



Maintenance and Service Guide

HP Stream 14 Laptop PC

IMPORTANT! This document is intended for HP authorized service providers only.

© Copyright 2019 HP Development Company, L.P.

AMD and Radeon are trademarks of Advanced Micro Devices, Inc. Bluetooth is a trademark owned by its proprietor and used by HP Inc. under license. Intel is a trademark of Intel Corporation or its subsidiaries in the U.S. and/or other countries. SDHC, SDXC, and microSD are trademarks or registered trademarks of SD-3C LLC in the United States, other countries or both. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Miracast is a registered trademark of the Wi-Fi Alliance.

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: May 2019

Document Part Number: L60885-001

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 **User Guides**.

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


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

Table of contents

1 Product description	1
2 Getting to know your computer	3
Right side	3
Left side	4
Display	5
Keyboard area	6
Touchpad	6
Lights	7
Button	8
Special keys	9
Bottom	10
Labels	11
3 Illustrated parts catalog	13
Computer major components	13
Rubber Kit	15
Display assembly components	16
Miscellaneous parts	17
4 Removal and replacement procedures preliminary requirements	18
Tools required	18
Service considerations	18
Plastic parts	18
Cables and connectors	18
Drive handling	19
Workstation guidelines	19
Electrostatic discharge information	19
Generating static electricity	20
Preventing electrostatic damage to equipment	20
Personal grounding methods and equipment	21
Grounding the work area	21
Recommended materials and equipment	21
Packaging and transporting guidelines	22

5 Removal and replacement procedures for Authorized Service Provider parts	23
Component replacement procedures	23
Preparation for disassembly	23
Bottom cover	24
Battery	25
Memory module	26
WLAN module	27
RTC battery	29
Heat sink	30
Speakers	32
System board (with integrated processor)	33
Touchpad	35
Display assembly	36
Power button board	42
Power connector cable	43
Keyboard/top cover	44
6 Using Setup Utility (BIOS)	45
Starting Setup Utility (BIOS)	45
Updating Setup Utility (BIOS)	45
Determining the BIOS version	45
Downloading a BIOS update	46
7 Backing up, restoring, and recovering	47
Backing up information and creating recovery media	47
Using Windows tools	47
Using the HP Cloud Recovery Download Tool to create recovery media (select products only)	47
Restoring and recovery	48
Restoring, resetting, and refreshing using Windows tools	48
Recovering using HP Recovery media	48
Changing the computer boot order	48
8 Using HP PC Hardware Diagnostics	49
Using HP PC Hardware Diagnostics Windows (select products only)	49
Downloading HP PC Hardware Diagnostics Windows	49
Downloading the latest HP PC Hardware Diagnostics Windows version	50
Downloading HP Hardware Diagnostics Windows by product name or number (select products only)	50
Installing HP PC Hardware Diagnostics Windows	50
Using HP PC Hardware Diagnostics UEFI	50

Starting HP PC Hardware Diagnostics UEFI	51
Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive	51
Downloading the latest HP PC Hardware Diagnostics UEFI version	51
Downloading HP PC Hardware Diagnostics UEFI by product name or number (select products only)	51
Using Remote HP PC Hardware Diagnostics UEFI settings (select products only)	52
Downloading Remote HP PC Hardware Diagnostics UEFI	52
Downloading the latest Remote HP PC Hardware Diagnostics UEFI version	52
Downloading Remote HP PC Hardware Diagnostics UEFI by product name or number	52
Customizing Remote HP PC Hardware Diagnostics UEFI settings	52
9 Specifications	54
Computer specifications	54
Display specifications	55
10 Power cord set requirements	56
Requirements for all countries	56
Requirements for specific countries and regions	57
11 Recycling	59
Index	60

1 Product description

Table 1-1 Product components and their descriptions

Category	Description
Product name	HP Stream 14 Laptop PC Model numbers (Windows 10S): 14-ds0xxx, 14t-ds000
Processor	AMD® Dual-Core A6-Series processor A6-9220e (1.6 GHz, turbo up to 2.4 GHz), 1866 MHz/1 MB L2 cache, dual core, 6 W AMD Dual-Core A4-Series processor A4-9120e (1.5 GHz, turbo up to 2.2 GHz), 1866 MHz/1 MB L2 cache, dual core, 6 W
Graphics	Internal graphics AMD Radeon® R4 Graphics AMD Radeon R3 Graphics Support for DX12, HD decode, and HDMI
Panel	14.0 inch, BrightView, slim-flat (3.0 mm), LED, eDP, 45% NTSC; 16:9 ultra-wide aspect ratio High-definition (HD) (1366 × 768), SVA, 220 nits HD (1366 × 768), BrightView, SVA, 220 nits, Touch-on Panel (TOP) Full high-definition (FHD) (1920 × 1080), UWVA, 220/250 nits
Memory	One SODIMM slot, non-accessible/non-upgradeable DDR4-1866 single channel support, 1.2 V Supports 4 GB system memory (4 GB × 1)
Storage	eMMC v 5.0 configuration 64 MB 32 MB
Optical drive	External, 7.0 mm tray load, USB, DVD±RW DL SuperMulti Drive
Camera and microphone	HP Webcam: VGA camera - indicator light, USB 2.0, 640 × 480 by 24 frames per second Single digital microphone
Audio	Audio Control Panel: HP Audio Center Dual speakers
Wireless	Integrated Wireless options with dual antennas (M.2/PCIe) Realtek 802.11ac 2 × 2 + Bluetooth® 5.0 Realtek RTL8822BE 802.11ac 2 × 2 Wi-Fi + Bluetooth® 4.2 Combo Adapter (MU-MIMO supported) Realtek RTL8821CE 802.11ac 1 × 1 Wi-Fi + Bluetooth 4.2 (MU-MIMO supported)

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

Category	Description
	Support for Wi-Fi CERTIFIED Miracast™
Media card reader	HP Multi-Format Digital Media Card Reader
	Support for SD™/SDHC™/SDXC™
	Push-pull insertion/removal
Internal card expansion	One M.2 card slot for WLAN
Ports	Hot Plug/unplug and auto detect for correct output to wide-aspect vs standard aspect video (auto adjust panel resolution to fit embedded panel and external monitor connected)
	AC Smart Pin adapter plug
	Audio-out (headphone)/audio-in (microphone) combo jack
	High-definition multimedia interface (HDMI) v.1.4, supporting 1920 × 1080 at 60 Hz
	USB 3.0 (2)
	USB 2.0 (1)
Keyboard/pointing devices	Keyboard
	Full-size, textured island keyboard (no numeric keypad)
	Standard keyboard > 1.5 mm travel distance
	Touchpad requirements
	TouchPad with image sensor
	Taps enabled as default
	Multitouch gestures enabled
Power requirements	Battery
	3-cell, 41 Whr, Li-ion battery
	Battery life enhancement
	AC adapter
	45 W
	Power cord
	1 meter conventional power cord (C5)
Security	Mini security cable slot
	Trusted Platform Module (fTPM) 2.0
Operating system	Preinstalled
	Windows 10 Home S 64 Entry
	Windows 10 Home S 64 Entry Single Language
Serviceability	End user replaceable part
	AC adapter


2 Getting to know your computer

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

Right side



Table 2-1 Right-side components and their descriptions

Component		Description
(1)	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.• Off: The battery is not charging.
(2)	 Power connector	Connects an AC adapter.

Left side

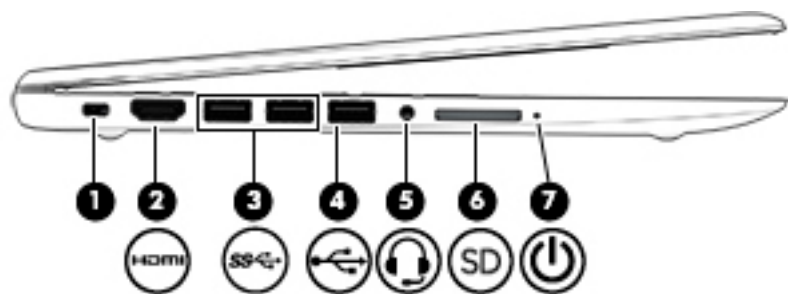








Table 2-2 Left-side components and their descriptions

Component		Description
(1)	Security cable slot	Attaches an optional security cable to the computer. NOTE: The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(2)	 HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High-Definition Multimedia Interface (HDMI) device.
(3)	 USB SuperSpeed ports (2)	Connect a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provide high-speed data transfer.
(4)	 USB port	Connects a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provides data transfer.
(5)	 Audio-out (headphone)/ Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone microphones. WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety, and Environmental Notices</i> . To access this guide: <ul style="list-style-type: none">▲ Type HP Documentation in the taskbar search box, and then select HP Documentation. NOTE: When a device is connected to the jack, the computer speakers are disabled.
(6)	 Memory card reader	Reads optional memory cards that enable you to store, manage, share, or access information. To insert a card: <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. To remove a card: <ul style="list-style-type: none">▲ Pull the card out of the memory card reader.
(7)	 Power light	<ul style="list-style-type: none">• On: The computer is on.• Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components.• Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.

Display

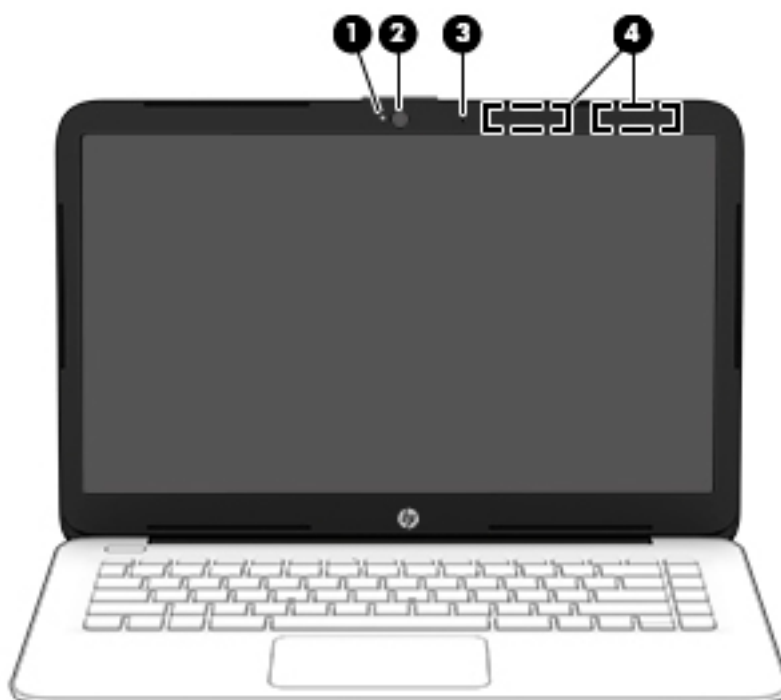


Table 2-3 Display components and their descriptions

Component		Description
(1)	Camera light	On: The camera is in use.
(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)	Internal microphone	Records sound.
(4)	WLAN antennas* (1 or 2 depending on model)	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:

- ▲ Type HP Documentation in the taskbar search box, and then select **HP Documentation**.

Keyboard area

Touchpad

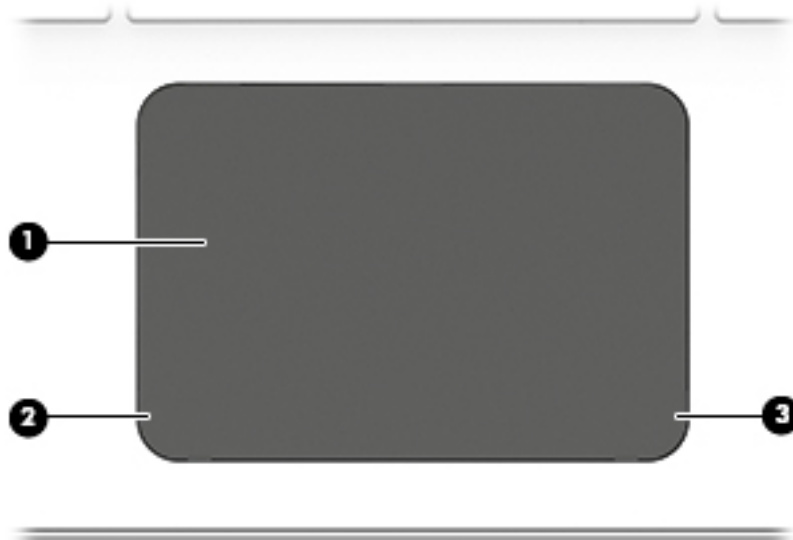


Table 2-4 Touchpad components and their descriptions

Component		Description
(1)	Touchpad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left control zone	Textured area that allows you to perform additional gestures.
(3)	Right control zone	Textured area that allows you to perform additional gestures.

Lights

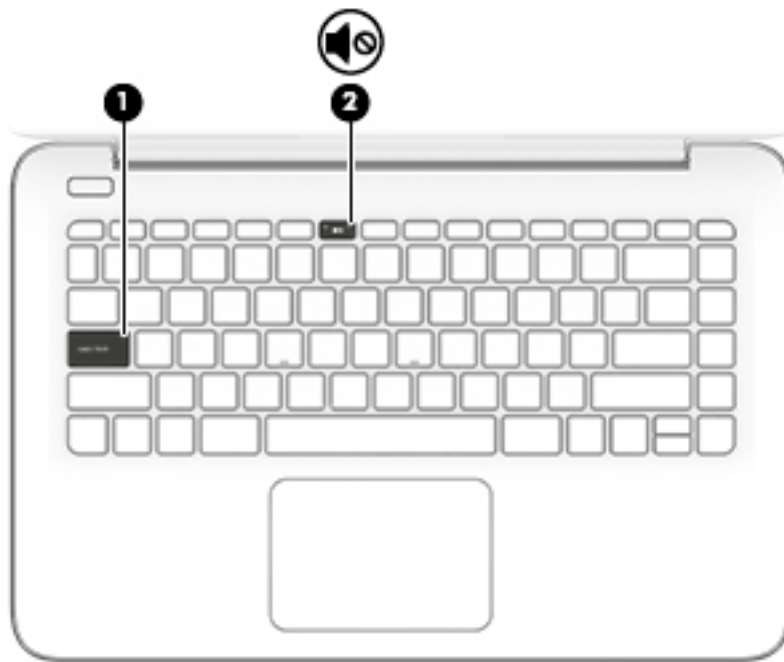



Table 2-5 Lights and their descriptions

Component		Description
(1)	Caps lock light	On: Caps lock is on, which switches the key input to all capital letters.
(2)	 Mute light	<ul style="list-style-type: none">On: Computer sound is off.Off: Computer sound is on.

Button

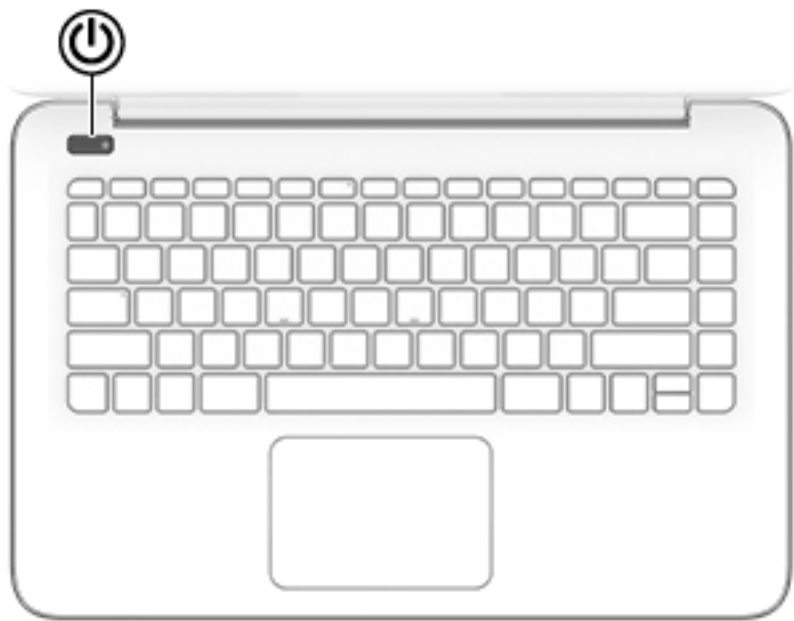



Table 2-6 Button and description

Component	Description
Power button	<ul style="list-style-type: none">• When the computer is off, press the button to turn on the computer.• When the computer is on, press the button briefly to initiate Sleep.• When the computer is in the Sleep state, press the button briefly to exit Sleep (select products only).• When the computer is in Hibernation, press the button briefly to exit Hibernation. <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 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, see your power options:</p> <ul style="list-style-type: none">▲ Right-click the Power icon , and then select Power Options.

Special keys

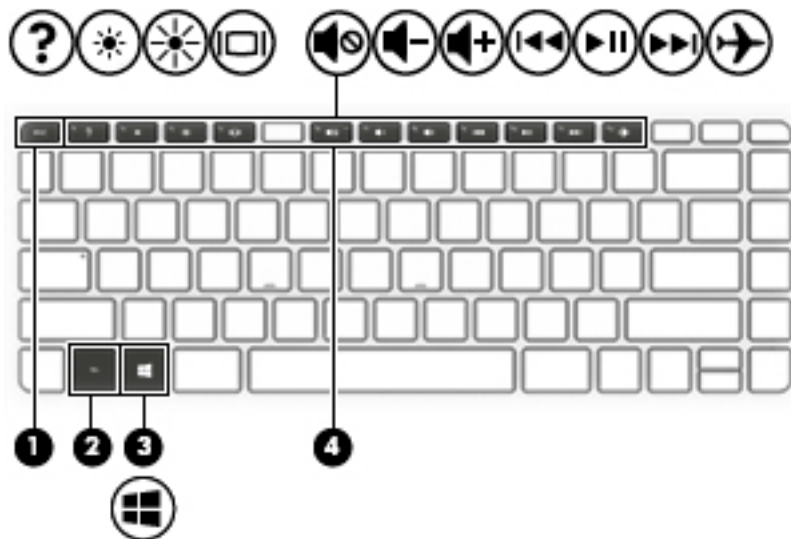



Table 2-7 Special keys and their descriptions

Component		Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes specific functions when pressed in combination with another key.
(3)	 Windows key	Opens the Start menu. NOTE: Pressing the Windows key again will close the Start menu.
(4)	Action keys	Execute frequently used system functions.

Bottom




Table 2-8 Bottom components and their descriptions

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

Labels

The labels affixed to the computer provide information you may need when you troubleshoot system problems or travel internationally with the computer. Labels may 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 may 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.

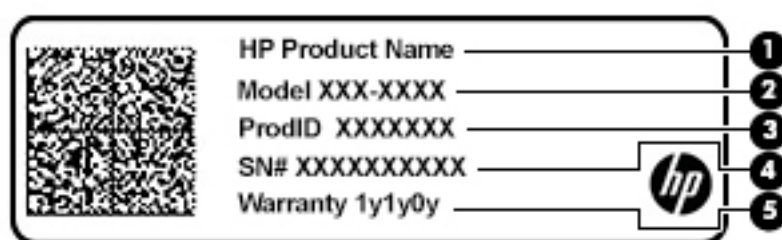


Table 2-9 Service label components

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

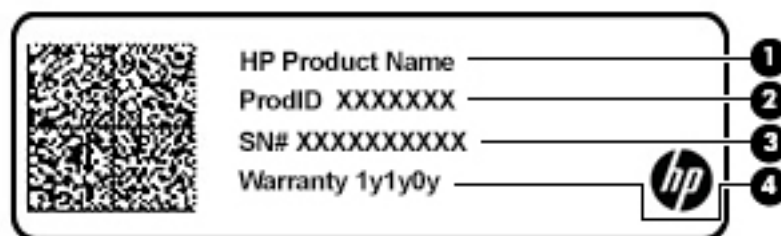


Table 2-10 Service label components

Component	
(1)	HP product name
(2)	Product ID


Table 2-10 Service label components (continued)

Component	
(3)	Serial number
(4)	Warranty period

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

3 Illustrated parts catalog

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

 **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. See [Labels on page 11](#) for details.

Computer major components

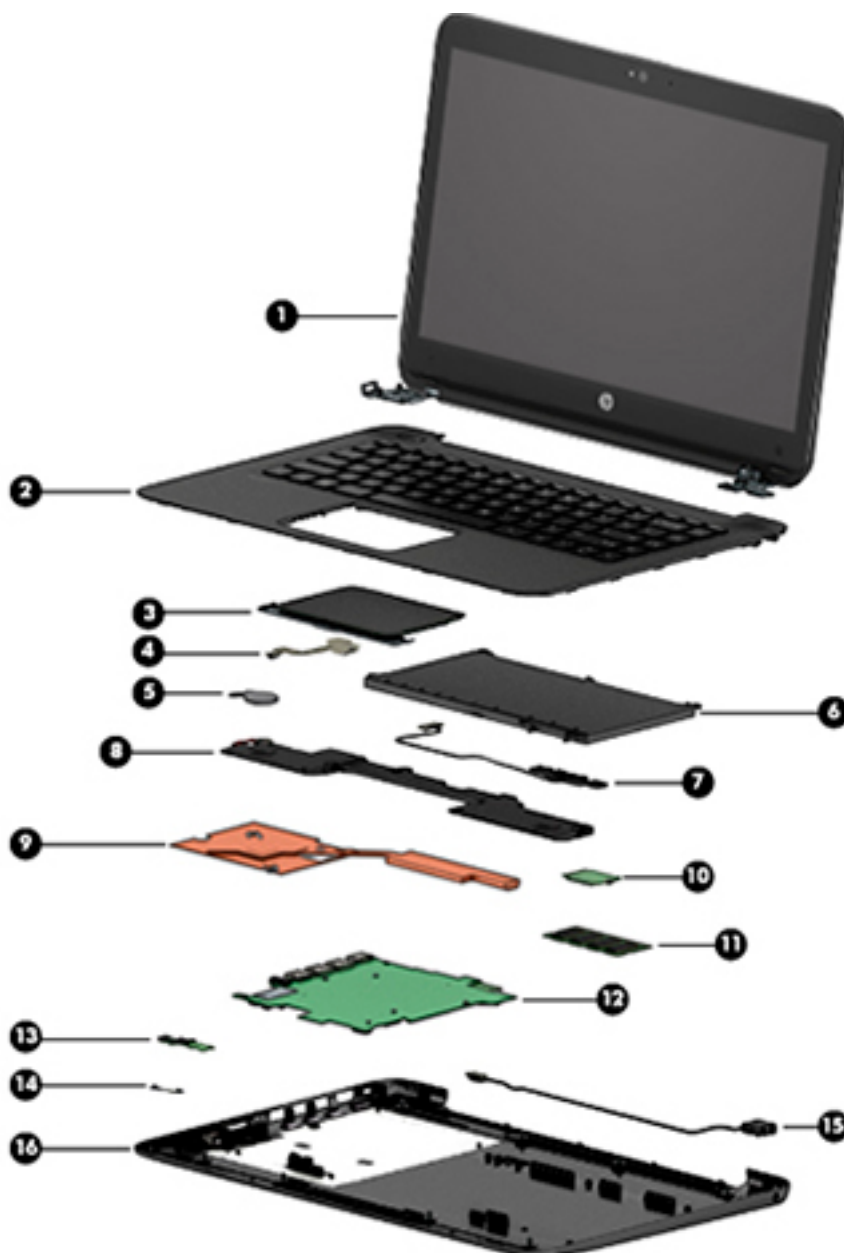


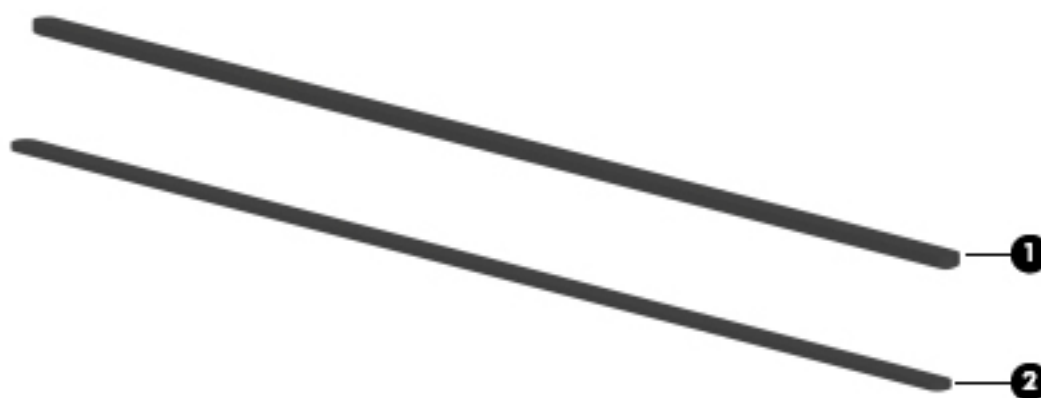
Table 3-1 Computer major components and their descriptions

Item	Component	Spare part number
(1)	Display assembly: Spare parts for the display assembly are available at the subcomponent level only. For more display assembly spare part information, see Display assembly components on page 16 .	
(2)	Keyboard/top cover (includes keyboard cable): For a list of keyboard country codes, see Keyboard/top cover on page 44 .	
	For use in blue models	L59910-xx1
	For use in white models	L59908-xx1
	For use in pink models	L59909-xx1
	For use in black models	L59911-001
(3)	Touchpad	
	For use in blue models	L64224-001
	For use in white models	L64226-001
	For use in black models	L64225-001
	For use in pink models	L64227-001
(4)	Touchpad cable	905563-001
(5)	RTC battery	857380-001
(6)	Battery , 3-cell, 41 Whr	844203-855
(7)	Battery cable	905566-001
(8)	Heat sink	L61888-001
(9)	WLAN module	
	Intel Realtek RTL8821CE 802.11ac 1 × 1 Wi-Fi + Bluetooth® 4.2 (MU-MIMO supported)	L17365-005
	Realtek RTL8822BE 802.11ac 2 × 2 Wi-Fi + Bluetooth 4.2 Combo Adapter (MU-MIMO supported)	924813-855
	Realtek 802.11ac 2 × 2 + Bluetooth 5.0	L44796-005
(10)	Speakers (includes cable)	L61391-001
(11)	System board (includes integrated processor, thermal grease, and thermal pads):	
	AMD A6-9220e processor with 64 GB of eMMC memory	L62002-601
	AMD A4-9120e processor with 64 GB of eMMC memory	L62001-601
	AMD A4-9120e processor with 64 GB of eMMC memory (FTS)	L63884-601
	AMD A4-9120e processor with 32 GB of eMMC memory	L62000-601
	AMD A4-9120e processor with 32 GB of eMMC memory (FTS)	L63883-601
(12)	Power button board	905579-001
(13)	Power button board cable	L61392-001
(14)	Power connector (DC in) cable	810327-004
(15)	Base enclosure	
	For use in blue models	L61884-001

Table 3-1 Computer major components and their descriptions (continued)

Item	Component	Spare part number
	For use in white models	L61886-001
	For use in black models	L61885-001
	For use in pink models	L61887-001
	Memory module, 4 GB (DDR4, 2666 MHz; not illustrated)	L10598-855

Rubber Kit

**Table 3-2 Rubber Kit components and their descriptions**

Item	Description	Spare part number
	Rubber Kit	
	For use in blue models	L59788-001
	For use in white models	L59798-001
	For use in black models	L59793-001
	For use in pink models	L59803-001
(1)	Top rubber foot/strip	
(2)	Bottom rubber foot/strip	

Display assembly components

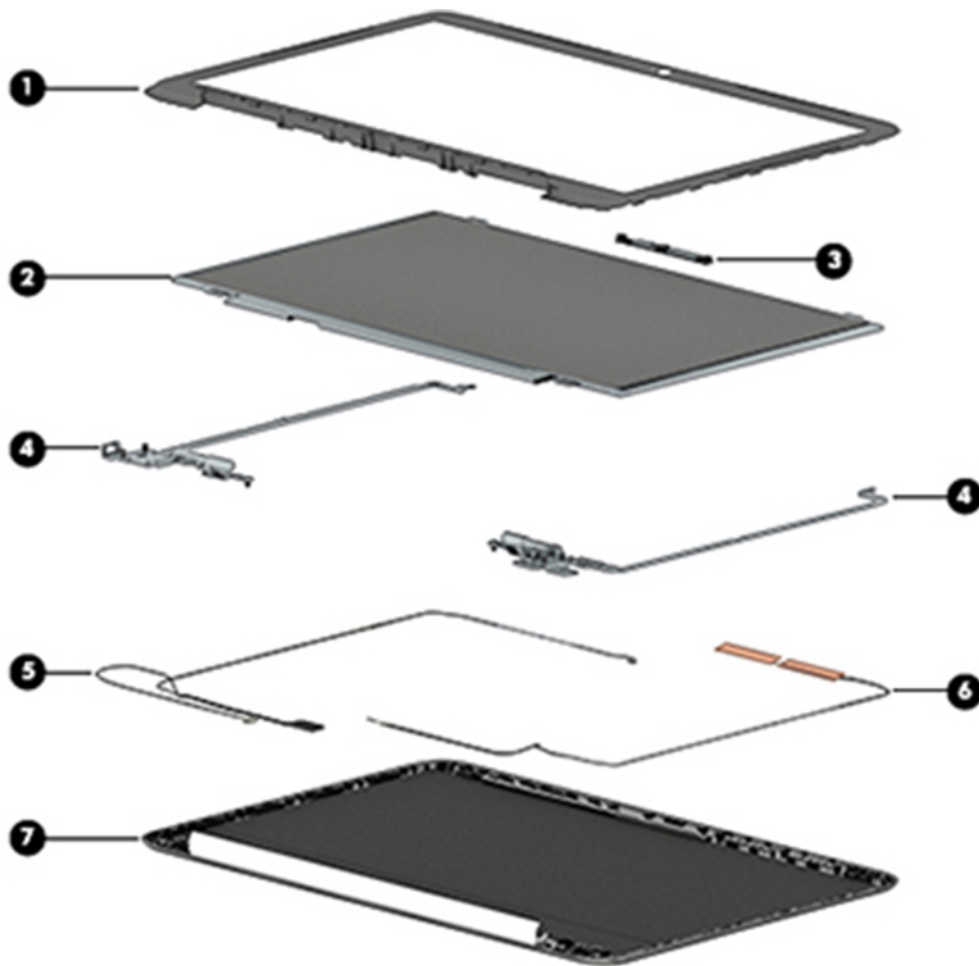


Table 3-3 Display assembly components and their descriptions

Item	Description	Spare part number
(1)	Display bezel	
	For use in blue models	L59786-001
	For use in white models	L59796-001
	For use in black models	L59791-001
	For use in pink models	L59801-001
(2)	Raw display panel	
	HD non-touch panel	L62004-001
	HD touch panel (TOP)	L62005-001
	FHD non-touch panel	L62003-001
(3)	Webcam/microphone module	766523-025
(4)	Display Hinge Kit (includes left and right display hinges)	905560-001
(5)	Display panel cable	905561-001

Table 3-3 Display assembly components and their descriptions (continued)

Item	Description	Spare part number
(6)	Antenna Kit (includes wireless antenna cable with transceiver)	906173-001
(7)	Display back cover	
	For use in blue models	L59784-001
	For use in white models	L59794-001
	For use in black models	L59789-001
	For use in pink models	L59799-001

Miscellaneous parts

Table 3-4 Miscellaneous parts and their descriptions

Component	Spare part number
HP Smart AC adapter , 45 W, non-PFC, RC, 4.5-mm	741727-001
HP HDMI-to-VGA adapter	701943-001
HP USB to Gigabit RJ-45 adapter	829941-001
HP USB external DVD±RW DL SuperMulti Drive	747080-001
Power cord (C5, 1.0 m):	
Denmark	L19360-001
Europe	L19361-001
Israel	L19362-001
North America	L19367-001
Switzerland	L19370-001
The United Kingdom and Singapore	L19373-001
Rubber Kit (includes top and bottom rubber feet/strips)	
For use in blue models	L59788-001
For use in white models	L59798-001
For use in black models	L59793-001
For use in pink models	L59803-001
Screw Kit	905568-001

4 Removal and replacement procedures preliminary requirements

Tools required

You will need the following tools to complete the removal and replacement procedures:

- Flat-bladed screwdriver
- Non-conductive, non-marking pry tool
- Magnetic Phillips P0 screwdriver

Service considerations

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



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

Plastic parts



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

Cables and connectors



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.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Drive handling



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

Before removing or inserting a 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."

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screw drivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

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 are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

Generating static electricity

Note the following:

- 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
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 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 Styrofoam	3,500 V	5,000 V	14,500 V
Removing bubble pack from PCB	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 Styrofoam.			



NOTE: As little as 700 volts 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

Use the following equipment to prevent static electricity damage to electronic components:

- **Wrist straps** are flexible straps with a maximum of $1\text{ M}\Omega \pm 10\%$ resistance in the ground cords. To provide proper ground, 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 $1\text{ M}\Omega \pm 10\%$ resistance between the operator and ground.

Table 4-2 Static shielding protection levels

Static shielding protection levels	
Method	Voltage
Antistatic plastic	1,500
Carbon-loaded plastic	7,500
Metallized laminate	15,000

Grounding the work area

To prevent static damage at the work area, use the following precautions:

- Cover the work surface with approved static-dissipative material. Provide a wrist strap connected to the work surface and 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 work area free of nonconductive materials such as ordinary plastic assembly aids and Styrofoam.
- Use field service tools, such as cutters, screwdrivers, and vacuums, that are conductive.

Recommended materials and equipment

HP recommends the following 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


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 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. See [Labels on page 11](#) for details.

Component replacement procedures

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

There are as many as 44 screws that must be removed, replaced, and/or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Preparation for disassembly

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

Table 5-1 Bottom cover descriptions and part numbers

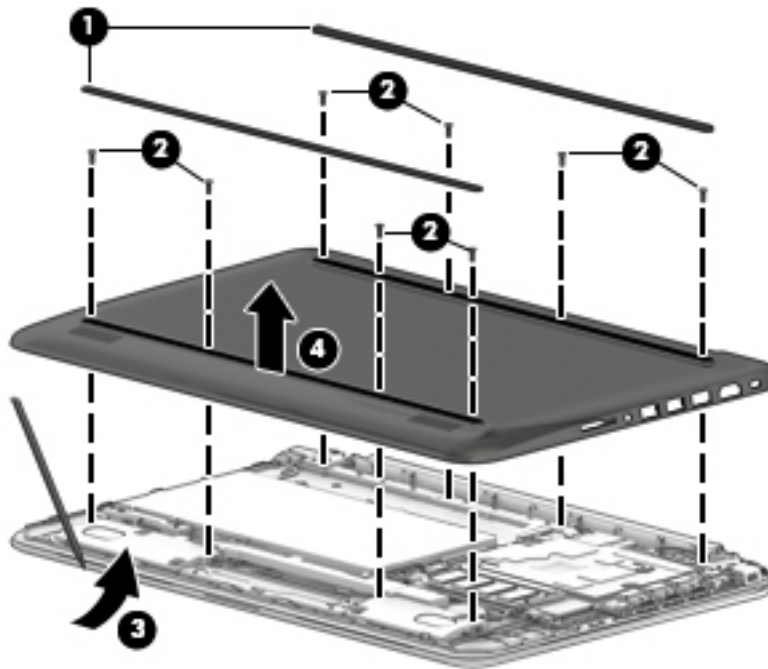
Description	Spare part number
Bottom cover for use in blue models	L61884-001
Bottom cover for use in white models	L61886-001
Bottom cover for use in black models	L61885-001
Bottom cover for use in pink models	L61887-001

Before removing the bottom cover, follow these steps:

- ▲ Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).

Remove the bottom cover:

1. Position the computer upside down.
2. Peel the two rubber strips off the bottom cover **(1)** to gain access to the screws underneath.
3. Remove eight Phillips M2.5 × 6.0 screws **(2)** that secure the bottom cover to the computer.
4. Pry around the edges to release the bottom cover from the computer **(3)**.
5. Lift the bottom cover from the computer **(4)**.



Reverse this procedure to install the bottom cover.

Battery

Table 5-2 Battery and cable descriptions and part numbers

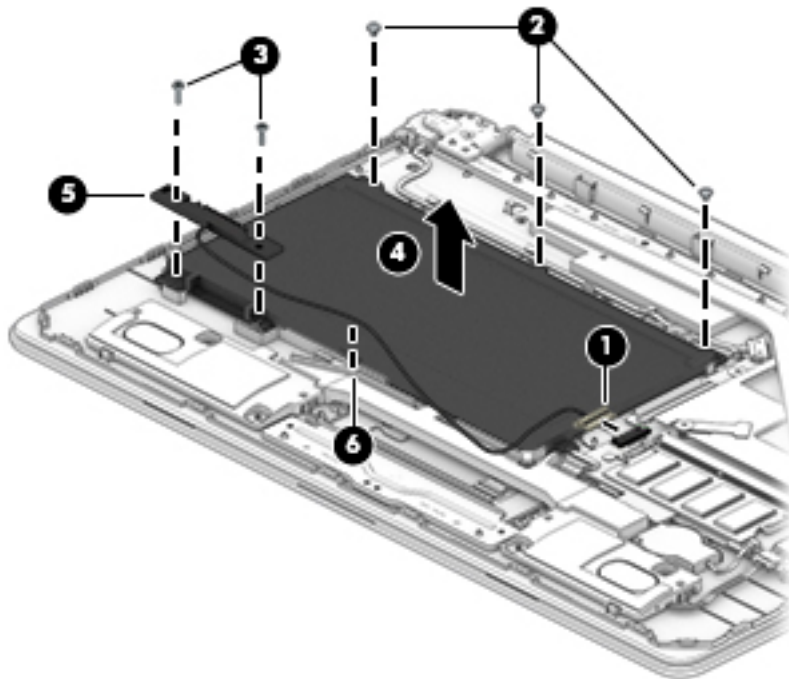
Description	Spare part number
Battery, 3-cell, 41 Whr	844203-855
Battery cable	905566-001

Before removing the battery, follow these steps:

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

Remove the battery:

1. Disconnect the battery cable from the system board **(1)**.
2. Remove the three M2.0 × 2.5 screws **(2)** that secure the battery to the computer.
3. Remove the two M2.0 × 6.0 screws **(3)** that secure the connector to the computer.
4. Lift the battery and the connector from the computer **(4)**.
5. Disconnect the connector from the battery **(5)**.
6. If replacing the battery cable, remove the cable from its routing path in the computer **(6)**.



Reverse this procedure to install the battery.

Memory module

Table 5-3 Memory module description and part number

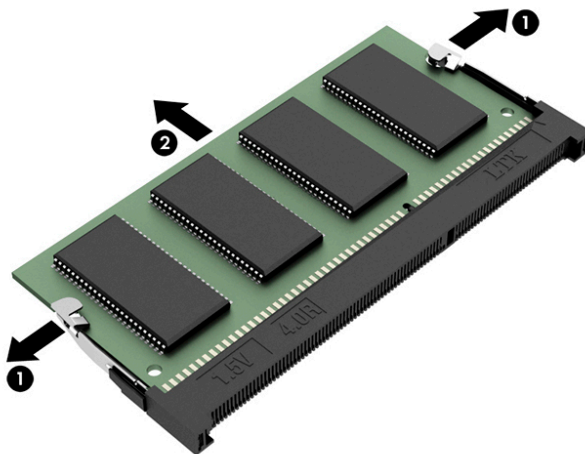
Description	Spare part number
Memory module, 4 GB (DDR4, 2666 MHz)	L10598-855

Before removing a memory module, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

To remove a memory module:

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



Reverse this procedure to install a memory module.

WLAN module

Table 5-4 WLAN module descriptions and part numbers

Description	Spare part number
Intel Realtek RTL8821CE 802.11ac 1 × 1 Wi-Fi + Bluetooth 4.2 (MU-MIMO supported)	L17365-005
Realtek RTL8822BE 802.11ac 2 × 2 Wi-Fi + Bluetooth 4.2 Combo Adapter (MU-MIMO supported)	924813-855
Realtek 802.11ac 2 × 2 + Bluetooth 5.0	L44796-005



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

Before removing the WLAN module, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

Remove the WLAN module:

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

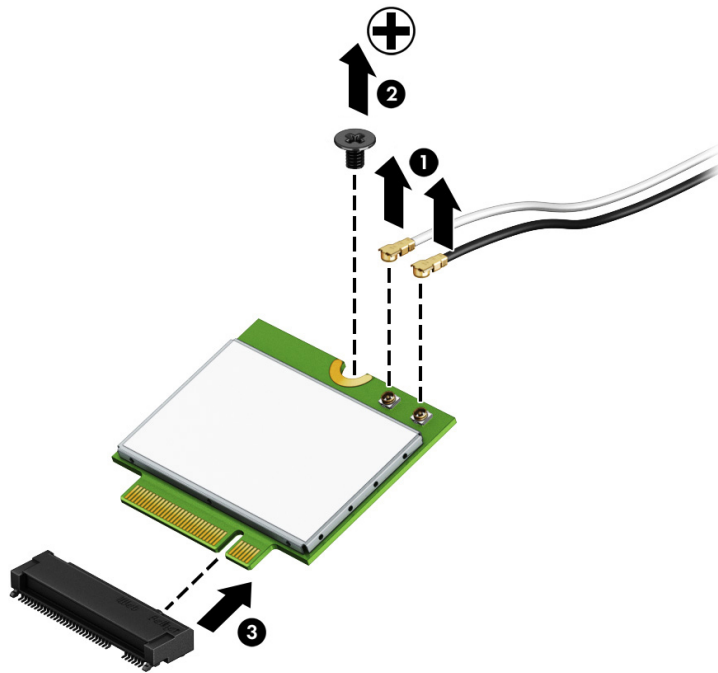



NOTE: The 1/black WLAN antenna cable is connected to the WLAN module 1/Main terminal.

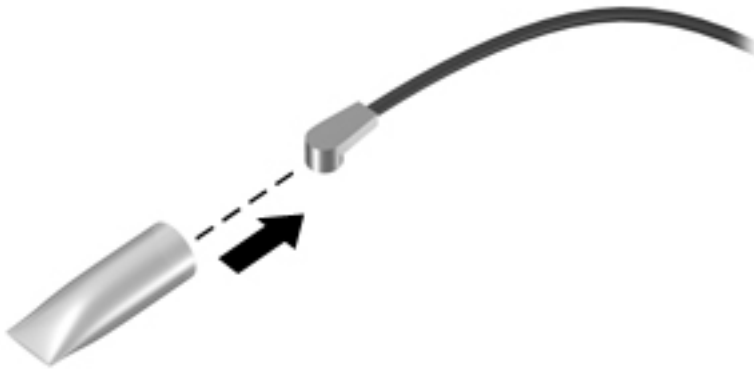
Either one or two antennas may be connected to the module.

2. Remove the Phillips M2.0 × 3.0 screw **(2)** that secures the WLAN module to the computer. (The WLAN module tilts up.)

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



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



Reverse this procedure to install the WLAN module.

RTC battery

Table 5-5 RTC battery description and part number

Description	Spare part number
RTC battery	857380-001

Before removing the RTC battery, follow these steps:

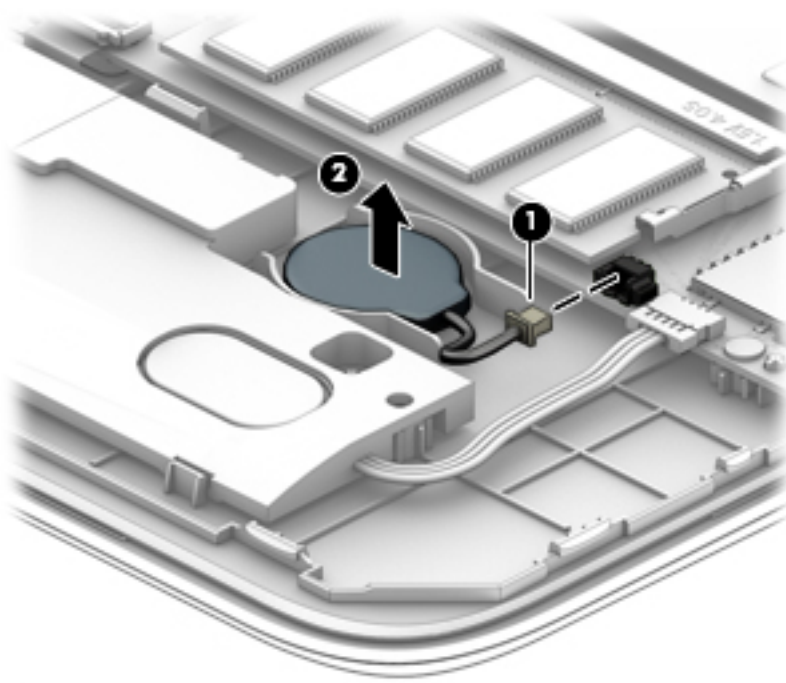
1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

To remove the RTC battery:

- ▲ Disconnect the RTC battery cable from the system board **(1)**, and then lift the RTC battery from the computer **(2)**.



NOTE: The RTC battery is secured with double-sided tape.



Reverse this procedure to install the RTC battery.

Heat sink

Table 5-6 Heat sink description and part number

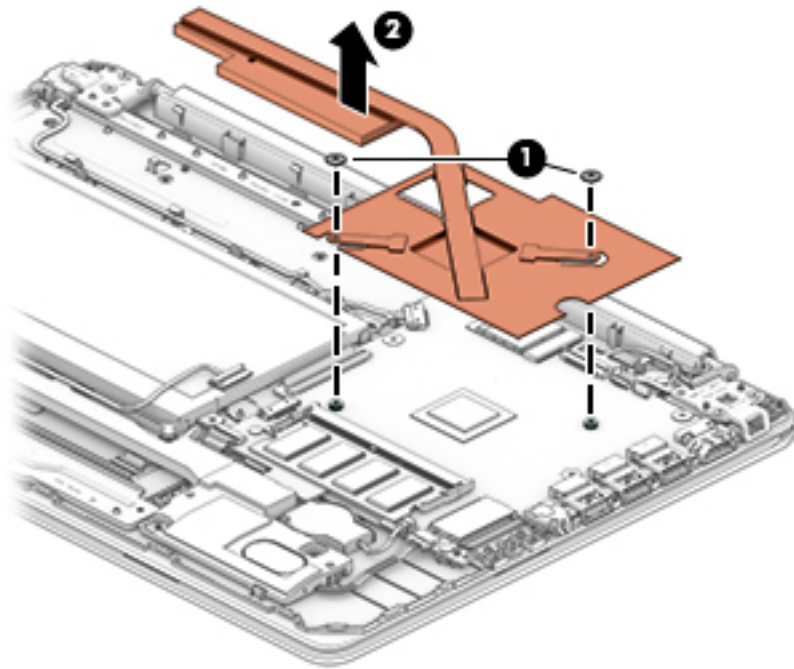
Description	Spare part number
Heat sink	L61888-001

Before removing the heat sink, follow these steps:

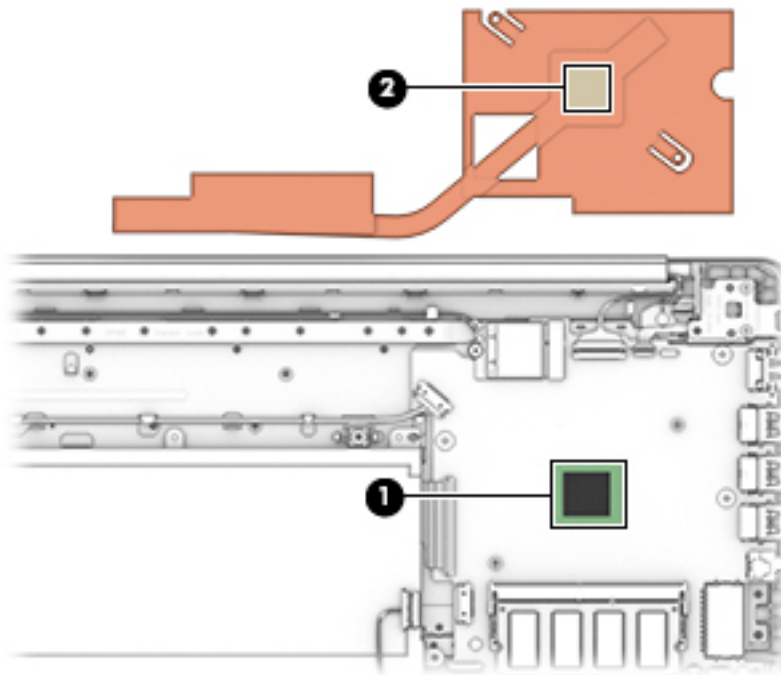
1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

Remove the heat sink:

1. Remove the two Phillips M2.0 × 2.0 screws **(1)** that secure the heat sink to the system board.
2. Lift the heat sink off the system board **(2)**.



NOTE: The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board each time the heat sink is removed. Thermal material is used on the processor **(1)** and the heat sink section **(2)** that services it.



Reverse this procedure to install the heat sink.

Speakers

Table 5-7 Speakers description and part number

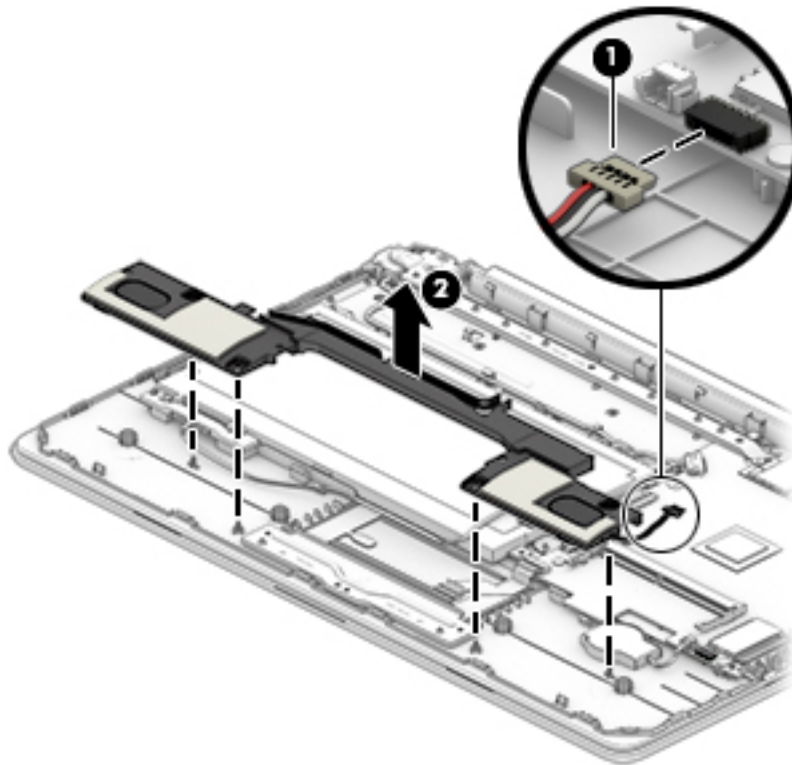
Description	Spare part number
Speakers (includes cable)	L61391-001

Before removing the speakers, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Remove the battery (see [Battery on page 25](#)).

Remove the speakers:

1. Disconnect the speaker cable **(1)** from the system board.
2. Lift the speakers from the computer **(2)**.



Reverse this procedure to install the speakers.

System board (with integrated processor)



NOTE: System boards include an integrated processor.

Table 5-8 System board descriptions and part numbers

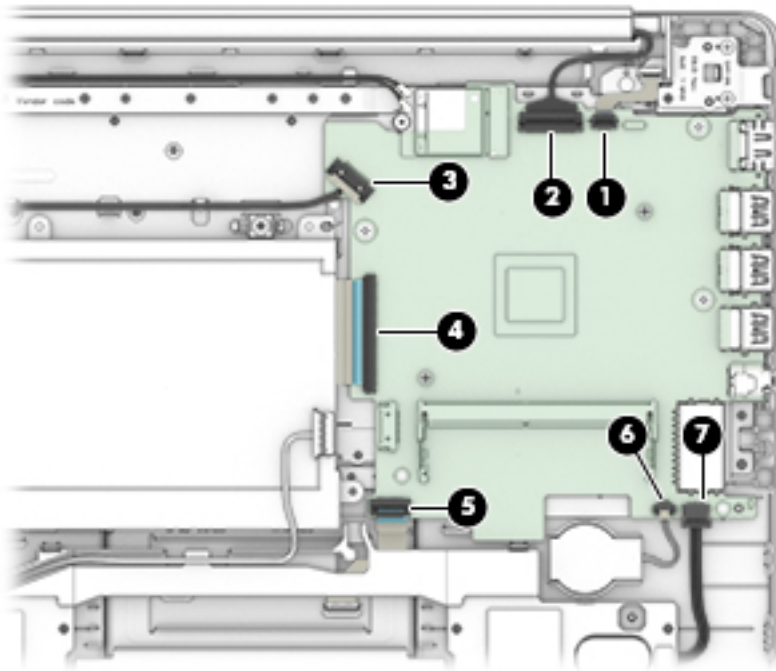
Description	Spare part number
AMD A6-9220e processor with 64 GB of eMMC memory	L62002-601
AMD A4-9120e processor with 64 GB of eMMC memory	L62001-601
AMD A4-9120e processor with 64 GB of eMMC memory (FTS)	L63884-601
AMD A4-9120e processor with 32 GB of eMMC memory	L62000-601
AMD A4-9120e processor with 32 GB of eMMC memory (FTS)	L63883-601

Before removing the system board, follow these steps:

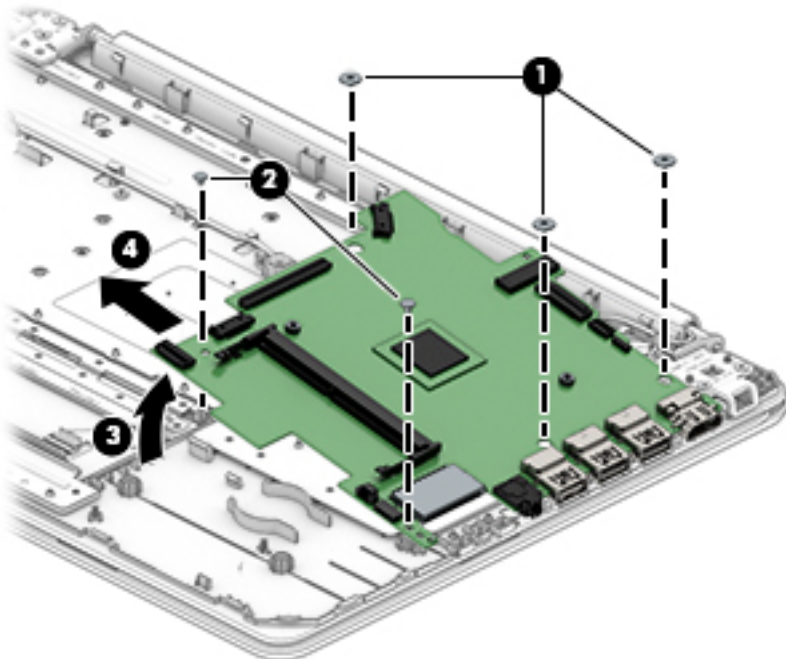
1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Remove the WLAN module (see [WLAN module on page 27](#)).
4. Remove the heat sink (see [Heat sink on page 30](#)).

Remove the system board:

1. Disconnect the following cables from the system board:
 - (1) Power button board cable
 - (2) Display cable
 - (3) Power connector cable
 - (4) Keyboard cable
 - (5) Speaker cable
 - (6) RTC battery cable
 - (7) Touchpad cable



2. Remove the three black Phillips M2.0 × 2.5 screws **(1)** that secure the system board to the computer.
3. Remove the two silver Phillips M2.0 × 2.5 screws **(2)** that secure the system board to the computer.
4. Lift up the left side of the system board **(3)**, and then pull the system board toward the left to remove it from the computer **(4)**.



Reverse this procedure to install the system board.

Touchpad

Table 5-9 Touchpad descriptions and part numbers

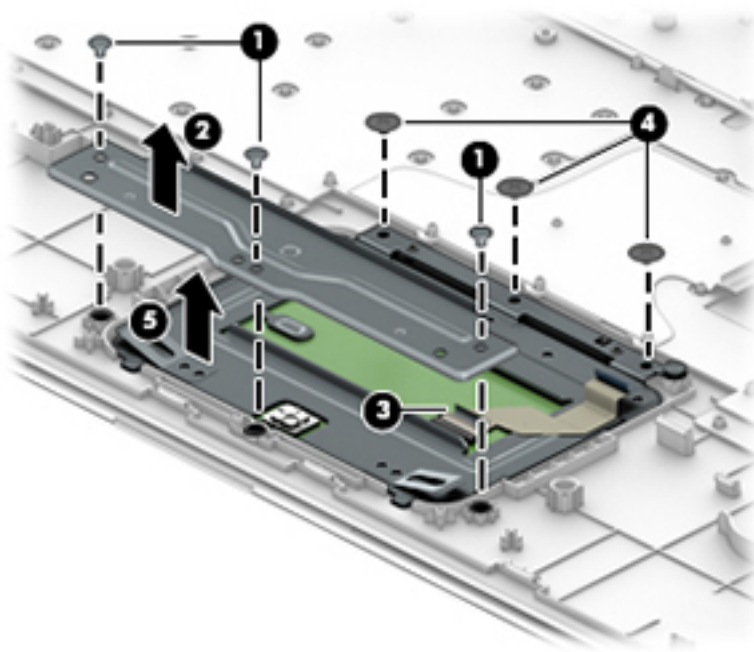
Description	Spare part number
Touchpad for use in blue models	L64224-001
Touchpad for use in white models	L64226-001
Touchpad for use in black models	L64225-001
Touchpad for use in pink models	L64227-001
Touchpad cable	905563-001

Before removing the touchpad, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 25](#)).
4. Remove the system board (see [System board \(with integrated processor\) on page 33](#)).

Remove the touchpad:

1. Remove the three Phillips M2.0 × 3.0 screws **(1)** that secure the touchpad bracket to the computer, and the lift the bracket from the computer **(2)**.
2. Disconnect the cable from the touchpad **(3)**.
3. Remove the three Phillips M2.0 × 3.0 screws **(4)** that secure the touchpad to the computer, and the lift the touchpad from the computer **(5)**.



Reverse this procedure to install the touchpad.

Display assembly



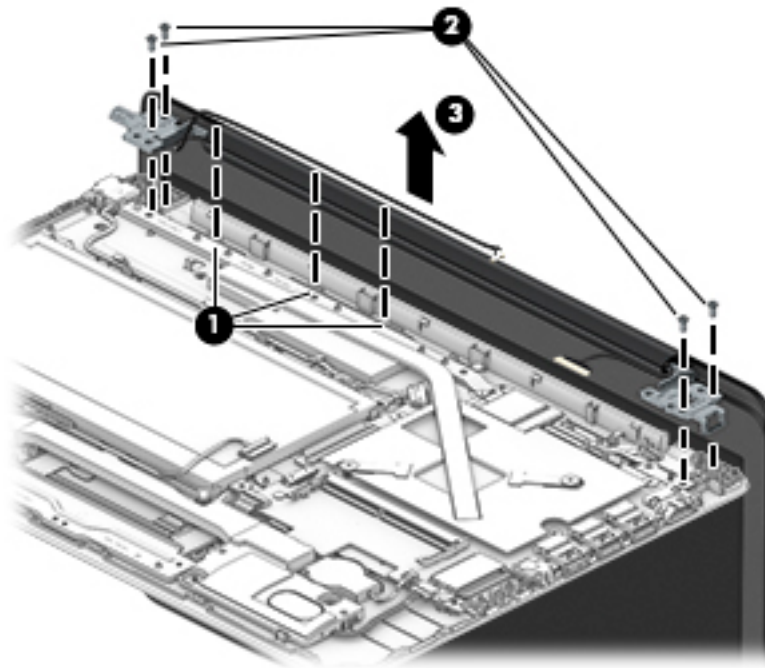
NOTE: Spare parts for the display assembly are available at the subcomponent level only. For display assembly spare part information, see the individual removal subsections.

Before removing the display assembly, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 25](#)).

Remove the display assembly:

1. Remove the WLAN antennas from the routing path in the computer **(1)**.
2. Remove the four Phillips M2.5 × 5.0 screws **(2)** that secure the display assembly to the computer.
3. Lift the display assembly from the computer **(3)**.



4. If it is necessary to replace the display bezel:
 - a. Flex the inside edges of the top edge **(1)**, the left and right sides **(2)**, and the bottom edge **(3)** of the display bezel until the bezel releases from the display back cover.
 - b. Remove the display bezel **(4)**.

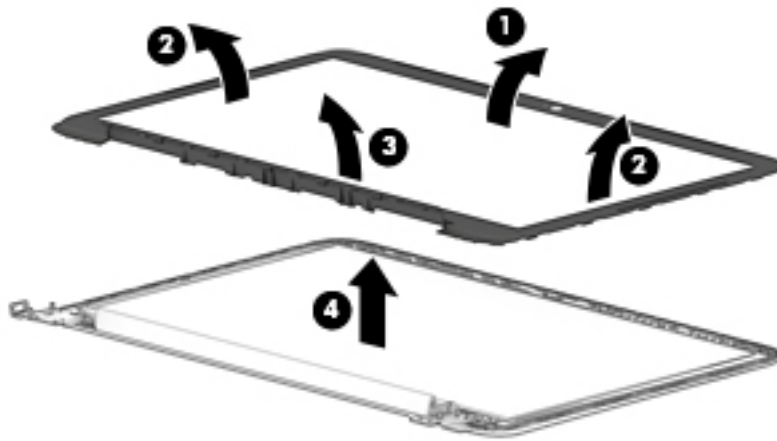
The display bezel is available using the following spare part numbers:

L59786-001 for blue models

L59796-001 for white models

L59791-001 for black models

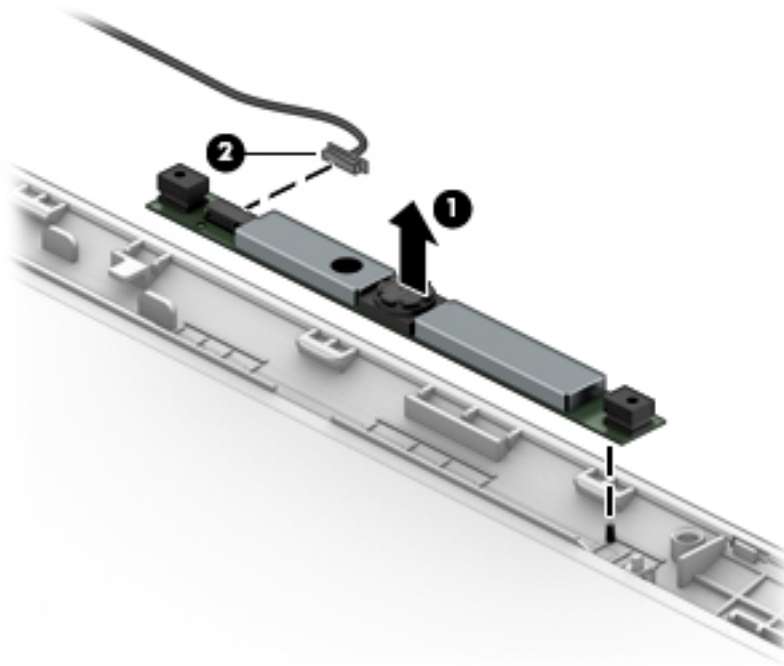
L59801-001 for pink models



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

- a.** Detach and lift the module **(1)** from the display back cover. (The webcam/microphone module is attached to the display back cover with double-sided adhesive.)
- b.** Disconnect the webcam/microphone module cable **(2)** from the module.

The webcam/microphone module is available as spare part number 766523-025.



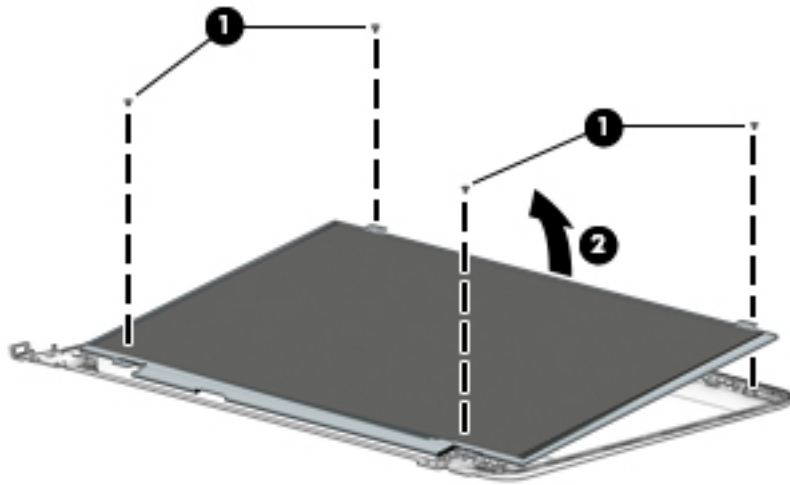
6. If it is necessary to replace the display panel:

- a.** Remove the four Phillips M2.0 × 3.0 screws **(1)** that secure the display panel to the display back cover.

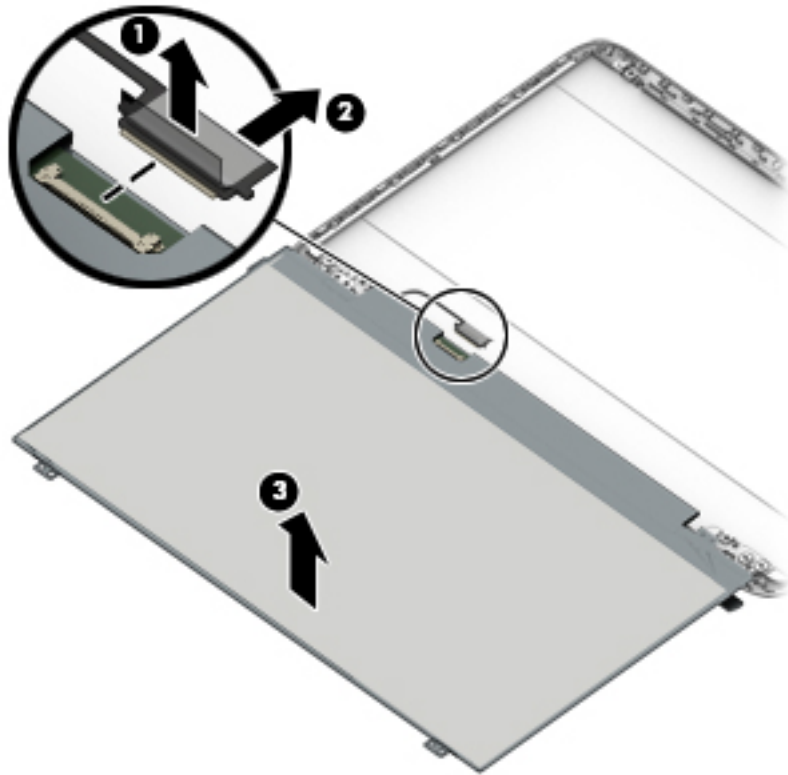
⚠ CAUTION: Before turning the display panel upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display panel.

- b.** Lift the top edge of the display panel **(2)** and swing it up and forward until it rests upside down in front of the display back cover.

The raw display panel is available as spare part number L62004-001 for an HD non-touch panel, L62005-001 for a HD touch panel (TOP), and L62003-001 for an FHD non-touch panel.



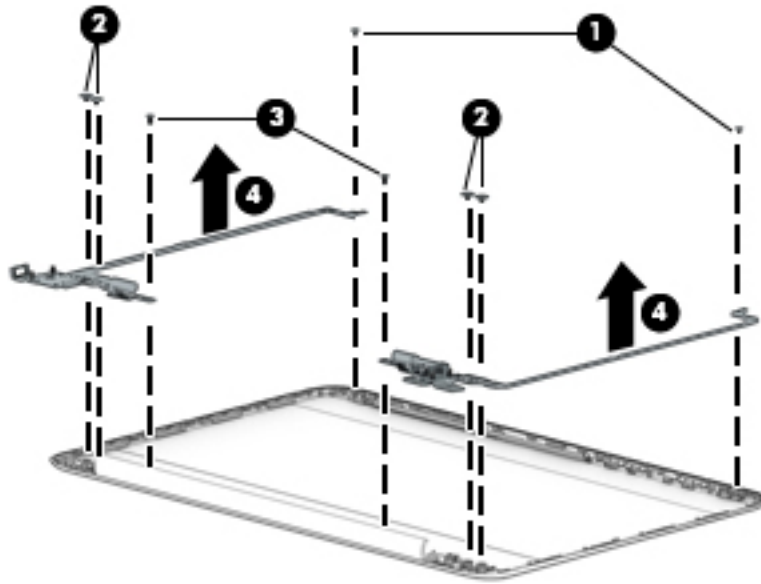
- c.** Release the adhesive strip **(1)** that secures the display panel cable connector to the display panel.
- d.** Disconnect the display panel cable **(2)** from the display panel.
- e.** Remove the display panel from the computer **(3)**.



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

- a. Remove the two Phillips M2.0 × 3.0 screws **(1)** on the top of the hinges.
- b. Remove the four Phillips M2.5 × 2.5 screws **(2)** on the outside bottom of the hinges and the two Phillips M2.5 × 4.0 screws **(3)** at the inside bottom of the hinges.
- c. Remove the display hinges **(4)**.

The display hinges are included in the Display Hinge Kit, spare part number 905560-001.



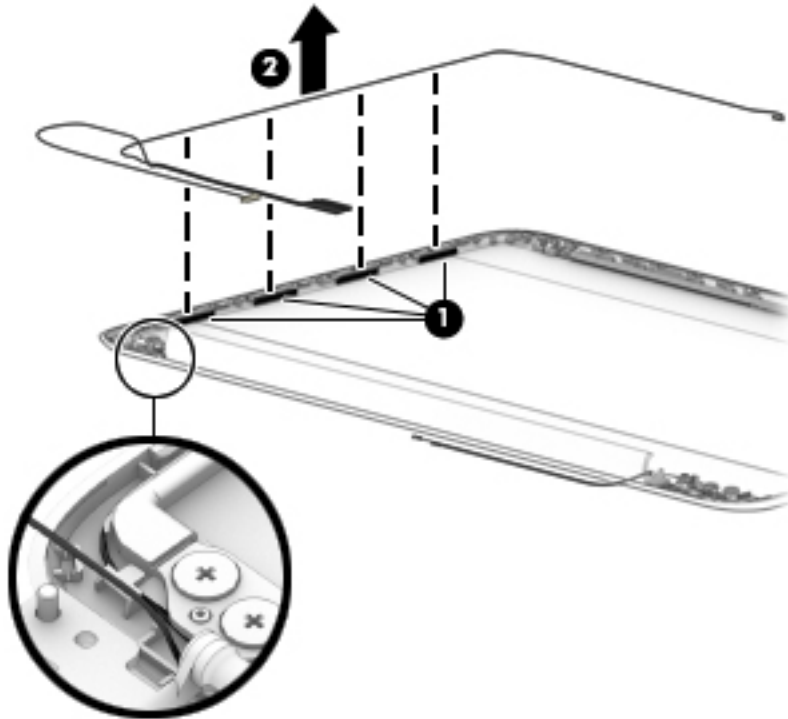
8. If it is necessary to replace the display panel cable:
 - a. Release the display panel cable from the retention clips **(1)** and channel built into the left side of the display back cover.

- b.** Remove the display panel cable **(2)**.

The display panel cable includes the webcam/microphone module cable and is available as spare part number 905561-001.



IMPORTANT: Be sure to note the way the cable routes into the display hinge, as shown in the following image.

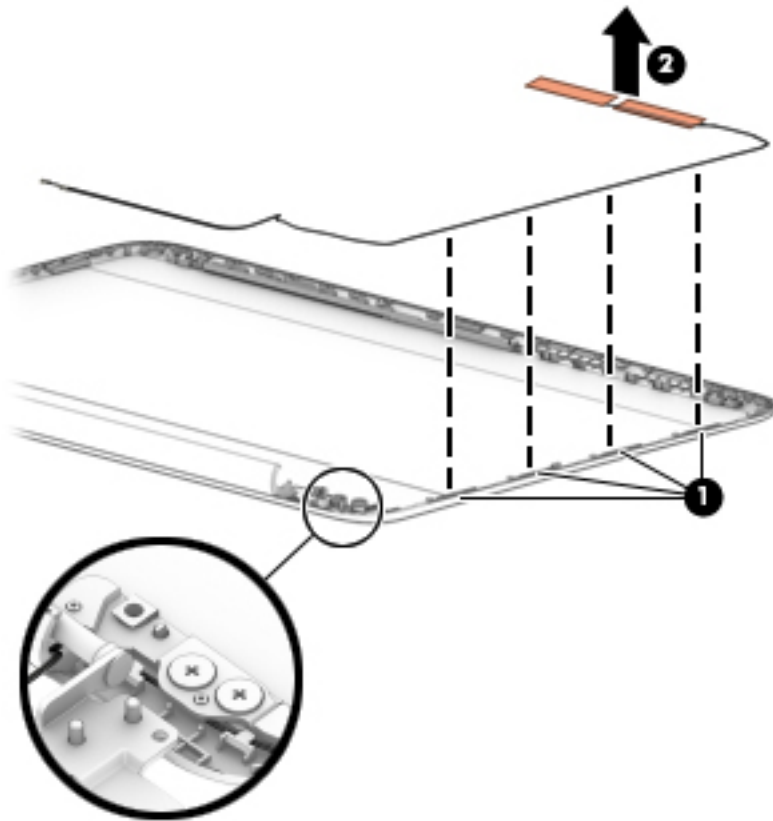


- 9.** If it is necessary to replace the WLAN antenna cable and transceiver:
 - a.** Release the antenna cable from the retention clips **(1)** and channel built into the right side of the display back cover.

- b. Peel the antenna transceivers from the top of the display enclosure, and then remove the antennas from the enclosure **(2)**.

The antenna cables and transceivers are included in the WLAN Antenna Kit, spare part number 906173-001.

 **IMPORTANT:** Be sure to note the way the antenna cable routes into the display hinge, as shown in the following image.



Reverse this procedure to reassemble and install the display assembly.

Power button board

Table 5-10 Power button board and cable descriptions and part numbers

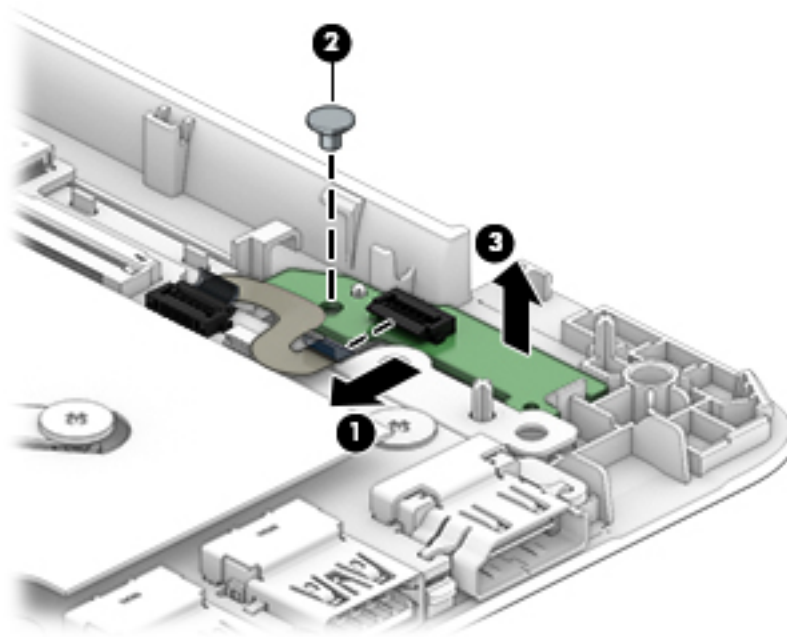
Description	Spare part number
Power button board	905579-001
Power button board cable	L61392-001

Before removing the power button board, follow these steps:

1. Prepare the computer for disassembly ([Preparation for disassembly on page 23](#)).
2. Remove the bottom cover (see [Bottom cover on page 24](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 25](#)).
4. Remove the display assembly (see [Display assembly on page 36](#)).

Remove the power button board:

1. Disconnect the cable from the power button board **(1)**.
2. Remove the M2.0 × 3.0 screw **(2)** that secures the power button board to the computer.
3. Lift the board from the computer **(3)**.



Reverse this procedure to install the power button board.

Power connector cable

Table 5-11 Power connector cable description and part number

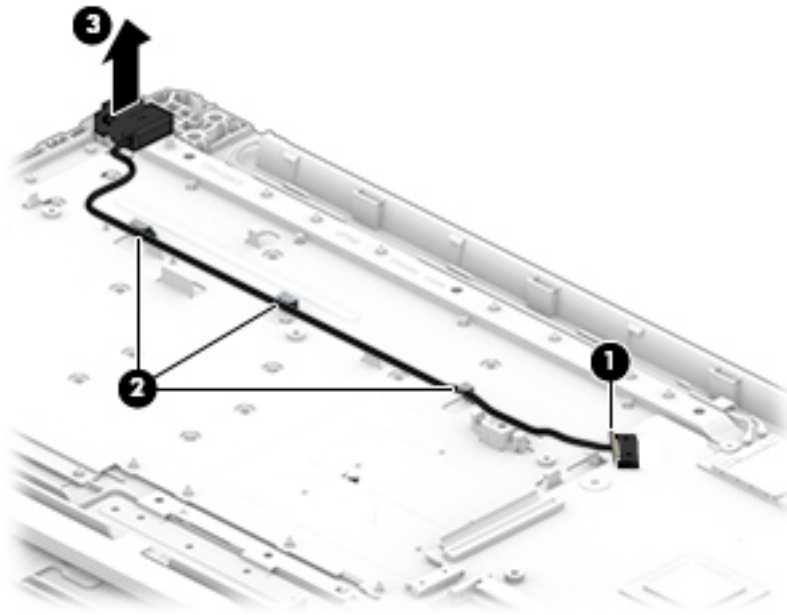
Description	Spare part number
Power connector cable	810327-004

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 (see [Bottom cover on page 24](#)).
3. Disconnect the battery cable from the system board (see [Battery on page 25](#)).
4. Remove the display assembly (see [Display assembly on page 36](#)).

Remove the power connector cable:

1. Disconnect the power connector cable **(1)** from the system board.
2. Release the power connector **(2)** from the retention clips built into the bottom cover.
3. Remove the power connector cable **(3)**.



Reverse this procedure to install the power connector cable.

Keyboard/top cover

The top cover/keyboard spare part remains after all other spare parts have been removed.

In this section, the first table provides the main spare part number for the keyboards. The second table provides the country codes.

Table 5-12 Keyboard/top cover descriptions and part numbers

Description	Spare part number
Keyboard/top cover for use in blue models	L59910-xx1
Keyboard/top cover for use in white models	L59908-xx1
Keyboard/top cover for use in pink models	L59909-xx1
Keyboard/top cover for use in black models	L59911-001

Table 5-13 Keyboard country codes

For use in country or region	Part number suffix	For use in country or region	Part number suffix	For use in country or region	Part number suffix
Belgium	-A41	Greece	-151	Saudi Arabia	-171
Bulgaria	-261	Hungary	-211	Slovenia	-BA1
Canada	-DB1	Israel	-BB1	Spain	-071
Czech Republic and Slovakia	-FL1	Italy	-061	Switzerland	-BG1
Denmark, Finland, and Norway	-DH1	The Netherlands	-B31	United Kingdom	-031
France	-051	Portugal	-131	United States	-001
Germany	-041	Romania	-271		

6 Using Setup Utility (BIOS)

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



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

Starting Setup Utility (BIOS)



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

▲ Turn on or restart the computer 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) may be available on the HP website.

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

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

Determining the BIOS version


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

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


- HP Support Assistant
 1. Type **support** in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
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 [Downloading a BIOS update on page 46](#).

Downloading a BIOS update

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

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

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


1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
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 may need this information to locate the update later, after it has been downloaded to your hard drive.
 - b. Follow the on-screen instructions to download your selection to the hard drive.

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

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

1. Type `file` in the taskbar search box, and then select **File Explorer**.
2. 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.

7 Backing up, restoring, and recovering

This chapter provides information about the following processes, which are standard procedure for most products:

- **Backing up your personal information**—You can use Windows tools to back up your personal information (see [Using Windows tools on page 47](#)).
- **Creating a restore point**—You can use Windows tools to create a restore point (see [Using Windows tools on page 47](#)).
- **Creating recovery media** (select products only)—You can use the HP Cloud Recovery Download Tool (select products only) to create recovery media (see [Using the HP Cloud Recovery Download Tool to create recovery media \(select products only\) on page 47](#)).
- **Restoring and recovery**—Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state (see [Using Windows tools on page 47](#)).



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

Using Windows tools



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

You can use Windows tools to back up personal information and create system restore points and recovery media.



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

For more information and steps, see the Get Help app.

1. Select the **Start** button, and then select the **Get Help** app.
2. Enter the task you want to perform.



NOTE: You must be connected to the Internet to access the Get Help app.

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.

To download the tool:

- ▲ Go to the Microsoft Store and search for HP Cloud Recovery.

For details, go to <http://www.hp.com/support>, search for HP Cloud Recovery, and then select "HP PCs – Using the Cloud Recovery Tool (Windows 10, 7)."



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.

Restoring and recovery

Restoring, resetting, and refreshing using Windows tools

Windows offers several options for restoring, resetting, and refreshing the computer. For details, see [Using Windows tools on page 47](#).

Recovering using HP Recovery media

HP Recovery media is used 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 47](#).



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.

Changing the computer boot order

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

To change the boot order:



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

1. Insert the HP Recovery media.
2. Access the system **Startup** menu.

For computers or tablets with keyboards attached:

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

For tablets without keyboards:

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

– or –

Turn on or restart the tablet, quickly hold down 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.

8 Using HP PC Hardware Diagnostics

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 in order 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 49](#).

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

1. To access HP PC Hardware Diagnostics Windows from HP Help and Support:

- a. Select the **Start** button, and then select **HP Help and Support**.
- b. Select **HP PC Hardware Diagnostics Windows**.

– or –

To access HP PC Hardware Diagnostics Windows from HP Support Assistant:

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

– or –

Select the question mark icon in the taskbar.

- b. Select **Troubleshooting and fixes**.
- c. Select **Diagnostics**, and then select **HP PC Hardware Diagnostics Windows**.

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



NOTE: If you need to stop a diagnostic test at any time, select **Cancel**.

When HP PC Hardware Diagnostics Windows detects a failure that requires hardware replacement, a 24-digit Failure ID code is generated. The screen displays one of the following options:

- A Failure ID link is displayed. Select the link and follow the on-screen instructions.
- A Quick Response (QR) code is displayed. With a mobile device, scan the code and then follow the on-screen instructions.
- Instructions for calling support are displayed. Follow those instructions.

Downloading HP PC Hardware Diagnostics Windows

- The HP PC Hardware Diagnostics Windows download 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

To download HP PC Hardware Diagnostics Windows, 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 a location on your computer or a USB flash drive.

The tool is downloaded to the selected location.

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



NOTE: For some products, it may be necessary to download the software to a USB flash drive by using the product name or number.

To download HP PC Hardware Diagnostics Windows by product name or number, follow these steps:

1. Go to <http://www.hp.com/support>.
2. Select **Get 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 is downloaded to the selected location.

Installing HP PC Hardware Diagnostics Windows

To install HP PC Hardware Diagnostics Windows, follow these steps:

- ▲ Navigate to the folder on your computer or the USB flash drive where the .exe file was downloaded, double-click the .exe file, and then follow the on-screen instructions.

Using HP PC Hardware Diagnostics UEFI



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 51](#).

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.


If your PC will not boot into Windows, you can use HP PC Hardware Diagnostics UEFI to diagnose hardware issues.

When HP PC Hardware Diagnostics Windows detects a failure that requires hardware replacement, a 24-digit Failure ID code is generated. For assistance in solving the problem:

- ▲ Select **Get Support**, and then use a mobile device to scan the QR code that displays on the next screen. The HP Customer Support - Service Center page displays, 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 these steps:

1. Turn on or restart the computer, and quickly press [esc](#).
2. Press [f2](#).

The BIOS searches three places for the diagnostic tools, in the following order:

- a. Connected USB 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 51](#).


- 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 the following situations:

- HP PC Hardware Diagnostics UEFI is not included in the preinstall 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 download instructions are provided in English only, and you must use a Windows computer to download and create the HP UEFI support environment because only .exe files are 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:

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)

 **NOTE:** For some products, it may be necessary to download the software to a USB flash drive by using the product name or number.

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

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 may 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



NOTE: HP Remote PC Hardware Diagnostics UEFI is also available as a Softpaq that can be downloaded to a server.

Downloading the latest Remote HP PC Hardware Diagnostics UEFI version

To download the latest Remote HP PC Hardware Diagnostics UEFI version, follow these steps:

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



NOTE: For some products, it may be necessary to download the software by using the product name or number.

To download HP Remote PC Hardware Diagnostics UEFI by product name or number, follow these steps:

1. Go to <http://www.hp.com/support>.
2. Select **Get 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 the following 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 disk 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 settings used 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.

9 Specifications

Computer specifications

Table 9-1 Computer specifications

	Metric	U.S.
Width	337 mm	13.27 in
Depth	225.5 mm	8.88 in
Height	18.659 mm	0.73 in
Weight	1457 g	3.17 lbs
Input power		
Operating voltage and current	19.5 V dc @ 2.31 A – 45 W	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 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.		

Display specifications

Table 9-2 Display specifications

	Metric	U.S.
Active diagonal size	35.6 cm	14.0 in
Resolution	1366 × 768 (HD) 1920 × 1080 (FHD)	
Width	3.0 mm	
Surface treatment	BrightView	
Brightness	220 nits (HD or FHD panel) 250 nits (FHD panel)	
Viewing angle	SVA (HD panel) UWVA (FHD panel)	
Backlight	WLED	

10 Power cord set requirements

The wide-range input feature of the computer permits it to operate from any line voltage from 100 to 120 V ac, or from 220 to 240 V ac.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries or regions must meet the requirements of the country and region where the computer is used.

Requirements for all countries

The following requirements are applicable to all countries and regions:

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

Requirements for specific countries and regions

Table 10-1 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
India	BIS	1
Israel	SII	1
Italy	IMQ	1
Japan	JIS	3
The Netherlands	KEMA	1
New Zealand	SANZ	1
Norway	NEMKO	1
The People's Republic of China	CCC	4
Saudi Arabia	SASO	7
Singapore	PSB	1
South Africa	SABS	1
South Korea	KTL	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	6
Thailand	TISI	1
The United Kingdom	ASTA	1
The United States	UL	2

1. The flexible cord must be Type H05VV-F, 3-conductor, 0.75 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

Table 10-1 Power cord requirements for specific countries and regions (continued)

Country/region	Accredited agency	Applicable note number
		2. The flexible cord must be Type SVT/SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V ac) or NEMA 6-15P (15 A, 250 V ac) configuration. CSA or C-UL mark. UL file number must be on each element.
		3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCTF, 3-conductor, 0.75 mm ² or 1.25 mm ² 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, 3-conductor, 0.75 mm ² 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 3-conductor, 0.75 mm ² conductor size. KTL logo and individual approval number must be on each element. Corset approval number and logo must be printed on a flag label.
		6. The flexible cord must be Type HVCTF 3-conductor, 1.25 mm ² conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark.
		7. For 127 V ac, the flexible cord must be Type SVT or SJT 3-conductor, 18 AWG, with plug NEMA 5-15P (15 A, 125 V ac), with UL and CSA or C-UL marks. For 240 V ac, the flexible cord must be Type H05VV-F 3-conductor, 0.75 mm ² or 1.00 mm ² conductor size, with plug BS 1363/A with BSI or ASTA marks.

11 Recycling

When a non-rechargeable or rechargeable battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal.

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, see the HP Web site at <http://www.hp.com/recycle>.

Index

A

- AC adapter and battery light, identifying 3
- AC adapter, spare part number 17
- action keys
 - identifying 9
- antenna
 - removal 40
 - spare part number 17, 41
- Antenna Kit, spare part number 17, 41
- audio, product description 1
- audio-out (headphone)/audio-in (microphone) combo jack, identifying 4

B

- backup, creating 47
- backups 47
- base enclosure, spare part number 14
- battery
 - removal 25
 - spare part number 14, 25
- battery cable
 - spare part number 14, 25
- BIOS
 - determining version 45
 - downloading an update 46
 - starting the Setup Utility 45
 - updating 45
- Bluetooth label 12
- boot order, changing 48
- bottom components 10
- bottom cover
 - removal 24
 - spare part number 24
- buttons
 - power 8

C

- camera
 - identifying 5
- camera light, identifying 5
- caps lock light, identifying 7

cautions

- electrostatic discharge 19

components

- bottom 10
- display 5
- keyboard area 6
- left side 4
- right side 3

computer

- major components 13
- specifications 54

connectors

- power 3

control zone 6

D

- display assembly
 - removal 36
 - spare part numbers 16
- display back cover, spare part number 17
- display bezel
 - removal 36
 - spare part number 16, 36
- display components 5
- Display Hinge Kit, spare part number 16, 39
- display panel
 - product description 1
 - removal 37
 - spare part number 16
- display panel cable
 - removal 39
 - spare part number 16, 40
- display specifications 55
- DVD±RW DL SuperMulti Drive, spare part number 17

E

- electrostatic discharge (ESD) 19
 - preventing damage 20
- esc key, identifying 9

F

- fn key, identifying 9

G

- graphics, product description 1
- grounding methods 21
- guidelines
 - packaging 22
 - transporting 22
 - workstation 19

H

- HDMI port
 - identifying 4
- HDMI-to-VGA adapter, spare part number 17
- heat sink
 - removal 30
 - spare part number 14, 30
- hinge
 - removal 38
 - spare part number 16, 39
- HP PC Hardware Diagnostics UEFI
 - downloading 51
 - starting 51
 - using 50
- HP PC Hardware Diagnostics Windows
 - downloading 49
 - installing 50
 - using 49
- HP Recovery media
 - recovery 48

I

- internal microphones, identifying 5

J

- jacks
 - audio-out (headphone)/audio-in (microphone) 4

K

- keyboard/top cover
 - removal 44
 - spare part numbers 14, 44
- keys
 - action 9
 - esc 9

- fn 9
- Windows 9
- L**
- labels
 - Bluetooth 12
 - regulatory 12
 - serial number 11
 - service 11
 - wireless certification 12
 - WLAN 12
- left control zone, identifying 6
- left side components 4
- lights
 - AC adapter and battery 3
 - camera 5
 - caps lock 7
 - mute 7
 - power 4
- M**
- media card reader, product description 2
- memory module removing 26
- memory, product description 1
- microphone
 - product description 1
- model name 1
- mute light, identifying 7
- O**
- operating system, product description 2
- optical drive
 - product description 1
 - spare part number 17
- P**
- packaging guidelines 22
- ports
 - HDMI 4
 - product description 2
 - USB 4
 - USB SuperSpeed 4
- power button board
 - removal 42
 - spare part number 14, 42
- power button board cable
 - spare part number 14, 42
- power button, identifying 8

- power connector
 - identifying 3
- power connector cable
 - removal 43
 - spare part number 14, 43
- power cord
 - requirements for all countries 56
 - requirements for specific countries and regions 57
 - set requirements 56
- power lights, identifying 4
- power requirements, product description 2
- processor, product description 1
- product description
 - audio 1
 - display panel 1
 - graphics 1
 - media card reader 2
 - memory 1
 - microphone 1
 - operating system 2
 - optical drive 1
 - ports 2
 - power requirements 2
 - processors 1
 - product name 1
 - security 2
 - serviceability 2
 - storage 1
 - webcam 1
 - wireless 1
- product name 1
- product name and number, computer 11
- R**
- raw display panel
 - spare part number 38
- recovery 47
 - discs 48
 - HP Recovery partition 48
 - media 48
 - USB flash drive 48
- recovery media
 - creating using HP Cloud Recovery Download Tool 47
 - creating using Windows tools 47

- regulatory information
 - regulatory label 12
 - wireless certification labels 12
- Remote HP PC Hardware Diagnostics
- UEFI settings
 - customizing 52
 - using 52
- removal/replacement
 - procedures 23
- restoring 47
- right control zone, identifying 6
- right side components 3
- RTC battery
 - removing 29
 - spare part number 14
- Rubber Kit, spare part number 15, 17
- S**
- Screw Kit, spare part number 17
- security cable slot, identifying 4
- security, product description 2
- serial number, computer 11
- service labels, locating 11
- serviceability, product description 2
- slots
 - memory card reader 4
 - security cable 4
- speakers
 - identifying 10
 - removal 32
 - spare part number 14, 32
- special keys, using 9
- specifications
 - display 55
- static electricity 20
- storage
 - product description 1
- system board
 - removal 33
 - spare part numbers 33
- system restore point, creating 47
- T**
- touchpad
 - removal 35
 - spare part number 14, 35
- touchpad cable
 - spare part number 14, 35
- touchpad zone, identifying 6

transporting guidelines 22
traveling with the computer 12

U

USB port, identifying 4
USB SuperSpeed port, identifying 4

V

vents, identifying 10

W

webcam

product description 1

webcam/microphone module

removal 37

spare part number 16, 37

Windows

backup 47

recovery media 47

system restore point 47

Windows key, identifying 9

Windows tools, using 47

wireless antenna

removal 40

spare part number 17, 41

wireless certification label 12

wireless, product description 1

WLAN antennas, identifying 5

WLAN device 12

WLAN label 12

WLAN module

removal 27

spare part numbers 14, 27

workstation guidelines 19