



HP Chromebook PC

Maintenance and Service Guide
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HP authorized service providers only.

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First Edition: May 2018

Document Part Number: L15921-001

Product notice

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

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

Safety warning notice


 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap or obstruct the device air vents. Use the device only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The device and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950-1).

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1 Product description




| Category | Description |
|-----------------------------|---|
| Product Name | HP Chromebook PC Models: XXXX |
| Processors | Intel® Core™ i5-7Y54 (1.0 GHz, turbo to 3.2 GHz), 8 GB 1866 MHz L3, Dual, HDCP Intel M3-7Y30 (1.0 GHz), 4/8 GB 1866 MHz L3, Dual, HDCP Intel Pentium™ 4415Y |
| Graphics | Internal graphics: Intel HD Graphics 615 |
| Panel | 12.3 in BrightView Ultra Wide Aspect Ratio, WLED (2400 × 1600) ultraslim Supports eDP 1.3+PSR |
| Memory | LPDDR3 1866 MHz Supports up to 64 GB max system memory in the following configurations: <ul style="list-style-type: none">• 65536 MB (32768 MB × 2)• 49152 MB (32768 MB × 1 + 16384 MB × 1)• 16384 MB (16384 MB × 1) |
| eMMC | For models equipped with the i5-7Y54 processor: 65536 MB For models equipped with an M3-7Y30 processor: 65536 MB 32786 MB For models equipped with an Pentium 4415Y processor: 32786 MB |
| Audio and video | B&O Play dual speakers Cameras: <ul style="list-style-type: none">• Rear: MIPI-RAW 13 MP• Front: MIPI-RAW 5 MP |
| Wireless | Intel Stone Peak 2 D1 7265 ac 2×2 + Bluetooth 4.2 M.2 non-vPro PCI-e WW with dual antenna |
| External media cards | HP Multi-Format Digital Media Card Reader Supports SD/SDHC/SDXC Push-Push insertion/removal |
| Ports | HDMI v1.4 |

| Category | Description |
|----------------------------------|--|
| | Audio-out (headphone)/Audio-in (microphone) combo jack |
| | USB Type-C power connector and charging port |
| | USB Type-C port |
| | USB 3.x ports (2) |
| Keyboard/pointing devices | Oxford Blue Island Style Keyboard Textured Touchpad Backlit Standard Notebook Keyboard |
| | Oxford Blue Island Style Keyboard Textured Touchpad Standard Notebook Keyboard |
| Power requirements | 4 Cell WHr 48 Long Life -PL Fast Charge battery |
| | 45 W nPFC USB Type-C AC adapter |
| Security | TPM 2.0 |
| | Security lock slot |
| Operating system | ChromeOS (64-bit) |
| Serviceability | End user replaceable parts: |
| | AC adapter |
| | Digital pen |

2 External component identification




Right side



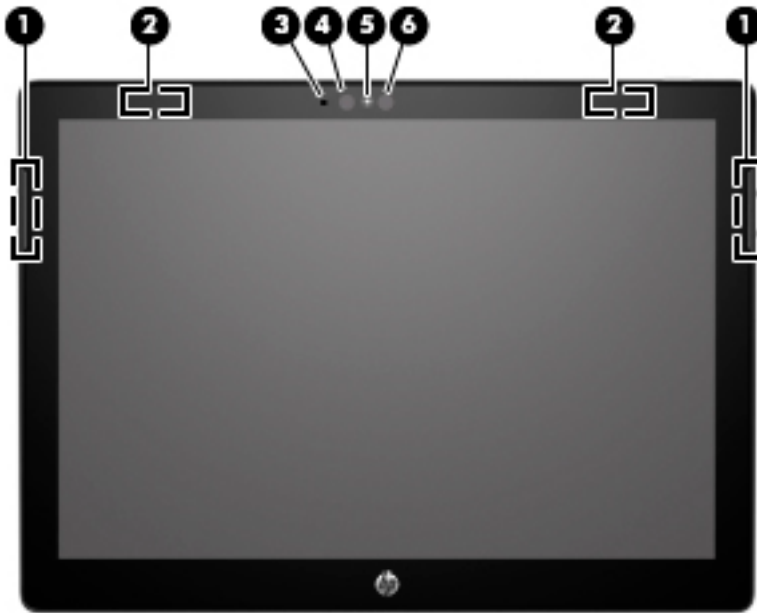
| Component | Description |
|---|---|
| (1)  | <p>USB Type-C power connector and charging port</p> <p>Connects an AC adapter that has a USB Type-C connector, supplying power to the computer and, if needed, charging the computer battery.</p> <p>– and –</p> <p>Connects a USB device that has a Type-C connector, such as a cell phone, camera, activity tracker, or smartwatch, and provides high-speed data transfer.</p> |
| (2)  | <p>AC adapter and battery light</p> <ul style="list-style-type: none">• White: The AC adapter is connected and the battery is charged.• Amber: The AC adapter is connected and the battery is charging.• Off: The computer is using battery power. |
| (3) | <p>Volume button</p> <p>Controls speaker volume on the tablet.</p> |
| (4)  | <p>Audio-out (headphone)/Audio-in (microphone) combo jack</p> <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, refer to the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>This guide is provided in the box.</p> <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> |

Left side



| Component | Description |
|---|---|
| (1)  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">▲ Pull out the card. |
| (2)  AC adapter and battery light | <ul style="list-style-type: none">• White: The AC adapter is connected and the battery is charged.• Amber: The AC adapter is connected and the battery is charging.• Off: The computer is using battery power. |
| (3)  USB Type-C power connector and port | <p>Connects an AC adapter that has a USB Type-C connector, supplying power to the computer and, if needed, charging the computer battery.</p> <p>– and –</p> <p>Connects a USB device that has a Type-C connector, such as a cell phone, camera, activity tracker, or smartwatch, and provides high-speed data transfer.</p> |

Display



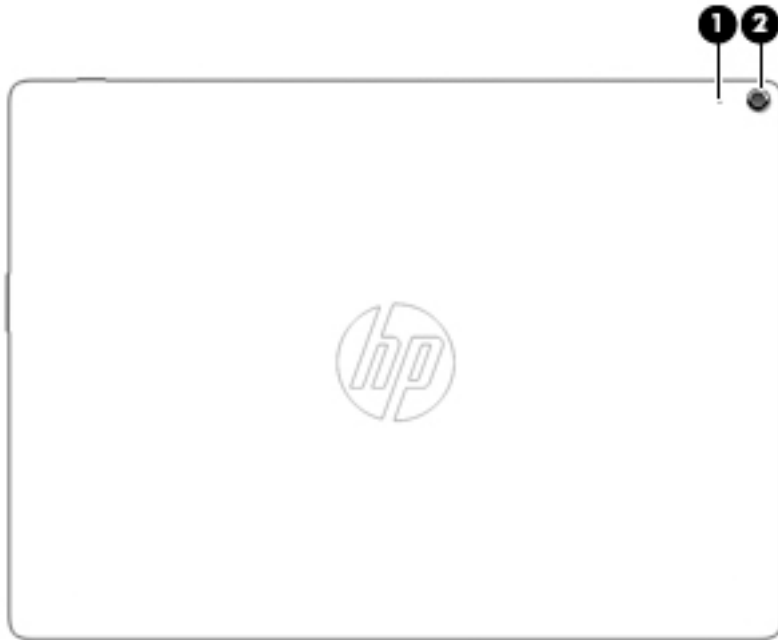
| Component | Description |
|---|--|
| (1) Speakers (2) | Produce sound. |
| (2) WLAN antennas* | Send and receive wireless signals to communicate with wireless local area networks (WLANs). |
| (3) Internal microphone | Records sound. |
| (4) Ambient light sensor (select products only) | Automatically adjusts the display brightness based on the lighting conditions in your environment. |
| (5) Camera light | On: The camera is in use. |
| (6) Camera | Allows you to video chat, record video, and record still images. |

*The antennas are not visible from the outside of the computer, and antenna location varies. 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.

This guide is provided in the box.


Rear display



| Component | | Description |
|-----------|--------------------------|--|
| (1) | Rear internal microphone | Records sound. |
| (2) | Rear camera | Allows you to video chat, record video, and record still images. |

Top edge



| 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 in the Sleep state, press the button briefly to exit Sleep.• When the computer is on and you want to lock the screen, press the button until you see the sign-in screen appear. Pressing the power button during screen-lock mode turns off the computer.• When the computer is on and you want to turn it off, press and hold the button to lock the screen, and then continue to press the button until the computer turns off. |


Bottom edge



| Component | Description |
|-------------------------|---|
| (1) Alignment posts (2) | Guide the keyboard to the correct connection with the tablet. |
| (2) Docking port | Connects the tablet to the keyboard base. |

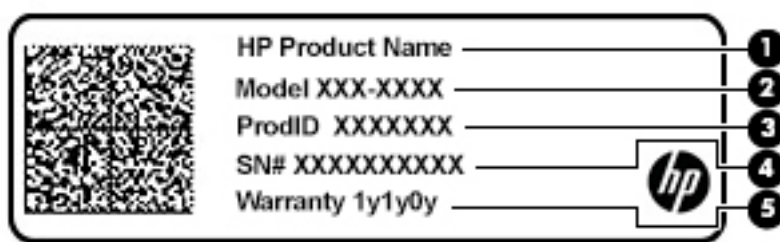
Labels

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.

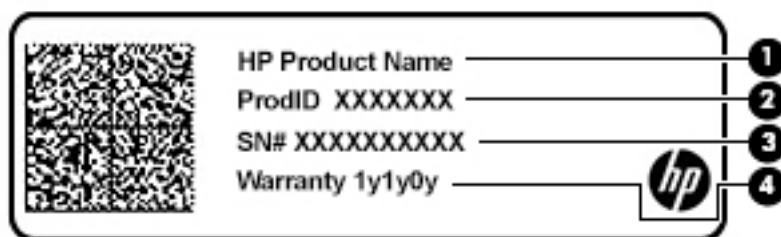
- Service label—Provides important information to identify your computer. When contacting support, you may be asked for the serial number, the product number, or the model number. Locate this information before you contact support.

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



Component

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



Component

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

Component

(3) Serial number

(4) Warranty period

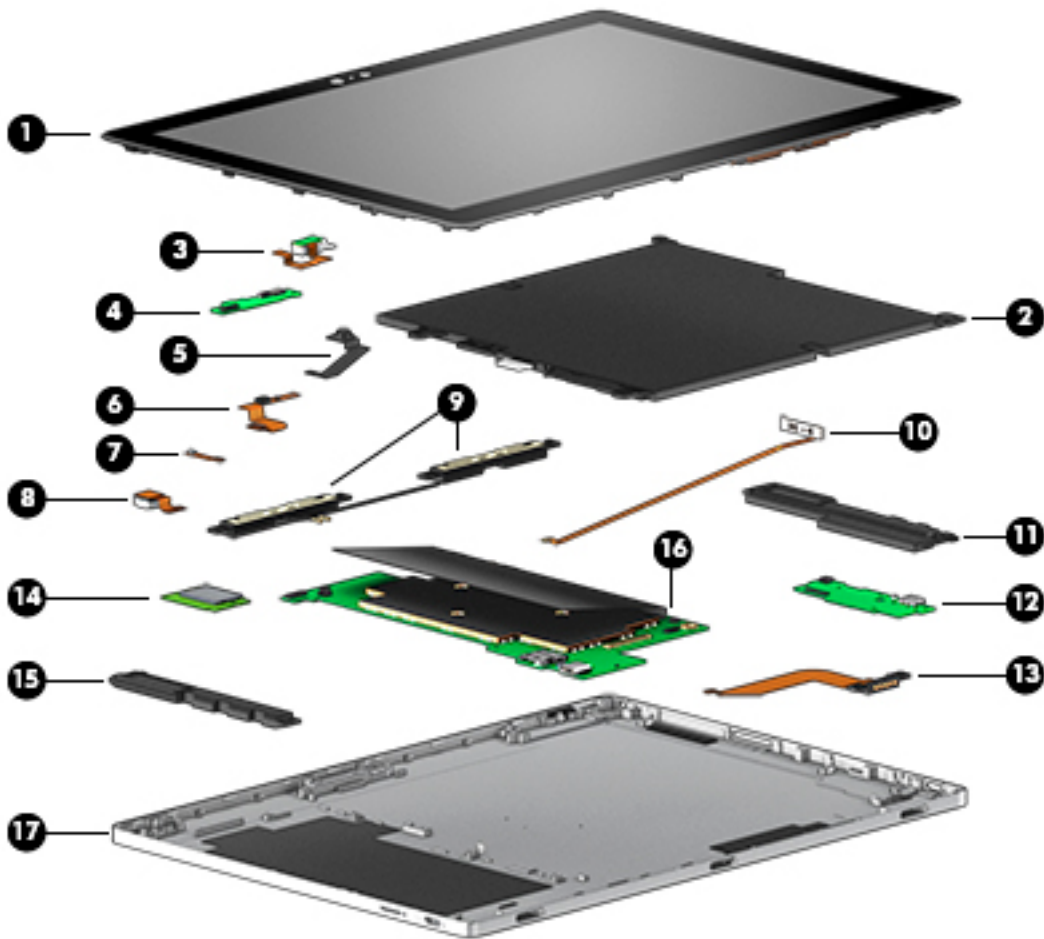
- Regulatory label(s)—Provide(s) regulatory information about the computer.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

3 Illustrated parts catalog

Computer major components

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 9](#) for details.



| Item | Component | Spare part number |
|------|--|-------------------------|
| (1) | Display | L17082-001 |
| (2) | Battery, 4-cell, 48 WHr 3.2 AH Li-ion | 941617-855 |
| (3) | Audio board (includes cable) | L17078-001 |
| (4) | Power button board (cable spared separately as L17066-001) | not spared individually |

| Item | Component | Spare part number |
|-------------|---|--------------------------|
| (5) | Front webcam (includes webcam cable) | not spared |
| (6) | Front microphone (includes cable) | L17075-001 |
| (7) | Rear microphone (includes cable) | L17077-001 |
| (8) | Rear camera | L17083-001 |
| (9) | Wireless antennas | L17064-001 |
| (10) | Volume button board (includes cable) | L17080-001 |
| (11) | Right speaker | L17086-001 |
| (12) | USB board (cable spared separately as L17067-001) | L17076-001 |
| (13) | POGO board (includes cable) | L17081-001 |
| (14) | WLAN , Intel Stone Peak 2 D1 7265 ac 2x2 + Bluetooth 4.2 M.2 non-vPro PCI-e WW with dual antenna | 901229-855 |
| (15) | Left speaker | L17085-001 |
| (16) | System board | |
| | i5-7Y54 (1.0 GHz, turbo to 3.2 GHz), 8 GB 1866 MHz L3, Dual, HDCP Includes 65536 MB eMMC SSD | L32397-001 |
| | M3-7Y30 (1.0 GHz), 8 GB 1866 MHz L3, Dual, HDCP Includes 65536 MB eMMC SSD | L20788-001 |
| | M3-7Y30 (1.0 GHz), 8 GB 1866 MHz L3, Dual, HDCP Includes 32786 MB eMMC SSD | L20787-001 |
| | M3-7Y30 (1.0 GHz), 4 GB 1866 MHz L3, Dual, HDCP Includes 32786 MB eMMC SSD | L17088-001 |
| | Pentium 4415Y Includes 32786 MB eMMC SSD | L17087-001 |
| (17) | Keyboard base | |
| | with backlight, for use in the United Kingdom | L17090-031 |
| | with backlight, for use in the United States | L17090-001 |
| | without backlight, for use in the United Kingdom | L20170-031 |
| | without backlight, for use in the United States | L20170-001 |

Miscellaneous parts

| Component | Spare part number |
|---------------------------------|--------------------------|
| AC adapter | 934739-850 |
| Digital pen | L23054-001 |
| Power cord (black, 1 m): | |
| For use in North America | 920688-001 |
| For use in the United Kingdom | 920688-006 |
| Screw kit | L17089-001 |

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
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers

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



CAUTION: Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic

Cables and connectors

 **CAUTION:** 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.

Grounding guidelines

Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

⚠ CAUTION: To prevent damage to the computer when you are removing or installing internal components, observe these precautions:

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

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

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

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

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

⚠ CAUTION: A product can be degraded by as little as 700 V.

| Typical electrostatic voltage levels | | | |
|--------------------------------------|-------------------|----------|---------|
| Event | Relative humidity | | |
| | 10% | 40% | 55% |
| Walking across carpet | 35,000 V | 15,000 V | 7,500 V |
| Walking across vinyl floor | 12,000 V | 5,000 V | 3,000 V |
| Motions of bench worker | 6,000 V | 800 V | 400 V |
| Removing DIPS from plastic tube | 2,000 V | 700 V | 400 V |
| Removing DIPS from vinyl tray | 11,500 V | 4,000 V | 2,000 V |
| Removing DIPS from plastic foam | 14,500 V | 5,000 V | 3,500 V |
| Removing bubble pack from PCB | 26,500 V | 20,000 V | 7,000 V |
| Packing PCBs in foam-lined box | 21,000 V | 11,000 V | 5,000 V |

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, 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 plastic foam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm $\pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive equipment must be worn in contact with the skin.


The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

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


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

5 Removal and replacement procedures for authorized service provider parts

 **CAUTION:** 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.

CAUTION: This computer does not have user-replaceable parts. Only HP authorized service providers should perform the removal and replacement procedures described here. Accessing the internal part could damage the computer or void the warranty.


Component replacement 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. See [Labels on page 9](#) for details.


 **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 48 screws that must be removed, replaced, and/or loosened when servicing the parts described in this chapter. Make special note of each screw size and location during removal and replacement..

Display panel assembly

 **NOTE:** The display panel spare part kit includes the touchscreen control board, but does not include the touchscreen control board cable or display cable.

| Description | Spare part number |
|--|-------------------|
| Display panel, 12.3 in BrightView Ultra Wide Aspect Ratio, WLED (2400 × 1600) ultraslim, eDP 1.3 + PSR | L17082-001 |
| Display cable | L17069-001 |
| Touchscreen control board cable | L17068-001 |


 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

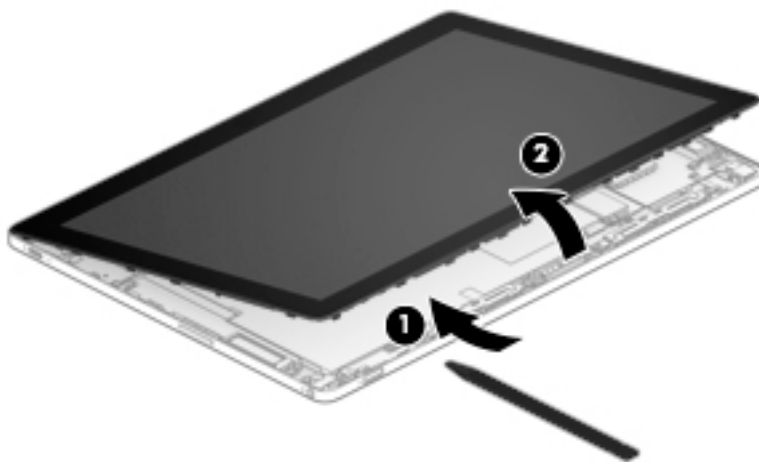
Before removing the display panel, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

Remove the display panel:

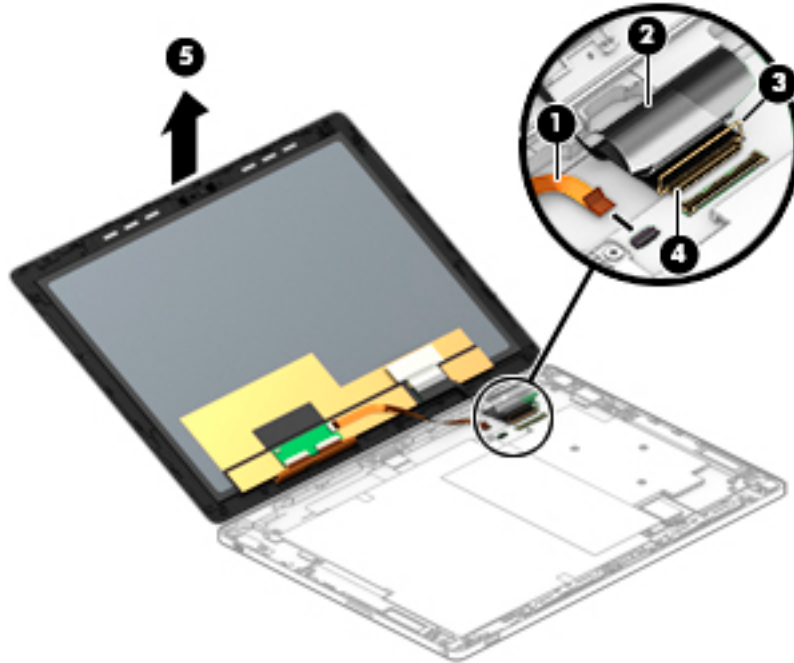
1. Insert a case insertion tool between the base enclosure and the slate screen **(1)**.
2. Lift the display panel up and to the rear **(2)**.

 **CAUTION:** Use care when rotating the display panel to avoid damaging the touch panel control board and display panel cables.



3. Release the touchscreen control board cable **(1)** from the zero-insertion force connector attached to the base enclosure.
4. Remove the adhesive cover **(2)** from the display panel cable **(3)**.
5. Release the display panel cable from the ZIF connector on the base enclosure **(4)**.


6. Lift the display away from the base enclosure (5).



Reverse this procedure to install the display panel assembly.

Touchscreen control board

 **NOTE:** The touchscreen control board is not spared separately.

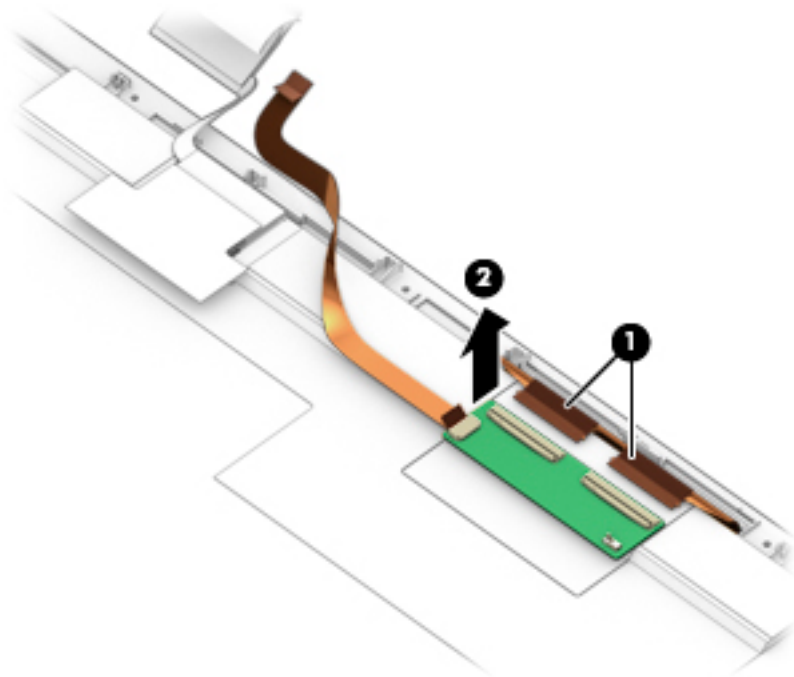
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the touchscreen control board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel assembly (see [Display panel assembly on page 20](#)).

Remove the touchscreen control board:


1. Release the touchscreen control board cables from the ZIF connectors on the display panel **(1)**.
2. Remove the touchscreen control board **(2)**.



Reverse this procedure to install the touchscreen control board.

Display panel cable

 **NOTE:** The display panel cable is not spared separately.

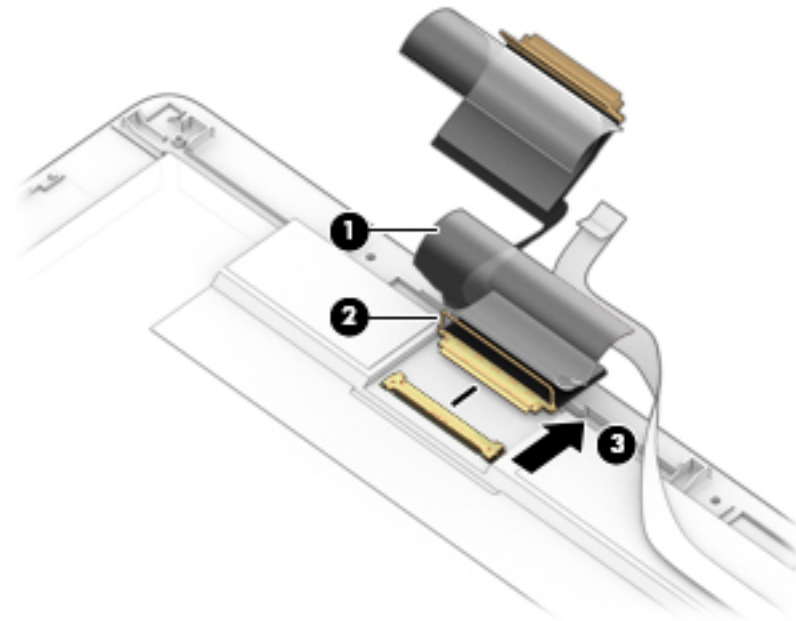
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the display panel cable, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel assembly (see [Display panel assembly on page 20](#)).

Remove the display panel cable:


1. Remove the adhesive cover from the display panel cable **(1)**.
2. Raise the retaining clip to release the display panel cable **(2)**.
3. Remove the display panel cable **(3)**.



Reverse this procedure to install the display panel cable.

Battery

| Description | Spare part number |
|--|-------------------|
| Battery (4-cell, 48 WHr, 3.2 AH, Li-ion) | 941617-855 |


 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the battery, follow these steps:

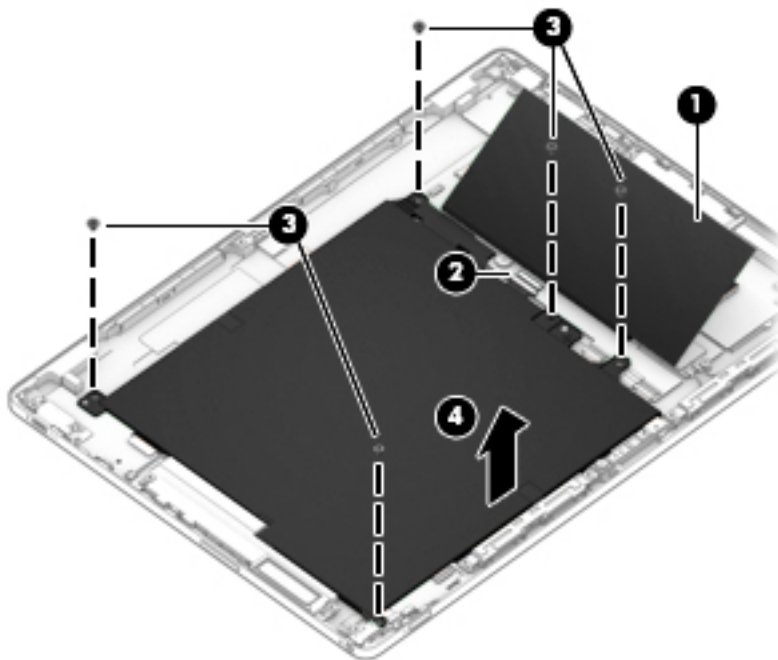
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)).

Remove the battery:

1. Release the adhesive cover from the battery **(1)**.

 **CAUTION:** To avoid damaging the system board, remove the adhesive cover only from the battery.

2. Release the battery cable from the system board **(2)**.
3. Remove the five Phillips M2.0 × 3.0 screws **(3)** that secure the battery to the base enclosure.
4. Remove the battery from the base enclosure **(4)**.




Reverse this procedure to install the battery.

Audio board

 **NOTE:** The audio board spare part kit includes the audio board cable and power button board.

| Description | Spare part number |
|-------------|-------------------|
| Audio board | L17078-001 |

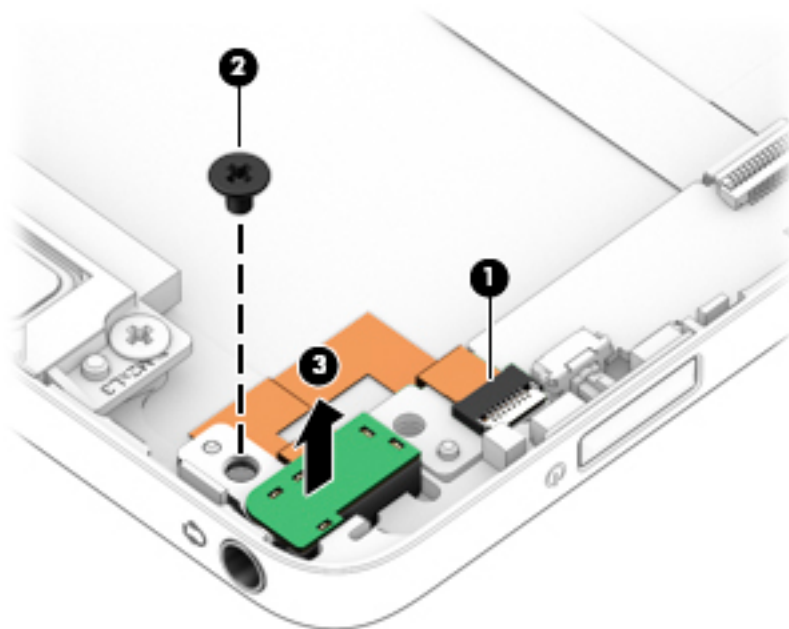
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the audio board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following components:
 - ▲ Battery (see [Battery on page 24](#)).


Remove the audio board:

1. Release the audio board cable from the ZIF connector that secures it to the base enclosure **(1)**.
2. Remove the Phillips M2.0 × 3.0 screw **(2)** that secures the audio board to the base enclosure.
3. Remove the audio board from the base enclosure **(3)**.




Reverse this procedure to install the audio board.

Power button board

 **NOTE:** The power button board is included with the audio board (spare part number L17078-001). The power button board cable is spared separately.

| Description | Spare part number |
|--------------------------|-------------------|
| Power button board cable | L17066-001 |

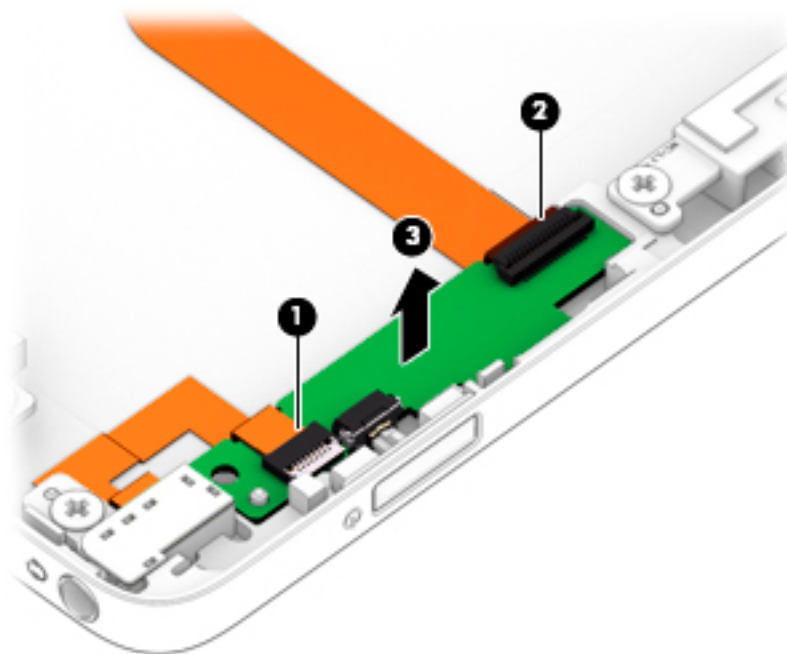
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the power button board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following component:
 - ▲ Battery (see [Battery on page 24](#)).

Remove the power button board:


1. Release the audio board cable from the ZIF connector **(1)** that secures it to the power button board.
2. Release the power button board cable from the ZIF connector **(2)** that secures it to the power button board.
3. Remove the power button board **(3)**.



Reverse this procedure to install the power button board.

Right speaker

| Description | Spare part number |
|----------------|-------------------|
| speaker, right | xxxxxx-001 |

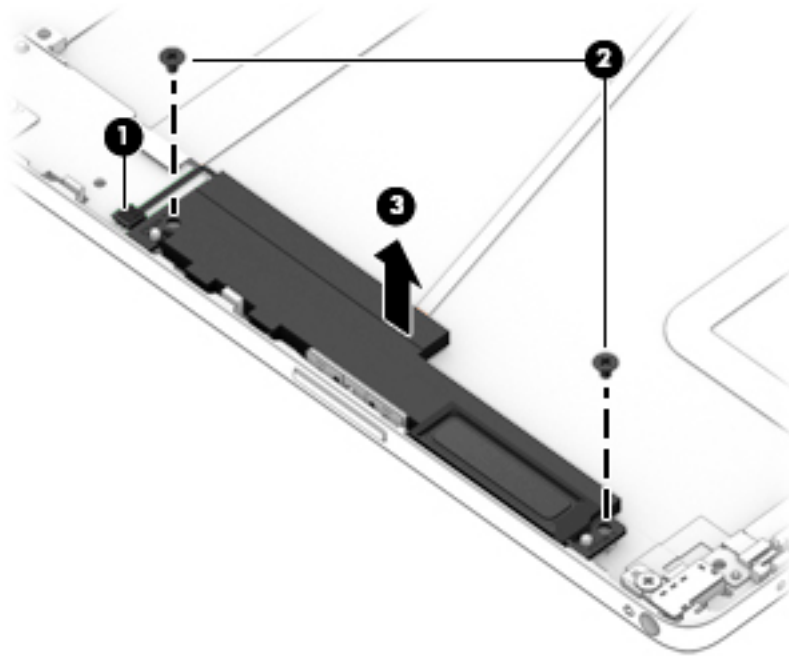
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the right speaker, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following components:
 - ▲ Battery (see [Battery on page 24](#)).

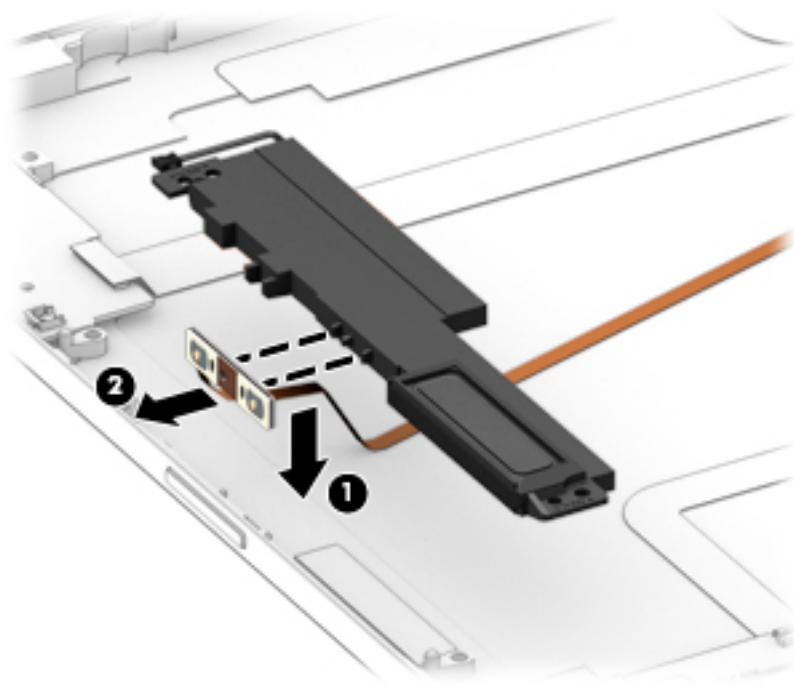
Remove the right speaker:

1. Release the speaker cable from the USB board (1).
2. Remove the two Phillips M2.0 × 3.0 screws (2) that secure the speaker to the base enclosure.
3. Remove the speaker(3).



4. Detach and replace the volume button board and volume button board cable from the right speaker (1) before completely removing the speaker from the computer.

5. Replace the volume button board in the side of the base enclosure **(2)**.




Reverse this procedure to install the right speaker.

Volume button board

 **NOTE:** The volume button board spare part kit includes the volume button board cable.

| Description | Spare part number |
|-----------------------------|-------------------|
| Volume button board | L17080-001 |
| Volume button board bracket | L17072-001 |

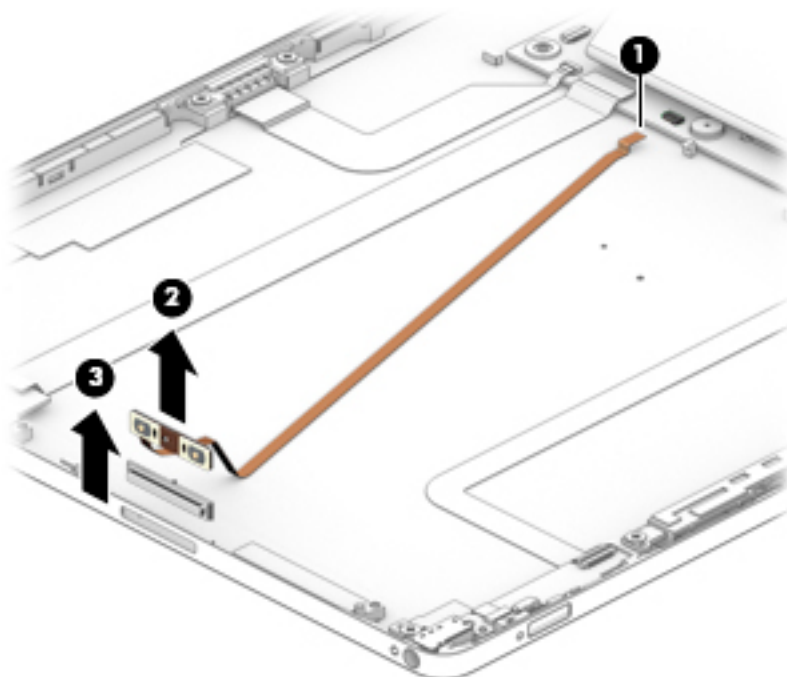
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the volume button board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following components:
 - a. Battery (see [Battery on page 24](#)).
 - b. Right speaker (see [Right speaker on page 27](#)).

Remove the volume button board:

1. Release the volume button board cable from the ZIF connector on the system board **(1)**.
2. Remove the volume button board from the base enclosure **(2)**.
3. Remove the volume button board bracket **(3)**.



Reverse this procedure to install the volume button board.

USB board



NOTE: The USB board spare part kit does not include the USB board cable.

| Description | Spare part number |
|-------------------|-------------------|
| USB board | L17076-001 |
| USB board bracket | L17073-001 |
| USB board cable | L17067-001 |



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

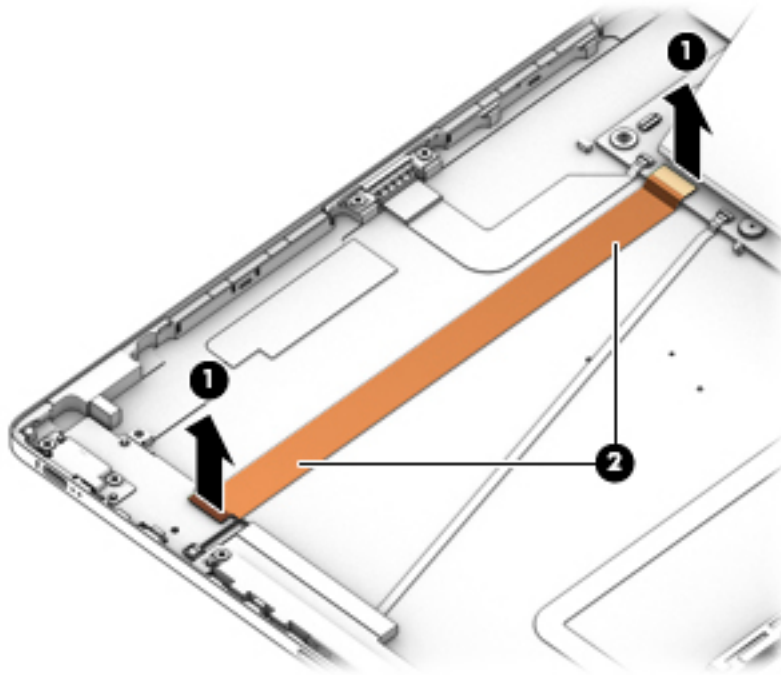
Before removing the USB board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following component:
 - ▲ Battery (see [Battery on page 24](#)).

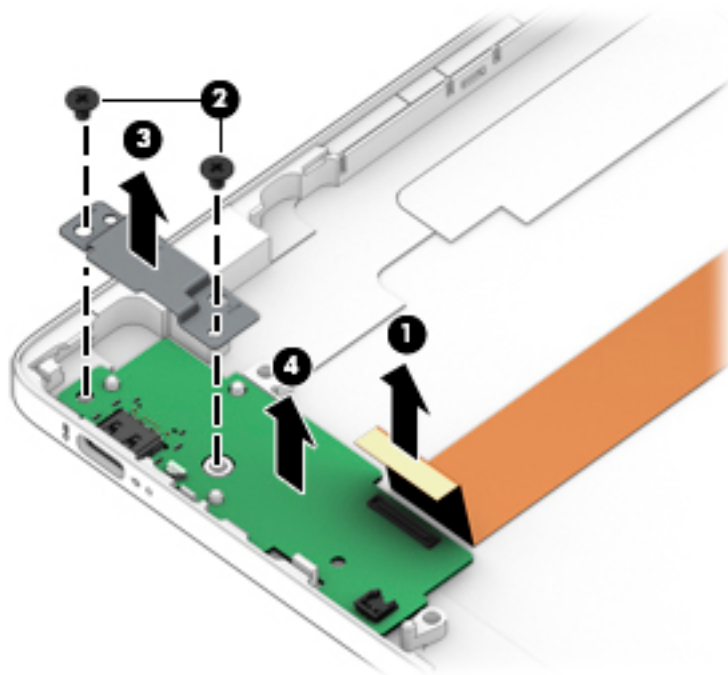
Remove the USB board:

1. Release the ZIF connector from the system board and USB board **(1)**.

2. Remove the USB board cable from the base enclosure **(2)**.



3. Release the ZIF connector from the USB board **(1)**.
4. Remove the two Phillips M2.0 × 3.0 screws **(2)** that secure USB board bracket to the USB board.
5. Release the ZIF connector from the system board and USB board **(3)**.
6. Remove the USB board cable from the base enclosure **(4)**.




Reverse this procedure to install the USB board.

POGO board

 **NOTE:** The POGO board spare part kit includes the POGO board cable.

| Description | Spare part number |
|-------------|-------------------|
| POGO board | L17081-001 |

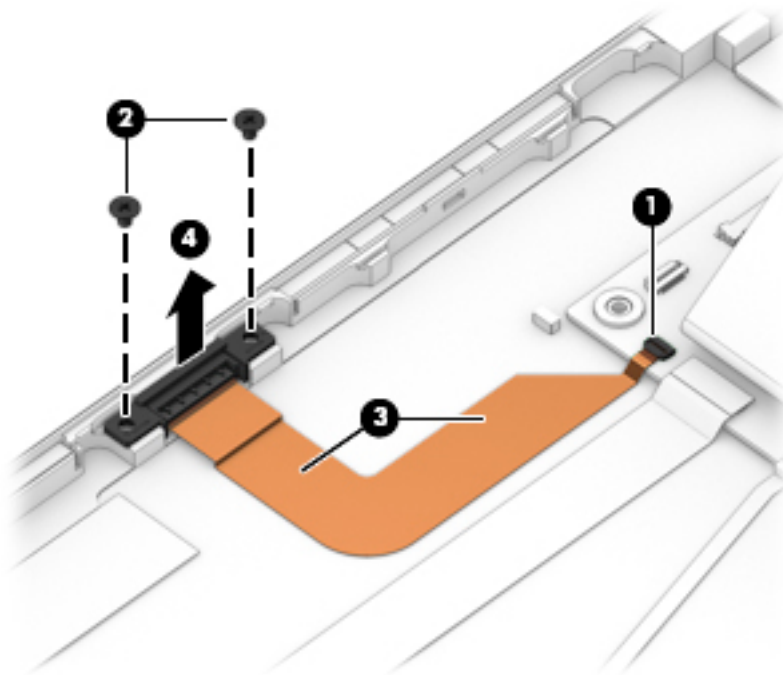
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement..

Before removing the POGO board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following component:
 - ▲ Battery (see [Battery on page 24](#)).

Remove the POGO board:

1. Release the POGO board cable from the ZIF connector on the system board **(1)**.
2. Remove the two Phillips M2.0 × 3.0 screws **(2)** that secure the POGO board to the base enclosure.
3. Remove the POGO board cable from the base enclosure **(3)**.
4. Remove the POGO board from the base enclosure **(4)**.




Reverse this procedure to install the POGO board.

Front webcam

 **NOTE:** The front webcam spare part kit includes the webcam cable.

| Description | Spare part number |
|--------------|-------------------|
| Front webcam | xxxxxx-001 |

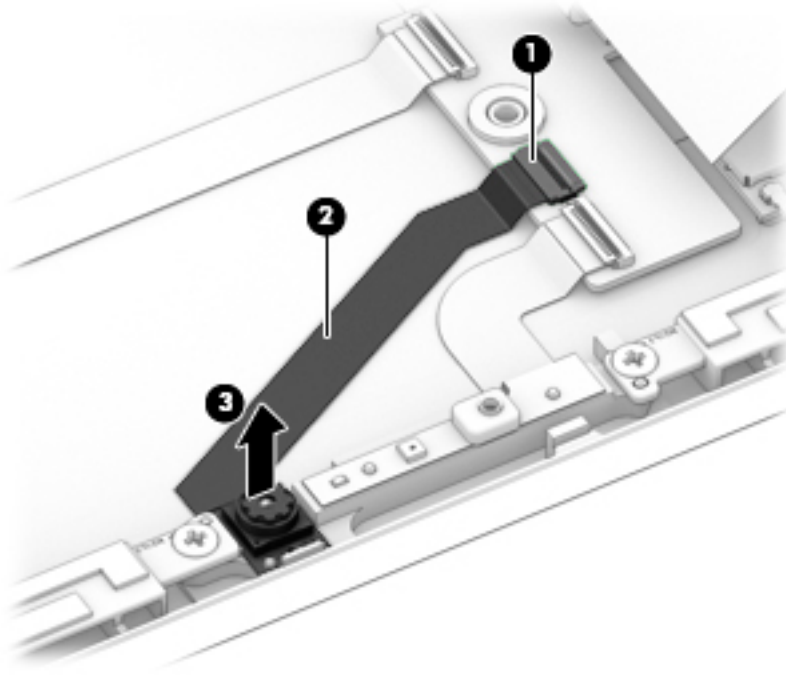
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement..

Before removing the front webcam, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following component:
 - ▲ Battery (see [Battery on page 24](#)).

Remove the front webcam:

1. Release the front webcam cable from the ZIF connector attaching it to the system board **(1)**.
2. Remove the front webcam cable from the base enclosure **(2)**.
3. Remove the front webcam from the base enclosure **(3)**.




Reverse this procedure to install the front webcam.

Front microphone module

 **NOTE:** The front microphone module spare part kit includes the microphone cable.

| Description | Spare part number |
|-------------------------|-------------------|
| Front microphone module | L17077-001 |

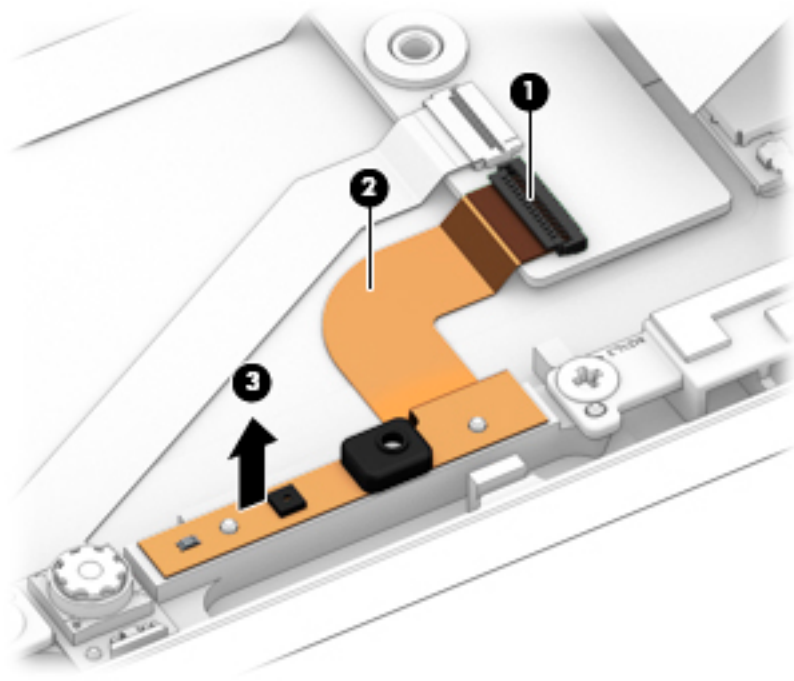
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the front microphone module, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following components:
 - ▲ Battery (see [Battery on page 24](#)).

Remove the front microphone module:


1. Release the microphone cable from the ZIF connector on the system board **(1)**.
2. Release the front microphone cable from the adhesive that secures it to the base enclosure **(2)**.
3. Remove the front microphone module from the base enclosure **(3)**.



Reverse this procedure to install the front microphone.

WLAN antenna

| Description | Spare part number |
|--------------------------|-------------------|
| WLAN dual antenna module | L17064-001 |

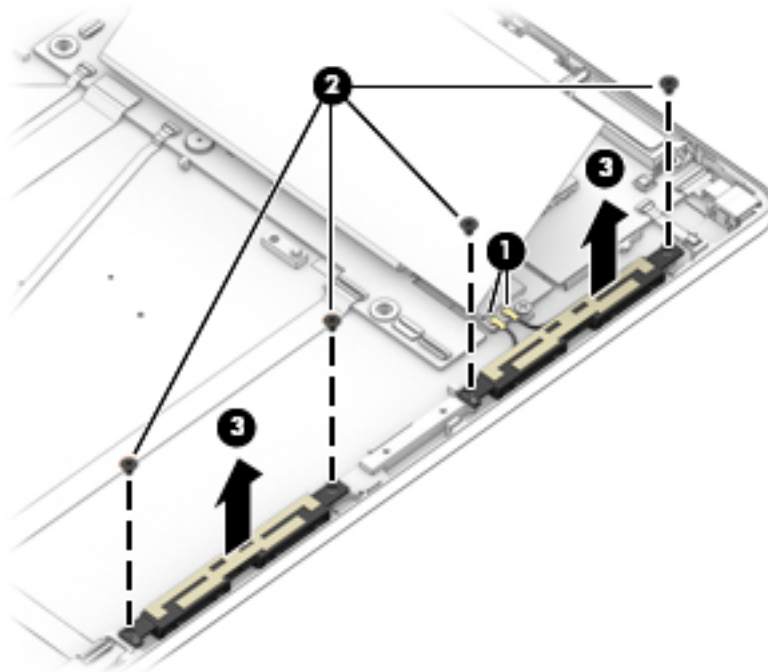
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the WLAN antenna module, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following components:
 - ▲ Battery (see [Battery on page 24](#)).

Remove the WLAN antenna module:


1. Disconnect the WLAN antenna cables (1) from the terminals on the WLAN module.
2. Remove the four Phillips M2.0 × 3.0 screw (2) that secure the antennas to the base enclosure.
3. Remove the antennas from the base enclosure (3).



Reverse this procedure to install the WLAN antenna module.

Rear microphone module

| Description | Spare part number |
|------------------------|-------------------|
| Rear microphone module | xxxxxx-001 |

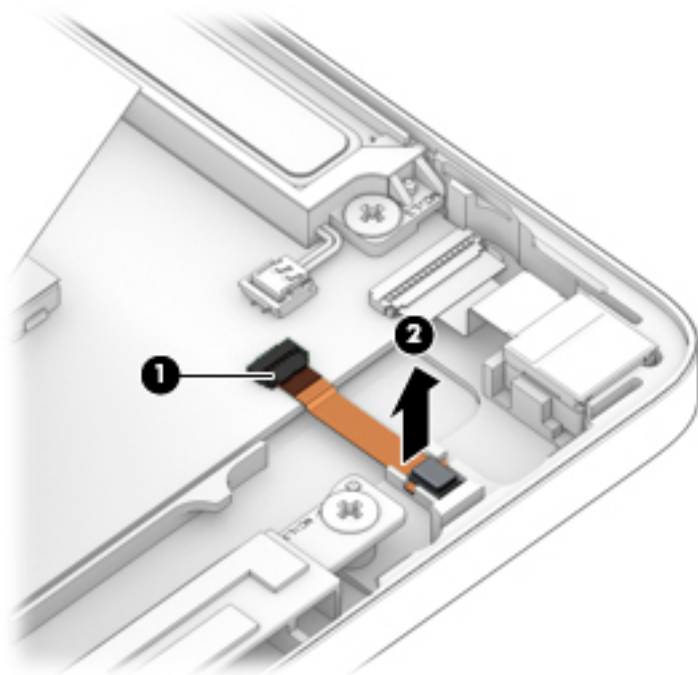
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the rear microphone module, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following component:
 - ▲ Battery (see [Battery on page 24](#)).

Remove the rear microphone module:


1. Release the microphone cable from the ZIF connector on the system board **(1)**.
2. Remove the rear microphone module from the base enclosure **(2)**.



Reverse this procedure to install the rear microphone module.

Rear webcam

| Description | Spare part number |
|-------------|-------------------|
| Rear webcam | L17083-001 |

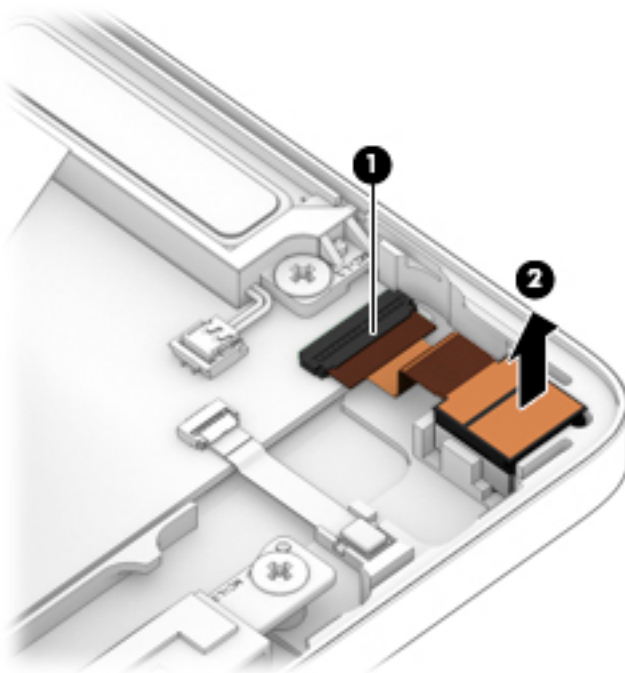
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the rear webcam, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following components:
 - ▲ Battery (see [Battery on page 24](#)).

Remove the rear webcam:

1. Release the rear webcam cable from the ZIF connector on the system board (1).
2. Remove the rear webcam from the base enclosure (2).




Reverse this procedure to install the rear webcam.

Left speaker

 **NOTE:** The left speaker spare part kit includes xxxxxx

| Description | Spare part number |
|--------------|-------------------|
| Left speaker | L17085-001 |

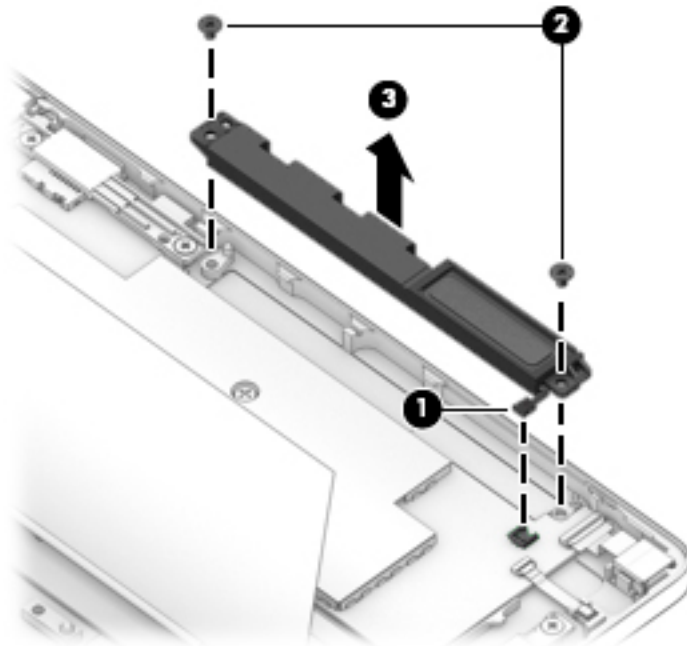
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the left speaker, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following components:
 - ▲ Battery (see [Battery on page 24](#)).


Remove the left speaker:

1. Disconnect the speaker cable from the system board **(1)**.
2. Remove the two Phillips M2.0 × 3.0 screws **(2)** that secure the speaker to the base enclosure.
3. Remove the speaker from the base enclosure **(3)**.




Reverse this procedure to install the left speaker.

System board

 **NOTE:** The system board spare part kit includes a solid state drive, thermal material, heatsink, and adhesive cover for the system board and battery.

| Description | Spare part number |
|--|-------------------|
| i5-7Y54 (1.0 GHz, turbo to 3.2 GHz), 8 GB 1866 MHz L3, Dual, HDCP (includes 65536 MB eMMC SSD) | L32397-001 |
| M3-7Y30 (1.0 GHz), 8 GB 1866 MHz L3, Dual, HDCP (includes 65536 MB eMMC SSD) | L20788-001 |
| M3-7Y30 (1.0 GHz), 8 GB 1866 MHz L3, Dual, HDCP (includes 32786 MB eMMC SSD) | L20787-001 |
| M3-7Y30 (1.0 GHz), 4 GB 1866 MHz L3, Dual, HDCP (includes 32786 MB eMMC SSD) | L17088-001 |
| Pentium 4415Y (includes 32786 MB eMMC SSD) | L17087-001 |

 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

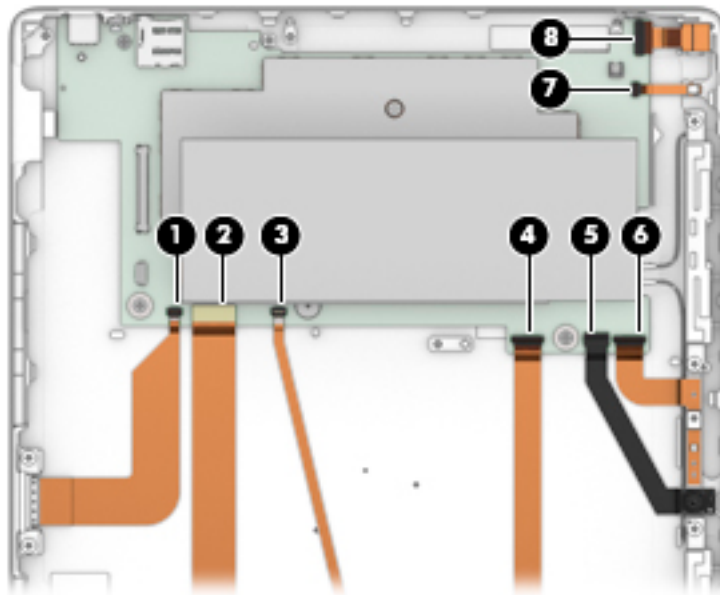
Before removing the system board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following component:
 - a. Battery (see [Battery on page 24](#)).
 - b. Left speaker(see [Left speaker on page 38](#)).

Disconnect the system board cables:

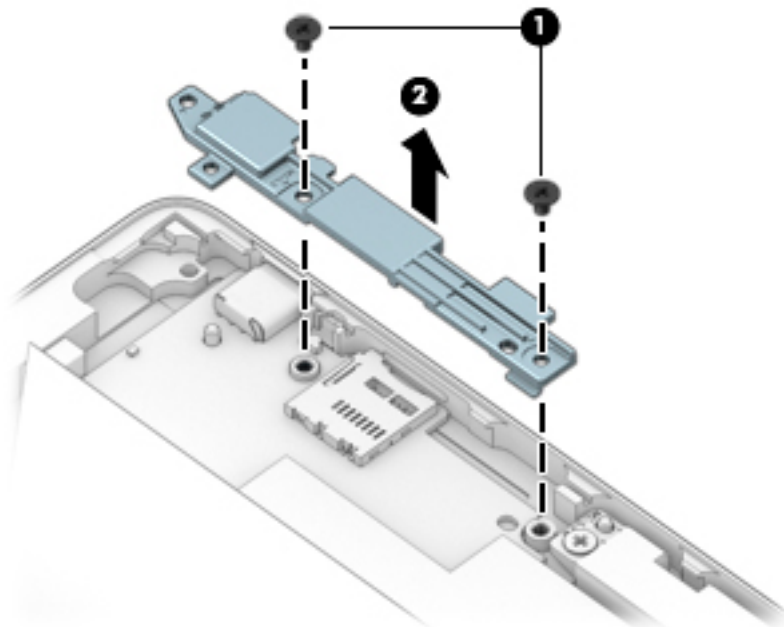
1. POGO board cable **(1)**.
2. USB board cable **(2)**.
3. Volume button board cable **(3)**.
4. Power button board cable **(4)**.
5. Front webcam cable **(5)**.
6. Front microphone cable **(6)**.
7. Rear microphone cable **(7)**.

8. Rear webcam cable (8).



Remove the system board bracket:

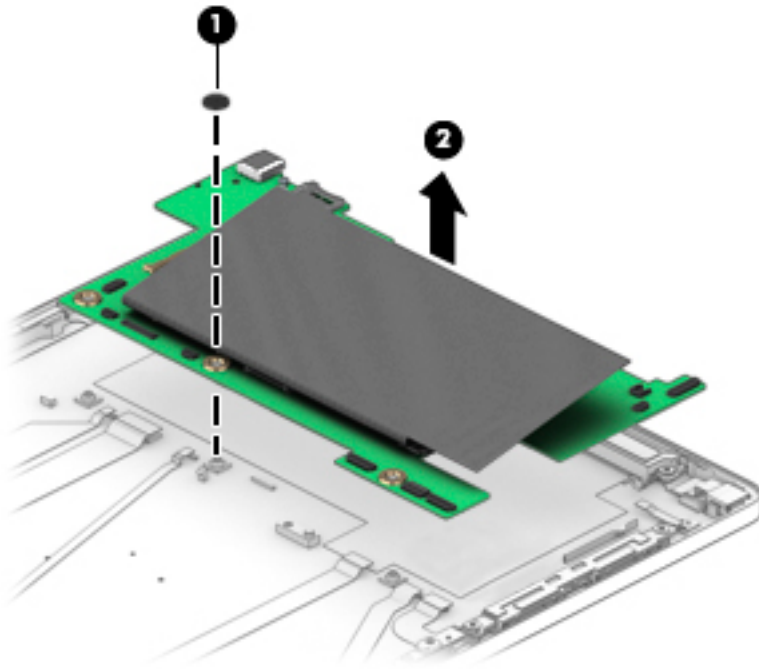
1. Remove the two Phillips M2.0 × 2.0 screws (1) that secure the bracket to the system board.
2. Remove the system board bracket (2).



Remove the system board:

1. Remove the Phillips M2.0 × 1.5 screw (1) that secures the system board to the base enclosure.


2. Remove the system board (2).



Reverse this procedure to install the system board.

WLAN module

| Description | Spare part number |
|---|-------------------|
| Intel Stone Peak 2 D1 7265 ac 2×2 + Bluetooth 4.2 M.2 non-vPro PCI-e WW with dual antenna | 901229-855 |


 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the WLAN module, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the display panel (see [Display panel assembly on page 20](#)), and then remove the following components:
 - ▲ Battery (see [Battery on page 24](#)).

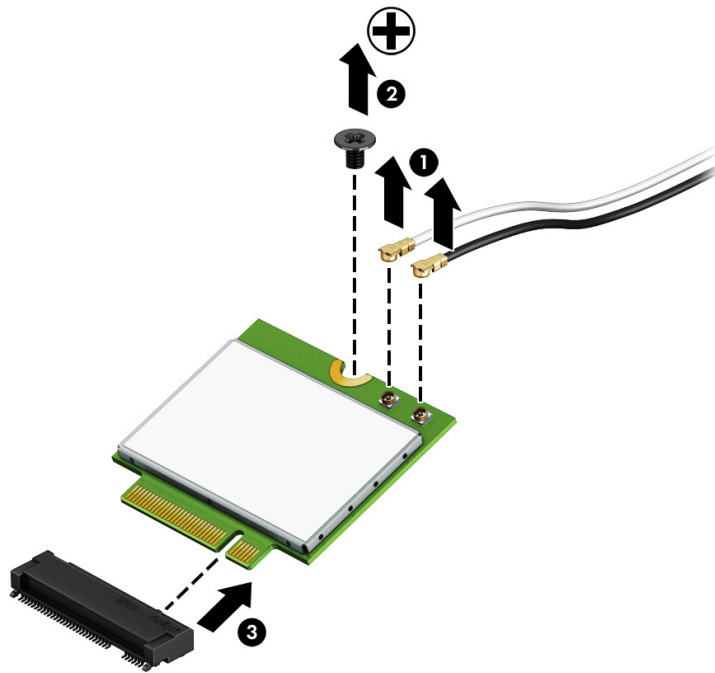
Remove the WLAN module:

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

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

2. Remove the Phillips PM2.0×3.4 screw **(2)** that secures the WLAN module to the system board (the WLAN module tilts up).

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



Reverse this procedure to install the WLAN module.

6 Specifications

Computer specifications

| | Metric | U.S. |
|---|--|--|
| Dimensions | | |
| Width | 38.56 cm | 15.18 in |
| Depth | 25.8 cm | 10.15 in |
| Height (front to back) | 2.26 cm | .89 in |
| Weight | 2.09 or 2.29 kg (depending on configuration) | 4.61 lb or 5.05 (depending on configuration) |
| Input power | | |
| Operating voltage and current | 19.5 V dc @ 3.33 A – 65 W 19 V dc @ 4.62 A – 90 W 19.5 V dc @ 2.31 – 45 W (select models only) | |
| 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. | | |

31.24 cm (12.3 in) display specifications

| | Metric | U.S. |
|--------------------------------|--|-----------|
| Dimensions | | |
| Height | 20.77 cm | 8.175 in |
| Width | 37.78 cm | 14.875 in |
| Diagonal | 39.62 cm | 15.6 in |
| Number of colors | Up to 16.8 million | |
| Contrast ratio | 500:1 (typical) | |
| Brightness | 200 nits | |
| Pixel resolution | | |
| Pitch | 0.252 mm x 0.252 mm | |
| Format | 1366×768 | |
| Configuration | RGB vertical stripe | |
| Backlight | LED | |
| Character display | 80 × 25 | |
| Total power consumption | 2.0 W | |
| Viewing angle | ±65° horizontal, ±50° vertical (typical) | |

7 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

| 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.
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.

| Country/region | Accredited agency | Applicable note number |
|----------------|---|------------------------|
| 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. | |

8 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>.

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