



Maintenance and Service Guide

HP Elite 6 G2i 14 inch Chromebook Plus

SUMMARY

This guide provides maintenance information about such topics as spare parts, removal and replacement of parts, security, and backing up.

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Product notice

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

To access the latest user guides, go to <http://www.hp.com/support>, and follow the instructions to find your product. Then select **Setup & User Guides**.

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For any further information or to request a full refund of the price of the computer, please contact your seller.

Safety warning notice

Reduce the possibility of heat-related injuries or of overheating the computer by following the practices described.

 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the mobile computer, do not place the mobile computer directly on your lap or obstruct the computer air vents. Use the mobile computer 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, 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 computer and AC adapter provided by HP comply with the user-accessible surface temperature limits defined by applicable safety standards.

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1 Product description

This table provides detailed product information.



NOTE: For the latest specifications related to your computer, go to <http://www.hp.com/support> and follow the instructions to find your product. Select **Specifications & Accessories**, select **Product information**, and then select the specifications link.

Table 1-1 Product components and their descriptions

Category	Description
Product name	HP Elite 6 G2i 14 Inch Chromebook Plus
	HP Elite 6 G2i 14 inch Chromebook Plus Enterprise
Processors	Intel® processors
	Intel Core™ 7 250U
	Intel Core 5 220U
	Intel Core 5 120U
	Intel Core 3 100U
Graphics	Intel graphics
	Support HD decode, DX12, and HDMI
Display	Availability may vary by country.
	Actual brightness will be lower with touchscreen or HP Sure View.
	Non-touch
	35.6 cm (14") diagonal, 2.5K (2560 x 1600), LCD, 120Hz (VRR), UWVA, , Anti-Glare, WLED+Low Blue Light, 400 nits, Adobe 100% + DCI-P3 100%
	35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, UWVA, Anti-Glare, WLED, 300 nits, Low Power, sRGB 62.5%
	Touch
	35.6 cm (14") diagonal, WUXGA (1920 x 1200), LCD, UWVA, Anti-Glare, WLED, 300 nits, Low Power, sRGB 62.5%
	16:10 aspect ratio
Memory	Display Size (Diagonal)
	35.6 cm (14")
	Memory is not accessible or upgradeable
	Supports LPDDR5X-8533 MT/s onboard memory in the following configurations:
	32 GB
	16 GB

Table 1-1 Product components and their descriptions (continued)

Category	Description
	Supports LPDDR5-6400 MT/s onboard memory in the following configurations: 8 GB
Primary storage	PCIe, Non-Volatile Memory express (NVMe), 2280 value solid-state drives (SSDs)
	1 TB, PCIe-4 × 4
	512 GB, PCIe-4 × 4
	256 GB, PCIe-4 × 4
	128 GB, UFS
Audio and video	Dual speakers
	HP FHD camera: USB 2.0, Fixed, HDR, 80° normal field-of-view (NFOV)
	HP camera: USB 2.0, Fixed, HDR, 5MP, wide field-of-view (WFOV)
	Dual-array digital microphone with appropriate software: beam forming, echo cancellation, noise suppression
Wireless	Integrated wireless module
	Intel® AX211 Wi-Fi 6E Bluetooth® 5.3 WW WLAN with Internal Antenna
	Intel® BE200 Wi-Fi 7 Bluetooth® 5.4 non-vPro® WW WLAN
Ports	Audio-out (headphone)/audio-in (microphone) combo jack
	HDMI 2.0 (supports up to 4K, 3840 x 2160) @ 60 Hz, HDCP)
	RJ-45 (network)
	USB Type-A 5Gbps (2)
	USB Type-C® 10Gbps (2) - Data transfer - Power delivery - DisplayPort 1.4 out up to 4K @ 60 Hz - HDMI 1.4 out through adapter
Keyboard/pointing devices	Keyboard
	Backlit
	Not backlit
	DuraKey
	Spill-resistant
	Clickpad requirements
	Multitouch gestures enabled
	Precision touchpad
	Taps enabled
Power requirements	Battery (HP Long Life, polymer,, 3 cell)

Table 1-1 Product components and their descriptions (continued)

Category	Description
	68 Wh
	56 Wh
	Smart AC adapters (USB-C®)
	65 W, Gallium Nitride (GaN), wall mount, USB Type-C, halogen free, fixed
	65 W, Gallium Nitride (GaN), standard USB-Type-C
	45 W, Gallium Nitride (GaN), standard USB-Type-C
	Power cord (select products only)
	C5, conventional, 1 m (3.3 ft), sticker
	C5, 1.0 m, sticker, conventional, red, straight, SA
	Nonstandard, black, straight, duckhead, halogen free
Security	
	Nano Security slot
	Fingerprint reader
	Camera privacy cover
Operating system	ChromeOS™ Plus
Serviceability	End user replaceable parts
	AC adapter
	Bottom cover
	Battery

2 Components

Your computer features top-rated components. This chapter provides details about your components, where they are located, and how they work.

Right side

Identify the components on the right side of the computer.

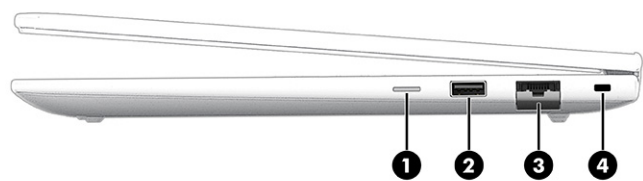


Table 2-1 Right-side components and their descriptions

	Component	Description
(1)	Nano SIM card slot (select products only)	Supports optional Nano SIM cards.
(2)	USB Type-A 5Gbps signaling rate	Connects a USB device, provides high-speed data transfer, and (for select products) charges small devices (such as a smartphone) when the computer is on or in sleep mode. NOTE: Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.
(3)	RJ45 Ethernet port	Connects a network cable.
(4)	Nano Security slot	Attaches an optional security cable to the computer. NOTE: The security cable is designed to act as a deterrent, but it might not prevent the computer from being mishandled or stolen.

Left side

Identify the components on the left side of the computer.

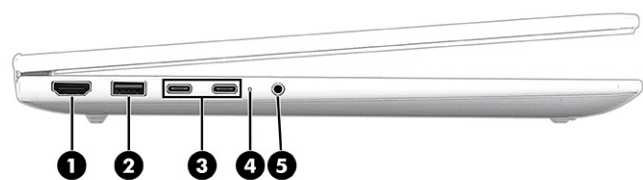


Table 2-2 Left-side components and their descriptions

	Component	Description
(1)	HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High Definition Multimedia Interface (HDMI) device.
(2)	USB Type-A 5Gbps signaling rate	Connects a USB device, provides high-speed data transfer, and (for select products) charges small devices (Such as a smartphone) when the computer is on or in sleep mode. NOTE: Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.
(3)	USB Type-C® 10Gbps signaling rate)	USB Power Delivery – and – DisplayPort 1.4 NOTE: Use a standard USB Type-C charging cable or cable adapter (purchased separately) when charging a small external device. – and – Connect a display device that has a USB Type-C connector, providing DisplayPort™ output.
(4)	Power Indicator LED	• White: The AC adapter is connected and the battery is fully charged. • Amber: The AC adapter is connected and the battery is charging. • Slow blinking amber: The battery has 4% or less charge. • Fast blinking amber: The battery has an error. • Off: The battery is not charging.
(5)	Audio-out (headphone)/Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone microphones. WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety, and Environmental Notices</i>. NOTE: When a device is connected to the jack, the computer speakers are disabled.

Display

Use the illustration and table to identify the components on the display.

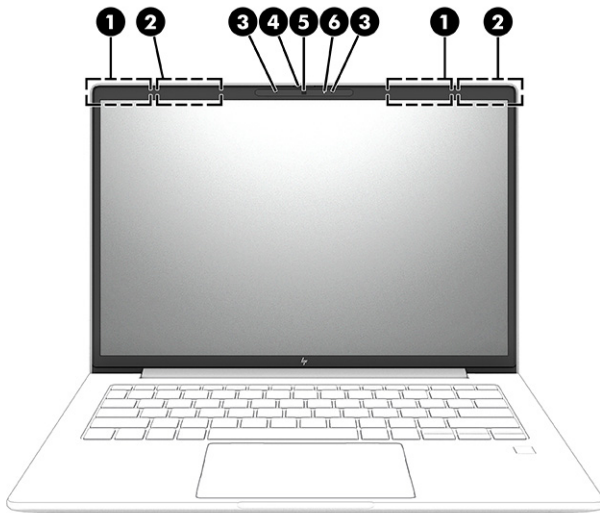


Table 2-3 Display components and their descriptions

	Component	Description
(1)	WLAN antennas* (2)	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2)	WWAN antennas* (2) (select products only)	Send and receive wireless signals to communicate with wireless wide area networks (WWANs).
(3)	Internal microphones (2)	Record sound.
(4)	Camera privacy cover	By default, the camera lens is uncovered, but you can slide the camera privacy cover to block the camera's view. To use the camera, slide the camera privacy cover in the opposite direction to reveal the lens.
(5)	Camera	Allows you to video chat, record video, and record still images. NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
(6)	Camera light	On (white): The camera is in use. Off: The camera is turned off by the software.

*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.

Keyboard area

Keyboards can vary by language.



NOTE: The keyboard area, including the function keys and (select products only) power key, is disabled in stand, tent, and tablet modes. To enable the keyboard, including the power key, change to the clamshell mode.

Touchpad components

Use this illustration and table to identify the touchpad components.

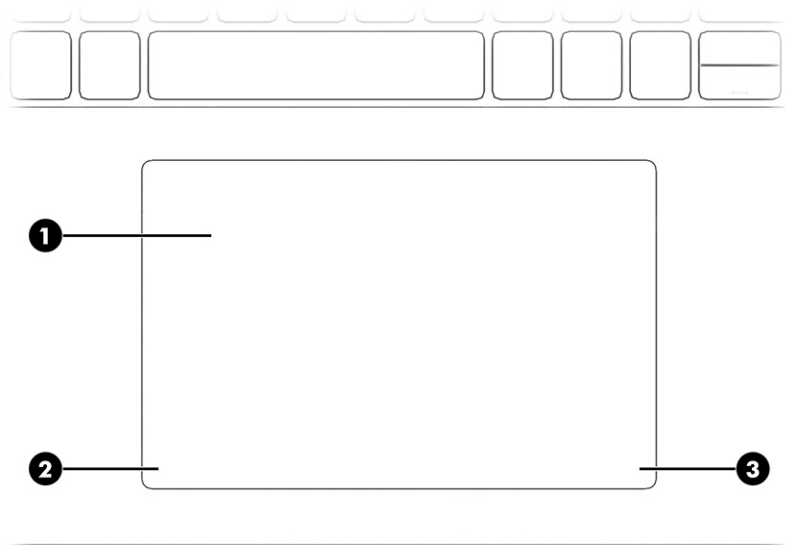


Table 2-4 Touchpad components and their descriptions

	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.

Fingerprint reader

Use the illustration and table to identify the fingerprint reader.

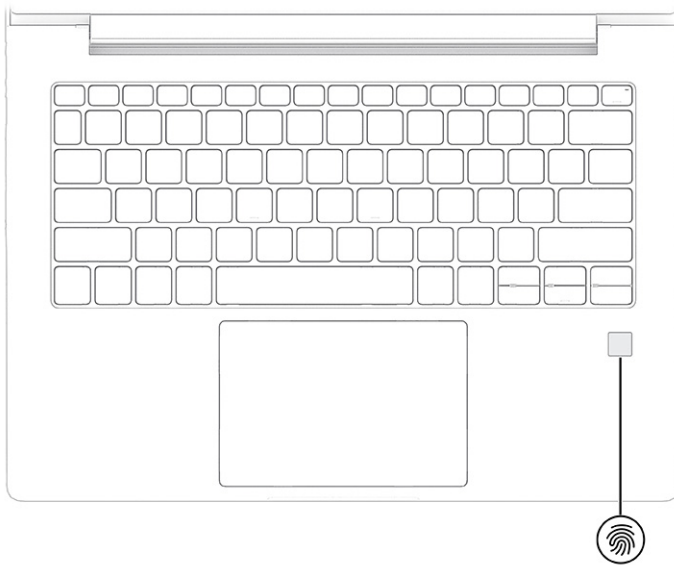


Table 2-5 Fingerprint reader and description

Component	Description
 Fingerprint reader (select products only)	The fingerprint reader allows you to unlock the computer screen or to resume computer operations. The reader does not function as a login device. ■ Touch your finger to the fingerprint reader.

Power light

Use the illustration and table to identify the power light.

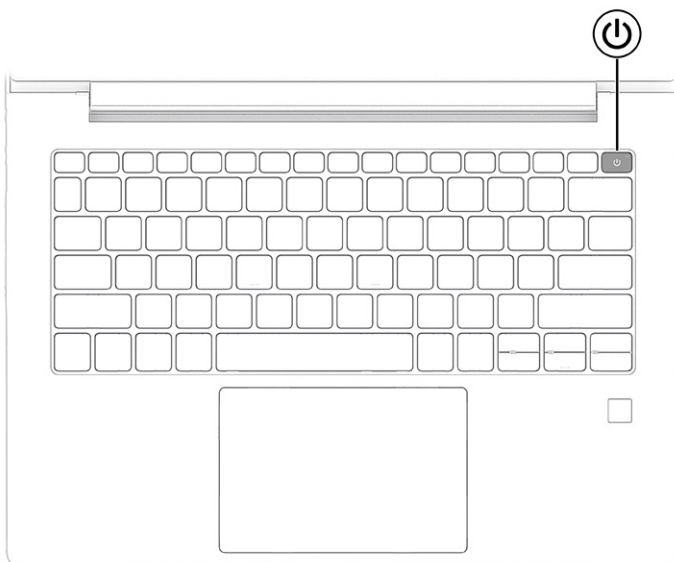


Table 2-6 Power light and description

	Component	Description
	Power light	- On: The computer is on. - Blinking: The computer is in the sleep state, a power-saving state. The computer shuts off power to the display and other unnecessary components. - Off: The computer is off.

Special keys

Use the illustration and table to locate the special keys.

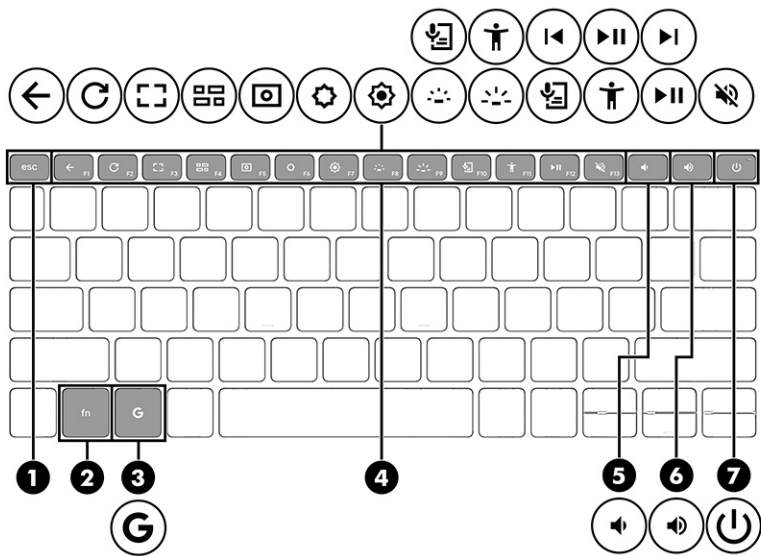


Table 2-7 Special keys and their descriptions

	Component	Description
(1)	esc key	Activates certain computer functions when pressed in combination with other keys, such as tab or shift .
(2)	fn key	Executes frequently used system functions when pressed in combination with another key.
(3)	 Google™ search key	Opens Google search.
(4)	Action keys	Execute frequently used system functions.
(5)	 Volume down key	Decreases speaker volume incrementally while you hold down the key.
(6)	 Volume up key	Increases speaker volume incrementally while you hold down the key.

Table 2-7 Special keys and their descriptions (continued)

	Component	Description
(7) 	Power key	- When the computer is off, press the key briefly to turn on the computer. - When the computer is in the sleep state, press the key briefly to exit sleep (select products only). IMPORTANT: Pressing and holding down the power key results in the loss of unsaved information. If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power key for at least 10 seconds to turn off the computer.

Action keys

Action keys perform specific functions and vary by computer. To determine which keys are on your computer, look at the icons on your keyboard and match them to the descriptions in this table.

- To use an action key, press and hold the key.

For more information about action keys and keyboard shortcuts, go to <https://support.google.com/chromebook/answer/183101>. Select your language at the bottom of the page.

Table 2-8 Action keys and their descriptions

Icon	Key	Description
	Back	Displays the previous page in your browser history.
	Reload	Reloads your current page.
	Full screen	Opens your page in full-screen mode.
	Display apps	Displays all open apps.
	Screenshot	Takes a screenshot of your current computer screen.
	Brightness down	Decreases the screen brightness incrementally while you hold down the key.
	Brightness up	Increases the screen brightness incrementally while you hold down the key.

Table 2-8 Action keys and their descriptions (continued)

Icon	Key	Description
	Keyboard backlight down	Decreases the keyboard backlight incrementally while you hold down the key.
	Keyboard backlight up	Increases the keyboard backlight incrementally while you hold down the key.
	Dictation	Turn on the dictation feature.
	Accessibility	Opens the accessibility feature and provides quick access to screen readers, magnification, and keyboard tools.
	Previous	Plays the previous track of audio or video.
	Play/Pause	Plays or pauses music or video.
	Next	Plays the next track of audio or video.
	Mute	Mutes speaker sound.

Bottom

Use the illustration and table to identify the bottom components.

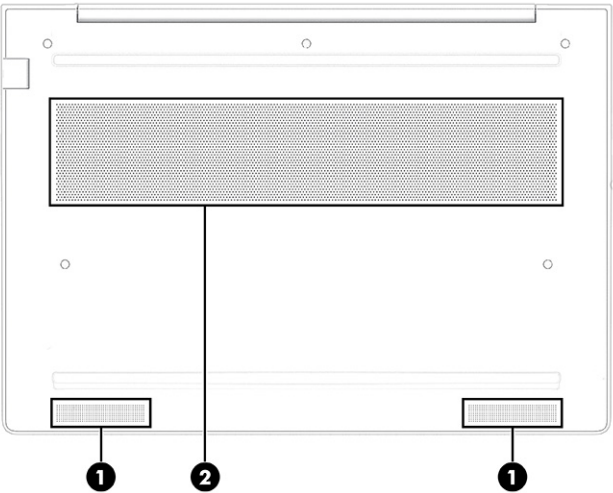


Table 2-9 Bottom components and descriptions

	Components	Description
(1)	Speakers (2)	Produce sound.
(2)	Vent	Enables airflow to cool internal components. NOTE: The computer fan starts automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.

Rear

Use the illustration and table to identify the rear component.

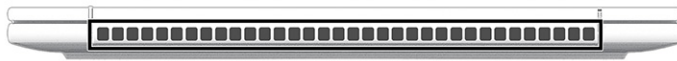


Table 2-10 Rear component and description

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

Labels

The labels affixed to the computer provide information that you might need when you troubleshoot system problems or travel internationally with the computer. Labels can be in paper form or imprinted on the product.

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

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

Your service label will resemble the following example:

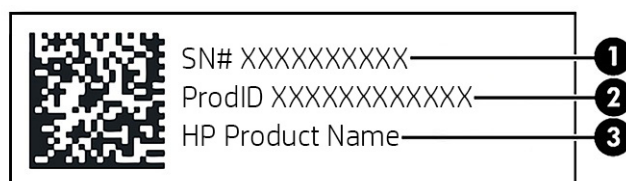


Table 2-11 Service label components

Component	
(1)	Serial number
(2)	Product ID
(3)	HP product name and model number

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

3 Illustrated parts catalog

Use this chapter to determine the spare parts that are available for the computer.

Computer major components

To identify the computer major components, use this illustration and table.

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

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

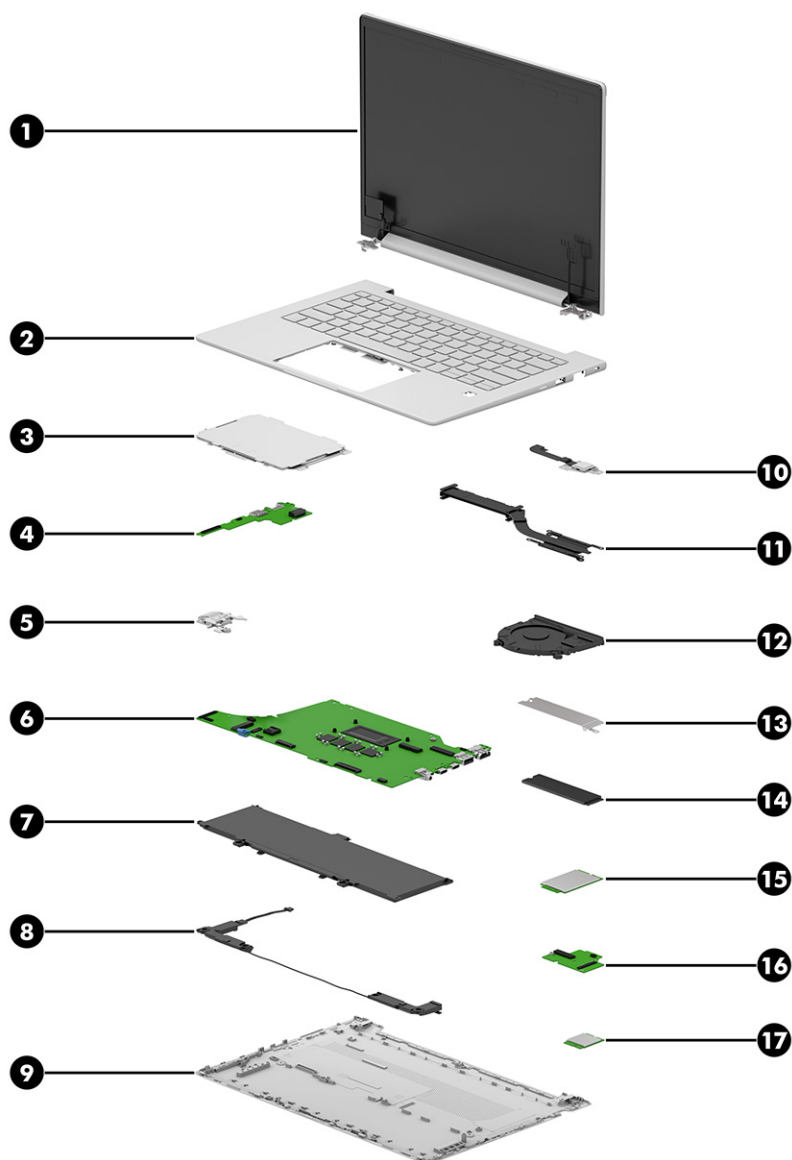


Table 3-1 Computer major component descriptions and part numbers

Item	Component	Spare part number
(1)	Display assembly NOTE: Display spare parts are available as subcomponents, not as whole units. Display subcomponent spare parts are available. For spare part information, see Display assembly subcomponents on page 17 .	not available as a spare part
(2)	Top cover/keyboard NOTE: For a detailed list of country codes, see Keyboard with top cover on page 58 .	
	Pike silver, backlit	Q01437-xx1
	Pike silver, backlit, fingerprint sensor	Q01438-xx1
(3)	Touchpad	Q02287-001

Table 3-1 Computer major component descriptions and part numbers (continued)

Item	Component	Spare part number
(4)	USB bracket	
(5)	RJ45	N96449-001
(6)	System board (includes integrated processor)	
	Intel Core 7 250U processor 32 GB	Q01425-001
	Intel Core 7 250U processor 32 GB WWAN	Q01426-001
	Intel Core 7 250U processor 16 GB	Q01423-001
	Intel Core 7 250U processor 16 GB WWAN	Q01424-001
	Intel Core 5 220U processor 32 GB	Q01419-001
	Intel Core 5 220U processor 32 GB WWAN	Q01420-001
	Intel Core 5 220U processor 16 GB	Q01423-001
	Intel Core 5 220U processor 16 GB WWAN	Q01424-001
	Intel Core 5 220U processor 8 GB	Q01422-001
	Intel Core 5 220U processor 8 GB 128G UFS	Q01421-001
	Intel Core 5 120U processor 16 GB	Q01414-001
	Intel Core 5 120U processor 16 GB WWAN	Q01415-001
	Intel Core 5 120U processor 16 GB 128G UFS	Q01416-001
	Intel Core 3 100U processor 16 GB	Q01411-001
	Intel Core 3 100U processor 16 GB WWAN	Q01412-001
	Intel Core 3 100U processor 16 GB 128G UFS	Q01413-001
(7)	Battery (3 cell)	
	68 Wh 5.83 Ah Plastic with cable	P98013-001
	56 Wh 4.84 Ah Plastic	N7076-001
(8)	Speakers	P98018-001
(9)	Bottom cover	
	Plastic	Q02288-001
	Metal	Q02289-001
(10)	Fingerprint reader	Q05376-001
(11)	Heat sink	N96443-001
(12)	Fan	
	100W for TB4 G6 dock	P34059-001
	180W/280W for TB4 G6 dock	P34058-001
	15W	N96441-001
(13)	SSD bracket w/thermal pad	N9649-001
(14)	SSD	

Table 3-1 Computer major component descriptions and part numbers (continued)

Item	Component	Spare part number
	1 TB 2280 PCIe 4x4 NVMe VAL nM	N77394-005
	512 GB 2280 PCIe 4x4 NVMe VAL nM	N77392-005
	256 GB 2280 PCIe 4x4 NVMe VAL nM	N77391-005
(15)	WWAN module	
	HP R15 5G Solution	P59348-005
(16)	WWAN board	P98019-001
(17)	WLAN module	
	Intel AX211 Wi-Fi 6 Bluetooth 5.3 WW WLAN with Internal Antenna	M53366-005
	Intel BE200 Wi-Fi 7 Bluetooth 5.4 non-vPro WW WLAN	N39883-005

Display assembly subcomponents

To identify the display assembly subcomponents, use this illustration and table.

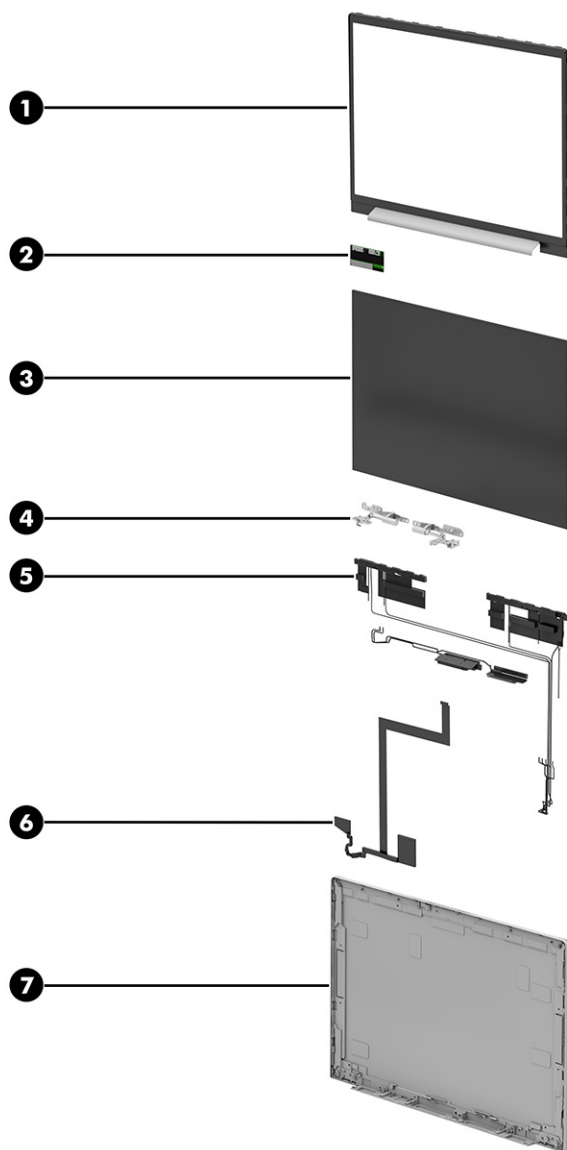


Table 3-2 Display component descriptions and part numbers

Item	Component	Spare part number
(1)	Display bezel	Q14680-001
(2)	OLED printed circuit assembly	P80871-001
(3)	Display panel	
	NOTE: Display panel adhesive is available as spare part number N44094-001.	
	FHD, antiglare, UWVA, 400 nits	Q01427-001
	WUXGA, antiglare, UWVA, 300 nits	Q01428-001
	WUXGA, antiglare, UWVA, 300 nits, touch-on-panel	Q01429-001
(4)	Display hinges	xxxxxx-001

Table 3-2 Display component descriptions and part numbers (continued)

Item	Component	Spare part number
	Hinge kit	N96451-001
	Hinges, LCD, WWAN S600	Q05378-001
(5)	WLAN antenna kit (include antenna cables and transceivers)	xxxxxx-001
	Intel AX211 Wi-Fi 6 Bluetooth 5.3 M.2 2230 w/internal antenna	M53366-005
	Intel BE200 Wi-Fi 7 Bluetooth 5.4 non-vPro	N39883-005
(6)	Camera module	
	FHD HDR camera	Q14682-001
	5MP HDR camera	Q02300-001
(7)	Display back cover	
	Back cover w/ant, WLAN, 300n, 400n	Q02291-001
	Back cover w/ant, WLAN, 300n, 400n, 5 MP	Q02292-001
	Back cover w/ant, WLAN, QHD 5 MP	Q02294-001
	Back cover w/ant, WWAN, 300n, 400n, 5MP	Q02291-001
	Back cover w/ant, WWAN, WHD, 5HD	Q02298-001

Miscellaneous parts

To identify the miscellaneous parts, use this table.

Table 3-3 Miscellaneous part descriptions and part numbers

Component	Spare part number
AC adapters	
120W, PFC, Smart, 4.5 mm, Slim	M95377-001
330W, PFC, Smart, 4.5 mm, 3P	N80119-001
230W PFC, Smart, 4.5 mm	N84766-001
Screw Kit	P98195-001
Power cords (C5, 1.0 m [3.3 ft], conventional with sticker)	
For use in Argentina	L19357-001
For use in Australia	L19358-001
For use in Brazil	L19359-001
For use in Denmark	L19360-001
For use in Europe	L19361-001
For use in Israel	L19362-001
For use in India	L19363-001
For use in Italy	L19364-001

Table 3-3 Miscellaneous part descriptions and part numbers (continued)

Component	Spare part number
For use in Japan	L19365-001
For use in Korea	L19366-001
For use in North America	L19367-001
For use in South America	L19369-001
For use in Switzerland	L19370-001
For use in Thailand	L19371-001
For use in Taiwan	L19372-001
For use in United Kingdom	L19373-001
Power cord (C3, 1.0 m [3.3 ft], straight, premium)	
For use in Chile/Italy	L22103-001
For use in Merco, Argentina	L22104-001
For use in North America	L22331-001
For use in the United Kingdom	L22332-001
For use in Europe	L22333-001
For use in Denmark	L22334-001
For use in Israel	L22335-001
For use in Switzerland	L22336-001
For use in South America	L22337-001
For use in Thailand	L22338-001
For use in Australia	L22339-001
For use in South Korea	L22340-001
For use in Taiwan	L22342-001
For use in India	L22343-001
For use in Japan	L22344-001
For use in Brazil	L57198-001
Power cord Duckhead, non-standard, straight, high-frequency	
For use in Europe	P57782-001
For use in the United Kingdom	P57783-001
For use in Australia	P57784-001
For use in South Korea	P57785-001
For use in Thailand	P57786-001
For use in Argentina	P57788-001
For use in Brazil	P57789-001
For use in India	P57790-001

Table 3-3 Miscellaneous part descriptions and part numbers (continued)

Component	Spare part number
Power cord (C5, 1.83 m [6 ft], convertible, red	P79415-001

4 Removal and replacement procedures preliminary requirements

Use this information to properly prepare to disassemble and reassemble the computer.

Tools required

You need the following tools to complete the removal and replacement procedures.

- Tweezers
- Nonconductive, nonmarking pry tool
- Magnetic Phillips P1 screwdriver

Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.



NOTE: As you remove each subassembly from the computer, place the subassembly and all accompanying screws away from the work area to prevent damage.

Plastic parts

Using excessive force during disassembly and reassembly can damage plastic parts.

Cables and connectors

Handle cables with extreme care to avoid damage.



IMPORTANT: When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

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 so that they cannot be caught or snagged as you remove or replace parts. Handle flex cables with extreme care; these cables tear easily.

Drive handling

Note the following guidelines when handling drives.



IMPORTANT: Drives are fragile components. Handle them with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in hibernation or sleep mode, turn the computer on, and then shut it down through the operating system.

- Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
 - Before removing an optical drive, be sure that a disc is not in the drive, and be sure that the optical drive tray is closed.
 - Handle drives on surfaces covered with at least 2.54 cm (1 inch) of shock-proof foam.
 - Avoid dropping drives from any height onto any surface.
 - After removing a hard drive or an optical drive, place it in a static-proof bag.
 - Avoid exposing an internal hard drive to products that have magnetic fields, such as monitors or speakers.
 - Avoid exposing a drive to temperature extremes or liquids.
 - If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging, and label the package "FRAGILE."
-

Electrostatic discharge information

A sudden discharge of static electricity from your finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) might not appear to be affected at all and can work perfectly throughout a normal cycle. The device might function normally for a while, but it has been degraded in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.



IMPORTANT: To prevent damage to the device when you remove or install 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 [Personal grounding methods and equipment on page 24](#).
 - 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.
-

Generating static electricity

Follow these static electricity guidelines.

- Different activities generate different amounts of static electricity.
- Static electricity increases as humidity decreases.

Table 4-1 Static electricity occurrence based on activity and humidity

Event	55% relative humidity	40% relative humidity	10% relative humidity
Walking across carpet	7500 V	15,000 V	35,000 V
Walking across vinyl floor	3000 V	5000 V	12,000 V
Motions of bench worker	400 V	800 V	6000 V
Removing dual in-line packages (DIPs) from plastic tube	400 V	700 V	2000 V
Removing DIPs from vinyl tray	2000 V	4000 V	11,500 V
Removing DIPs from polystyrene foam	3500 V	5000 V	14,500 V
Removing bubble pack from PCB (printed circuit board)	7000 V	20,000 V	26,500 V
Packing PCBs in foam-lined box	5000 V	11,000 V	21,000 V



NOTE: Multiple electric components can be packaged together in plastic tubes, trays, or polystyrene foam.



NOTE: As little as 700 V of static electricity can degrade a product.

Preventing electrostatic damage to equipment

Many electronic components are sensitive to ESD. Circuitry design and structure determine the degree of sensitivity.

The following packaging and grounding precautions are necessary to prevent static electricity damage to electronic components:

- To avoid hand contact, transport products in static-safe containers such as tubes, bags, or boxes.
- Protect all electrostatic parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Place items on a grounded surface before removing them from their container.
- Always be properly grounded when touching a sensitive component or assembly.
- Avoid contact with pins, leads, or circuitry.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or conductive foam.

Personal grounding methods and equipment

Using certain equipment can prevent static electricity damage to electronic components.

- **Wrist straps** are flexible straps with a maximum of $1\text{ M}\Omega \pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snug against bare skin. Verify that the ground cord is connected and fits snugly into the banana plug connector on the grounding mat or workstation.
- You can use **heel straps, toe straps, and boot straps** at standing workstations. These straps are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a maximum of $1\text{ M}\Omega \pm 10\%$ resistance between the operator and ground.

Table 4-2 Static shielding protection levels

Method	Voltage
Antistatic plastic	1500
Carbon-loaded plastic	7500
Metalized laminate	15,000

Grounding the work area

To prevent static damage at the work area, follow these precautions.

- Cover the work surface with approved static-dissipative material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use static-dissipative mats, foot straps, or air ionizers to give added protection.
- Handle electrostatic sensitive components, parts, and assemblies by the case or PCB laminate. Handle them only at static-free work areas.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Use fixtures made of static-safe materials when fixtures must directly contact dissipative surfaces.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and polystyrene foam.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- Avoid contact with pins, leads, or circuitry.

Recommended materials and equipment

HP recommends certain materials and equipment to prevent static electricity.

- Antistatic tape
- Antistatic smocks, aprons, or sleeve protectors
- Conductive bins and other assembly or soldering aids
- Conductive foam
- Conductive tabletop workstations with ground cord of $1\text{ M}\Omega \pm 10\%$ resistance
- Static-dissipative table or floor mats with hard tie to ground
- Field service kits
- Static awareness labels
- Wrist straps and footwear straps providing $1\text{ M}\Omega \pm 10\%$ resistance
- Material handling packages
- Conductive plastic bags

- Conductive plastic tubes
- Conductive tote boxes
- Opaque shielding bags
- Transparent metallized shielding bags
- Transparent shielding tubes

Cleaning your computer

Cleaning your computer regularly removes dirt and debris so that your device continues to operate at its best. Use the following information to safely clean the external surfaces of your computer.

Enabling HP Easy Clean (select products only)

HP Easy Clean helps you to avoid accidental input while you clean the computer surfaces. This software disables devices such as the keyboard, touch screen, and touchpad for a preset amount of time so that you can clean all computer surfaces.

1. Start HP Easy Clean in one of the following ways:
 - Select the **Start** menu, and then select **HP Easy Clean**.
 - Select the **HP Easy Clean** icon in the taskbar.
 - Select **Start**, and then select the **HP Easy Clean** tile.
2. Now that your device is disabled for a short period, see [Removing dirt and debris from your computer on page 26](#) for the recommended steps to clean the high-touch, external surfaces on your computer. After you remove the dirt and debris, you can also clean the surfaces with a disinfectant. See [Cleaning your computer with a disinfectant on page 27](#) for guidelines to help prevent the spread of harmful bacteria and viruses.

Removing dirt and debris from your computer

Here are the recommended steps to clean dirt and debris from your computer.

For computers with wood veneer, see [Caring for wood veneer \(select products only\) on page 28](#).

1. Wear disposable gloves made of latex (or nitrile gloves, if you are latex-sensitive) when cleaning the surfaces.
2. Turn off your device and unplug the power cord and other connected external devices. Remove any installed batteries from items such as wireless keyboards.

 **CAUTION:** To prevent electric shock or damage to components, never clean a product while it is turned on or plugged in.

3. Moisten a microfiber cloth with water. The cloth should be moist, but not dripping wet.

 **IMPORTANT:** To avoid damaging the surface, avoid abrasive cloths, towels, and paper towels.

4. Wipe the exterior of the product gently with the moistened cloth.

 **IMPORTANT:** Keep liquids away from the product. Avoid getting moisture in any openings. If liquid makes its way inside your HP product, it can cause damage to the product. Do not spray liquids directly on the product. Do not use aerosol sprays, solvents, abrasives, or cleaners containing hydrogen peroxide or bleach that might damage the finish.

5. Start with the display (if applicable). Wipe carefully in one direction, and move from the top of the display to the bottom. Finish with any flexible cables, like power cord, keyboard cable, and USB cables.
6. Be sure that surfaces have completely air-dried before turning the device on after cleaning.
7. Discard the gloves after each cleaning. Clean your hands immediately after you remove the gloves.

See [Cleaning your computer with a disinfectant on page 27](#) for recommended steps to clean the high-touch, external surfaces on your computer to help prevent the spread of harmful bacteria and viruses.

Cleaning your computer with a disinfectant

The World Health Organization (WHO) recommends cleaning surfaces, followed by disinfection, as a best practice for preventing the spread of viral respiratory illnesses and harmful bacteria.

After cleaning the external surfaces of your computer using the steps in [Removing dirt and debris from your computer on page 26](#), [Caring for wood veneer \(select products only\) on page 28](#), or both, you might also choose to clean the surfaces with a disinfectant. A disinfectant that is within HP's cleaning guidelines is an alcohol solution consisting of 70% isopropyl alcohol and 30% water. This solution is also known as rubbing alcohol and is sold in most stores.

Follow these steps when disinfecting high-touch, external surfaces on your computer:

1. Wear disposable gloves made of latex (or nitrile gloves, if you are latex-sensitive) when cleaning the surfaces.
2. Turn off your device and unplug the power cord and other connected external devices. Remove any installed batteries from items such as wireless keyboards.

 **CAUTION:** To prevent electric shock or damage to components, never clean a product while it is turned on or plugged in.

3. Moisten a microfiber cloth with a mixture of 70% isopropyl alcohol and 30% water. The cloth should be moist, but not dripping wet.

 **CAUTION:** Do not use any of the following chemicals or any solutions that contain them, including spray-based surface cleaners: bleach, peroxides (including hydrogen peroxide), acetone, ammonia, ethyl alcohol, methylene chloride, or any petroleum-based materials, such as gasoline, paint thinner, benzene, or toluene.

 **IMPORTANT:** To avoid damaging the surface, avoid abrasive cloths, towels, and paper towels.

4. Wipe the exterior of the product gently with the moistened cloth.

 **IMPORTANT:** Keep liquids away from the product. Avoid getting moisture in any openings. If liquid makes its way inside your HP product, it can cause damage to the product. Do not spray liquids directly on the product. Do not use aerosol sprays, solvents, abrasives, or cleaners containing hydrogen peroxide or bleach that might damage the finish.

5. Start with the display (if applicable). Wipe carefully in one direction, and move from the top of the display to the bottom. Finish with any flexible cables, like power cord, keyboard cable, and USB cables.
6. Be sure that surfaces have completely air-dried before turning the device on after cleaning.
7. Discard the gloves after each cleaning. Clean your hands immediately after you remove the gloves.

Caring for wood veneer (select products only)

Your product might feature high-quality wood veneer. As with all natural wood products, proper care is important for best results over the life of the product. Because of the nature of natural wood, you might see unique variations in the grain pattern or subtle variations in color, which are normal.

- Clean the wood with a dry, static-free microfiber cloth or chamois.
- Avoid cleaning products containing substances such as ammonia, methylene chloride, acetone, turpentine, or other petroleum-based solvents.
- Do not expose the wood to sun or moisture for long periods of time.
- If the wood becomes wet, dry it by dabbing with an absorbent, lint-free cloth.
- Avoid contact with any substance that might dye or discolor the wood.
- Avoid contact with sharp objects or rough surfaces that might scratch the wood.

See [Removing dirt and debris from your computer on page 26](#) for the recommended steps to clean the high-touch, external surfaces on your computer. After you remove the dirt and debris, you can also clean the surfaces with a disinfectant. See [Cleaning your computer with a disinfectant on page 27](#) for sanitizing guidelines to help prevent the spread of harmful bacteria and viruses.

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.

Accessing support information

Use this information to find the HP support that you need.

Table 4-3 Support information locations

Service consideration	Path to access information
Records of reported failure incidents stored on the computer	Windows: Pre-operating system failures are logged in the BIOS Event Log. To view the BIOS Event Log: 1. Press the power button. 2. Immediately and repeatedly press esc when the power button light turns white. NOTE: If you do not press esc at the appropriate time, you must restart the computer and again repeatedly press esc when the power button light turns white to access the utility. 3. Press f10 to enter the BIOS setup. 4. Complete one of these tasks: • (On commercial products) Under the Main tab, select BIOS event log, and then select View BIOS Event Log. • (On consumer products) Under the Main tab, select System Log. Post-operating system failures are logged in the Event Viewer. 1. Turn on the computer and allow the operating system to open. 2. Select the search icon  in the taskbar. 3. Type <code>Event Viewer</code>, and then press enter. 4. Select the log from the left panel. Details display in the right panel. ChromeOS™: 1. Go to support.google.com/chrome. 2. Search <code>collect Chrome device logs</code>.
Technical bulletins and alerts	To find technical bulletins, alerts, guides, and whitepapers: 1. Go to www.hp.com/support. 2. Follow the instructions to find your product. 3. Select Bulletins and Alerts to view technical bulletins.
Repair professionals	To locate repair professionals: 1. Go to www.hp.com. 2. Select Authorized service providers. 3. Select your location.
Component and diagnosis information, failure detection, and required action	To locate diagnosis information and actions: 1. Go to http://www.hp.com/go/techcenter/pcdiags. 2. Select the issue you want to diagnose.

5 Removal and replacement procedures for Customer Self-Repair parts

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

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

 **NOTE:** The [HP Support YouTube Channel](#) (in English) has videos that provide step-by-step removal and replacement instructions for many common parts and models.

Component replacement procedures

Use these procedures to remove and replace computer components.

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

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

Make special note of each screw size and location during removal and replacement.

Preparation for disassembly

Use these procedures to remove and replace computer components.

For initial safety procedures, see [Removal and replacement procedures preliminary requirements on page 22](#).

1. Turn off the computer. If you are unsure whether the computer is off or in hibernation or sleep mode, 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.

Bottom cover

To remove the bottom cover, use this procedure and illustration.

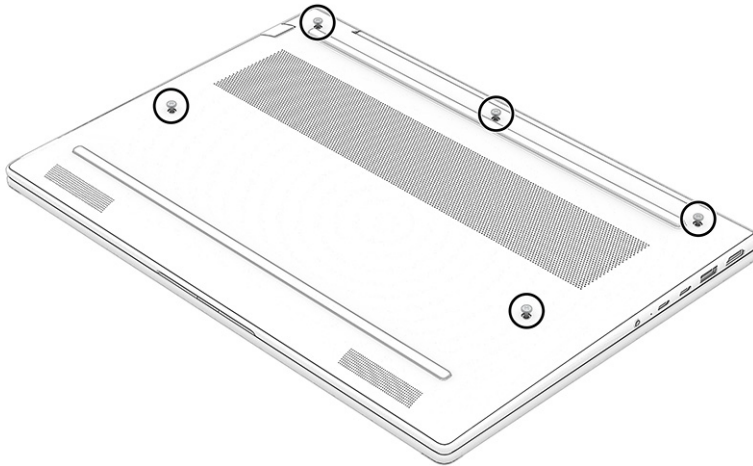
Table 5-1 Bottom cover description and part number

Description	Spare part number
Plastic	Q02288-001
Metal	Q02289-001

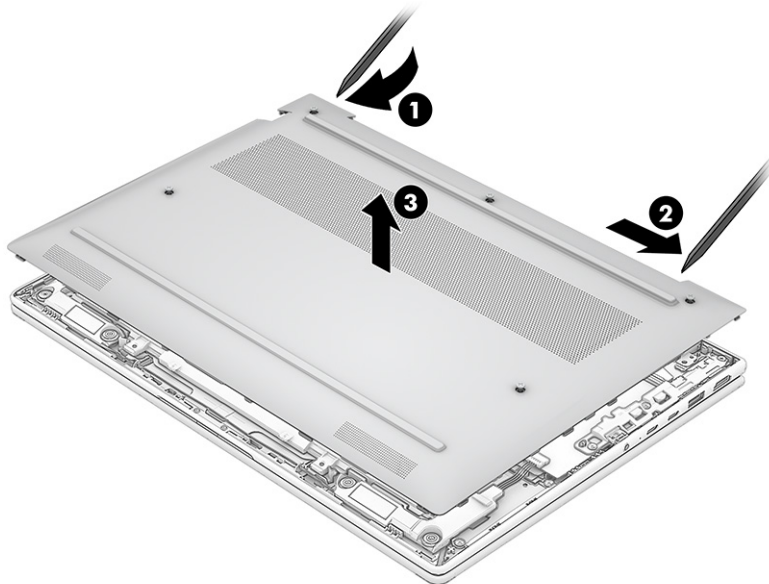
Before removing the bottom cover, prepare the computer for disassembly ([Preparation for disassembly on page 30](#)).

Remove the bottom cover:

1. Position the computer upside down with the front toward you.
2. Remove the two Phillips M2.5 × 10.4 screws and the three Phillips M2.5 × 7.3 screws (5 screws) that secure the bottom cover to the computer.



3. Use a case utility tool or similar thin plastic tool push out (1), (2) to separate the top edge of the bottom cover from the computer.
4. Remove the bottom cover (3).



To install the bottom cover, reverse the removal procedures.

Battery

The battery removal procedure differs depending on whether you are removing and replacing the existing battery or installing a new battery. To install a new battery, you must use a revive kit.

- To remove and replace the existing battery, see [Removing and reinstalling the same battery on page 32](#).
- To install a new battery, see [Installing a new battery on page 33](#).

Removing and reinstalling the same battery

Use this procedure and illustration to remove the battery.

 **WARNING!** To avoid personal injury and damage to the product:

- Do *not* puncture, twist, or crack the battery.
 - Do *not* cause an external puncture or rupture to the battery, which can cause a short inside the battery that can result in battery thermal runaway.
 - Do *not* handle or touch the battery enclosure with sharp objects such as tweezers or pliers, which might puncture the battery.
 - Do *not* compress or squeeze the battery case with tools or heavy objects stacked on top of the case. These actions can apply undue force on the battery.
 - Do *not* touch the connectors with any metallic surface or object, such as metal tools, screws, or coins, which can cause shorting across the connectors.
-

For additional battery information, see the *Regulatory, Safety, and Environmental Notices*. To access this guide, select the **Search** icon in the taskbar, type **HP Documentation** in the search box, and then select **HP Documentation**.

Before removing the battery, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).

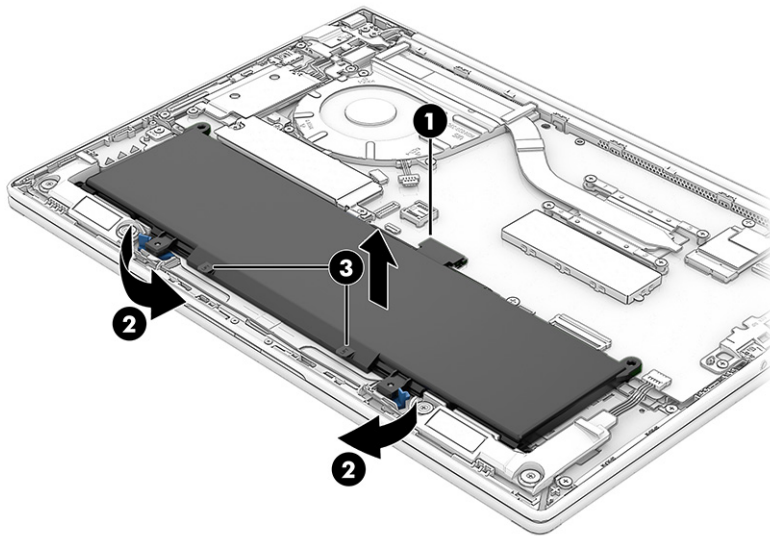
 **WARNING!** To reduce potential safety issues, use only the user-replaceable battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

 **IMPORTANT:** 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 you remove the battery.

Remove the battery:

1. Disconnect the battery cable **(1)** from the system board.
2. Release the two latches **(2)** that secure the battery to the computer.

3. Remove the battery from the computer (3).



Reverse this procedure to install the battery.



NOTE: When reinstalling the battery, be sure to completely reassemble the computer and plug in the AC adapter before turning the computer on.

Installing a new battery

Use these procedures and illustrations to install the battery. You must use a revive kit to remove the old battery and install a new one. The revive kit includes an empty containment tray and a containment tray with a battery preinstalled.

Table 5-2 Battery description and part number

Description	Spare part number
xxxxxxx	xxxxxx-001

Before starting this replacement procedure:

- Ensure other individuals are sufficiently clear of your workspace.
- Ensure your workspace is clear of any flammable material such as paper or oils.
- Locate the nearest ABC dry chemical fire extinguisher for use in an emergency.



WARNING! This procedure requires removing the battery or disconnecting the battery cable. Use care to avoid bending, twisting, or puncturing the battery regardless of its condition. Failure to follow this replacement guide or to use HP recommended tools might damage the system and/or cause a safety hazard.

- Do *not* remove the battery from the containment tray.
- Do *not* handle or touch the battery enclosure with sharp objects such as tweezers or pliers, which might puncture the battery.

- Do *not* touch the connectors with any metallic surface or object, such as metal tools, screws, or coins, which can cause shorting across the connectors.

Should a part become stuck or difficult to remove when opening a unit where a swollen battery is suspected, or if the battery becomes stuck in the unit, stop and contact HP Support for assistance. Do not try to remove a battery by force.



NOTE: Latch locations and internal components might vary.

Before removing the battery, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).

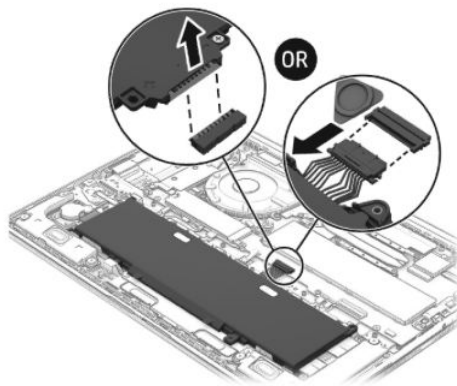


WARNING! To reduce potential safety issues, use only the user-replaceable battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.



IMPORTANT: 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 you remove the battery.

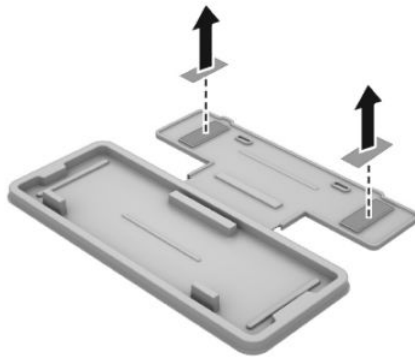
1. Remove the battery using the revive kit:
 - a. Disconnect the battery cable from the system board. The connector location might vary.



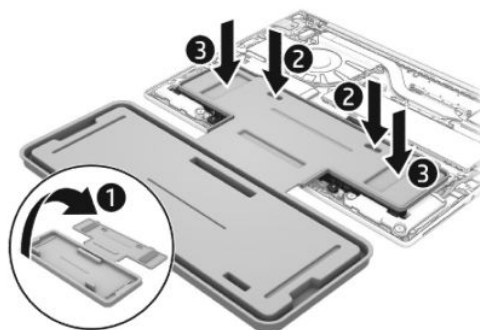
- b. Open the empty battery containment tray.



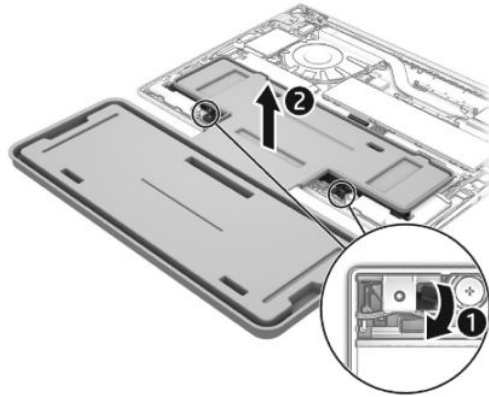
- c. Remove the paper backing layer from the adhesive on the tray.



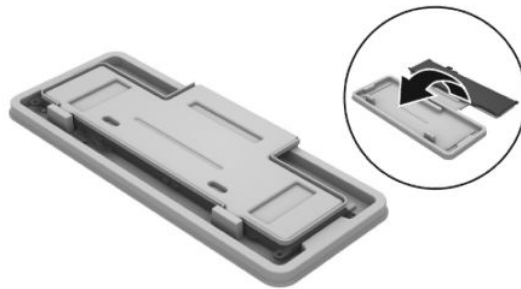
- d. Turn the tray (1) over so that the adhesive is facing down.
- e. Place the tray (2) centered on the battery.
- f. Press down on the indentations on the tray (3) to adhere it to the battery.



- g. Rotate to unlock the latches **(1)** that secure the battery to the computer. Number of latches and latch locations might vary.
- h. Lift the top of the tray **(2)** to remove the battery from the computer.



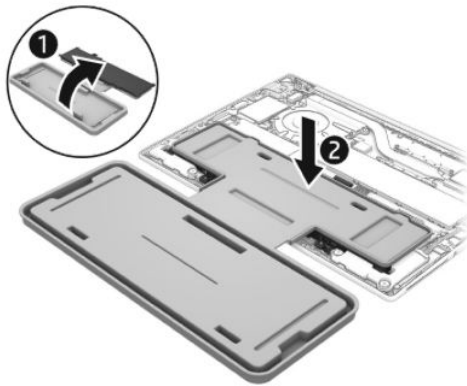
- i. Rotate the battery up and over into the cavity of the containment tray.



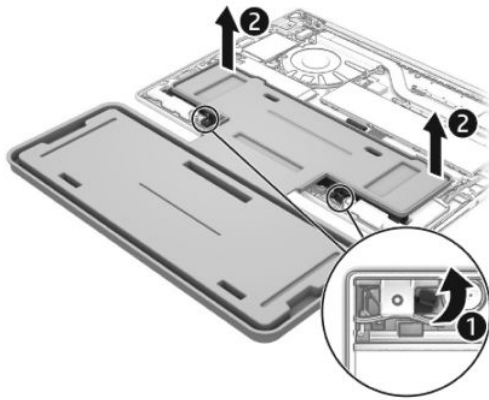
 **NOTE:** Please recycle responsibly. For more information about recycling programs, see the HP website at <http://www.hp.com/recycle>.

- 2. Install the battery using the revive kit:
 - a. Open the containment tray that includes the new battery.

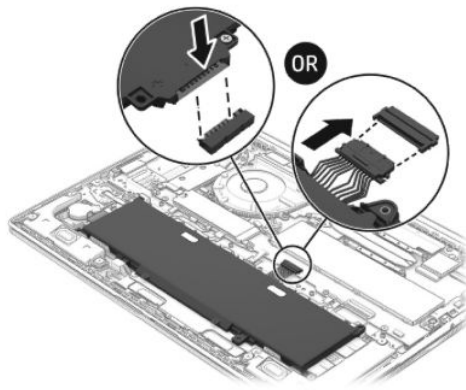
- b. Turn the tray **(1)** over so the battery is facing downward, and then insert the battery **(2)** into the computer. Adhesive secures the battery to the tray.



- c. Rotate to lock the latches **(1)** to secure the battery. Number of latches and latch locations might vary.
- d. Lift the containment tray **(2)** off the battery.



- e. Connect the battery cable to the system board. The connector location might vary.



NOTE: When replacing the battery, be sure to completely reassemble the computer and plug in the AC adapter before turning the computer on.

6 Removal and replacement procedures for authorized service provider parts

This chapter provides removal and replacement procedures for authorized service provider parts.

 **IMPORTANT:** Only an authorized service provider should access the components described in this chapter. Accessing these parts can damage the computer or void the warranty.

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

 **NOTE:** The [HP Support YouTube Channel](#) (in English) has videos that provide step-by-step removal and replacement instructions for many common parts and models.

Component replacement procedures

Use the procedures described in this section to remove and replace computer components.

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

Make special note of each screw size and location during removal and replacement.

Preparation for disassembly

Use these procedures to remove and replace computer components.

For initial safety procedures, see [Removal and replacement procedures preliminary requirements on page 22](#).

1. Turn off the computer. If you are unsure whether the computer is off or in hibernation or sleep mode, 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.

Speakers

Use this procedure and illustration to remove the speakers.

Table 6-1 Speaker description and part number

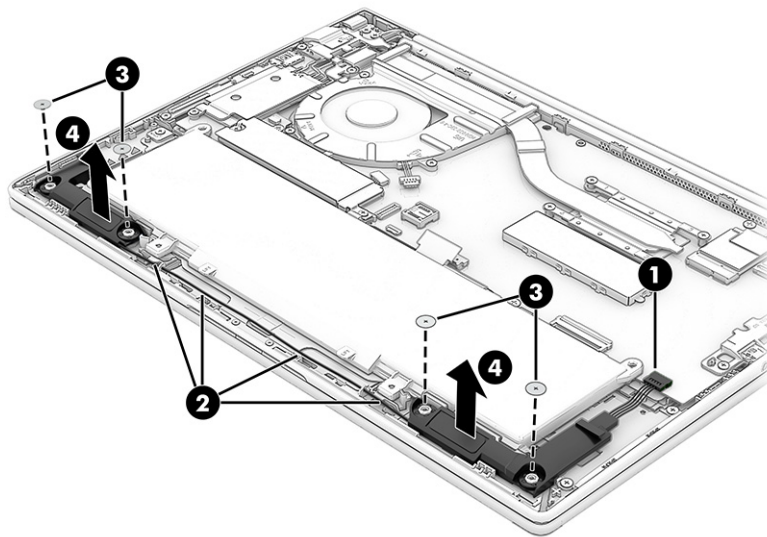
Description	Spare part number
Speaker Kit	P98018-001

Before removing the speakers, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Disconnect the battery from the system board (see [Battery on page 32](#)).

Remove the speakers:

1. Detach speaker cable from system board (1).
2. Separate speaker cable (2).
3. Remove the two Phillips M2.0 × 4.0 screws (3) that secure each speaker to the computer.
4. Remove the speakers (4) from the computer.



Reverse this procedure to install the speakers.

Solid-state drive

Use this procedure and illustration to remove the SSD.

Table 6-2 SSD descriptions and part numbers

Description	Spare part number
1 TB 2280 PCIe 4x4 NVMe VAL nM	N77394-005
512 GB 2280 PCIe 4x4 NVMe VAL nM	N77392-005
256 GB 2280 PCIe 4x4 NVMe VAL nM	N77391-005

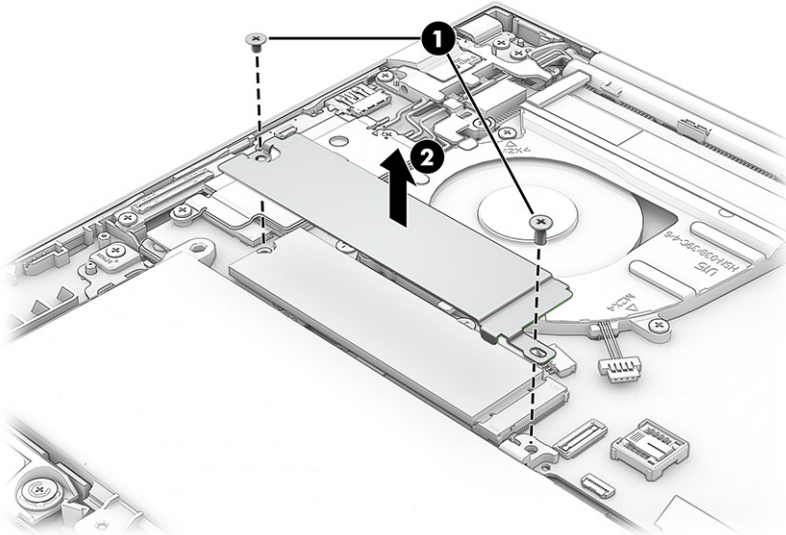
Before removing the SSD, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).

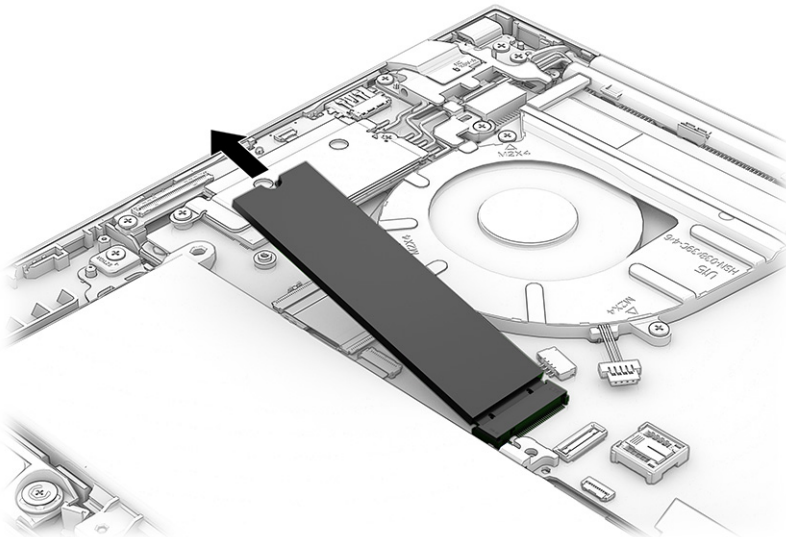
3. Disconnect the battery from the system board (see [Battery on page 32](#)).

Remove the SSD:

1. Remove the two Phillips M2.0 × 2.5 screws (1) that secure the cover plate over the SSD.



2. Lift and remove the cover plate (2).
3. Pull the drive away from the socket to remove it.



Reverse this procedure to install the SSD.



NOTE: SSDs are designed with a notch to prevent incorrect insertion.

WWAN module

Use this procedure and illustration to remove the WWAN module.

Table 6-3 WWAN module descriptions and part numbers

Description	Spare part number
WWAN module	Q02286-001

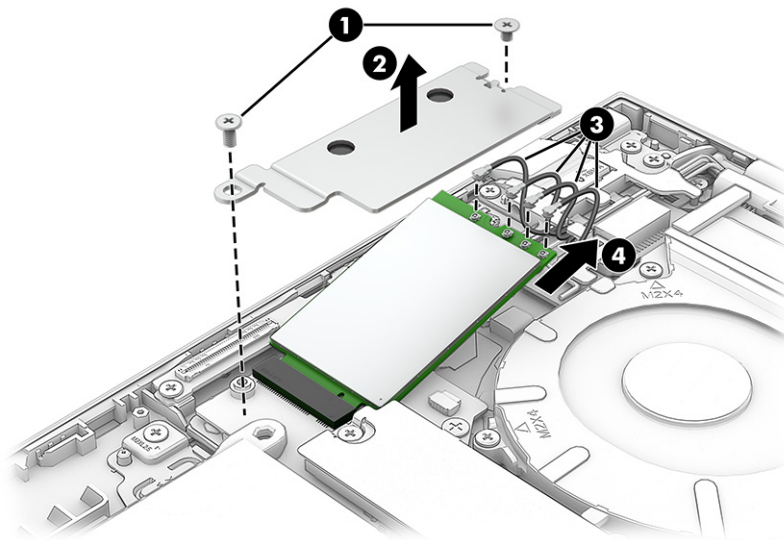
 **IMPORTANT:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module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

Before removing the WWAN module, follow these steps:

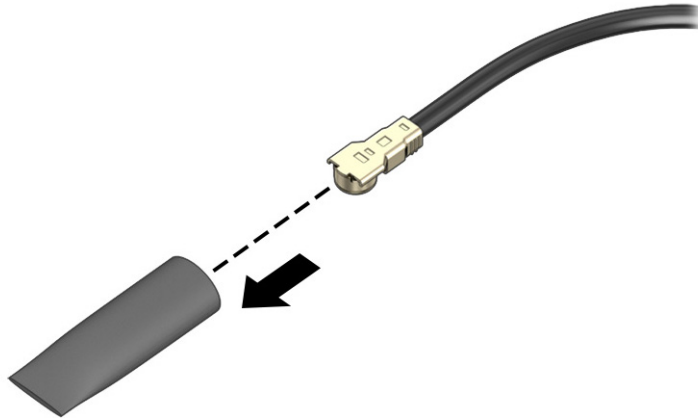
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Disconnect the battery from the system board (see [Battery on page 32](#)).

Remove the WWAN module:

1. Remove the two Phillips M2.0 × 21.8 screws (1) that secure the WWAN cover.
2. Lift and remove the WWAN cover (2).
3. Remove the Phillips M2.0 × 21.8 screw and detach cables (3).
4. Lift and remove the WWAN (2).



5. If the WWAN antenna is not connected to the terminal on the WWAN module, you must install a protective sleeve on the antenna connector, as shown in the following illustration.



Reverse this procedure to install the WWAN module.

WLAN module

Use this procedure and illustration to install the WLAN module.

Table 6-4 WLAN module descriptions and part numbers

Description	Spare part number
Intel AX211 Wi-Fi 6 Bluetooth 5.3 WW WLAN with Internal Antenna	M53366-005
Intel BE200 Wi-Fi 7 Bluetooth 5.4 non-vPro WW WLAN	N39883-005

 **IMPORTANT:** 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:

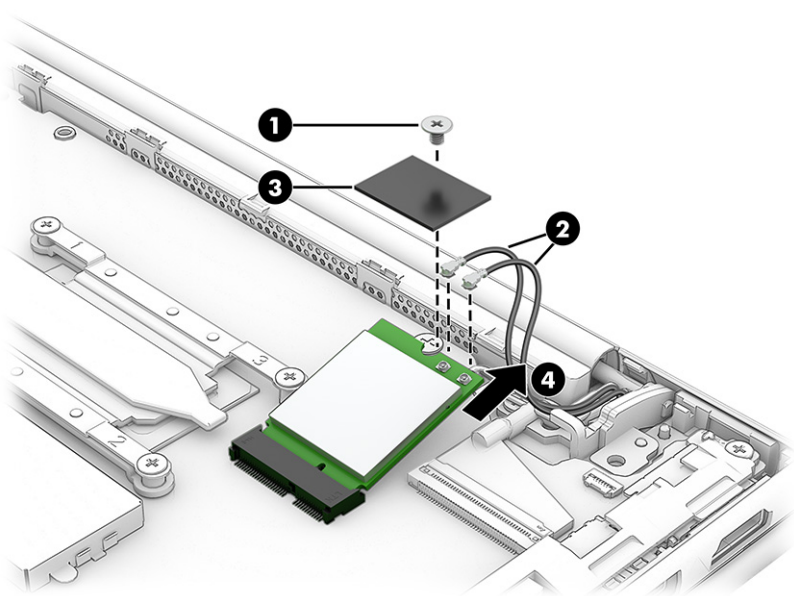
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Disconnect the battery from the system board (see [Battery on page 32](#)).

Remove the WLAN module:

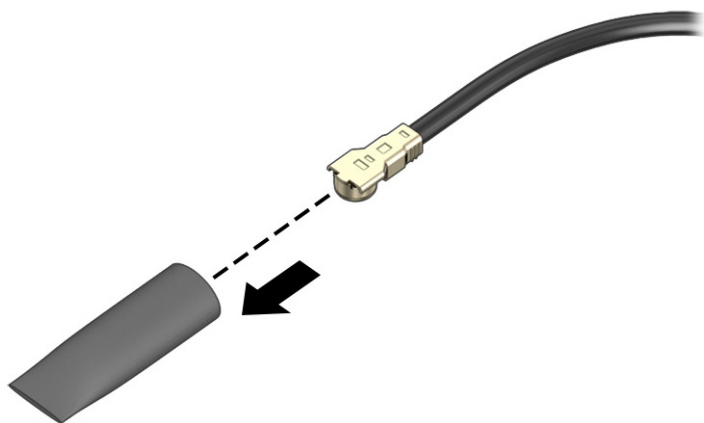
1.  **NOTE:** It may be necessary to remove a mylar sheet covering the WLAN before you begin.

Remove the Phillips M2.0 × 2.5 screw (1), and then detach the WLAN cables (2).

2. Lift and remove WLAN.



3. If the WLAN antenna is not connected to the terminal on the WLAN module, install a protective sleeve on the antenna connector, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

Fan

Use this procedure and illustration to remove the fan.

Table 6-5 Fan description and part number

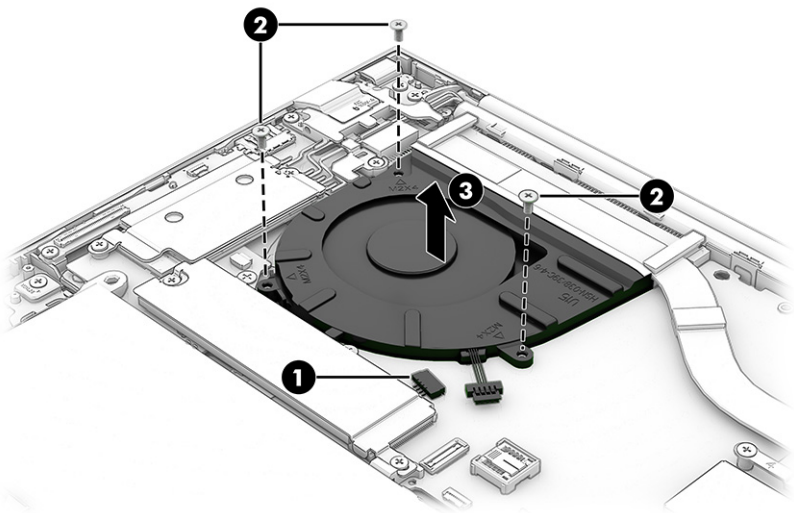
Description	Spare part number
Fan assembly	
100W for TB4 G6 dock	P34059-001
180W/280W for TB4 G6 dock	P34058-001
15W	N96441-001

Before removing the fan, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Disconnect the battery from the system board (see [Battery on page 32](#)).

Remove the fan assembly:

1. Disconnect the fan cable (1) from the system board.
2. Remove the three Phillips M2.0 × 4.0 screws (2) that secure the fan to the computer, and then remove the fan (3) from the computer.



Reverse this procedure to install the fan.

RJ45 Ethernet port

Use this procedure and illustration to remove the RJ45 Ethernet port.

Table 6-6 RJ45 Ethernet port description and part number

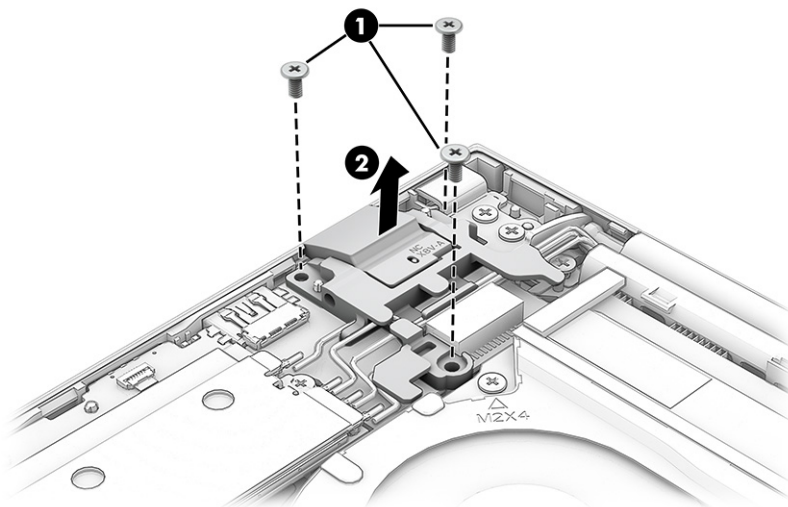
Description	Spare part number
Metal door RJ45	N96449-001

Before removing the I/O board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Disconnect the battery cable from the system board (see [Removing and reinstalling the same battery on page 32](#)).

Remove the I/O board:

1. Remove the three Phillips 2.0 x 4.0 screws (1) that cover the connectors on the I/O board.
2. Lift and remove the RJ45 door (2).



3. Lift and remove the I/O board.

Reverse this procedure to install the I/O board.

WWAN board

Use this procedure and illustration to remove the USB board.

Table 6-7 USB board description and part number

Description	Spare part number
WWAN board	P98019-001

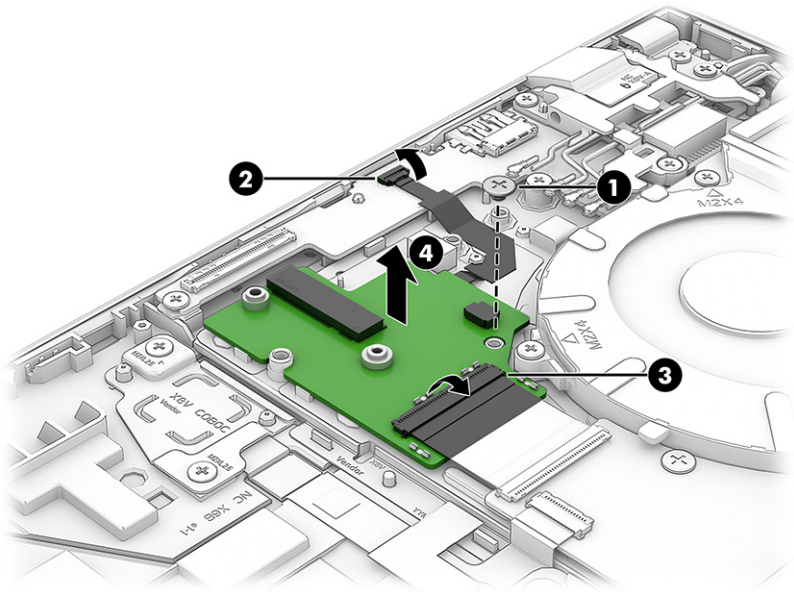
Before removing the USB board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Remove the battery (see [Battery on page 32](#)).

Remove the USB board:

1. Remove the Phillips M2.0 x 1.8 screw (1) that secures the board to the computer.
2. Detach the cable (2) connected to the I/O board.
3. Detach the WWAN cable (3).

4. Remove the board (4) from the computer.



Reverse this procedure to install the USB board.

USB bracket

Use this procedure and illustration to remove the USB bracket.

Table 6-8 USB bracket description and part number

Description	Spare part number
USB bracket	Q05377-001

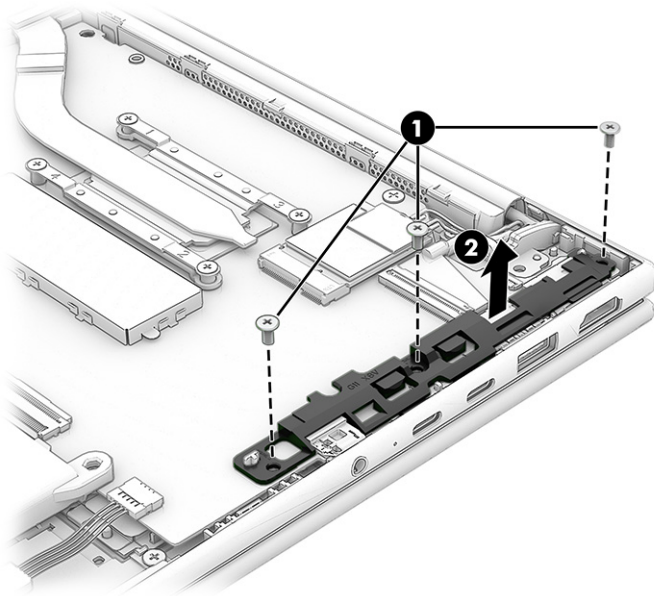
Before removing the the USB bracket, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Disconnect the battery from the system board (see [Battery on page 32](#)).

Remove the touchpad:

1. Remove the three Phillips M2.0 × 4.0 screws (1) that secure the bracket.

2. Remove the bracket from the computer (2).



Reverse this procedure to install the touchpad.

Touchpad

Use this procedure and illustration to remove the touchpad.

Table 6-9 Touchpad description and part number

Description	Spare part number
Touchpad	Q02287-001

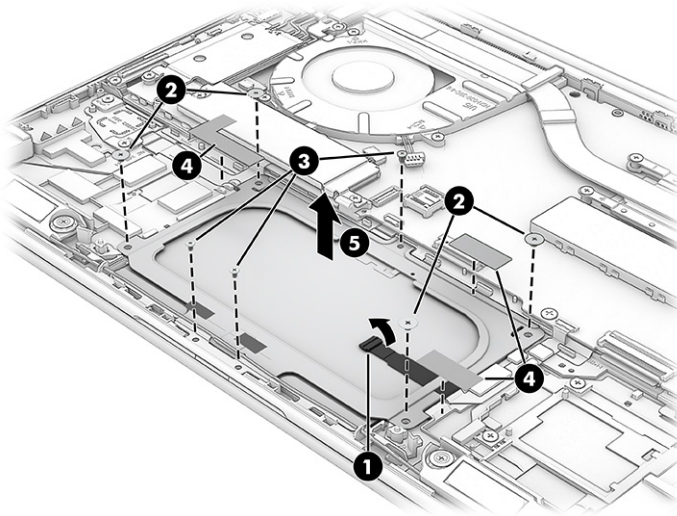
Before removing the touchpad, follow these steps:

1. Preparation for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Remove the battery (see [Battery on page 32](#)).

Remove the touchpad:

1. Detach touchpad cable (1).
2. Remove the four M2.0 x 2.0 screws (2).
3. Remove the three M1.6 x 2.0 screws (3).
4. Remove the conductive tape (4).

5. Remove the touchpad (5).



Reverse this procedure to install the touchpad.

Fingerprint reader board

Use this procedure and illustration to remove the fingerprint reader board.

Table 6-10 Fingerprint reader board description and part number

Description	Spare part number
Fingerprint reader board	Q05376-001

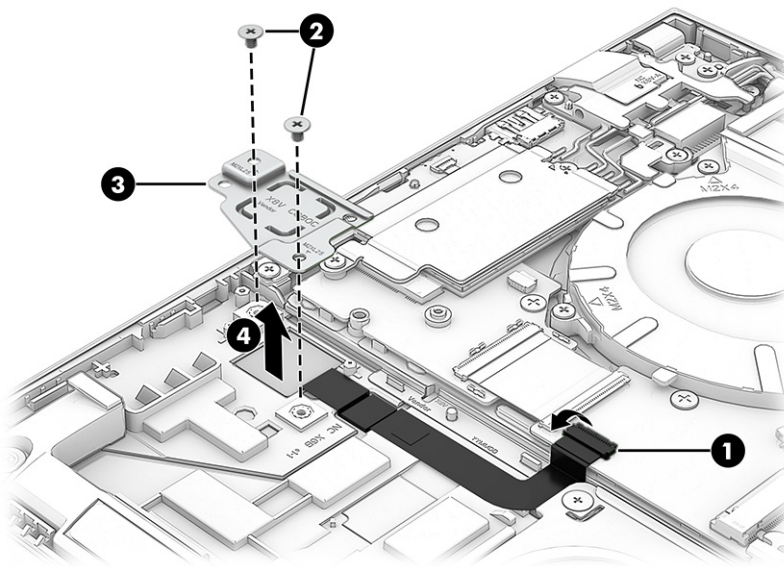
Before removing the fingerprint reader board, follow these steps:

1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Remove the battery (see [Removing and reinstalling the same battery on page 32](#)).

Remove the fingerprint reader board:

1. Detach the cable from the connector (1).
2. Remove the two Phillips M2.0 × 2.5 screws (2) that secures the fingerprint reader bracket to the computer.
3. Rotate the bracket upward, and then remove the bracket (3) from the computer.

4. Remove the board (4) from the computer.



Reverse this procedure to install the fingerprint reader board.

System board

Use these procedures and illustrations to remove the system board.

Table 6-11 System board descriptions and part numbers

Description	Spare part number
System board (includes processor):	
Intel Core 7 250U processor 32 GB	Q01425-001
Intel Core 7 250U processor 32 GB WWAN	Q01426-001
Intel Core 7 250U processor 16 GB	Q01423-001
Intel Core 7 250U processor 16 GB WWAN	Q01424-001
Intel Core 5 220U processor 32 GB	Q01419-001
Intel Core 5 220U processor 32 GB WWAN	Q01420-001
Intel Core 5 220U processor 16 GB	Q01423-001
Intel Core 5 220U processor 16 GB WWAN	Q01424-001
Intel Core 5 220U processor 8 GB	Q01422-001
Intel Core 5 220U processor 8 GB 128G UFS	Q01421-001
Intel Core 5 120U processor 16 GB	Q01414-001
Intel Core 5 120U processor 16 GB WWAN	Q01415-001
Intel Core 5 120U processor 16 GB 128G UFS	Q01416-001
Intel Core 3 100U processor 16 GB	Q01411-001
Intel Core 3 100U processor 16 GB WWAN	Q01412-001

Table 6-11 System board descriptions and part numbers (continued)

Description	Spare part number
Intel Core 3 100U processor 16 GB 128G UFS	Q01413-001

Before removing the system board, follow these steps:

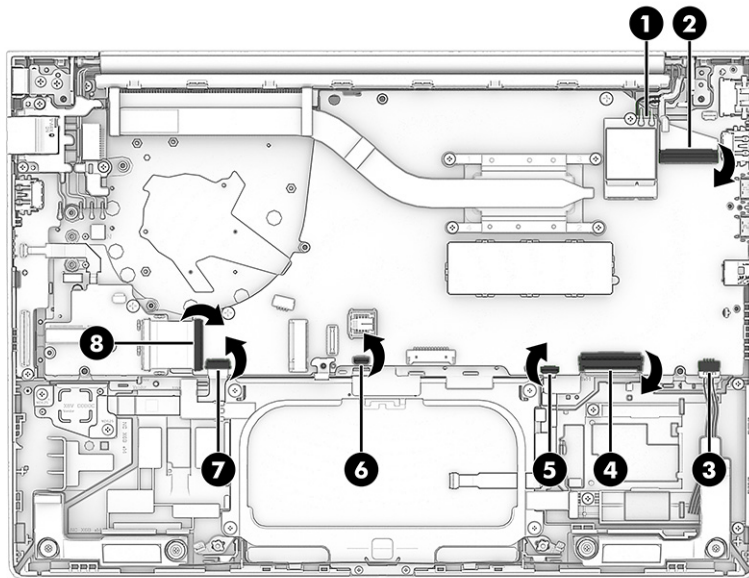
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Remove the battery (see [Battery on page 32](#)).

When you replace the system board, be sure to remove the following components (as applicable) from the defective system board and install them on the replacement system board:

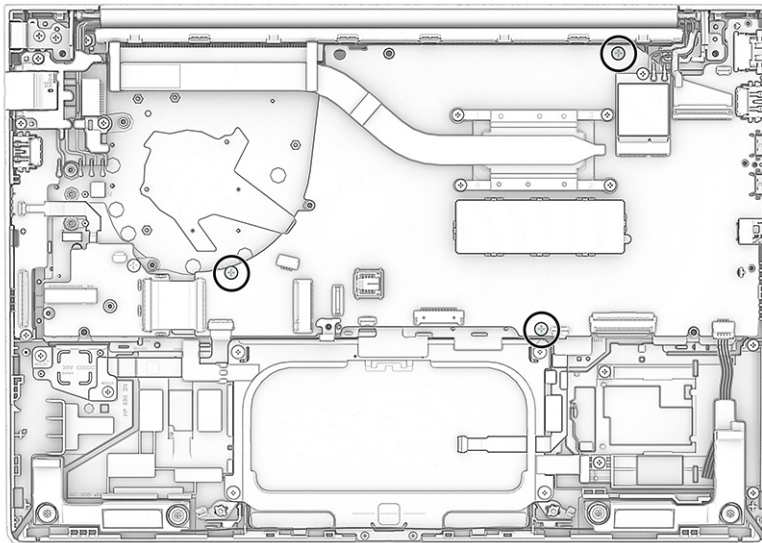
- Remove the SSD (see [SSD on page 40](#)).
- Remove the WLAN module (see [WLAN module on page 43](#)).
- Remove the WWAN module (see [WWAN module on page 42](#)).

Remove the system board:

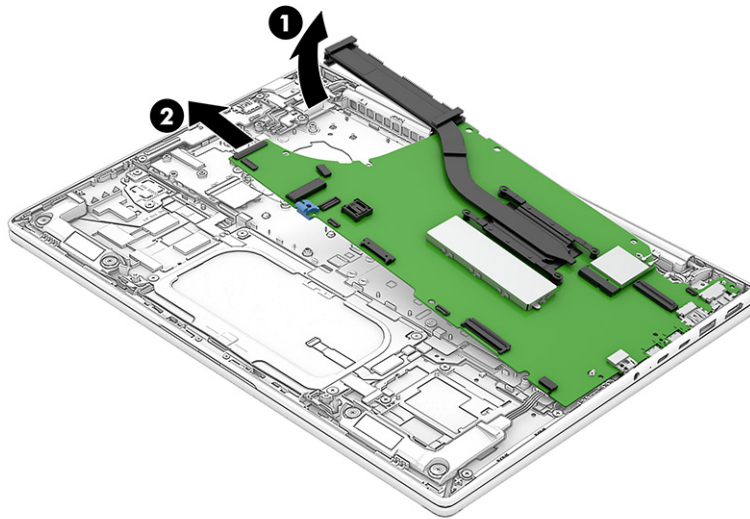
1. Disconnect the following cables from the system board:
 - WLAN cable **(1)**
 - Fan cable **(2)**
 - Speaker cable **(3)**
 - Battery cable **(4)**
 - Touchpad cable **(5)**
 - WWAN cable **(6)**
 - Fingerprint reader cable **(7)**
 - WWAN board cable **(8)**



2. Remove the three Phillips M2.0 × 5.0 screws that secure the system board to the computer.



3. Tilt the system board from the end (1), and slide the board out (2).



Reverse this procedure to install the system board.

Display assembly

Use these procedures and illustrations to remove and disassemble the display assembly.

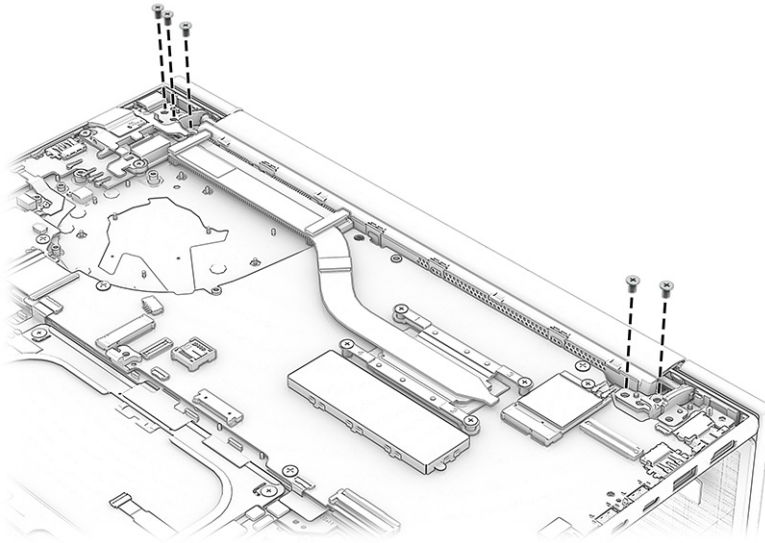
Full hinge-up displays are not available as spare parts. Spare parts for displays are available only at the subcomponent level.

Before removing the display panel, follow these steps:

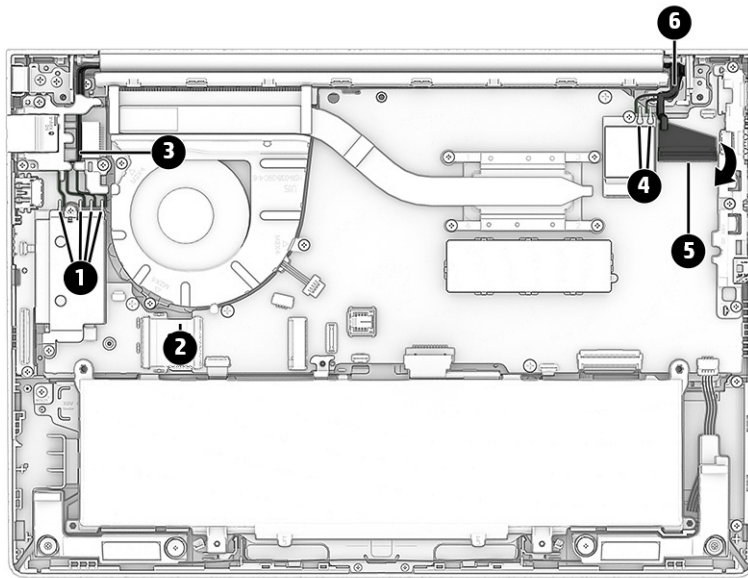
1. Prepare the computer for disassembly (see [Preparation for disassembly on page 30](#)).
2. Remove the bottom cover (see [Bottom cover on page 30](#)).
3. Remove the battery (see [Battery on page 32](#)).

Remove the display assembly:

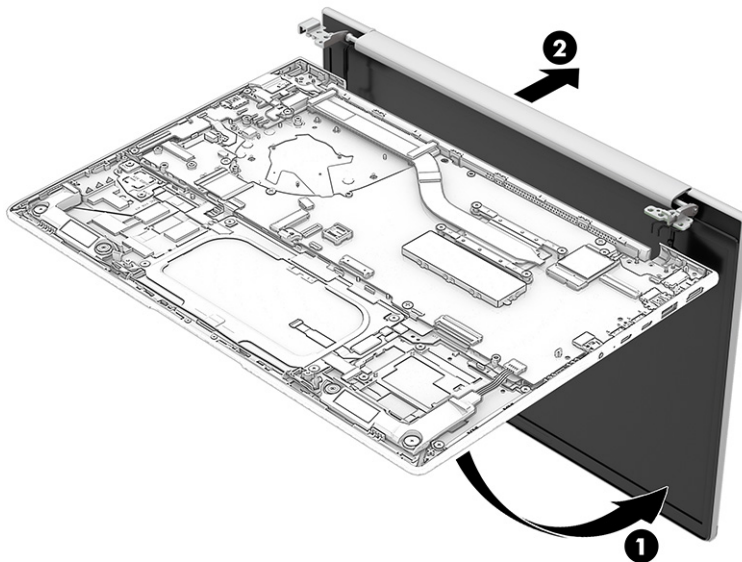
1. Remove the five Phillips M2.5 × 4.0 screws that secure the display assembly to the computer.



2. Remove the display cables.
 - a. (Select models only) Disconnect the antenna cables (1) from the WWAN module.
 - b. (Select models only) Disconnect the WWAN cable from the system board connector (2).
 - c. (Select models only) Remove the WWAN cable and antenna cables from the routing channel (3) in the RJ-45 door bracket.
 - d. Disconnect the antenna cables (4) from the WLAN module.
 - e. Disconnect the display cable (5) from the system board ZIF connector.
 - f. Remove the display cable and WLAN antenna cables from the metal clip (6) at the bottom of the hinge.

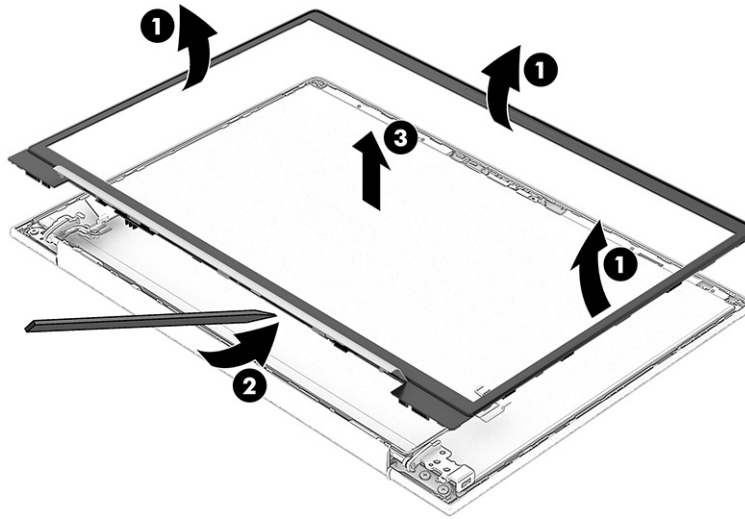


3. Separate the display assembly from the computer. Tilt down (1) to loosen the top and bottom. Pull apart (2).



4. To remove the bezel:

- Slide a flat tool (2) across the inside of the bottom of the bezel to release it, and then remove the bezel (3) from the display.

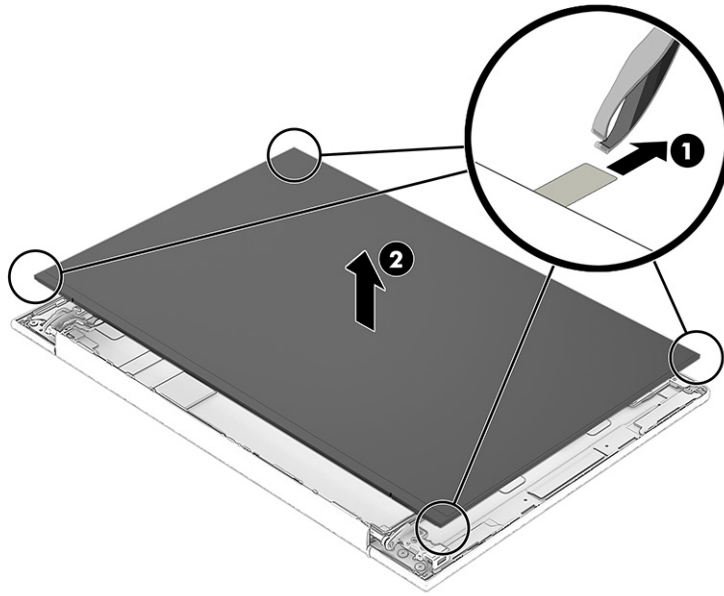


NOTE: To avoid damaging the panel, do not use a tool to release the inside of the bezel. You can use a tool only when you insert it from the outside of the top, left, and right sides of the bezel. Use your fingers to lift up on the bezel. Avoid pressing down on the panel during removal.

The bezel is available as spare part number P58758-001.

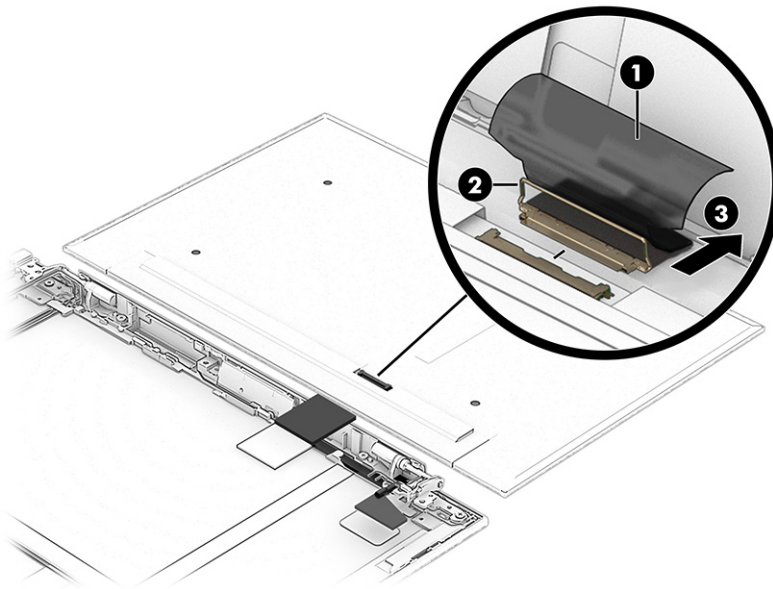
5. To remove the display panel:
 - a. The display panel is secured to the display enclosure with tape that is installed under the left and right sides of the panel. To remove the panel, use tweezers to grasp the end of the tape (1). While turning the tweezers, wrap the tape around the tweezers as you continue to pull the tape out from behind the display panel. You must pull the tape multiple times before it is completely removed.

- b. Lift and remove the display panel (2).



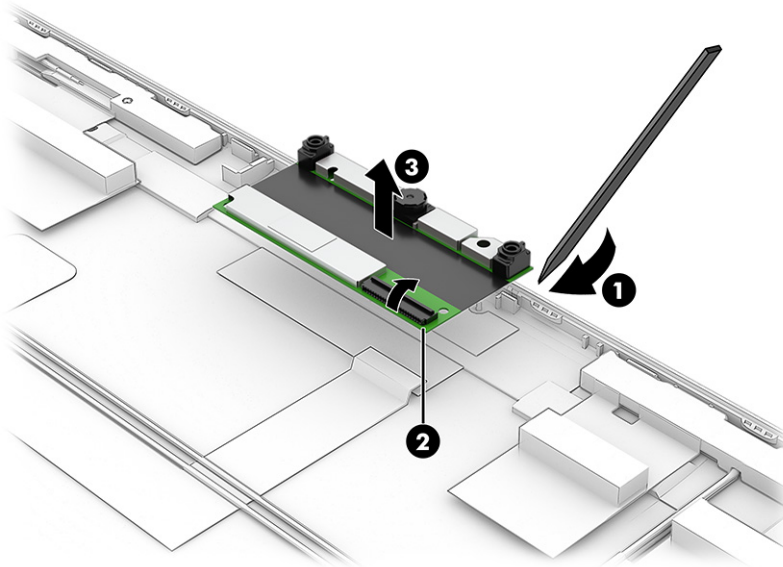
Display panels are available as the following spare part numbers:

- Peel back the Mylar (1), lift and remove the clamp (2), and pull away (3).

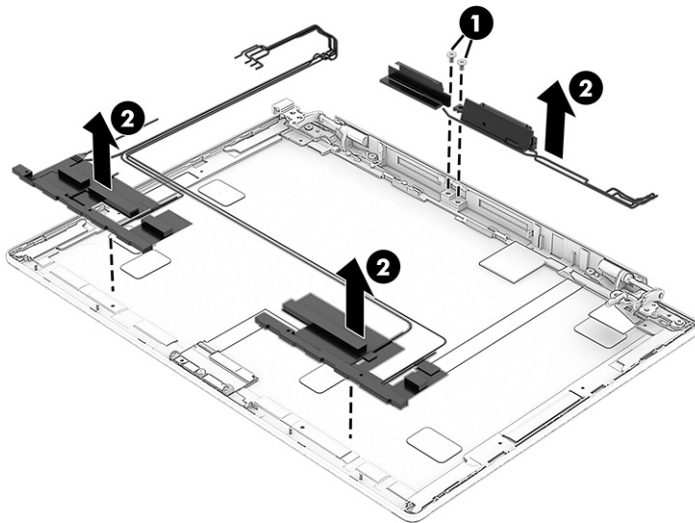


6. To remove the camera module:

- Use pry tool to gently separate camera module from top cover (1). Disconnect the camera cable (2). Remove the camera (3).



7. Remove the two Phillips M2.0 x 2.5 screws securing the antenna (1). Lift and remove the antennas (2).



Reverse this procedure to reassemble and replace the display assembly.

Keyboard with top cover

The top cover with keyboard remains after removing all other spare parts from the computer. In this section, the first table provides the main spare part numbers for the top cover with keyboards. The second table provides the country codes.

Table 6-12 Keyboard with top cover descriptions and part numbers

Description	Spare part number
Keyboard with top cover, xxxxxx	xxxxxx-001
Keyboard with top cover, xxxxxx	xxxxxx-001
Keyboard with top cover, xxxxxx	xxxxxx-001

Table 6-13 Spare part country codes

For use in country or region	Spare part number	For use in country or region	Spare part number	For use in country or region	Spare part number
Belgium	-A41	Iceland	-DD1	Saudi Arabia	-171
Brazil	-201	India	-D61	Slovenia	-BA1
Bulgaria	-261	Israel	-BB1	South Korea	-AD1
Chile	-161	Italy	-061	Spain	-071
Czech Republic/Slovakia	-FL1	Japan	-291	Switzerland	-BG1
Denmark, Finland, and Norway	-DH1	Kazakhstan	-DF1	Taiwan	-AB1
French Canada	-DB1	The Netherlands	-B31	Thailand	-281
France	-051	Northern Africa	-FP1	Turkey	-141
Germany	-041	Portugal	-131	Ukraine	-BD1
Greece	-151	Romania	-271	United Kingdom	-031
Hungary	-211	Russia	-251	United States	-001

7 Backing up, resetting, and recovering

This chapter provides information about processes that are standard procedure for most products.

Backing up

You can back up your data to an optional USB flash drive or SD memory card or through Google Drive.

For detailed information about creating a backup, go to <http://www.support.google.com>.

Resetting

A factory reset erases all the information on your computer hard drive, including all the files in the Downloads folder. Before you reset, back up your files to an optional USB flash drive, SD memory card, or through Google Drive. The factory reset will not delete any of your files on Google Drive or an external storage device.



IMPORTANT: Resetting permanently erases everything on your computer hard drive, including your downloaded files. If possible, back up your files before you reset your computer.

You might want to reset your computer in the following circumstances:

- You see the message "Reset this Chrome device."
- You are having problems with your user profile or settings.
- You have tried restarting your computer, and it is still not working properly.
- You want to change the owner of your computer.

To reset your computer:

1. Under the **Settings** menu, click **Advanced**.
2. In the **Powerwash** section, click **Powerwash**.
3. Click **Restart**, and then sign in with your Google Account.



NOTE: The account you sign in with after you reset your computer will be recognized as the owner account.

4. Follow the on-screen instructions to reset your computer.
5. Once you complete the reset, you can set up your computer and check to see whether the problem is fixed.

Recovering

When your ChromeOS™ operating system is not working properly, you can perform a recovery. A recovery reinstalls the operating system and software programs and restores the original factory

settings. Locally saved files and saved networks are deleted for all accounts. Your Google Accounts and any data synced to your Google Drive™ storage are not affected by a system recovery.



NOTE: For more information about performing a system recovery on your computer, go to <http://www.support.google.com>

Before beginning the recovery process, you need the following:

- A USB flash drive or SD memory card with a capacity of 4 GB or greater. All data is erased from this storage device when the recovery media is created, so back up any files from the device before you begin.
- A computer with internet access. You must also have administrative rights to the computer.
- Computer AC adapter. The computer must be plugged into AC power during recovery.
- The “ChromeOS is missing or damaged” screen displaying on your computer. If this message is not already displayed:
 - Turn on the computer, press and hold the **esc + f3** keys, and then press the power button. The computer restarts, and the screen shows the “ChromeOS is missing or damaged” screen.

Installing the Chromebook Recovery Utility

The Chromebook™ Recovery Utility is an app used to recover the original operating system and software programs that were installed at the factory. You can install this utility from the Chrome Web Store on any computer.

To install the Chromebook Recovery Utility:

- Open the Chrome Web Store, search for , click **Chromebook Recovery Utility** from the Apps list, and follow the on-screen instructions.

Creating recovery media

Recovery media is used to recover the original operating system and software programs that were installed at the factory.

To create recovery media:

1. Turn on a computer with Internet access.



NOTE: You must have administrative rights to the computer.

2. Click the **Launcher** icon, and then click **All Apps**.
3. In the Apps window, click **Recovery**, and then click **Get started**.
4. Follow the on-screen instructions to create the recovery media.



NOTE: All data and partitions on your recovery media will be deleted. Do not remove the USB flash drive or SD memory card until the process is complete.

Recovering the Chrome operating system

To recover the Chrome operating system on your computer using the recovery media you created:

1. Disconnect any external devices connected to your computer, plug in the power cord, and then turn on the computer.
2. To enter recovery mode, press and hold **esc + f3**, and then press the power button. When the “ChromeOS is missing or damaged” screen displays, insert the recovery media into your computer. The recovery process begins immediately.
3. Wait while Chrome verifies the integrity of the recovery media.



NOTE: If you need to cancel the recovery during the verification process, press and hold the power button until the computer turns off. Do not disrupt the system recovery process after the verification step is complete.



NOTE: If an error message displays, you might need to run the Chrome Recovery Utility again, or use a different USB flash drive or SD memory card.

4. When the “System Recovery is complete” message displays, remove the recovery media.
The computer restarts with ChromeOS reinstalled.

Setting up your computer after a reset or recovery

After a reset or recovery is complete, perform the initial setup process.

For details on setting up the computer, go to <http://www.support.google.com>.

Erase and reformat the recovery media

During the process of creating recovery media, the USB flash drive or SD memory card is formatted for use as a recovery tool. After you recover your computer, you must to erase the recovery media if you want to reuse your USB flash drive or SD memory card to store other files. Use the steps in this section to erase the recovery media using the Chromebook Recovery Utility.

1. Click the **Launcher** icon, and then click **All Apps**.
2. In the apps window, click **Recovery**.
3. Click the **Settings** icon, and then click **Erase recovery media**.
4. Select the USB flash drive or SD memory card you inserted, click **Continue**, and then click **Erase now**.
5. After the recovery media is erased, click **Done** to close the Chromebook Recovery Utility, and then remove the USB flash drive or SD memory card.

The media is ready to be formatted using a formatting tool provided by your operating system.

8 Specifications

This chapter provides specifications for your computer system.

Computer specifications

This section provides specifications for your computer. When you travel with your computer, the computer dimensions and weights, as well as input power ratings and operating specifications, provide helpful information.

Table 8-1 Computer specifications

	Metric	U.S.
Dimensions		
Width	318.60 mm	12.54 in
Depth	224.35 mm	8.83 in
Height (front)	11.82 mm	0.47 in
Height (rear)	16.89 mm	0.67 in
Maximum Height	20.90 mm	0.82 in
Weight	1.33 kg (2.93 lb) with 56.00 Wh battery 1.39 kg (3.06 lb) with 68.00 Wh battery	
Input power		
Operating voltage and current	20 VDC @ 5 A - 100 W 20 VDC @ 4.5 A - 90 W 20 VDC @ 3.25 A - 65 W 15 VDC @ 3 A - 45 W	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 3048 m	-50 ft to 10,000 ft

Table 8-1 Computer specifications (continued)

	Metric	U.S.
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.

Display specifications

This section provides specifications for your display.

Table 8-2 Display specifications

	Metric	U.S.
Active diagonal size	35.6 cm	14 in
Resolution	1920 × 1200 (FHD) 2560 × 1600 (UHD)	
Surface treatment	Antiglare (FHD, UHD panels)	
Brightness	300 nits (FHD, 72% NTSC/100% sRGB panels) 400 nits	
Viewing angle	UWVA	
Backlight	WLED	
Display panel interface	eDP	

Solid-state drive specifications

This section provides specifications for your SSDs.

Table 8-3 SSD specifications

	256 GB*	256 GB OPAL2*	512 GB*	512 GB TLC*	1 TB/2 TB*
Dimensions					
Height	2.3 mm	2.3 mm	2.3 mm	2.3 mm	2.3 mm
Length	80 mm	80 mm	80 mm	80 mm	80 mm
Width	22 mm	22 mm	22 mm	22 mm	22 mm
Weight	< 10 g	< 10 g	< 10 g	< 10 g	< 10 g
Interface type	PCIe	PCIe	PCIe	PCIe	PCIe
Ready time, maximum (to not busy)	1.0 ms	1.0 ms	< 1.0 ms	< 1.0 ms	1.0 ms
Access times, logical	0.1 ms	0.1 ms	0.1 ms	0.1 ms	0.1 ms

Table 8-3 SSD specifications (continued)

	256 GB*	256 GB OPAL2*	512 GB*	512 GB TLC*	1 TB/2 TB*
Transfer rate					
Sequential read	Up to 3100 MBps	Up to 3100 MBps	Up to 3500 MBps	Up to 6450 MBps	Up to 6400 MBps
Random read	Up to 300,000 IOPs	Up to 300,000 IOPs	Up to 300,000 IOPs	Up to 300,000 IOPs	Up to 300,000 IOPs
Sequential write	Up to 1200 MBps	Up to 1200 MBps	Up to 1600 MBps	Up to 3500 MBps	Up to 5000 MBps
Random write	Up to 100,000 IOPs	Up to 100,000 IOPs	Up to 100,000 IOPs	Up to 100,000 IOPs	Up to 100,000 IOPs
Total logical sectors	500,118,192	1,000,215,216	1,000,215,216	1,000,215,216	1 TB: 2,000,409,264
					2 TB: 4,000,797,360
Operating temperature	0°C to 70°C (32°F to 158°F)	0°C to 70°C (32°F to 158°F)	0°C to 70°C (32°F to 158°F)	0°C to 70°C (32°F to 158°F)	0°C to 70°C (32°F to 158°F)

*Actual accessible capacity is less. Actual drive specifications might differ slightly.



NOTE: Certain restrictions and exclusions apply. Contact support for details.

9 Power cord set requirements

This chapter provides power cord requirements for countries and regions.

The wide-range input feature of the computer permits it to operate from any line voltage from 100 V AC to 120 V AC, or from 220 V AC to 240 V 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 or regions must meet the requirements of the country and region where the computer is used.

Requirements for all countries

These power cord requirements are applicable to all countries and regions.

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

Requirements for specific countries and regions

To determine power cord requirements for specific countries and regions, use this table.

Table 9-1 Power cord requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Argentina	IRAM	1
Australia	SAA	1
Austria	OVE	1
Belgium	CEBEC	1
Brazil	ABNT	1
Canada	CSA	2
Chile	IMQ	1
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1

Table 9-1 Power cord requirements for specific countries and regions (continued)

Country/region	Accredited agency	Applicable note number
Germany	VDE	1
India	BIS	1
Israel	SII	1
Italy	IMQ	1
Japan	JIS	3
Netherlands	KEMA	1
New Zealand	SANZ	1
Norway	NEMKO	1
The People's Republic of China	CCC	4
Saudi Arabia	SASO	7
Singapore	PSB	1
South Africa	SABS	1
South Korea	KTL	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	6
Thailand	TISI	1
United Kingdom	ASTA	1
United States	UL	2

1. The flexible cord must be Type HO5VV-F, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SVT/SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a 2-pole grounding type with a NEMA 5-15P (15 A, 125 V AC) or NEMA 6-15P (15 A, 250 V AC) configuration. CSA or C-UL mark. UL file number must be on each element.
3. The appliance coupler, flexible cord, and wall plug must bear a T mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCTF, 3-conductor, 0.75 mm² or 1.25 mm² conductor size. The wall plug must be a 2-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V AC) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the CCC certification mark.
5. The flexible cord must be Type HO5VV-F 3-conductor, 0.75 mm² conductor size. KTL logo and individual approval number must be on each element. Approval number and logo must be printed on a flag label.
6. The flexible cord must be Type HVCTF 3-conductor, 1.25 mm² conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark.

7. For 127 V AC, the flexible cord must be Type SVT or SJT 3-conductor, 18 AWG, with plug NEMA 5-15P (15 A, 125 V AC), with UL and CSA or C-UL marks. For 240 V AC, the flexible cord must be Type H05VV-F 3-conductor, 0.75 mm² or 1.00 mm² conductor size, with plug BS 1363/A with BSI or ASTA marks.

10 Recycling

When a nonrechargeable 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 website at <http://www.hp.com/recycle>.

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