



Maintenance and Service Guide

SUMMARY

This guide provides information about spare parts, removal and replacement of parts, security, backing up, and more.

© Copyright 2021 HP Development Company, L.P.

AMD is a trademark of Advanced Micro Devices, Inc. Bluetooth is a trademark owned by its proprietor and used by HP Inc. under license. Intel, Celeron, Core, Optane, Pentium, and Thunderbolt are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries. NVIDIA and GeForce are trademarks and/or registered trademarks of NVIDIA Corporation in the U.S. and other countries. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. SDHC, SDXC, and microSD are trademarks or registered trademarks of SD-3C LLC. USB Type-C and USB-C are registered trademarks of USB Implementers Forum. DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries.

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

First Edition: January 2021

Document Part Number: M44114-001

Product notice

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

Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. Go to <http://www.microsoft.com> for details.

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


Software terms

By installing, copying, downloading, or otherwise using any software product preinstalled on this computer, you agree to be bound by the terms of the HP End User License Agreement (EULA). If you do not accept these license terms, your sole remedy is to return the entire unused product (hardware and software) within 14 days for a full refund subject to the refund policy of your seller.

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

Safety warning notice

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

 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the 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 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 by only an authorized service provider.



IMPORTANT: See "Removal and replacement procedures for Customer Self-Repair parts" for details.

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

Table of contents

1 Product description	1
2 Components	4
Right side	4
Left side	5
Bottom	6
Low blue light mode (select products only)	7
Button, vents, and fingerprint reader	8
Labels	9
3 Illustrated parts catalog	11
Computer major components	11
Display assembly subcomponents	13
Mass storage devices	15
Cables	15
Miscellaneous parts	16
4 Removal and replacement procedures preliminary requirements	18
Tools required	18
Electrostatic discharge information	18
Generating static electricity	18
Preventing electrostatic damage to equipment	19
Personal grounding methods and equipment	19
Grounding the work area	20
Recommended materials and equipment	20
Service considerations	21
Plastic parts	21
Cables and connectors	21
Drive handling	21
Packaging and transporting guidelines	21
5 Removal and replacement procedures for Customer Self-Repair parts	23
Component replacement procedures	23
Preparation for disassembly	23
Bottom cover	23
Battery	24

Solid-state drive	26
6 Removal and replacement procedures for authorized service provider parts	28
Component replacement procedures	28
Preparation for disassembly	28
Speakers	28
Heat sink	29
Fan	31
System board	32
Touchpad	34
IR sensor board	36
Display assembly	36
Power connector and power connector cable	42
Keyboard with top cover	43
7 Using Setup Utility (BIOS)	45
Starting Setup Utility (BIOS)	45
Updating Setup Utility (BIOS)	45
Determining the BIOS version	45
Preparing for a BIOS update	46
Downloading a BIOS update	46
Installing a BIOS update	46
8 Backing up, restoring, and recovering	48
Backing up information and creating recovery media	48
Using Windows tools for backing up	48
Using the HP Cloud Recovery Download Tool to create recovery media (select products only)	48
Restoring and recovering your system	48
Creating a system restore	49
Restoring and recovery methods	49
Recovering using HP Recovery media	49
Changing the computer boot order	49
Using HP Sure Recover (select products only)	50
9 Using HP PC Hardware Diagnostics	51
Using HP PC Hardware Diagnostics Windows (select products only)	51
Using an HP PC Hardware Diagnostics Windows hardware failure ID code	51
Accessing HP PC Hardware Diagnostics Windows	51
Accessing HP PC Hardware Diagnostics Windows from HP Help and Support (select products only)	51

Accessing HP PC Hardware Diagnostics Windows from Support Assistant	52
Accessing HP PC Hardware Diagnostics Windows from the Start menu (select products only)	52
Downloading HP PC Hardware Diagnostics Windows	52
Downloading the latest HP PC Hardware Diagnostics Windows version from HP	52
Downloading the HP PC Hardware Diagnostics Windows from the Microsoft Store	52
Downloading HP Hardware Diagnostics Windows by product name or number (select products only)	53
Installing HP PC Hardware Diagnostics Windows	53
Using HP PC Hardware Diagnostics UEFI	53
Using an HP PC Hardware Diagnostics UEFI hardware failure ID code	53
Starting HP PC Hardware Diagnostics UEFI	54
Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive	54
Downloading the latest HP PC Hardware Diagnostics UEFI version	54
Downloading HP PC Hardware Diagnostics UEFI by product name or number (select products only)	54
Using Remote HP PC Hardware Diagnostics UEFI settings (select products only)	55
Downloading Remote HP PC Hardware Diagnostics UEFI	55
Downloading the latest Remote HP PC Hardware Diagnostics UEFI version	55
Downloading Remote HP PC Hardware Diagnostics UEFI by product name or number	55
Customizing Remote HP PC Hardware Diagnostics UEFI settings	55
10 Specifications	57
Computer specifications	57
35.6 cm (14.0 in) display specifications	57
Solid-state drive specifications	58
Solid-state drive specifications (SATA-3)	58
11 Power cord set requirements	60
Requirements for all countries	60
Requirements for specific countries and regions	60
12 Recycling	62
Index	63

1 Product description

This table provides detailed product information.

Table 1-1 Product components and their descriptions

Category	Description
Product Name	HP ENVY 14 Notebook PC
	Model number: 14-eb0xxx
	CTO model number: 14t-eb000
Processors	11th Generation Intel® Core™ processors
	Intel Core i7-1165 G7 (4C 2.80 GHz, BGA, 12 MB, 3200 MHz)
	Intel Core i5-1135 G7 (4C, 2.40 GHz, BGA, 3200 MHz)
	Intel Core i7-11370H (4C 3.30 GHz, BGA, 12 MB, 3200 MHz, 35 W)
	Intel Core i5-11300H (4C, 3.10 GHz, BGA, 8 MB, 3200 MHz, 35 W)
	Intel® Core™ Pentium® Celeron®
Graphics	NVIDIA® GeForce®
	Supports HDMI
Display	35.6 cm (14.0 in), narrow bezel, UWVA, WUXGA
	(1920 × 1200), antiglare, WLED, flat (3.2 mm), low power, narrow bezel, eDP 1.4, 400 nits
	(1920 × 1200), BrightView, WLED, flat, low power, narrow bezel, eDP 1.4 + PSR2, 400 nits
	100% Panel Dynamic Calibration
Memory	Memory is integrated into the system board
	DDR4-3200 dual-channel support
	Supports the following configurations:
	<ul style="list-style-type: none">• 8 GB• 16 GB
Primary storage	PCIe, NVMe, M.2 2280 solid-state drives
	<ul style="list-style-type: none">• 2 TB, M2 2280, PCIe-NVMe. 3 × 4, TLC• 1 TB, M2 2280, PCIe-NVMe.3 × 4, TLC• 512 GB, M2 2280, PCIe 3 × 4, TLC• 32GB/512 GB, M2 2280, PCIe, 3DXpoint• 256 GB, M2 2280, PCIe, 3 × 4, TLC
Audio and video	Audio brand: Bang and Olufson
	HP Wide Vision HD Camera

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

Category	Description
	720p by 30 frames per second
	Dual-array digital microphone with appropriate software: beam forming, echo cancellation, noise suppression
Wireless	Intel Wi-Fi 6 AX201 + Bluetooth® 5 (non-vPro) (802.11ax 2 × 2, MU-MIMO, 160 MHz)
	WLAN module is integrated into the system board
Media card reader	Supports microSD™, SDHC™, SDXC™
	Push-push insertion/removal
Ports	Hot plug/unplug and autodetect for correct output to wide-aspect vs. standard aspect video
	HDMI v2.0a supporting: up to 4096 × 2160 @ 60 Hz with HDCP 2.2
	Audio-out (headphone)/audio-in (microphone) combo jack
	USB 3.2 Gen 2 Type C with Thunderbolt™ Gen 3 technology (left side)
	USB 3.2 Gen 1 Type A (supports HP Sleep & Charge (2) (left and right side)
	AC Smart Pin adapter plug
Keyboard/pointing devices	Keyboard
	Full size, backlit, 3-coat paint, island style
	Touchpad
	Clickpad with image sensor
	Multitouch gestures enabled
	Precision touchpad support
	Support for Modern Trackpad Gestures
	Taps enabled as default
Power requirements	Battery
	4 cell, 63.3 Whr, polymer, HP Long Life
	HP Fast Charge Technology
	Smart AC adapters
	135 W, slim barrel, Smart PFC, 4.5 mm
	90 W, standard barrel, Smart PFC, 4.5 mm
	90 W
	Power cord
	C5, 1.0 m (3.3 ft)
Security	Supports Trusted Platform Module (TPM) 2.0, firmware based
	Integrated fingerprint reader
	Privacy camera
	Mic mute

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

Category	Description
Operating system	Windows® 10 Home 64 Plus
	Windows 10 Home 64 Plus Single Language
	Windows 10 Home 64 High-End Chinese Market CPPP
	Windows 10 Home 64 Plus Single Language India Market PPP
	Windows 10 Home 64 Plus Single Language APAC EM PPP
	Win 10 Home 64
	Win 10 Home 64 Advanced
	Win 10 Home 64 Advanced Single Language
	Win 10 Home 64 Chinese Market CPPP
	Win 10 Home 64 Single Language
	Win 10 Home 64 Single Language Africa Market PPP
	Win 10 Home 64 Single Language APAC EM PPP
	Win 10 Home 64 Single Language India Market PPP
	Windows 10 Home 64 Plus Single Language Indonesia Market PPP
	Win 10 Home 64 Single Language Indonesia Market PPP
	Win 10 Pro 64
	FreeDOS 3.0
Serviceability	End user replaceable parts
	AC adapter
	Solid-state drive

2 Components

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

Right side

Use the illustration and table to identify the components on the right side of the computer.

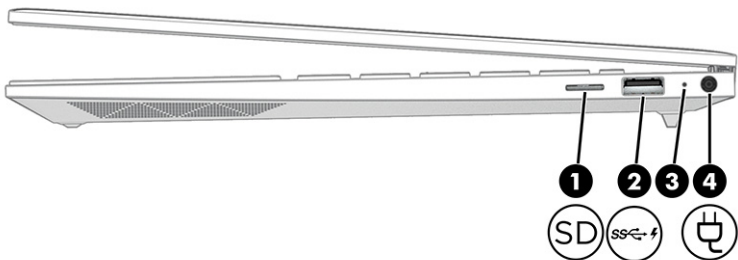



Table 2-1 Right-side components and their descriptions

Component	Description
(1) SD microSD™ memory card reader	<p>Reads optional memory cards that enable you to store, manage, share, or access information.</p> <p>To insert a card:</p> <ol style="list-style-type: none">1. Hold the card label-side up, with connectors facing the computer.2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated. <p>To remove a card:</p> <ul style="list-style-type: none">▲ Press in on the card, and then remove it from the memory card reader.
(2) USB Type-C® SuperSpeed port with HP Sleep and Charge	<p>Connects a USB device, provides high-speed data transfer, and charges small devices, even when the computer is off.</p> <p>– and –</p> <p>Connects a display device that has a USB Type-C connector, providing DisplayPort™ output.</p> <p>NOTE: Cables, adapters, or both (purchased separately) might be required.</p>
(3) AC adapter and battery light	<ul style="list-style-type: none">• White: The AC adapter is connected and the battery is fully charged.• Blinking white: The AC adapter is disconnected and the battery has reached a low battery level.• Amber: The AC adapter is connected and the battery is charging.

Table 2-1 Right-side components and their descriptions (continued)

Component	Description
	<ul style="list-style-type: none">Off: The battery is not charging.
(4)  Power connector	Connects an AC adapter.

Left side

Identify the components on the left side of the computer.

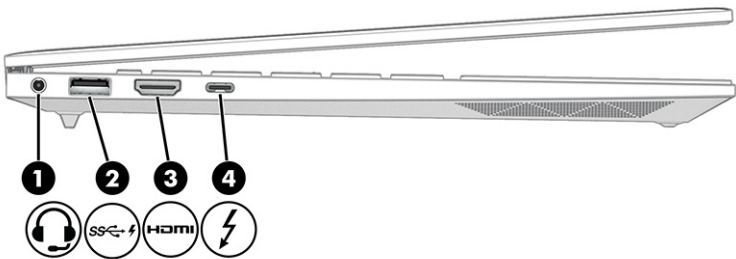


Table 2-2 Left-side components and their descriptions





Component	Description
(1)  Audio-out (headphone)/Audio-in (microphone) combo jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone microphones.</p> <p>WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>To access this guide:</p> <p>▲ Type HP Documentation in the taskbar search box, and then select HP Documentation.</p> <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p>
(2)  USB Type-C® SuperSpeed port with HP Sleep and Charge	<p>Connects a USB device, provides high-speed data transfer, and charges small devices, even when the computer is off.</p> <p>– and –</p> <p>Connects a display device that has a USB Type-C connector, providing DisplayPort™ output.</p> <p>NOTE: Cables, adapters, or both (purchased separately) might be required.</p>
(3)  HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component,

Table 2-2 Left-side components and their descriptions (continued)

Component		Description
		or a high-speed High-Definition Multimedia Interface (HDMI) device.
(4)	 USB Type-C Thunderbolt port with HP Sleep and Charge	<p>Connects a USB device, provides high-speed data transfer, and charges small devices (such as a smartphone), even when the computer is off.</p> <p>NOTE: Use a standard USB Type-C charging cable or cable adapter (purchased separately) when charging a small external device.</p> <p>– and –</p> <p>Connects a display device that has a USB Type-C connector, providing DisplayPort output.</p> <p>NOTE: Your computer might also support a Thunderbolt docking station.</p>

Bottom

Use the illustration and table to identify the bottom components.

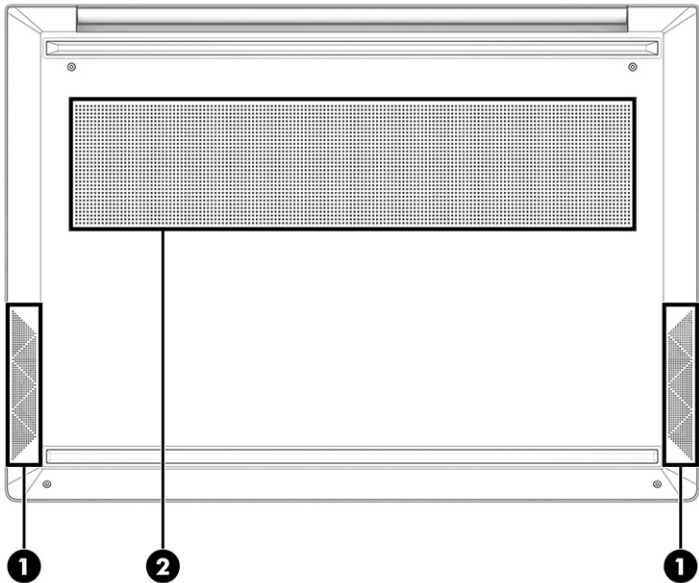


Table 2-3 Bottom components and their descriptions

Component		Description
(1)	Speakers (2)	Produce sound.
(2)	Vent	<p>Enables airflow to cool internal components.</p> <p>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.</p>

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>.

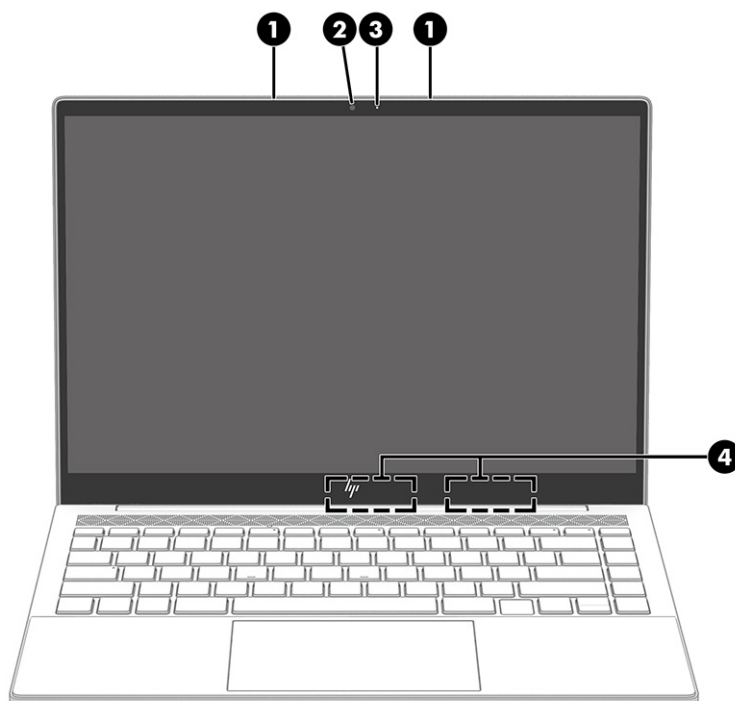


Table 2-4 Display components and their descriptions


Component		Description
(1)	Internal microphones (2)	Record sound.
(2)	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.
(3)	Camera light	On: The camera is in use.
(4)	WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).

*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.

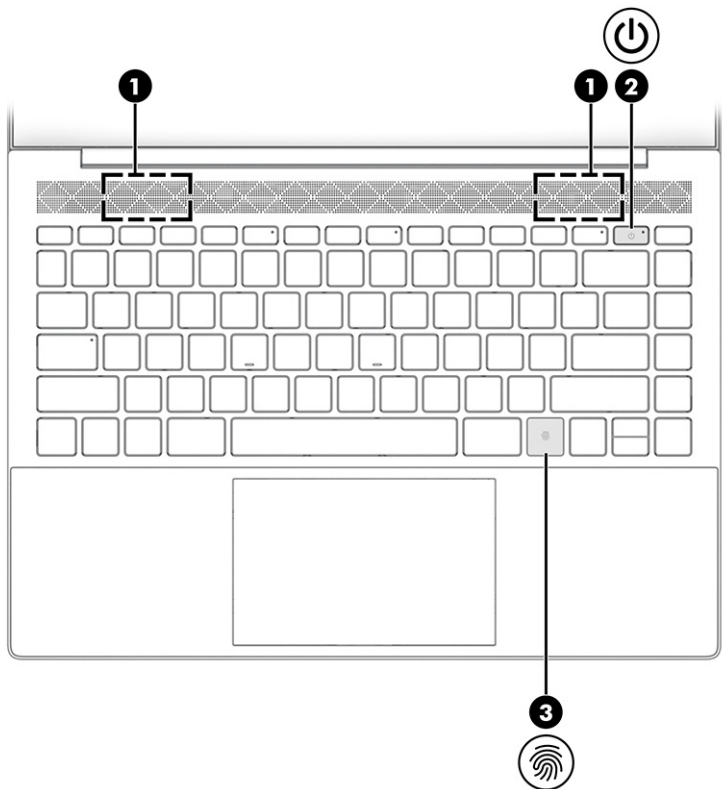
To access this guide:

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

Component	Description
 Type <code>HP Documentation</code> in the taskbar search box, and then select HP Documentation .	

Button, vents, and fingerprint reader

Use the illustration and table to identify the computer button, vents, and fingerprint reader.



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

Table 2-5 Button, vents, and fingerprint reader and their descriptions




Component	Description
(1) Vents	Enable airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(2)  Power button	<ul style="list-style-type: none">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.

Table 2-5 Button, vents, and fingerprint reader and their descriptions (continued)

Component	Description
	<p>IMPORTANT: Pressing and holding down the power button results in the loss of unsaved information.</p> <p>If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button down for at least 10 seconds to turn off the computer.</p> <p>To learn more about your power settings, see your power options:</p> <p>▲ Right-click the Power icon , and then select Power Options.</p>
(3)  Fingerprint reader	<p>Allows a fingerprint logon to Windows, instead of a password logon.</p> <p>▲ Touch your finger to the fingerprint reader.</p> <p>IMPORTANT: To prevent fingerprint logon issues, make sure when you register your fingerprint that all sides of your finger are registered by the fingerprint reader.</p>

Labels

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



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

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

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

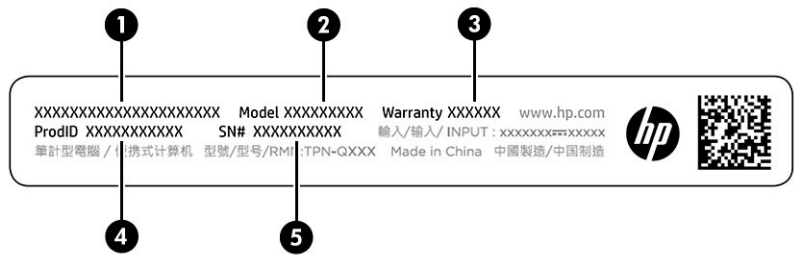
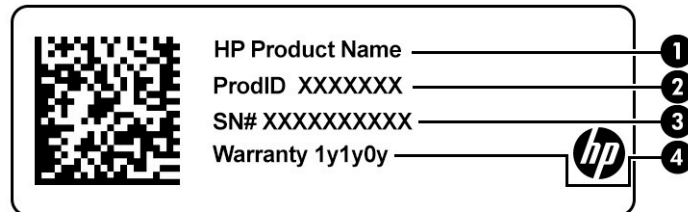


Table 2-6 Service label components

Component
(1) HP product name
(2) Model number
(3) Warranty period

Table 2-6 Service label components (continued)

Component	
(4)	Product ID
(5)	Serial number

**Table 2-7 Service label components**

Component	
(1)	HP product name
(2)	Product ID
(3)	Serial number
(4)	Warranty period

- Regulatory label(s)—Provide regulatory information about the computer.
- Wireless certification label(s)—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 table to determine the spare parts that are available for the computer.

Computer major components

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

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

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

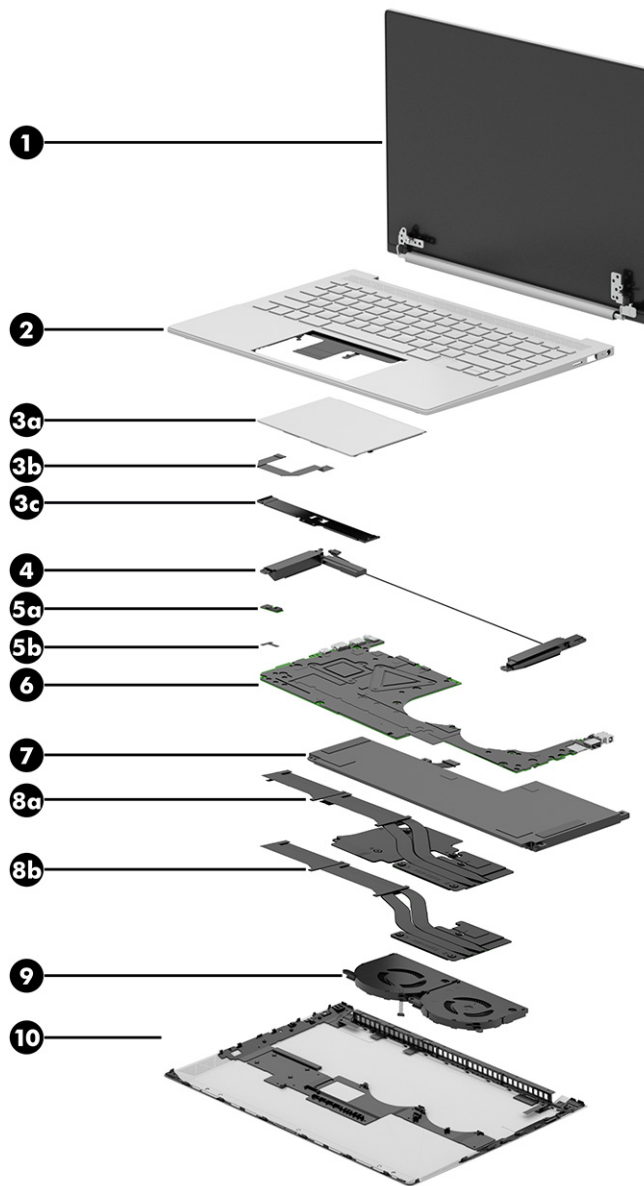


Table 3-1 Computer major component descriptions and part numbers

Item	Component	Spare part number
(1)	Display assembly NOTE: Display spare parts are available as subcomponents, not as whole units. Display subcomponent spare parts are available. For spare part information, see Display assembly on page 36 .	not available as a spare part
(2)	Top cover/keyboard NOTE: For a detailed list of country codes, see Keyboard with top cover on page 43 .	
	Backlit	M30903-001
(3)	Touchpad	M31131-001
(3b)	Touchpad (cable)	M31132-001
(4)	Speaker kit	M31133-001

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

Item	Component	Spare part number
(5a)	IR sensor board	M31125-001
(5b)	IR sensor board cable	M31126-001
(6)	System board (includes integrated processor) NOTE: All system board spare part kits include replacement thermal material. All system boards use the following part numbers: xxxxxx-001: Non-Windows operating systems xxxxxx-601: Windows operating system	
	Intel Core i5-1135 G7 processor and 8 GB of unified memory architecture (UMA) graphics memory	M30892-001
	Intel Core i7-1165 G7 processor and 16 GB of UMA graphics memory	M30899-001
	Intel Core i5-1135 G7 processor and 8 GB of discrete graphics memory	M30893-001
	Intel Core i5-1135 G7 processor and 16 GB of discrete graphics memory	M30894-001
	Intel Core i7-1165 G7 processor and 8 GB of discrete graphics memory	M30895-001
	Intel Core i7-1165 G7 processor and 16 GB of discrete graphics memory	M30896-001
	Intel Core i5-1135 G7 processor and 16 GB of discrete graphics memory	M30897-001
	Intel Core i7-1165 G7 processor and 16 GB of discrete graphics memory	M30898-001
	Intel Core i7-1137H processor and 16 GB of UMA graphics memory	M49688-001
	Intel Core i5-1130H and 16 GB of UMA graphics memory	M49687-001
(7)	Battery (4 cell, 63 Whr)	M08306-005
(8a)	Heat sink (includes replacement thermal material) For use in models with discrete graphics	M31128-001
(8b)	Heat sink (includes replacement thermal material) For use in models with UMA graphics	M31129-001
(9)	Fan	M31130-001
(10)	Bottom cover	M31127-001

Display assembly subcomponents

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

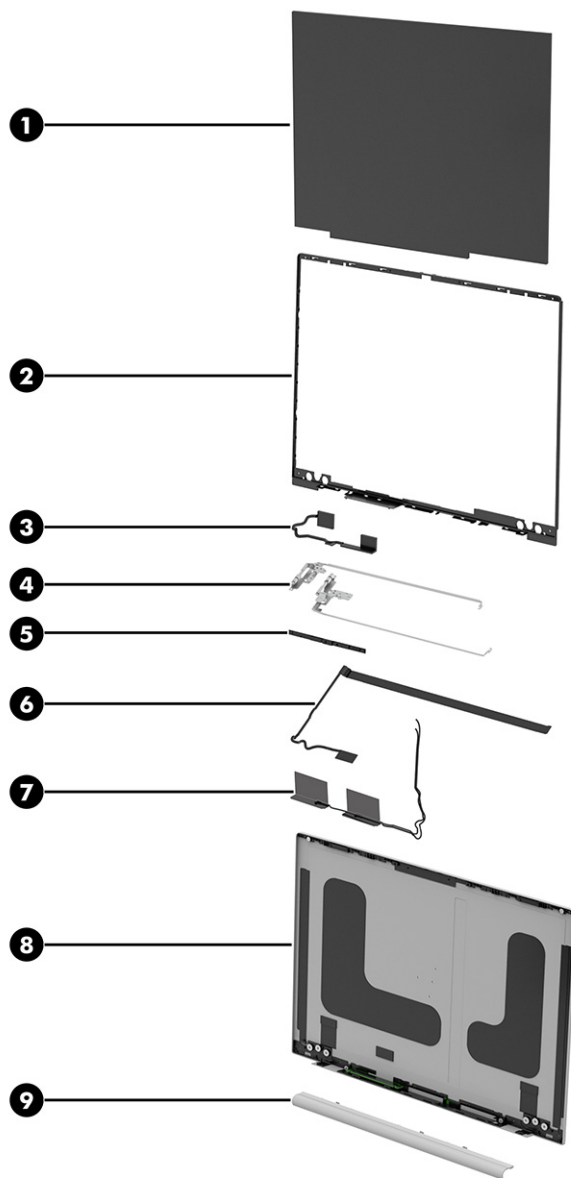


Table 3-2 Display component descriptions and part numbers

Item	Component	Spare part number
(1)	Display panel (raw) (includes bezel adhesive and display enclosure adhesive)	
	35.6 cm (14.0 in) Touch screen, BrightView 400 nits, low power narrow bezel, flat, (hinge up kit)	M30901-001
	35.6 cm (14.0 in) nontouch screen, antiglare, 400 nits, low power, narrow bezel, flat	M30902-001
(2)	Display panel bezel , nontouch	M31141-001
(3)	Display panel cable	M31143-001
(4)	Hinge kit (nontouch models)	M31139-001
(5)	Webcam	M31147-001
(6)	Webcam cable	M31200-001
(7)	Antenna	M31137-001

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

Item	Component	Spare part number
(8)	Back cover (with antenna for nontouch models)	M31135-001
(9)	Hinge caps	M31146-001

Mass storage devices

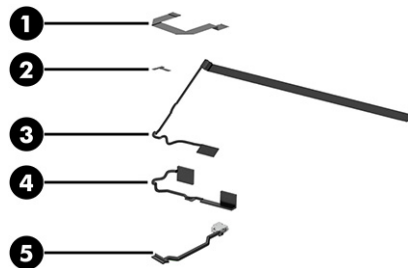
To identify the mass storage devices, use this illustration and table.

**Table 3-3 Mass storage device descriptions and part numbers**

Item	Component	Spare part number
(1)	Solid-state drives	
	2 TB, M2 2280, PCIe-NVMe, 3 × 4, TLC	L85358-005
	1 TB, M2 2280, PCIe-NVMe, 3 × 4, TLC	L85348-005
	512 GB M2 2280, PCIe 3 × 4, TLC	L85360-005
	256 GB, M2 2280, PCIe, 3 × 4, TLC	L85350-005
	32 GB/512 GB, M2 2280, PCIe, 3DXpoint	L85366-005
(2)	Optical drive , external (not pictured)	

Cables

To identify the cables, use this illustration and table.

**Table 3-4 Cable descriptions and part numbers**

Item	Component	Spare part number
(1)	Touchpad cable	M31132-001
(2)	IR sensor cable	M31126-001

Table 3-4 Cable descriptions and part numbers (continued)

Item	Component	Spare part number
(3)	Webcam cable	M31200-001
(4)	Display panel cable (nontouch models)	M31143-001
(5)	Power connector cable	M30900-001

Miscellaneous parts

To identify the miscellaneous parts, use this table.

Table 3-5 Miscellaneous part descriptions and part numbers

Component	Spare part number
AC adapters	
90 W Smart AC adapter (Smart PFC, 4.5 mm, RA 1.8 m, 6.0 ft)	937532-850
135 W Smart AC adapter (Smart PFC, slim barrel, 4.5 mm, RC)	L15534-001
Screw Kit	M31148-001
Power cords (C5, 1.0 m, 3.3 ft)	
For use in China (PRC)	L21930-001
For use in North America	L22319-001
For use in the United Kingdom	L22320-001
For use in Europe	L22321-001
For use in Denmark	L22322-001
For use in Israel	L22323-001
For use in Switzerland	L22324-001
For use in Saudi Arabia	L22325-001
For use in Thailand	L22326-001
For use in Australia	L22327-001
For use in Korea	L22328-001
For use in Taiwan	L22329-001
For use in India	L22624-001
For use in Japan (duckhead)	L33157-001
Adapter, HDMI to VGA	701943-001
Adapter, USB to Gigabit RJ-45	829941-001
Adapter, USB-C® to VGA	831751-001
Adapter, USB-C to USB-A	833960-001
Adapter, HP USB-C to RJ-45	855560-001
Hub, USB-C to USB-A	916838-001

Table 3-5 Miscellaneous part descriptions and part numbers (continued)

Component	Spare part number
Hub, USB-C to multiport	919666-001
Adapter, USB-C to HDMI 2.0	935325-001
Elite USB-C multiport hub	L39572-001
Hinge caps	M31146-001
WLAN tab	M33459-001
Touchpad tab	M33460-001
Antenna cover tab	M33461-001
Display adhesive kit	M34013-001

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

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 [Personal grounding methods and equipment on page 19](#).

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	Relative humidity		
	55%	40%	10%
Walking across carpet	7,500 V	15,000 V	35,000 V

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

	Relative humidity		
	30% RH	50% RH	70% RH
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 DIPs (dual in-line packages) 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
Multiple electric components can be packaged together in plastic tubes, trays, or polystyrene foam.			



NOTE: As little as 700 V 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 M Ω \pm 10% resistance in the ground cords. To provide proper ground, a strap must be worn snug against bare skin. The ground cord must be connected and fit snugly into the banana plug connector on the grounding mat or workstation.
- **Heel straps/Toe straps/Boot straps** can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a maximum of 1 M Ω \pm 10% resistance between the operator and ground.

Table 4-2 Static shielding protection levels

Static shielding protection levels	
Method	Voltage
Antistatic plastic	1,500

Table 4-2 Static shielding protection levels (continued)

Static shielding protection levels	
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 $1\text{ M}\Omega \pm 10\%$ resistance
- Static-dissipative table or floor mats with hard tie to ground
- Field service kits
- Static awareness labels
- Wrist straps and footwear straps providing $1\text{ M}\Omega \pm 10\%$ resistance
- Material handling packages
- Conductive plastic bags
- Conductive plastic tubes
- Conductive tote boxes
- Opaque shielding bags

- Transparent metallized shielding bags
- Transparent shielding tubes

Service considerations

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



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

Plastic parts

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

Cables and connectors

Handle cables with extreme care to avoid damage.



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

Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed so that they cannot be caught or snagged as you remove or replace parts. Handle flex cables with extreme care; these cables tear easily.

Drive handling

Note the following guidelines when handling drives.



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

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, 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.”


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.


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.

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 <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

You must remove, replace, or loosen as many as 48 screws when you service Customer Self-Repair parts. Make special note of each screw size and location during removal and replacement.

Preparation for disassembly

To prepare to disassemble the computer, use these steps.

See [Removal and replacement procedures preliminary requirements on page 18](#) for initial safety procedures.

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

Bottom cover

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

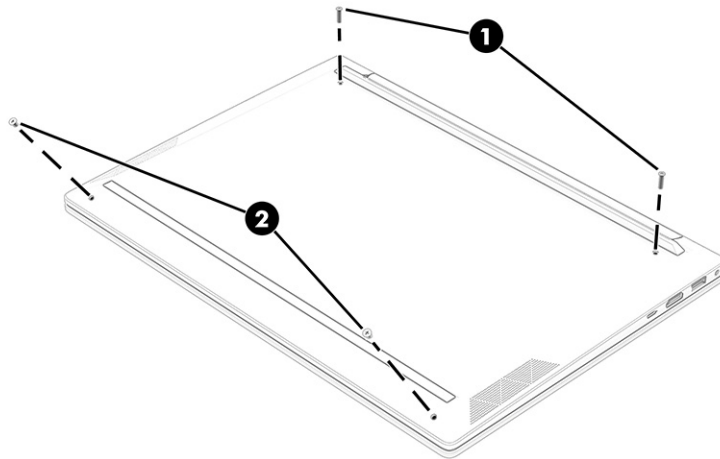
Table 5-1 Bottom cover description and part number

Description	Spare part number
Bottom cover	M31127-001

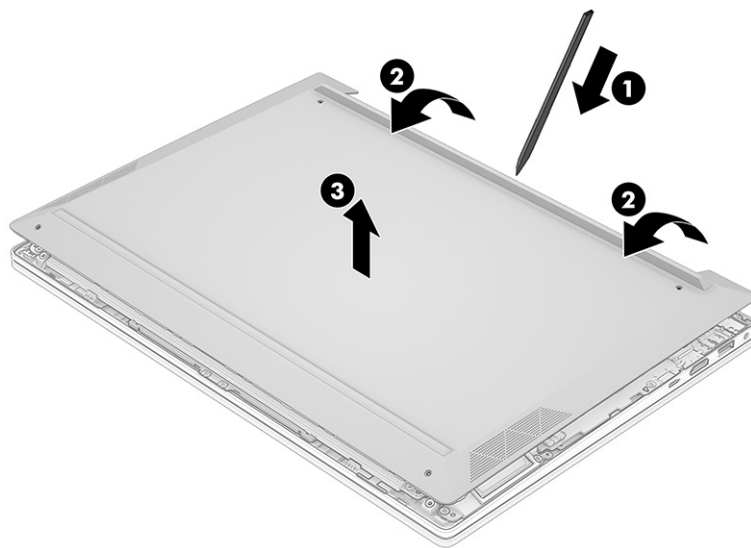
Before removing the bottom cover, prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).

Remove the bottom cover:

1. Remove the 2 Phillips M2.0 × 9.00 screws that secure the top part of the bottom cover to the computer **(1)**.
2. Remove the 2 Phillips M2.0 × 4.00 screws that secure the bottom part of the bottom cover to the computer **(2)**



3. Use a nonmarking, nonconductive tool to release the edges of the bottom cover from the computer **(1)**.
4. Rotate the bottom cover away from the computer **(2)**.
5. Remove the bottom cover from the computer **(3)**.



To replace the bottom cover, reverse the removal procedures.

Battery

To remove the battery, use this procedure and illustration.

Table 5-2 Battery description and part number


Description	Spare part number
Battery (4 cell, 63 Whr)	M08306-005


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

- Do *not* puncture, twist, or crack the battery.
- Do *not* cause an external puncture or rupture to the battery. They can cause a short inside the battery, which 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.

Before removing the battery, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).

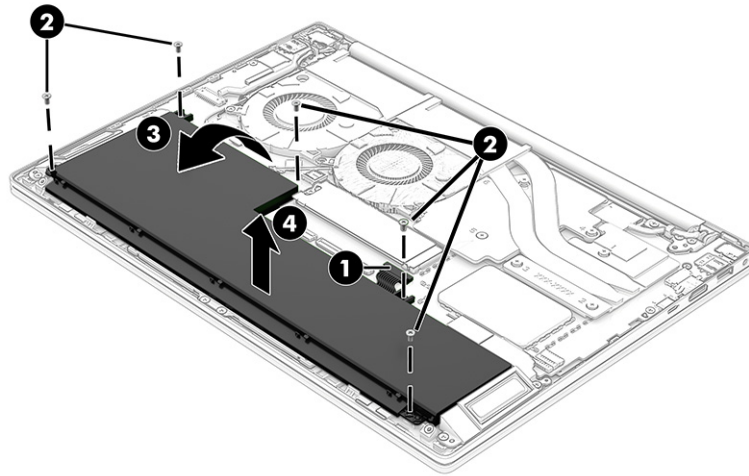
 **WARNING!** To reduce potential safety issues, use only the user-replaceable battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

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

Remove the battery:

1. Disconnect the battery cable from the battery **(1)**.
2. Remove the five Phillips M2.0 × 4.0 screws **(2)** that secure the battery to the computer.
3. Rotate the battery out from the computer **(3)**.

4. Remove the battery from the computer **(4)**.



To insert the battery, reverse the removal procedures.

Solid-state drive

To remove the M.2 solid-state drive, use this procedure and illustration.

Table 5-3 Solid-state drive descriptions and part numbers

Description	Spare part number
2 TB, M2 2280, PCIe-NVMe, 3 × 4, TLC	L85350-005
1 TB, M2 2280, PCIe-NVMe, 3 × 4, TLC	L85348-005
512 GB, M2 2280, PCIe 3 × 4, TLC	L85360-005
256 GB, M2 2280, PCIe, 3 × 4, TLC	L85350-005
32 GB/512 GB, M2 2280, PCIe, 3DXpoint	L85366-005

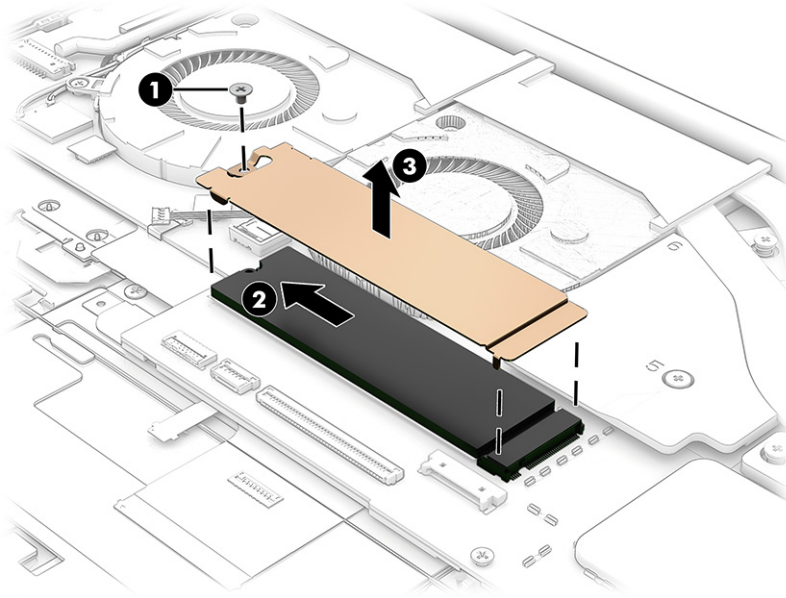
Before removing the solid-state drive, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).


Remove the solid-state drive:

1. Remove the Phillips M2.0 × 2.5 screw **(1)** that secures the drive to the computer.

2. Pull the drive away from the socket to remove it (3), and then remove the solid-state drive cover.





To install the solid-state drive, reverse the removal procedures.

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

6 Removal and replacement procedures for authorized service provider parts

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

 **IMPORTANT:** Components described in this chapter should be accessed only by an authorized service provider. 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.

Component replacement procedures

To remove and replace computer components, use these procedures.

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

You must remove, replace, or loosen as many as xx screws when you service the parts described in this chapter. 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.

See [Removal and replacement procedures preliminary requirements on page 18](#) for initial safety procedures.

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

Speakers

To remove the speakers, use this procedure and illustration.

Table 6-1 Speaker description and part number

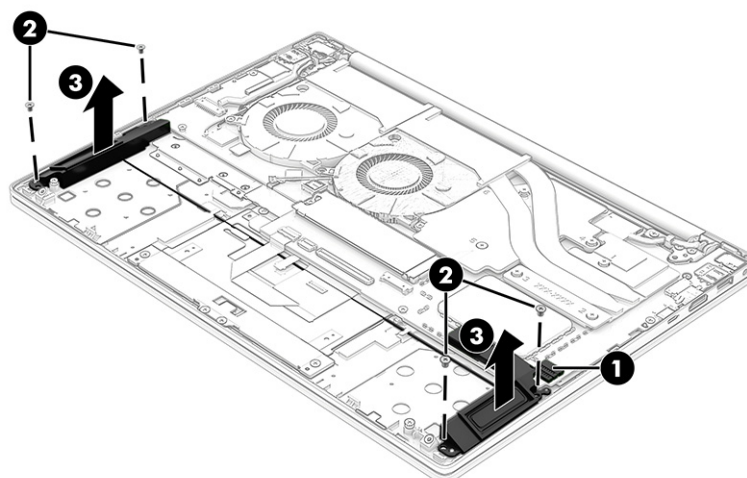
Description	Spare part number
Speaker Kit	M31133-001

Before removing the speakers, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).

Remove the speakers:

1. Disconnect the speaker cable from the speaker **(1)**.
2. Remove the four Phillips M2.0 × 3.0 screws **(2)** that secure each speaker to the computer.
3. Remove the speakers from the computer **(3)**.



Reverse this procedure to install the speakers.

Heat sink

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

Table 6-2 Heat sink descriptions and part numbers

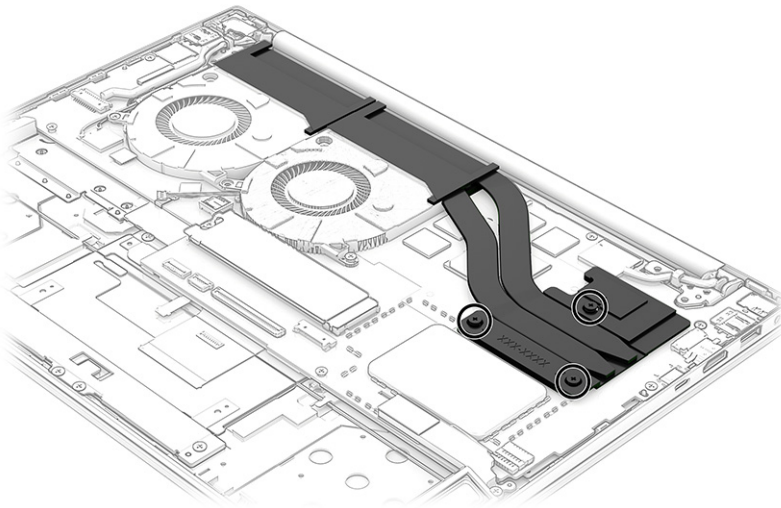
Description	Spare part number
Heat sink for use in models with discrete graphics	M31128-001
Heat sink for use in models with UMA graphics	M31129-001

Before removing the heat sink, follow these steps:

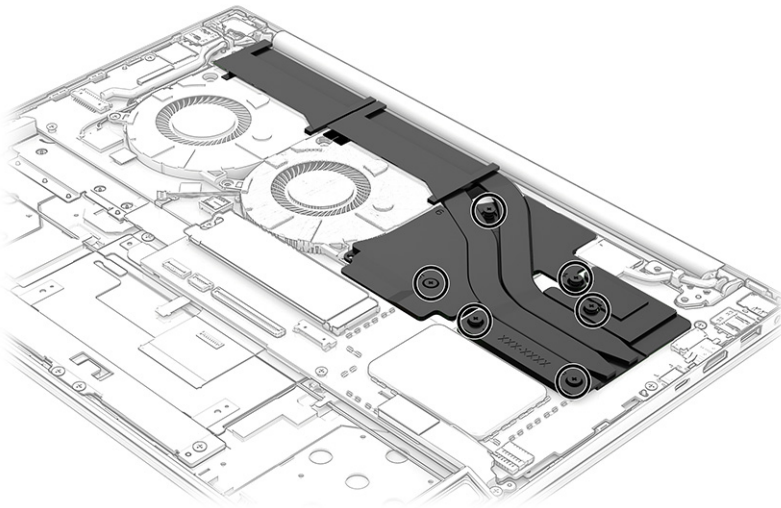
1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).

Remove the heat sink:

1. In the order indicated on the heat sink with UMA graphics memory, remove the three Phillips M2.0 × 4.0 screws that secure the UMA heat sink to the computer., and then remove the UMA heat sink from the computer.

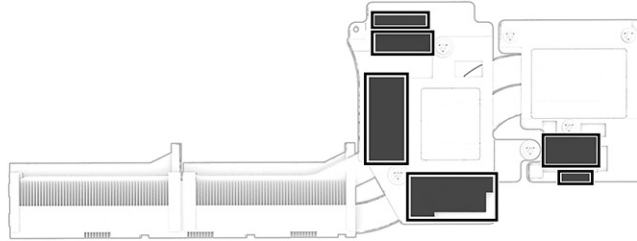


2. In the order indicated on the heat sink with discrete graphics memory, remove the six Phillips M2.0 × 4.0 screws that secure the discrete heat sink to the computer, and then remove the discrete heat sink from the compute



3. Thoroughly clean the thermal material from the surfaces of the heat sink and the system board components each time the heat sink is removed. Replacement thermal material is included with the heat sink and system board spare part kits. The following illustration shows the replacement thermal material locations.

Thermal paste is used on the system board components and on the heat sink areas that service them.



Reverse this procedure to install the heat sink.

Fan

To remove the fan, use this procedure and illustration.

Table 6-3 Fan description and part number

Description	Spare part number
Fan assembly	M31130-001

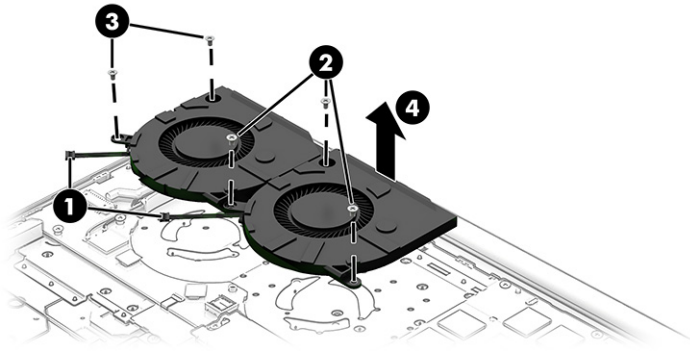
Before removing the fan, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).

Remove the fan assembly:

1. Disconnect the two fan cables from the system board **(1)**.
2. Remove the two Phillips M2.0 × 3.0 screws and the Phillips M2.0 × 3.5 screw that secures the right fan to the system board.**(2)**.

3. Remove the two Phillips M2.0 × 3.0 screws (3) that secure the left fan to the system board, and then remove the fans from the computer (4).



Reverse this procedure to install the fan assembly.

System board

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

Table 6-4 System board descriptions and part numbers

Description	Spare part number
System board (includes processor):	
All system boards use the following part numbers:	
xxxxxx-001: Non-Windows operating system	
xxxxxx-601: Windows 10 operating system	
Intel Core i5-1135 G7 processor and 8 GB of UMA graphics memory	M30892-001
Intel Core i7-1165 G7 processor and 16 GB of UMA graphics memory	M30899-001
Intel Core i5-1135 G7 processor and 8 GB of discrete graphics memory	M30893-001
Intel Core i5-1135 G7 processor and 16 GB of discrete graphics memory	M30894-001
Intel Core i7-1165 G7 processor and 8 GB of discrete graphics memory	M30895-001
Intel Core i7-1165 G7 processor and 16 GB of discrete graphics memory	M30896-001
Intel Core i5-1135 G7 processor and 16 GB of discrete graphics memory	M30897-001
Intel Core i7-1165 G7 processor and 16 GB of discrete graphics memory	M30898-001
Intel Core i7-1137H processor and 16 GB of UMA graphics memory	M49688-001
Intel Core i5-1130H and 16 GB of UMA graphics memory	M49687-001

Before removing the system board, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).

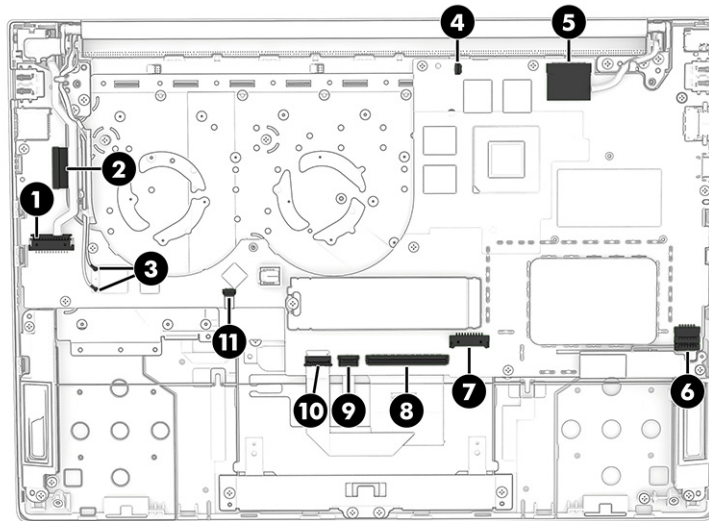
When you replace the system board, be sure to remove the following components (as applicable) from the defective system board and install them on the replacement system board:

- Heat sink (see [Heat sink on page 29](#)).

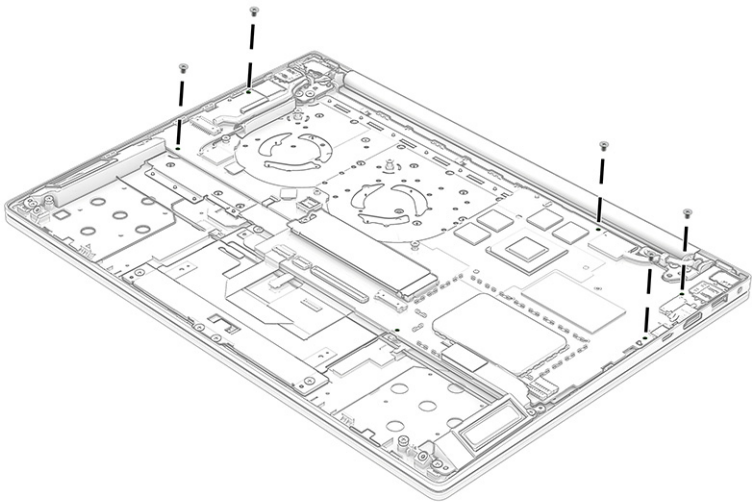
Remove the system board:

1. Disconnect the following cables from the system board:

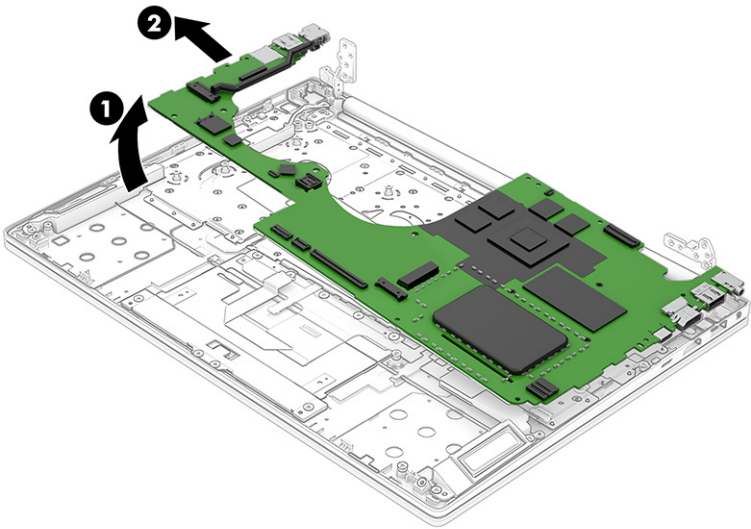
- Power connector cable **(1)**
- Webcam cable **(2)**
- Wireless antenna cable **(3)**
- IR sensor cable **(4)**
- Display panel cable (ZIF) **(5)**
- Speaker cable **(6)**
- Battery cable (ZIF) **(7)**
- Keyboard cable (ZIF) **(8)**
- Backlight cable (ZIF) **(9)**
- Touchpad cable (ZIF) **(10)**
- Fingerprint reader cable (ZIF) **(11)**



2. Remove the five Phillips M2.0 × 3.0 screws that secure the system board to the computer.



3. Tilt the system board up (1), and then remove the system board (2).



Reverse this procedure to install the system board.

Touchpad

To remove the touchpad, use this procedure and illustration.

Table 6-5 Touchpad description and part number

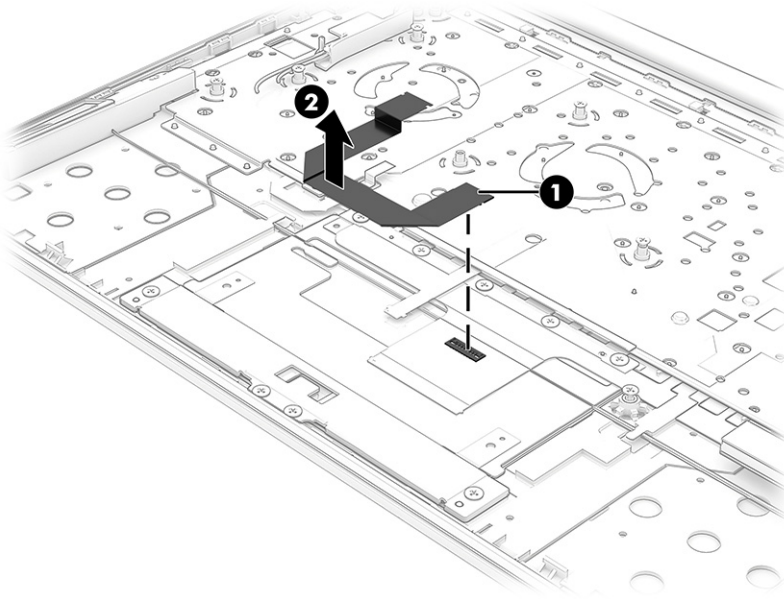
Description	Spare part number
Touchpad	M31131-001

Before removing the touchpad, follow these steps:

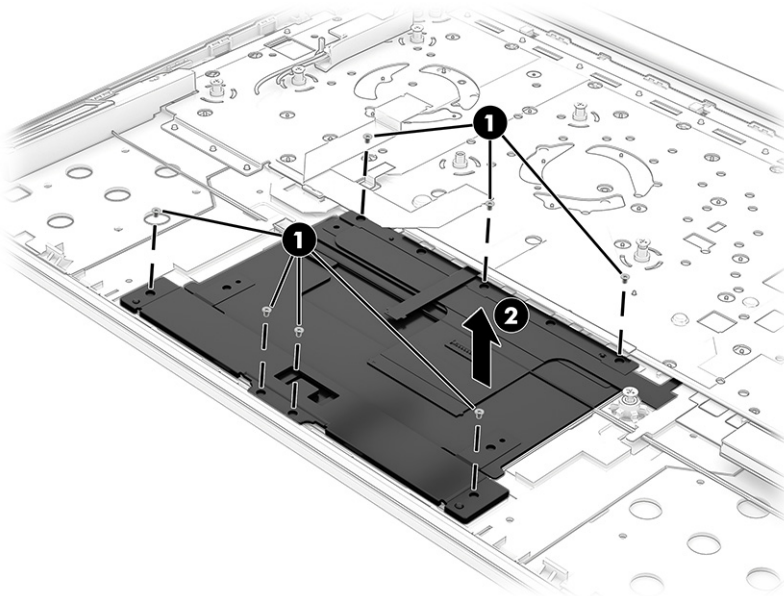
1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).
4. Remove the system board (see [System board on page 32](#)),

Remove the touchpad:

1. Disconnect the cable from the ZIF connector on the touchpad (**1**).
2. Remove the touchpad cable (**2**).



3. Remove the seven Phillips M1.6 × 2.0 screws (**2**) that secure the touchpad to the computer.
4. Remove the touchpad from the computer (**2**).



Reverse this procedure to install the touchpad.

IR sensor board

To remove the IR sensor board, use this procedure and illustration.

Table 6-6 IR sensor board descriptions and part numbers

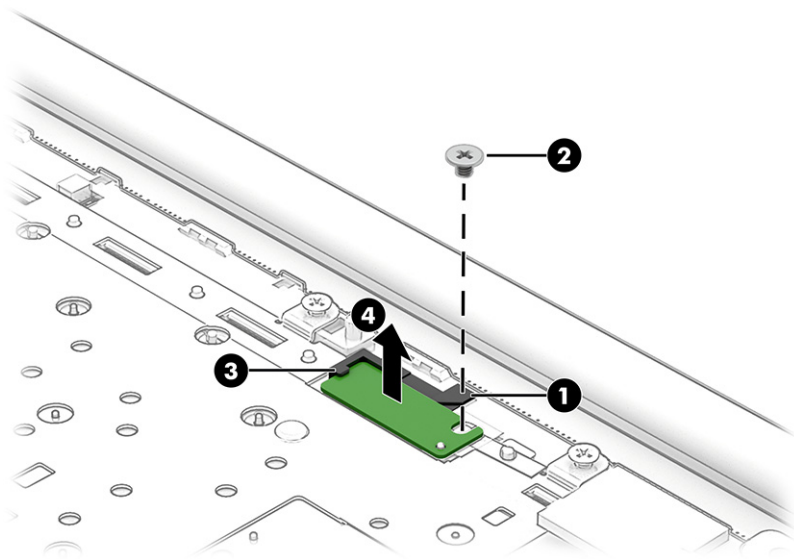
Description	Spare part number
IR sensor board	M31125-001
IR sensor board cable	M31126-001

Before removing the IR sensor board, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).
4. Remove the system board (see [System board on page 32](#)).

Remove the IR sensor board:

1. Disconnect the IR sensor board cable from the system board **(1)**.
2. Remove the Phillips M2.0 × 2.0 screw that secures the IR sensor board to the computer. **(2)**.
3. Remove the cable from the retention clip **(3)**, and then remove the IR sensor board **(4)**.



Reverse this procedure to install the IR sensor board.

Display assembly

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

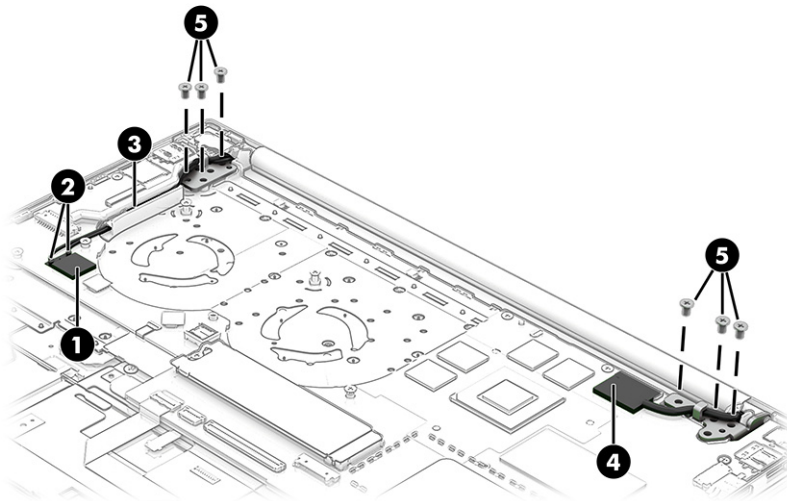
Full hinge-up displays are not available as spare parts. Spare parts for displays are available only at the subcomponent level.

Before removing the display panel, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).

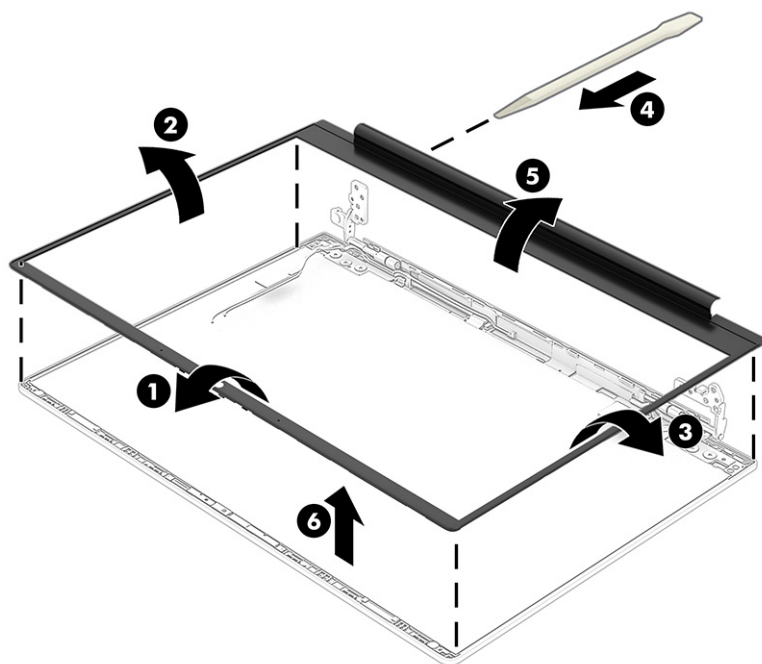
Remove the display assembly:

1. Remove the tape covering the wireless antenna module **(1)**.
2. Disconnect the wireless antenna cables from the system board **(2)** and remove them from the retention clips **(3)**.
3. Disconnect the display panel cable **(4)**.
4. Remove the six Phillips M2.5 × 2.5 screws that secure the display panel to the base enclosure and remove the display panel. **(5)**



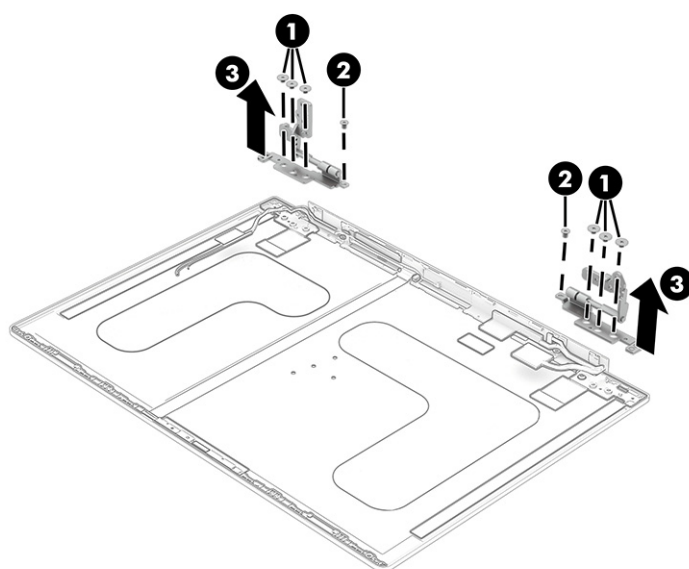
5. If you need to replace display assembly subcomponents:
 - a. Flex the top **(1)** and the inside edges of the left **(2)** and right sides of the bezel **(3)** to release it.
 - b. Slide a flat tool **(4)** across the inside of the bottom of the bezel to release it **(5)**, and then remove the bezel from the display **(6)**.

The bezel is available as spare part number M31141-001.



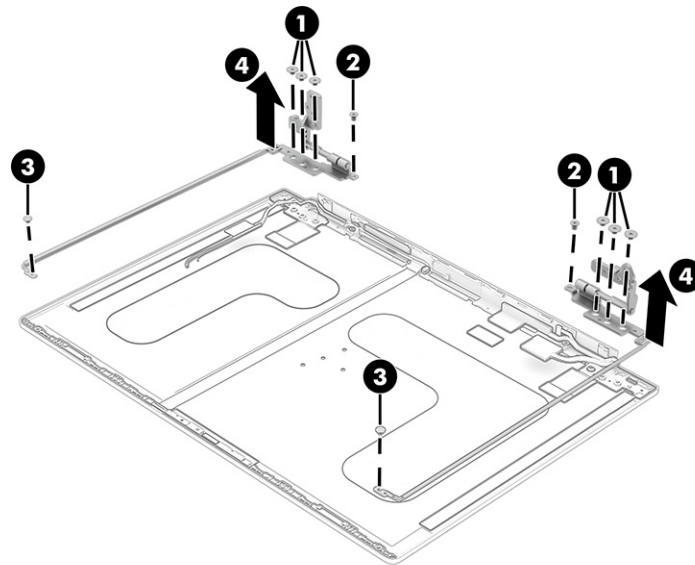
6. If you need to remove the hinges from the touch screen display enclosure:
- Remove the six Phillips broadhead M2.5 × 2.5 screws (1) from each hinge.
 - Remove the two Phillips M2.0 × 3.5 screws from the hinge bracket that secures the hinge to the display enclosure.
 - Remove the hinges from the display (3).

The display hinges are available as spare part number M31139-001.



7. If you need to remove the hinges from the nontouch screen display enclosure:

- a. Remove the six Phillips broadhead M2.0 × 2.5 screws **(1)** from each hinge.
- b. Remove the two Phillips M2.0 × 3.5 screws that secure the hinge bracket to the display enclosure **(2)**.
- c. Remove the screws that secure the hinge bracket to the display enclosure **(3)**, and then remove the hinges **(4)**.



8. If you need to remove the display panel:

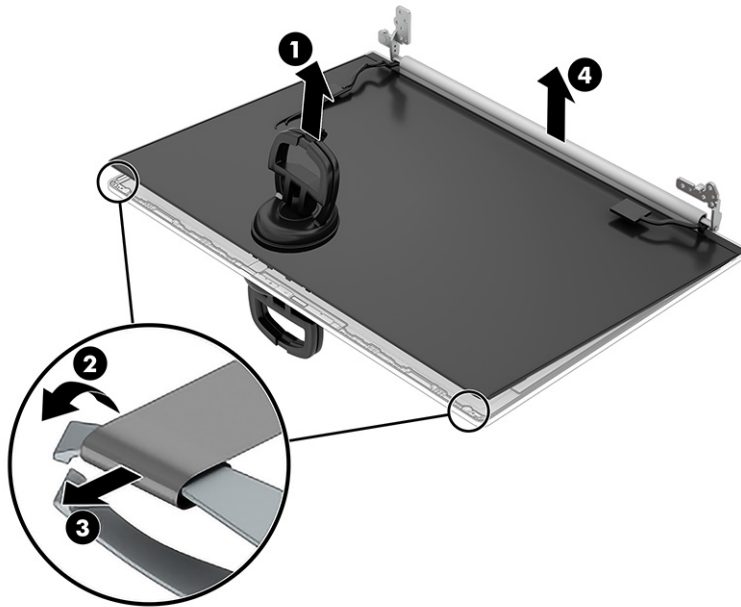
- a. The display panel is secured to the display enclosure with tape that is installed under the left and right sides of the panel. To remove the panel, position two suction cup tools at the illustrated location on the display panel **(1)**, and then rotate each locking lever down to lock the cup **(2)**, and lift the panel up **(3)**.

Display panels are available as the following spare part numbers:

M30902-001: 35.6 cm (14.0 in) Nontouch screen, antiglare, 400 nits, low power, narrow bezel, flat



- b. Lift the panel using the suction cups **(1)**, while using tweezers to grasp the end of the tape **(2)**. While turning the tweezers, wrap the tape around the tweezers **(3)** as you continue to pull the tape out from behind the display panel **(3)**. You must pull the tape multiple times before it is completely removed.
- c. Lift and rotate the display panel to remove the panel **(4)**.

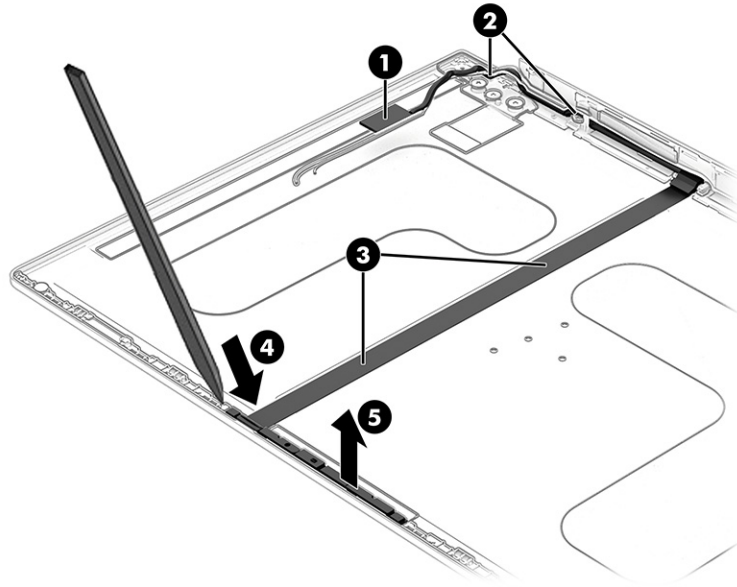


9. If you need to remove the camera module:

- a. Disconnect the display cable from the display enclosure **(1)** and disengage the cables from the retention clips **(2)**.
- b. Lift up evenly across the module and peel the module up from the display back cover **(3)**, and then use the tool to remove the camera module from the display back cover **(4)**.

- c. Remove the camera module **(5)**.

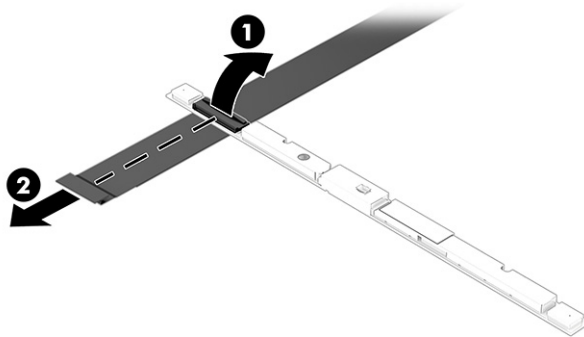
The camera module is available as spare part number M31147-001.



10. If you need to remove the display/camera cable, disconnect the cable from the connector on the camera module **(1)**, and then remove the cable **(2)**.

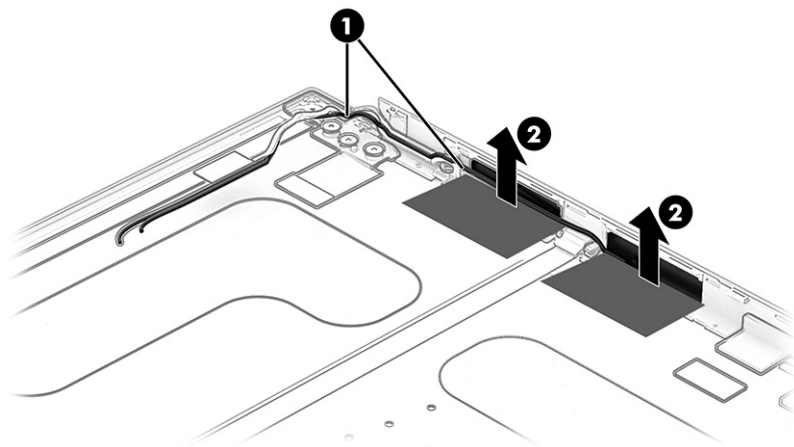
Display panel cables are available as the following spare part numbers:

M31200-001: display panel cable



- 11.** If you need to remove the antenna cables, remove the cables from the clips at the bottom of the cover **(1)**, and then remove the auxiliary and main antennas and cables **(2)**.

Antenna cables are available as spare part number M31137-001.



Reverse this procedure to reassemble and replace the display assembly.

Power connector and power connector cable

To remove the power connector and power connector cable, use this procedure and illustration.

Table 6-7 Power connector cable description and part number

Description	Spare part number
Power connector cable	M30900-001

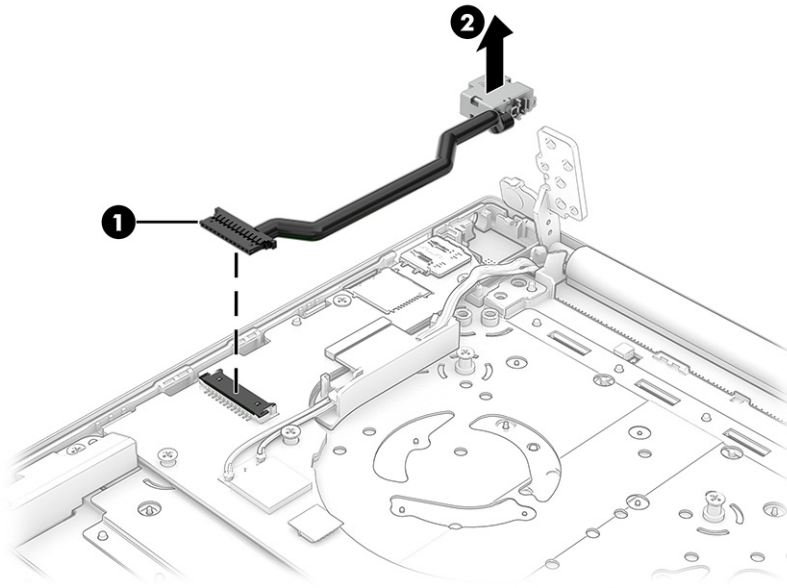
Before removing the power connector cable, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover ([Bottom cover on page 23](#)).
3. Remove the battery (see [Battery on page 24](#)).

Remove the power connector and power connector cable:

1. Disconnect the power connector cable from the computer **(1)**.

2. Remove the power connector and power connector cable from the computer (2).



Reverse this procedure to install the power connector and power connector cable.

Keyboard with top cover

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

Table 6-8 Keyboard with top cover descriptions and part numbers

Description	Spare part number
Keyboard with top cover and backlight	M30903-001

Table 6-9 Spare part country codes

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

Table 6-9 Spare part country codes (continued)

For use in country or region	Spare part number	For use in country or region	Spare part number	For use in country or region	Spare part number
Greece	-151	Russia	-251	United States	-001
Hungary	-211	Saudi Arabia	-171		

7 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.

▲ Turn on or restart the computer and quickly press **f10**.

– or –

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
 1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
 - or –
 - Select the question mark icon in the taskbar.
 2. Select **My notebook**, and then select **Specifications**.
- Setup Utility (BIOS)
 1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 45](#)).
 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 46](#).

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 AC adapter. Do not download or install a BIOS update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:

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



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

Downloading a BIOS update

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

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
Select the question mark icon in the taskbar.
2. Select **Updates**, and then select **Check for updates and messages**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
 - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. 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. Type `file` in the taskbar search box, and then select **File Explorer**.
2. Select your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder that contains the update.
4. Double-click the file that has an `.exe` extension (for example, *filename.exe*).
The BIOS installation begins.
5. Complete the installation by following the on-screen instructions.



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

8 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 will be performing recovery procedures on a tablet, the tablet battery must be at least 70% charged before you start the recovery process.


IMPORTANT: For a tablet with a detachable keyboard, connect the 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 drive or using online tools.

 **IMPORTANT:** Windows is the only option that allows you to back up your personal information. Schedule regular backups to avoid information loss.


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


Using the HP Cloud Recovery Download Tool to create recovery media (select products only)

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

For details:

- ▲ Go to <http://www.hp.com/support>, search for HP Cloud Recovery, and then select the result that matches the type of computer that you have.

 **NOTE:** If you cannot create recovery media yourself, contact support to obtain recovery discs. 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 49](#) to restore your computer before you obtain and use the HP recovery discs. Using a recent backup can return your machine to a working state sooner than using the HP recovery discs. 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 [Restoring and recovery methods on page 49](#).

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.
2. 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 HP Recovery media. For more information, see [Recovering using HP Recovery media on page 49](#).

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

Select the **Start** button, 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 HP Recovery media

You can use HP Recovery media to recover the original operating system and software programs that were installed at the factory. On select products, it can be created on a bootable USB flash drive using the HP Cloud Recovery Download Tool.

For details, see [Using the HP Cloud Recovery Download Tool to create recovery media \(select products only\) on page 48](#).



NOTE: If you cannot create recovery media yourself, contact support to obtain recovery discs. 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 media, and then restart the computer.



NOTE: HP recommends that you follow the [Restoring and recovery methods on page 49](#) to restore your computer before you obtain and use the HP recovery discs. Using a recent backup can return your machine to a working state sooner than using the HP recovery discs. 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 media, you can change the computer boot order, the order of devices listed in BIOS for startup information. You can select an optical drive or a USB flash drive, depending on the location of your HP Recovery media.



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

To change the boot order:

1. Insert the HP Recovery media.
2. Access the system **Startup** menu.
 - For computers or tablets with keyboards attached, turn on or restart the computer or tablet, quickly press **esc**, and then press **f9** for boot options.
 - For tablets without keyboards, turn on or restart the tablet, quickly press and hold the volume up button, and then select **f9**.
– or –
Turn on or restart the tablet, quickly press and hold the volume down button, and then select **f9**.
3. Select the optical drive or USB flash drive from which you want to boot, 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.

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, first you must download and install it. To download HP PC Hardware Diagnostics Windows, see [Downloading HP PC Hardware Diagnostics Windows on page 52](#).

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:
 - Click **Next** to open the Event Automation Service (EAS) page, where you can log the case.
– or –
 - Scan the QR code with your mobile device, which takes you to the EAS page, where you can log the case.
– or –
 - Click 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 Help and Support, HP Support Assistant, or the Start menu.

Accessing HP PC Hardware Diagnostics Windows from HP Help and Support (select products only)

After HP PC Hardware Diagnostics Windows is installed, follow these steps to access it from HP Help and Support.

1. Select the **Start** button, and then select **HP Help and Support**.
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**.

Accessing HP PC Hardware Diagnostics Windows from Support Assistant

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

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
Select the question mark icon in the taskbar.
2. Select **Troubleshooting and fixes**.
3. Select **Diagnostics**, and then select **HP PC Hardware Diagnostics Windows**.
4. 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.
2. Right-click **HP PC Hardware Diagnostics for Windows**, select **More**, and then select **Run as administrator**.
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.

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. Select **Download HP Diagnostics Windows**, and then select the specific Windows diagnostics version to download to your computer or a USB flash drive.

The tool 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 enter `Microsoft Store` in the taskbar search box.
2. Enter `HP PC Hardware Diagnostics Windows` in the **Microsoft Store** search box.
3. 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>.
2. Select **Software and Drivers**, select your type of product, and then enter the product name or number in the search box that is displayed.
3. 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 UEFI (Unified Extensible Firmware Interface) 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 Windows 10 S computers, 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 54](#).

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:

- ▲ 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.

– or –

Contact support, and provide the failure ID code.

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

 **NOTE:** If you need to stop a diagnostic test, press **esc**.

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:

- a. 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 54](#).

- b. Hard drive

- c. BIOS

3. When the diagnostic tool opens, select a language, select the type of diagnostic test you want to run, and then follow the on-screen instructions.

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 this procedure.

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. Select **Download HP Diagnostics UEFI**, and then select **Run**.

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>.
2. 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 execute 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>, and then select **Find out more**.

Downloading Remote HP PC Hardware Diagnostics UEFI

HP Remote 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 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.
2. Select **Download Remote Diagnostics**, and then select **Run**.

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

You can download HP Remote 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.
3. 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**.
- 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**, and then **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.

Computer specifications

This section provides specifications for your computer. When traveling 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

	Metric	U.S.
Dimensions		
Width	313.10 mm	12.32 in
Depth	224.60 mm	8.81 in
Height (front to back)	17.95 mm	0.71 in
Weight	1.50 kg	3.30 lb
Input power		
Operating voltage and current	19.5 V dc @ 4.62 A – 90 W	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	–20°C to 60°C	–4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	–15 m to 3,048 m	–50 ft to 10,000 ft
Nonoperating	–15 m to 12,192 m	–50 ft to 40,000 ft
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

35.6 cm (14.0 in) display specifications

This section provides specifications for your display.

Table 10-2 Display specifications

	Metric	U.S.
Active diagonal size	35.6 cm	14.0 in

Table 10-2 Display specifications (continued)

	Metric	U.S.
Resolution	1920 × 1200 (FHD)	
Surface treatment	Antiglare	
Brightness	400 nits	
Viewing angle	UWVA	
Backlight	WLED	
Display panel interface	eDP	

Solid-state drive specifications

This section provides specifications for your solid-state drives.

Table 10-3 Solid-state drive specifications

	256 GB*	512 GB*	1 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	PCIe	PCIe	PCIe
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 MB/s	up to 2150 MB/s	up to 2150 MB/s
Random read	Up to 300,000 IOPs	Up to 300,000 IOPs	Up to 300,000 IOPs
Sequential write	up to 1550 MB/s	up to 1550 MB/s	up to 1550 MB/s
Random write	Up to 100,000 IOPs	Up to 100,000 IOPs	Up to 100,000 IOPs
Total logical sectors	468,883,296	1,000,215,216	1,500,336,388
Operating temperature	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 may differ slightly.			
NOTE: Certain restrictions and exclusions apply. Contact support for details.			

Solid-state drive specifications (SATA-3)

This section provides specifications for your solid-state drive.

Table 10-4 Solid-state drive specifications

128 GB*	
Dimensions	
Height	1.35 mm
Weight	< 10 g
Interface type	
Ready time, maximum (to not busy)	1.0 ms
Access times, logical	0.1 ms
Transfer rate	
up to 540 MB/s	
Total logical sectors	
234,441,648	
Operating temperature	
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 can 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
Germany	VDE	1

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

Country/region	Accredited agency	Applicable note number
India	BIS	1
Israel	SII	1
Italy	IMQ	1
Japan	JIS	3
Netherlands	KEMA	1
New Zealand	SANZ	1
Norway	NEMKO	1
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 H05VV-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.
7. For 127 V ac, the flexible cord must be Type SVT or SJT 3-conductor, 18 AWG, with plug NEMA 5-15P (15 A, 125 V ac), with UL and CSA or C-UL marks. For 240 V ac, the flexible cord must be Type H05VV-F three-conductor, 0.75 mm² or 1.00 mm² conductor size, with plug BS 1363/A with BSI or ASTA marks.

12 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>.

Index

A

- AC adapter and battery light, identifying 4
- AC adapters, spare part numbers 16
- audio-out (headphone)/audio-in (microphone) combo jack, identifying 5

B

- backup, creating 48
- backups 48
- BIOS
 - determining version 45
 - downloading an update 46
 - starting the Setup Utility 45
 - updating 45
- Bluetooth label 9
- boot order, changing 49
- bottom components 6
- bottom cover
 - removal 23
 - spare part number 23
- buttons
 - power 8

C

- cables
 - spare part numbers 15
- camera
 - identifying 7
- camera light, identifying 7
- cautions
 - electrostatic discharge 18
- components
 - bottom 6
 - display 7
 - left side 5
 - right side 4
- computer major components 11
- computer specifications 57
- connectors
 - power 5

D

- display
 - specifications 57
- display assembly
 - subcomponents 13
- display back cover
 - illustrated 13
 - spare part number 13
- display bezel
 - illustrated 13
 - spare part number 13
- display cable
 - illustrated 13
 - spare part number 13
- display components 7
- display panel
 - illustrated 13
 - spare part number 13

E

- electrostatic discharge (ESD) 18
 - preventing damage 18, 19

F

- fan
 - removal 31
 - spare part number 31
- fingerprint reader 9

G

- grounding methods 18, 19
- guidelines
 - packaging 18, 21
 - transporting 18, 21
 - workstation 18, 21

H

- hard drive
 - spare part number 15
 - specifications 57
- HDMI port
 - identifying 5
- heat sink
 - removal 29
 - spare part numbers 29

hinge

- illustrated 13
- spare part number 13

hinge cover

- illustrated 13
- spare part number 13

HP PC Hardware Diagnostics UEFI

- downloading 54
- failure ID code 53
- starting 54
- using 53

HP PC Hardware Diagnostics Windows

- accessing 51, 52
- downloading 52
- failure ID code 51
- installing 53
- using 51

HP Recovery media

- recovery 49

HP Sure Recover 50

I

- illustrated parts catalog 11
- internal microphones, identifying 7
- IR sensor board
 - removal 36
 - spare part numbers 36

J

jacks

- audio-out (headphone)/audio-in (microphone) 5

K

keyboard

- product description 2
- keyboard with top cover
 - spare part numbers 43

L

labels

- Bluetooth 9
- regulatory 9
- serial number 9
- service 9

- wireless certification 9
 - WLAN 9
- left side components 5
- lights
 - AC adapter and battery 4
 - camera 7
- low blue light mode 7

M

- microSD memory card reader, identifying 4

P

- packaging guidelines 18, 21
- pointing device, product description 2
- ports
 - HDMI 5
 - product description 2
 - USB Type-C SuperSpeed with HP Sleep and Charge 4, 5
 - USB Type-C Thunderbolt port with HP Sleep and Charge 6
- power button, identifying 8
- power connector
 - identifying 5
 - removal 42
- power connector cable
 - spare part numbers 42
- power cord
 - requirements for all countries 60
 - requirements for specific countries and regions 60
 - set requirements 60
- power cords, spare part numbers 16
- product description
 - keyboard 2
 - pointing device 2
 - ports 2
- product name and number, computer 9

R

- recovery 48
 - discs 49
 - media 49
 - USB flash drive 49

- recovery media 48
 - creating using HP Cloud Recovery Download Tool 48
 - creating using Windows tools 48
- regulatory information
 - regulatory label 9
 - wireless certification labels 9
- Remote HP PC Hardware Diagnostics
 - UEFI settings
 - customizing 55
 - using 55
- removal and replacement
 - procedures 23, 28
 - solid-state drive 26
- restoring 48
- restoring and recovery methods 49
- right side components 4

S

- Screw Kit, spare part number 16
- serial number, computer 9
- service labels, locating 9
- solid-state drive
 - removal and replacement 26
 - spare part numbers 15
 - specifications 58
- spare part country codes 43
- speaker
 - removal 28
 - spare part numbers 28
- speakers 6
- specifications
 - computer 57
 - display 57
 - hard drive 57
 - solid-state drive 58
- static electricity 18
- system board
 - removal 32
 - spare part numbers 32
- system restore 49
- system restore point, creating 48

T

- Thunderbolt port with HP Sleep and Charge, identifying USB Type-C 6
- touchpad
 - removal 34
 - spare part numbers 34

- touchpad cable
 - spare part number 15
- transporting guidelines 18, 21
- traveling with the computer 9

U

- USB board cable
 - spare part number 15
- USB Type-C SuperSpeed port with HP Sleep and Charge, identifying 4, 5
- USB Type-C Thunderbolt port with HP Sleep and Charge, identifying 6

V

- vents, identifying 6, 8

W

- Windows
 - backup 48
 - recovery media 48
 - system restore point 48
- Windows tools, using 48
- wireless antennas
 - illustrated 13
 - spare part number 13
- wireless antennas, identifying 7
- wireless certification label 9
- WLAN antennas, identifying 7
- WLAN device 9
- WLAN label 9
- workstation guidelines 18, 21