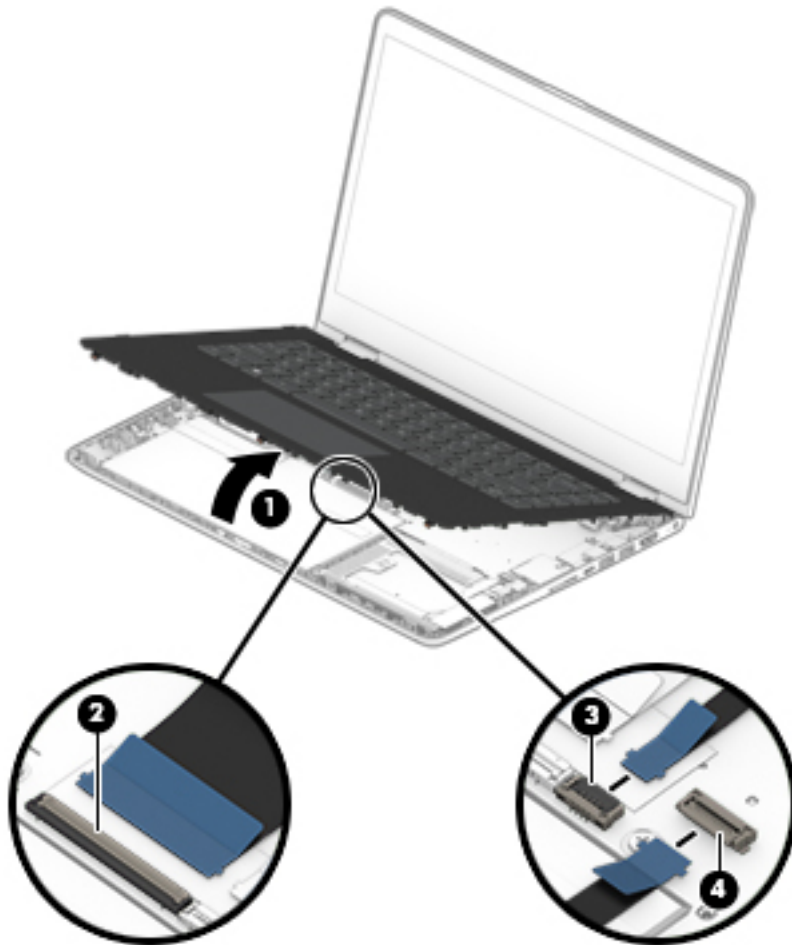
- Remove the four Phillips M2.0×4.9 screws **(3)** and the two Phillips M2.5×7.7 screws **(4)** that secure the keyboard/top cover to the base enclosure.



- Turn the computer right side up.
- Open the computer and position it on its left side with the bottom toward you.
- Insert a keyboard release tool **(1)** into the empty screw holes under the rubber feet.
- Press on the keyboard release tool until the keyboard/top cover **(2)** releases from the computer.



10. Lift the front edge of the keyboard/top cover (1) until the keyboard cable and backlight cable connectors are accessible.
11. Release the zero insertion force (ZIF) connector (2) to which keyboard cable is connected, and then disconnect the keyboard cable from the system board.
12. Release the ZIF connector (3) to which backlight cable is connected, and then disconnect the backlight cable from the system board.
13. Release the ZIF connector (4) to which TouchPad cable is connected, and then disconnect the TouchPad cable from the system board.



14. Remove the keyboard/top cover.

Reverse this procedure to install the keyboard/top cover.

TouchPad cable

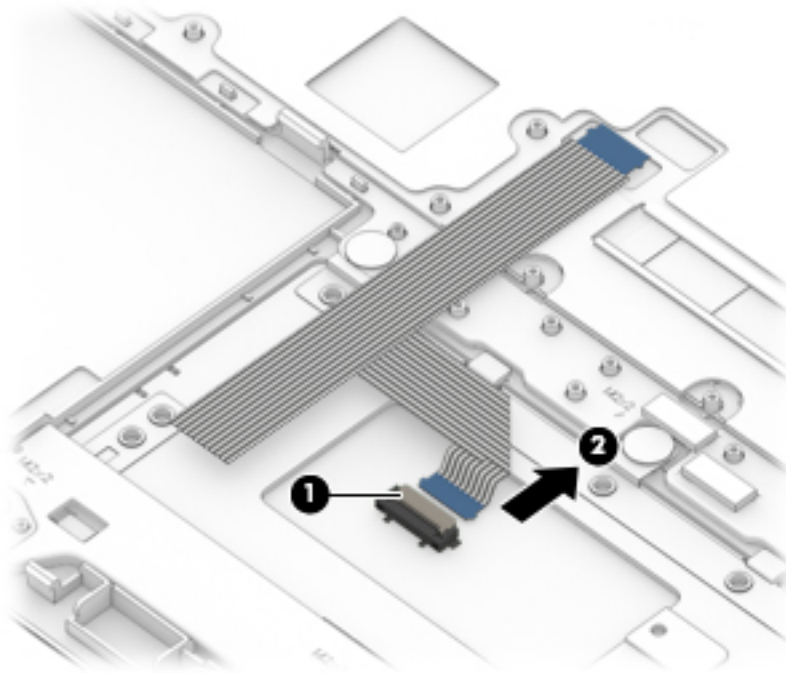
 **NOTE:** The TouchPad spare part kit does not include the TouchPad cable. The TouchPad cable is available using spare part number 924275-001.

Before removing the TouchPad 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 keyboard/top cover (see [Keyboard/top cover on page 34](#)).

Remove the TouchPad cable:


1. Release the ZIF connector (1) to which TouchPad cable is connected, and then disconnect the TouchPad cable (2) from the TouchPad.



2. Remove the TouchPad cable.

Reverse this procedure to install the TouchPad cable.

TouchPad

 **NOTE:** The TouchPad spare part kit does not include the TouchPad bracket or TouchPad cable. The TouchPad bracket is available using spare part number 924385-001. The TouchPad cable is available using spare part number 924275-001.

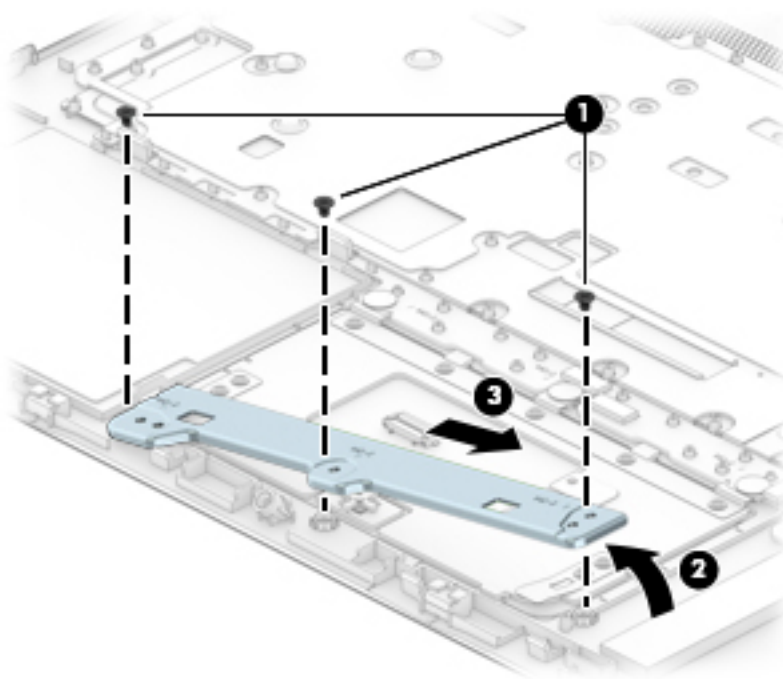
Description	Spare part number
In ash silver finish	924295-001
In Pike silver finish	924296-001

Before removing the TouchPad, follow these steps:

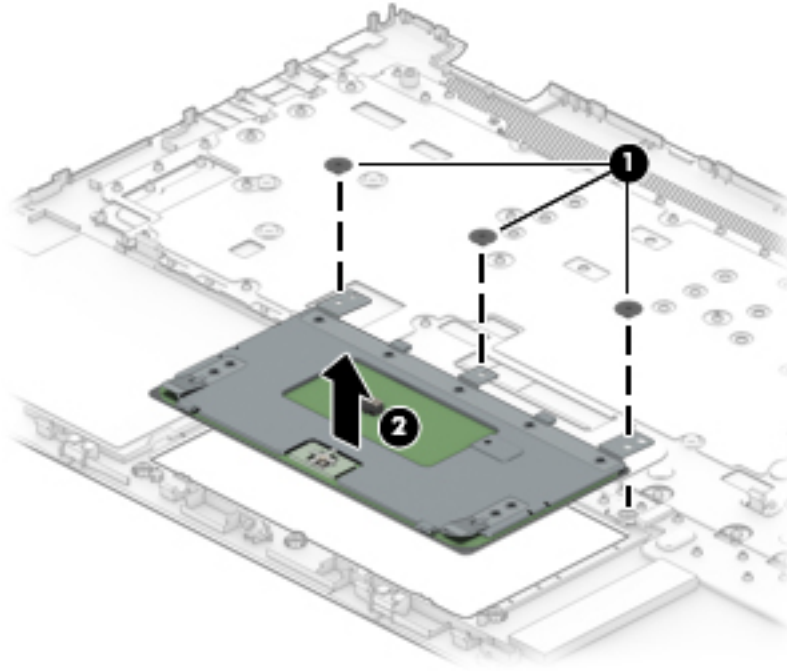
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 34](#)).

Remove the TouchPad:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Remove the three Phillips M2.0×2.9 screws (1) that secure the TouchPad bracket to the keyboard/top cover.
3. Lift the right side of the TouchPad bracket (2) until it rests at an angle.
4. Remove the TouchPad bracket by sliding it up and to the right at an angle.



5. Remove the three Phillips M2.0×2.2 broad head screws (1) that secure the TouchPad to the keyboard/top cover.
6. Remove the TouchPad (2).



Reverse this procedure to install the TouchPad.

Battery

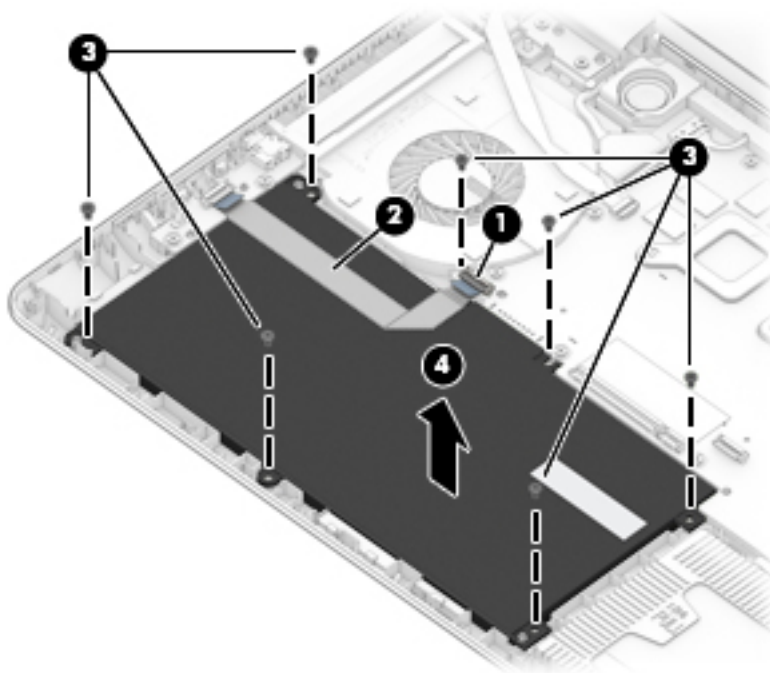
Description	Spare part number
3-cell, 41-Wh, 3.6-Ah, Li-ion battery	916811-855

Before removing the battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 34](#)).

Remove the battery:

1. Release the ZIF connector (1) to which the audio jack board cable is connected, and then disconnect the audio jack board cable from the system board.
2. Detach the audio jack board cable (2) from the battery. (The audio jack board cable is attached to the battery with double-sided adhesive.)
3. Remove the seven Phillips M2.0×4.0 screws (3) that secure the battery to the computer.
4. Remove the battery (4).



Reverse this procedure to install the battery.

Hard drive

 **NOTE:** The hard drive spare part kit does not include the hard drive rubber sleeve. The hard drive rubber sleeve is available using spare part number 924283-001.

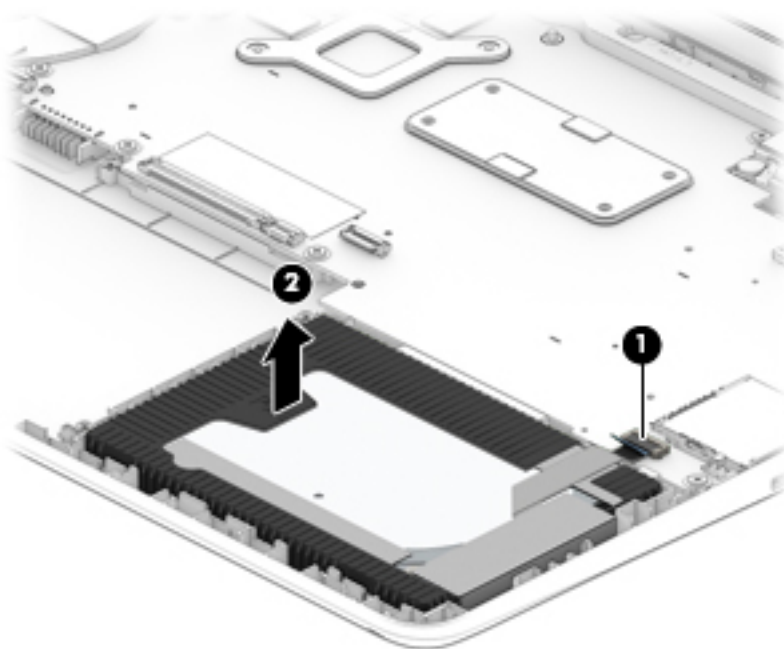
Description	Spare part number
1-TB, 5400-rpm, SATA, 8-GB hybrid hard drive	762888-858
1-TB, 5400-rpm, SATA hard drive	924036-858
500-GB, 5400-rpm, SATA, 8-GB hybrid hard drive	683839-858
500-GB, 5400-rpm, SATA hard drive	731863-857

Before removing the hard drive, follow these steps:

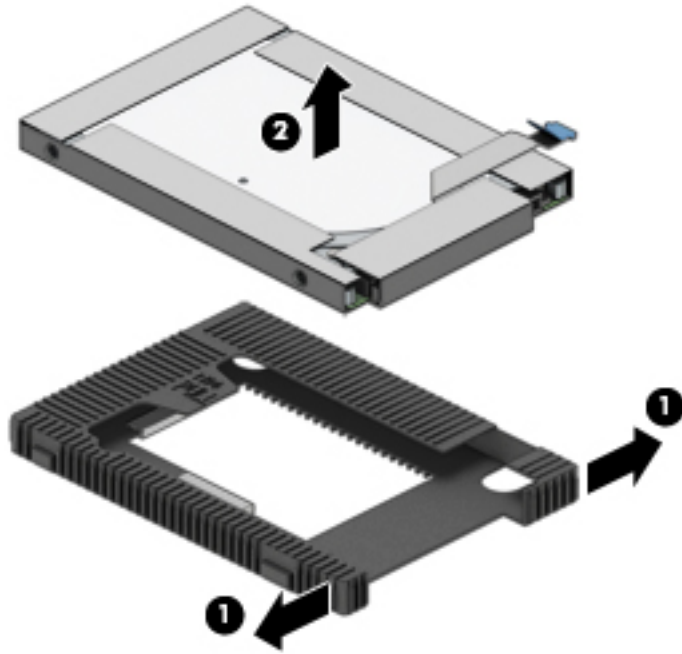
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 34](#)).
5. Remove the battery (see [Battery on page 42](#)).

Remove the hard drive:

1. Release the ZIF connector (1) to which the hard drive cable is connected, and then disconnect the hard drive cable from the system board.
2. Use the tab (2) on the hard drive rubber sleeve to remove the hard drive.



3. If it is necessary to remove the hard drive from the rubber sleeve, spread the open end of the rubber sleeve (1), and then remove the hard drive (2).



Reverse this procedure to reassemble and install the hard drive.

Solid-state drive

Description	Spare part number
For use only on computer models with model number 14m-ba2xx:	
16-GB, 2280, PCIe-3×2, NVMe, 3S XP solid-state drive	L39186-001
For use only on computer models with model numbers 14-cc0xx and 14t-cc000:	
512-GB, PCIe, NVMe solid-state drive	L02425-001
512-GB, M.2 SATA solid-state drive with TLC	L02424-001
256-GB, M.2 SATA solid-state drive with TLC	939842-001
128-GB, M.2 SATA solid-state drive with TLC	939841-001
For use on all computer models:	
512-GB, M.2 SATA solid-state drive with TLC	923685-001
256-GB, M.2 SATA solid-state drive	923684-001
128-GB, M.2 SATA solid-state drive	923683-001

Before removing the solid-state, follow these steps:

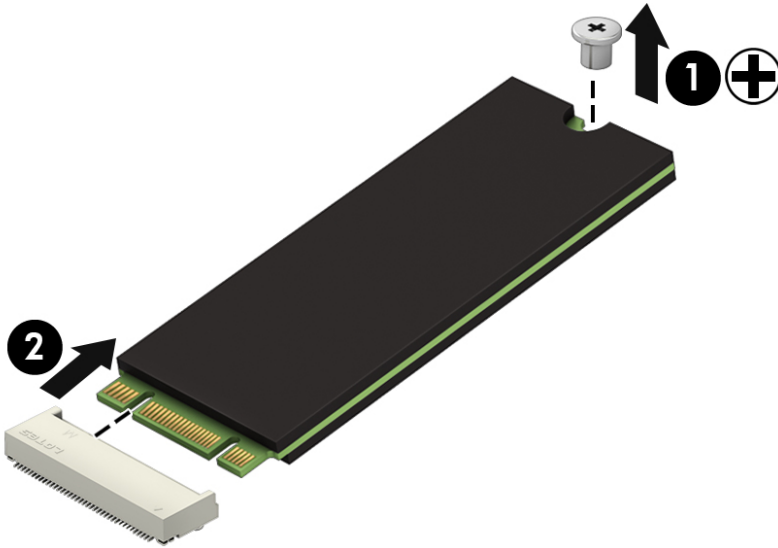
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 34](#)).
5. Remove the battery (see [Battery on page 42](#)).

Remove the solid-state drive:

1. Remove the Phillips M2.0×3.0 screw **(1)** that secures the drive to the system board.


2. Remove the drive (2) by pulling it away from the connector.

 **NOTE:** Solid-state drives are designed with notches to prevent incorrect insertion.



Reverse this procedure to reassemble and install the solid-state drive.

Audio jack board cable

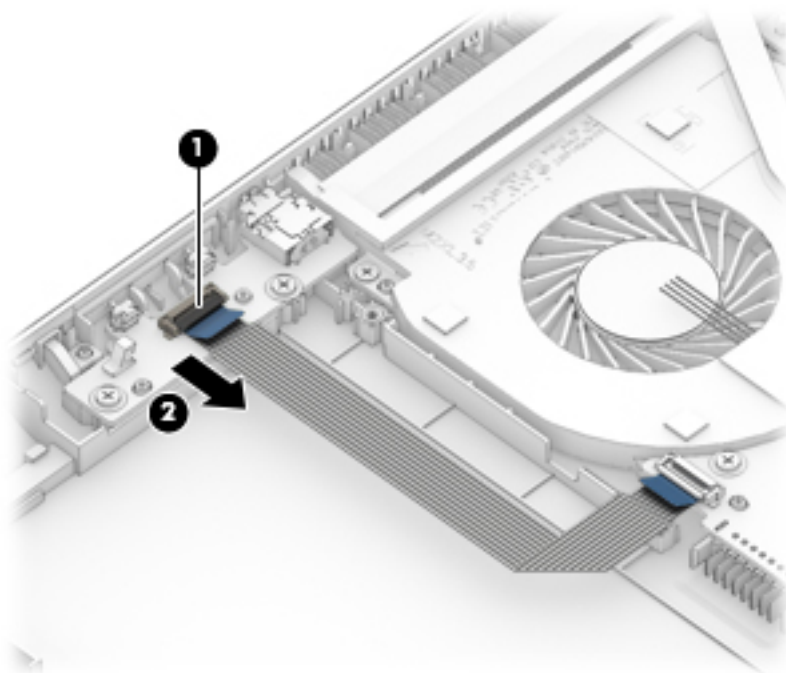
 **NOTE:** The audio jack board spare part kit does not include the audio jack board cable. The audio jack board cable is available using spare part number 924278-001.

Before removing the audio jack board 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 keyboard/top cover (see [Keyboard/top cover on page 34](#)).
5. Remove the battery (see [Battery on page 42](#)).

Remove the audio jack board cable:


1. Release the ZIF connector (1) to which audio jack board cable is connected, and then disconnect the audio jack board cable (2) from the audio jack board.



2. Remove the audio jack board cable.

Reverse this procedure to install the audio jack board cable.

Audio jack board

 **NOTE:** The audio jack board spare part kit does not include the audio jack board cable. The audio jack board cable is available using spare part number 924278-001.

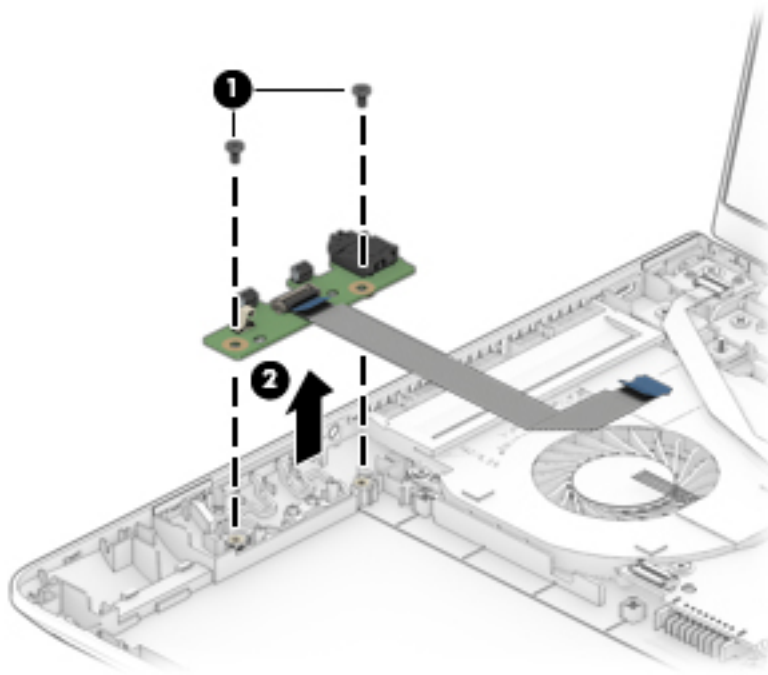
Description	Spare part number
Audio jack board (includes audio jack, volume control actuators, and hard drive activity light; does not include audio jack board cable)	924293-001

Before removing the audio jack 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 keyboard/top cover (see [Keyboard/top cover on page 34](#)).
5. Remove the battery (see [Battery on page 42](#)).


Remove the audio jack board:

1. Remove the two Phillips M2.0×4.0 screws (1) that secure the audio jack board to the base enclosure.
2. Remove the audio jack board (2).



Reverse this procedure to install the audio jack board.

Power button board cable

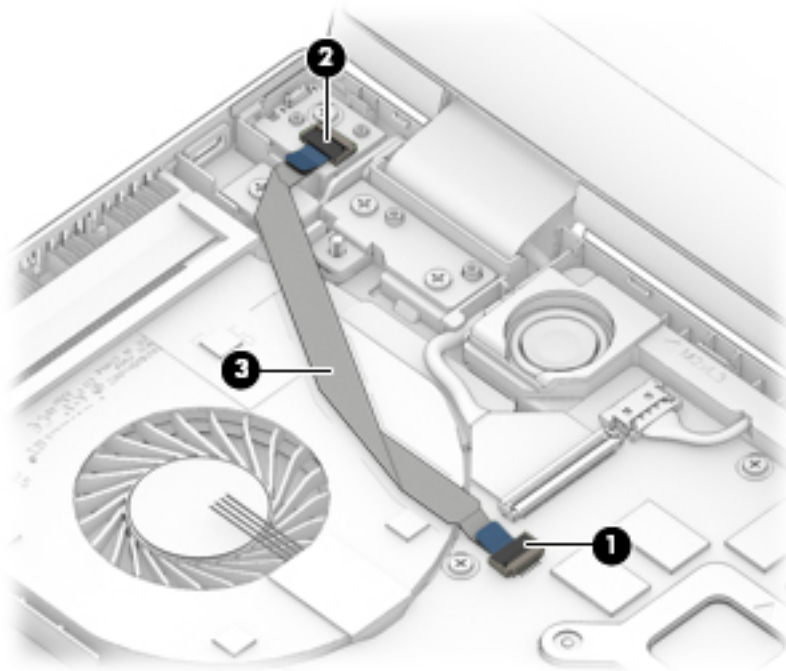
 **NOTE:** The power button board spare part kit does not include the power button board cable. The power button board cable is available using spare part number 924386-001.

Before removing the audio jack board 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 keyboard/top cover (see [Keyboard/top cover on page 34](#)).
5. Remove the battery (see [Battery on page 42](#)).

Remove the power button board cable:


1. Release the ZIF connector (1) to which power button board cable is connected, and then disconnect the power button board cable from the system board.
2. Release the ZIF connector (2) to which power button board cable is connected, and then disconnect the power button board cable from the power button board.
3. Detach the power button board cable (3) from the fan. (The power button board cable is attached to the fan with double-sided adhesive.)



4. Remove the power button board cable.

Reverse this procedure to install the power button board cable.

Power button board

 **NOTE:** The power button board spare part kit does not include the power button board cable. The power button board cable is available using spare part number 924279-001.

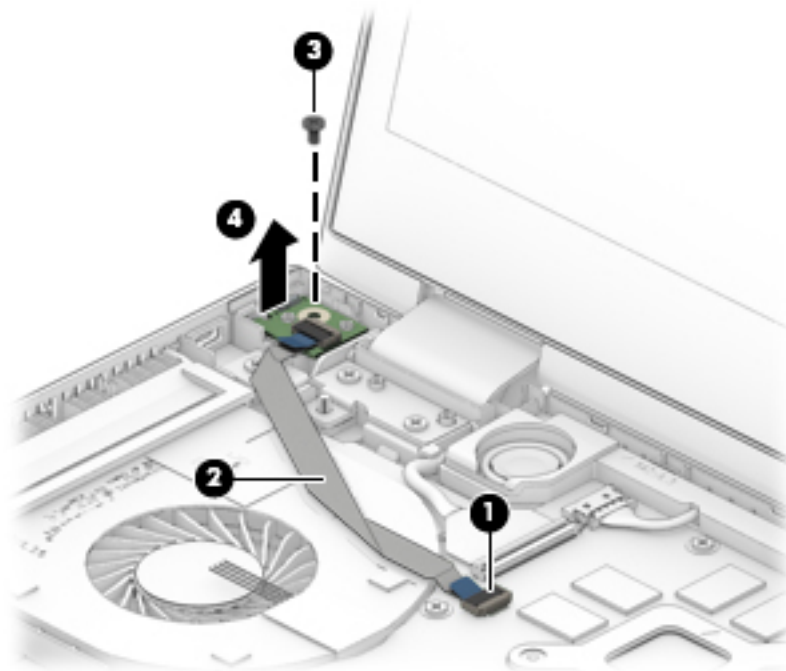
Description	Spare part number
Power button board	924294-001

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 keyboard/top cover (see [Keyboard/top cover on page 34](#)).
5. Remove the battery (see [Battery on page 42](#)).

Remove the power button board:

1. Release the ZIF connector (1) to which power button board cable is connected, and then disconnect the power button board cable from the system board.
2. Detach the power button board cable (2) from the fan. (The power button board cable is attached to the fan with double-sided adhesive.)
3. Remove the Phillips M2.0×4.0 screw (3) that secures the power button board to the base enclosure.
4. Remove the power button board (4).



Reverse this procedure to install the power button board.

Speakers


Description	Spare part number
Speakers (includes cables and 3 rubber isolators)	924304-001

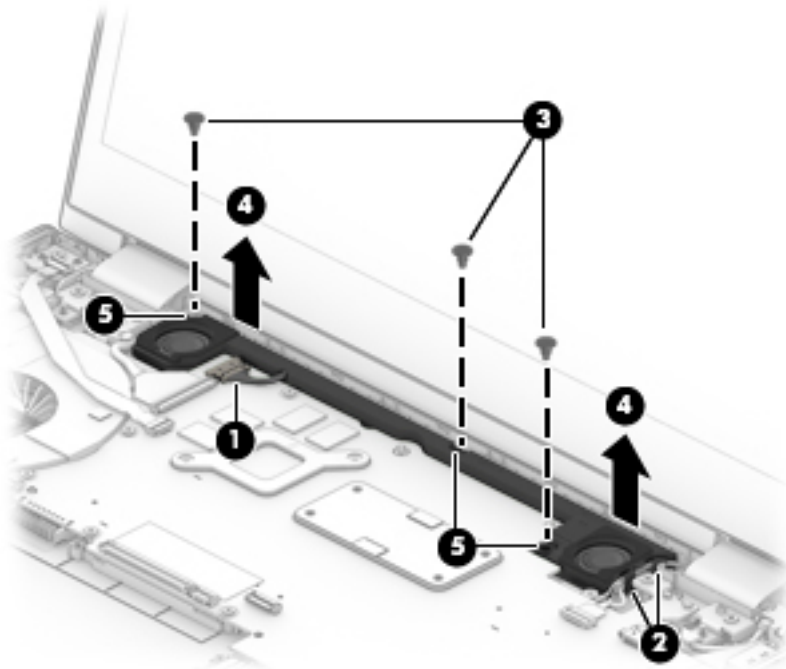
Before removing the speakers, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 34](#)).
5. Remove the battery (see [Battery on page 42](#)).

Remove the speakers:

1. Disconnect the speaker cable (1) from the system board.
2. Release the display TouchScreen cable from the retention clips (2) built into the right speaker.
3. Remove the three Phillips M2.0×5.6 broad head shoulder screws (3) that secure the speakers to the base enclosure.
4. Remove the speakers (4).

 **IMPORTANT:** When removing the speakers, make note of the location of the three rubber isolators (5). Failure to properly install or damage to these isolators can result in degraded speaker performance.



Reverse this procedure to install the speakers.

System board



NOTE: All system board spare part kits include a processor and replacement thermal material. xxx

Description	Spare part number
Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N165-GTR (GeForce MX130) graphics subsystem with up to 4096-MB of dedicated video memory, and the Windows 10 operating system	L12078-601
Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N165-GTR (GeForce MX130) graphics subsystem with up to 4096-MB of dedicated video memory, and a non-Windows operating system	L12078-001
Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N165-GTR (GeForce MX130) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	L12079-601
Equipped with an Intel Core i7-8550U 1.80-GHz (turbo up to 4.00-GHz) quad core processor (2400-MHz FSB, 8.0-MB L3 cache, 15-W), an NVIDIA N165-GTR (GeForce MX130) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	L12079-001
Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	L39180-601
Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system	L39180-001
Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an NVIDIA N165-GTR (GeForce MX130) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	L12077-601
Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an NVIDIA N165-GTR (GeForce MX130) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	L12077-001
Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), an NVIDIA N165-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	939381-601
Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), an NVIDIA N165-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	939381-001
Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), an NVIDIA UHD Graphics 620 graphics subsystem with UMA video memory, and the Windows 10 operating system	939383-601
Equipped with an Intel Core i5-8250U 1.66-GHz (turbo up to 3.40-GHz) quad core processor (2400-MHz FSB, 6.0-MB L3 cache, 15-W), an Intel UHD Graphics 620 graphics subsystem with UMA video memory, and a non-Windows operating system	939383-001
Equipped with an Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (4.0-MB L3 cache, 1866-MHz FSB, 15-W), an NVIDIA N165-GTR (GeForce 940MX) graphics subsystem with up to 4096-MB of dedicated video memory, and the Windows 10 operating system	923688-601
Equipped with an Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (4.0-MB L3 cache, 1866-MHz FSB, 15-W), an NVIDIA N165-GTR (GeForce 940MX) graphics subsystem with up to 4096-MB of dedicated video memory, and a non-Windows operating system	923688-001
Equipped with an Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (4.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	924093-601

Description	Spare part number
Equipped with an Intel Core i7-7500U 2.60-GHz (SC turbo up to 3.56-GHz) dual core processor (4.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system	924093-001
Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	923687-601
Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	923687-001
Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system for use only computer models equipped with an infrared camera	926714-601
Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system for use only computer models equipped with an infrared camera	926714-001
Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system for use only computer models equipped with a non-infrared camera	923690-601
Equipped with an Intel Core i5-7200U 2.56-GHz (SC turbo up to 3.10-GHz) dual core processor (3.0-MB L3 cache, 1866-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system for use only computer models equipped with a non-infrared camera	923690-001
Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	L02826-601
Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	L02826-001
Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an Intel HD Graphics 620 graphics subsystem with UMA video memory, and the Windows 10 operating system	L02825-601
Equipped with an Intel Core i3-7130U 2.70-GHz dual core processor (2133-MHz FSB, 3.0-MB L3 cache, 15-W), an Intel HD Graphics 620 graphics subsystem with UMA video memory, and a non-Windows operating system	L02825-001
Equipped with an Intel Core i3-7100U 2.40-GHz dual core processor (3.0-MB L3 cache, 2133-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and the Windows 10 operating system	923686-601
Equipped with an Intel Core i3-7100U 2.40-GHz dual core processor (3.0-MB L3 cache, 2133-MHz FSB, 15-W), an NVIDIA N16S-GTR (GeForce 940MX) graphics subsystem with up to 2048-MB of dedicated video memory, and a non-Windows operating system	923686-001
Equipped with an Intel Core i3-7100U 2.40-GHz dual core processor (3.0-MB L3 cache, 2133-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	923689-601
Equipped with an Intel Core i3-7100U 2.40-GHz dual core processor (3.0-MB L3 cache, 2133-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system	923689-001
Equipped with an Intel Pentium 4415U 2.36-GHz dual core processor (2.0-MB L3 cache, 2133-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and the Windows 10 operating system	923691-601
Equipped with an Intel Pentium 4415U 2.36-GHz dual core processor (2.0-MB L3 cache, 2133-MHz FSB, 15-W), a graphics subsystem with UMA video memory, and a non-Windows operating system	923691-001

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 keyboard/top cover (see [Keyboard/top cover on page 34](#)).
5. Remove the battery (see [Battery on page 42](#)).
6. Remove the speakers (see [Speakers on page 51](#)).

When replacing the system board, be sure to remove the following components from the defective system board and install them on the replacement system board:

- Fan/heat sink assembly (see [Fan/heat sink assembly on page 57](#))
- WLAN module (see [WLAN module on page 59](#))
- Memory modules (see [Memory module on page 61](#))

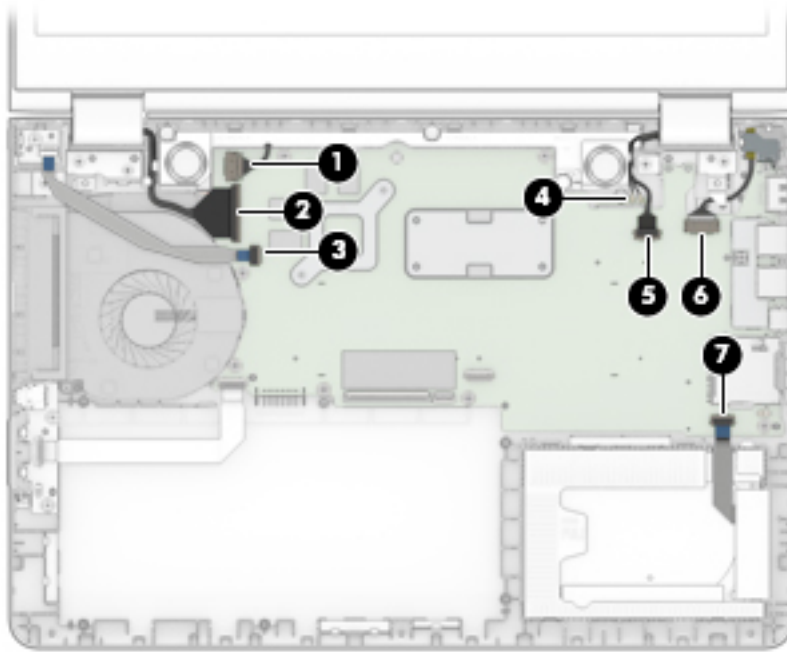
Remove the system board:

1. Disconnect the following cables from the system board:
 - (1) Speaker cable
 - (2) Display panel ZIF connector cable
 - (3) Power button board ZIF connector cable
 - (4) WLAN antenna cables

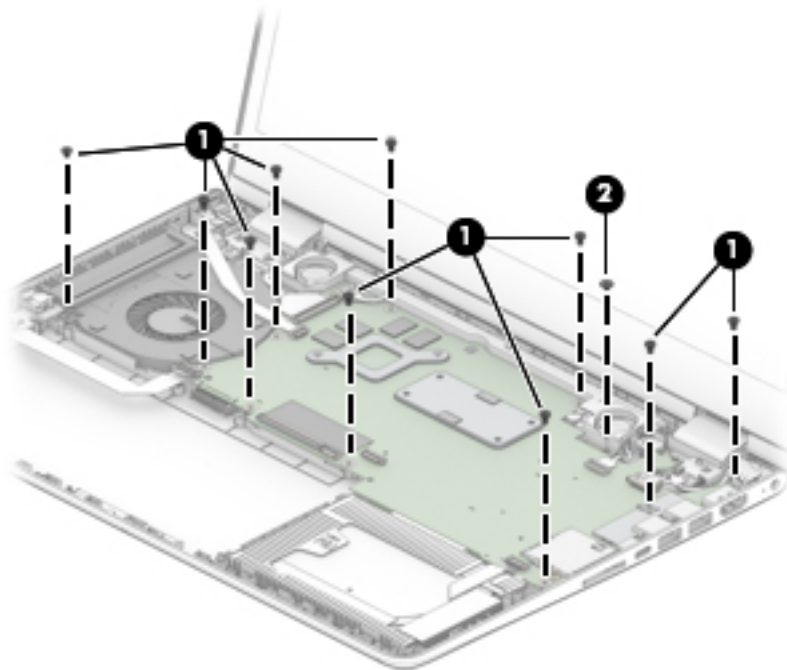


NOTE: The #1/white WLAN antenna cable connects to the WLAN module "#1/Main" terminal. The #2/black WLAN antenna cable connects to the WLAN module "#2/Aux" terminal.

- (5) Display TouchScreen ZIF connector cable
- (6) Power connector cable
- (7) Hard drive ZIF connector cable

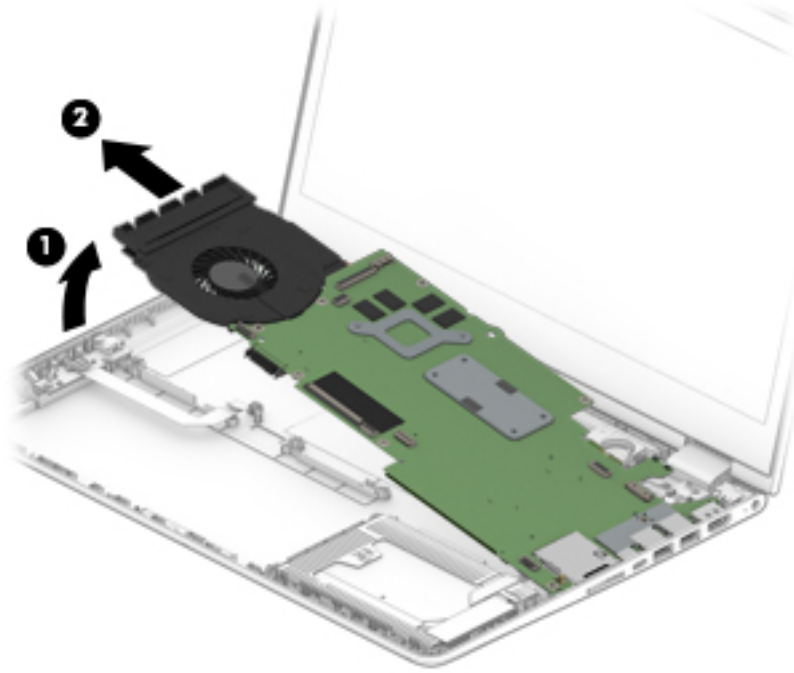


2. Remove the 10 Phillips M2.0×4.0 screws **(1)** that secure the system board to the base enclosure.
3. Remove the Phillips M2.0×2.2 broad head screw **(2)** that secures the WLAN module to the base enclosure.



4. Lift the left side of the system board **(1)** until it rests at an angle.

5. Remove the system board (2) by sliding it up and to the left at an angle.



Reverse this procedure to install the system board.

Fan/heat sink assembly



NOTE: The fan/heat sink assembly spare part kit includes the fan cable and replacement thermal material.

Description	Spare part number
For use only on computer models with model number 14m-ba2xx and equipped with a graphics subsystem with UMA memory	L39181-001
For use only on computer models with model numbers 14-cc0xx and 14t-cc000 equipped with a graphics subsystem with discrete memory	936277-001
For use only on computer models with model numbers 14-cc0xx and 14t-cc000 equipped with a graphics subsystem with UMA memory	936276-001
For use only on computer models with model numbers 14m-ba0xx and 14-ba0xx equipped with a graphics subsystem with discrete memory	924282-001
For use only on computer models with model numbers 14m-ba0xx and 14-ba0xx equipped with a graphics subsystem with UMA memory	924281-001

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

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 34](#)), and then remove the following components:
 - a. Battery (see [Battery on page 42](#))
 - b. Speakers (see [Speakers on page 51](#))
 - c. System board (see [System board on page 52](#))

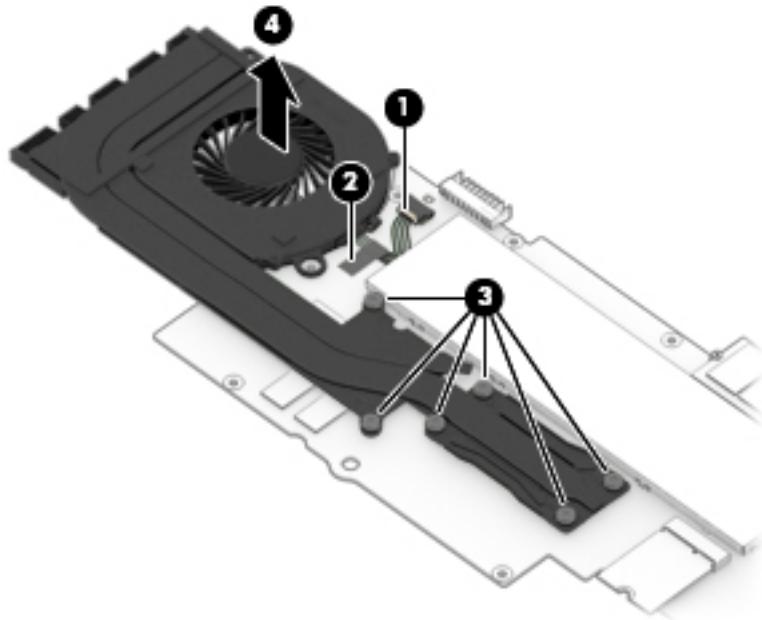
Remove the fan/heat sink assembly:


1. Turn the system board upside down with the front toward you.
2. Disconnect the fan cable **(1)** from the system board.
3. Detach the piece of tape **(2)** that secures the fan cable to the system board.
4. Loosen the six Phillips M2.0×6.2 captive screws **(3)** that secure the fan/heat sink assembly to the system board.



NOTE: Computer models equipped with a graphics subsystem with UMA memory will only have four screws securing the fan/heat sink assembly to the system board.

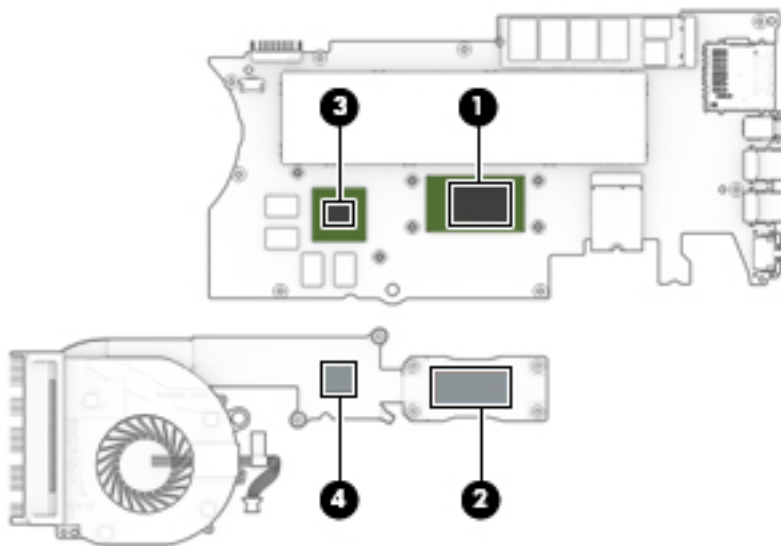
5. Remove the fan/heat sink assembly (4).



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

Thermal paste is used on the processor (1) and the heat sink section (2) that services it. Thermal paste is also used on the VGA component (3) and the heat sink section (4) that services it.

 **NOTE:** Computer models equipped with a graphics subsystem with UMA memory will not have the components identified by callouts 3 and 4 present on the system board and fan/heat sink assembly.



Reverse this procedure to install the fan/heat sink assembly.

WLAN module

Description	Spare part number
For use only on computer models with model number 14m-ba2xx:	
Intel 2230 M2 AC 2×2 MIPI+BRI and Bluetooth 5.0 Combo Adapter (non-vPro)	L22634-005
For use on all computer models:	
Intel Dual Band Wireless-AC 7265 802.11ac 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro)	901229-855
Intel Dual Band Wireless-AC 3168 802.11ac 1×1 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro)	863934-855
Realtek RTL8723DE 802.11bgn 1×1 WiFi + Bluetooth 4.2 Combo Adapter	927230-855

CAUTION: To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore device functionality, and then contact technical support.


Before removing the WLAN module, follow these steps:

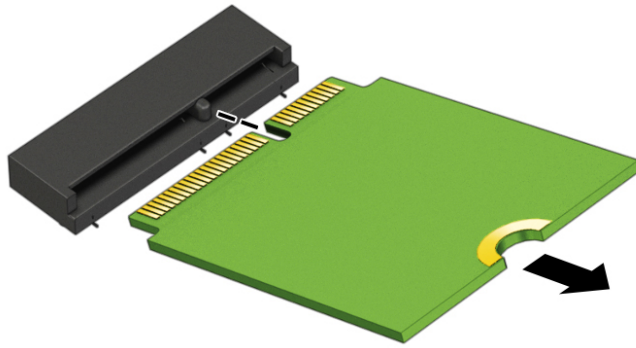
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 34](#)), and then remove the following components:
 - a. Battery (see [Battery on page 42](#))
 - b. Speakers (see [Speakers on page 51](#))
 - c. System board (see [System board on page 52](#))

Remove the WLAN module:

1. Turn the system board upside down with the front toward you.


2. Remove the WLAN module by pulling the module away from the slot at an angle.

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



Reverse this procedure to install the WLAN module.

Memory module

 **NOTE:** The memory module spare part kit does not include the memory module shield. The memory module shield is available using spare part number 925378-001.

 **NOTE:** Primary and expansion memory is installed in a side-by-side configuration in the bottom of the computer. If only one memory module is installed, it must be installed in the socket labeled 1.

Description	Spare part number
8-MB, DDR4-2400, 1.2-V	862398-855
4-MB, DDR4-2400, 1.2-V	862397-855
2-MB, DDR4-2400, 1.2-V	864271-855

Update BIOS before adding memory modules

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

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

To update BIOS:

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

Before removing the memory module, follow these steps:

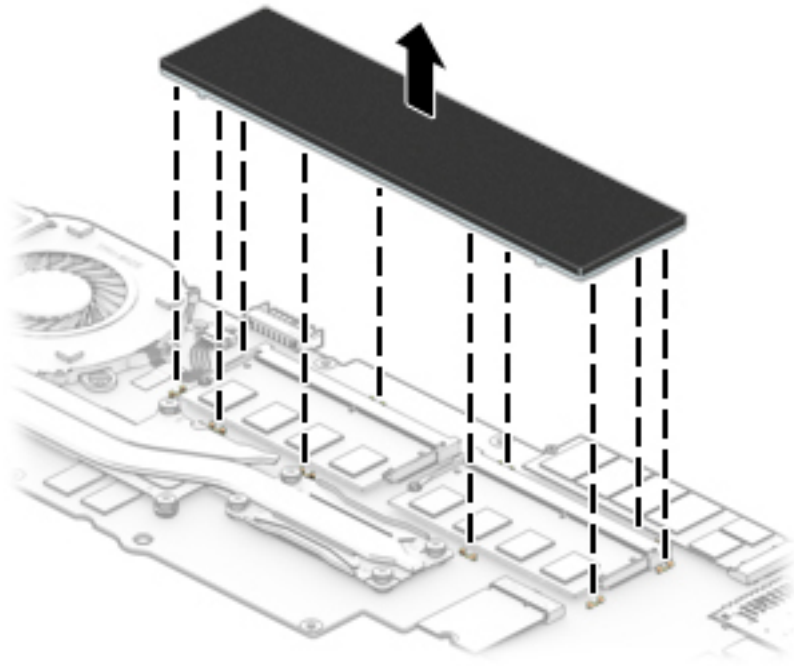
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 34](#)), and then remove the following components:
 - a. Battery (see [Battery on page 42](#))
 - b. Speakers (see [Speakers on page 51](#))
 - c. System board (see [System board on page 52](#))

Remove the memory module:


1. Turn the system board upside down with the front toward you.

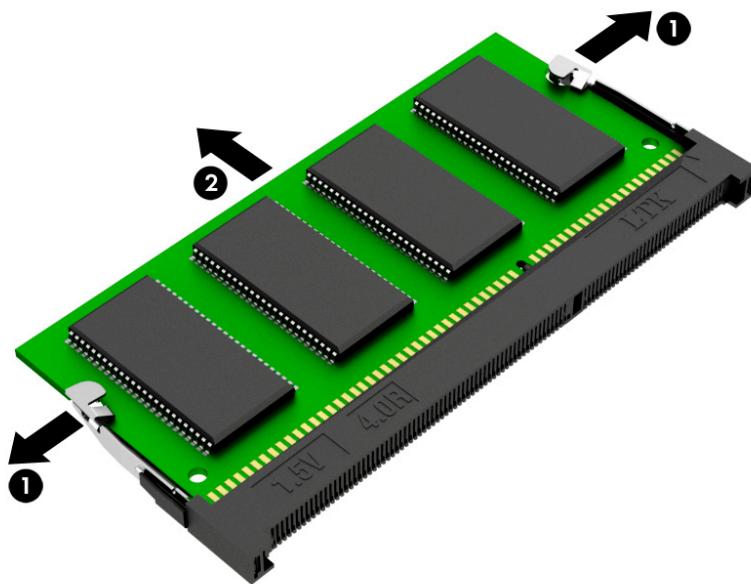
2. Remove the memory module shield.

The memory module shield is available using spare part number 925378-001.



3. Spread the retaining tabs (1) on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)
4. Remove the memory module (2) by pulling the module away from the slot at an angle.

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



Reverse this procedure to install a memory module.

Power connector cable

 **NOTE:** The power connector cable spare part kit does not include the power connector cable bracket. The power connector cable bracket is available using spare part number 924385-001.

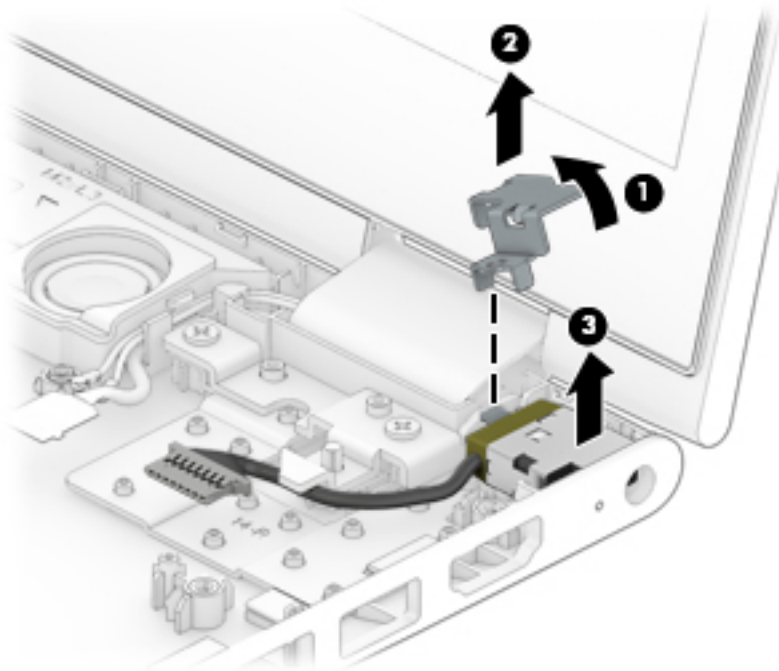
Description	Spare part number
Power connector cable (does not include bracket)	808155-019

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 keyboard/top cover (see [Keyboard/top cover on page 34](#)), and then remove the following components:
 - a. Battery (see [Battery on page 42](#))
 - b. Speakers (see [Speakers on page 51](#))
 - c. System board (see [System board on page 52](#))


Remove the power connector cable:

1. Lift the right side of the power connector cable bracket **(1)** to release the bracket from the power connector.
2. Remove the power connector cable bracket **(2)**.
3. Remove the power connector cable **(3)**.



Reverse this procedure to install the power connector cable.

Display assembly

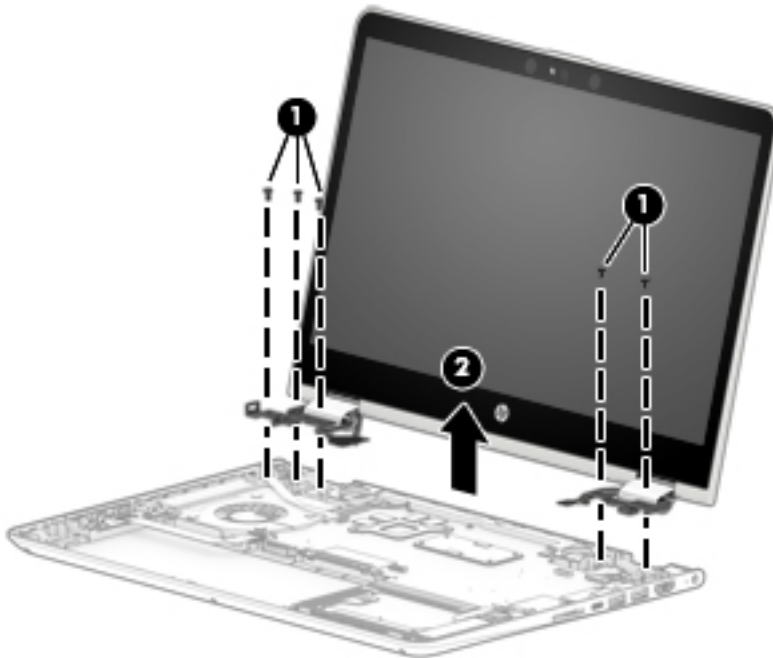
 **NOTE:** The display assembly is spared at the subcomponent level. For display assembly spare part information, see the individual removal subsections.

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 keyboard/top cover (see [Keyboard/top cover on page 34](#)), and then remove the following components:
 - a. Battery (see [Battery on page 42](#))
 - b. Speakers (see [Speakers on page 51](#))
 - c. System board (see [System board on page 52](#))

Remove the display assembly:

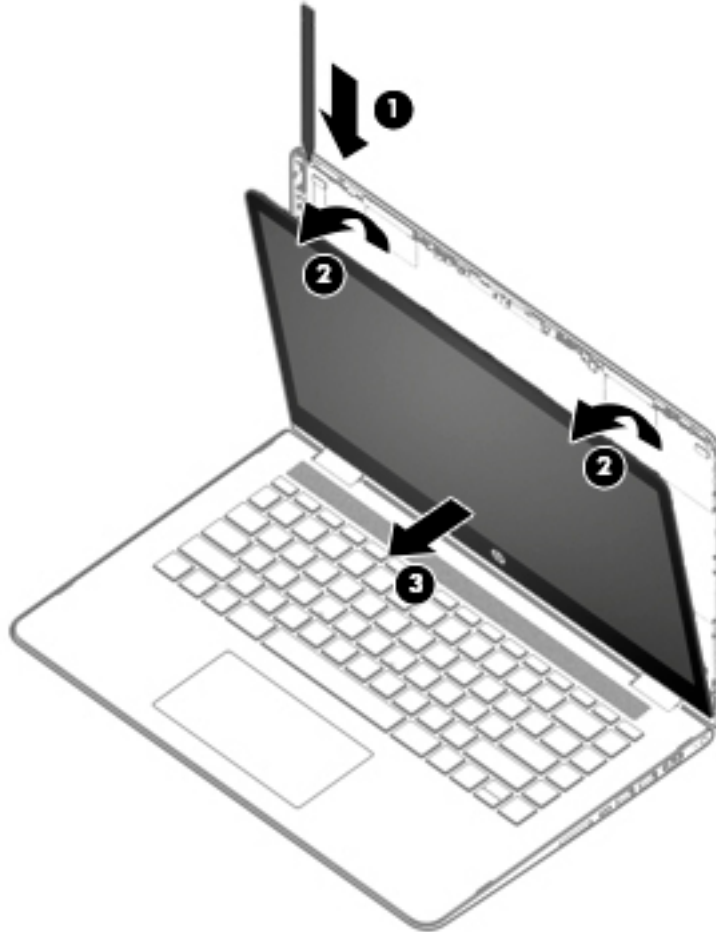
1. Remove the five Phillips M2.5×5.7 screws (1) that secure the display assembly to the base enclosure.
2. Remove the display assembly (2).



3. If it is necessary to replace the display panel assembly or any of the display assembly subcomponents:

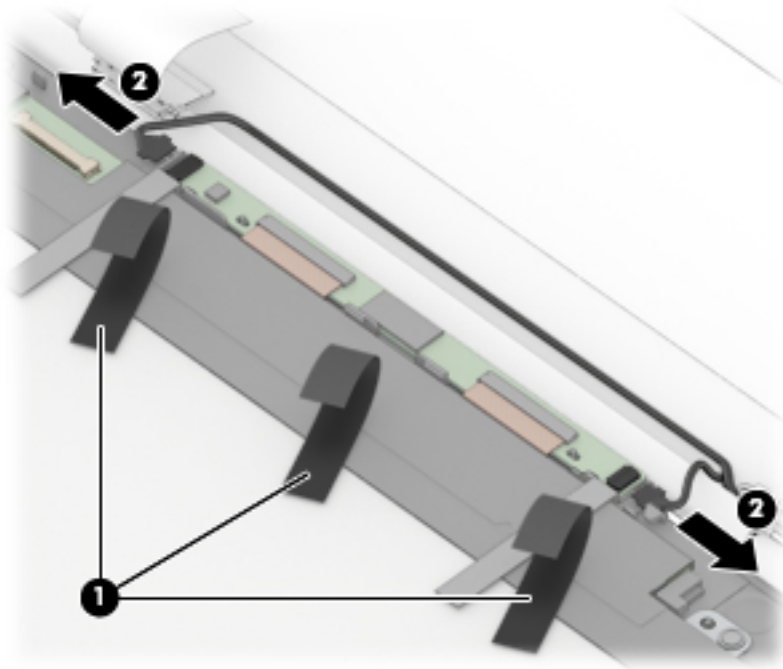
 **NOTE:** The display panel assembly can be removed and replaced without removing the display assembly from the base enclosure.

- a. Insert a case utility tool **(1)** or similar thin, plastic tool between the top edges of the display panel assembly and the display back cover.
- b. Release the top edge of the display panel assembly **(2)** from the display back cover.
- c. Swing the display panel assembly **(3)** forward until it rests on the keyboard.



- d. Detach the three pieces of tape **(1)** that secure the TouchScreen board and TouchScreen board cables to the display panel assembly.

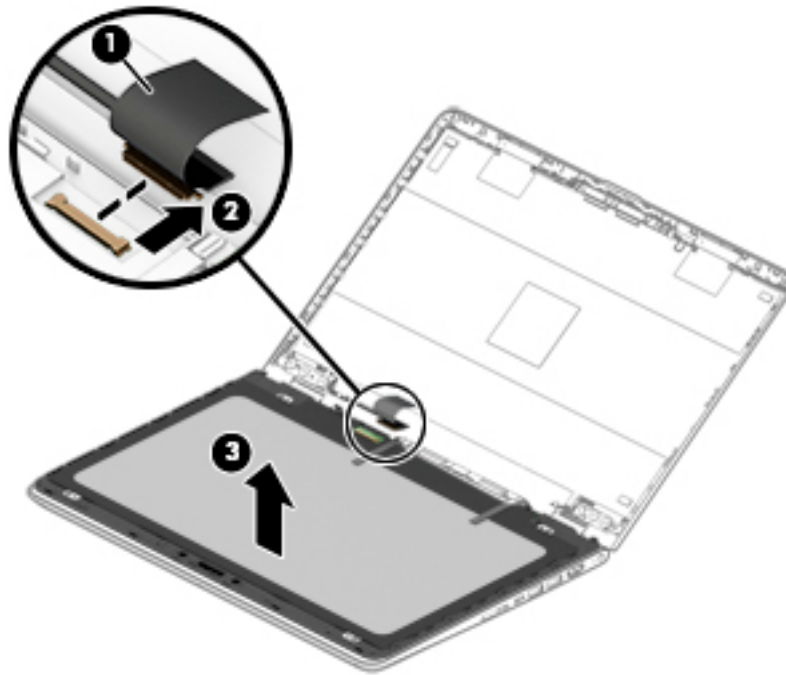
- e. Disconnect both ends of the TouchScreen board cable from the two connectors on the TouchScreen board.




- f. Release the adhesive strip (1) that secures the display panel cable connector to the display panel.
- g. Disconnect the display panel cable (2) from the display panel.
- h. Remove the display panel assembly (3).

The display panel assembly is available using the following spare part numbers:


- 925447-001 – 14.0-in, F-inHD, WLED, BrightView, TouchScreen equipped with an infrared camera
- 924297-001 – 14.0-in, FHD, WLED, BrightView, TouchScreen equipped with a non-infrared camera
- 924298-001 – 14.0-in, HD, WLED, AntiGlare, TouchScreen equipped with a non-infrared camera



4. If it is necessary to replace the TouchScreen board:

 **NOTE:** The TouchScreen board can be removed and replaced without removing the display assembly from the base enclosure.

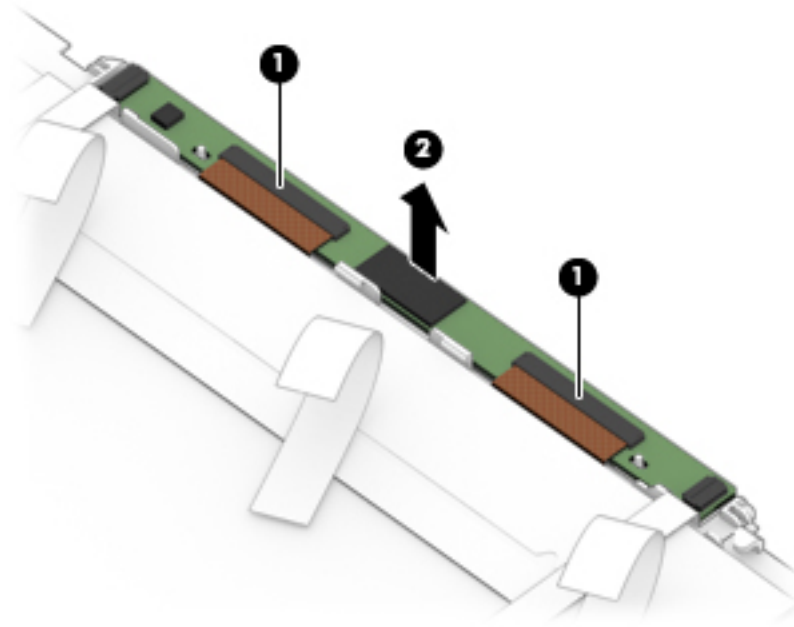
- a. Remove the display panel assembly.

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

- b. Turn the display panel assembly upside down with the bottom edge toward you.
- c. Release the two ZIF connectors (1) to which display panel cables are connected, and then disconnect the display panel cables from the TouchScreen board.

- d. Remove the TouchScreen board (2).

The TouchScreen board is available using spare part number 928577-001 and includes the G-sensor board.

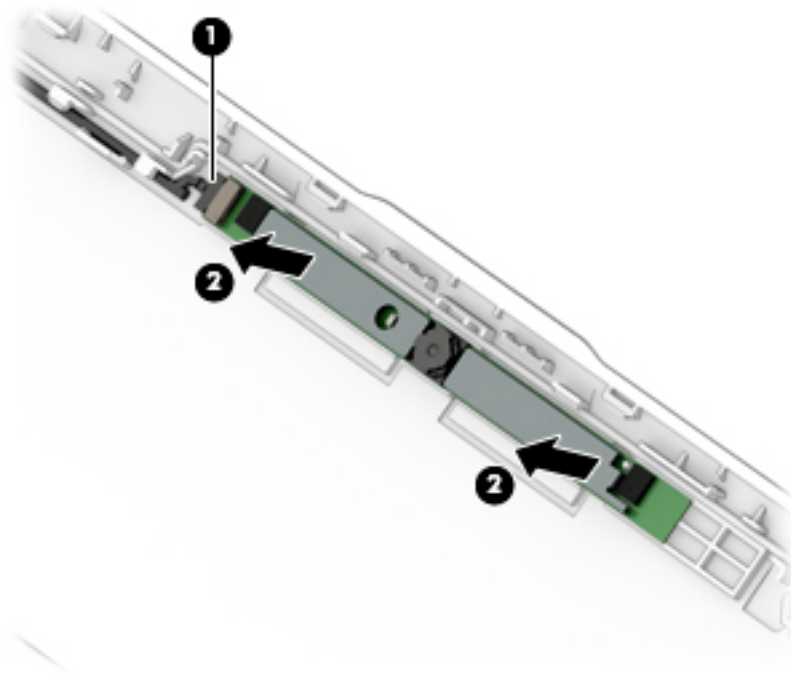


5. If it is necessary to replace the webcam/microphone module:

 **NOTE:** The webcam/microphone module can be removed and replaced without removing the display assembly from the base enclosure.


- a. Remove the display panel assembly.
- b. Disconnect the webcam/microphone module cable (1) from the webcam/microphone module.

- c. Detach the webcam/microphone module **(2)** from the display back cover. (The webcam/microphone module is attached to the display back cover with double-sided adhesive.)



- d. Remove the webcam/microphone module.
The webcam/microphone module is available using spare part numbers 923692-001 (FHD infrared webcam/microphone module) and 923693-001 (HD non-infrared webcam/microphone module).

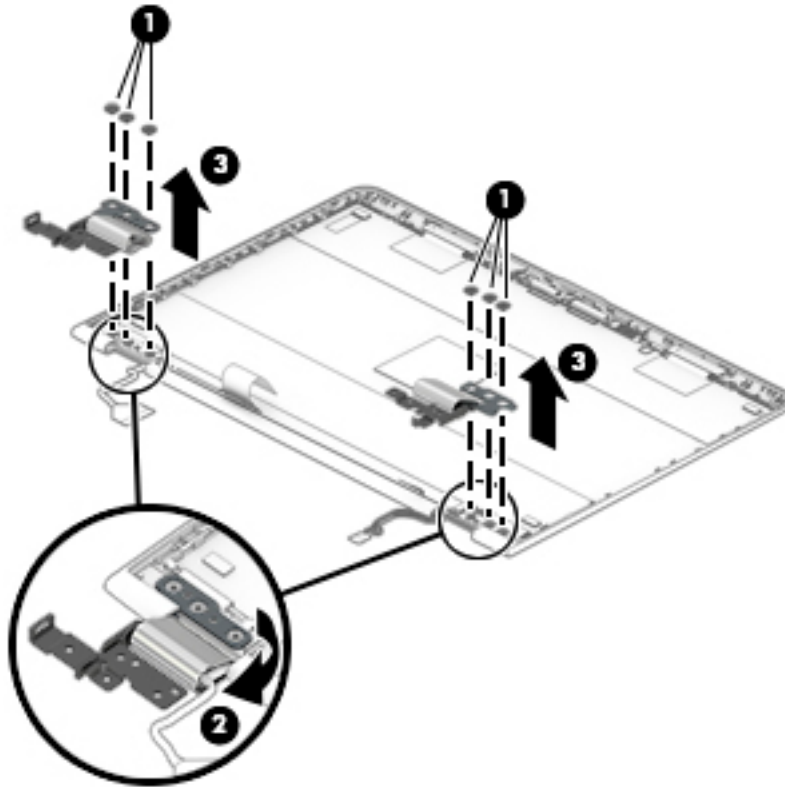
6. If it is necessary to replace the display hinges:

 **NOTE:** It is necessary to remove the display assembly to remove and replace the display hinge.


- a. Remove the display panel assembly.
- b. Remove the six Phillips M2.5×2.9 broad head screws **(1)** that secure the hinges to the display back cover.
- c. Rotate the hinges **(2)** toward the inside of the display back cover to release them from the display back cover.

- d. Remove the display hinges (3).

The display hinges are available using spare part numbers 926895-001 (for use on computer models equipped with an FHD display panel) and 926896-001 (for use on computer models equipped with an HD display panel).



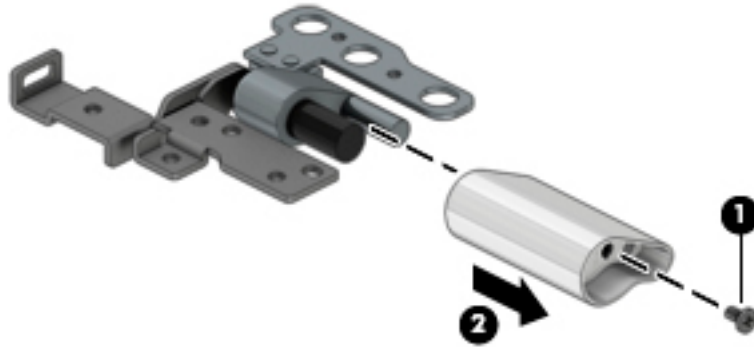
7. If it is necessary to replace the display hinge covers:

 **NOTE:** It is necessary to remove the display assembly to remove and replace the display hinge covers.


- Remove the display panel assembly.
- Remove the display hinge.
- Remove the Phillips M2.0×4.0 screw (1) that secures the hinge cover to the hinge.
- Remove the display hinge cover (2).

The display hinge covers are available using the following spare part numbers:

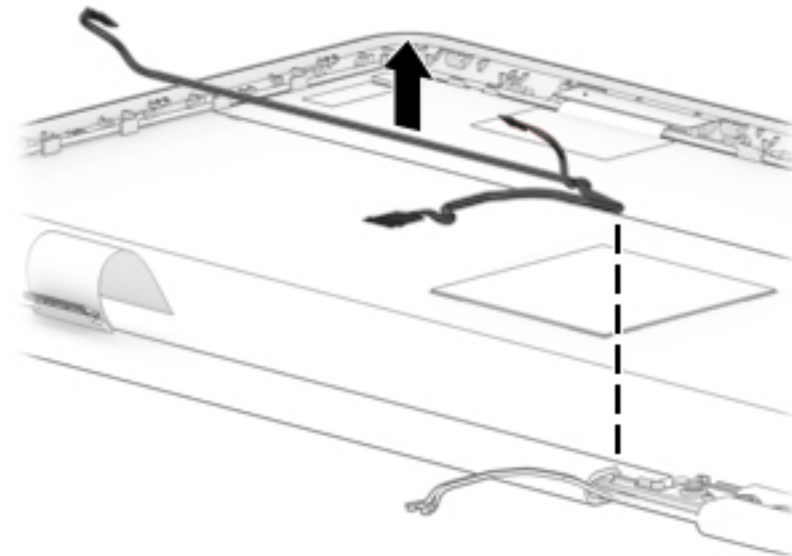
- 924289-001 – Left hinge cap for use on computer models equipped with an FHD display panel
- 924288-001 – Right hinge cap for use on computer models equipped with an FHD display panel
- 924291-001 – Left hinge cap for use on computer models equipped with an HD display panel
- 924290-001 – Right hinge cap for use on computer models equipped with an HD display panel



8. If it is necessary to replace the TouchScreen board cable:

 **NOTE:** It is necessary to remove the display assembly to remove and replace the TouchScreen board cable.

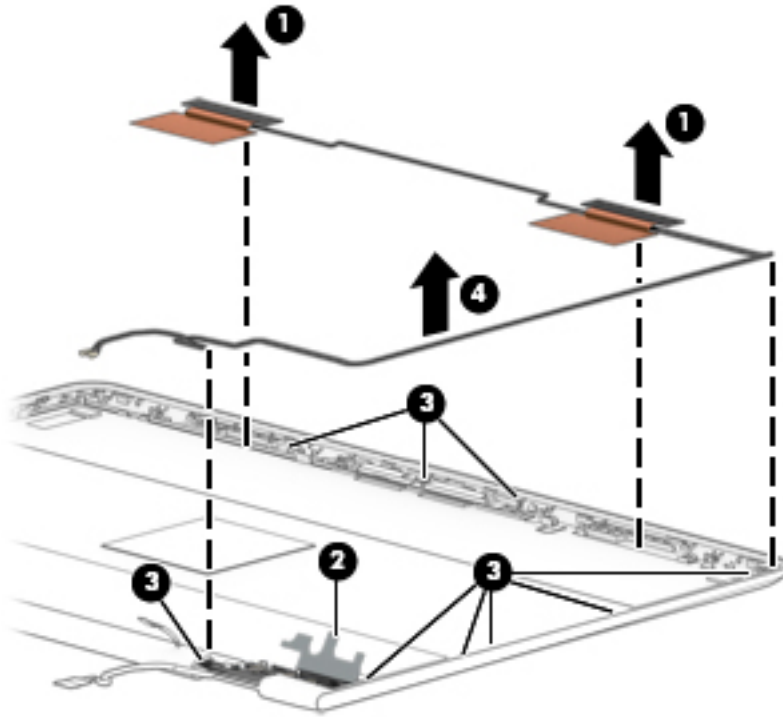
- a. Remove the display panel assembly.
- b. Detach the wireless antenna transceivers (1) from the display back cover. (The wireless antenna transceivers are attached to the display back cover with double-sided adhesive.)
- c. Release the shielding material (2) that secures the wireless antenna cables to the display back cover.
- d. Release the wireless antenna cables from the retention clips (3) and routing channel built into the top, right, and bottom edges of the display back cover.
- e. Remove the TouchScreen board cable from the cavity in the bottom edge of the display back cover.



9. If it is necessary to replace the wireless antenna cables and transceivers:

- a. Remove the display panel assembly.
- b. Detach the wireless antenna transceivers **(1)** from the display back cover. (The wireless antenna transceivers are attached to the display back cover with double-sided adhesive.)
- c. Release the shielding material **(2)** that secures the wireless antenna cables to the display back cover.
- d. Release the wireless antenna cables from the retention clips **(3)** and routing channel built into the top, right, and bottom edges of the display back cover.
- e. Remove the wireless antenna cables and transceivers **(4)**.

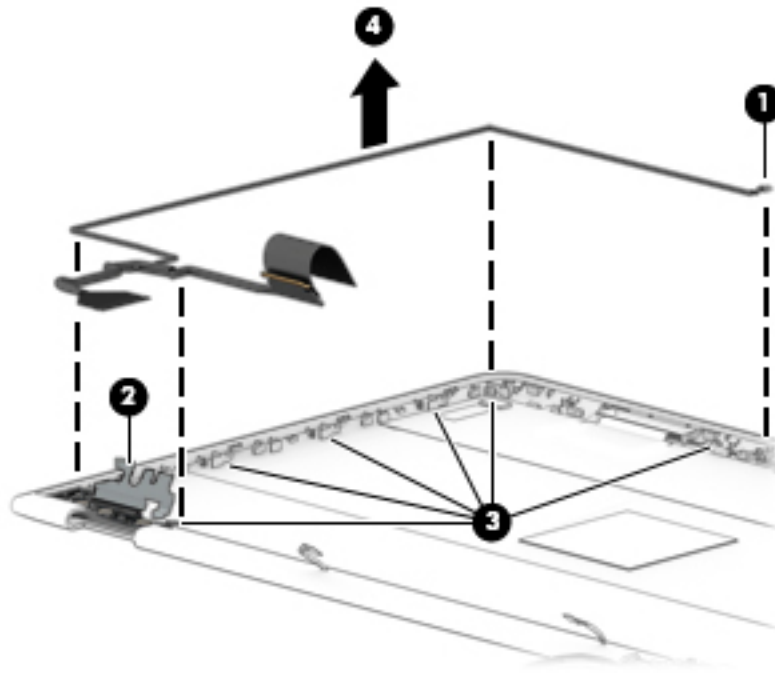
The wireless antenna cables and transceivers are available using spare part number 924104-001.



10. If it is necessary to replace the display panel cable:
 - a. Remove the display panel assembly.
 - b. Release the left wireless antenna transceiver.
 - c. Disconnect the webcam/microphone module cable **(1)** from the webcam/microphone module.
 - d. Release the shielding material **(2)** that secures the display panel cable to the display back cover.
 - e. Release the display panel cable from the retention clips **(3)** and routing channel built into the top, left, and bottom edges of the display back cover.

- f. Remove the display panel cable (4).

The display panel cable is available using spare part numbers 924276-001 (for use on computer models equipped with an FHD display panel) and 924277-001 (for use on computer models equipped with an HD display panel) and includes the webcam/microphone module cable.



Reverse this procedure to reassemble and install the display assembly.


6 Computer Setup (BIOS), TPM, and HP Sure Start

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 74](#).
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 version

To decide whether you need to update Computer Setup (BIOS), first determine the BIOS version on the 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 74](#).
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 76](#).

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 74](#).
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.

7 HP PC Hardware Diagnostics (UEFI)


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

When HP PC Hardware Diagnostics (UEFI) detects a failure that requires hardware replacement, a 24-digit Failure ID is generated. This ID can then be provided to support to help determine how to correct the problem.

 **NOTE:** To start diagnostics on a convertible computer, your computer must be in notebook mode and you must use the keyboard attached.

To start HP PC Hardware Diagnostics (UEFI), follow these steps:


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

 **NOTE:** The HP PC Hardware Diagnostics (UEFI) download instructions are provided in English only, and you must use a Windows computer to download and create the HP UEFI support environment because only .exe files are offered.

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 80](#).

- 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.

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

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

 **NOTE:** The HP PC Hardware Diagnostics (UEFI) download instructions are provided in English only, and you must use a Windows computer to download and create the HP UEFI support environment because only .exe files are offered.

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.

8 Specifications

	Metric	U.S.
Computer dimensions		
Width	33.5 cm	13.18 in
Depth	22.7 cm	8.93 in
Height		
On computer models equipped with an FHD display assembly	2.0 cm	0.78 in
On computer models equipped with an HD display assembly	2.1 cm	0.82 in
Weight (lowest weight configuration)	1.6 kg	3.53 lbs
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.		

9 Backing up and recovering

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 83](#). For information on the recovery options that are available using the recovery media, see [Using Windows tools on page 84](#).
- 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 85](#).

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

Creating HP Recovery media (select products only)

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

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

You can use Windows tools to create system restore points and create backups of personal information, see [Using Windows tools on page 84](#).

- 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 85](#).

Using Windows tools

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


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

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

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

Restore and recovery

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

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

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see the Get started app.
 - ▲ Select the **Start** button, and then select the **Get started** app.
- If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/or applications option (select products only) of HP Recovery Manager to reinstall the individual application or driver.
 - ▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 85](#). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 83](#).
- 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 85](#).
- On select products, if you want to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see [Removing the HP Recovery partition \(select products only\) on page 87](#).

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 83](#).

What you need to know before you get started

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



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

- HP Recovery media must be used if the computer hard drive fails. If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 83](#).
- 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 83](#).
- 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 87](#).

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 83](#).

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

Follow these steps to remove the HP Recovery partition:

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

10 Power cord set requirements

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

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

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

Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least 1.0 m (3.3 ft) and no more than 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer. Requirements for all countries 113

Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	COC	5

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

1. The flexible cord must be Type H05VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

11 Recycling

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

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

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