

Maintenance and Service Guide

HP OmniBook 7 17.3 inch Laptop Next Gen Al PC: Model numbers: 17-dc0xxx

HP OmniBook X 17.3 inch Laptop Next Gen Al PC: Model numbers: 17-dd0xxx

SUMMARY

Legal information

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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.

Not all features are available in all editions or versions of Windows. Systems might require upgraded and/or separately purchased hardware, drivers, software, or BIOS update to take full advantage of Windows functionality. Windows is automatically updated, which is always enabled. Highspeed internet and Microsoft account required. ISP fees might apply and additional requirements might apply over time for updates. See http://www.windows.com. If vour product ships with Windows in S

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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.

To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the 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 or rugs or clothing, to block airflow. Also, do not allow the AC adapter to come into contact with the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter provided by HP comply with the user-accessible surface temperature limits defined by applicable safety standards.

Important notice about Customer Self-Repair parts

Your computer includes Customer Self-Repair parts and parts that should be accessed only by an authorized service provider.

IMPORTANT: See Removal and replacement procedures for Customer Self-Repair parts on page 29 for details.

Accessing parts described in Removal and replacement procedures for authorized service provider parts on page 39 can damage the computer or void your warranty.

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1 Product description

This table provides detailed product information.

Table 1-1 Product components and their descriptions

Category	Description	
Product Name	HP OmniBook 7 17.3 inch Laptop Next Gen Al PC	
	Model numbers: 17-dc0xxx	
	CTO model number: 17t-dc000	
	HP OmniBook X 17.3 inch Laptop Next Gen Al PC	
	Model numbers: 17-dd0xxx	
	CTO model number: 17t-dd000	
Processors	Intel® Core™ Ultra 7 258V	
	Intel Core Ultra 7 256V	
	Intel Core Ultra 5 226V (OmniBook 7 models only)	
Graphics	Intel graphics	
	Intel Arc™ 140V 16 GB (Ultra 7 258V processor)	
	Intel Arc 140V 8 GB (Ultra 7 256V processor)	
Intel Arc 130V 8 GB (Ultra 5 226V processor) Supports:		
Optimus		
	GPS (GPU Performance Scaling)	
	Discrete graphics	
NVIDIA® GeForce RTX® 4050		
Display	17.3 in (43.94 cm), FHD (1920 × 1080), 100% sRGB, BrightView, narrow bezel, ultrawide viewing angle (UWVA), embedded DisplayPort™ (eDP) 1.2 without panel self-refresh (PSR), 400 nits	
	16:9 Aspect Ratio	
	Flicker free	
	MSFT HDR Streaming Capable	
	Screen-to-body ratio: 86%	
Memory	On-board system memory, not accessible or upgradeable	
	Supports 32 GB or 16 GB of RAM	
	LPDDR5x-8533	
	PCIe, Non-Volatile Memory express (NVMe), M.2 2280 solid-state drives	

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

Category	Description	
	2TB	
	1TB	
	512 GB	
Audio and video	Dual speakers	
	Poly Studio	
	HP Audio Boost 2.0	
	DTS:X Ultra	
Video	HP 5 MP Camera : Al integrated, USB2, indicator LED, 1 × infrared (IR) LED, f2.0, 5 MP BSI sensor, WDR/TNR/HDR, 88° wide field-of-view (WFOV)	
	Dual-array digital microphone with appropriate software: beam forming, echo cancellation, noise suppression	
	Supports Windows Hello and HPD (Human Presence Device)	
	5 MP by 30 frames per second	
Wireless	Integrated wireless module	
	Intel AX211 Wi-Fi® 6E Bluetooth® 5.3 M.2 2230	
	Intel Wi-Fi 7 BE201 Bluetooth 5.4 M.2 2230	
	Compatible with Miracast® devices	
	Supports Modern Standby (Connected)	
Bluetooth Audio Offload Bluetooth LE Audio		
	Dynamic antenna gain (Wi-Fi)	
	Dynamic antenna gain (BT)	
	UNII-4 5 GHz channel	
	WLAN Time Average SAR (TAS)	
Ports	Audio-out (headphone)/audio-in (microphone) combo jack	
	HDMI 2.1 + HDCP 2.3 (supports up to 4K @ 60 Hz)	
	USB 3.2 Gen 2 Type-A (one on left side and two on right side)	
	USB 3.2 Type-C* (left side):	
	Data transfer	
	Power delivery	
	HP Sleep & Charge	
	DisplayPort® 1.4a out up to 4K @ 60 Hz	

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

Category	Description	
	USB 4 Type-C® Thunderbolt™ 4 (left side):	
	Data transfer	
	Power delivery	
	HP Sleep & Charge	
	DisplayPort 2.1 out up to 8K @ 60 Hz	
	HDMI 2.1 out up to 4K @ 60 Hz	
Keyboard/pointing devices	Keyboard	
	Backlit	
	Numeric keypad	
	Touchpad requirements	
	Clickpad with image sensor	
	Multitouch gestures enabled	
	Precision touchpad	
	Modern trackpad gestures	
	Taps enabled as default	
Power requirements	Battery (polymer, HP Long Life)	
	6 cell, 83 Whr	
	HP Fast Charge Technology	
Smart AC adapters (USB-C*, slim, straight)		
	100 W	
	65 W	
	Power cord (select products only)	
	C5, premium, 1 m (3.3 ft), sticker	
Security	Supports Trusted Platform Module (TPM) 2.0, firmware	
	Microphone mute	
	Camera privacy cover	
Operating system	Windows® 11 Home 64 NextGen Premium	
	Windows 11 Home 64 NextGen Standard	
	Windows 11 Pro 64 NextGen Premium	
	Windows 11 Pro 64 NextGen Standard	
	Windows 11 Home 64 NextGen Premium Single Language Africa Market PPP	
	Windows 11 Home 64 NextGen Standard Single Language Africa Market PPP	
	Windows 11 Home 64 NextGen Premium Single Language APAC EM PPP	

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

Category	Description	
	Windows 11 Home 64 NextGen Standard Single Language APAC EM PPP	
	Windows 11 Home 64 NextGen Premium Chinese Market CPPP	
	Windows 11 Home 64 NextGen Standard Chinese Market CPPP	
	Windows 11 Home 64 NextGen Premium Single Language India Market PPP	
	Windows 11 Home 64 NextGen Standard Single Language India Market PPP	
	Windows 11 Home 64 NextGen Premium Single Language Indonesia Market PPP	
	Windows 11 Home 64 NextGen Standard Single Language Indonesia Market PPP	
Serviceability	End user replaceable parts	
	AC adapter	
	Bottom cover	
	Battery	

2 Getting to know your computer

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.

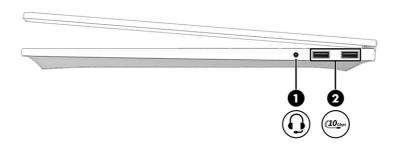


Table 2-1 Right-side components and their descriptions

		Component	Description
(1)	\mathbf{O}	Audio-out (headphone)/ Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable.
			WARNING! To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety, and Environmental Notices</i> .
			To access this guide:
			Select the Search icon in the taskbar, type HP Documentation in the search box, and then select HP Documentation.
			NOTE: When a device is connected to a headphone jack, the computer speakers are disabled.
(2)	(10 _{Gbps}	USB 10 Gbps port (2)	Connects a USB Type-C* cable to a peripheral device, such as a keyboard, mouse, or USB hard drive and charges up to 5 V/3 A.

Left side

Identify the components on the left side of the computer.

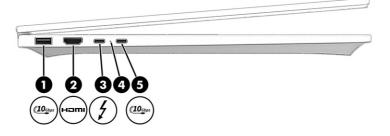


Table 2-2 Left-side components and their descriptions

		Component	Description
(1)	(10 <u>G</u> bps	USB 10 Gbps port	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.
(2)	наті	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.
(3)	1	USB Type-C power connector and Thunderbolt™ port with HP Sleep and Charge and DisplayPort™ output	Connects an AC adapter that has a USB Type-C connector, supplying power to the computer and, if needed, charging the computer battery.
			- and -
			Connects a USB device, provides high-speed data transfer, and charges small devices (such as a smartphone), even when the computer is off.
			NOTE: Use a standard USB Type-C charging cable or cable adapter (purchased separately) when charging a small external device.
			- and -
			Connects a display device that has a USB Type-C connector, providing DisplayPort output.
			NOTE: Your computer might also support a Thunderbolt docking station.
(4)		AC adapter and battery light	 White: The AC adapter is connected and the battery is fully charged.
			 Blinking amber: The AC adapter is disconnected and the battery has reached a low battery level.
			 Amber: The AC adapter is connected and the battery is charging.
			Off: The battery is not charging.
(5)	(10 <u>6</u> bps	USB Type-C port	Connects a USB Type-C cable to a peripheral device, such as a keyboard, mouse, or USB hard drive and charges up to 5 V/3 A.

Display

The computer display can include essential components such as speakers, antennas, cameras, and microphones.

Low blue light mode (select products only)

Your computer display is shipped from the factory in low blue light mode for improved eye comfort and safety. Also, blue light mode automatically adjusts blue light emissions when you are using the computer at night or for reading.

▲ WARNING! To reduce the risk of serious injury, read the Safety & Comfort Guide. It describes proper workstation setup and proper posture, health, and work habits for computer users. The Safety & Comfort Guide also provides important electrical and mechanical safety information. The Safety & Comfort Guide is available on the web at http://www.hp.com/ergo.

Wake-on-voice (select products only)

Use the wake-on-voice feature to bring the computer out of the Sleep state quickly.

To access the wake-on-voice settings, follow these steps:

- Select the Search icon in the taskbar, type XiaoWei in the search box, and then select XiaoWei.
- 2. When the tool opens, scan the QR code with your mobile device, which takes you to the settings page, where you can select your wake-on-voice features.
- Follow the on-screen instructions.
- NOTE: Allow the XiaoWei app to continue running on the computer.

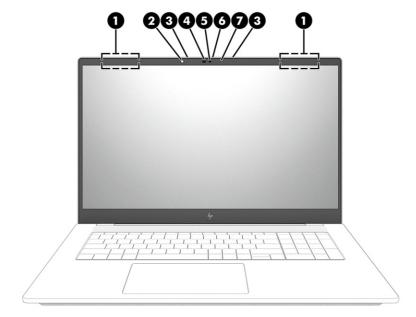


Table 2-3 Display components and their descriptions

	Component	Description
(1)	WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2)	Infrared camera light	On: Infrared camera is in use.
(3)	Internal microphones (2)	Record sound.
(4)	Infrared camera	Allow you to video chat, record video, and record still images. Some cameras also allow a facial recognition logon to Windows, instead of a password logon.
		NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
(5)	Web camera	Allows you to video chat, record video, and record still images. Some cameras also allow a facial recognition logon to Windows, instead of a password logon.
		NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
(6)	Manual camera shutter (select products only)	Allows you to open or close the camera shutter by sliding the latch.
		Slide it to the left to close the shutter.
		Slide it to the right to open the shutter.
(7)	Web camera light	On: Web camera is in use.

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

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

To access this guide:

Select the Search icon in the taskbar, type HP Documentation in the search box, and then select HP Documentation.

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.

HP OmniBook 7 models offer a lattice keyboard.

HP OmniBook X models offer a non-lattice keyboard.

Touchpad settings and components

Learn the touchpad settings and components.

Touchpad settings

Learn how to adjust touchpad settings.

Adjusting touchpad settings

Use these steps to adjust touchpad settings and gestures.

- 1. Select the Search icon in the taskbar, type touchpad settings in the search box, and then press enter.
- Choose a setting.

Turning on the touchpad

Follow these steps to turn on the touchpad.

- 1. Select the Search icon in the taskbar, type touchpad settings in the search box, and then press enter.
- 2. Using an external mouse, click the **touchpad** button.

If you are not using an external mouse, press the Tab key repeatedly until the pointer rests on the **touchpad** button. Then press the spacebar to select the button.

Touchpad components

Identify the touchpad components.

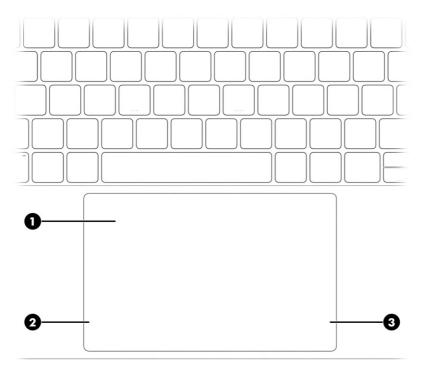


Table 2-4 Touchpad components and their descriptions

	Component	Description
(1)	Touchpad zone	Reads your finger gestures to move the pointer or activate items on the screen.

Table 2-4 Touchpad components and their descriptions (continued)

	Component	Description
(2)	Left touchpad area	Functions like the left button on an external mouse.
(3)	Right touchpad area	Functions like the right button on an external mouse.

Lights

Identify the lights on the computer.

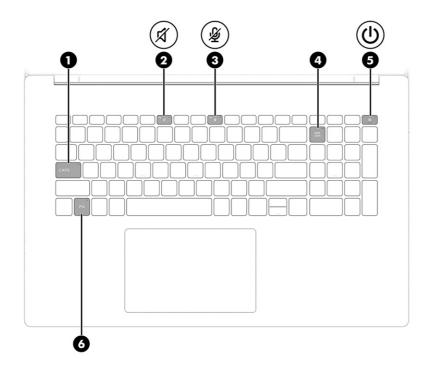


Table 2-5 Lights and their descriptions

		Component	Description
(1)		Caps lock light	On: Caps lock is on, which switches the key input to all capital letters.
(2)	Á	Mute light	On: Computer sound is off.Off: Computer sound is on.
(3)	Ą	Microphone mute light	On: Microphone is off.Off: Microphone is on.
(4)		Num lock light	On: Num lock is on.

Table 2-5 Lights and their descriptions (continued)

		Component	Description
(5)	ψ	Power light	 On: The computer is on. Blinking (select products only): The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unnecessary components. Off: Depending on your computer model, the computer is off, in Hibernation, or in Sleep. Hibernation is the power-saving state that uses the least amount of power.
(6)		Fn lock light	On: The fn key is locked.Off: The fn key is unlocked.

Power key and speakers

Identify the computer power key and speakers.

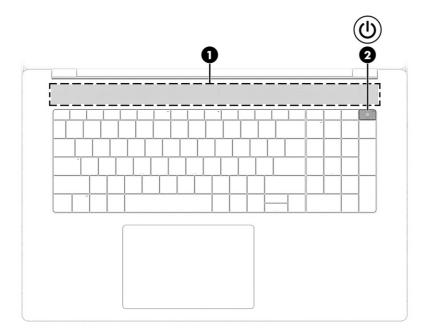


Table 2-6 Power button and speakers and their descriptions

	Component	Description
(1)	Speakers (select products only)	Produce sound.

Table 2-6 Power button and speakers and their descriptions (continued)

		Component	Description
(2)	رار	Power key	Power key
	0		When the computer is off, press the key briefly to turn on the computer.
			When the computer is on, press the key briefly to initiate Sleep.
			 When the computer is in the Sleep state, press the key briefly to exit Sleep (select products only).
			 When the computer is in Hibernation, press the button briefly to exit Hibernation.
			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 down for at least 10 seconds to turn off the computer.
			To learn more about your power and sleep settings:
			Right-click the Power icon , and then select Power
			and sleep settings.

Special keys

Identify the special keys.

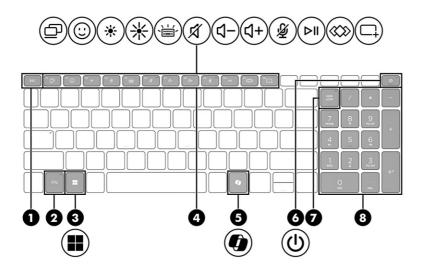


Table 2-7 Special keys and their descriptions

	Component	Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes specific functions when pressed in combination with another key.

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

	Component	Description	
(3)	Windows key	Opens the Start menu.	
		NOTE: Pressing the Windows key again will close the Start menu.	
(4)	Action keys	Execute frequently used system functions as defined by the icon symbols on f1 through f12 function keys.	
(5)	Windows Copilot key	Opens Windows Copilot (select products only).	
		NOTE: Copilot in Windows requires Windows 11. Some features require an NPU. Timing of feature delivery and availability varies by market and device. Requires Microsoft account to log in. Where Copilot is not available, the Copilot key will lead to the Bing search engine. See http://aka.ms/WindowsAlFeatures (in English).	
(6)	Power key	Power key	
	U	 When the computer is off, press the button briefly to turn on the computer. 	
		 When the computer is on, press the button briefly to initiate Sleep. 	
		 When the computer is in the Sleep state, press the button briefly to exit Sleep (select products only). 	
		 When the computer is in Hibernation, press the button briefly to exit Hibernation. 	
		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 down for at least 10 seconds to turn off the computer.	
		To learn more about your power and sleep settings:	
		Right-click the Power icon , and then select Power	
		and sleep settings.	
(7)	Num lock key	Turns the numeric keypad on or off.	
(8)	Numeric keypad	When num lock is on, the keypad can be used like an external numeric keypad.	

Fingerprint readers, which enable a fingerprint logon, can be located on the touchpad, the power button, a side panel of the computer, or the top cover below the keyboard.

IMPORTANT: To verify that your computer supports fingerprint reader sign-in, select the **Search** icon in the taskbar, type Sign-in options in the search box and press enter. If **Fingerprint recognition** is not listed as an option, then your computer does not include a fingerprint reader.

Bottom

Identify the bottom components.

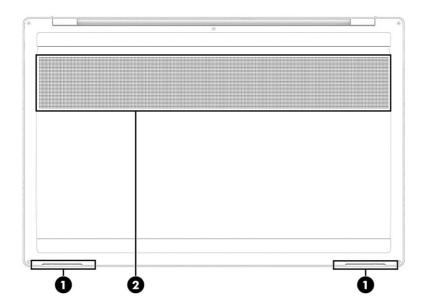
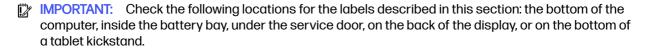


Table 2-8 Bottom components and their descriptions

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

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.



 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 2-9 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.

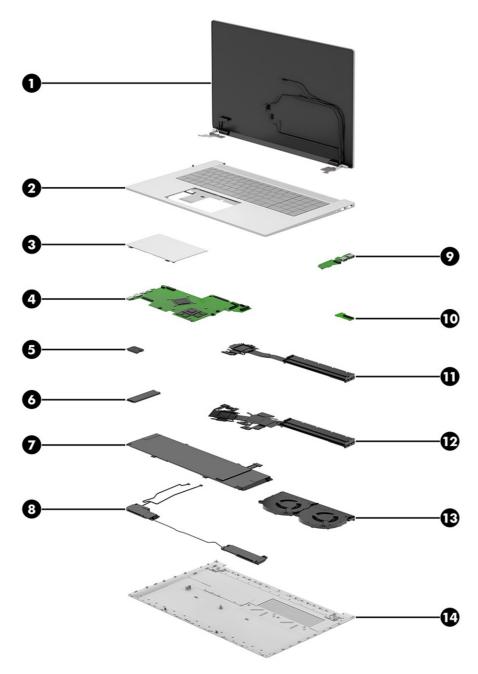


Table 3-1 Computer major component descriptions and part numbers

Item	Component	Spare part number		
(1)	Display assembly	not available as a		
	NOTE: Display assemblies are offered as spare parts only at a subcomponent level. For more information, see <u>Display assembly subcomponents on page 18</u> .	spare part		
(2)	Top cover with keyboard			
	NOTE: For a detailed list of country codes, see <u>Top cover with keyboard on page 66</u> .			
	For use in HP OmniBook X models	P30002-xx1		
	NOTE: Only available as -001 United States and -DB1 French Canada.			
	For use in HP OmniBook 7 models	P29869-xx1		
3)	Touchpad (includes cable)			
	For use in HP OmniBook X models	P29874-001		
	For use in HP OmniBook 7 models	P46008-001		
4)	System board (includes processor; for use in models with the Windows operating system)			
	For use in HP OmniBook X models:			
	Intel Core Ultra 7 258V processor and 32 GB system memory	P30000-601		
	Intel Core Ultra 7 256V processor and 16 GB system memory	P29999-601		
	 Intel Core Ultra 7 256V processor, NVIDIA GeForce RTX 4050 graphics, and 16 GB system memory 	P30001-601		
	For use in HP OmniBook 7 models:			
	Intel Core Ultra 7 258V processor and 32 GB system memory	P29866-601		
	 Intel Core Ultra 7 258V processor, NVIDIA GeForce RTX 4050 graphics, and 32 GB system memory 	P29867-601		
	Intel Core Ultra 7 256V processor and 16 GB system memory	P29865-601		
	Intel Core Ultra 5 226V processor and 32 GB system memory	P29864-601		
5)	WLAN module			
	Intel AX211 Wi-Fi 6E Bluetooth 5.3	M53366-005		
	Intel Wi-Fi 7 BE201 Bluetooth 5.4	N86466-005		
6)	Solid-state drive (PCIe)			
	2TB	P07215-001		
	1TB	N77394-001		
	512 GB	N77392-001		
7)	Battery, 6 cell, 83 Whr (includes revive kit)	M48025-001		
	NOTE: The battery cable is available in the Cable Kit as spare part number P29876-001 for models with UMA graphics and P29877-001 for models with discrete graphics.			
8)	Speakers (left and right)	P29880-001		
(9)	I/O board (includes cable)	P29873-001		

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

ltem	Component	Spare part number
(10)	Battery board	not available as a spare part
(11)	Heat sink (for use in models with UMA graphics memory	P29878-001
(12)	Heat sink (for use in models with discrete graphics memory	P29879-001
(13)	Fans	P29881-001
(14)	Bottom cover	P29871-001

Display assembly subcomponents

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

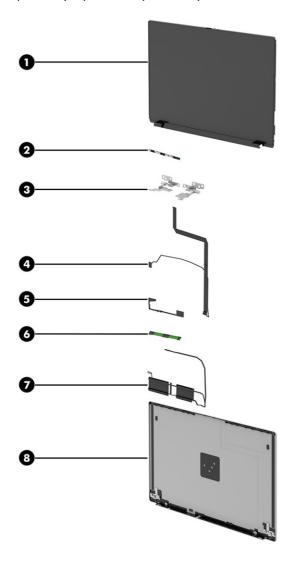


Table 3-2 Display component descriptions and part numbers

Item	Component	Spare part number
(1)	Display panel (includes cable and panel stretchable tape)	P29868-001
(2)	Camera module (includes cable, rubber piece, and panel stretchable tape)	P29883-001
(3)	Hinges (left and right, includes panel stretchable tape)	P29882-001
(4)	Camera cable (included in the Cable Kit; includes panel stretchable tape)	
	For use in models with UMA graphics memory	P29876-001
	For use in models with discrete graphics memory	P29877-001
(5)	Display panel cable (includes panel stretchable tape)	P29875-001
(6)	Touch control board (includes cable and panel stretchable tape)	P29872-001
(7)	Wireless antenna kit (included in the Cable Kit)	
	For use in models with UMA graphics memory	P29876-001
	For use in models with discrete graphics memory	P29877-001
(8)	Display back cover (includes wireless antennas and panel stretchable tape)	P29870-001

Miscellaneous parts

To identify the miscellaneous parts, use this table.

Table 3-3 Miscellaneous part descriptions and part numbers

Component	Spare part number
Slim AC adapter (65 W, nPFC, USB-C)	M54350-001
AC adapter (100 W, nPFC, USB-C)	N57045-001
Screw Kit	P29884-001
Cable Kit, models with UMA graphics memory (includes I/O board cable, touchpad cable, battery cable, camera cable, and wireless antennas and cables)	P29876-001
Cable Kit, models with discrete graphics memory (includes I/O board cable, touchpad cable, battery cable, camera cable, and wireless antennas and cables)	P29877-001
Power cords (C5, premium, 1.0 m [3.3 ft])	
Denmark	L22322-001
Europe (Austria, Belgium, Finland, France, Germany, the Netherlands, Norway, and Sweden)	L22321-001
North America	L22319-001
Switzerland	L22324-001
United Kingdom	L22320-001

4 Removal and replacement procedures preliminary requirements

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

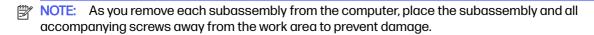
Tools required

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.



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 22.
 - 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	7,500 V	15,000 V	35,000 V
Walking across vinyl floor	3,000 V	5,000 V	12,000 V
Motions of bench worker	400 V	800 V	6,000 V
Removing dual in-line packages (DIPs) from plastic tube	400 V	700 V	2,000 V
Removing DIPs from vinyl tray	2,000 V	4,000 V	11,500 V
Removing DIPs from polystyrene foam	3,500 V	5,000 V	14,500 V
Removing bubble pack from PCB (printed circuit board)	7,000 V	20,000 V	26,500 V
Packing PCBs in foam-lined box	5,000 V	11,000 V	21,000 V



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

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 $1\,\mathrm{M}\Omega$ ±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	1,500
Carbon-loaded plastic	7,500
Metallized 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 M Ω ±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 $1 M\Omega \pm 10\%$ 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.

- 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 24 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 25 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 26.

- Wear disposable gloves made of latex (or nitrile gloves, if you are latex-sensitive) when cleaning the surfaces.
- 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.
- 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.
- 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 <u>Cleaning your computer with a disinfectant on page 25</u> 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 24, Caring for wood veneer (select products only) on page 26, 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:

- 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 24 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 25 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

To find the HP support that you need, use this information.

Table 4-3 Support information locations

Service consideration	Path to access information		
Records of reported failure incidents stored on the computer	Windows*:		
on the computer	Preoperating 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 Event Viewer, and then press enter.		
	4. Select the log from the left panel. Details display in the right panel.		
	Chrome™:		
	1. Go to support.google.com/chrome.		
	2. Search collect Chrome device logs.		
Technical bulletins	To locate technical bulletins:		
	1. Go to www.hp.com.		
	2. Place the cursor over Problem solving to display more options.		
	3. Select Support & Troubleshooting.		
	 Type the serial number, product number, or product name to go to the product support page. 		
	5. Select Advisories to view technical bulletins.		
Repair professionals	To locate repair professionals:		
	1. Go to www.hp.com.		
	2. Place the cursor over Support resources to display more options.		
	3. Select Authorized service providers.		

Table 4-3 Support information locations (continued)

Service consideration	Path to access information	
Component and diagnosis information, failure detection, and required action	To locate diagnosis information and actions:	
Tullure detection, dira required action	1. Go to http://www.hp.com/go/techcenter/pcdiags.	
	2. Select Get Support.	
	 Near the bottom of the window, select Notebook PCs, and then select your location. 	

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 <u>HP Support YouTube Channel</u> (in English) has videos that provide step-by-step removal and replacement instructions for many common parts and models.

Component replacement procedures

To remove and replace computer components, use these procedures.

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

To remove and replace computer components, use these procedures:

For initial safety procedures, see Removal and replacement procedures preliminary requirements on page 20.

- 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.

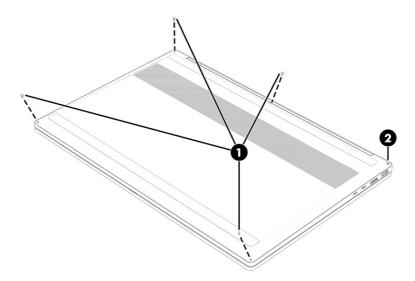
Table 5-1 Bottom cover description and part number

Description	Spare part number
Bottom cover	P29871-001

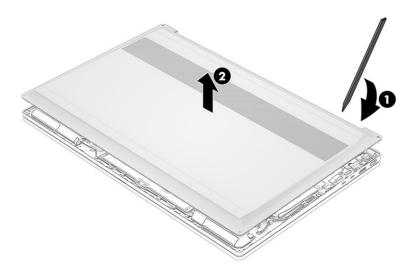
Before removing the bottom cover, prepare the computer for disassembly (see <u>Preparation for disassembly on page 29</u>).

Remove the bottom cover:

- Position the computer upside down.
- 2. Remove the four Torx T5/Phillips P2.0 × 3.0 screws (1) from the bottom cover.
- 3. Loosen the captive Torx T5/Phillips screw (2) on the bottom cover.
- NOTE: The bottom cover includes a captive (not removable) screw that causes the cover to pop up when you loosen the screw. After the cover pops up, do not continue to loosen the captive screw.



- 4. Insert a tool (1) near the captive screw to release the cover.
- 5. Remove the cover (2) from the computer.



To replace the bottom cover, reverse the removal procedures.

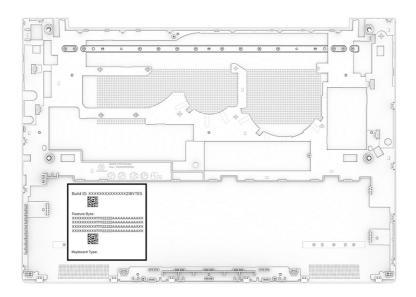
When replacing the bottom cover, remove the Feature Byte label from the inside of the old bottom cover and place it on the inside of the new bottom cover. Be sure to keep this label with the computer, as the label is required for any future repairs.

You can locate product labels:

- Laser etched on the old bottom cover.
- In HP System Information by pressing fn + esc when you turn on the computer.

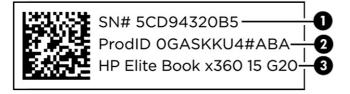


NOTE: Bottom cover appearance might vary.

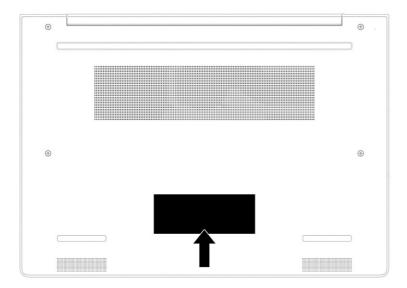


Hand write the product information onto the label of the new bottom cover. Use a ballpoint pen or marker to avoid smudging.

Example of label information



New bottom cover label location



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 <u>Removing and reinstalling the same battery on page</u> 32.
- To install a new battery, see Installing a new battery on page 33.

Removing and reinstalling the same battery

To remove the battery and reinstall it, use this procedure and illustration.

- - 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**.

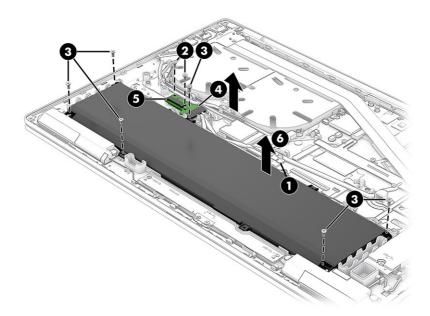
Before removing the battery, follow these steps:

1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).

- Remove the bottom cover (see <u>Bottom cover on page 29</u>).
- **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:

- Disconnect the battery cable (1) from the system board.
- IMPORTANT: Be sure to disconnect the power by first disconnecting the battery cable from the system board, not from the battery board.
- 2. Remove the two Phillips M2.0 × 4.0 screws (2) that secure the battery board to the computer.
- 3. Remove the six Phillips $M2.0 \times 4.0$ screws (3) that secure the battery to the computer.
- 4. Lift the battery board (4), and then disconnect the cable (5) from the board.
- 5. Remove the battery (6) from the computer.



To reinstall the battery, reverse the removal procedures.

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

Installing a new battery

To install a battery, use these procedures and illustrations. 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.

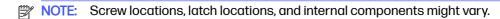
Table 5-2 Battery descriptions and part numbers

Description	Spare part number
Battery, 6 cell, 83 Whr (includes revive kit)	M48025-001
Battery cable for use in models with UMA graphics (available in the Cable Kit)	P29876-001
Battery cable for use in models with discrete graphics (available in the Cable Kit)	P29877-001

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.

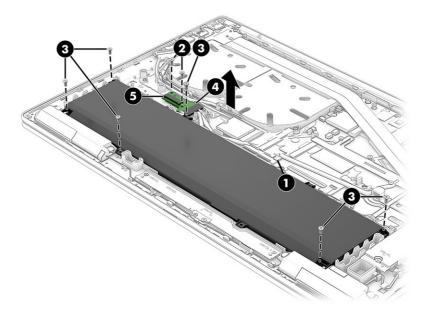
Should a part become stuck or difficult to remove when opening a unit where a swollen battery is suspected, or if the battery becomes stuck in the unit, stop, and contact HP Support for assistance. Do not try to remove a battery by force.



Before removing the battery, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- **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 (1) from the system board.
 - **IMPORTANT:** Be sure to disconnect the power by first disconnecting the battery cable from the system board, not from the battery board.

- b. Remove the two Phillips M2.0 × 4.0 screws (2) that secure the battery board to the computer.
- c. Remove the six Phillips $M2.0 \times 4.0$ screws (3) that secure the battery to the computer.
- d. Lift the battery board (4), and then disconnect the cable (5) from the board.
- NOTE: You can disconnect the cable from the battery. The battery spare part kit does not come with the battery cable, so be sure to use the old battery cable or order a new battery cable when replacing the battery.



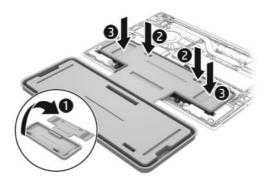
e. Open the empty battery containment tray.



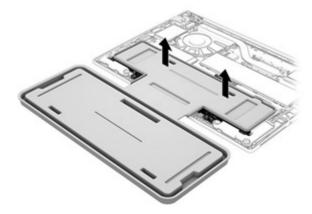
f. Remove the paper backing layer from the adhesive on the tray.



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



Lift the top of the tray to remove the battery from the computer.



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

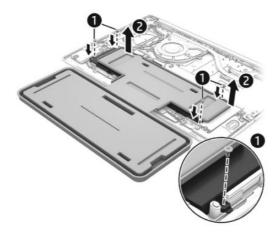


- NOTE: Please recycle responsibly. For more information about recycling programs, see the HP website at http://www.hp.com/recycle.
- 2. Install the battery using the revive kit:
 - a. Open the containment tray that includes the new battery.
 - b. Turn the tray (1) over so the battery is facing downward, and then insert the battery (2) into the computer. Adhesive secures the battery to the tray.

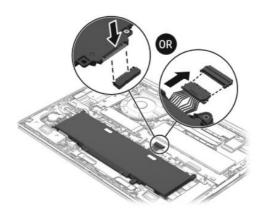


c. Install the Phillips screws (1) to secure the battery. Number of screws and screw locations might vary.

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

To remove and replace computer components, use the procedures described in this section.

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.

Solid-state drive

To remove the solid-state drive (SSD), use this procedure and illustration.

Table 6-1 SSD descriptions and part numbers

Description	Spare part number
2TB	P07215-001
1TB	N77394-001
512 GB	N77392-001

Before removing the SSD, follow these steps:

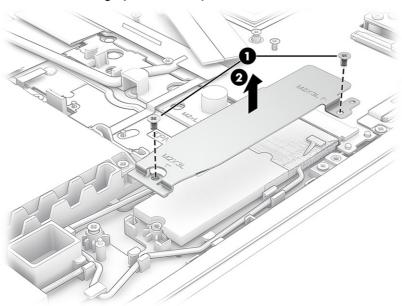
- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).

Remove the SSD:

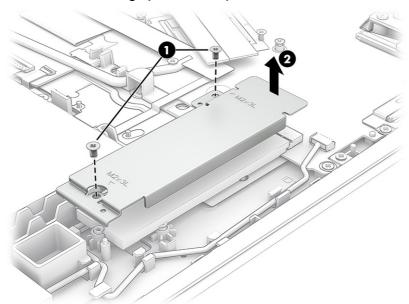
1. Remove two Phillips M2.0 × 3.0 screws (1) that secure the SSD cover.

2. Lift the cover (2) off the drive.

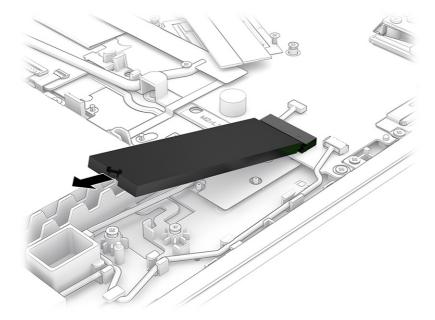
Models with UMA graphics memory



Models with discrete graphics memory

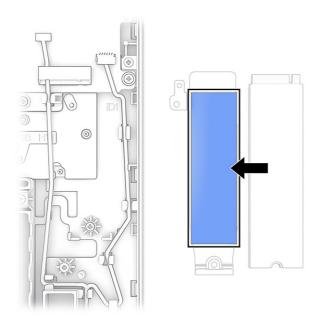


3. Pull the SSD out of the socket.



To install an SSD, reverse the removal procedures.

When installing an SSD, be sure a thermal pad is installed on the bottom of the SSD cover.



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

Speakers

To remove the speakers, use this procedure and illustration.

Table 6-2 Speaker description and part number

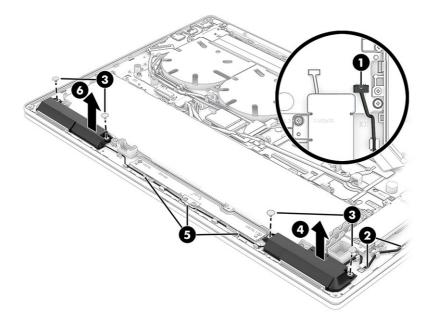
Description	Spare part number
Speakers (left and right)	P29880-001

Before removing the speakers, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).

Remove the speakers:

- 1. Disconnect the speaker cable (1) from the system board.
- 2. Remove speaker cable from clips (2) between the system board and the right speaker.
- 3. Remove the four Phillips M1.6 \times 3.0 screws (3) that secure the speakers.
- 4. Remove the right speaker (4).
- 5. Remove speaker cable from the clips (5) along the touchpad bracket.
- 6. Remove the left speaker (6) from the computer.



To install the speakers, reverse this procedure.

Touchpad

To remove the touchpad, use this procedure and illustration.

Table 6-3 Touchpad descriptions and part numbers

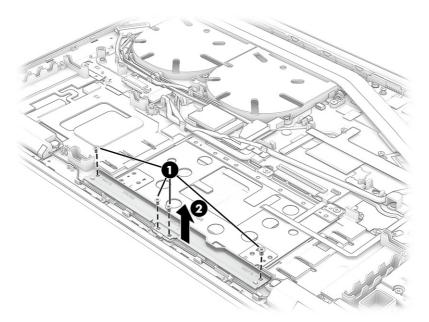
Description	Spare part number
Touchpad for use in HP OmniBook X models (includes cable)	P29874-001
NOTE: This touchpad is labeled as ID1.	
Touchpad for use in HP OmniBook 7 models (includes cable)	P46008-001
NOTE: This touchpad is labeled as ID2.	
NOTE: Be sure to use the correct cable. Models with UMA graphics use a different length cable than models with discrete graphics.	

Before removing the touchpad, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 3. Remove the battery (see Removing and reinstalling the same battery on page 32).

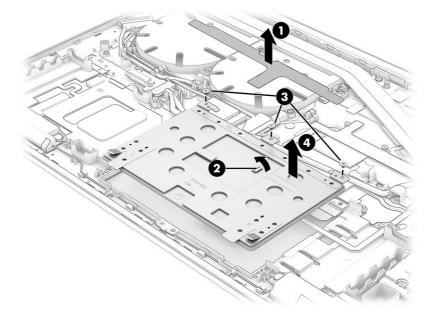
Remove the touchpad:

- 1. Remove the four Phillips M2.0 × 3.0 screws (1) from the touchpad bracket.
- 2. Remove the bracket (2) from the computer.



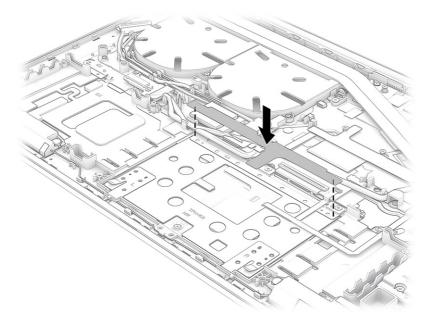
- 3. Remove the plastic strip (1) that covers the touchpad connector.
- 4. Disconnect the cable from the ZIF connector (2) on the touchpad.
- 5. Remove the three Phillips M2.0 × 2.0 screws (3) from the touchpad.

6. Remove the touchpad (4) from the computer.



To install the touchpad, reverse the removal procedures.

When installing a touchpad, be sure to replace the plastic strip that covers the touchpad connector.



Battery board

To remove the battery board, use this procedure and illustration.

Table 6-4 Battery board description and part number

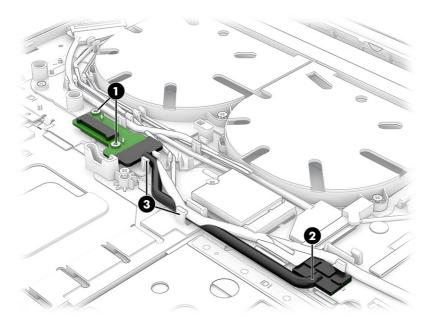
Description	Spare part number
Battery board	not available as a spare part
NOTE: Be sure to use the correct cable. Models with UMA graphics use a different length cable than models with discrete graphics.	spare part

Before removing the battery board, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- Remove the bottom cover (see <u>Bottom cover on page 29</u>).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).

Remove the battery board:

- 1. Remove the two Phillips M2.0 × 4.0 screws (1) from the board.
- 2. Disconnect the cable (2) from the system board connector.
- 3. Remove the cable from the clips (3) between the battery board and system board connector, and then remove the board and cable from the computer.



To install the battery board, reverse this procedure.

I/O board cable

To remove the I/O board cable, use this procedure and illustration.

Table 6-5 I/O board cable descriptions and part numbers

Description	Spare part number
I/O board cable for use in models with UMA graphics memory (included in the Cable Kit)	P29876-001

Table 6-5 I/O board cable descriptions and part numbers (continued)

Description	Spare part number
I/O board cable for use in models with discrete graphics memory (included in the Cable Kit)	P29877-001

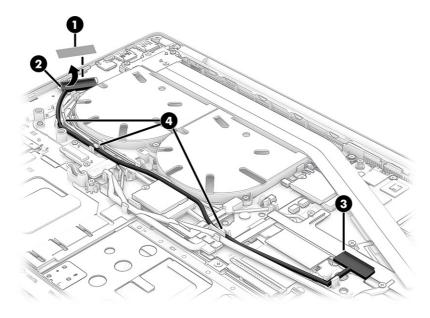
Before removing the I/O board cable, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).

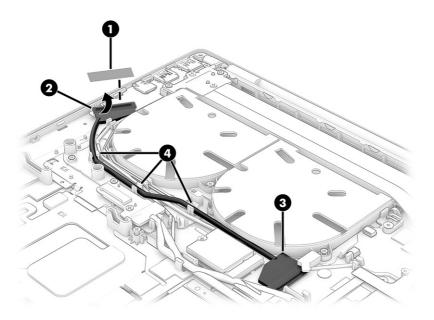
Remove the I/O board cable:

- 1. Remove any other cables that route on top of the I/O board cable.
- 2. Lift the tape (1) off the connector on the I/O board.
- 3. Disconnect the cable from the ZIF connector (2) on the board.
- 4. Disconnect the cable from the system board connector (3).
- 5. Remove the cable from the clips (4).

Models with UMA graphics memory



Models with discrete graphics memory



To install the I/O board cable, reverse this procedure.

I/O board

To remove the I/O board, use this procedure and illustration.

Table 6-6 I/O board description and part number

Description	Spare part number
I/O board (includes cable)	P29873-001

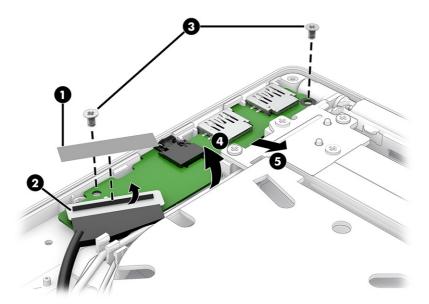
Before removing the I/O board, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 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. Lift the tape (1) off the connector on the I/O board.
- 2. Disconnect the cable from the ZIF connector (2) on the board.
- 3. Remove the two Phillips $M2.0 \times 3.0$ screws (3) from the board.

4. Lift the back up the board (4) up, and then remove the board (5) from the computer.



To install the I/O board, reverse this procedure.

WLAN module

To remove the WLAN module, use this procedure and illustration.

Table 6-7 WLAN module descriptions and part numbers

Description	Spare part number
Intel AX211 Wi-Fi 6E Bluetooth 5.3	M53366-005
Intel Wi-Fi 7 BE201 Bluetooth 5.4	N86466-005

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.

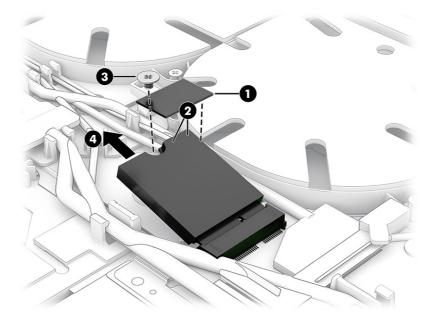
Before removing the WLAN module, follow these steps:

- 1. Prepare the computer for disassembly (Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).

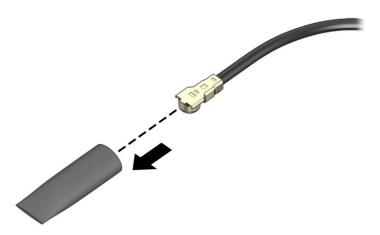
Remove the WLAN module:

- 1. Remove the antenna protector (1) from the module.
- Disconnect the antenna cables from the module terminals (2).
- 3. Remove the Phillips M2.0 × 2.0 screw (3) that secures from the WLAN module.

4. Remove the module (4) by pulling it away from the slot at an angle.

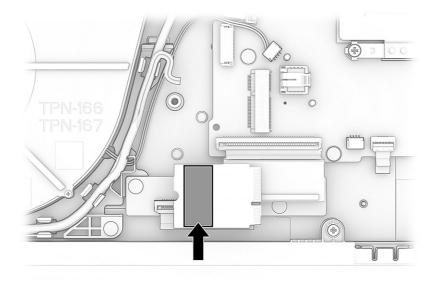


5. If the WLAN antenna is not connected to the terminal on the WLAN module, install a protective sleeve on the antenna connector, as shown in the following illustration.



To install the WLAN module, reverse this procedure.

When installing a WLAN module, be sure that a thermal pad is installed on the bottom of the module.



NOTE: WLAN modules are notched to prevent incorrect installation.

System board

To remove the system board, use these procedures and illustrations.

Table 6-8 System board descriptions and part numbers

Description	Spare part number
System board (includes processor and integrated system memory; for use in models with the Windows operating system)	
For use in HP OmniBook X models:	
Intel Core Ultra 7 258V processor and 32 GB system memory	P30000-601
Intel Core Ultra 7 256V processor and 16 GB system memory	P29999-601
 Intel Core Ultra 7 256V processor, NVIDIA GeForce RTX 4050 graphics, and 16 GB system memory 	P30001-601
For use in HP OmniBook 7 models:	
Intel Core Ultra 7 258V processor and 32 GB system memory	P29866-601
 Intel Core Ultra 7 258V processor, NVIDIA GeForce RTX 4050 graphics, and 32 GB system memory 	P29867-601
Intel Core Ultra 7 256V processor and 16 GB system memory	P29865-601
Intel Core Ultra 5 226V processor and 32 GB system memory	P29864-601

Before removing the system board, follow these steps:

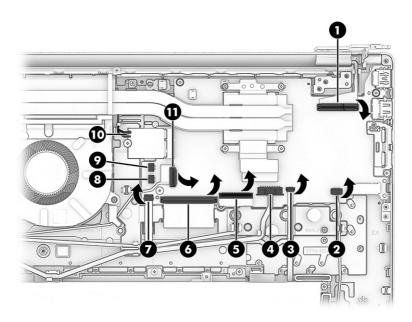
- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 3. Remove the battery (see Removing and reinstalling the same battery on page 32).
- 4. Remove the heat sink and fan assembly (see Heat sink on page 54).

5. Remove the solid-state drive (see Solid-state drive on page 39).

Remove the system board:

- 1. (UMA models) Disconnect the following cables from the system board:
- NOTE: Some connectors are covered by transparent tape.
 - Display cable (ZIF) (1)
 - Speaker cable (2)
 - Touchpad cable (ZIF) (3)
 - Battery board cable (ZIF) (4)
 - I/O board cable (ZIF) (5)
 - Keyboard cable (ZIF) (6)
 - Keyboard backlight cable (ZIF) (7)
 - Left fan cable (8)
 - Right fan cable (9)
 - Antennas from the WLAN module (10)
 - Camera cable (ZIF) (11)

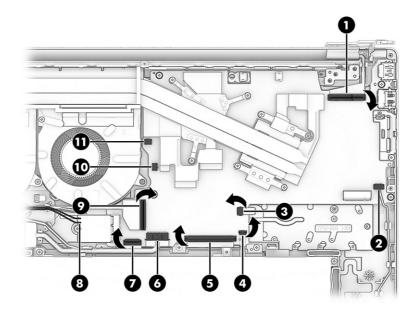
Models with UMA graphics



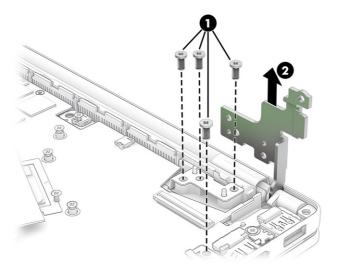
- 2. (Discrete models) Disconnect the following cables from the system board:
- NOTE: Some connectors are covered by transparent tape.
 - Display cable (ZIF) (1)

- Speaker cable (2)
- Keyboard backlight cable (ZIF) (3)
- Touchpad cable (ZIF) (4)
- Keyboard cable (ZIF) (5)
- Battery board cable (ZIF) (6)
- Camera cable (ZIF) (7)
- Antennas from the WLAN module (8)
- I/O board cable (ZIF) (9)
- Left fan cable (10)
- Right fan cable (11)

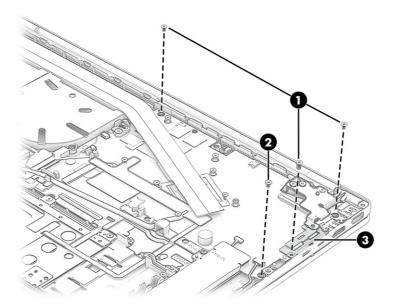
Models with discrete graphics



3. Remove the four Phillips M2.5 \times 5.0 screws (1) from the right hinge, and then lift the hinge (2) from the system board.

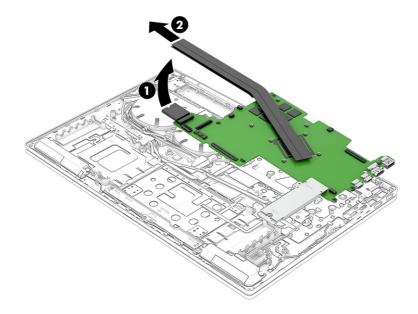


- 4. Remove the three Phillips M2.0 \times 3.0 screws (1) from the system board.
- 5. (Models with discrete graphics) Remove the Phillips M2.0 × 3.0 screw (2) from the system board.
- 6. Remove the USB bracket (3) from the system board.

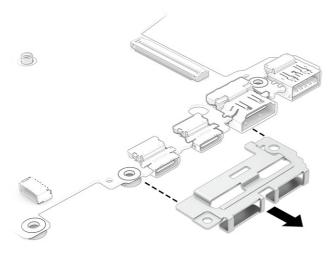


7. Lift the inside of the system board (1) up at an angle.

8. Pull the system board (2) up and away from the computer to remove it.



9. If you are replacing the system board, remove the USB bracket from the old system board and install it on the new system board.



To install a system board, reverse this procedure.

Heat sink

To remove the heat sink, use these procedures and illustrations.

Table 6-9 Heat sink descriptions and part numbers

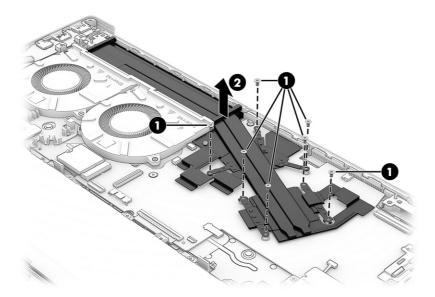
Description	Spare part number
For use in models with UMA graphics memory	P29878-001
For use in models with discrete graphics memory	P29879-001

Before removing the heat sink, follow these steps:

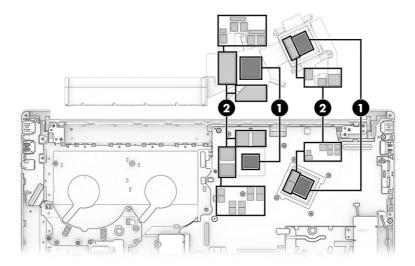
- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).

Remove the heat sink from models with discrete graphics:

- 1. In the order shown on the heat sink, remove seven Phillips 2.0 × 3.0 screws (1) from the heat sink.
- 2. Remove the heat sink (2).

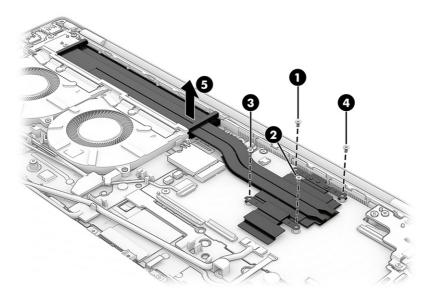


3. Thoroughly clean and replace the gray thermal paste (1) and thermal pads (2) from the surfaces of the heat sink and the system board components each time the heat sink is removed.

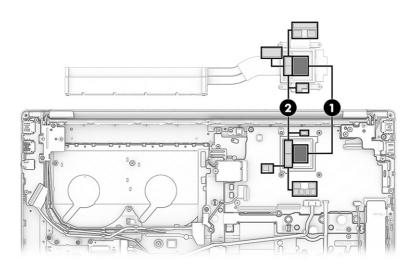


Remove the heat sink from models with UMA graphics:

- 1. In the order shown on the heat sink, remove four Phillips 2.0 × 3.0 screws (1)-(4) from the heat sink.
- 2. Remove the heat sink (5).



3. Thoroughly clean and replace the gray thermal paste (1) and thermal pads (2) from the surfaces of the heat sink and the system board components each time the heat sink is removed.



To install the heat sink, reverse this procedure.

Fans

To remove the fans, use this procedure and illustration.

Table 6-10 Fans description and part number

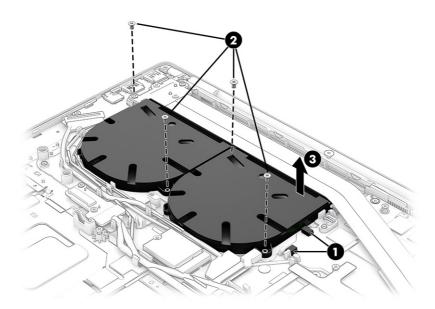
Description	Spare part number
Fans	P29881-001

Before removing the fans, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- Remove the bottom cover (see <u>Bottom cover on page 29</u>).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).

Remove the fans:

- 1. Disconnect the fan cables (1) from the system board.
- 2. Remove the four Phillips M2.0 × 3.0 screws (2) from the fans.
- 3. Lift the fans (3) out of the computer.



To install the fans, reverse this procedure.

Keyboard frames

To remove the keyboard frames, use this procedure and illustration.

If you are replacing the top cover with keyboard, remove the frames from the old keyboard and install them on the new keyboard. The keyboard frames are not available as a spare part.

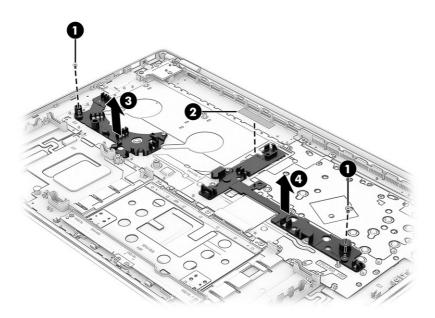
Before removing the keyboard frames, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see <u>Bottom cover on page 29</u>).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).
- 4. Remove the battery board (see Battery board on page 44).
- Remove the WLAN module (see WLAN module on page 48).

6. Remove all remaining cables that route through the clips in the frames.

Remove the keyboard frames:

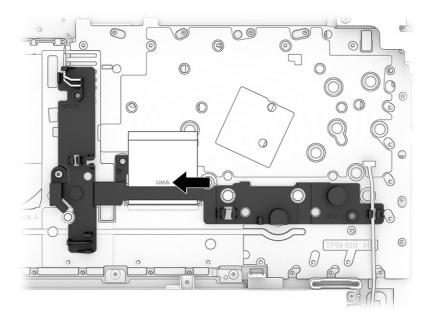
- 1. Remove the Phillips M2.0 × 3.0 screw (1) from each frame.
- 2. Remove the Wi-Fi gasket (2) that secures the cable frame to the computer.
- 3. Remove the battery frame (3).
- NOTE: Discrete models include only the battery frame.
- 4. Remove the cable frame (4) from the computer.
- NOTE: UMA models include both the battery frame (3) and cable frame (4).



To install the keyboard frame, reverse this procedure.

NOTE: After replacing the cable frame in UMA models, be sure to replace the Wi-Fi gasket (see step 2 in the previous procedure).

To install the frame installed around the system board, when positioning the frame in the computer, be sure the frame covers the DISCRETE label on the keyboard cable so that only UMA is visible.



Display assembly

To remove and disassemble the display assembly, use these procedures and illustrations.

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

Before removing the display panel, follow these steps:

- 1. Prepare the computer for disassembly (see Preparation for disassembly on page 29).
- 2. Remove the bottom cover (see Bottom cover on page 29).
- 3. Disconnect the battery cable from the system board (see Removing and reinstalling the same battery on page 32).
- 4. (UMA models) Remove the heat sink (see Heat sink on page 54).

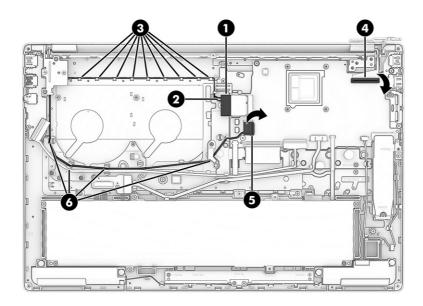
Remove the display assembly:

NOTE: On UMA models, the antenna cable routes under the heat sink. On discrete models the antenna cable routes around the fans.

Models with UMA graphics:

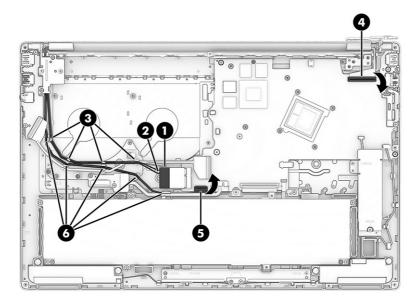
- a. Remove the plastic antenna protector (1) from the WLAN module.
- b. Disconnect the antenna cables (2) from the WLAN module.
- c. Remove the antenna cables from the clips (3) under the heat sink along the top of the computer.
- d. Disconnect the display cable from the ZIF connector (4) on the system board.
- e. Disconnect the camera cable from the ZIF connector (5) on the system board.

f. Remove the camera cable from the clips (6) around the fans.

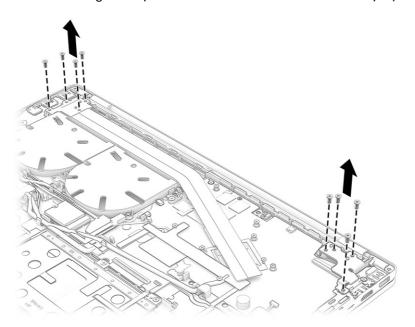


2. Models with discrete graphics:

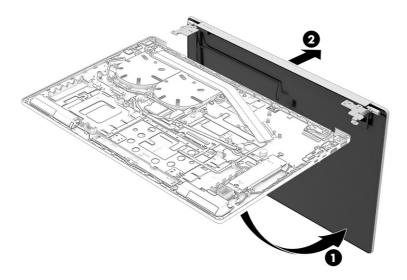
- a. Remove the plastic antenna protector (1) from the WLAN module.
- b. Disconnect the antenna cables (2) from the WLAN module.
- c. Remove the antenna cables from the clips (3) around the fans.
- d. Disconnect the display cable from the ZIF connector (4) on the system board.
- e. Disconnect the camera cable from the ZIF connector (5) on the system board.
- f. Remove the camera cable from the clips (6) around the fans.



3. Remove the eight Phillips M2.5 \times 5.0 screws that secure the display assembly to the computer.

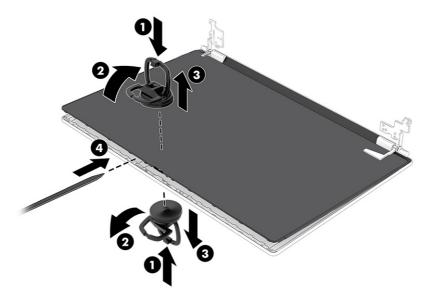


- 4. Open the display (1).
- 5. Separate the display (2) from the computer.



- 6. To remove the display panel:
 - a. Place suction cups (1) in the middle below the camera on both sides of display panel and rear cover, and then close and lock the suction cups (2).
 - b. Pull the suction cups (3) away from each other to flex the panel away from the cover.

c. Use a tool (4) to pry to edges of the panel away from the cover.

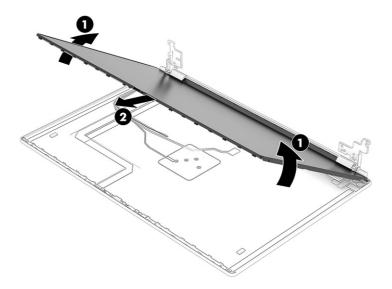


d. On the top left and right corners of the panel (1), use tweezers (2) to grasp the hole in the tape, and then pull the tape (3) out from both sides of the panel.

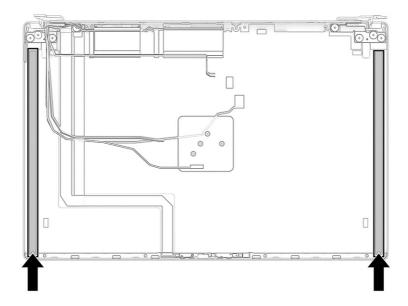


e. Release the left and right sides (1) of the panel, and then pull the panel (2) up and away from the rear cover.

The display panel is available as spare part number P29868-001.

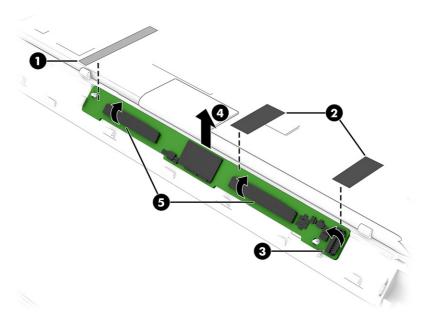


f. When installing a display panel, use the following illustration to determine tape installation locations on the inside of the display rear cover.



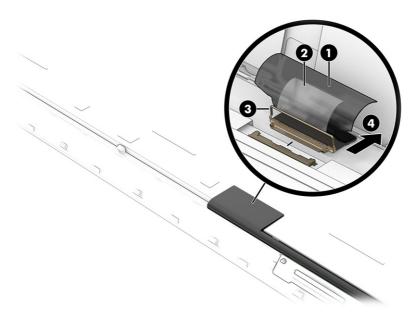
- 7. To remove the touch control board:
 - a. Remove the conductive tape (1) from the left side of the board.
 - b. Remove the two pieces of tape (2) from the board.
 - c. Disconnect the cable from the small ZIF connector (3) on the touch board.
 - d. Lift the board (4) up slightly.
 - e. Disconnect the cable from the two wide reverse ZIF connectors (5) on the touch board, and then remove the board.

The touch control board is available as spare part number P29872-001.



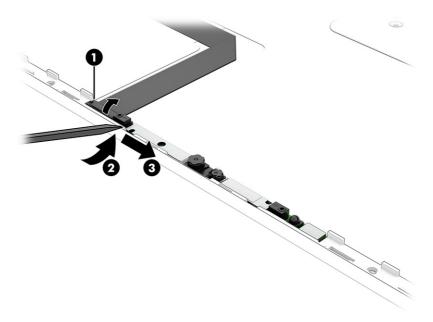
- 8. To remove the display cable:
 - a. Peel the conductive tape (1) and clear tape (2) off the connector on the bottom of the panel.
 - **b.** Open the locking bar **(3)**, and then disconnect the cable **(4)** from the panel.

The display cable is available as spare part number P29875-001.



- 9. To remove the camera module:
 - a. Disconnect the cable from the reverse ZIF connector (1) on the camera module.
 - b. Starting on the left side, insert a pry tool (2) under the camera module, and then pull the tool to the right (3) to release the module.

The camera module is available as spare part number P29883-001.



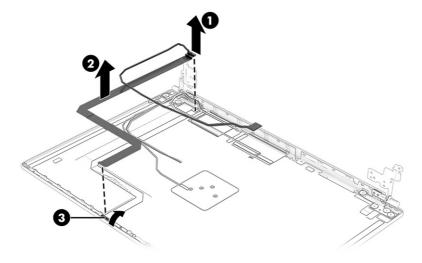
MPORTANT: Camera data rewrite process

To protect sensitive data, Microsoft requires implementation of Enhanced Sign-in Security (ESS) in camera modules in HP Next Gen Al PCs. After replacing the camera module, be sure to reload the camera firmware hash, which requires unlocking Manufacturer Programming Mode (MPM). For more information, go to <a href="https://px.ncbi.nlm.n

10. To remove the camera cable:

- a. Remove the cable from the clips (1) along the bottom of the display.
- b. Peel the cable (2) off the inside of the display rear cover.
- c. Disconnect the cable from the reverse ZIF connector (3) on the camera module.

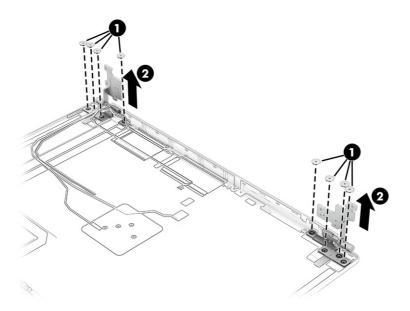
The camera cable is available in the Cable Kit as spare part number P29876-001 for models with UMA graphics memory and P29877-001 for models with discrete graphics memory.



11. To remove the hinges from the display rear cover:

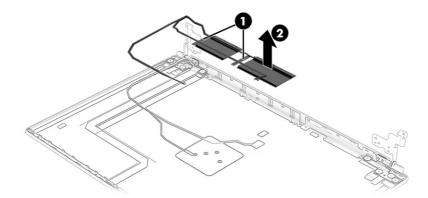
- a. Remove the four Phillips M2.5 × 2.5 screws (1) from each hinge.
- b. Remove the hinges (2) from the display back cover.

The display hinges are available as spare part number P29882-001.



- 12. To remove the wireless antennas and cables:
 - a. Peel up the two strips of conductive tape the foil (1) on the antennas.
 - b. Peel the antennas (2) off the display rear cover.

The wireless cables and antennas are available in the Cable Kit as spare part number P29029-001. The wireless cables and antennas are also included in the display rear cover spare part kit.



To reassemble and replace the display assembly, reverse these procedures.

Top cover with keyboard

The top cover remains after removing all other spare parts from the computer. The first table includes the top cover spare part numbers. The second table includes keyboard country codes.

Table 6-11 Top cover with keyboard descriptions and part numbers

Description	Spare part number
For use in HP OmniBook X models	P30002-xx1
NOTE: Only available as -001 United States and -DB1 French Canada.	
For use in HP OmniBook 7 models	P29869-xx1

HP OmniBook 7 models offer a lattice keyboard.

 $HP\ OmniBook\ X\ models\ of fer\ a\ non-lattice\ keyboard.$



Table 6-12 Spare part country codes

For use in country or region	Spare part number
Belgium	-A41
Czech Republic/Slovakia	-FL1
Denmark, Finland, and Norway	-DH1
French Canada	-DB1
France	-051
Germany	-041
Greece	-151
Israel	-BB1
Italy	-061
The Netherlands	-B31
Portugal	-131
Russia	-251
Slovenia	-BA1
Spain	-071
Switzerland	-BG1
Turkey	-141
Ukraine	-BD1

Table 6-12 Spare part country codes (continued)

For use in country or region	Spare part number
United Kingdom	-031
United States	-001

7 Backing up, restoring, and recovering

You can use Windows tools or HP software to back up your information, create a restore point, reset your computer, create recovery media, or restore your computer to its factory state. Performing these standard procedures can return your computer to a working state faster.

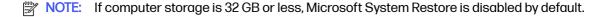
- IMPORTANT: If you are performing recovery procedures on a tablet, the tablet battery must be at least 70% charged before you start the recovery process.
- IMPORTANT: For a tablet with a detachable keyboard, connect the tablet to the keyboard base before beginning any recovery process.

Backing up information and creating recovery media

These methods of creating recovery media and backups are available on select products only.

Using Windows tools for backing up

HP recommends that you back up your information immediately after initial setup. You can do this task either using Windows Backup locally with an external USB flash drive or using online tools.



Using the HP Cloud Recovery Download Tool to create a recovery USB flash drive (select products only)

You can use the HP Cloud Recovery Download Tool to create an HP Recovery bootable USB flash drive.

For details:

- Go to http://www.hp.com, search for HP Cloud Recovery, and then select the result that matches the type of computer that you have and follow the on-screen instructions.
- NOTE: In select countries, if you cannot create the HP Recovery USB flash drive yourself, contact support. Go to http://www.hp.com/support, select your country or region, and then follow the on-screen instructions.
- IMPORTANT: HP recommends that you follow the Restoring and recovery methods on page 70 to restore your computer before you obtain and use the HP USB flash drive. Using a recent backup can return your machine to a working state sooner than using the HP USB flash drive. After the system is restored, reinstalling all the operating system software released since your initial purchase can be a lengthy process.

Restoring and recovering your system

You have several tools available to recover your system both within and outside of Windows if the desktop cannot load.

HP recommends that you attempt to restore your system using the <u>Restoring and recovery methods on page 70.</u>

Creating a system restore

System Restore is available in Windows. The System Restore software can automatically or manually create restore points, or snapshots, of the system files and settings on the computer at a particular point.

When you use System Restore, it returns your computer to its state at the time you made the restore point. Your personal files and documents should not be affected.

Restoring and recovery methods

After you run the first method, test to see whether the issue still exists before you proceed to the next method, which might now be unnecessary.

- 1. Run a Microsoft System Restore.
- Run Reset this PC.
- NOTE: The options Remove everything and then Fully clean the drive can take several hours to complete and leave no information on your computer. It is the safest way to reset your computer before you recycle it.
- 3. Recover using the HP Recovery USB flash drive. For more information, see Recovering using the HP Recovery USB flash drive on page 70.

For more information about the first two methods, see the Get Help app:

- Select the Start button, select All apps, select the Get Help app, and then enter the task you want to perform.
- NOTE: You must be connected to the internet to access the Get Help app.

Recovering using the HP Recovery USB flash drive

You can use the HP Recovery USB flash drive to recover the operating system and drivers that were installed at the factory. On select products, you can create recovery media on a bootable USB flash drive using the HP Cloud Recovery Download Tool.

For details, see <u>Using the HP Cloud Recovery Download Tool to create a recovery USB flash drive (select products only) on page 69</u>.

NOTE: In select countries, if you cannot create the HP Recovery USB flash drive yourself, contact support. Go to http://www.hp.com/support, select your country or region, and then follow the on-screen instructions.

To recover your system:

- Insert the HP Recovery USB flash drive, and then restart the computer.
- NOTE: HP recommends that you follow the <u>Restoring and recovery methods on page 70</u> to restore your computer before you obtain and use the HP USB flash drive. Using a recent backup can return your machine to a working state sooner than using the HP USB flash drive. After the system is restored, reinstalling all the operating system software released since your initial purchase can be a lengthy process.

Changing the computer boot order

If your computer does not restart using the HP Recovery USB flash drive, you can change the computer boot order, which is the order of devices listed in BIOS for startup information.

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

To change the boot order:

- Insert the HP Recovery USB flash drive.
- Access the system Startup menu.
 - For computers or tablets with keyboards attached, turn on or restart the computer or tablet, quickly press esc, and then press f9 for boot options.
 - For tablets without keyboards, turn on or restart the tablet, and then quickly press and hold one
 of the following buttons:
 - Volume up
 - Volume down

Then select f9.

3. Select the USB flash drive to boot from, and then follow the on-screen instructions.

Using HP Sure Recover (select products only)

Select computer models are configured with HP Sure Recover, a PC operating system (OS) recovery solution built into the hardware and software. HP Sure Recover can fully restore the HP OS image without installed recovery software.

Using HP Sure Recover, an administrator or user can restore the system and install:

- Latest version of the operating system
- Platform-specific device drivers
- Software applications, in the case of a custom image

To access the latest documentation for HP Sure Recover, go to http://www.hp.com/support. Follow the on-screen instructions to find your product and locate your documentation.

8 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)

You have several ways to access the Setup Utility (BIOS).

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

Use one of these options:

- Turn on or restart the computer and quickly press f10.
- Turn on or restart the computer, quickly press esc, and then press f10 when the Start menu is displayed.

Updating Setup Utility (BIOS)

Updated versions of Setup Utility (BIOS) might 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
 - Perform one of these tasks:
 - Select the Search icon in the taskbar, type support in the search box, and then select the HP Support Assistant app.
 - Select the question mark icon in the taskbar.
 - Under My notebook, select Specifications.
- Setup Utility (BIOS)

- 1. Start Setup Utility (BIOS) (see Starting Setup Utility (BIOS) on page 72).
- 2. Select **Main**, and then make note of the BIOS version.
- 3. Select Exit, select one of the options, and then follow the on-screen instructions.
- In Windows, press ctrl+alt+s.

To check for later BIOS versions, see Preparing for a BIOS update on page 73.

Preparing for a BIOS update

Be sure to follow all prerequisites before downloading and installing a BIOS update.

- IMPORTANT: 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 HP AC adapter provided with the computer (select products only), a replacement AC adapter provided by HP, or an AC adapter with the power rating specified on the product label. 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.

Downloading a BIOS update

After you review the prerequisites, you can check for and download BIOS updates.

- Perform one of these tasks:
 - Select the Search icon in the taskbar, type support in the search box, and then select the HP Support Assistant app.
 - Select the question mark icon in the taskbar.
- Select Updates. The Checking for Updates window opens, and Windows checks for updates.
- 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 might 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.

Installing a BIOS 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. Select the **Search** icon in the taskbar, type file in the search box, and then select **File Explorer**.
- 2. Select your hard drive designation. The hard drive designation is typically Local Disk (C:).
- 3. Using the hard drive path you recorded earlier, open the folder that contains the update.
- 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.

9 Using HP PC Hardware Diagnostics

You can use the HP PC Hardware Diagnostics utility to determine whether your computer hardware is running properly. The three versions are HP PC Hardware Diagnostics Windows, HP PC Hardware Diagnostics UEFI (Unified Extensible Firmware Interface), and (for select products only) Remote HP PC Hardware Diagnostics UEFI, a firmware feature.

Using HP PC Hardware Diagnostics Windows (select products only)

HP PC Hardware Diagnostics Windows is a Windows-based utility that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs within the Windows operating system to diagnose hardware failures.

If HP PC Hardware Diagnostics Windows is not installed on your computer, you must download and install it. To download HP PC Hardware Diagnostics Windows, see Downloading HP PC Hardware Diagnostics Windows on page 76.

Using an HP PC Hardware Diagnostics Windows hardware failure ID code

When HP PC Hardware Diagnostics Windows detects a failure that requires hardware replacement, a 24-digit failure ID code is generated for select component tests. For interactive tests, such as keyboard, mouse, or audio and video palette, you must perform troubleshooting steps before you can receive a failure ID.

You have several options after you receive a failure ID:

- Select Next to open the Event Automation Service (EAS) page, where you can log the case.
- Scan the QR code with your mobile device, which takes you to the EAS page, where you can log the
 case.
- Select the box next to the 24-digit failure ID to copy your failure code and send it to support.

Accessing HP PC Hardware Diagnostics Windows

After HP PC Hardware Diagnostics Windows is installed, you can access it from HP Support Assistant or the Start menu.

Accessing HP PC Hardware Diagnostics Windows from HP Support Assistant

After HP PC Hardware Diagnostics Windows is installed, follow these steps to access it from HP Support Assistant:

- Complete one of the following tasks:
 - Select the Search icon in the taskbar, type support in the search box, and then select the HP Support Assistant app.
 - Select the question mark icon in the taskbar.
- Select Fixes & Diagnostics.

- 3. Select Run hardware diagnostics, and then select Launch.
- When the tool opens, select the type of diagnostic test that you want to run, and then follow the on-screen instructions.
- NOTE: To stop a diagnostic test, select Cancel.

Accessing HP PC Hardware Diagnostics Windows from the Start menu (select products only)

After HP PC Hardware Diagnostics Windows is installed, follow these steps to access it from the Start menu:

- 1. Select the **Start** button, and then select **All apps**.
- 2. Select HP PC Hardware Diagnostics Windows.
- 3. When the tool opens, select the type of diagnostic test that you want to run, and then follow the on-screen instructions.
- NOTE: To stop a diagnostic test, select Cancel.

Downloading HP PC Hardware Diagnostics Windows

The HP PC Hardware Diagnostics Windows downloading instructions are provided in English only. You must use a Windows computer to download this tool because only .exe files are provided.

Downloading the latest HP PC Hardware Diagnostics Windows version from HP

To download HP PC Hardware Diagnostics Windows from HP, follow these steps:

- Go to http://www.hp.com/go/techcenter/pcdiags. The HP PC Diagnostics home page is displayed.
- Select Diagnose PC Hardware issues in Windows, scroll down to the expanded window that appears, and then select Download.
- 3. A pop-up that asks what you want to do with the file opens. Select **Open** or **Save As**. The latest version of the diagnostics tool opens or downloads to the selected location.

Downloading the HP PC Hardware Diagnostics Windows from the Microsoft Store

You can download the HP PC Hardware Diagnostics Windows from the Microsoft Store:

- 1. Select the Microsoft Store app on your desktop or select the **Search** icon in the taskbar, and then type Microsoft Store in the search box.
- Type HP PC Hardware Diagnostics Windows in the Microsoft Store search box.
- Follow the on-screen directions.

The tool downloads to the selected location.

Downloading HP Hardware Diagnostics Windows by product name or number (select products only)

You can download HP PC Hardware Diagnostics Windows by product name or number.

- NOTE: For some products, you might have to download the software to a USB flash drive by using the product name or number.
 - 1. Go to http://www.hp.com/support.
 - Select Software and Drivers, select your type of product, and then enter the product name or number in the search box that is displayed.
 - In the Diagnostics section, select Download, and then follow the on-screen instructions to select the specific Windows diagnostics version to be downloaded to your computer or USB flash drive.

The tool downloads to the selected location.

Installing HP PC Hardware Diagnostics Windows

To install HP PC Hardware Diagnostics Windows, navigate to the folder on your computer or the USB flash drive where the .exe file downloaded, double-click the .exe file, and then follow the on-screen instructions.

Using HP PC Hardware Diagnostics UEFI

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

NOTE: For some products, you must use a Windows computer and a USB flash drive to download and create the HP UEFI support environment because only .exe files are provided. For more information, see Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive on page 78.

If your PC does not start in Windows, you can use HP PC Hardware Diagnostics UEFI to diagnose hardware issues.

Using an HP PC Hardware Diagnostics UEFI hardware failure ID code

When HP PC Hardware Diagnostics UEFI detects a failure that requires hardware replacement, a 24-digit failure ID code is generated.

For assistance in solving the problem, complete one of these tasks:

- Select Contact HP, accept the HP privacy disclaimer, and then use a mobile device to scan the
 failure ID code that appears on the next screen. The HP Customer Support Service Center
 page appears with your failure ID and product number automatically filled in. Follow the on-screen
 instructions.
- Contact support, and provide the failure ID code.

Starting HP PC Hardware Diagnostics UEFI

To start HP PC Hardware Diagnostics UEFI, follow this procedure.

- 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:

- Connected USB flash drive
- NOTE: To download the HP PC Hardware Diagnostics UEFI tool to a USB flash drive, see Downloading the latest HP PC Hardware Diagnostics UEFI version on page 79.
- b. Hard drive
- c. BIOS
- When the diagnostic tool opens, select the type of diagnostic test that you want to run, and then follow the on-screen instructions.

Starting HP PC Hardware Diagnostics UEFI through HP Hotkey Support software (select products only)

This section describes how to start HP PC Hardware Diagnostics UEFI through HP Hotkey Support software.

NOTE: You must disable fast boot to access HP PC Hardware Diagnostics UEFI from the HP System Information application.

To disable fast boot:

- 1. Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.
- 2. Select Advanced, and then select Boot Options.
- 3. Clear Fast Boot.
- 4. Select Save Changes and Exit, and then select Yes.

To start HP PC Hardware Diagnostics UEFI through HP Hotkey Support software, follow this procedure:

- From the Start menu, open the HP System Information Application or press fn+esc.
- 2. In HP System Information screen, select **Run System Diagnostics**, select **Yes** to run the application, and then select **Restart**.
- **IMPORTANT:** To prevent loss of data, save your work in all open apps before restarting your computer.
- NOTE: When the restart is complete, the computer opens the HP PC Hardware Diagnostics UEFI Application. Proceed with the troubleshooting tests.

Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive

Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive can be useful in some situations.

- HP PC Hardware Diagnostics UEFI is not included in the preinstallation image.
- HP PC Hardware Diagnostics UEFI is not included in the HP Tool partition.

The hard drive is damaged.

NOTE: The HP PC Hardware Diagnostics UEFI downloading 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 provided.

Downloading the latest HP PC Hardware Diagnostics UEFI version

To download the latest HP PC Hardware Diagnostics UEFI version to a USB flash drive, follow these steps:

- 1. Go to http://www.hp.com/go/techcenter/pcdiags. The HP PC Diagnostics home page is displayed.
- 2. Select **Diagnose PC Hardware Issues outside of the OS**, scroll down to the expanded window that appears, and then select **Download**.
- 3. A pop-up that asks what you want to do with the file opens. Select **Open** or **Save As**. The latest version of the diagnostics tool opens or downloads to the selected location.

Downloading HP PC Hardware Diagnostics UEFI by product name or number (select products only)

You can download HP PC Hardware Diagnostics UEFI by product name or number (select products only) to a USB flash drive.

- NOTE: For some products, you might have to download the software to a USB flash drive by using the product name or number.
 - 1. Go to http://www.hp.com/support.
 - Enter the product name or number, select your computer, and then select your operating system.
 - 3. In the **Diagnostics** section, follow the on-screen instructions to select and download the specific UEFI Diagnostics version for your computer.

Using Remote HP PC Hardware Diagnostics UEFI settings (select products only)

Remote HP PC Hardware Diagnostics UEFI is a firmware (BIOS) feature that downloads HP PC Hardware Diagnostics UEFI to your computer. It can then run the diagnostics on your computer, and it might upload results to a preconfigured server.

For more information about Remote HP PC Hardware Diagnostics UEFI, go to http://www.hp.com/go/techcenter/pcdiags, select **Diagnose Other Potential Issues**, scroll down to **Remote PC Hardware Diagnostics UEFI**, and then select **Learn More**.

Downloading Remote HP PC Hardware Diagnostics UEFI

Remote HP PC Hardware Diagnostics UEFI is also available as a SoftPaq that you can download to a server.

Downloading the latest Remote HP PC Hardware Diagnostics UEFI version

You can download the latest Remote HP PC Hardware Diagnostics UEFI version to a USB flash drive.

1. Go to http://www.hp.com/go/techcenter/pcdiags. The HP PC Diagnostics home page is displayed.

- Select Diagnose PC Hardware Issues outside of the OS, scroll down to the expanded window that appears, and then select Download.
- 3. A pop-up that asks what you want to do with the file opens. Select **Open** or **Save As**. The latest version of the diagnostics tool opens or downloads to the selected location.

Downloading Remote HP PC Hardware Diagnostics UEFI by product name or number

You can download Remote HP PC Hardware Diagnostics UEFI by product name or number.

- NOTE: For some products, you might have to download the software by using the product name or number.
 - 1. Go to http://www.hp.com/support.
 - 2. Select **Software and Drivers**, select your type of product, enter the product name or number in the search box that is displayed, select your computer, and then select your operating system.
 - In the Diagnostics section, follow the on-screen instructions to select and download the Remote UEFI version for the product.

Customizing Remote HP PC Hardware Diagnostics UEFI settings

Using the Remote HP PC Hardware Diagnostics setting in Computer Setup (BIOS), you can perform several customizations.

- Set a schedule for running diagnostics unattended. You can also start diagnostics immediately in interactive mode by selecting Execute Remote HP PC Hardware Diagnostics UEFI.
- Set the location for downloading the diagnostic tools. This feature provides access to the tools
 from the HP website or from a server that has been preconfigured for use. Your computer does
 not require the traditional local storage, such as a hard drive or USB flash drive, to run remote
 diagnostics.
- Set a location for storing the test results. You can also set the user name and password that you use for uploads.
- Display status information about the diagnostics run previously.

To customize Remote HP PC Hardware Diagnostics UEFI settings, follow these steps:

- 1. Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.
- 2. Select Advanced, and then select Settings.
- 3. Make your customization selections.
- 4. Select Main, then select Save Changes and Exit to save your settings.

Your changes take effect when the computer restarts.

10 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 10-1 Computer specifications

dble 10-1 Computer specifications	Makula	шо
	Metric	U.S.
Dimensions		
Width	396.1 mm	15.59 in
Depth	258.6 mm	10.19 in
Height (front)	11.8 mm	0.47 in
Height (rear)	15.3 mm	0.60 in
Height (max)	19.9 mm	0.78 in
Weight		
OmniBook 7	2607.0 g	5.75 lb
OmniBook X	2558.5 g	5.64 lb
Input power		
Operating voltage and current	5 V DC @ 3 A / 9 V DC @ 3 A / 5 A / 15 V DC @ 4.33 A / 20 V I A - 65 W USB-C	
	5 V DC @ 3 A / 9 V DC @ 3 A / 5 A / 12 V DC @ 5 A / 15 V DC (20 V DC @ 3.25 A - 65 W USB	@ 4.33 A /
	5 V DC @ 3 A / 9 V DC @ 3 A / 5 A / 15 V DC @ 5 A / 20 V DC DC USB-A port @ 2 A - 100 W W USB-A	@5A/5V
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

Table 10-1 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 10-2 Display specifications

	Metric	U.S.	
Active diagonal size	43.94 cm	17.3 in	
Resolution	1920 × 1080 (FHD)		
Surface treatment	BrightView	BrightView	
Brightness	400 nits	400 nits	
Viewing angle	UWVA		
Backlight	LED		
Display panel interface	eDP		

Solid-state drive specifications

This section provides specifications for your solid-state drives.

Table 10-3 Solid-state drive specifications

	512 GB*	1TB*	2 TB*
Dimensions			
Height	1.0 mm	1.0 mm	1.0 mm
Length	50.8 mm	50.8 mm	50.8 mm
Width	28.9 mm	28.9 mm	28.9 mm
Weight	< 10 g	<10 g	< 10 g
Interface type	PCle	PCle	PCle
Ready time, maximum (to not busy)	< 1.0 ms	<1.0 ms	< 1.0 ms
Access times, logical	0.1 ms	0.1 ms	0.1 ms
Transfer rate			
Sequential read	up to 2150 MBps	Up to 300,000 IOPs	Up to 300,000 IOPs
Random read	Up to 300,000 IOPs	Up to 300,000 IOPs	Up to 300,000 IOPs
Sequential write	up to 1550 MBps	up to 1550 MBps	up to 2500 MBps

Table 10-3 Solid-state drive specifications (continued)

	512 GB*	1TB*	2 TB*
Random write	Up to 100,000 IOPs	Up to 100,000 IOPs	Up to 125,000 IOPs
Total logical sectors	1,000,215,216	1,500,336,388	2,985,523,121
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)

^{*1} GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less. Actual drive specifications might differ slightly.



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

11 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 three-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.

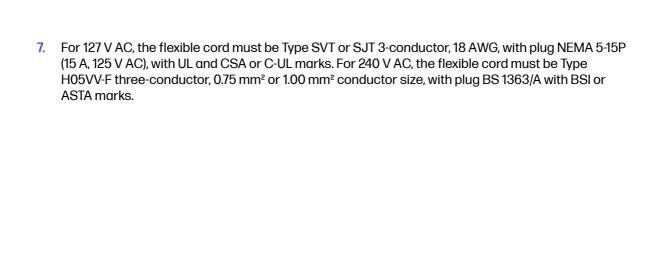
Table 11-1 Power cord requirements for specific countries and regions

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 11-1 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, three-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, three-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V AC) or NEMA 6-15P (15 A, 250 V AC) configuration. CSA or C-UL mark. UL file number must be on each element.
- 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, three-conductor, 0.75 mm² or 1.25 mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V AC) configuration.
- 4. The flexible cord must be Type RVV, three-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 H05VV-F three-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 three-conductor, 1.25 mm² conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark.



12 Swelling or deformation of notebook battery

To protect your hardware from potential damage, HP recommends that if you are experiencing battery swelling, stop using the notebook until you can replace the battery.

You can contact HP to understand what battery replacement options are available. To learn more about Lithium-ion batteries and the factors that can accelerate battery swelling, see https://support.hp.com/us-en/document/ish-6824662-6824706-16.

Swollen notebook batteries

You might notice that your notebook battery has become somewhat deformed or swollen over time. In some cases, the battery swelling might be significant enough to impact other components of the system including the touchpad, keyboard, and chassis.

Swollen battery is not a safety issue

A swollen battery does not present a safety issue. It is the result of the generation of gases per the normal degradation of the battery cell over time.

HP has worked closely with our battery cell suppliers and third-party industry experts to help minimize the potential for HP batteries to swell over time and to identify that swollen batteries are not a safety issue.

Discontinue using a swollen battery

To protect your hardware from potential damage, HP recommends that, if you are experiencing battery swelling, you stop using the notebook until the battery can be replaced.

You can contact https://www.hp.com/go/contacthp to understand what battery replacement options are available.

Replace a swollen battery

If a battery is under warranty, HP will replace the battery per the terms and conditions of the HP Worldwide Limited Warranty or applicable HP Care Packs.

For batteries no longer under warranty, contact HP to purchase a genuine HP replacement battery.

Minimize battery swelling

Multiple factors can accelerate battery swelling.

To help mitigate battery swelling over time, you can use either HP Adaptive Battery Optimizer (consumer notebooks) or HP Battery Health Manager (commercial notebooks) settings to improve battery longevity and performance for various use scenarios.

HP Adaptive Battery Optimizer (consumer notebooks)

HP Adaptive Battery Optimizer technology can help mitigate the factors that cause the battery to swell. It is available on select HP OMEN, HP Spectre, HP Pavilion, and HP ENVY notebook computers.

HP Adaptive Battery Optimizer has been available on select gaming notebooks since 2019 and select consumer notebooks since 2020. To learn more about enabling HP Adaptive Battery Optimizer on your HP notebook, see https://support.hp.com/us-en/document/c06310986.

HP Battery Health Manager (commercial notebooks)

HP Battery Health Manager provides an easy-to-manage solution to help mitigate factors that cause the battery to swell. It is available on select HP ProBook and HP EliteBook notebook computers.

HP Battery Health Manager is available on select commercial notebooks manufactured since 2016. To learn more about HP Battery Health Manager, see https://support.hp.com/us-en/document/ish/4449597-3519507-16.

13 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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