HP Stream x360 Convertible PC (model number 11-aa0XX) and HP x360 Convertible PC (model number 11-ab0XX)

Maintenance and Service Guide
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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 http://www.microsoft.com for details.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

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Safety warning notice

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

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1 Product description

Category	Description	HP Stream x360 Convertible PC (model number 11-aa0XX)	HP x360 Convertible PC (model number 11-ab0XX)
Product Name	HP Stream x360 Convertible PC (model number 11-aa0XX)	√	
	HP x360 Convertible PC (model number 11-ab0XX)		√
Processor	• Intel® Pentium™ N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz front side bus, 6.0 W) • Intel Celeron™ N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W)	√	√
	• Intel Celeron N3050 1.60-GHz (turbo up to 2.16-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W; available only on computer models equipped with 2.0-GB of onboard system memory)	√	
Chipset	Integrated soldered-on-circuit (SoC)	√	√
Graphics	**Internal Graphics:** • Intel HD Graphics 405 (only on computer models equipped with an Intel Pentium N3710 processor) • Intel HD Graphics 400 (only on computer models equipped with an Intel Celeron N3060 processor)	√	√
	• Intel HD Graphics (only on computer models equipped with an Intel Celeron N3050 processor)	√	
	Support for HD decode, DX12, and high-definition multimedia interface (HDMI)	√	√

Category	Description	HP Stream x360 Convertible PC (model number 11-aa0XX)	HP x360 Convertible PC (model number 11-ab0XX)
Panel	11.6-in, high-definition (HD), white light-emitting diode (WLED), AntiGlare, (1366×768), slim (3.0-mm), SVA, eDP, 16:9 ultra wide aspect ratio; typical brightness: 220 nits	√	√
	11.6-in, HD, WLED, AntiGlare, (1366×768), slim (3.0-mm), in-plane switching (IPS), UWVA, eDP, 16:9 ultra wide aspect ratio; typical brightness: 220 nits		
	TouchScreen solution with flush glass, MultiTouch enabled		
Memory	One memory slot (non-accessible/non-upgradeable)	√	√
	Support for DDR3L-1600 single channel		
	Support for up to 4096-MB system memory (4096-MB × 1)		
	Support for up to 2048-MB on-board system memory (256-MB × 16 × 4 pieces)	√	
	Support for DDR3L-1600 single channel		
Hard drive	Support for 500-GB, 5400-rpm, 7.0-mm hard drive		√
	Support for Accelerometer hard drive protection		
Storage	Support for 32-GB embedded MultiMedia Controller (eMMC)	√	√
Audio and video	Integrated VGA webcam with indicator light, 640×480 by 24 frames per second	√	√
	Single digital microphone		
	Enable HP Noise Cancellation		
	Two speakers		
	DTS Studio Sound		
Sensors	Accelerometer (Invensense MPU-6500)	√	√
	Accelerometer (for hard drive protection: ST HP2DCTR)		
	Accelerometer (for display panel rotation detection and to lock keyboard and TouchPad function: BSW : SensorTek STK8313)		

Category	Description	HP Stream x360 Convertible PC (model number 11-aa0XX)	HP x360 Convertible PC (model number 11-ab0XX)
Sensors *(continued)*	E-compass (E-compass: AKM AK09911C) Gyroscope (Invensense MPU-6500) Sensor hub (BSW: Discrete Sensor Hub - ITEIT8353)	√	√
Wireless	Integrated wireless local area network (WLAN) options by way of wireless module Two built-in M.2/PCIe WLAN antennas Supports the following WLAN modules: • Intel Dual Band Wireless-AC 7265 802.11 AC 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non vPro) • Intel Dual Band Wireless-AC 3168 802.11 AC 1×1 WiFi + Bluetooth 4.2 Combo Adapter (non vPro) • Realtek RTL8723BE-VB 802.11b/g/n 1×1 WiFi + Bluetooth 4.0 Combo Adapter Compatible with Miracast-certified devices	√	√
External media cards	Micro-Secure Digital (SD™) media reader slot	√	√
Ports	• HP Smart Plug AC adapter (4.5-mm barrel) • Headphone/microphone combo jack • High-definition multimedia interface (HDMI) v.1.4, supporting up to 1920×1080 at 60 Hz • USB 3.0 port • USB 2.0 ports (2)	√	√
Keyboard/pointing devices	Full-sized, textured, island-style keyboard **Touchpad requirements:** • ClickPad with image sensor • Multitouch gestures enabled	√	√

Category	Description	HP Stream x360 Convertible PC (model number 11-aa0XX)	HP x360 Convertible PC (model number 11-ab0XX)
Keyboard/pointing devices *(continued)*	Full-sized, textured, island-style keyboard **Touchpad requirements:** • Support for Modern TrackPad Gestures • Taps enabled as default	√	√
Power requirements	Support for a 3-cell, 40-WHr, 3.615-AHr, Li-Ion battery Support for a 65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm) and a 45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm, non-slim) AC adapter	√	√
Security	Trusted platform module (TPM) 2.0 (firmware based) Security cable lock	√	√
Operating system	**Preinstalled:** Windows 10 (not available on computer models equipped with eMMC)	√	√
	For developed market (ML): • Windows 10 Home Entry ML 64-bit Compact 2-in-1	√	
	• Windows 10 Home Value ML 64-bit 2-in-1 (available only on computer models equipped with a hard drive)		√
	• Windows 10 Home ML 64-bit (available only on computer models equipped with a hard drive)		√
	• Windows 10 Home Entry ML 64-bit Compact 2-in-1 (available only on computer models equipped with eMMC)		√
	For emerging market (EM/SL): • Windows 10 Home Entry EM/SL 64-bit Compact 2-in-1	√	
	• Windows 10 Home Value EM/SL 64-bit 2-in-1 (available only on computer models equipped with a hard drive)		√

Category	Description	HP Stream x360 Convertible PC (model number 11-aa0XX)	HP x360 Convertible PC (model number 11-ab0XX)
Operating system *(continued)*	• Windows 10 Home EM/SL 64-bit 2-in-1 (available only on computer models equipped with a hard drive)		√
	• Windows 10 Home EM/SL 64-bit SEAP (available only on computer models equipped with a hard drive in Asia/Pacific countries and regions and Japan)		√
Serviceability	**End user replaceable parts:** AC adapter	√	√

2 External component identification

Locating hardware

To find out what hardware is installed on your computer:

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

  A list displays all the devices installed on your 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, and then select **All apps**.

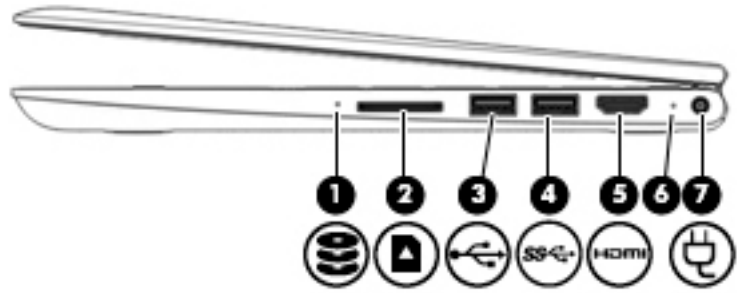
  – or -

  Select the **Start** button.

  – or -

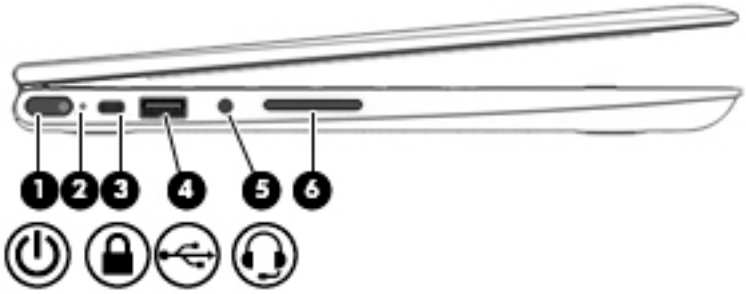
  Right-click the **Start** button, and then select **Programs and Features**.

Right side



Component			Description
(1)		Drive light	• Blinking white (select products only): The hard drive is being accessed. • Amber: HP 3D DriveGuard has temporarily parked the hard drive. **NOTE:** For products with a solid-state drive, the drive light will not illuminate during drive access.
(2)		Memory card reader	Reads optional memory cards that enable you to store, manage, share, or access information. To insert a card: 1. Hold the card label-side up, with connectors facing the computer. 2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated. To remove a card: ▲ Press in on the card, and then remove it from the memory card reader.
(3)		USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(4)		USB 3.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)		HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High-Definition Multimedia Interface (HDMI) device.
(6)		AC adapter and battery light	• White: The AC adapter is connected and the battery is fully charged. • Blinking white: The AC adapter is disconnected and the battery has reached a low battery level. • Amber: The AC adapter is connected and the battery is charging. • Off: The battery is not charging.
(7)		Power connector	Connects an AC adapter.

Left side



Component			Description
(1)		Power button	• When the computer is off, press the button to turn on the computer. • When the computer is on, press the button briefly to initiate Sleep. • When the computer is in the Sleep state, press the button briefly to exit Sleep. • When the computer is in Hibernation, press the button briefly to exit Hibernation. **CAUTION:** Pressing and holding down the power button results in the loss of unsaved information. 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. To learn more about your power settings, see your power options. ▲ Type `power` in the taskbar search box, and then select **Power & sleep settings**. – or - Right-click the **Start** button, and then select **Power Options**.
(2)		Power light	• 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	Attaches an optional security cable to the computer. **NOTE:** The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(4)		USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)		Audio-out (headphone)/Audio-in (microphone) combo jack	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 microphones.

Component		Description
(5)	Audio-out (headphone)/Audio-in (microphone) combo jack *(continued)*	**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 *Regulatory, Safety, and Environmental Notices*. To access this guide: ▲ Select the **Start** button, select **All apps** (required on some products), select **HP Help and Support**, and then select **HP Documentation**. **NOTE:** When a device is connected to the jack, the computer speakers are disabled.
(6)	Volume button	Controls speaker volume on the computer.

Display

Component		Description
(1)	WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2)	Camera light	On: The camera is in use.
(3)	Camera	Allows you to video chat, record video, and record still images.
(4)	Internal microphone	Records sound.

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

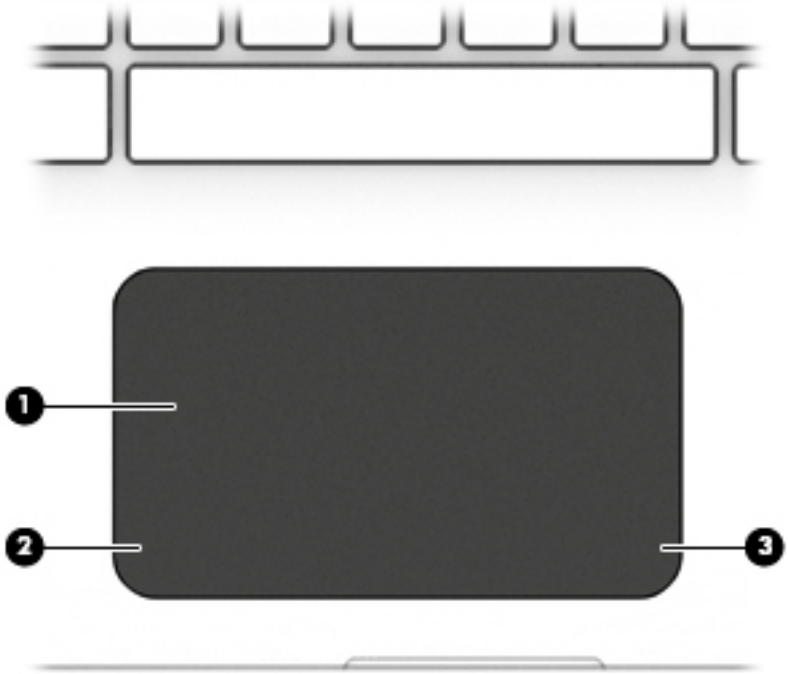
For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this guide:

- Select the **Start** button, select **All apps** (required on some products), select **HP Help and Support**, and then select **HP Documentation**.

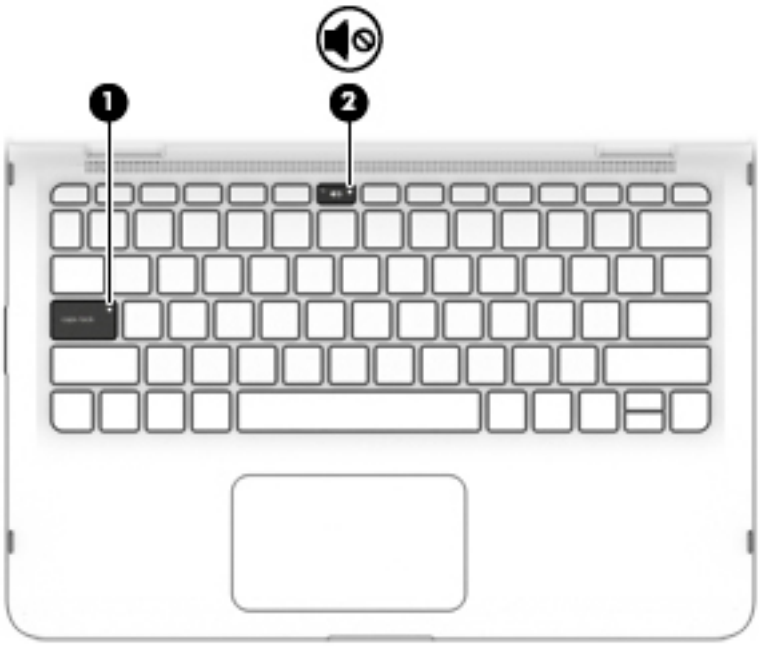
Top

TouchPad



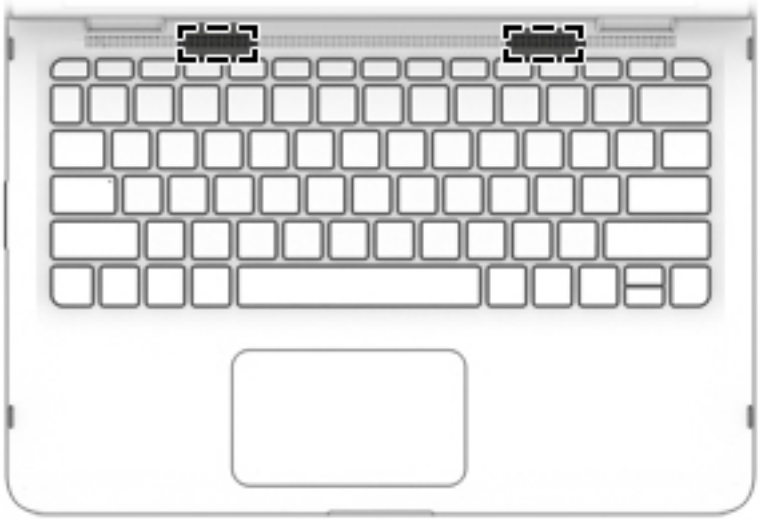
Component		Description
(1)	TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left TouchPad button	Functions like the left button on an external mouse.
(3)	Right TouchPad button	Functions like the right button on an external mouse.

Lights



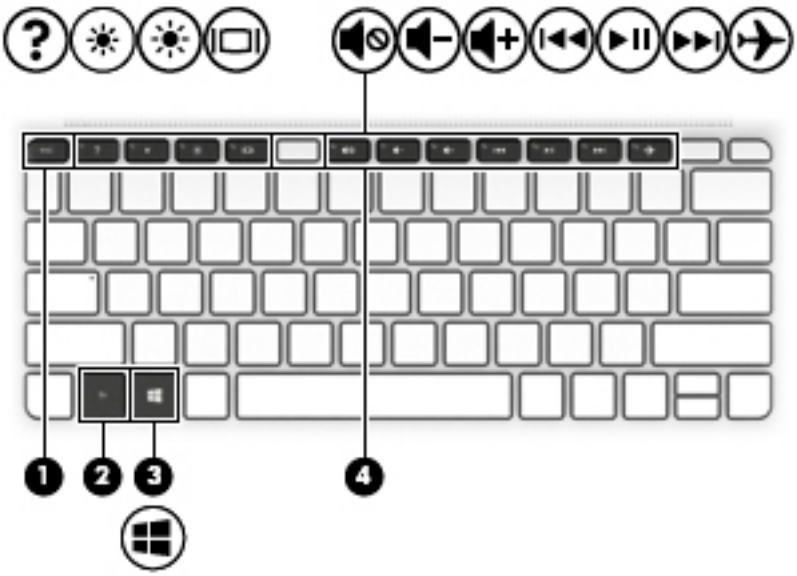
Component		Description
(1)	Caps lock light	On: Caps lock is on, which switches the key input to all capital letters.
(2)	Mute light	• Amber: Computer sound is off. • Off: Computer sound is on.

Speakers



Component	Description
Speakers	Produce sound.

Keys



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

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.

Service label

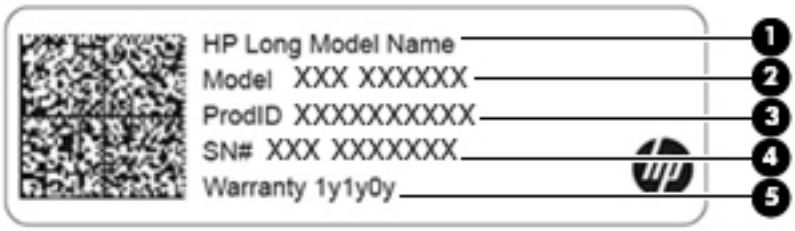
When ordering parts or requesting information, provide the computer serial number and model number provided on the service tag.

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, or on the back of the display.

- Service label—Provides important information to identify your computer. When contacting support, you will probably be asked for the serial number, and possibly for the product number or the model number. Locate these numbers 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.

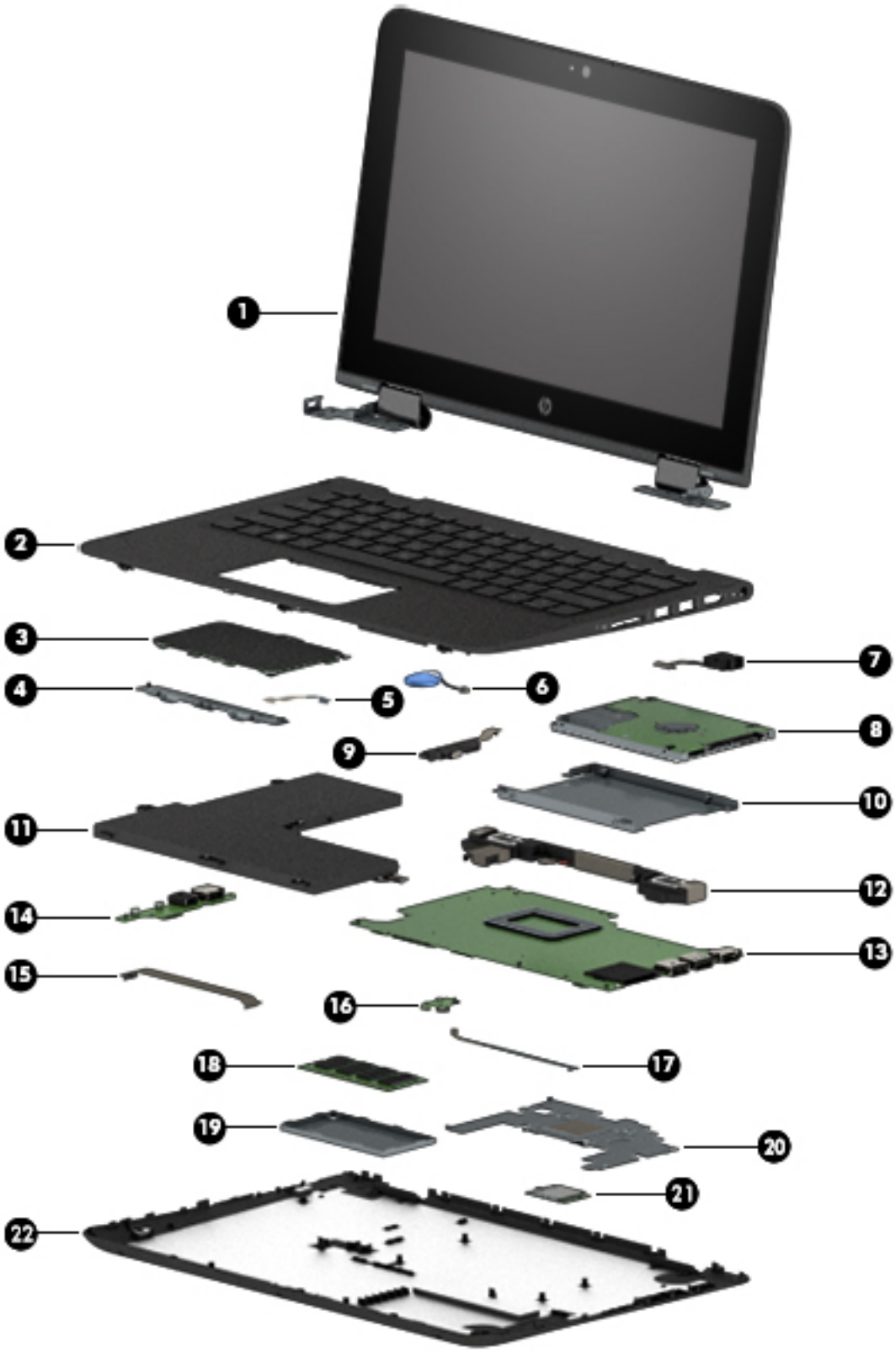
Item	Description	Function
(1)	Serial number (s/n)	This is an alphanumeric identifier that is unique to each product.
(2)	Part number/Product number (p/n)	This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components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



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

- Regulatory label(s)—Provide(s) regulatory information about the computer.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

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 23.	
(2)	**Keyboard/top cover** (includes keyboard cable):	
	In aqua blue finish:	
	For use in Belgium	906790-A41
	For use in Brazil	906790-201
	For use in Bulgaria	906790-261
	For use in the Czech Republic and Slovenia	906790-FL1
	For use in Denmark, Finland, and Norway	906790-DH1
	For use in France	906790-051
	For use in Germany	906790-041
	For use in Greece	906790-151
	For use in Hungary	906790-211
	For use in Israel	906790-BB1
	For use in Italy	906790-061
	For use in Latin America	906790-161
	For use in the Netherlands	906790-B31
	For use in Portugal	906790-131
	For use in Romania	906790-271
	For use in Russia	906790-251
	For use in Saudi Arabia	906790-171
	For use in Slovenia	906790-BA1
	For use in Spain	906790-071
	For use in Switzerland	906790-BG1
	For use in Taiwan	906790-AB1
	For use in Thailand	906790-281
	For use in Turkey	906790-141
	For use in the United Kingdom	906790-031
	For use in the United States	906790-001
	Keyboard/top cover (includes keyboard cable):	
	In jet black finish:	
	For use in Belgium	906788-A41
	For use in Brazil	906788-201
	For use in Bulgaria	906788-261

Item	Component	Spare part number
	For use in the Czech Republic and Slovenia	906788-FL1
	For use in Denmark, Finland, and Norway	906788-DH1
	For use in France	906788-051
	For use in Germany	906788-041
	For use in Greece	906788-151
	For use in Hungary	906788-211
	For use in Israel	906788-BB1
	For use in Italy	906788-061
	For use in Latin America	906788-161
	For use in the Netherlands	906788-B31
	For use in Portugal	906788-131
	For use in Romania	906788-271
	For use in Russia	906788-251
	For use in Saudi Arabia	906788-171
	For use in Slovenia	906788-BA1
	For use in Spain	906788-071
	For use in Switzerland	906788-BG1
	For use in Taiwan	906788-AB1
	For use in Thailand	906788-281
	For use in Turkey	906788-141
	For use in the United Kingdom	906788-031
	For use in the United States	906788-001
	Keyboard/top cover (includes keyboard cable):	
	In snow white finish:	
	For use in Belgium	912834-A41
	For use in Brazil	912834-201
	For use in Bulgaria	912834-261
	For use in the Czech Republic and Slovenia	912834-FL1
	For use in Denmark, Finland, and Norway	912834-DH1
	For use in France	912834-051
	For use in Germany	912834-041
	For use in Greece	912834-151
	For use in Hungary	912834-211
	For use in Israel	912834-BB1

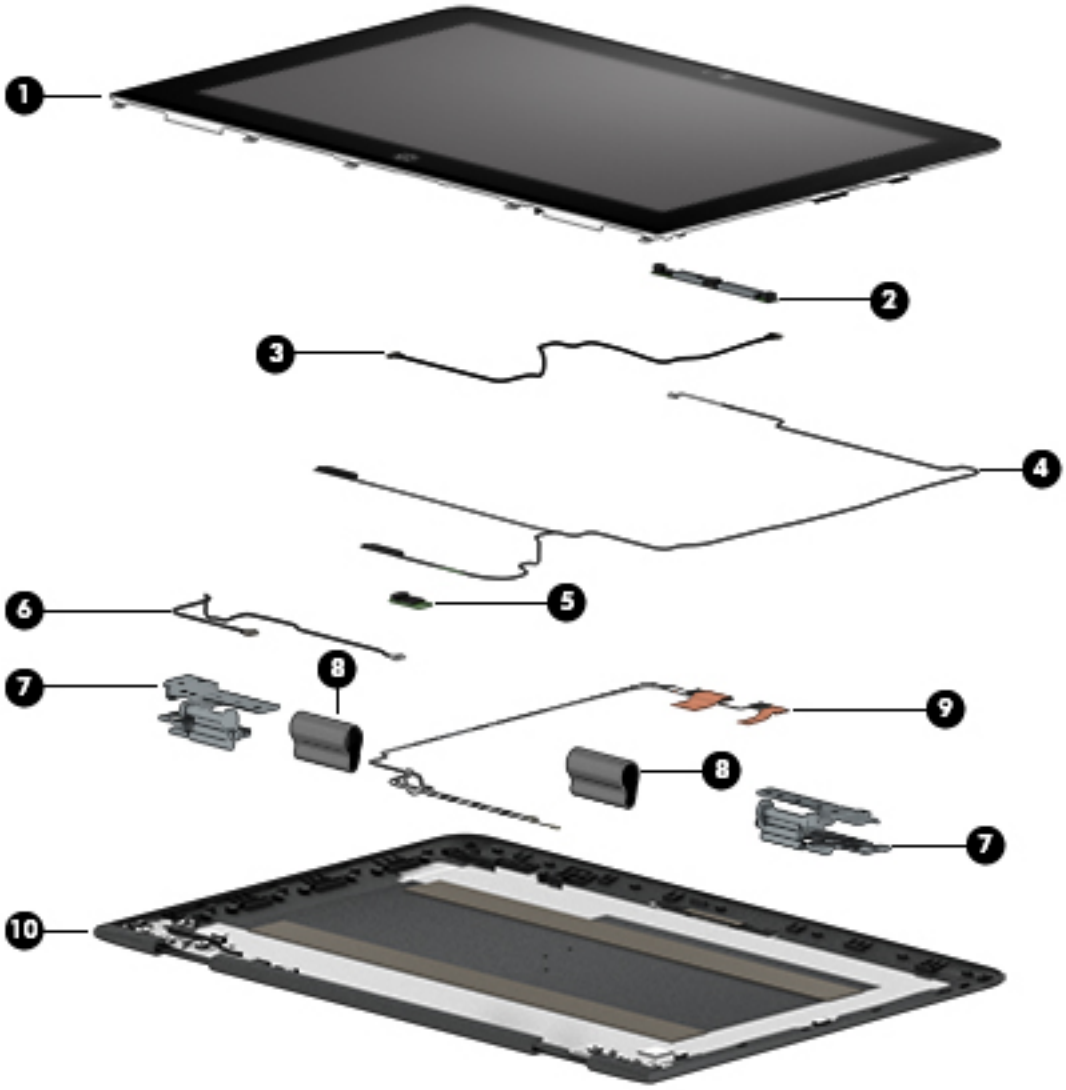
Item	Component	Spare part number
	For use in Italy	912834-061
	For use in Latin America	912834-161
	For use in the Netherlands	912834-B31
	For use in Portugal	912834-131
	For use in Romania	912834-271
	For use in Russia	912834-251
	For use in Saudi Arabia	912834-171
	For use in Slovenia	912834-BA1
	For use in Spain	912834-071
	For use in Switzerland	912834-BG1
	For use in Taiwan	912834-AB1
	For use in Thailand	912834-281
	For use in Turkey	912834-141
	For use in the United Kingdom	912834-031
	For use in the United States	912834-001
	Keyboard/top cover (includes keyboard cable):	
	In violet purple finish:	
	For use in Belgium	906789-A41
	For use in Brazil	906789-201
	For use in Bulgaria	906789-261
	For use in the Czech Republic and Slovenia	906789-FL1
	For use in Denmark, Finland, and Norway	906789-DH1
	For use in France	906789-051
	For use in Germany	906789-041
	For use in Greece	906789-151
	For use in Hungary	906789-211
	For use in Israel	906789-BB1
	For use in Italy	906789-061
	For use in Latin America	906789-161
	For use in the Netherlands	906789-B31
	For use in Portugal	906789-131
	For use in Romania	906789-271
	For use in Russia	906789-251
	For use in Saudi Arabia	906789-171

Item	Component	Spare part number
	For use in Slovenia	906789-BA1
	For use in Spain	906789-071
	For use in Switzerland	906789-BG1
	For use in Taiwan	906789-AB1
	For use in Thailand	906789-281
	For use in Turkey	906789-141
	For use in the United Kingdom	906789-031
	For use in the United States	906789-001
(3)	**TouchPad** (includes bracket and double-sided adhesive): **NOTE:** The TouchPad spare part kit does not include the TouchPad cable. The TouchPad cable is available using spare part number 906781-001.	
	In aqua blue finish	911119-001
	In jet black finish	911118-001
	In snow white finish	912835-001
	In violet purple finish	906786-001
(4)	**TouchPad bracket** (included in the TouchPad spare part kit)	
(5)	**TouchPad cable** (includes double-sided adhesive)	906781-001
(6)	**RTC battery** (includes cable and double-sided adhesive)	818125-001
(7)	**Power connector cable**	913730-001
(8)	**Hard drive** (500-GB, 5400-rpm, SATA, 7.0-mm) **NOTE:** The hard drive spare part kit does not include the hard drive bracket, hard drive cable, or screws. The hard drive bracket, hard drive cable, and screws are included in the Hard Drive Hardware Kit, spare part number 906770-001.	778186-005
	Hard Drive Hardware Kit, includes:	906770-001
(9)	Hard drive bracket	
(10)	Hard drive cable	
	Hard drive bracket screws (not illustrated)	
(11)	**Battery** (3-cell, 40-WHr, 3.615-AHr, Li-ion; includes cable)	844201-856
(12)	**Speakers** (includes left and right speakers and cables)	906785-001
(13)	**System board** (includes a graphics subsystem with UMA memory and replacement thermal material):	
	Equipped with an Intel Pentium N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 32-GB of eMMC system storage, and the Windows 10 operating system	910147-601
	Equipped with an Intel Pentium N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 32-GB of eMMC system storage, and a non-Windows operating system	910147-001
	Equipped with an Intel Pentium N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W) and the Windows 10 operating system	9067274-601

Item	Component	Spare part number
	Equipped with an Intel Pentium N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W) and a non-Windows operating system	9067274-001
	Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 2.0-GB of onboard system memory, 32-GB of eMMC system storage, and the Windows 10 operating system	908424-601
	Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 2.0-GB of onboard system memory, 32-GB of eMMC system storage, and a non-Windows operating system	908424-001
	Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 32-GB of eMMC system storage, and the Windows 10 operating system	908423-601
	Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 32-GB of eMMC system storage, and a non-Windows operating system	908423-001
	Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W) and the Windows 10 operating system	906723-601
	Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W) and a non-Windows operating system	906723-001
	Equipped with an Intel Celeron N3050 1.60-GHz (turbo up to 2.16-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 2.0-GB of onboard system memory, 32-GB of eMMC system storage, and the Windows 10 operating system	906725-601
	Equipped with an Intel Celeron N3050 1.60-GHz (turbo up to 2.16-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 2.0-GB of onboard system memory, 32-GB of eMMC system storage, and a non-Windows operating system	906725-001
(14)	**Connector board** (includes volume button actuators, audio combo jack, and USB 2.0 port) **NOTE:** The connector board spare part kit does not include the connector board cable. The connector board cable is available using spare part number 906784-001.	906783-001
(15)	**Connector board cable**	906784-001
(16)	**Power button board** **NOTE:** The power button board spare part kit does not include the power button cable. The power button cable is available using spare part number 906777-001.	910162-001
(17)	**Power button board cable**	906777-001
(18)	**4-GB memory module** (PCL3, 12800, 1600)	691740-005
(19)	**Memory module shield**	910157-001
(20)	**Heat sink** (includes replacement thermal material)	910302-001
(21)	**WLAN module:**	
	Intel Dual Band Wireless-AC 7265 802.11 AC 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non vPro)	793840-005
	Intel Dual Band Wireless-AC 3168 802.11 AC 1×1 WiFi + Bluetooth 4.2 Combo Adapter (non vPro)	863934-855
	Realtek RTL8723BE-VB 802.11b/g/n 1×1 WiFi + Bluetooth 4.0 Combo Adapter	855106-855
(22)	**Base enclosure:**	
	In aqua blue finish	908296-001

Item	Component	Spare part number
	In jet black finish	906782-001
	In snow white finish	912833-001
	In violet purple finish	908295-001
	Rubber Kit (not illustrated, includes 2 rubber feet, grounding pads, hard drive pads, and shielding):	
	In aqua blue finish	910166-001
	In jet black finish	910164-001
	In snow white finish	912836-001
	In violet purple finish	910165-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	**Display panel assembly** (includes bezel, panel, and TouchScreen board):	
	11.6-in, HD, WLED, AntiGlare (1366×768), slim (3.0-mm), SVA, eDP	906791-001
	11.6-in, HD, WLED, AntiGlare (1366×768), slim (3.0-mm), IPS/UWA, eDP	906792-001
(2)	**Webcam/microphone module** (includes double-sided adhesive)	907345-001
(3)	**TouchScreen board cable**	910163-001
(4)	**Display panel cable** (includes webcam/microphone module cable):	906776-001
(5)	**G-sensor module** (includes double-sided adhesive)	906774-001
(6)	**G-sensor module cable**	906778-001
(7)	**Display hinges** (2, include left and right display hinges)	906771-001
(8)	**Display hinge covers** (2, include left and right display covers)	906772-001
(9)	**Wireless antenn**a (includes left and right wireless cables and transceivers)	906780-001
(10)	**Display back cover** (includes rubber padding and shielding):	
	In aqua blue finish	908294-001
	In jet black finish	906775-001
	In snow white finish	912832-001
	In violet purple finish	908293-001

Miscellaneous parts

Component	Spare part number
AC adapter:	
65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm)	714635-850
45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm, non-slim)	741553-850
HP HDMI-to-VGA adapter	701943-001
HP USB external DVD±RW DL SuperMulti Drive	747080-001
HP USB-to-Gigabit RJ45 adapter	829941-001
Power cord (C5 receptacle, 1.0-m (3.2-ft), 3-wire conductor):	
For use in Argentina	401300-007
For use in Australia	213356-008
For use in Brazil	438722-004
For use in Denmark	213353-008
For use in Europe	213350-009
For use in India	404827-003
For use in Israel	398063-003
For use in Italy	213352-008
For use in North America	213349-009
For use in Switzerland	213354-008
For use in Taiwan	393313-003
For use in Thailand	285096-006
For use in the United Kingdom and Singapore	213351-008
Power cord (Option-917, 3-cord, 1.00-m, ROHS)	361240-002
Rubber Kit (includes 2 rubber feet, grounding pads, hard drive pads, and shielding):	
In aqua blue finish	910166-001
In jet black finish	910164-001
In snow white finish	912836-001
In violet purple finish	910165-001
Screw Kit	906773-001

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			
	Relative humidity		
Event	**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 ±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

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

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

Component replacement procedures

NOTE: Details about the computer, including model, serial number, product key, and length of warranty, are on the service tag on the back of the computer. See Service label on page 15 for details.

This chapter provides removal and replacement procedures.

There are as many as 56 screws that must be removed, replaced, and/or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Bottom cover

NOTE: The bottom cover spare part kit includes 4 rubber feet, grounding pads, hard drive pads, and shielding.

Description	Spare part number
In aqua blue finish	908296-001
In jet black finish	906782-001
In snow white finish	912833-001
In violet purple finish	908295-001

Before disassembling the computer, follow these steps:

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

Remove the bottom cover:

1. Close the computer.
2. Turn the computer upside down with the front toward you.
3. Detach the two rear rubber feet **(1)**.

   The rubber feet are available in the Rubber Kit, using the following spare part numbers:

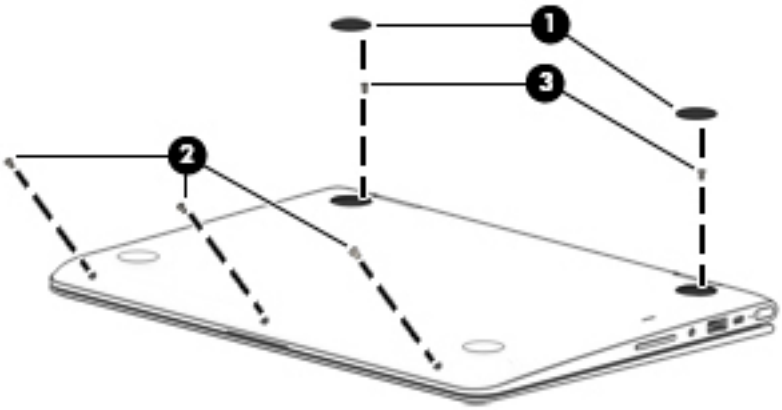
   910166-001 – For use on computer models in aqua blue finish

910164-001 – For use on computer models in jet black finish

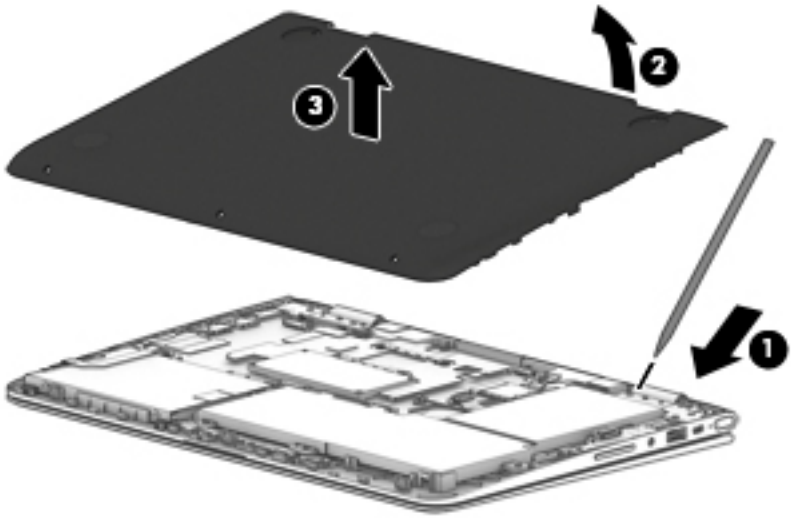
912836-001 – For use on computer models in snow white finish

910165-001 – For use on computer models in violet purple finish

4. Remove the three Phillips M2.5×4.3 screws **(2)** and the two Phillips M2.5×6.3 screws **(3)** that secure the bottom cover to the computer.



5. Insert a case utility tool **(1)** or similar plastic, flat-edged tool between the bottom cover and the computer near the display hinge area.
6. Release the bottom cover **(2)** by swinging the rear edge up and forward until it releases.
7. Remove the bottom cover **(3)**.



Reverse this procedure to install the bottom cover.

Battery

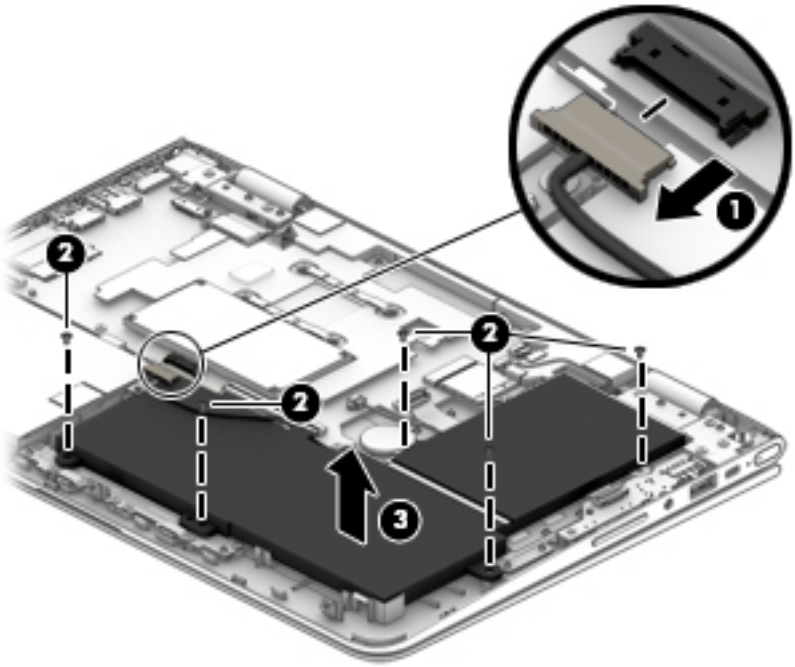
Description	Spare part number
Battery (3-cell, 40-WHr, 3.615-AHr, Li-ion; includes cable)	844201-856

Before removing the battery, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).

Remove the battery:

1. Disconnect the battery cable **(1)** from the system board.
2. Remove the five Phillips PM2.0×3.3 screws **(2)** that secure the battery to the keyboard/top cover.
3. Remove the battery **(3)**.



Reverse this procedure to install the battery.

Hard drive

NOTE: The hard drive spare part kit does not include the hard drive bracket, hard drive cable, or screws. The hard drive bracket, hard drive cable, and screws are included in the Hard Drive Hardware Kit, spare part number 906770-001.

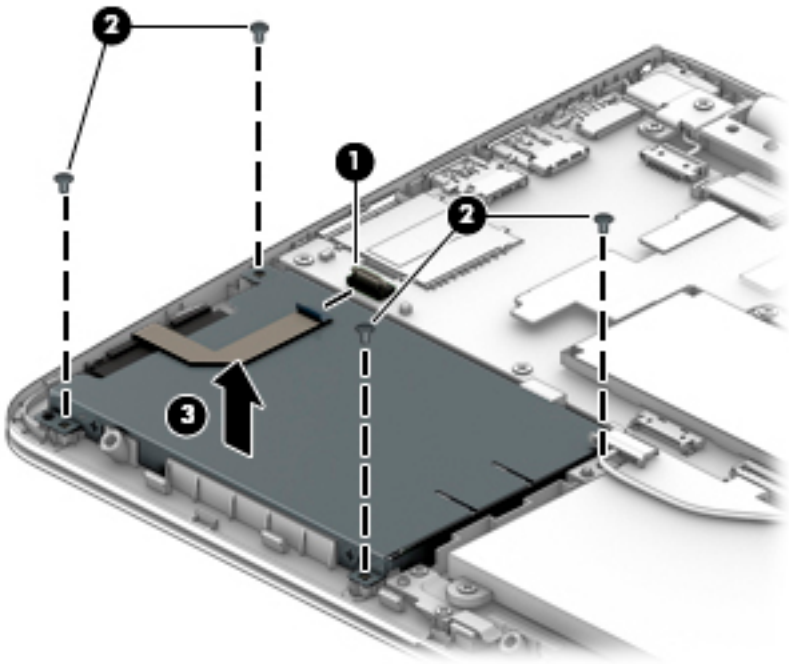
Description	Spare part number
500-GB, 5400-rpm, SATA, 7.0-mm hard drive	778186-005

Before removing the hard drive, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

Remove the hard drive:

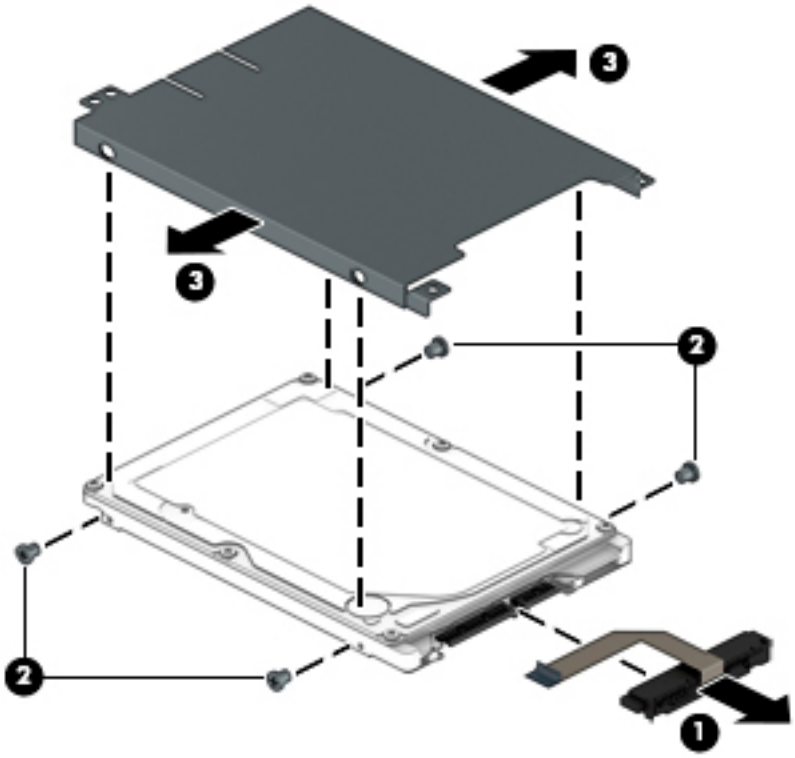
1. Release the zero insertion force (ZIF) connector **(1)** to which the hard drive cable is connected, and then disconnect the hard drive cable from the system board.
2. Remove the four Phillips PM2.0×3.3 screws **(2)** that secure the hard drive to the keyboard/top cover.
3. Remove the hard drive **(3)**.



4. If it is necessary to replace the hard drive cable, disconnect the cable **(1)** from the hard drive.

5. If it is necessary to replace the hard drive bracket, remove the four Phillips PM3.0×3.7 screws **(2)** that secure the hard drive bracket to the hard drive, and then bracket **(3)**.

   The hard drive bracket, hard drive cable, and screws are included in the Hard Drive Hardware Kit, spare part number 906770-001.



Reverse this procedure to reassemble and install the hard drive.

Memory module

Description	Spare part number
4-GB memory module (PCL3, 12800, 1600)	691740-005

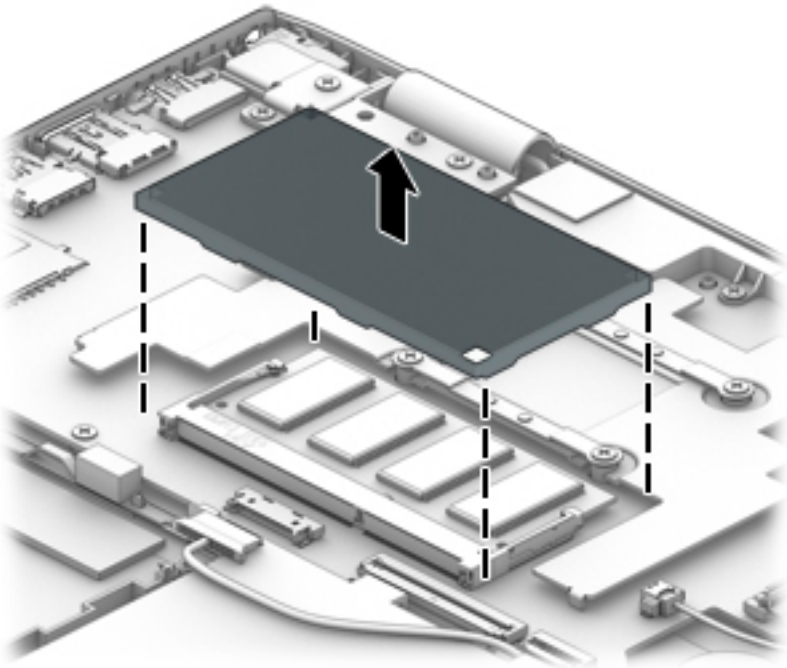
Before removing the memory module, follow these steps:

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 unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

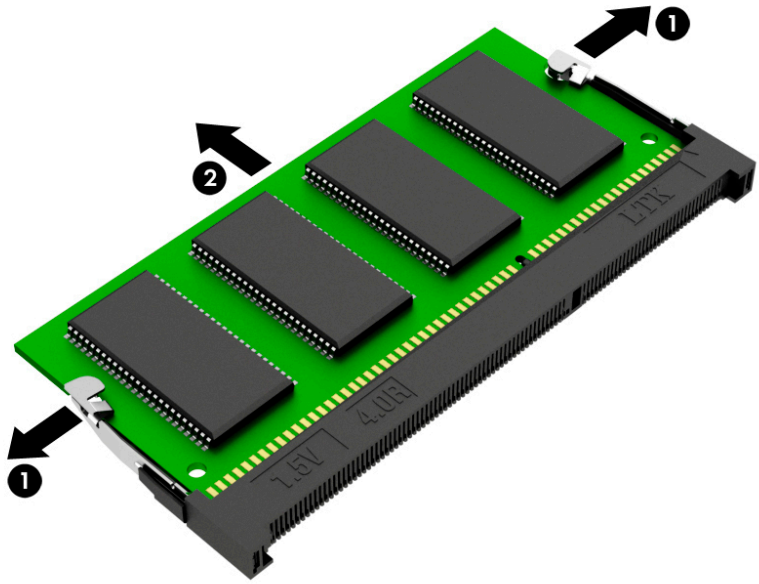
Remove the memory module:

1. Remove the memory module shield.

   The memory module shield is available using spare part number 910157-001.



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



Reverse this procedure to install the memory module.

RTC battery

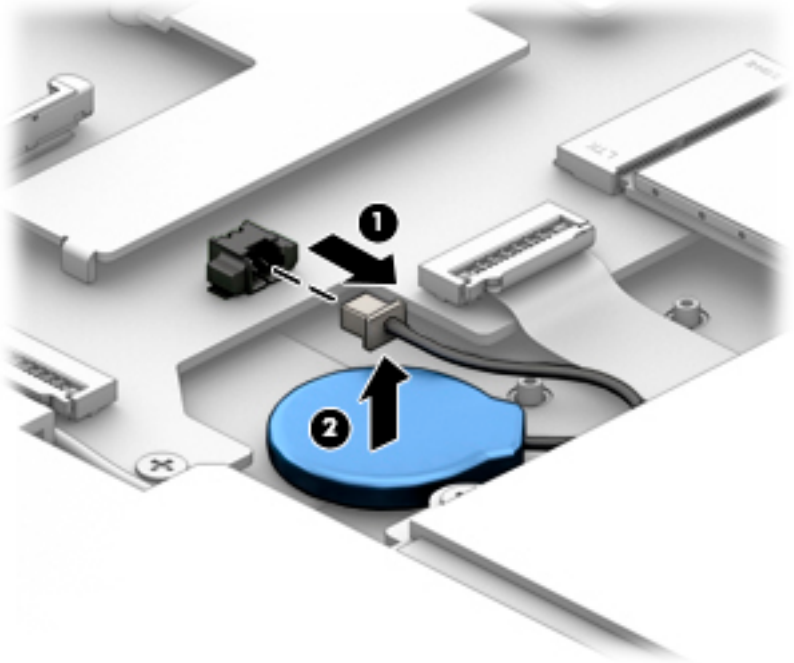
Description	Spare part number
RTC battery (includes cable and double-sided adhesive)	818125-001

Before removing the RTC battery, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

Remove the RTC battery:

1. Disconnect the RTC battery cable **(1)** from the system board.
2. Detach the RTC battery **(2)** from the keyboard/top cover. (The RTC battery is attached to the keyboard/top cover with double-sided adhesive.)



3. Remove the RTC battery.

Reverse this procedure to install the RTC battery.

WLAN module

Description	Spare part number
Intel Dual Band Wireless-AC 7265 802.11 AC 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non vPro)	793840-005
Intel Dual Band Wireless-AC 3168 802.11 AC 1×1 WiFi + Bluetooth 4.2 Combo Adapter (non vPro)	863934-855
Realtek RTL8723BE-VB 802.11b/g/n 1×1 WiFi + Bluetooth 4.0 Combo Adapter	855106-855

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. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

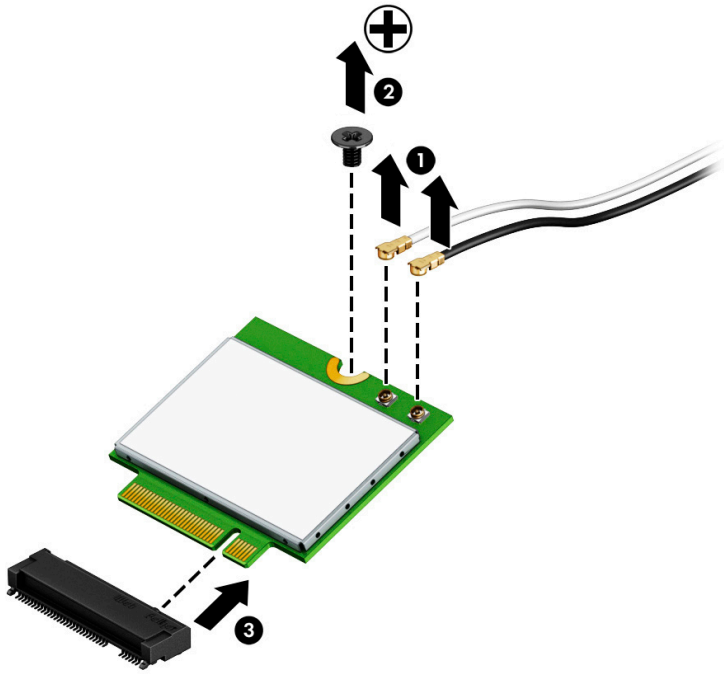
Remove the WLAN module:

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

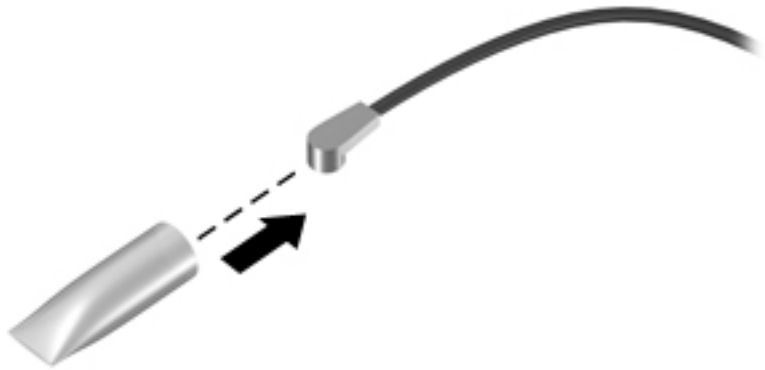
NOTE: The #1/white WLAN antenna cable connects to the WLAN module #1/Main terminal. The #2/black WLAN antenna cable connects to the WLAN module #1/Aux terminal.

2. Remove the Phillips PM2.0×3.3 screw **(2)** that secures the WLAN module to the keyboard/top cover. (The WLAN module tilts up.)

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



NOTE: If the WLAN antenna is not connected to the terminal on the WLAN module, a protective sleeve must be installed on the antenna connector, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

Power connector cable

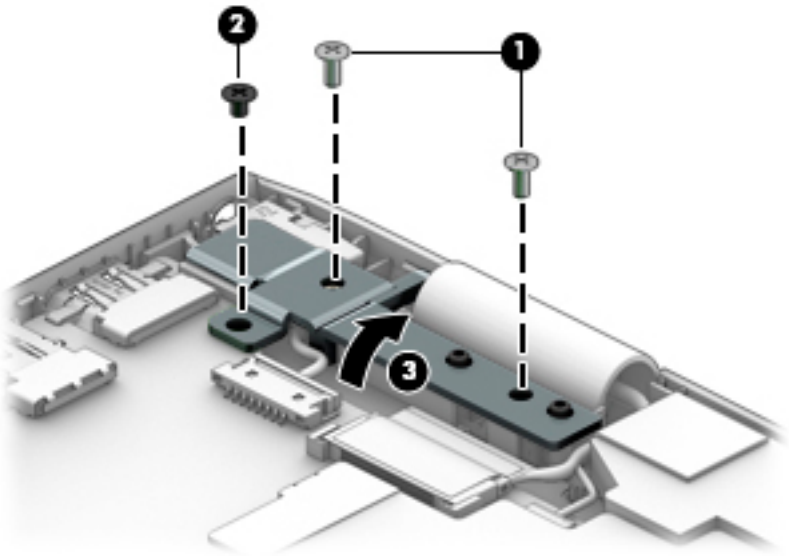
Description	Spare part number
Power connector cable	913730-001

Before removing the power connector cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

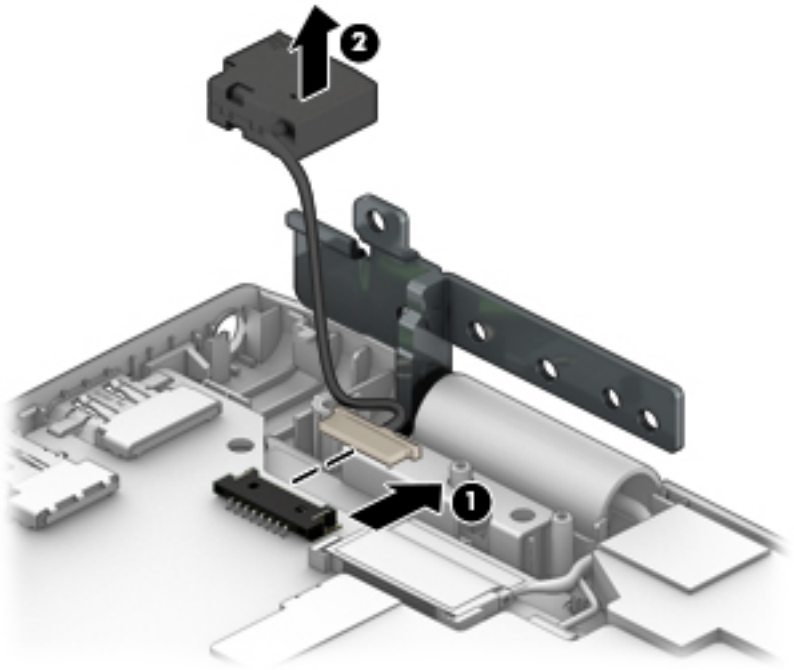
Remove the power connector cable:

1. Remove the two Phillips PM2.5×6.3 screws **(1)** that secure the display right hinge to the keyboard/top cover.
2. Remove the Phillips PM2.5×4.3 screw **(2)** that secures the display right hinge to the keyboard/top cover.
3. Swing the display right hinge **(3)** up and back until the power connector is accessible.



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

5. Release the power connector **(2)** from the retention molding built into the keyboard/top cover.



6. Remove the power connector cable.

Reverse this procedure to install the power connector cable.

Speakers

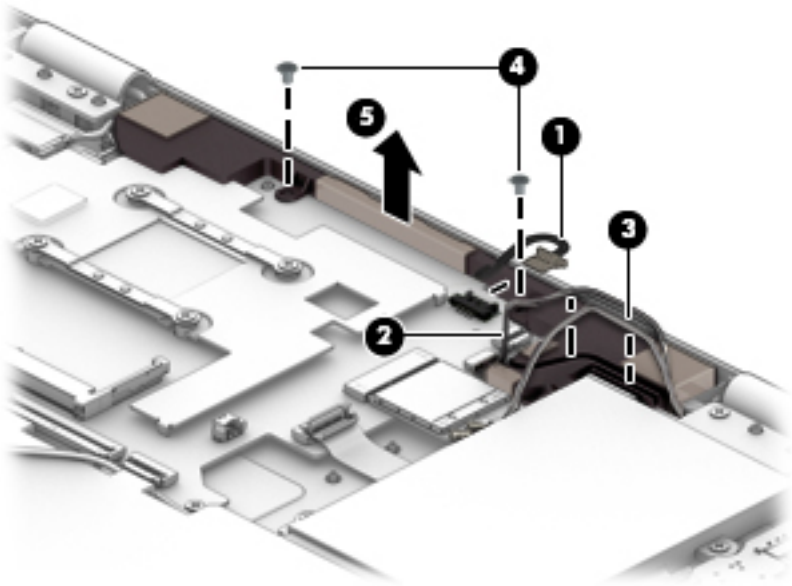
Description	Spare part number
Speakers (includes left and right speakers and cables)	906785-001

Before removing the speakers, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

Remove the speakers:

1. Disconnect the speaker cable **(1)** from the system board.
2. Release the TouchScreen board cable **(2)** from the routing channel built into the speaker.
3. Release the wireless antenna cables from the retention clips **(3)** and routing channel built into the speaker.
4. Remove the two Phillips PM2.5×4.3 screws **(4)** that secure the speakers to the keyboard/top cover.
5. Remove the speakers **(5)**.



Reverse this procedure to install the speakers.

Power button board cable

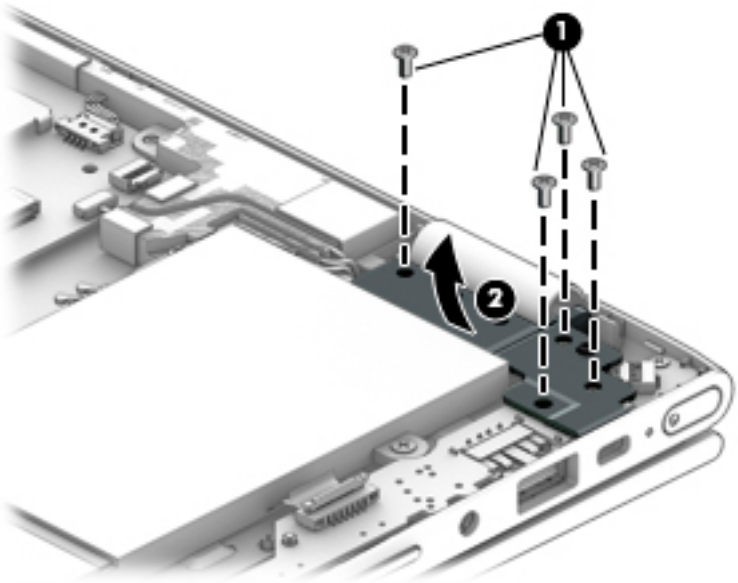
Description	Spare part number
Power button board cable	906777-001

Before removing the power button 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 bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

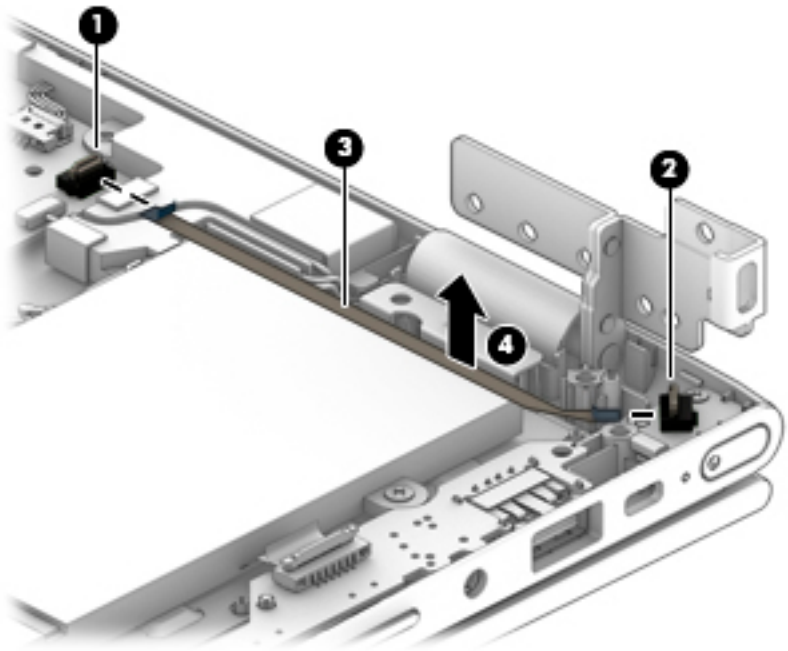
Remove the power button board cable:

1. Remove the four Phillips PM2.5×6.3 screws **(1)** that secure the display left hinge to the keyboard/top cover.
2. Swing the display left hinge **(2)** up and back until the power button board cable is accessible.



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

6. Remove the power button board cable **(4)**.



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. See Power button board cable on page 43 for connector board cable removal instructions. The power button board cable is available using spare part number 906777-001.

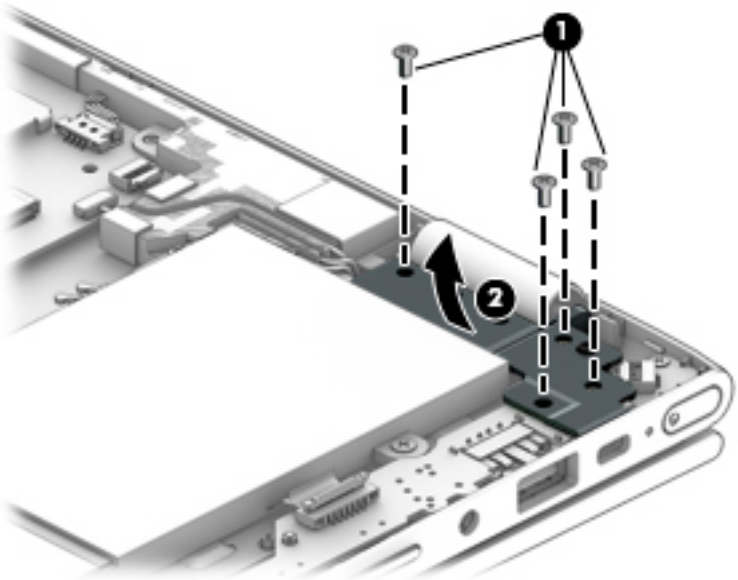
Description	Spare part number
Power button board **NOTE:** The power button board spare part kit does not include the power button cable. The power button cable is available using spare part number 906777-001.	910162-001

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 bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

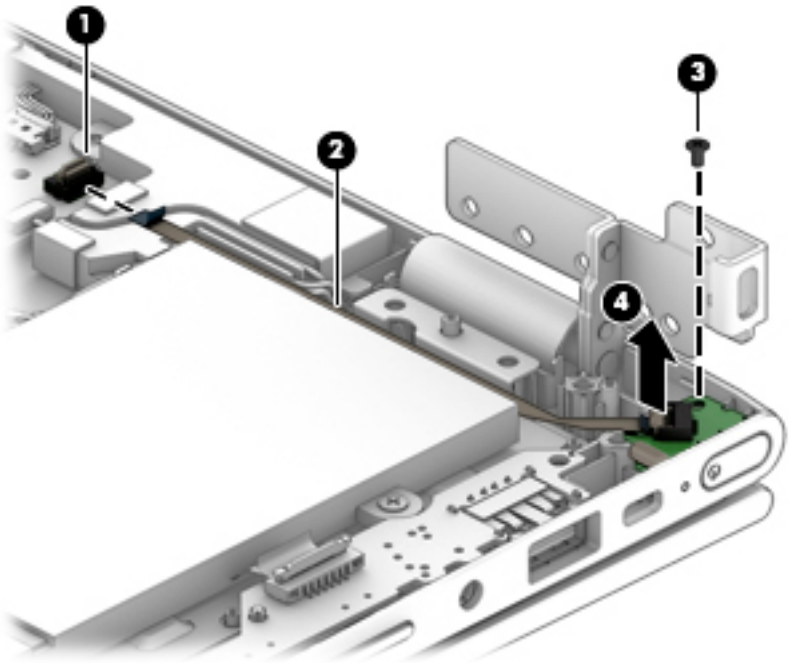
Remove the power button board:

1. Remove the four Phillips PM2.5×6.3 screws **(1)** that secure the display left hinge to the keyboard/top cover.
2. Swing the display left hinge **(2)** up and back until the power button board is accessible.



3. Release the ZIF connector **(1)** to which the power button board cable is connected, and then disconnect the power button board cable from the system board.

4. Detach the power button board cable **(2)** from the keyboard/top cover. (The power button board cable is attached to the keyboard/top cover with double-sided adhesive.)
5. Remove the Phillips PM2.0×3.3 screw **(3)** that secures the power button board to the keyboard/top cover.
6. Remove the power button board **(4)**.



Reverse this procedure to install the power button board.

System board

NOTE: The system board spare part kit includes a graphics subsystem with UMA memory and replacement thermal material.

Description	Spare part number
Equipped with an Intel Pentium N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 32-GB of eMMC system storage, and the Windows 10 operating system	910147-601
Equipped with an Intel Pentium N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 32-GB of eMMC system storage, and a non-Windows operating system	910147-001
Equipped with an Intel Pentium N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W) and the Windows 10 operating system	9067274-601
Equipped with an Intel Pentium N3710 1.60-GHz (turbo up to 2.56-GHz) quad core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W) and a non-Windows operating system	9067274-001
Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 2.0-GB of onboard system memory, 32-GB of eMMC system storage, and the Windows 10 operating system	908424-601
Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 2.0-GB of onboard system memory, 32-GB of eMMC system storage, and a non-Windows operating system	908424-001
Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 32-GB of eMMC system storage, and the Windows 10 operating system	908423-601
Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 32-GB of eMMC system storage, and a non-Windows operating system	908423-001
Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W) and the Windows 10 operating system	906723-601
Equipped with an Intel Celeron N3060 1.60-GHz (turbo up to 2.48-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W) and a non-Windows operating system	906723-001
Equipped with an Intel Celeron N3050 1.60-GHz (turbo up to 2.16-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 2.0-GB of onboard system memory, 32-GB of eMMC system storage, and the Windows 10 operating system	906725-601
Equipped with an Intel Celeron N3050 1.60-GHz (turbo up to 2.16-GHz) dual core processor (2.0-GB L2 cache, 1600-MHz FSB, 6.0 W), 2.0-GB of onboard system memory, 32-GB of eMMC system storage, and a non-Windows operating system	906725-001

Before removing the system board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).
6. Remove the WLAN module (see WLAN module on page 38).
7. Remove the speakers (see Speakers on page 42).

NOTE: When replacing the system board, be sure that the memory module (see Memory module on page 35) and the heat sink (see Heat sink on page 50) are removed from the defective system board and installed on the replacement system board.

Remove the system board:

1. Disconnect the following cables from the system board:

   (1) Power connector cable

   (2) Display panel cable

   (3) TouchScreen board cable

   (4) Power button board ZIF connector cable

   (5) G-sensor module ZIF connector cable

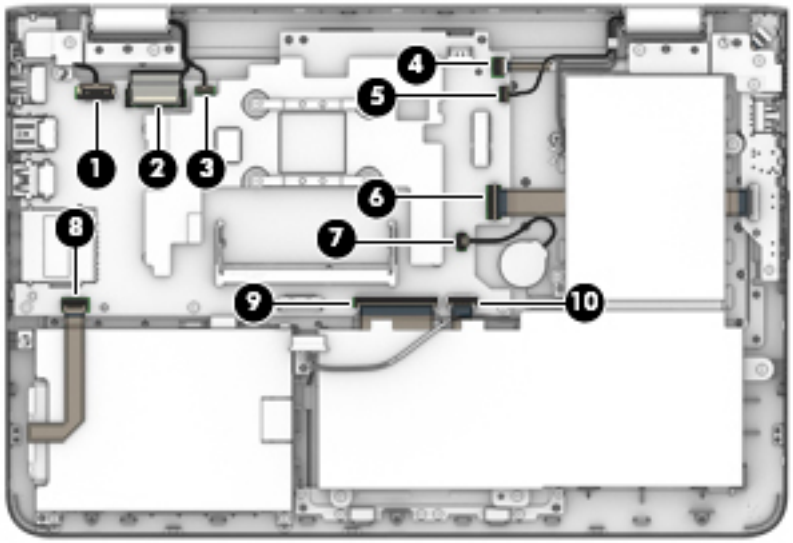
   (6) Connector board ZIF connector cable

   (7) RTC battery cable

   (8) Hard drive ZIF connector cable

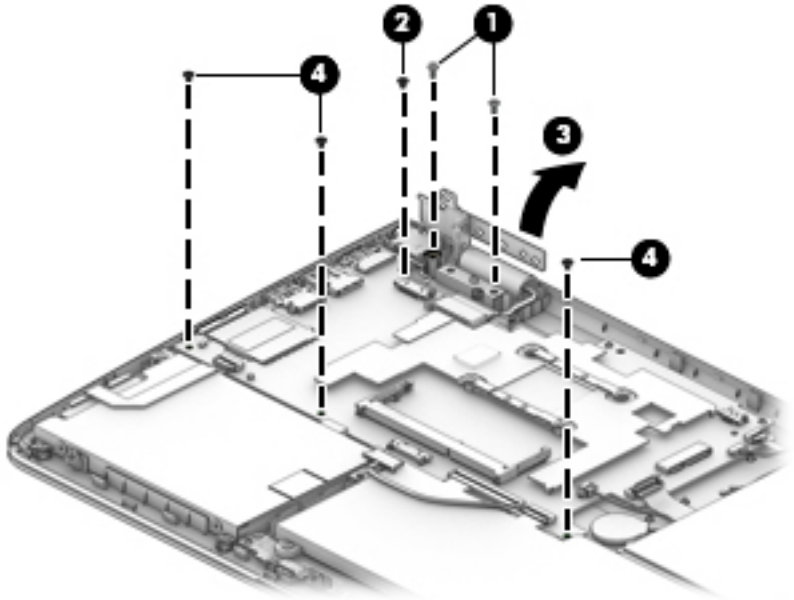
   (9) Keyboard ZIF connector cable

   (10) TouchPad ZIF connector cable

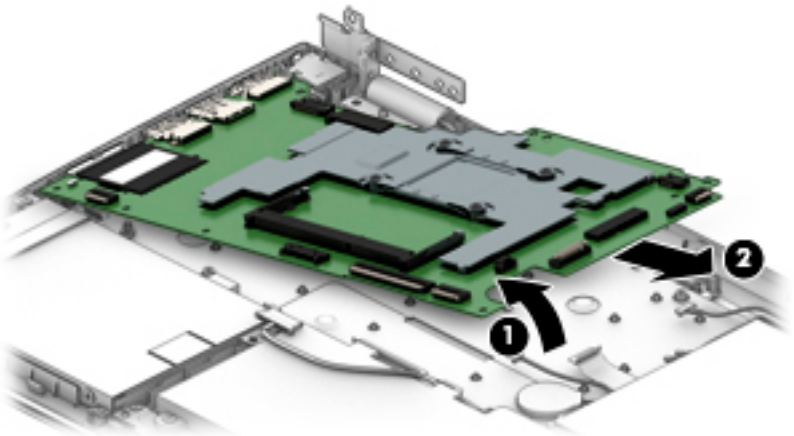


2. Remove the two Phillips PM2.5×6.3 screws **(1)** that secure the display right hinge to the keyboard/top cover.
3. Remove the Phillips PM2.5×4.3 screw **(2)** that secures the display right hinge to the keyboard/top cover.
4. Swing the display right hinge **(3)** up and back until the system board is accessible.

5. Remove the three Phillips PM2.0×3.3 screws **(4)** that secure the system board to the keyboard/top cover.



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



Reverse this procedure to install the system board.

Heat sink

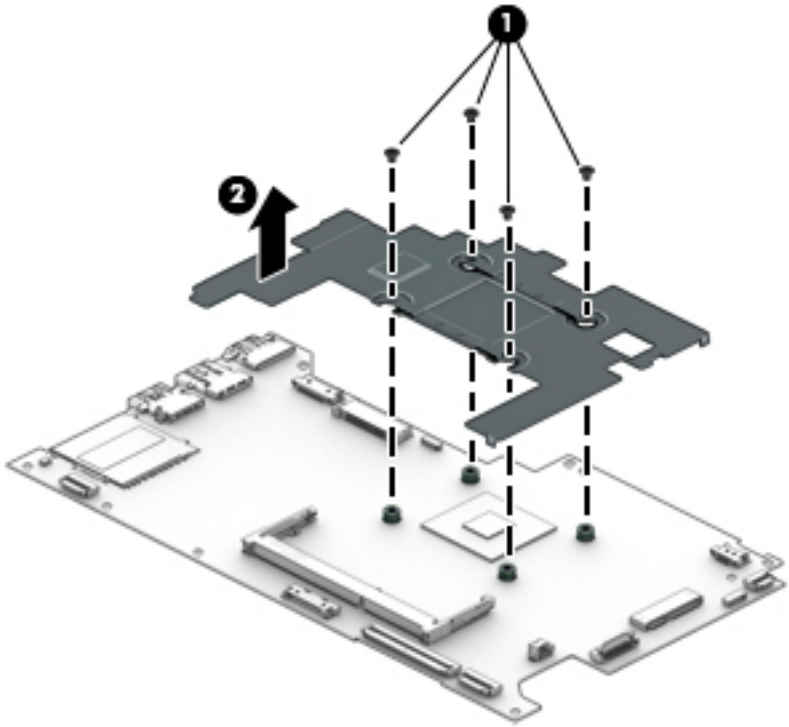
Description	Spare part number
Heat sink (includes replacement thermal material)	910302-001

Before removing the heat sink, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Disconnect the battery cable from the system board (see Battery on page 33).

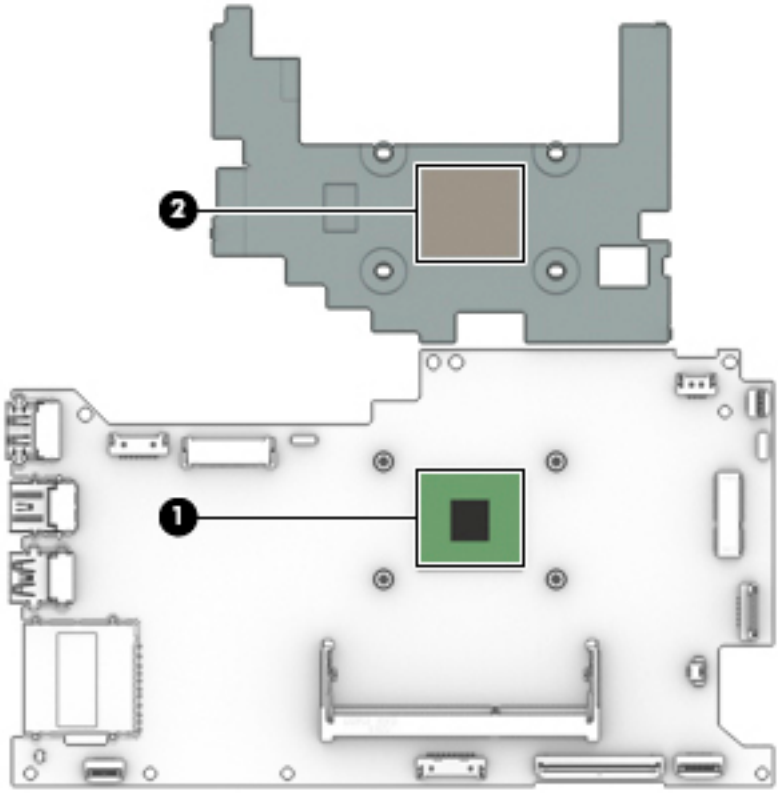
Remove the heat sink:

1. Remove the four Phillips PM2.0×3.3 screws **(1)** that secure the heat sink to the system board.
2. Remove the heat sink **(2)**.



NOTE: The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board each time the heat sink is removed.

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



Reverse this procedure to install the heat sink.

TouchPad cable

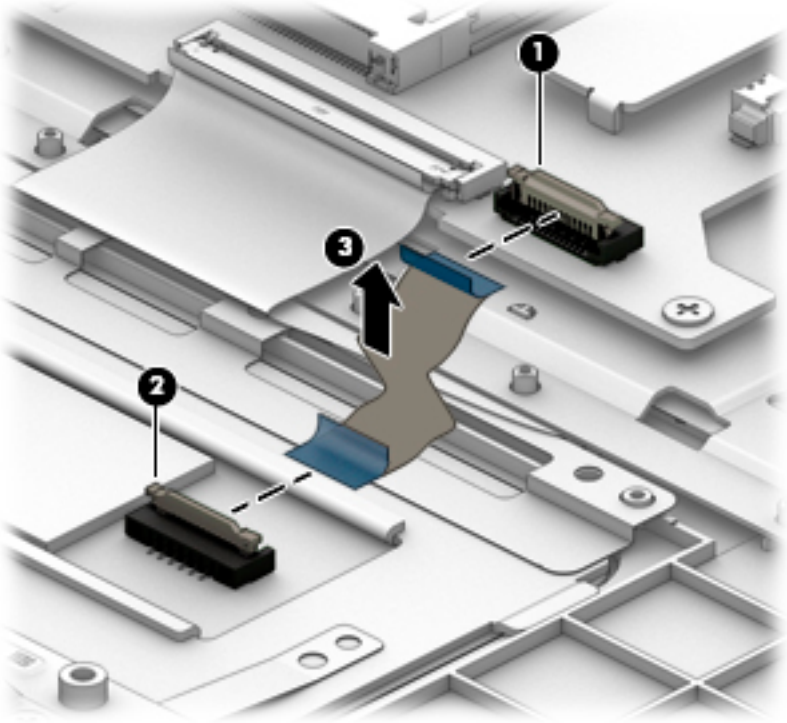
Description	Spare part number
TouchPad cable (includes double-sided adhesive)	906781-001

Before removing the TouchPad cable, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Remove the battery (see Battery on page 33).

Remove the TouchPad cable:

1. Release the ZIF connector **(1)** to which the TouchPad cable is attached, and then disconnect the TouchPad cable from the system board.
2. Release the ZIF connector **(2)** to which the TouchPad cable is attached, and then disconnect the TouchPad cable from the TouchPad.
3. Remove the TouchPad cable **(3)**.



Reverse this procedure to install the TouchPad cable.

TouchPad

NOTE: The TouchPad spare part kit includes the TouchPad bracket.

NOTE: The TouchPad spare part kit does not include the TouchPad cable. Refer to TouchPad cable on page 52 for TouchPad cable removal instructions. The TouchPad cable is available using spare part number 906781-001.

Description	Spare part number
In aqua blue finish	911119-001
In jet black finish	911118-001
In snow white finish	912835-001
In violet purple finish	906786-001

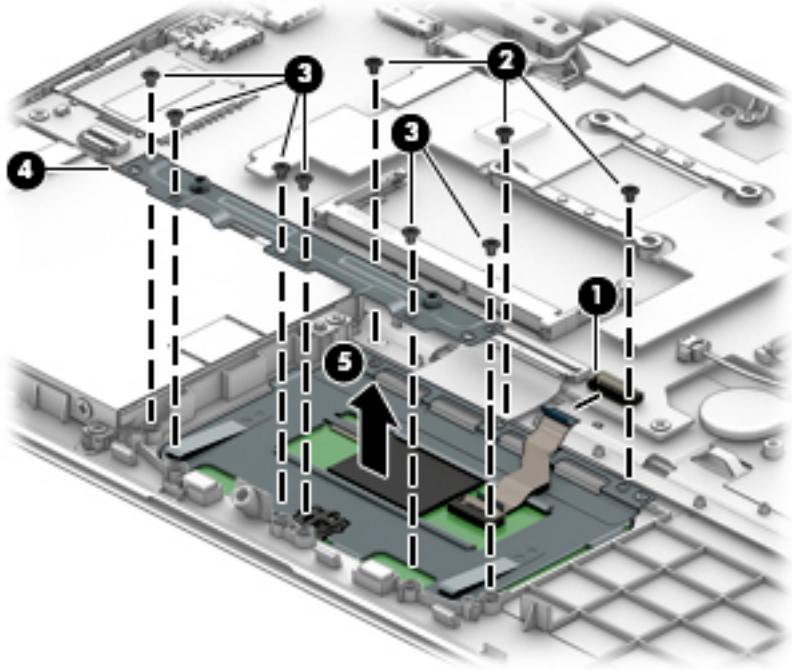
Before removing the TouchPad, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Remove the battery (see Battery on page 33).

Remove the TouchPad:

1. Release the ZIF connector **(1)** to which the TouchPad cable is attached, and then disconnect the TouchPad cable from the system board.
2. Remove the three Phillips PM2.0×2.3 screws **(2)** that secure the TouchPad to the keyboard/top cover.
3. Remove the six Phillips PM2.0×3.3 screws **(3)** that secure the TouchPad and the TouchPad bracket to the keyboard/top cover.
4. Remove the TouchPad bracket **(4)**.

5. Remove the TouchPad **(5)**.



Reverse this procedure to install the TouchPad.

Connector board cable

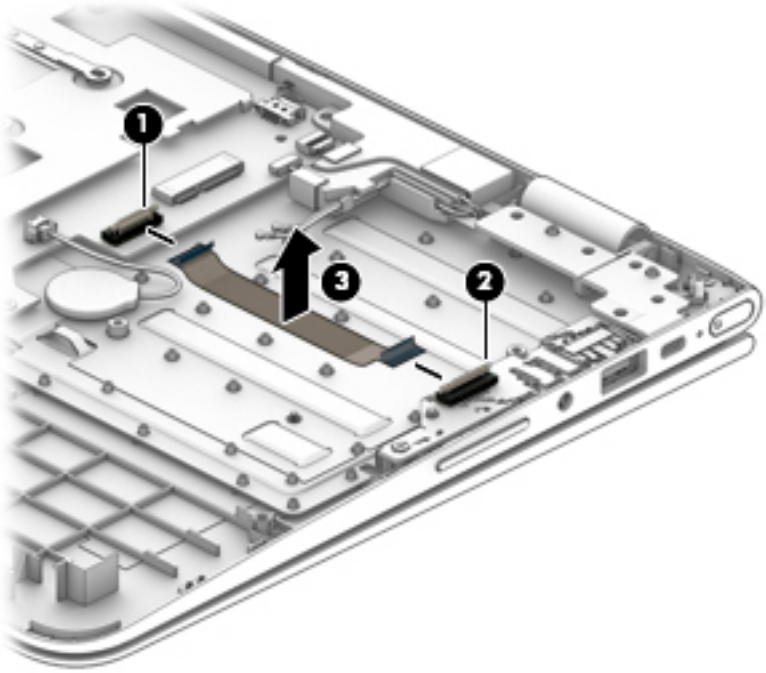
Description	Spare part number
Connector board cable	906784-001

Before removing the connector board cable, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Remove the battery (see Battery on page 33).

Remove the connector board cable:

1. Release the ZIF connector **(1)** to which the connector board cable is attached, and then disconnect the connector board cable from the system board.
2. Release the ZIF connector **(2)** to which the connector board cable is attached, and then disconnect the connector board cable from the connector board.
3. Remove the connector board cable **(3)**.



Reverse this procedure to install the connector board cable.

Connector board

NOTE: The connector board spare part kit does not include the connector board cable. See Connector board cable on page 55 for connector board cable removal instructions. The connector board cable is available using spare part number 906784-001.

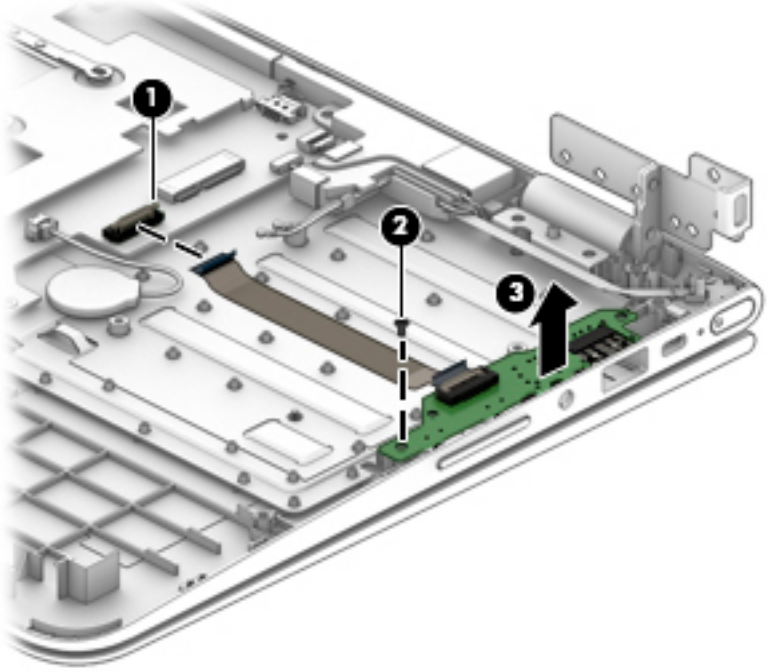
Description	Spare part number
Connector board (includes volume button actuators, audio combo jack, and USB 2.0 port)	906783-001

Before removing the connector board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Remove the battery (see Battery on page 33).

Remove the connector board:

1. Release the ZIF connector **(1)** to which the connector board cable is attached, and then disconnect the connector board cable from the system board.
2. Remove the Phillips PM2.0×3.3 screw **(2)** that secures the connector board to the keyboard/top cover.
3. Remove the connector board **(3)**.



Reverse this procedure to install the connector board.

Display assembly

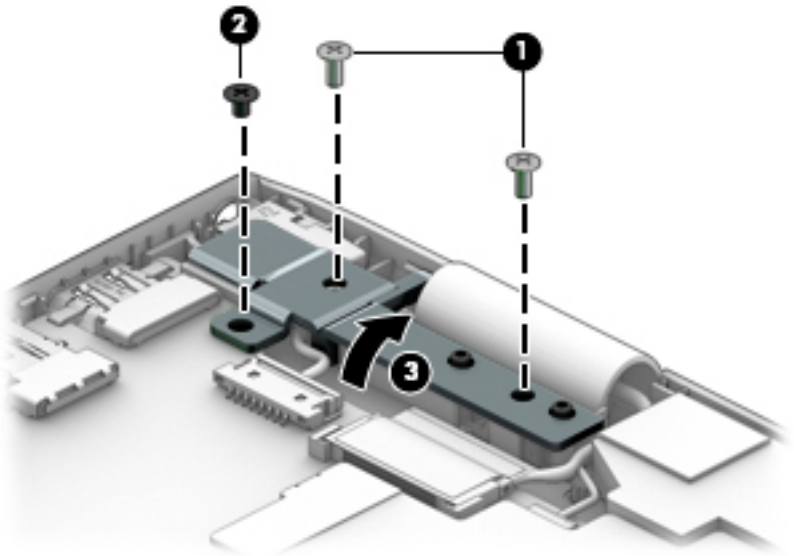
NOTE: The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see the individual removal subsections.

Before removing the display 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 unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 31).
5. Remove the battery (see Battery on page 33).

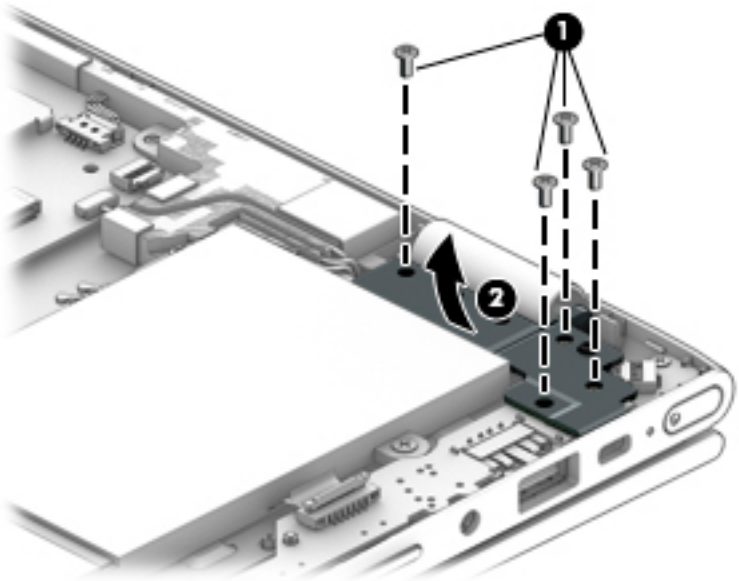
Remove the display assembly:

1. Remove the two Phillips PM2.5×6.3 screws **(1)** that secure the display right hinge to the keyboard/top cover.
2. Remove the Phillips PM2.5×4.3 screw **(2)** that secures the display right hinge to the keyboard/top cover.
3. Swing the display right hinge **(3)** up and back as far as it will go.

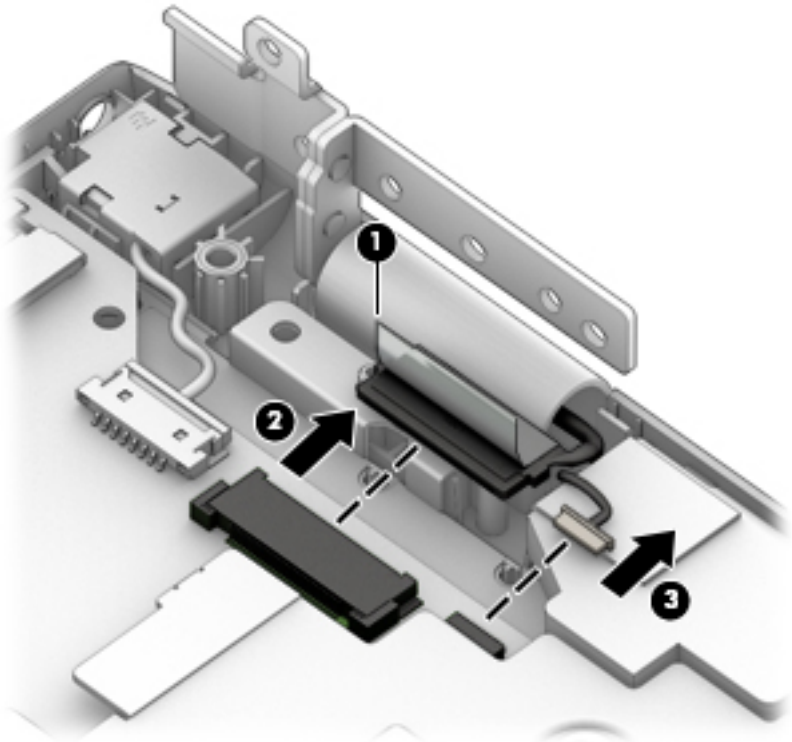


4. Remove the four Phillips PM2.5×6.3 screws **(1)** that secure the display left hinge to the keyboard/top cover.

5. Swing the display left hinge **(2)** up and back as far as it will go.



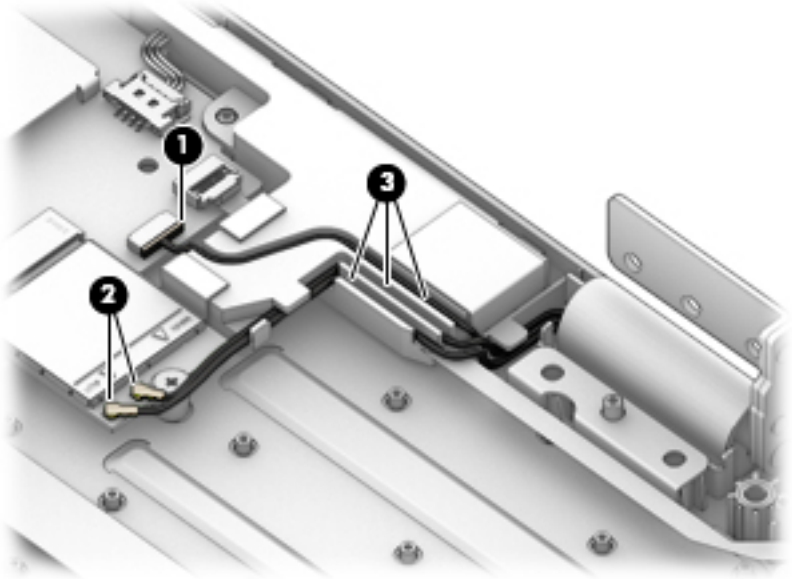
6. Release the adhesive support strip **(1)** that secures the display panel cable to the system board.
7. Disconnect the display panel cable **(2)** from the system board.
8. Disconnect the TouchScreen board cable **(3)** from the system board.



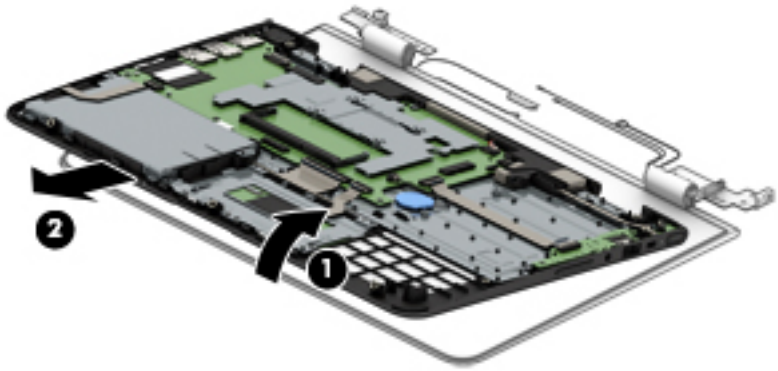
9. Release the ZIF connector **(1)** to which the G-sensor module cable is attached, and then disconnect the G-sensor module cable from the system board.
10. Disconnect the wireless antenna cables **(2)** from the terminals on the WLAN module.

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

11. Release the G-sensor module cable and the wireless antenna cables from the retention clips **(3)** and routing channel built into the speaker.



12. Swing the keyboard/top cover **(1)** up and away from the display assembly.
13. Slide the keyboard/top cover **(2)** up and forward at an angle and separate it from the display assembly.

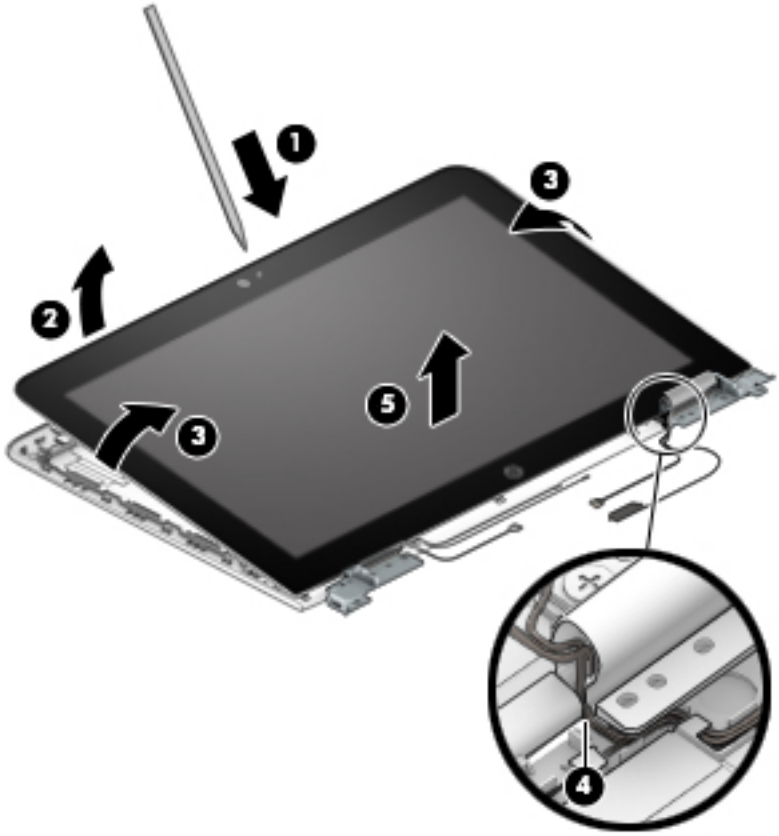


14. If it is necessary to replace the display panel assembly or any of the display assembly subcomponents:
    a. Use a case utility tool **(1)** or similar plastic, flat-edged tool to separate the top edge **(2)** of the display panel assembly from the display back cover.
    b. Separate the left **(3)** and rights sides of the display panel assembly from the display back cover.

CAUTION: As you prepare to remove the display panel assembly, carefully remove the display panel cable and the G-sensor board cable from the opening **(4)** in the display right hinge. Failure to follow this caution can result in damage to the display panel cable and the G-sensor board cable.

c. Remove the display panel assembly **(5)**.

The display panel assembly is available using spare part numbers 906791-001 (11.6-in, HD, WLED, AntiGlare (1366×768), slim (3.0-mm), SVA, eDP) and 906792-001 (11.6-in, HD, WLED, AntiGlare (1366×768), slim (3.0-mm), IPS/UWA, eDP).



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

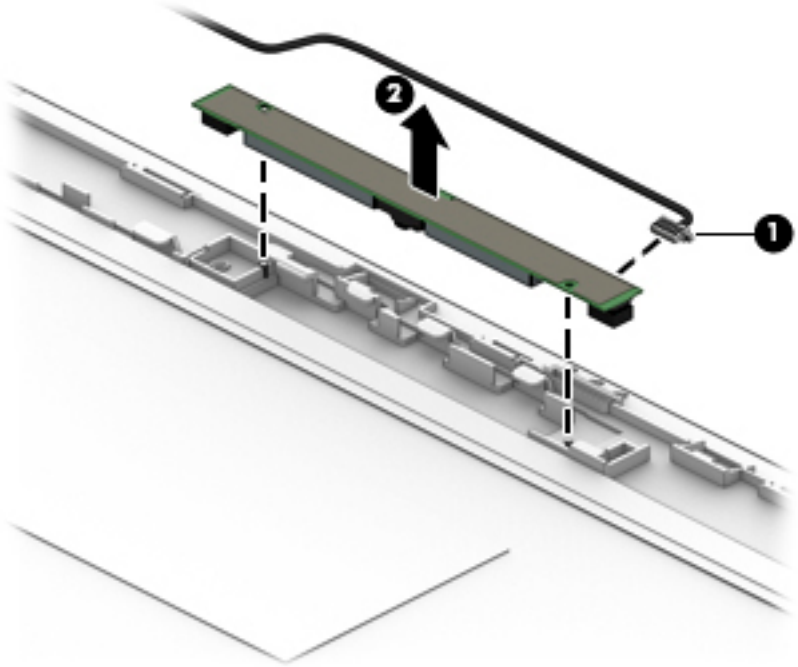
a. Remove the display panel assembly.

⚠ **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 assembly.

b. Turn the display panel assembly upside down.

c. Disconnect the webcam/microphone module cable **(1)** from the webcam/microphone module.

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



e. Remove the webcam/microphone module.

The webcam/microphone module is available using spare part number 907345-001.

16. If it is necessary to replace the display panel cable:

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 assembly.

b. Disconnect the webcam/microphone module cable **(1)** from the webcam/microphone module.

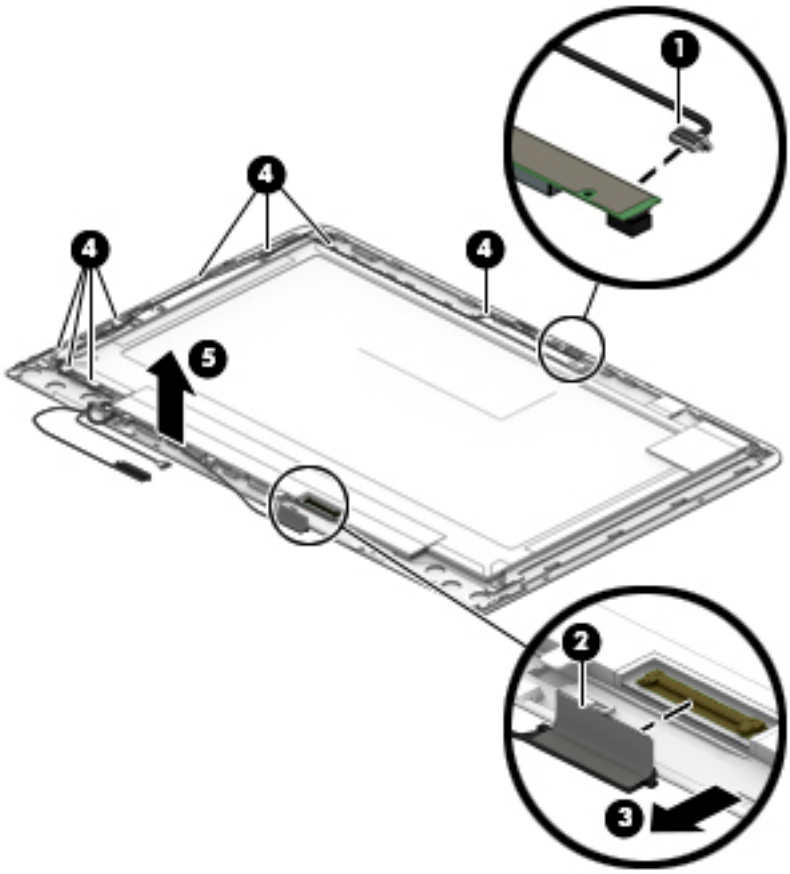
c. Release the adhesive support strip **(2)** that secures the display panel cable to the display panel.

d. Disconnect the display panel cable **(3)** from the display panel.

e. Release the display panel cable from the retention clips **(4)** and routing channel built into the display panel assembly.

f. Remove the display panel cable **(5)**.

The display panel cable includes the webcam/microphone module cable and is available using spare part number 906776-001.



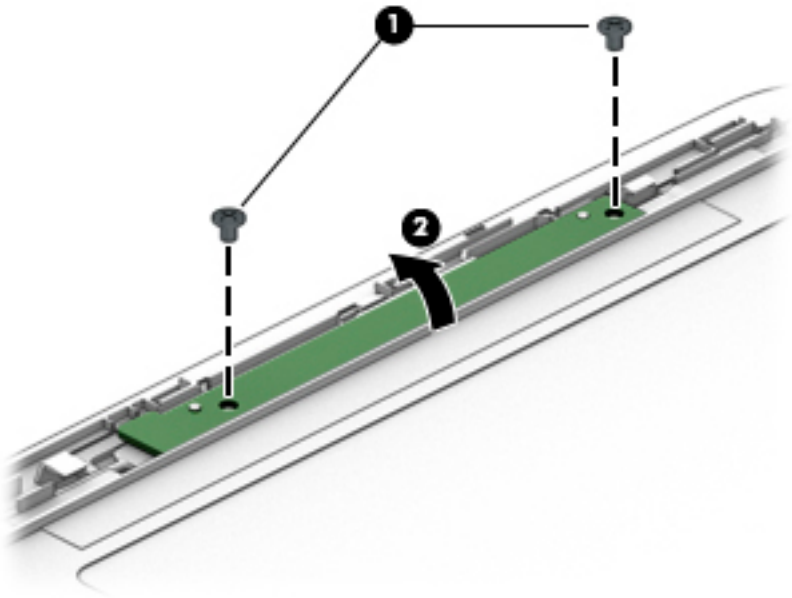
17. If it is necessary to replace the TouchScreen board cable:

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 assembly.

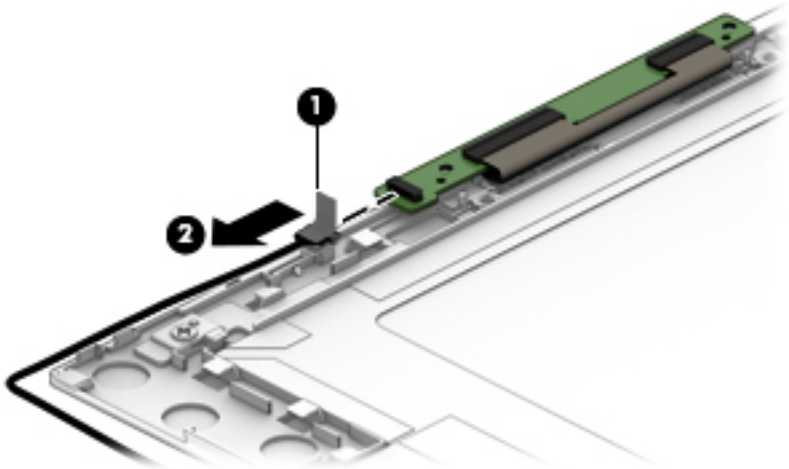
b. Remove the two Phillips PM2.0×2.9 screws **(1)** that secure the TouchScreen board to the display panel assembly.

c. Release the TouchScreen board **(2)** by lifting the right side of the board and swinging it up and to the left.



d. Release the adhesive support strip **(1)** that secures the TouchScreen board cable to the TouchScreen board.

e. Disconnect the TouchScreen board cable **(2)** from the TouchScreen board.



f. Remove the TouchScreen board cable.

The TouchScreen board cable is available using spare part number 910163-001.

18. If it is necessary to replace the G-sensor module and G-sensor module cable:

a. Remove the display panel assembly.

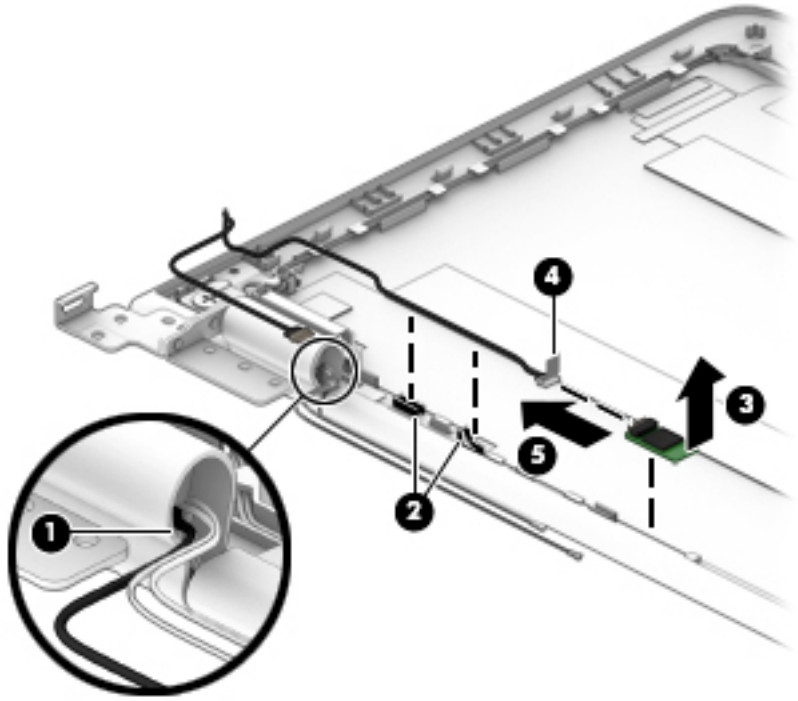
b. Release the G-sensor module cable **(1)** from the gap between the display left hinge and the display back cover.

c. Release the G-sensor module cable from the retention clips **(2)** and routing channel built into the display back cover.

d. Detach the G-sensor module **(3)** from the display back cover. (The G-sensor module is attached to the display back cover with double-sided adhesive.)

e. Release the adhesive support strip **(4)** that secures the G-sensor module cable to the G-sensor module.

f. Disconnect the G-sensor module cable **(5)** from the G-sensor module.



g. Remove the G-sensor module and G-sensor module cable.

The G-sensor module is available using spare part number 906774-001. The G-sensor module is available using spare part number 906778-001.

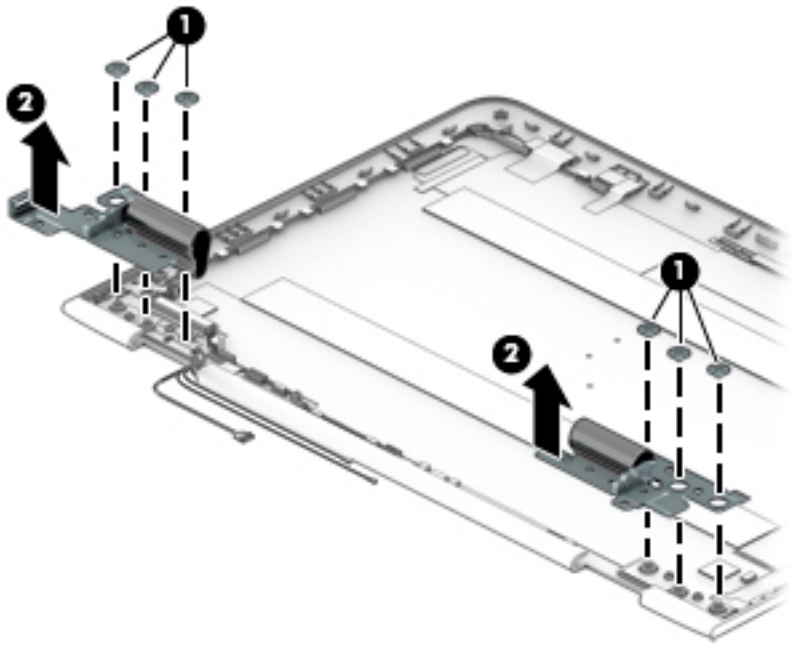
19. If it is necessary to replace the display hinges:

a. Remove the display panel assembly.

b. Remove the six Phillips PM2.5×3.0 broad head screws **(1)** that secure the display hinges to the display back cover.

c. Remove the display hinges **(2)**.

The display hinges are available using spare part number 906771-001.



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

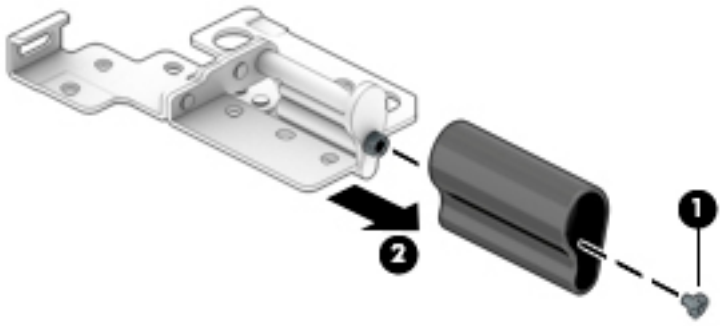
a. Remove the display panel assembly.

b. Remove the display hinges.

c. Remove the Phillips PM2.0×2.9 screw **(1)** that secures the display hinge cover to the display hinge.

d. Remove the display hinge cover **(2)**.

The display hinge covers are available using spare part number 906772-001.



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

a. Remove the display panel assembly.

b. Remove the display left hinge.

c. Release the shielding material **(1)** that secures the wireless antenna cables to the display back cover near the display left hinge area.

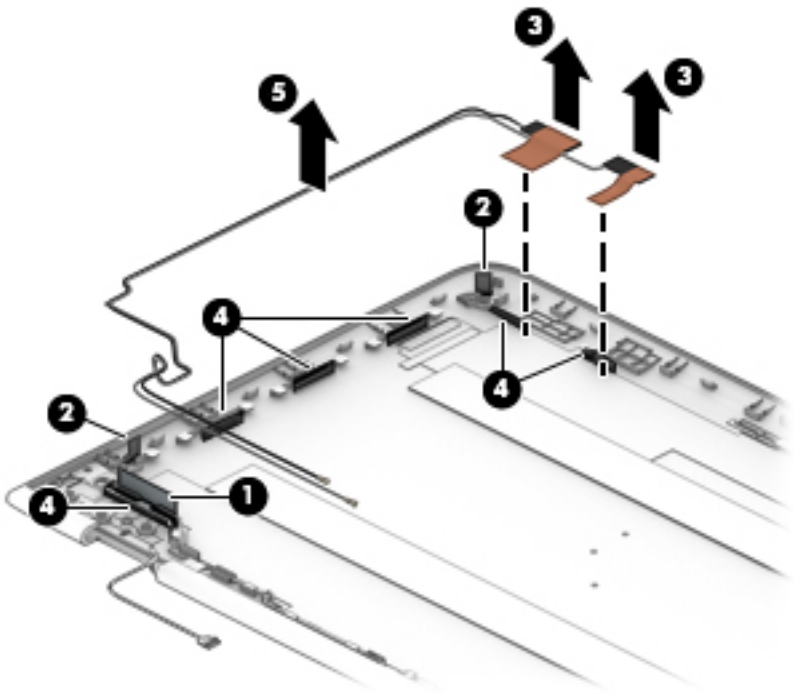
d. Detach the grounding tape **(2)** that secures the wireless antenna cable to the display back cover.

e. Detach the wireless antenna transceivers **(3)** from the display back cover. (The wireless antenna transceivers are attached to the display back cover with double-sided adhesive.)

f. Release the wireless antenna cables from the retention clips **(4)** and routing channel built into the top, left, and bottom edges of the display back cover.

g. Remove the wireless antenna cables and transceivers **(5)**.

The wireless antenna cables and transceivers are available using spare part number 906780-001.



Reverse this procedure to reassemble install the display assembly.

6 Using Setup Utility (BIOS)

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

NOTE: To start Setup Utility on convertible computers, your computer must be in notebook mode and you must use the keyboard attached to your notebook.

Starting Setup Utility (BIOS)

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

▲ Turn on or restart the computer, quickly press esc, and then press f10.

Updating Setup Utility (BIOS)

Updated versions of Setup Utility (BIOS) may be available on the HP website.

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

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

Determining the BIOS version

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

To reveal the BIOS version information (also known as *ROM date* and *System BIOS*), use one of these options.

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

     – or –

     Click the question mark icon in the taskbar.
  2. Select **My PC**, and then select **Specifications**.
- Setup Utility (BIOS)
  1. Start Setup Utility (BIOS) (see Starting Setup Utility (BIOS) on page 67).
  2. Select **Main**, select **System Information**, and then make note of the BIOS version.
  3. Select **Exit**, select **No**, and then follow the on-screen instructions.

To check for later BIOS versions, see Downloading a BIOS update on page 68.

Downloading a BIOS update

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

- Do not disconnect power from the computer by unplugging the power cord from the AC outlet.
- Do not shut down the computer or initiate Sleep.
- Do not insert, remove, connect, or disconnect any device, cable, or cord.

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

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

   – or –

   Click the question mark icon in the taskbar.

2. Click **Updates**, and then click **Check for updates and messages**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:

   a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. If the update is more recent than your BIOS version, make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.

   b. Follow the on-screen instructions to download your selection to the hard drive.

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

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

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

   The BIOS installation begins.

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

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

7 Using HP PC Hardware Diagnostics (UEFI)

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

When HP PC Hardware Diagnostics (UEFI) detects a failure that requires hardware replacement, a 24-digit Failure ID code is generated. This ID code 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, and quickly press esc.
2. Press 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 69.

   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, select the **Download** link, and then select **Run**.

Download any version of UEFI for a specific product

1. Go to http://www.hp.com/support.
2. Select **Get software and drivers**.

3. Enter the product name or number.

   – or –

   Select **Identify 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

Computer specifications

The power information in this section may be helpful if you plan to travel internationally with the computer.

The computer operates on DC power, which can be supplied by an AC or a DC power source. The AC power source must be rated at 100–240 V, 50–60 Hz. Although the computer can be powered from a standalone DC power source, it should be powered only with an AC adapter or a DC power source that is supplied and approved by HP for use with this computer.

The computer can operate on DC power within the following specifications. Operating voltage and current varies by platform. The voltage and current for your computer is located on the regulatory label.

	Metric	U.S.
Dimensions		
Width	**30.6 cm**	12.05 in
Depth	**20.8 cm**	8.19 in
Height	**1.98 cm**	0.78 in
Weight	**1.35 kg**	2.98 lbs
Input power		
Operating voltage and current	5 V dc @ 2 A / 12 V dc @ 3 A / 15 V dc @ 3 A – 45 W USB-C 5 V dc @ 3 A / 9 V dc @ 3 A / 10 V dc @ 3.75 A / 12 V dc @ 3.75 A / 15 V dc @ 3 A / 20 V dc @ 2.25 A - 45 W USB-C 5 V dc @ 3 A / 9 V dc @ 3 A / 10 V dc @ 5.0 A / 12 V dc @ 5.0 A / 15 V dc @ 4.33 A / 20 V dc @ 3.25 A - 65 W USB-C 5 V dc @ 3 A / 9 V dc @ 3 A / 10 V dc @ 5.0 A / 12 V dc @ 5.0 A / 15 V dc @ 5.0 A / 20 V dc @ 4.5 A - 90 W USB-C 19.5 V dc @ 2.31 A – 45 W 19.5 V dc @ 3.33 A – 65 W 19.5 V dc @ 4.62 A – 90 W 19.5 V dc @ 6.15 A – 120 W 19.5 V dc @ 7.70 A – 150 W 19.5 V dc @ 10.3 A – 200 W	
NOTE: This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 V rms.		
Temperature		
Operating	**5°C to 35°C**	41°F to 95°F
Non-operating	**-20°C to 60°C**	-4°F to 140°F
Relative humidity (non-condensing)		
Operating	10% to 90%	

	Metric	U.S.
Non-operating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	**-15 m to 3,048 m**	-50 ft to 10,000 ft
Non-operating	**-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, restoring, 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 73. For information on the recovery options that are available using the recovery media, see Using Windows tools on page 74.
- 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 75.

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 74.

- 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 75.

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 75. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 73.

- 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 75.

- 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 78.

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 73.

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 73.

- 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 73.

- 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 up button; then select **f11**.

   - or -

   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 77.

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 the system **Startup** menu.

   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 up button; then select **f9**.

   - or -

   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 73.

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 HO5VV-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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