HP x360 330 G1 PC

Maintenance and Service Guide
IMPORTANT! This document is intended for
HP authorized service providers only.

Product notice

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

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

Safety warning notice

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

Table of contents

1 Product description

Category	Description
Product Name	HP x360 330 G1 PC
Processor	Intel™ Celeron® 3955U 2.00-GHz processor (1866-MHz FSB, 2.00-MB L3 cache, dual core, 15 W)
Chipset	Intel soldered on-circuit (SoC) processor controller hub (PCH)
Graphics	**Internal Graphics:** Intel HD Graphics 510 Support for DX11, HD decode, and HDMI
Panel	13.3-in (1920×1080), full high-definition (FHD), light-emitting diode (LED), AntiGlare, TouchScreen with flush glass and MultiTouch enabled; 16:9 ultra-wide aspect ratio; typical brightness: 220 nits; slim (3.0-mm), In-plane switching (IPS), eDP; 13.3-in (1366×768), high-definition (HD), LED, AntiGlare, TouchScreen with flush glass and MultiTouch enabled; 16:9 ultra-wide aspect ratio; typical brightness: 220 nits; slim (3.0-mm), UWVA, eDP
Memory	Two SODIMM slots DDR3L-1600 Support for DDR3L-1600 Support for dual channel Supports up to 16384-MB maximum on-board system memory
Hard drive	Support for **6.35-cm** (2.5-in) hard drives in **7.2-mm** (.28-in) and **7.0-mm** (.28-in) thicknesses Support for Accelerometer hard drive protection Support for the following single hard drive configurations: ● 1-TB, 5400-rpm, 7.2-mm ● 750-GB, 5400-rpm, 7.2-mm ● 500-GB, 5400-rpm, 7.0-mm Support for 500-GB, 5400-rpm, 7.0-mm + 8-GB NAND Hybrid hard drive Support for M2 SATA-3 next generation form factor (NGFF) 128-MB triple-level cell (TLC) solid-state drive
Optical drive	9.5-mm tray load, SATA, external, USB, DVD±RW DL SuperMulti Drive
Audio and video	Webcam: HP TrueVision HD, fixed (no tilt), with activity light, 1280×720 by 30 frames per second Dual digital microphones with appropriate echo-cancellation and noise-suppression software Two Bang and Olufsen speakers
Ethernet	Integrated 10/100 network interface card (NIC)
Wireless	**Integrated wireless local area network (WLAN) option by way of wireless module with single antenna (M.2/PCIe)** **Support for the following WLAN devices:**

Category	Description
Wireless *(continued)*	• Intel 3165NGWG ac 1×1 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 Combo Adapter
	• Intel Dual Band Wireless-AC 3160 802.11 ac 1×1 WiFi + Bluetooth 4.0 Combo Adapter
	• Realtek RTL8723BE 802.11b/g/n 1×1 Wi-Fi + Bluetooth 4.0 Combo Adapter
External media cards	HP multiformat Micro Digital Media Reader Slot with push-push technology. Reads data from and writes data to digital memory cards such as Secure Digital (SD).
Ports	• AC adapter HP Smart plug (4.5mm barrel)
	• Audio: one combo audio-out (headphone)/audio-in (microphone) jack, supports jack auto-detection
	• High-definition multimedia interface (HDMI) v.1.4, supporting up to 1080p, 1920×1080 at 60 Hz
	• RJ45/Ethernet
	• USB 3.0 (2)
	• USB 2.0
Keyboard/pointing devices	Full-size, textured, island-style keyboard, **Touchpad requirements:** • Clickpad with image sensor • Taps enabled as default • Multi-touch gestures enabled • Support for Microsoft® Windows® 8.1 modern TouchPad gestures
Power requirements	Support for 45-W HP Smart adapter (non-PFC, RC, 3-wire, 4.5-mm) AC adapter Support for a 3-cell, 48-WHr, 4.2-AHr, Li-ion battery (includes cable)
Security	Support for security cable lock Support for Trust Platform Module (TPM) 2.0
Operating system	Windows Professional 64-bit Suite MSNA Emerging Markets
Serviceability	**End user replaceable parts:** AC adapter

2 External component identification

Locating hardware

To find out what hardware is installed on the computer:

1. From the Start screen, type `control panel`, and then select **Control Panel**.

    – or –

    From the Windows desktop, right-click the **Start** button, and then select **Control Panel**.

2. Select **System and Security**, select **System**, and then click **Device Manager** in the left column.

    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 models only).

Locating software

To find out what software is installed on your computer:

▲ From the Start screen, click the down arrow in the lower-left corner of the screen.

    – or –

    From the Windows desktop, right-click the **Start** button, and then select **Programs and Features**.

Display
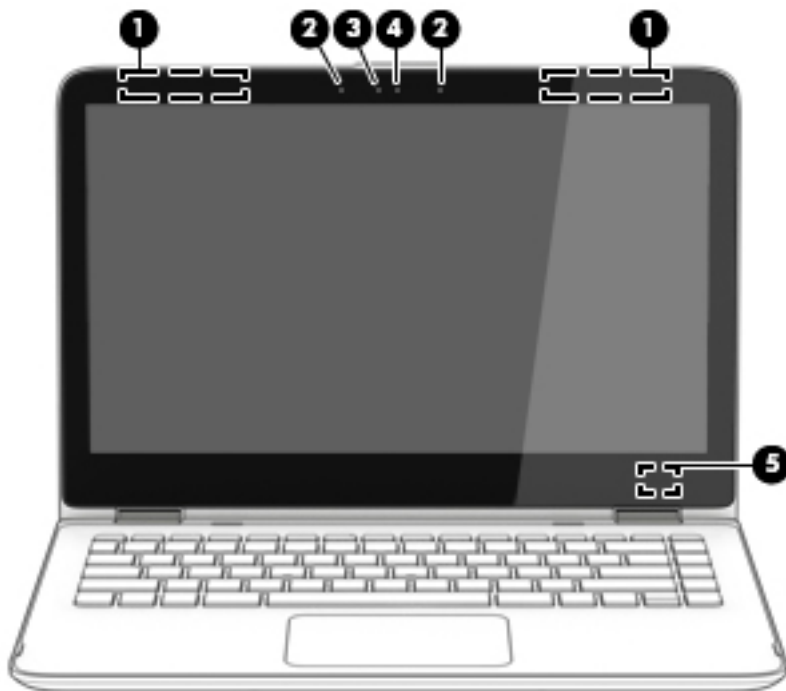
Item	Component	Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with WLANs.
(2)	Internal microphones (2)	Record sound.
(3)	Webcam light	On: The webcam is in use.
(4)	Webcam	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video.
(5)	Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on. **NOTE:** The internal display switch is not visible from the outside of the computer.

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

To access this document:

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

– or –

From the Windows desktop, click the question mark icon in the taskbar area of the Windows desktop.

Keys
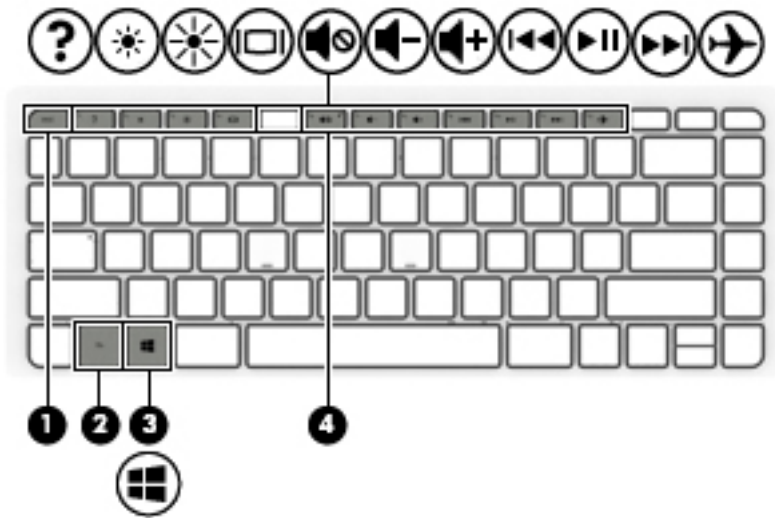
Item	Component	Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with the esc key.
(3)	Windows key	Returns you to the Start screen from an open app or the Windows desktop. **NOTE:** Pressing the Windows key again will return you to the previous screen.
(4)	Action keys	Execute frequently used system functions.

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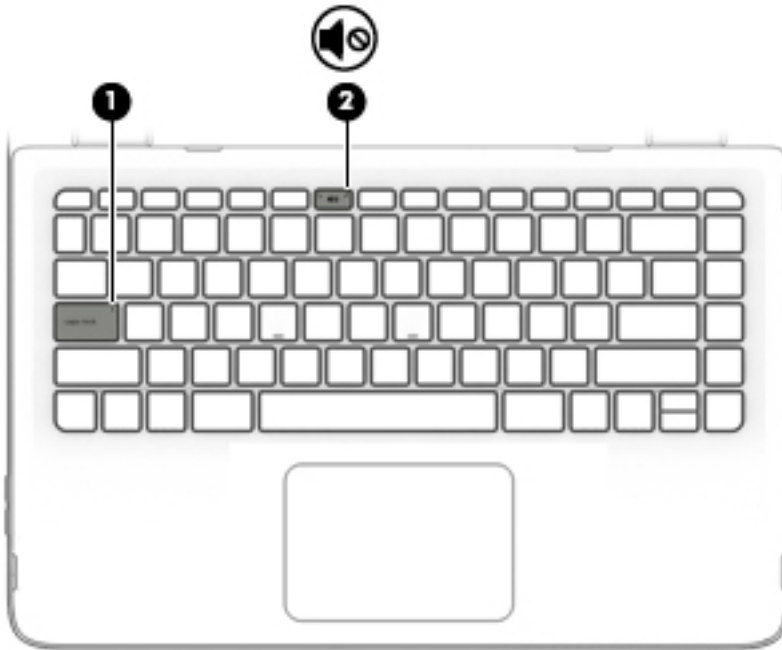
Item	Component	Description
(1)	Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.
(2)	Mute light	- Amber: Computer sound is off. - Off: Computer sound is on.

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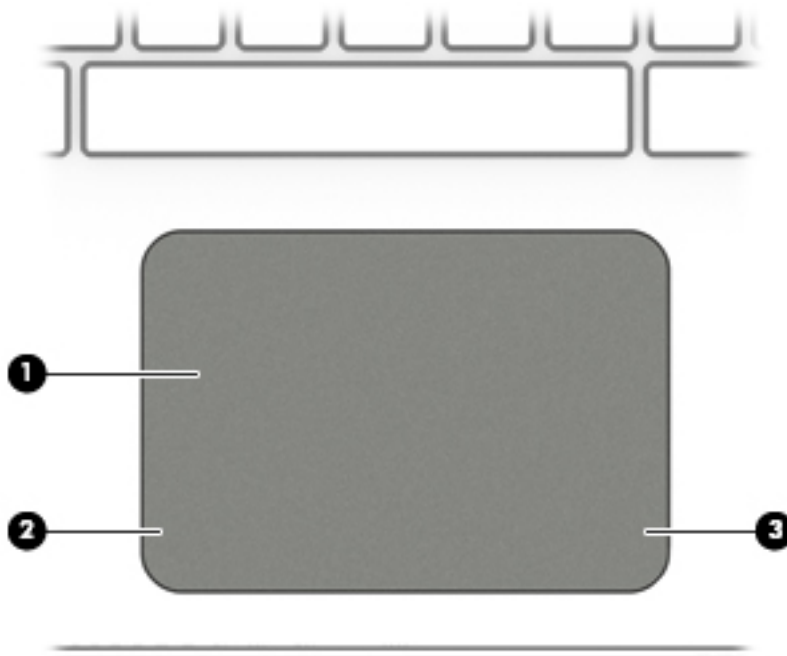
Item	Component	Description
(1)	TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left TouchPad button	Functions like the left button on an external mouse.
(3)	Right TouchPad button	Functions like the right button on an external mouse.

Left side

Item	Component	Description
(1)	Power button	- When the tablet is off, press the button to turn on the tablet. - When the tablet is on, press the button briefly to initiate Sleep. - When the tablet is in the Sleep state, press the button briefly to exit Sleep. - When the tablet is in Hibernation, press the button briefly to exit Hibernation. **CAUTION:** Pressing and holding down the power button will result in the loss of unsaved information. If the tablet has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the tablet. To learn more about your power settings, see your power options. From the Start screen, type `power`, select **Power and sleep settings**, and then select **Power and sleep** from the list of applications.
(2)	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.
(3)	Vent	Enable airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(4)	USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)	Memory card reader	Reads optional memory cards that enable you to store, manage, share or access information. To insert a card: ▲ Hold the card label-side up, with connectors facing the slot, insert the card into the slot, and then push in on the card until it is firmly seated. To remove a card: ▲ Press in on the card it until it pops out.
(6)	Volume button	Controls speaker volume on the tablet.

Item	Component	Description
(6)	Volume button *(continued)*	• To increase speaker volume, press the **+** edge of the button.
		• To decrease speaker volume, press the **–** edge of the button.
(7)	Hard drive light	• Blinking white: The hard drive is being accessed.
		• Amber: HP 3D DriveGuard has temporarily parked the hard drive.

Right side

Item	Component	Description
(1)	Audio-out (headphone)/Audio-in (microphone) 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 microphone-only devices.
		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 document:
		▲ From the Start screen, type `support`, and then select the **HP Support Assistant** app.
		– or –
		From the Windows desktop, click the question mark icon in the taskbar area of the Windows desktop.
		NOTE: When a device is connected to the jack, the computer speakers are disabled.
		NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).
(2)	Windows button	Returns you to the Start screen from an open app or the Windows desktop.
		NOTE: Pressing the Windows key again will return you to the previous screen.
(3)	USB 3.0 ports	Connect an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(4)	HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component,

Item	Component	Description
		or a high-speed High-Definition Multimedia Interface (HDMI) device.
(5)	RJ-45 (network) jack/status lights	Connects a network cable.
		● White: The network is connected.
		● Amber: Activity is occurring on the network.
(6)	AC adapter light	● White: The computer is connected to external power and the battery is fully charged.
		● Blinking white: The AC adapter is disconnected and the battery has reached a low battery level.
		● Amber: The computer is connected to external power and the battery is charging.
		● Off: The battery is not charging.
(7)	Power connector	Connects an AC adapter.

Bottom
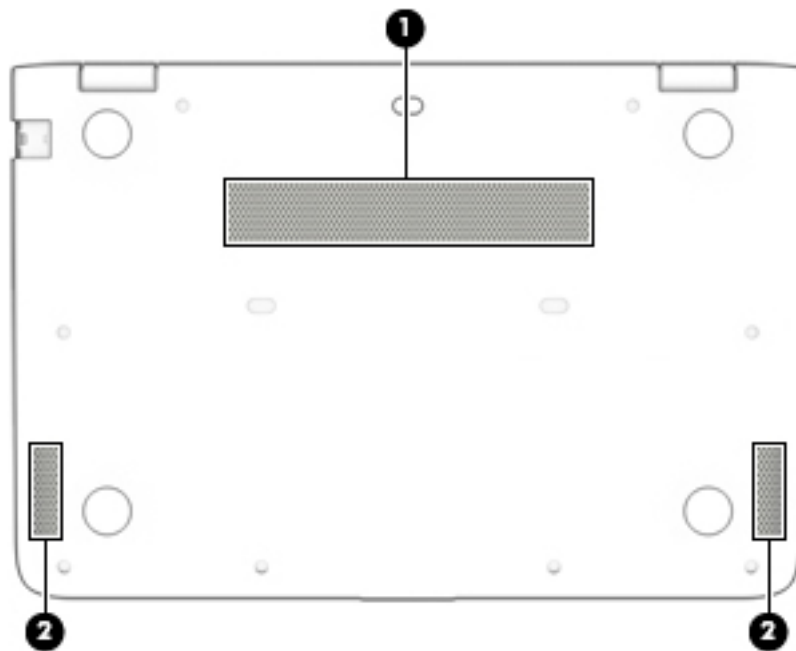
Item	Component	Description
(1)	Vents (2)	Enable airflow to cool internal components.
		NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(2)	Speakers (2)	Produce sound.

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.

Locating the warranty information, model number, serial number, and product number

The warranty information **(1)**, model number **(2)**, serial number **(3)**, and product number **(4)** are located on the bottom of the computer. You may need this information when you travel internationally or when you contact support.
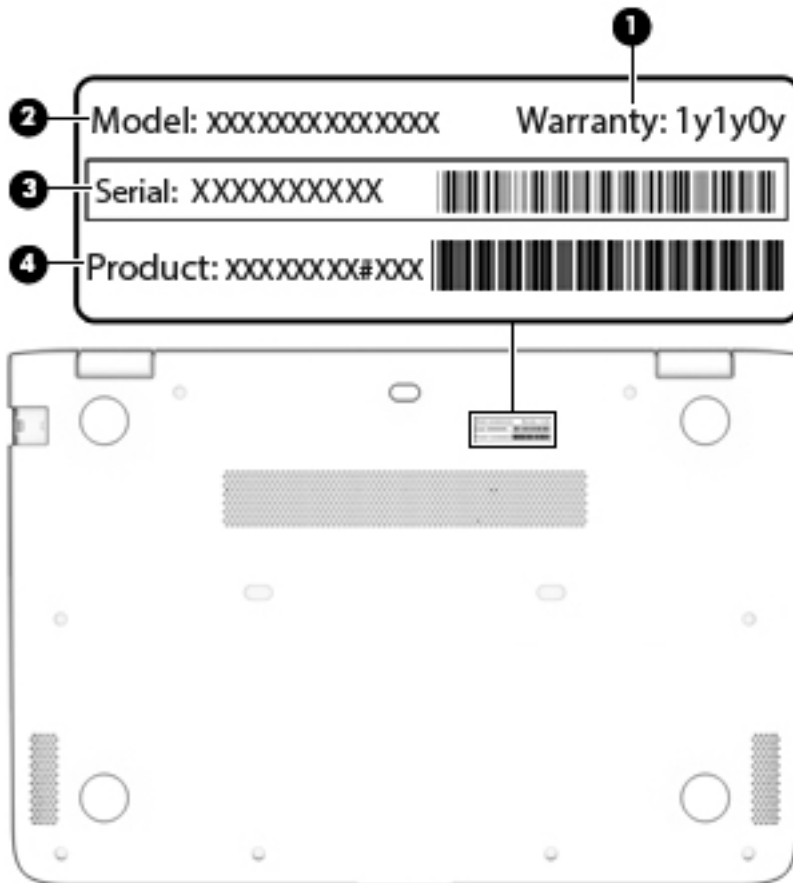
Computer major components
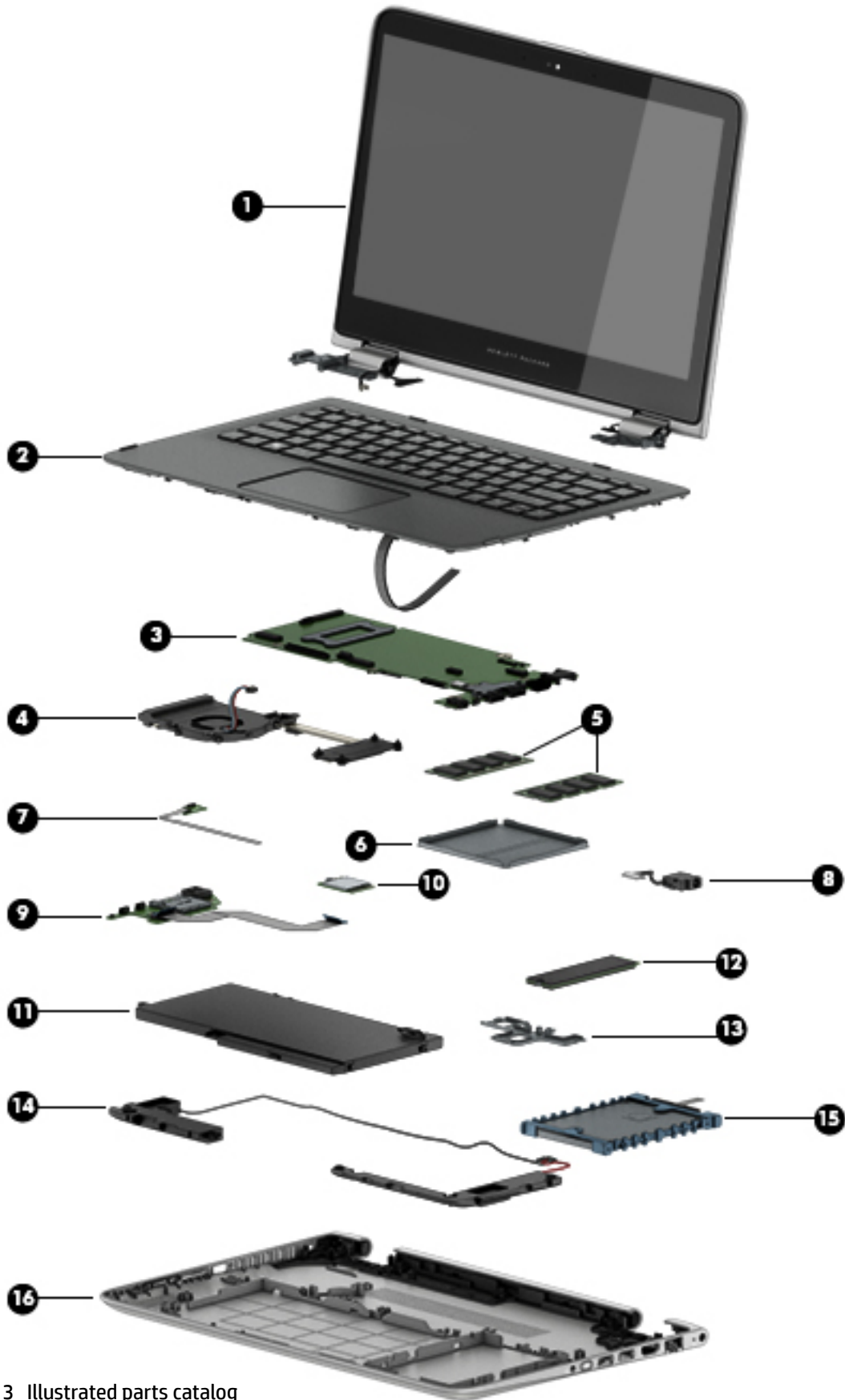
| Item	Component	Spare part number
(1)	**Display assembly**: The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see Display assembly components on page 15.	
(2)	**Keyboard/top cover** for use only in Latin America (includes keyboard cable and TouchPad and TouchPad cable):	855343-161
(3)	**System board** (includes a graphics subsystem with UMA memory, the memory shield, and replacement thermal material):	
	Equipped with an Intel Celeron 3955U 2.00-GHz processor (1866-MHz FSB, 2.00-MB L3 cache, dual core, 15 W), a solid-state drive slot, and the Windows 10 Professional operating system	858109-601
	Equipped with an Intel Celeron 3955U 2.00-GHz processor (1866-MHz FSB, 2.00-MB L3 cache, dual core, 15 W), a solid-state drive slot, and a non-Windows 10 operating system	858109-001
(4)	**Memory module** (PC3L, 12800, 1600):	
	8 MB	693374-005
	4 MB	691740-005
	2 MB	691739-005
(5)	**Fan/heat sink assembly** (includes fan cable, 4 captive screws [secured by C-clips] and replacement thermal material)	809825-001
(6)	**Memory shield** (included with the system board spare part kits)	
(7)	**Power button board** (includes cable)	809830-001
(8)	**Power connector cable**	809824-001
(9)	**Connector board** (includes cable, SD card slot, USB port, and double-sided adhesive)	809831-001
(10)	**WLAN module:**	
	Intel 3165NGWG ac 1×1 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 Combo Adapter	806723-005
	Intel Dual Band Wireless-AC 3160 802.11 ac 1×1 WiFi + Bluetooth 4.0 Combo Adapter	784644-005
	Realtek RTL8723BE 802.11b/g/n 1×1 Wi-Fi + Bluetooth 4.0 Combo Adapter	792610-005
(11)	**Battery**, 3-cell, 48-WHr, 4.2-AHr, Li-ion (includes cable)	796356-005
(12)	**Solid-state drive:**	
	NOTE: The solid-state drive bracket and solid-state drive connector adapter are included in the solid-state drive Hardware Kit, spare part number 809826-001.	
	128-GB, M2, SATA-3, supporting TLC	809839-001
	128-GB, M2, SATA-3, Value	834166-001
(13)	**Solid-state drive bracket**: The solid-state drive bracket and solid-state drive connector adapter are included in the solid-state drive Hardware Kit, spare part number 809826-001.	
(14)	**Speaker Kit** (includes left and right speakers and cables)	809838-001
(15)	**Hard drive** (5400-rpm, SATA, 7.0-mm, does not include hard drive bracket or hard drive connector adapter):	
	NOTE: The hard drive bracket and hard drive connector adapter are included in the Hard Drive Hardware Kit, spare part number 808238-001.	
	1-TB	762990-005
	750-GB	752099-005

Item	Component	Spare part number
	500-GB	778186-005
	500-GB, Hybrid 8-GB	732000-005
(16)	**Base enclosure**	855340-001
	Rubber Kit (not illustrated, includes base enclosure rear feet, screw plugs, screws covers, and display bezel screw covers):	855342-001

Display assembly components
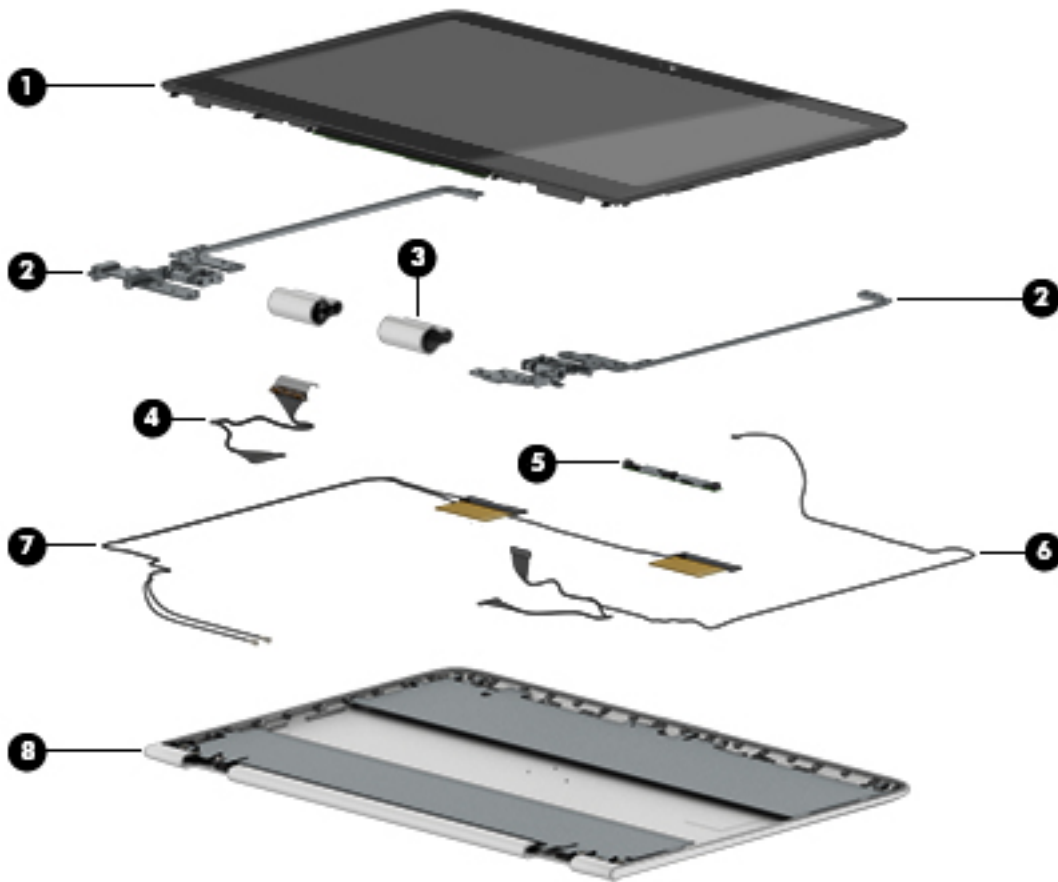
Item	Description	Spare part number
(1)	**Display panel assembly** (13.3-in, LED, AG, LVDS, eDP, TouchScreen; includes display bezel):	
	FHD, (1920×1080), UWVA, IPS, display panel assembly	809833-001
	HD, (1366×768), UWVA display panel assembly	809832-001
(2)	**Display Hinge Kit** (includes left and right display hinges)	809827-001
(3)	**Display hinge covers** (includes left and right display hinge covers and cable retainers):	855341-001
(4)	**Display panel cable:**	
	For use only on computer models equipped with the FHD, (1920×1080), UWVA, IPS, display panel assembly, spare part number 809833-001	810712-001
	For use only on computer models equipped with the HD, (1366×768), UWVA display panel assembly, spare part number 809832-001	809822-001
(5)	**Webcam/microphone module** (includes double-sided adhesive)	809843-001
(6)	**Webcam/microphone module cable**	809823-001
(7)	**Antenna Kit** (includes wireless antenna cables and transceivers)	809815-001
(8)	**Display back cover**	855339-001

Miscellaneous parts

Component	Spare part number
45-W HP Smart adapter (non-PFC, RC, 3-wire, 4.5-mm)	741727-001
HP HDMI-to-VGA adapter	701943-001
HP USB external DVD-RW Drive	747080-001
Power cord (3-pin, black, 1.00-m):	
For use on all computer models:	
For use in Argentina	755530-D01
For use in Denmark	755530-081
For use in Europe	755530-021
For use in Israel	755530-BB1
For use in Italy	755530-061
For use in North America	755530-001
For use in South Africa	755530-AR1
For use in Switzerland	755530-111
For use in the United Kingdom and Singapore	755530-031
RTC battery	683502-001
Rubber Kit (includes base enclosure rear feet, screw plugs, screws covers, and display bezel screw covers)	855342-001
Screw Kit	809837-001

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 tablet, 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 tablet, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the tablet.

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.

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 tablet 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 tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.

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

5 Removal and replacement procedures

NOTE: This chapter provides removal and replacement procedures for Authorized Service Provider only components. Components described in this chapter should only be accessed by an authorized service provider. Accessing these components can damage the computer or void the warranty.

There are as many as 51 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.

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.

Keyboard/top cover

Description	Spare part number
Keyboard/top cover for use only in Latin America (includes the keyboard cable, TouchPad, and TouchPad cable)	855343-161

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 keyboard/top cover:

1. Close the computer.

2. Turn the computer upside down with the front toward you.

3. Remove the following components:

    (1) Two bottom cover rear feet

    (2) Two rubber screw plugs

    (3) One rubber screw cover

    (4) Two plastic screw covers

    The bottom cover rear feet, screw plugs, and screws covers are included in the Rubber Kit, spare part number 855342-001.

4. Remove the 13 Phillips PM2.5×6.6 screws that secure the keyboard/top cover to the bottom cover.
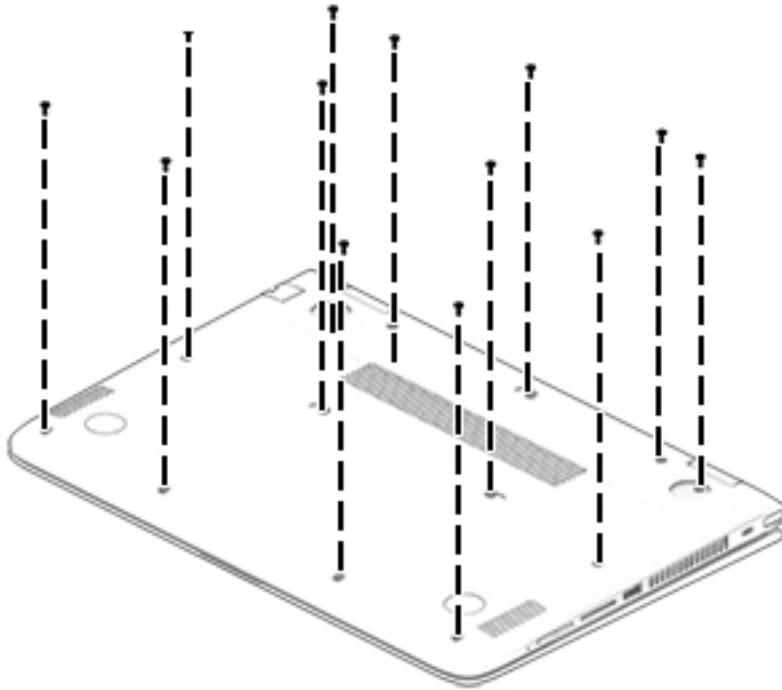
**5.** Turn the computer right side up with the front toward you.

6. Open the computer.

⚠️ **CAUTION:** Do not completely separate the keyboard/top cover from the bottom cover in the next step. There are 2 ribbon cables connecting the keyboard/top cover to the system board that can be damaged if too much separation is achieved.

7. Lift the front edge **(1)** of the keyboard/top cover until it separates from the bottom cover.

8. Release the zero insertion force (ZIF) connector **(2)** to which the keyboard cable is attached, and then disconnect the keyboard cable from the system board.

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

10. Remove the keyboard/top cover **(4)**.
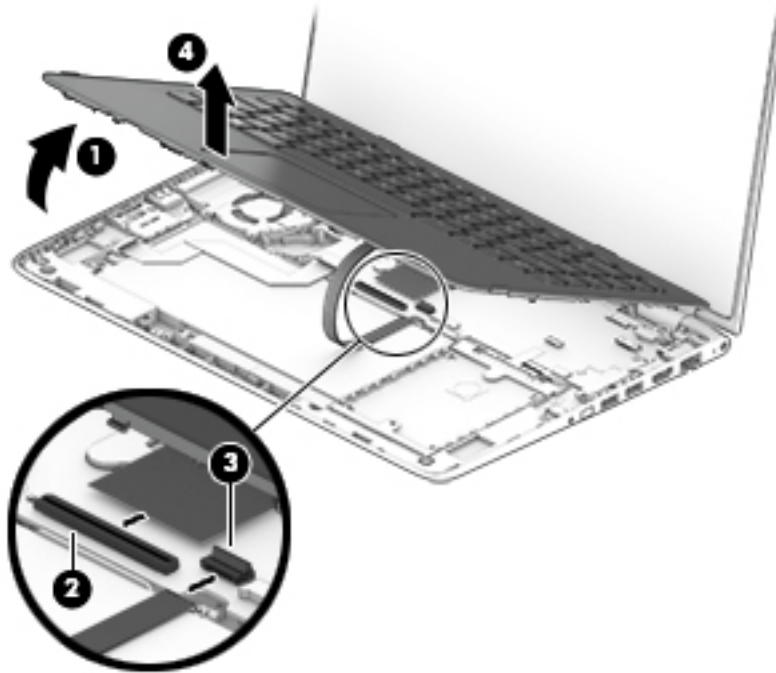
Reverse this procedure to install the keyboard/top cover.

Battery

Description	Spare part number
Battery, 3-cell, 48-WHr, 4.2-AHr, Li-ion (includes cable)	796356-005

Before removing the battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the keyboard/top cover (see Keyboard/top cover on page 21).

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

⚠ **CAUTION:** Removing a battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work or shut down the computer through Windows before removing the battery.
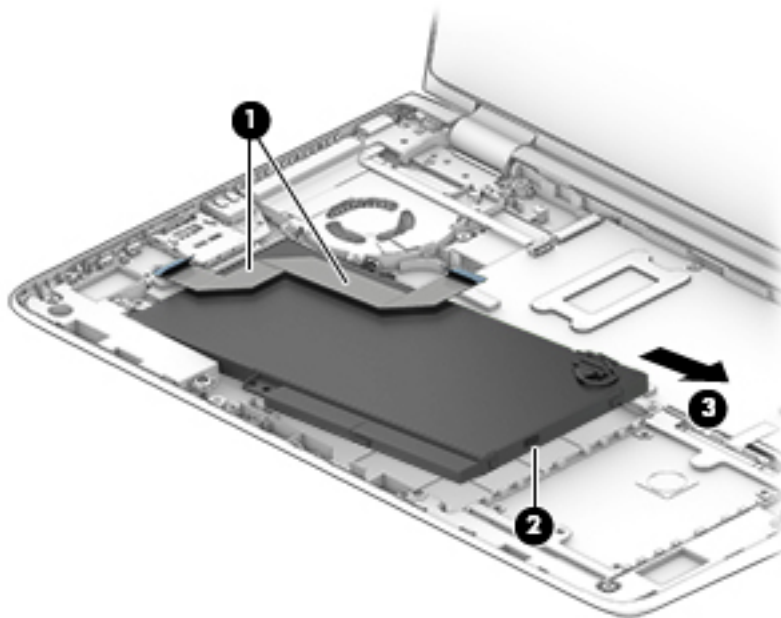
Remove the battery:

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

2. Remove the four PM2.5×4.4 screws **(2)** that secure the battery to the base enclosure.
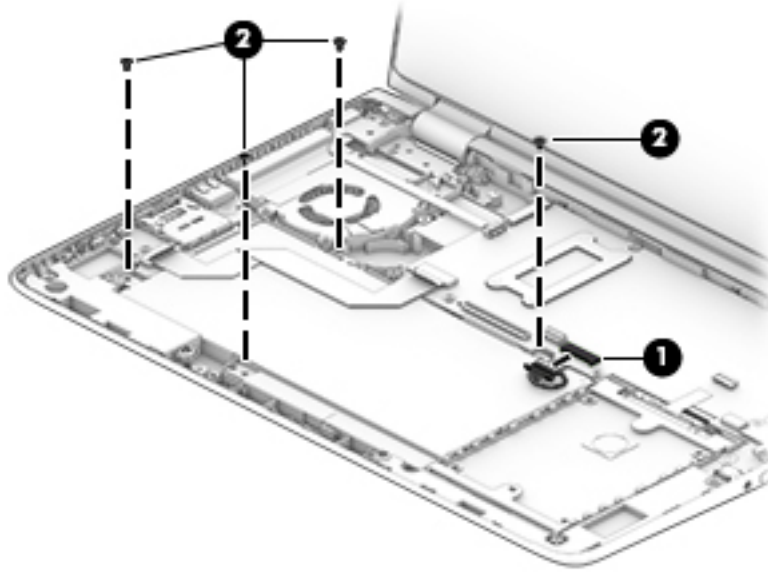
3. Detach the connector board cable **(1)** from the battery. (The connector board cable is attached to the battery with double-sided adhesive.)

4. Use the release slot **(2)** on the right side of the battery to lift the right side of the battery until it rests at an angle.

5. Remove the battery **(3)** by sliding it up and to the right.

Reverse this procedure to install the battery.

Hard drive

NOTE: The hard drive spare kit does not include the hard drive bracket or hard drive connector adapter. The hard drive bracket and hard drive connector adapter are included in the Hard Drive Hardware Kit, spare part number 808238-001.

Description	Spare part number
1-TB, 5400-rpm	762990-005
750-GB, 5400-rpm	752099-005
500-GB, 5400-rpm	778186-005
500-GB, 5400-rpm, Hybrid 8-GB	732000-005

Before removing the hard drive, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the keyboard/top cover (see Keyboard/top cover on page 21).

5. Disconnect the battery cable from the system board (see Battery on page 23).

Remove the hard drive:

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

2. Lift the rear edge of the hard drive **(2)** until it rests at an angle.

3. Remove the hard drive **(3)** by sliding it up and back at an angle.
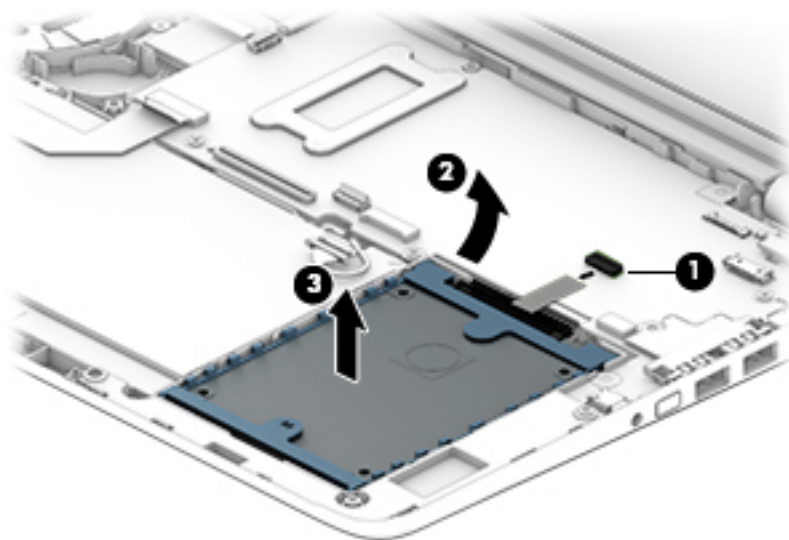
4. If it is necessary to replace the hard drive connector adapter, slide the adapter **(1)** off of the front end of the hard drive.

5. If it is necessary to replace the hard drive bracket, release the sides of the bracket from the hard drive, and then lift the bracket straight up **(2)** and remove the bracket from the hard drive.

The hard drive bracket and hard drive connector adapter are included in the Hard Drive Hardware Kit, spare part number 808238-001
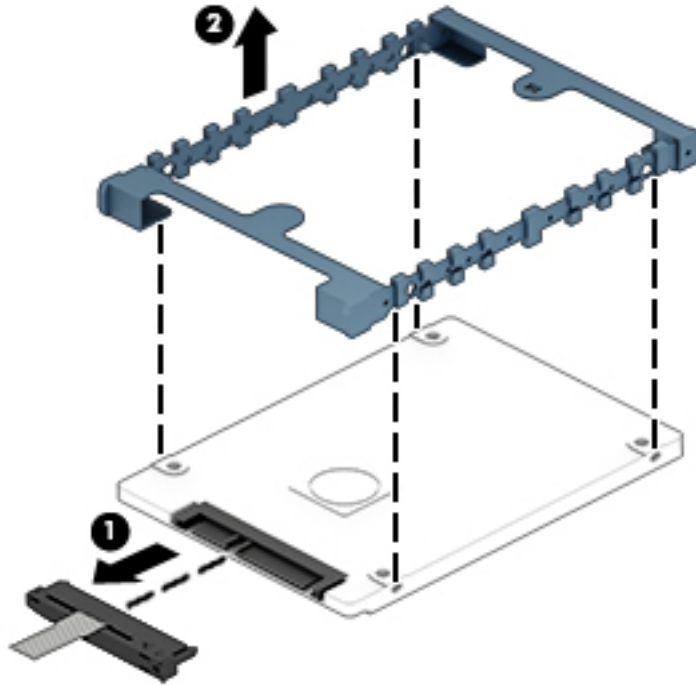
Reverse this procedure to reassemble and install the hard drive.

Connector board

Description	Spare part number
Connector board (includes cable, SD card slot, USB port, and double-sided adhesive)	809831-001

Before removing the connector 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 keyboard/top cover (see Keyboard/top cover on page 21).

5. Disconnect the battery cable from the system board (see Battery on page 23).

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. Detach the connector board cable **(2)** from the battery. (The connector board cable is attached to the battery with double-sided adhesive.)

3. Remove the Philllips PM2.5×4.4 screw **(3)** that secures the connector board to the base enclosure.

4. Remove the connector board **(4)**.
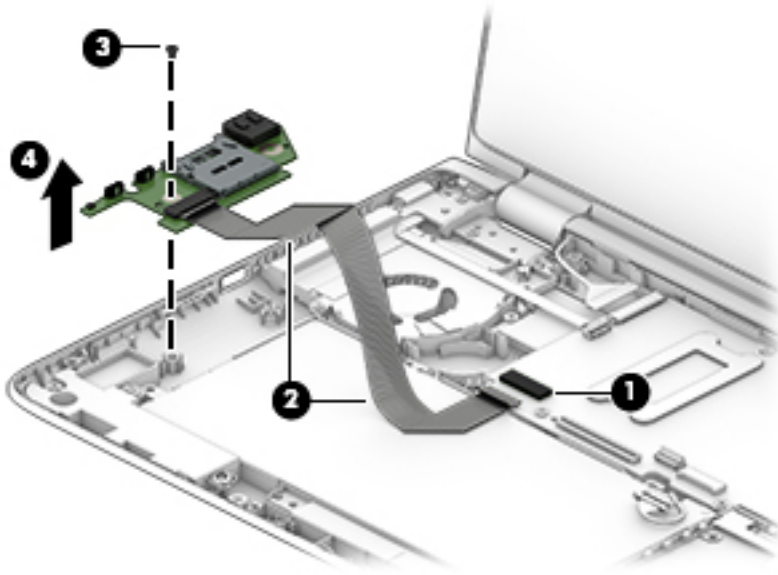
Reverse this procedure to install the connector board.

WLAN module

Description	Spare part number
Intel 3165NGWG ac 1×1 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 Combo Adapter	806723-005
Intel Dual Band Wireless-AC 3160 802.11 ac 1×1 WiFi + Bluetooth 4.0 Combo Adapter	784644-005
Realtek RTL8723BE 802.11b/g/n 1×1 Wi-Fi + Bluetooth 4.0 Combo Adapter	792610-005

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

Before removing the WLAN module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the keyboard/top cover (see).

5. Disconnect the battery cable from the system board (see).
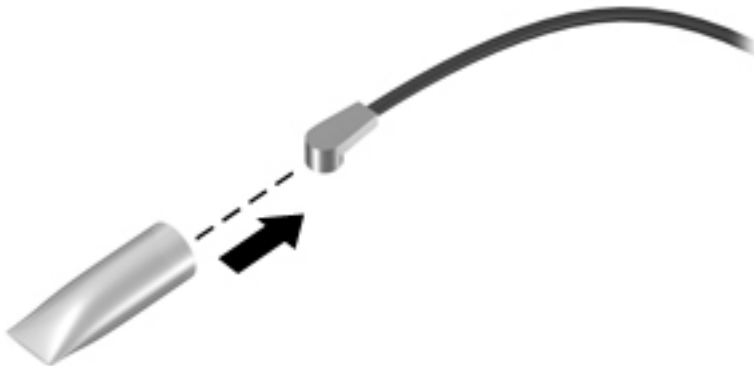
Remove the WLAN module:

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

> **NOTE:** The WLAN antenna cable labeled "1" connects to the WLAN module "Main" terminal labeled "1". The WLAN antenna cable labeled "2" connects to the WLAN module "Aux" terminal labeled "2".

2. Remove the Phillips PM2.0×4.1 screw **(2)** that secures the WLAN module to the base enclosure. (The WLAN module tilts up **(3)**.)

3. Remove the WLAN module **(4)** by pulling the module away from the slot at an angle.
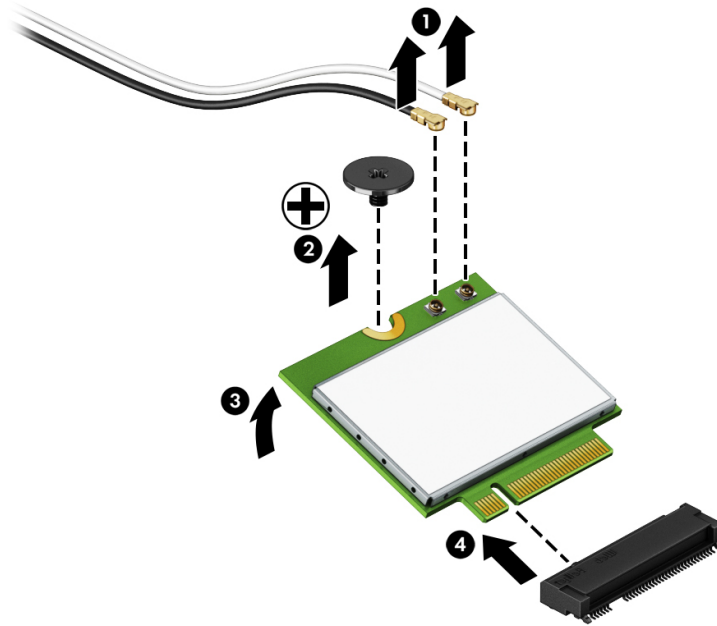
> **NOTE:** If the WLAN antenna cables are not connected to the terminals on the WLAN module, protective sleeves should be installed on the antenna connectors, as shown in the following illustration.

Reverse this procedure to install the WLAN module.

System board

Description	Spare part number
Equipped with an Intel Celeron 3955U 2.00-GHz processor (1866-MHz FSB, 2.00-MB L3 cache, dual core, 15 W), a solid-state drive slot, and the Windows 10 Professional operating system	858109-601
Equipped with an Intel Celeron 3955U 2.00-GHz processor (1866-MHz FSB, 2.00-MB L3 cache, dual core, 15 W), a solid-state drive slot, and a non-Windows 10 operating system	858109-001

Before removing the system board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the keyboard/top cover (see Keyboard/top cover on page 21).

5. Disconnect the battery cable from the system board (see Battery on page 23).

6. Remove the WLAN module (see WLAN module on page 27).

When replacing the system board, be sure that the fan/heat sink assembly (see Fan/heat sink assembly on page 32) and the memory modules (see Memory module on page 33) are removed from the defective system board and installed on the replacement system board.
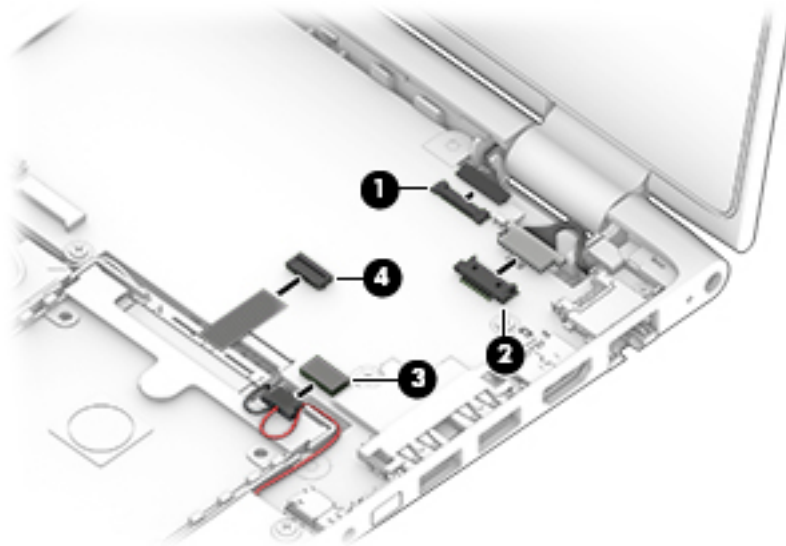
Remove the system board:

1. Release the wireless antenna cables from the retention clips **(1)** built into the fan/heat sink assembly.

2. Disconnect the following cables from the system board:

(2) Display panel cable from the ZIF connector on the system board

(3) Power button board cable from the ZIF connector on the system board

**(4)** Connector board cable from the ZIF connector on the system board
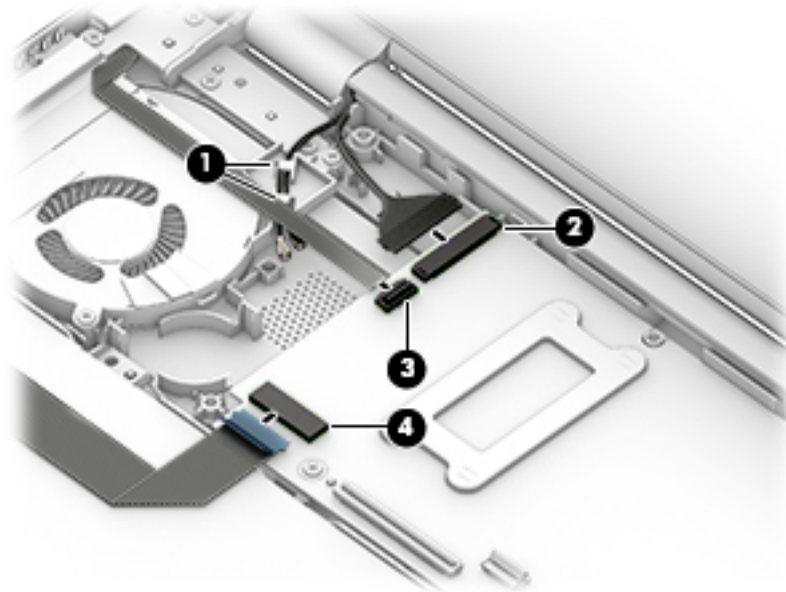
3. Disconnect the following cables from the system board:

(1) Webcam/microphone cable

(2) Power connector cable

(3) Speaker cable

(4) Hard drive cable from the ZIF connector on the system board

4. Remove the six Phillips PM2.5×4.4 screws **(1)** and the Phillips PM2.0×4.1 screw **(2)** that secure the system board to the base enclosure.
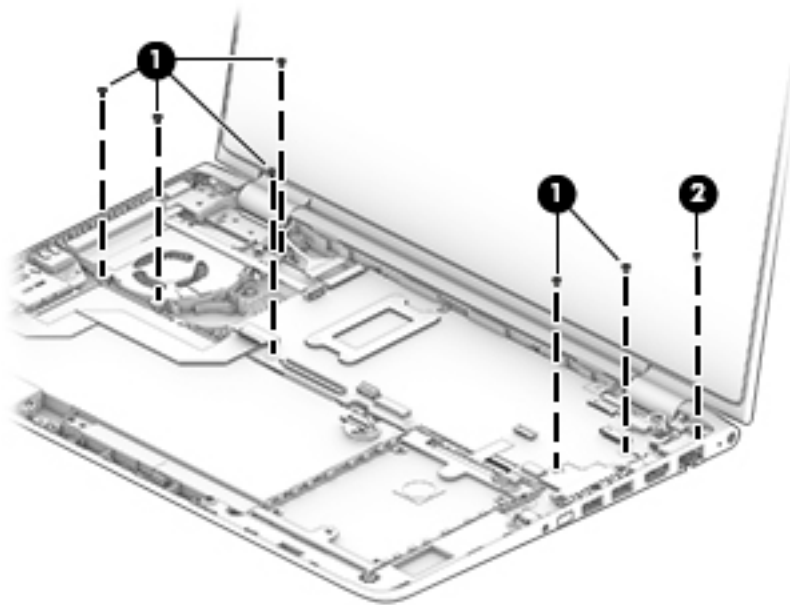
5. Lift the front edge of the system board **(1)** until it rests at an angle.

6. Remove the system board **(2)** by sliding it up and forward at an angle.
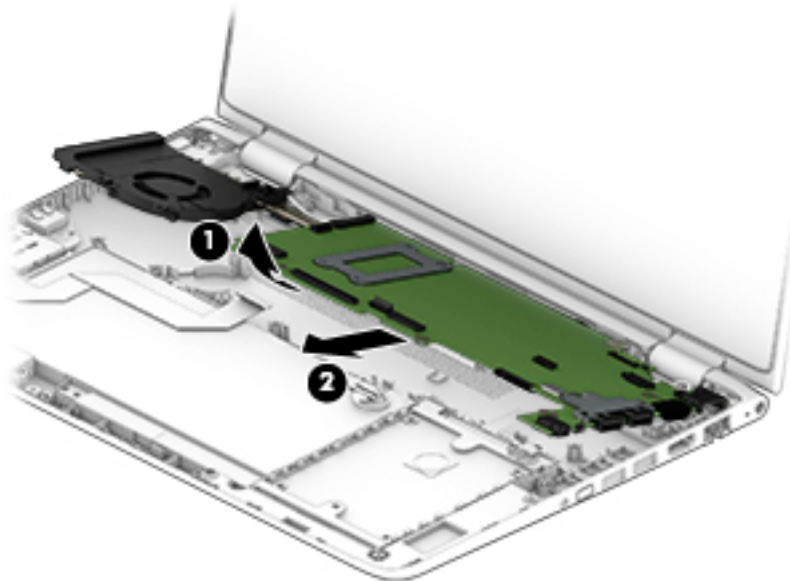
Reverse this procedure to install the system board.

Fan/heat sink assembly

Description	Spare part number
Fan/heat sink assembly (includes fan cable, 4 captive screws [secured by C-clips], and replacement thermal material)	809825-001

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

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the keyboard/top cover (see Keyboard/top cover on page 21).

5. Disconnect the battery cable from the system board (see Battery on page 23).

6. Remove the WLAN module (see WLAN module on page 27).

7. Remove the system board (see System board on page 29).

Remove the fan/heat sink assembly:

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

2. Disconnect the fan cable **(1)** from the system board.

3. Loosen the four captive screws **(2)** that secure the fan/heat sink assembly to the system board.

> **NOTE:** Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, it may be necessary to move the fan/heat sink assembly from side to side to detach it.

4. Remove the fan/heat sink assembly **(3)**.
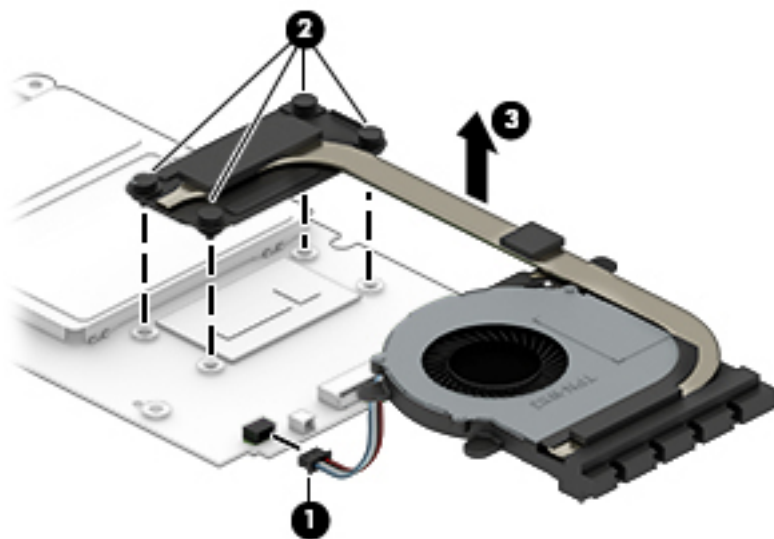
NOTE: The thermal material must be thoroughly cleaned from the surfaces of the fan/heat sink assembly and the system board each time the fan/heat sink assembly is removed. Thermal paste is used on the processor **(1)** and the fan/heat sink assembly section **(2)** that services it.
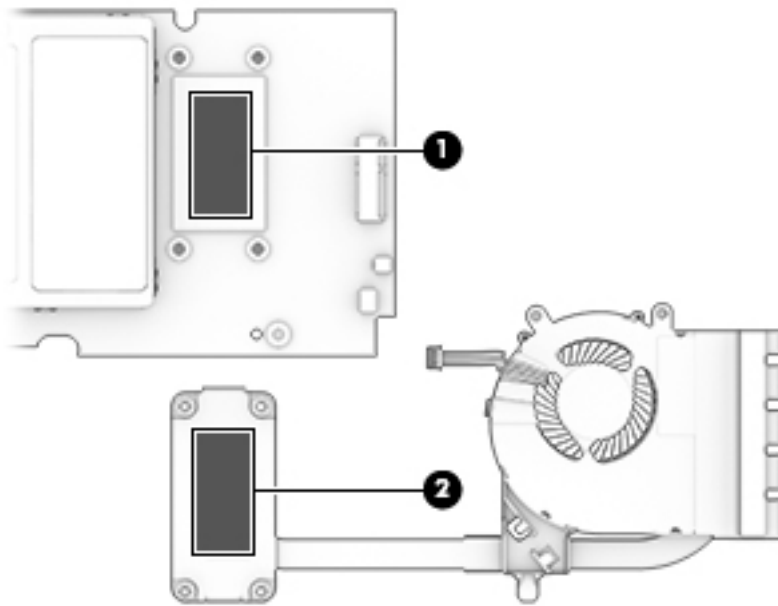
Reverse this procedure to install the fan/heat sink assembly.

Memory module

| Description	Spare part number
8-GB (PCL3, 12800, 1600)	693374-005
4-GB (PCL3, 12800, 1600)	691740-005
2-GB (PCL3, 12800, 1600)	691739-005

Before removing the memory module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the keyboard/top cover (see Keyboard/top cover on page 21).

5. Disconnect the battery cable from the system board (see Battery on page 23).

6. Remove the WLAN module (see WLAN module on page 27).

**7.** Remove the system board (see System board on page 29).

Remove the memory module:

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

2. Remove the memory shield that covers the memory module slots.
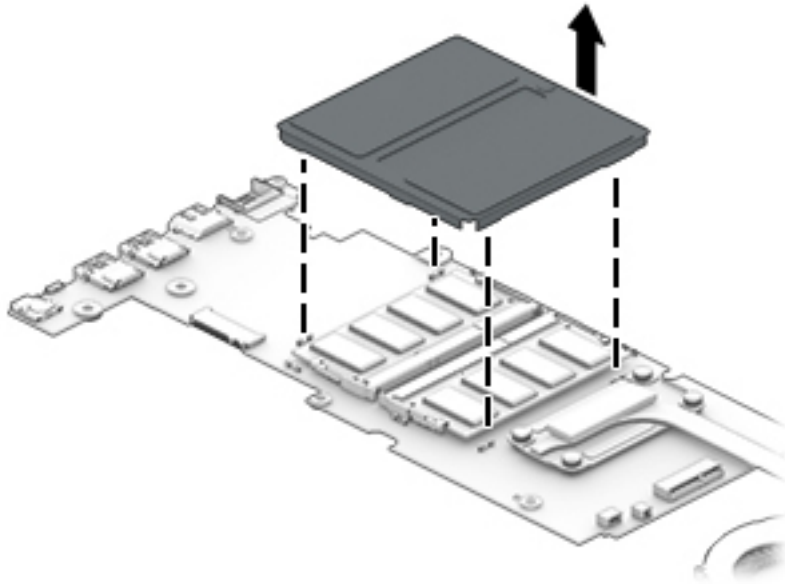
3. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The memory module tilts up.)

4. Remove the memory module **(2)** by pulling it away from the slot at an angle.
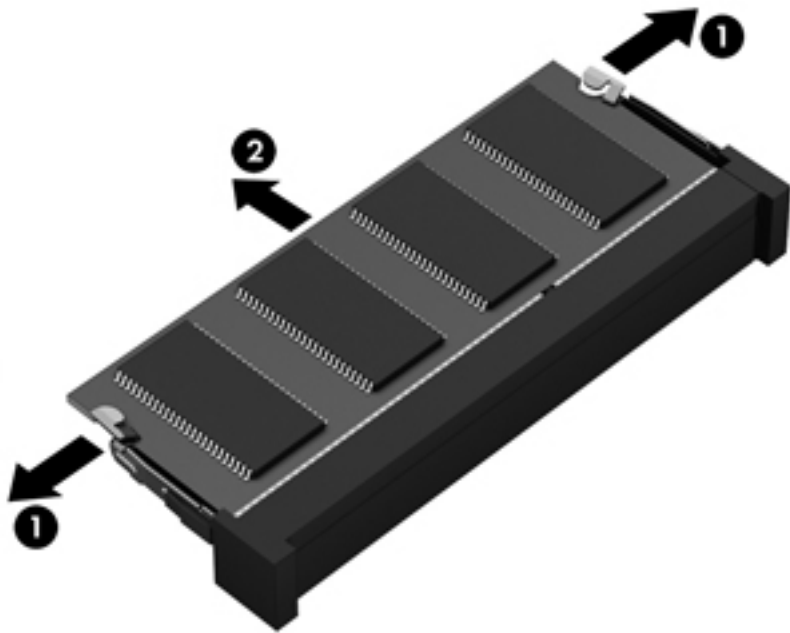
Reverse this procedure to install a memory module.

Speakers

| Description	Spare part number
Speaker Kit (includes left and right speakers and cables)	809838-001

Before removing the speakers, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the keyboard/top cover (see Keyboard/top cover on page 21).

5. Disconnect the battery cable from the system board (see Battery on page 23).

6. Remove the WLAN module (see WLAN module on page 27).

7. Remove the system board (see System board on page 29).

Remove the speakers:

1. Release the speaker cables from the retention clips **(1)** built into the base enclosure.

2. Remove the four Phillips PM2.0×5.8 shoulder screws **(2)** that secure the speakers to the base enclosure.

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

📝 **NOTE:** When removing the speakers, make note of the location of the six rubber isolators **(4)**. Removal of or damage to these isolators can cause degradation to speaker performance.
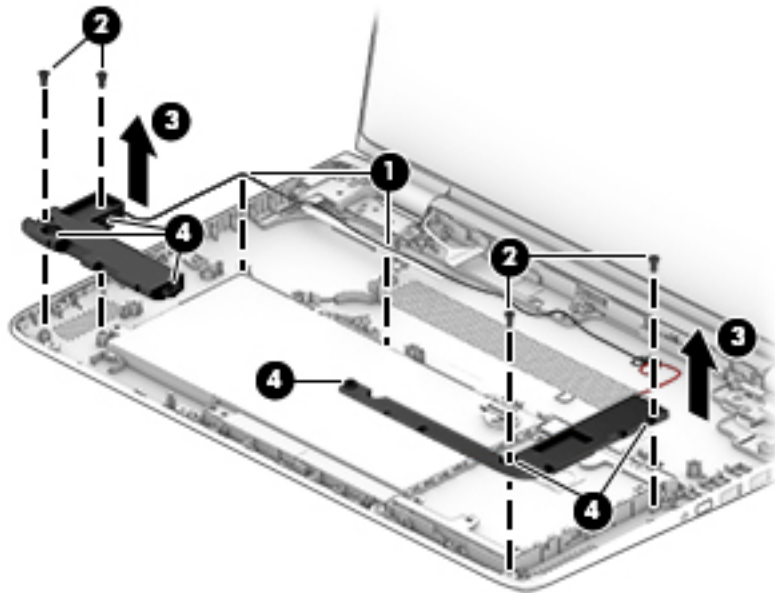
Reverse this procedure to install the speakers.
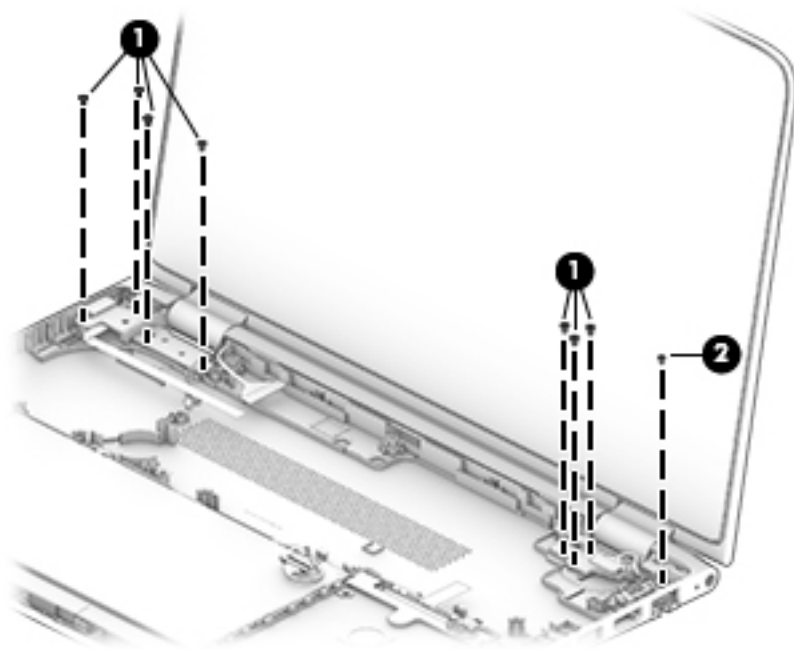
Display assembly

📝 **NOTE:** The display assembly is spared at the subcomponent level only. For 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 keyboard/top cover (see Keyboard/top cover on page 21).

5. Disconnect the battery cable from the system board (see Battery on page 23).

6. Remove the WLAN module (see WLAN module on page 27).

7. Remove the system board (see System board on page 29).

Remove the display assembly:

1. Open the computer to the interactive position, as shown in the following illustration.

2. Remove the seven Phillips PM2.5×4.4 screws **(1)** and the Phillips PM2.0×4.1 screw **(2)** that secure the display assembly to the base enclosure.


3. Slide the display assembly **(1)** forward until the display hinges **(2)** clear the base enclosure.

4. Remove the display assembly **(3)**.
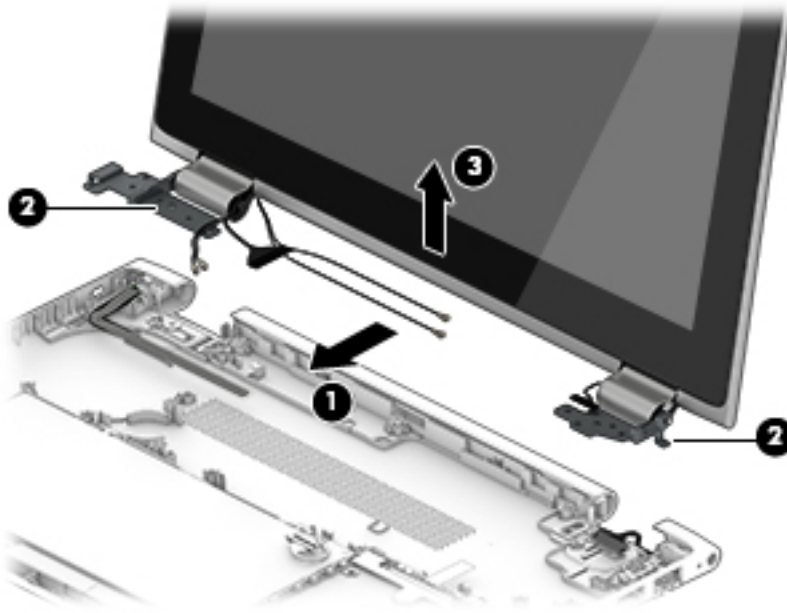
5. If it is necessary to replace the display panel assembly or any of the display assembly internal components:

    a. Release the top edge of the display panel assembly **(1)** by pulling it away from the display enclosure.

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

    c. Disconnect the display panel cable **(3)** from the display panel assembly.

d. Disconnect the TouchScreen cable **(4)** from the TouchScreen board.
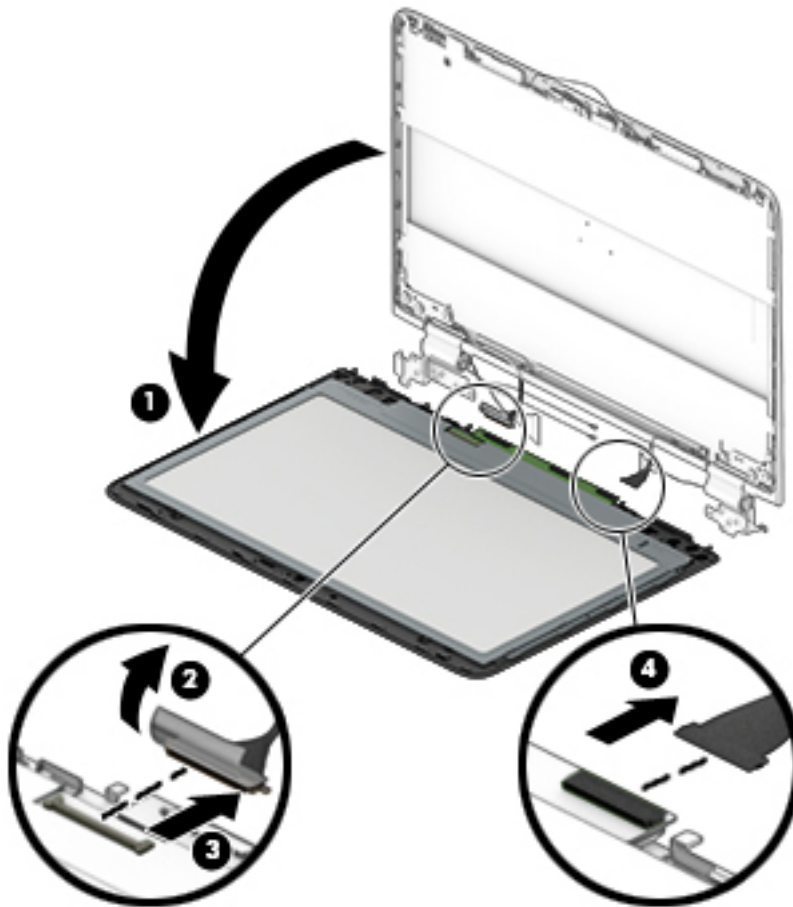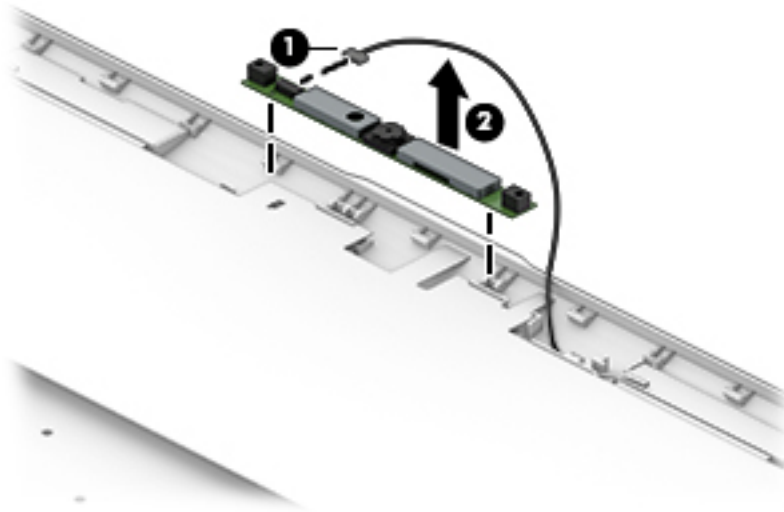

e. Remove the display panel assembly.

The display panel assembly includes the display bezel and the display panel and is available using spare part numbers 809833-001 (FHD, (1920×1080), UWVA, IPS, display panel assembly) and 809832-001 (HD, (1366×768), UWVA display panel assembly).

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

a. Remove the display panel assembly.

b. Detach the webcam/microphone module **(1)** from the display back cover. (The webcam/ microphone module is attached to the display back cover with double-sided adhesive.)

c. Disconnect the webcam/microphone module cable **(2)** from the webcam/microphone module.

d. Remove the webcam/microphone module.

The webcam/microphone module is available using spare part number 809843-001.

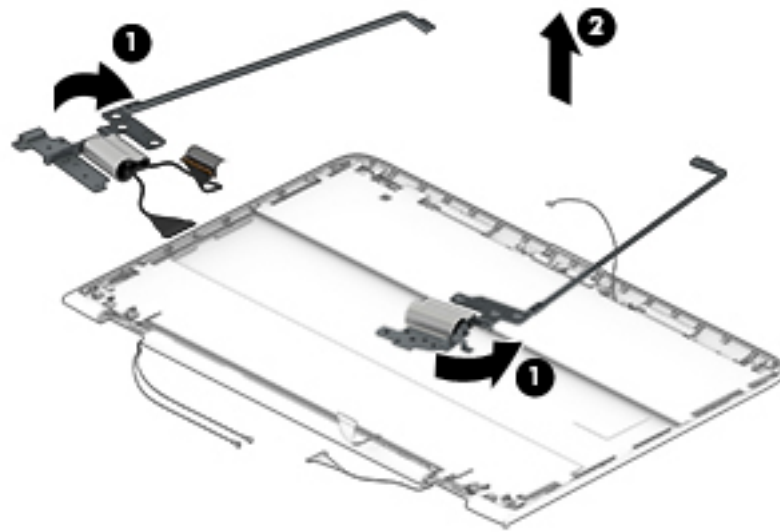**7.** If it is necessary to replace the display hinges:

a. Remove the display panel assembly.

b. Remove the two Phillips PM2.0×2.8 screws **(1)** that secure the display hinges to the display enclosure.

c. Remove the six Phillips PM2.5×3.6 broad head screws **(2)** that secure the display hinges to the display enclosure.
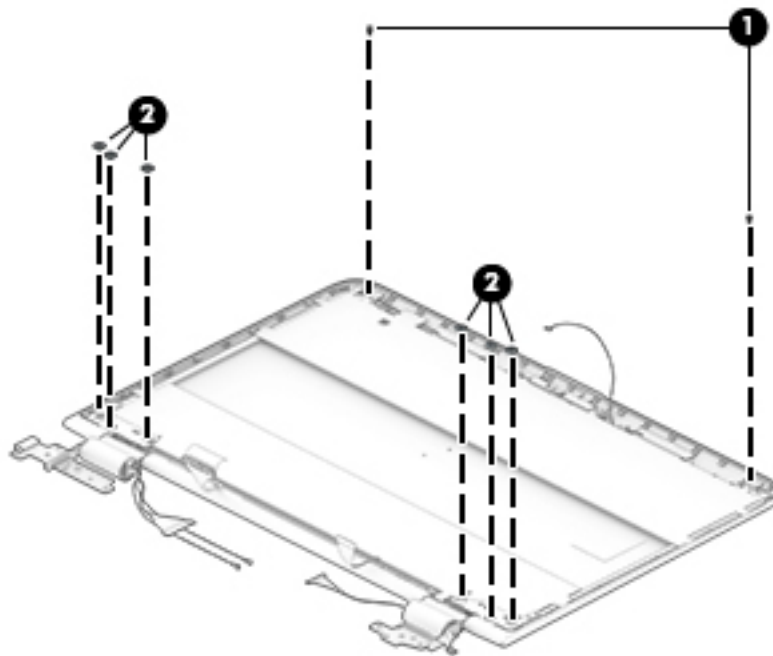
d. Rotate the display hinges **(1)** inward until the hinges are clear of the display back cover.
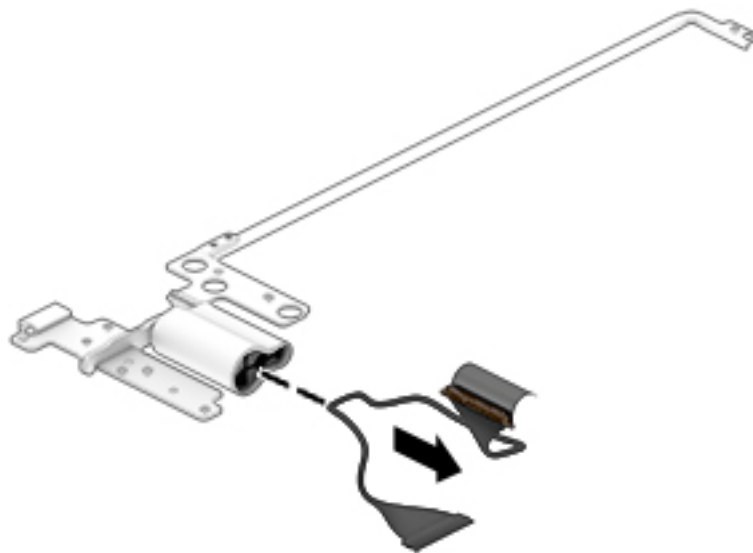
e. Remove the display hinges **(2)**.

The display hinges are included in the Display Hinge Kit, spare part number 809827-001.

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

   a. Remove the display panel assembly.

   b. Remove the display hinges.

   c. Remove the display panel cable from the left display hinge.

   The display panel cable is available using spare part numbers 810712-001 (for use only on computer models equipped with the FHD, (1920×1080), UWVA, IPS, display panel assembly, spare part number 809833-001) and 809822-001 (for use only on computer models equipped with the HD, (1366×768), UWVA display panel assembly, spare part number 809832-001).
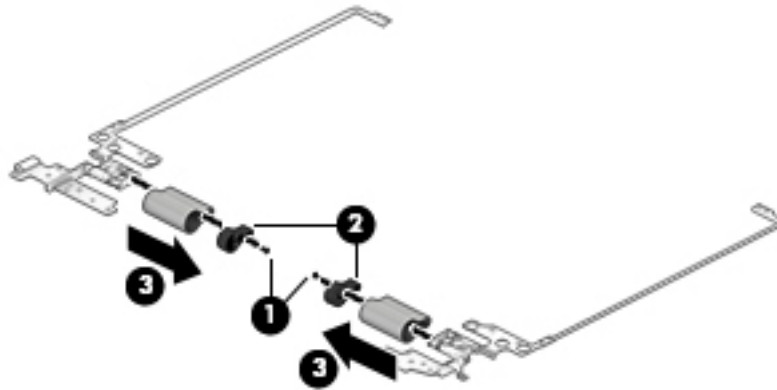

9. If it is necessary to replace the display hinge covers:

a. Remove the display panel assembly.

b. Remove the display hinges.

c. Remove the Phillips PM2.0×4.1 screw **(1)** that secures the display hinge cover to the display hinge.

d. Remove the rubber cable retainer **(2)** from inside the hinge cover.

e. Remove the display hinge cover **(3)**.

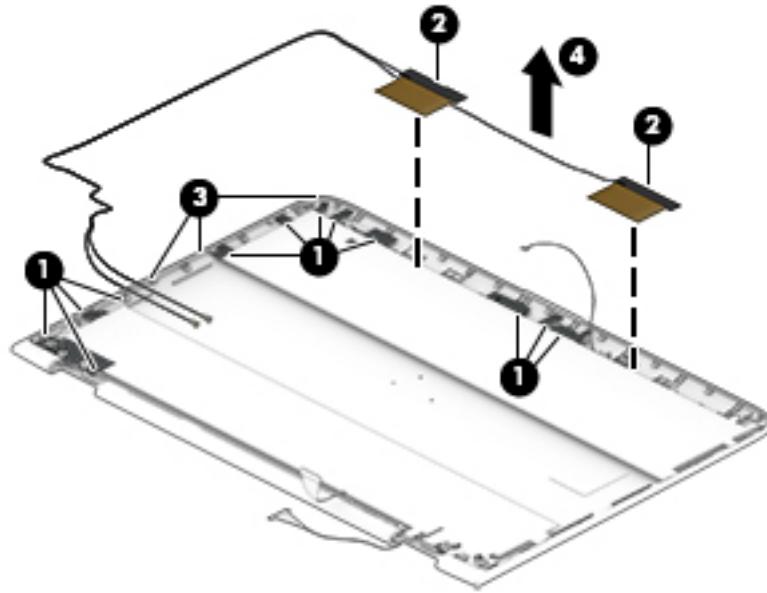The display hinge covers are available using spare part number 855339-001.

10. If it is necessary to replace the WLAN antenna cables and transceivers:

a. Remove the display panel assembly.

b. Remove the left display hinge.

c. Release the tabs **(1)** on the top edge, left side, and left hinge area of the display enclosure that secure the WLAN antenna cables.

d. Detach the WLAN antenna transceivers **(2)** from the display enclosure. (The WLAN antenna transceivers are attached to the display enclosure with double-sided adhesive.)

e. Release the WLAN antenna cables from the retention clips **(3)** and channels built into the left edge of the display enclosure.

**f.** Remove the WLAN antenna cables and transceivers **(4)**.

The WLAN antenna cables and transceivers are included in the Antenna Kit, spare part number 809815-001.

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

a. Remove the display panel assembly.

b. Remove the right display hinge.

c. Remove the WLAN antenna cables and transceivers.

d. Release the tabs **(1)** on the top edge, right side, and right hinge area of the display enclosure that secure the webcam/microphone cable.

e. Release the webcam/microphone module cable from the retention clips **(2)** and channels built into the right edge of the display enclosure.

f. Remove the webcam/microphone module cable **(3)**.

The webcam/microphone module cable is available using spare part number 809823-001.
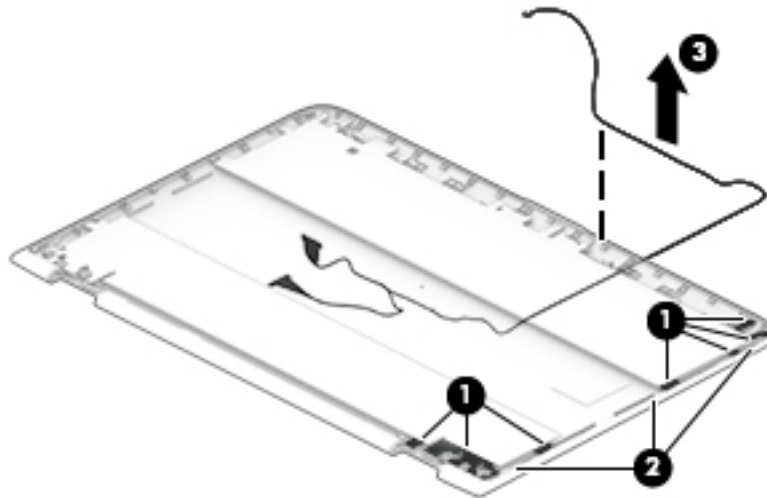
Reverse this procedure to reassemble and install the display assembly.

Power button board

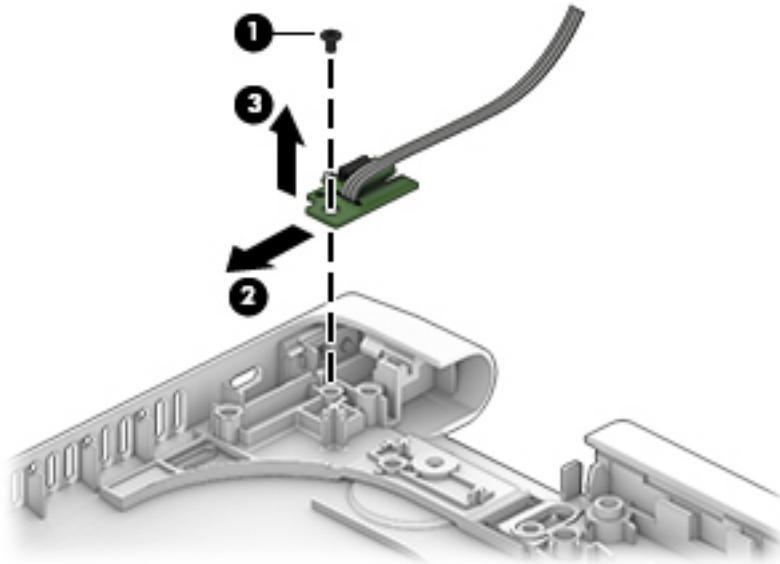| Description	Spare part number
Power button board (includes cable)	809830-001

Before removing the power button board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the computer.

3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

4. Remove the keyboard/top cover (see Keyboard/top cover on page 21).

5. Disconnect the battery cable from the system board (see Battery on page 23).

6. Remove the WLAN module (see WLAN module on page 27).

7. Remove the system board (see System board on page 29).

8. Remove the display assembly (see Display assembly on page 36).

Remove the power button board:

1. Remove the Phillips PM2.0×4.1 screw **(1)** that secures the power button board to the base enclosure.

2. Slide the power button board **(2)** forward until it is clear of the base enclosure.

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

Reverse this procedure to install the power button board.

Power connector cable

| Description	Spare part number
Power connector cable	809824-001

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 keyboard/top cover (see <u>Keyboard/top cover on page 21</u>).

5. Disconnect the battery cable from the system board (see <u>Battery on page 23</u>).

6. Remove the WLAN module (see <u>WLAN module on page 27</u>).

7. Remove the system board (see <u>System board on page 29</u>).

8. Remove the display assembly (see <u>Display assembly on page 36</u>).

Remove the power connector cable:

1. Slide the power connector cable **(1)** out of the cavity in the base enclosure.

2. Remove the power connector cable **(2)**.
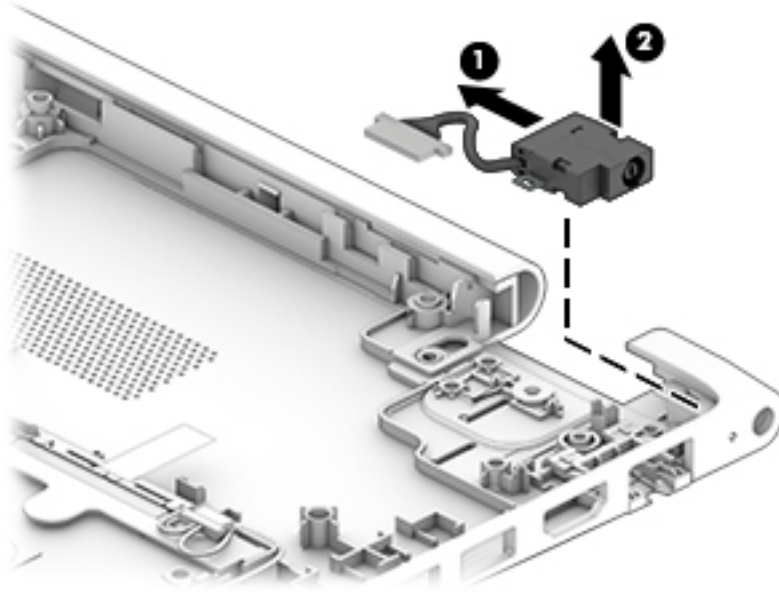
Reverse this procedure to install the power connector cable.

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 46).

  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 47.

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 48.

   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

	Metric	U.S.
Tablet dimensions		
Width	**32.7 cm**	12.89 in
Depth	**22.4 cm**	8.82 in
Height	**2.3 cm**	0.91 in
Weight (equipped with a hard drive)	**1.77 kg**	3.89 lbs
Weight (equipped with a solid-state drive)	**1.66 kg**	3.67 lbs
Input power		
Operating voltage and current	19.5 V dc @ 2.31 A – 45 W	
	19.5 V dc @ 3.33 A – 65 W	
	19.5 V @ 3.33 A – 65 W	
	19.5 V @ 4.62 A – 90 W	
	19.5 V @ 6.15 A – 120 W	
	19.5 V @ 7.69 A –150 W	
Temperature		
Operating	**5°C to 35°C**	41°F to 95°F
Nonoperating	**-20°C to 60°C**	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	**-15 m to 3,048 m**	-50 ft to 10,000 ft
Nonoperating	**-15 m to 12,192 m**	-50 ft to 40,000 ft

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.

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 51. For information on the recovery options that are available using the recovery media, see Using Windows tools on page 52.

- 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 53.

  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 52.

- 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 53.

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 53. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 51.

- 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 53.

- 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 56.

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 51.

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 51.

- 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 51.

- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP

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

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

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

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

- System Recovery—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.

- Factory Reset—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

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

Using the HP Recovery partition (select products only)

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

To start HP Recovery Manager from the HP Recovery partition:

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

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

   - or-

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

   For tablets without keyboards:

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

   - or -

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

2. Select **Troubleshoot** from the boot options menu.

3. Select **Recovery Manager**, and then follow the on-screen instructions.

Using HP Recovery media to recover

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

1. If possible, back up all personal files.

2. Insert the HP Recovery media, and then restart the computer.

   NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See Changing the computer boot order on page 55.

3. Follow the on-screen instructions.

Changing the computer boot order

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

To change the boot order:

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

1.   Insert the HP Recovery media.

2.   Access BIOS:

   For computers or tablets with keyboards attached:

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

   For tablets without keyboards:

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

      - or -

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

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

4.   Follow the on-screen instructions.

Removing the HP Recovery partition (select products only)

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

IMPORTANT: After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP recovery media from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see .

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 Statement of Volatility

The purpose of this document is to provide general information regarding non-volatile memory in industry-standards based HP Business Notebook PC systems and provide general instructions for restoring nonvolatile memory that can contain personal data after the system has been powered off and the hard drive has been removed.

HP Business Notebook PC products that use Intel-based or AMD®-based system boards contain volatile DDR memory. The amount of nonvolatile memory present in the system depends upon the system configuration. Intel-based and AMD-based system boards contain nonvolatile memory subcomponents as originally shipped from HP assuming that no subsequent modifications have been made to the system and assuming that no applications, features, or functionality have been added to or installed on the system.

Following system shutdown and removal of all power sources from an HP Business Notebook PC system, personal data can remain on volatile system memory (DIMMs) for a finite period of time and will also remain in nonvolatile memory. The steps below will remove personal data from the notebook PC, including the nonvolatile memory found in Intel-based and AMD-based system boards. Some of these steps are disclosed in the Maintenance and Service Guides available for HP PC products available on the product support pages at www.hp.com.

1. Follow steps (a) through (I) below to restore the nonvolatile memory that can contain personal data. Restoring or re-programming nonvolatile memory that does not store personal data is neither necessary nor recommended.

    a. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

    > **NOTE:** If the system has a BIOS administrator password, enter the password at the prompt.

    b. Select **Main**, select **Restore Defaults**, and then select **Yes** to load defaults.

    c. Select the **Security** menu, select **Restore Security Level Defaults**, and then select **Yes** to restore security level defaults.

    d. If an asset or ownership tag is set, select the **Security** menu and scroll down to the **Utilities** menu. Select **System IDs**, and then select **Asset Tracking Number**. Clear the tag, and then make the selection to return to the prior menu.

    e. If a DriveLock password is set, select the **Security** menu and scroll down to **Hard Drive Tools** under the **Utilities** menu. Select **Hard Drive Tools**, select **DriveLock**, then uncheck the checkbox for **DriveLock password on reset**. Select **OK** to proceed.

    f. If an Automatic DriveLock password is set, select the **Security menu**, scroll down to **Hard Drive Tools** under the **Utilities** menu. Select **Hard Drive Tools**, scroll down to **Automatic DriveLock**, then select the desired hard drive and disable protection. At the automatic drive lock warning screen, select **Yes** to continue. Repeat this procedure if more than one hard drive has an Automatic DriveLock password.

    g. Select the **Main** menu, and then **Reset BIOS Security to factory default**. Click **yes** at the warning message.

    h. Select the **Main** menu, **Save Changes and Exit**, select **Yes** to save changes and exit, and then select **Shutdown**.

i. Reboot the system. If the system has a Trusted Platform Module (TPM) and/or fingerprint reader, one or two prompts will appear—one to clear the TPM and the other to Reset Fingerprint Sensor. Press or tap F1 to accept or F2 to reject.

j. Remove all power and system batteries for at least 24 hours.

2. Complete one of the following:

- Remove and retain the storage drive.

  – or –

- Clear the drive contents by using a third party utility designed to erase data from an SSD.

  – or –

- Clear the contents of the drive by using the following BIOS Setup Secure Erase command option steps:

IMPORTANT: If you clear data using Secure Erase, it cannot be recovered.

a. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

b. Select the **Security** menu and scroll down to the **Utilities** menu.

c. Select **Hard Drive Tools**.

d. Under **Utilities**, select **Secure Erase**, select the hard drive storing the data you want to clear, and then follow the on-screen instructions to continue.

– or –

- Clear the contents of the drive by using the following Disk Sanitizer command steps:

IMPORTANT: If you clear data using Disk Sanitizer, it cannot be recovered.

NOTE: The amount of time it takes for Disk Sanitizer to run can take several hours. Plug the computer into an AC outlet before starting.

a. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

b. Select the **Security** menu and scroll down to the **Utilities** menu.

c. Select **Hard Drive Tools**.

d. Under **Utilities**, select **Disk Sanitizer**, select the hard drive storing the data you want to clear, and then follow the on-screen instructions to continue.

Non-volatile memory usage

Non Volatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write protected?
HP Sure Start flash (select models only	2 MBytes	No	Yes	Provides protected backup of critical System BIOS code, EC firmware, and critical PC configuration data for select platforms that support HP Sure Start.	Data cannot be written to this device via the host processor. The content is managed solely by the HP Sure Start Embedded Controller.	This memory is protected by the HP Sure Start Embedded Controller.
Real Time Clock (RTC) battery backed-up CMOS configuration memory	256 Bytes	No	Yes	Stores system date and time and limited keyboard controller data.	Using the F10 Setup utility or changing the Microsoft Windows date and time.	This memory is not write-protected. HP recommends password protecting the F10 Setup utility.
Controller (NIC) EEPROM	64 KBytes (not customer accessible)	No	Yes	Store NIC configuration and NIC firmware.	Using a utility from the NIC vendor that can be run from DOS.	A utility is required to write data to this memory and is available from NIC vendor. Writing data to this ROM in an inappropriate manner will render the NIC nonfunctional.
DIMM Serial Presence Detect (SPD) configuration data	256 Bytes per memory module, 128 Bytes programmable (not customer accessible)	No	Yes	Stores memory module information.	Programmed by the memory vendor.	Data cannot be written to this memory when the module is installed in a PC. The specific write protection method varies by memory vendor.
System BIOS	4 to 5 MBytes	Yes	Yes	Stores system BIOS code and PC configuration data.	System BIOS code is programmed at the factory. Code is updated when the system BIOS is updated. Configuration data and settings are input using the	NOTE: Writing data to this ROM in an inappropriate manner can render the PC non-functional. A utility is required for writing data to this memory and is available

Non Volatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write protected?
				Computer Setup (BIOS) or a custom utility.		on the HP website; go to http://hp.com/support, select **Find your product**, and then follow the on-screen instructions.
Intel Management Engine Firmware (present only in specific ZBook and EliteBook models. For more information, go to http://hp.com/support, select **Find your product**, and then follow the on-screen instructions.)	1.5 or 5 MBytes	Yes	Yes	Stores Management Engine Code, Settings, Provisioning Data and iAMT third party data store.	Management Engine Code is programmed at the factory. Code is updated via Intel secure firmware update utility. Unique Provisioning Data can be entered at the factory or by an administrator using the Management Engine (MEBx) setup utility. The third party data store contents can populated by a remote management console or local applications registered by an administrator to have access to the space.	The Intel chipset is configured to enforce hardware protection to block all direct read/write access to this area. An Intel utility is required for updating the firmware. Only firmware updates digitally signed by Intel can be applied using this utility.
Bluetooth flash	2 MBits	No	Yes	Stores Bluetooth configuration and firmware.	Programmed at the factory. Tools for writing data to this memory are not publicly available but can be obtained from the silicon vendor.	A utility is required for writing data to this memory and is made available through newer versions of the driver if the flash requires an upgrade.
802.11 WLAN EEPROM	4 KBytes to 8 KBytes	No	Yes	Stores configuration and calibration data.	Programmed at the factory. Tools for writing data to this memory are not made public.	A utility is required for writing data to this memory and is typically not made

Non Volatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write protected?
						available to the public unless a firmware upgrade is necessary to address a unique issue.
Webcamera	64 KBits	No	Yes	Store webcam configuration and firmware.	Using a utility from the device manufacturer that can be run from Windows.	A utility is required for writing data to this memory and is typically not made available to the public unless a firmware upgrade is necessary to address a unique issue.
Fingerprint reader	512 KBytes flash	Yes	Yes	Stores fingerprint templates.	By enrolling in HP ProtectTools Security Manager.	Only a digitally signed application can make the call to write to the flash.

Questions and answers

1. **How can the BIOS settings be restored (returned to default settings)?**

   📝 **IMPORTANT:** Restore defaults does not securely erase any data on your hard drive. See question and answer 6 for steps to securely erase data.

   Restore defaults does not reset the Custom Secure Boot keys. See question and answer 7 for information about resetting the keys.

   a. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

   b. Select **Main**, and then select **Restore defaults**.

   c. Follow the on-screen instructions.

   d. Select **Main**, select **Save Changes and Exit**, and then follow the on-screen instructions.

2. **What is a UEFI BIOS, and how is it different from a legacy BIOS?**

   The Unified Extensible Firmware Interface (UEFI) BIOS is an industry-standard software interface between the platform firmware and an operating system (OS). It is a replacement for the older BIOS architecture, but supports much of the legacy BIOS functionality.

   Like the legacy BIOS, the UEFI BIOS provides an interface to display the system information and configuration settings and to change the configuration of your computer before an OS is loaded. BIOS provides a secure run-time environment that supports a Graphic User Interface (GUI). In this environment, you can use either a pointing device (Touchscreen, TouchPad, pointing stick, or USB mouse) or the keyboard to navigate and make menu and configuration selections. The UEFI BIOS also contains basic system diagnostics.

   The UEFI BIOS provides functionality beyond that of the legacy BIOS. In addition, the UEFI BIOS works to initialize the computer's hardware before loading and executing the OS; the run-time environment allows the loading and execution of software programs from storage devices to provide more functionality, such as advanced hardware diagnostics (with the ability to display more detailed system information) and advanced firmware management and recovery software.

   The UEFI BIOS provides functionality beyond that of the legacy BIOS. In addition, the UEFI BIOS works to initialize the computer's hardware before loading and executing the OS; the run-time environment allows the loading and execution of software programs from storage devices to provide more functionality, such as advanced hardware diagnostics (with the ability to display more detailed system information) and advanced firmware management and recovery software.

   HP has provided options in Computer Setup (BIOS) to allow you to run in legacy BIOS, if required by the operating system. Examples of this requirement would be if you upgrade or downgrade the OS.

3. **Where does the UEFI BIOS reside?**

   The UEFI BIOS resides on a flash memory chip. A utility is required to write to the chip.

4. **What kind of configuration data is stored on the DIMM Serial Presence Detect (SPD) memory module? How would this data be written?**

   The DIMM SPD memory contains information about the memory module, such as size, serial number, data width, speed/timing, voltage, and thermal information. This information is written by the module manufacturer and stored on an EEPROM. This EEPROM cannot be written to when the memory module is installed in a PC. Third party tools do exist that can write to the EEPROM when the memory module is not installed in a PC. Various third party tools are available to read SPD memory.

5. **What is meant by "Restore the nonvolatile memory found in Intel-based system boards?"**

   This message relates to clearing the Real Time Clock (RTC) CMOS memory that contains PC configuration data.

6. **How can the BIOS security be reset to factory defaults and data erased?**

   IMPORTANT: Resetting will result in the loss of information.

   These steps will not reset Custom Secure Boot Keys. See question and answer 7 for information about resetting the keys.

   a. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

   b. Select **Main**, and then select **Reset BIOS Security to Factory Default**.

   c. Follow the on-screen instructions.

   d. Select **Main**, select **Save Changes and Exit**, and then follow the on-screen instructions.

7. **How can the Custom Secure Boot Keys be reset?**

   Secure Boot is a feature to ensure that only authenticated code can start on a platform. If you enabled Secure Boot and created Custom Secure Boot Keys, simply disabling Secure Boot will not clear the keys. You must also select to clear the Custom Secure Boot Keys. Use the same Secure Boot access procedure you used to create the Custom Secure Boot Keys, but make the selection to clear or delete all Secure Boot Keys.

   a. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

   b. Select the **Security** menu, select **Secure Boot Configuration**, and then follow the on-screen instructions.

   c. At the **Secure Boot Configuration** window, select **Secure Boot**, select **Clear Secure Boot Keys**, and then follow the on-screen instructions to continue.

Using HP Sure Start (select models only)

Select computer models are configured with HP Sure Start, a technology that continuously monitors your computer's BIOS for attacks or corruption. If the BIOS becomes corrupted or is attacked, HP Sure Start restores the BIOS to its previously safe state, without user intervention. Those select computer models ship with HP Sure Start configured and enabled. HP Sure Start is configured and already enabled so that most users can use the HP Sure Start default configuration. The default configuration can be customized by advanced users.

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

11 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.

12 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.

Index