



# Maintenance and Service Guide

HP Chromebook 11 G7 Education Edition

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## 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.

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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

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 **CAUTION:** 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

**Table 1-1** Product components and descriptions

| Category                | Description  |
|-------------------------|--|
| Product Name            | HP Chromebook 11 G7 Education Edition  |
| Processors              | Intel® Celeron™ N4100 1.1-GHz (turbo up to 2.4-GHz) processor (2400-MHz front-side bus (FSB), 4.0-MB L2 cache, quad core, 6 W)<br><br>Intel Celeron N4000 1.1-GHz (turbo up to 2.6-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, dual core, 6 W)  |
| Panel                   | <ul style="list-style-type: none"><li>• 11.6-inch, high-definition (HD) (1366×768), BrightView, white light-emitting diode (WLED), UWVA, 50, 220 nits, eDP 1.2 without PSR, slim TouchScreen display assembly</li><li>• 11.6-inch, HD (1366×768), AntiGlare, WLED, UWVA, 220 nits, slim non-TouchScreen display assembly</li><li>• 11.6-inch, HD (1366×768), AntiGlare, WLED, SVA, slim non-TouchScreen display assembly</li></ul> |
| Memory                  | Support for LPDDR4-3733, 1.1 V system memory<br><br>Support for 16-GB or 8-GB of system memory   |
| Storage                 | Support for 64-GB, 32-GB, or 16-GB embedded MultiMediaCard (eMMC) MMC v 5.0 storage<br><br>Included on system board  |
| Audio and video         | <b>Camera:</b> Integrated one-piece fixed HD 720p camera<br><br><b>Microphone:</b> Single-array microphone   |
| Wireless                | Wireless local area network (WLAN) option: Intel 9560 ac 2×2 + Bluetooth® 5.0 MU-MIMO M.2 2230 non-vPro MIPI+BR1 WW with two antennas  |
| External media cards    | HP MultiFormat microSD® media card reader  |
| Internal card expansion | One M.2 slot for WLAN module   |
| Ports                   | <ul style="list-style-type: none"><li>• Audio-out (headphone)/audio-in (microphone) combo jack</li><li>• USB SuperSpeed port</li><li>• USB Type-C power connector and port</li></ul>   |
| Security                | Nano security lock   |
| Power requirements      | <ul style="list-style-type: none"><li>• Support for a 2-cell, 47-Wh, 6.18-Ah, Li-ion, battery</li><li>• Support for a 45-W USB Type-C AC adapter (non-PFC, 1.8-m, 3-pin)</li><li>• Support for a 1.00-m, power cord with a C5 connector</li></ul>  |
| Operating system        | Chrome® 64-bit   |

# 2 External component identification

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

## Right side

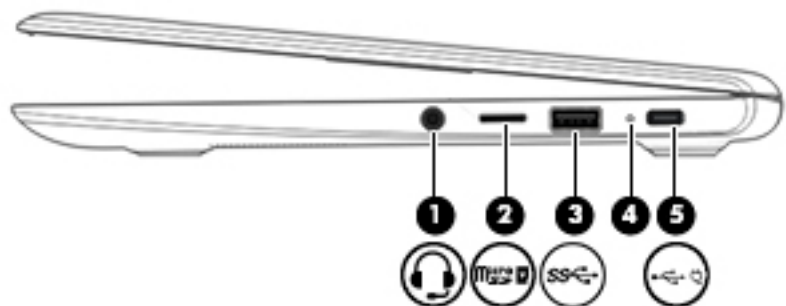






Table 2-1 Right-side components and descriptions

| Component   | Description   |
|---|---|
| (1)   | <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><b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>To access this guide:</p> <ul style="list-style-type: none"><li>▲ Select the <b>Start</b> button, select <b>HP Help and Support</b>, and then select <b>HP Documentation</b>.</li></ul> <p><b>NOTE:</b> When a device is connected to the jack, the computer speakers are disabled.</p> |
| (2)  | <p>MicroSD memory card reader</p> <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"><li>1. Hold the card label-side up, with connectors facing the computer.</li><li>2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated.</li></ol> <p>To remove a card:</p> <ul style="list-style-type: none"><li>▲ Press in on the card, and then remove it from the memory card reader.</li></ul>  |
| (3)  | <p>USB SuperSpeed port</p> <p>Connects a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provides high-speed data transfer.</p>  |

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

| Component   | Description   |
|---|---|
| (4) AC adapter and battery light  | <ul style="list-style-type: none"> <li>• White: The AC adapter is connected and the battery is fully charged.</li> <li>• Amber: The AC adapter is connected and the battery is charging.</li> <li>• Blinking amber: The battery has an error.</li> <li>• Off: The battery is not charging.</li> </ul>   |
| (5)  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 data transfer.</p> <p>– and –</p> <p>Connects a display device that has a USB Type-C connector, providing DisplayPort output.</p> <p><b>NOTE:</b> Cables and/or adapters (purchased separately) may be required.</p> |

# Left side

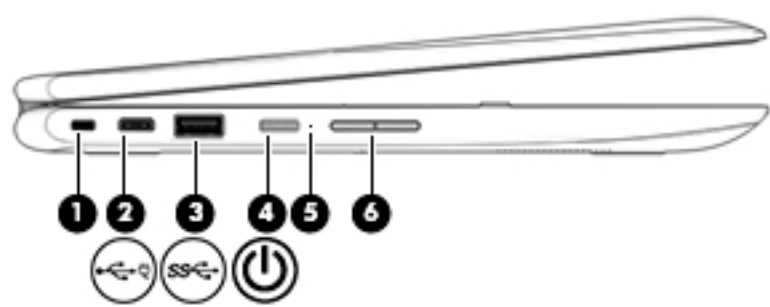




Table 2-2 Left-side components and descriptions

| Component |   | Description  |
|-----------|---|--|
| (1)       | Nano security cable slot  | Attaches an optional security cable to the computer.<br><br><b>NOTE:</b> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.  |
| (2)       |  USB Type-C power connector and port | Connects an AC adapter that has a USB Type-C connector, supplying power to the computer and, if needed, charging the computer battery.<br><br>— and —<br><br>Connects a USB device that has a Type-C connector, such as a cell phone, camera, activity tracker, or smartwatch, and provides data transfer.<br><br>— and —<br><br>Connects a display device that has a USB Type-C connector, providing DisplayPort output.<br><br><b>NOTE:</b> Cables and/or adapters (purchased separately) may be required. |
| (3)       |  USB SuperSpeed port               | Connects a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provides high-speed data transfer.   |



# Display



Table 2-3 Display components and descriptions

| Component   |                          | Description  |
|---|--------------------------|--|
| (1)   | WLAN antennas*           | Send and receive wireless signals to communicate with WLANs.     |
| (2)   | Internal microphones (2) | Record sound.  |
| (3)   | Camera light             | On: The camera is in use.  |
| (4)   | 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 <i>Regulatory, Safety, and Environmental Notices</i> that applies to your country or region.  |                          |  |
| To access this guide, go to <a href="http://www.hp.com/support">http://www.hp.com/support</a> , and follow the instructions to find your product. Then select <b>User Guides</b> .            |                          |  |

# Keyboard area

## TouchPad

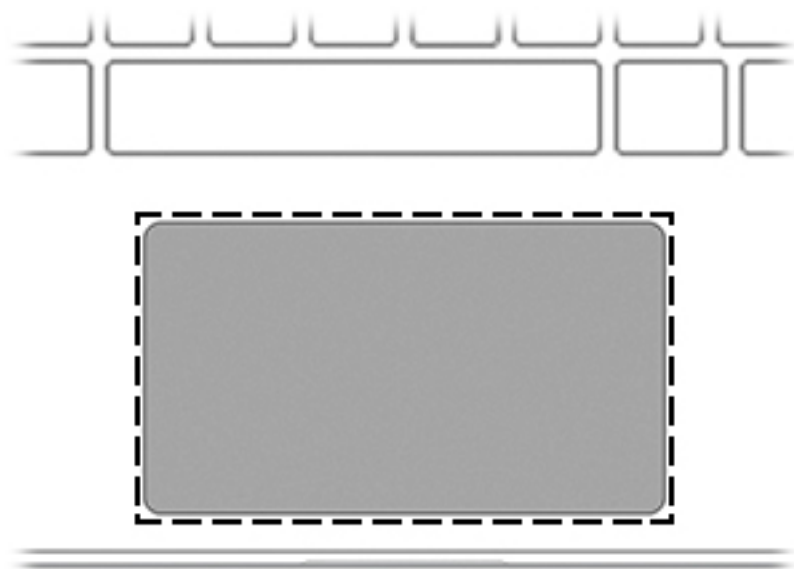
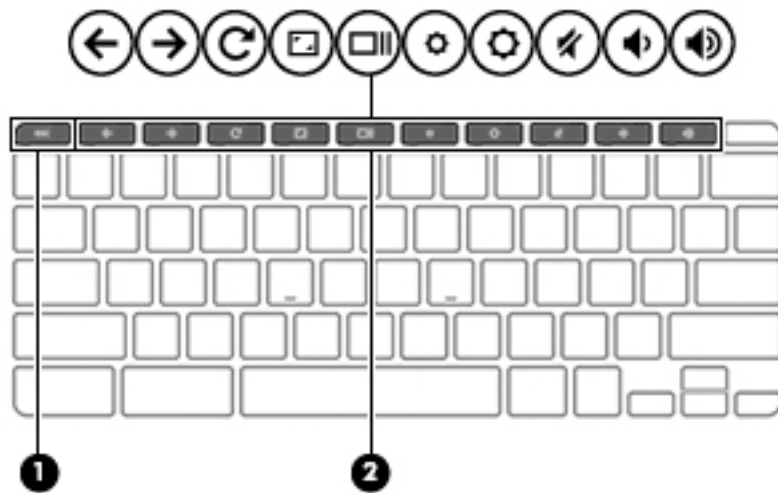


Table 2-4 TouchPad components and descriptions

| Component     | Description  |
|---------------|--|
| TouchPad zone | Reads finger gestures to move the pointer or activate items on the screen. |

## Special keys



**Table 2-5** Special key components and descriptions

| Component                   | Description  |
|-----------------------------|--|
| (1) <a href="#">esc</a> key | Activates certain computer functions when pressed in combination with other keys, such as <a href="#">Tab</a> or <a href="#">Shift</a> . |
| (2) Action keys             | Execute frequently used system functions.  |

# Bottom

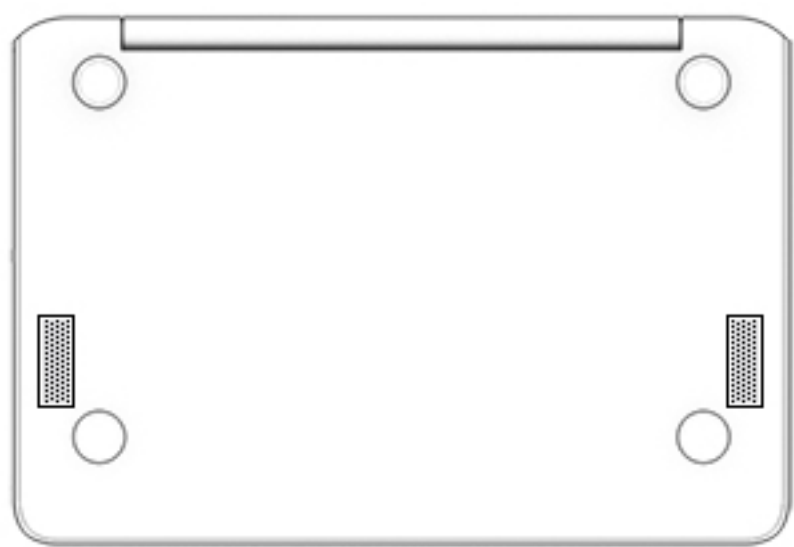


Table 2-6 Bottom component and description

| Component | Description   |
|-----------|---|
| Vents     | Enable airflow to cool internal components.<br><br><b>NOTE:</b> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation. |

# Labels

The labels affixed to the computer provide information that may be needed when troubleshooting system problems or traveling internationally with the computer. Labels may be in paper form or imprinted on the product.

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

The service label will resemble the example shown below:

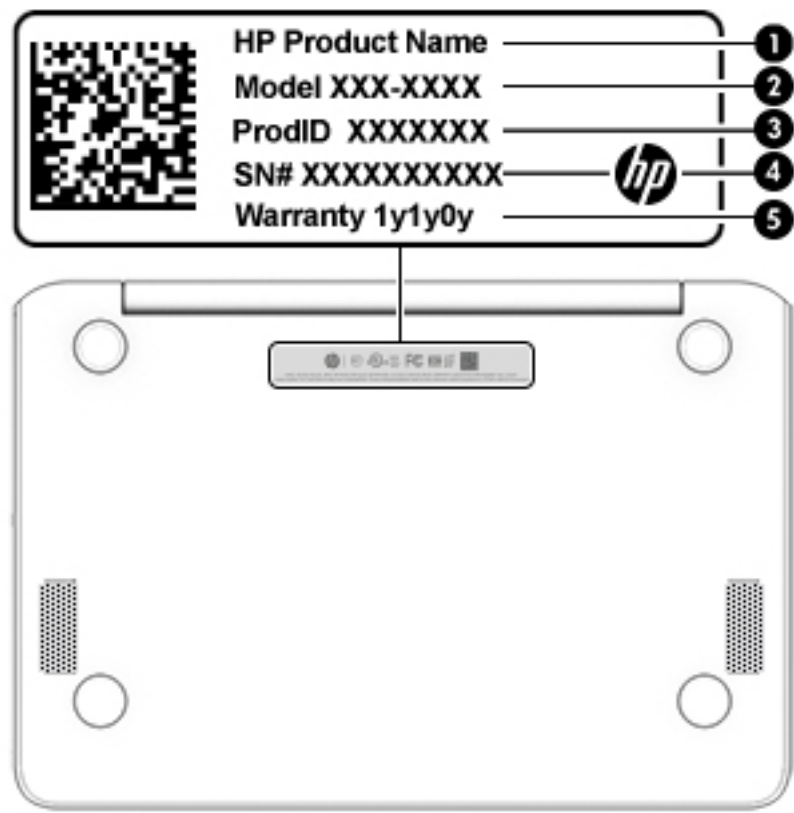


Table 2-7 Service label components and descriptions


| Item | Component              |
|------|------------------------|
| (1)  | Product name           |
| (2)  | Model number           |
| (3)  | Product identification |
| (4)  | Serial number          |
| (5)  | Warranty period        |


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## 3 Illustrated parts catalog

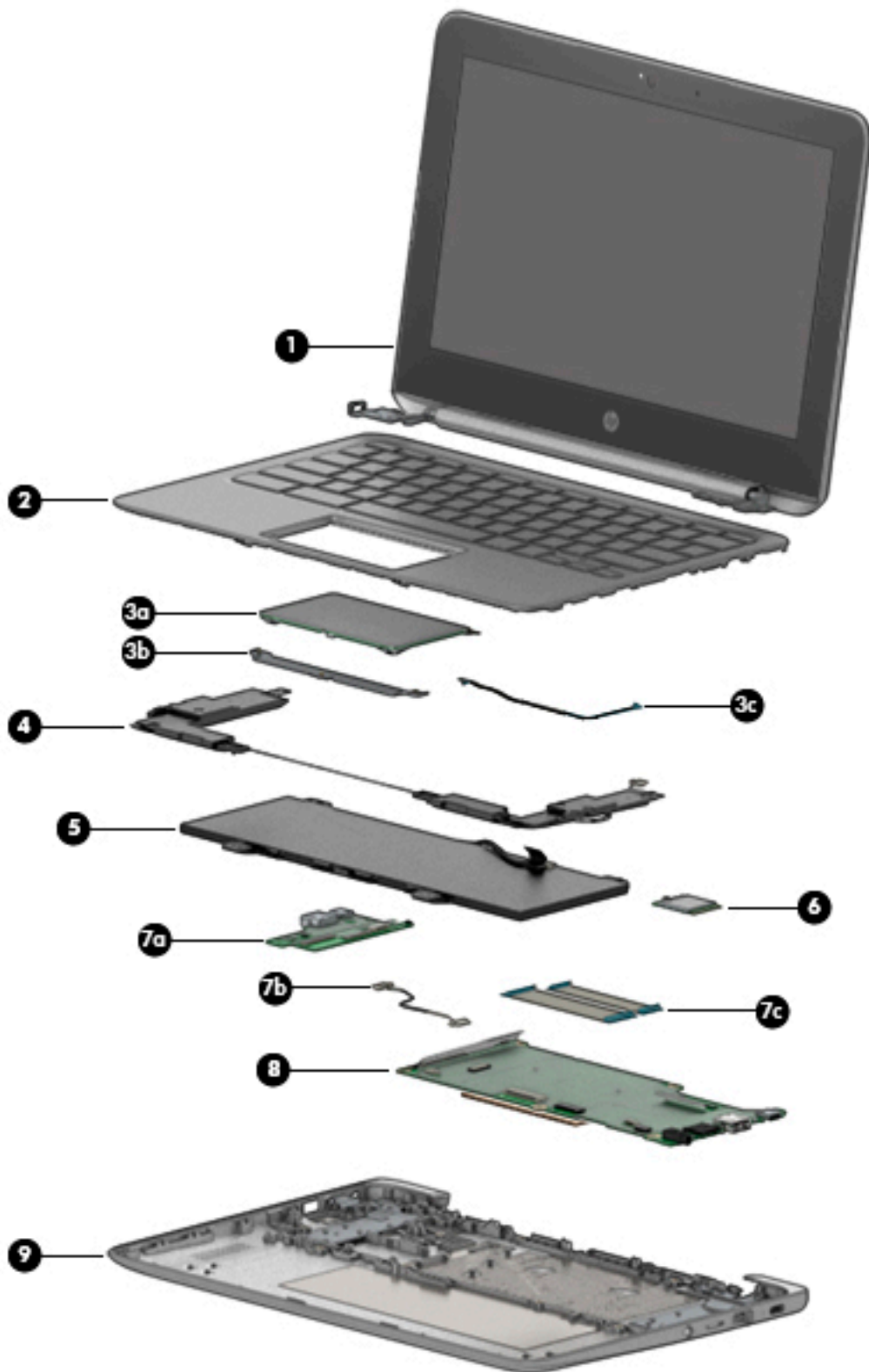
### Computer major components

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 **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.

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**Table 3-1 Computer components and spare part information**

| Item | Component   | Spare part number |
|------|---|-------------------|
| (1)  | <b>Display assembly:</b> The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see <a href="#">Display assembly subcomponents on page 14</a> . |                   |
| (2)  | <b>Keyboard/top cover</b> (includes keyboard cable):  |                   |
|      | For use in Belgium  | L52573-A41        |
|      | For use in Brazil   | L52573-201        |
|      | For use in Canada   | L52573-DB1        |
|      | For use in the Czech Republic and Slovenia  | L52573-FL1        |
|      | For use in Denmark, Finland, and Norway   | L52573-DH1        |
|      | For use in France   | L52573-051        |
|      | For use in Germany  | L52573-041        |
|      | For use in Iceland  | L52573-DD1        |
|      | For use in India  | L52573-D61        |
|      | For use in Israel   | L52573-BB1        |
|      | For use in Italy  | L52573-061        |
|      | For use in Latin America  | L52573-161        |
|      | For use in the Netherlands  | L52573-B31        |
|      | For use in Portugal   | L52573-131        |
|      | For use in Romania  | L52573-271        |
|      | For use in Russia   | L52573-251        |
|      | For use in Saudi Arabia   | L52573-171        |
|      | For use in South Korea  | L52573-AD1        |
|      | For use in Spain  | L52573-071        |
|      | For use in Switzerland  | L52573-BG1        |
|      | For use in Taiwan   | L52573-AB1        |
|      | For use in Thailand   | L52573-281        |
|      | For use in Turkey   | L52573-141        |
|      | For use in the United Kingdom   | L52573-031        |
|      | For use in the United States  | L52573-001        |
| (3a) | <b>TouchPad</b> (does not include TouchPad bracket or TouchPad cable)   | L52568-001        |
| (3b) | <b>TouchPad bracket</b>   | L52569-001        |
| (3c) | <b>TouchPad cable</b> (included in the Cable Kit, spare part number L52549-001)   |                   |
|      | <b>Rubber Kit</b> (not illustrated, includes TouchPad bracket rubber inserts)   | L52565-001        |
| (4)  | <b>Speakers</b> (include cables)  | L52567-001        |
| (5)  | <b>Battery</b> (2-cell, 47-WHr, 6.18-AHr, Li-ion; includes cable)   | L42583-002        |



**Table 3-1** Computer components and spare part information (continued)

| Item | Component  | Spare part number |
|------|--|-------------------|
|      | <b>Battery tape</b> (not illustrated)  | L14905-001        |
| (6)  | <b>Intel 9560 ac 2×2 + Bluetooth® 5.0 MU-MIMO M.2 2230 non-vPro MIPI+BRI WW WLAN module with two antennas</b>  | L41693-005        |
| (7a) | <b>USB/audio board</b> (does not include USB/audio board bracket or USB/audio board cable)   | L52570-001        |
|      | <b>USB/audio board bracket</b> (not illustrated)   | L52571-001        |
| (7b) | <b>USB/audio board cables</b> (included in the Cable Kit, spare part number L52549-001)  |                   |
| (7c) | <b>Power cable</b> (included in the Cable Kit, spare part number L52549-001)   |                   |
| (8)  | <b>System board</b> (includes a graphics subsystem with UMA memory, the heat sink, and replacement thermal material):  |                   |
|      | Equipped with an Intel Celeron N4100 1.1-GHz (turbo up to 2.4-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, quad core, 6 W), 8.0-GB of system memory, 64-GB of eMMC storage, and the Chrome 64-bit operating system | L52561-001        |
|      | Equipped with an Intel Celeron N4100 1.1-GHz (turbo up to 2.4-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, quad core, 6 W), 4.0-GB of system memory, 32-GB of eMMC storage, and the Chrome 64-bit operating system | L52560-001        |
|      | Equipped with an Intel Celeron N4000 1.1-GHz (turbo up to 2.6-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, dual core, 6 W), 8.0-GB of system memory, 64-GB of eMMC storage, and the Chrome 64-bit operating system | L52559-001        |
|      | Equipped with an Intel Celeron N4000 1.1-GHz (turbo up to 2.6-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, dual core, 6 W), 4.0-GB of system memory, 32-GB of eMMC storage, and the Chrome 64-bit operating system | L52558-001        |
|      | Equipped with an Intel Celeron N4000 1.1-GHz (turbo up to 2.6-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, dual core, 6 W), 4.0-GB of system memory, 16-GB of eMMC storage, and the Chrome 64-bit operating system | L52557-001        |
| (9)  | <b>Base enclosure:</b>   |                   |
|      | In blue finish   | L52547-001        |
|      | In red finish  | L52548-001        |

# Display assembly subcomponents

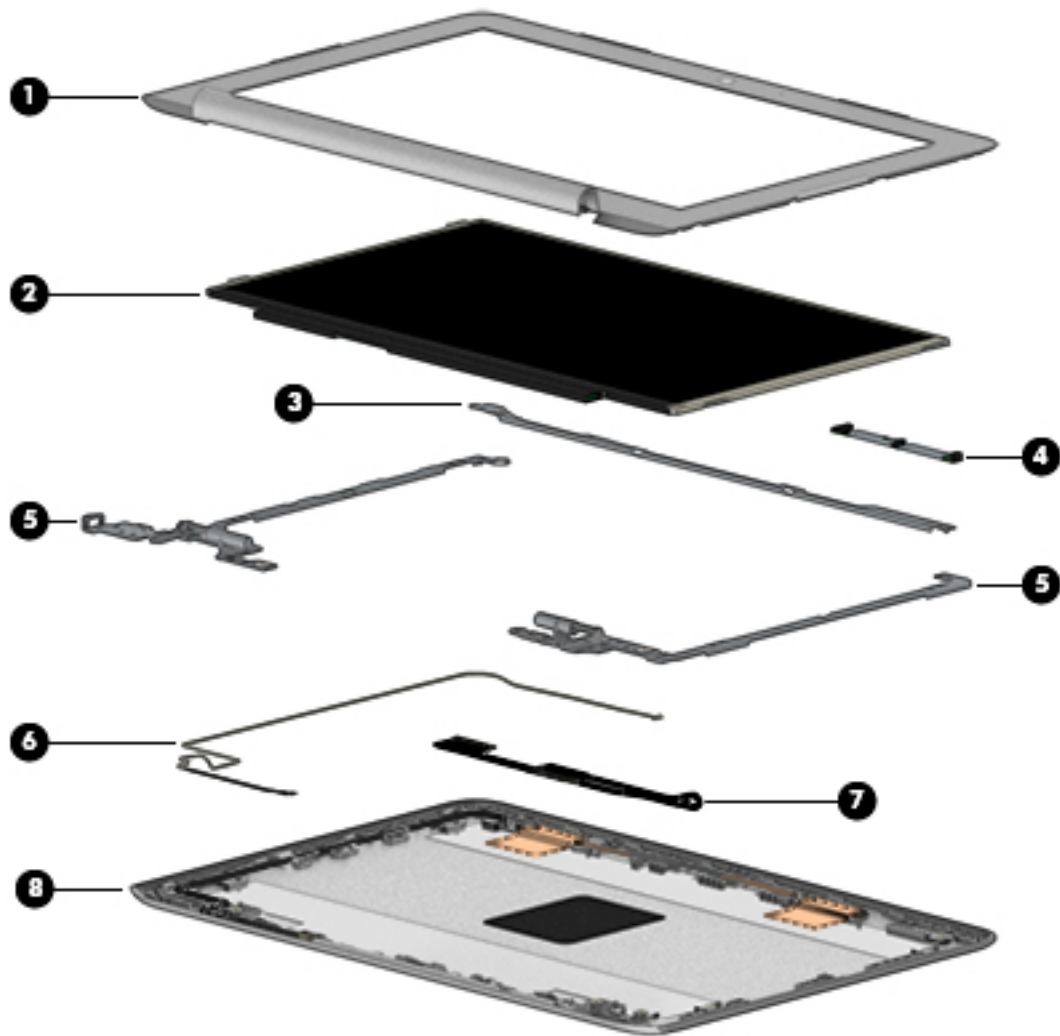


Table 3-2 Display components and their descriptions

| Item | Component  | Spare part number |
|------|--|-------------------|
| (1)  | Display bezel  | L52553-001        |
| (2)  | Display panel:   |                   |
|      | 11.6-in., BrightView, LED, UWVA TouchScreen display panel                                | L52562-001        |
|      | 11.6-in., HD, AntiGlare, LED, UWVA non-TouchScreen display panel                         | L52564-001        |
|      | 11.6-in., HD, AntiGlare, LED, SVA non-TouchScreen display panel                          | L52563-001        |
| (3)  | Display bracket  | L52554-001        |
| (4)  | Webcam/microphone module   | L52572-001        |
| (5)  | Display hinges (2, includes left and right hinges)                                       | L52550-001        |
| (6)  | Webcam/microphone module cable (included in the Cable Kit, spare part number L52549-001) |                   |
| (7)  | Display panel cable:   |                   |

**Table 3-2** Display components and their descriptions (continued)

| Item       | Component  | Spare part number |
|------------|--|-------------------|
|            | For use only on computer models equipped with a TouchScreen display assembly                     | L52556-001        |
|            | For use only on computer models equipped with a non-TouchScreen display assembly                 | L52555-001        |
| <b>(8)</b> | <b>Display back cover</b> (includes left and right wireless antennas, cables, and transceivers): |                   |
|            | In blue finish   | L52551-001        |
|            | In red finish  | L52552-001        |

## Miscellaneous parts

**Table 3-3** Miscellaneous components and spare part information

| Component   | Spare part number |
|---|-------------------|
| <b>45-W USB Type-C AC adapter (non-PFC, 1.8-m, 3-pin)</b>   | L43407-001        |
| <b>Cable Kit</b> (includes power cable, TouchPad cable, USB/audio board cables, and webcam/microphone module cable) | L52549-001        |
| <b>Power cord</b> (C5 connector, 1.0 m, STK CONV)   |                   |
| For use in Argentina  | L19357-001        |
| For use in Australia  | L19358-001        |
| For use in Brazil   | L19359-001        |
| For use in Denmark  | L19360-001        |
| For use in Europe   | L19361-001        |
| For use in India  | L19363-001        |
| For use in Israel   | L19362-001        |
| For use in Italy  | L19364-001        |
| For use in North America  | L19367-001        |
| For use in the People's Republic of China   | L19368-001        |
| For use in South Africa   | L19369-001        |
| For use in South Korea  | L19366-001        |
| For use in Switzerland  | L19370-001        |
| For use in Taiwan   | L19371-001        |
| For use in Thailand   | L19372-001        |
| For use in the United Kingdom   | L19373-001        |
| <b>Rubber Kit</b> (includes TouchPad bracket rubber inserts)  | L52565-001        |
| <b>Screw Kit</b>  | L52566-001        |

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## 4 Removal and replacement procedures preliminary requirements

### Tools required

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

- Keyboard release tool
- Magnetic Phillips P1 screwdriver
- Non-conductive, non-marking pry tool
- Tweezer

### Service considerations

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

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

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### Plastic parts


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

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### Cables and connectors

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 **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

 **CAUTION:** 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 one 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) may not appear to be affected at all and can work perfectly throughout a normal cycle. The device may 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 |
| Electronic components are multi-packaged inside 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 one-megohm  $\pm$  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 one-megohm  $\pm$  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

Materials and equipment that are recommended for use in preventing static electricity include:

- 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 one-megohm +/- 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 one-megohm +/- 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 Approved Service Provider Parts


This chapter provides removal and replacement procedures for Authorized Service Provider only parts.

 **CAUTION:** Components described in this chapter should only be accessed by an authorized service provider. Accessing these parts can damage the computer or void the warranty.

**CAUTION:** 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 the computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of the 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 the computer, go to <http://partsurfer.hp.com>, select the country or region, and then follow the on-screen instructions.

There are as many as 42 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.

### Keyboard/top cover

 **NOTE:** The keyboard/top cover spare part kit includes the keyboard cable.

**Table 5-1** Keyboard/top cover description and spare part information

| Country/region                             | Spare part number | Country/region                | Spare part number |
|--|-------------------|-------------------------------|-------------------|
| For use in Belgium                         | L52573-A41        | For use in Portugal           | L52573-131        |
| For use in Brazil                          | L52573-201        | For use in Romania            | L52573-271        |
| For use in Canada                          | L52573-DB1        | For use in Russia             | L52573-251        |
| For use in the Czech Republic and Slovenia | L52573-FL1        | For use in Saudi Arabia       | L52573-171        |
| For use in Denmark, Finland, and Norway    | L52573-DH1        | For use in South Korea        | L52573-AD1        |
| For use in France                          | L52573-051        | For use in Spain              | L52573-071        |
| For use in Germany                         | L52573-041        | For use in Switzerland        | L52573-BG1        |
| For use in Iceland                         | L52573-DD1        | For use in Taiwan             | L52573-AB1        |
| For use in India                           | L52573-D61        | For use in Thailand           | L52573-281        |
| For use in Israel                          | L52573-BB1        | For use in Turkey             | L52573-141        |
| For use in Italy                           | L52573-061        | For use in the United Kingdom | L52573-031        |

**Table 5-1** Keyboard/top cover description and spare part information (continued)

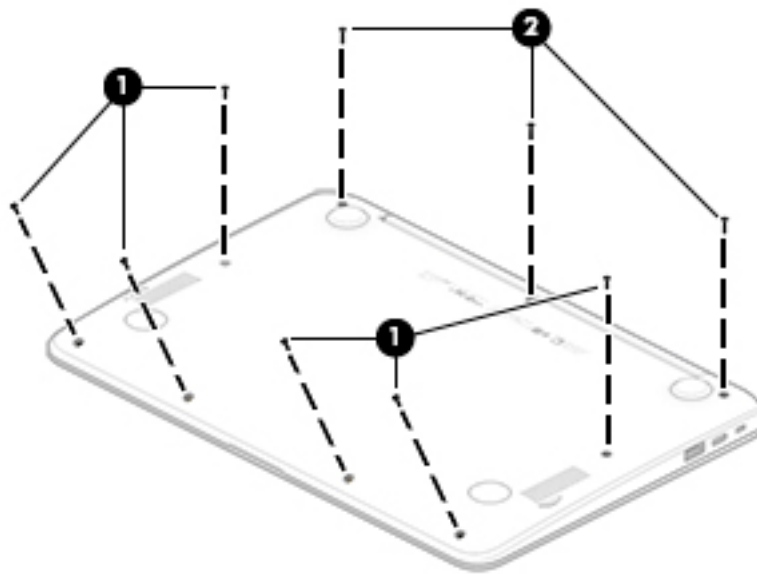
| Country/region             | Spare part number | Country/region               | Spare part number |
|----------------------------|-------------------|------------------------------|-------------------|
| For use in Latin America   | L52573-161        | For use in the United States | L52573-001        |
| For use in the Netherlands | L52573-B31        |                              |                   |

Before removing the disassembling the computer, follow these steps:

1. 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.
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 keyboard/top cover:

1. Remove the six Phillips M2.5×6.6 screws (1) that secure the keyboard/top cover to the base enclosure.
2. Remove the three Phillips M2.5×9.1 screws (2) that secure the keyboard/top cover to the base enclosure.



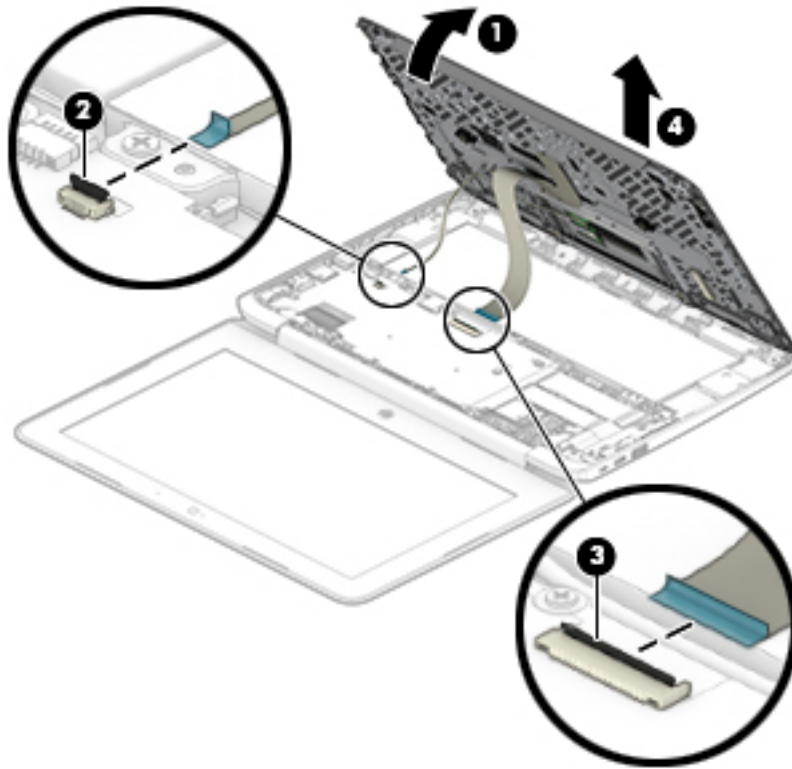
3. Open the computer.
4. Rest the open computer on its left side.

5. Insert a keyboard release tool or similar non-conductive tool into the rear corner screw holes **(1)** and **(2)**, and then release the keyboard/top cover.



6. Turn the computer right side up with the rear toward you.
7. Open the computer as far as it will open.
8. Swing the keyboard/top cover **(1)** up and back as far as the keyboard and TouchPad cables allow.
9. Release the zero insertion force (ZIF) connector **(2)** to which TouchPad cable is connected, and then disconnect the TouchPad cable from the system board.
10. Release the ZIF connector **(3)** to which keyboard cable is connected, and then disconnect the keyboard cable from the system board.

11. Remove the keyboard/top cover (4).



Reverse this procedure to install the keyboard/top cover.

## TouchPad cable



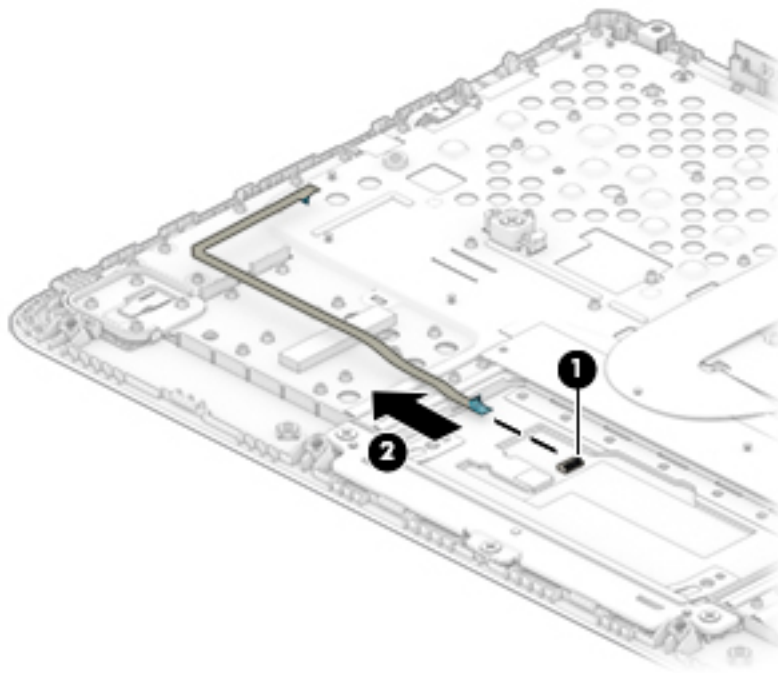
**NOTE:** The TouchPad spare part kit does not include the TouchPad cable. The TouchPad cable is included in the Cable Kit, spare part number L52549-001.

Before removing the TouchPad cable, follow these steps:

1. 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.
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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).

Remove the TouchPad cable:

1. Turn the keyboard/top cover upside with the front toward you.
2. Release the ZIF connector (1) to which TouchPad cable is connected.
3. Disconnect the TouchPad cable (2) from the TouchPad.



Reverse this procedure to install the TouchPad cable.

## TouchPad

**Table 5-2** TouchPad description and spare part number information

| Description | Spare part number |
|-------------|-------------------|
| TouchPad    | L52568-001        |

**NOTE:** The TouchPad spare part kit does not include the TouchPad bracket or the TouchPad cable. The TouchPad bracket is available using spare part number L52569-001. The TouchPad spare part kit does not include the TouchPad cable. The TouchPad cable is included in the Cable Kit, spare part number L52549-001.

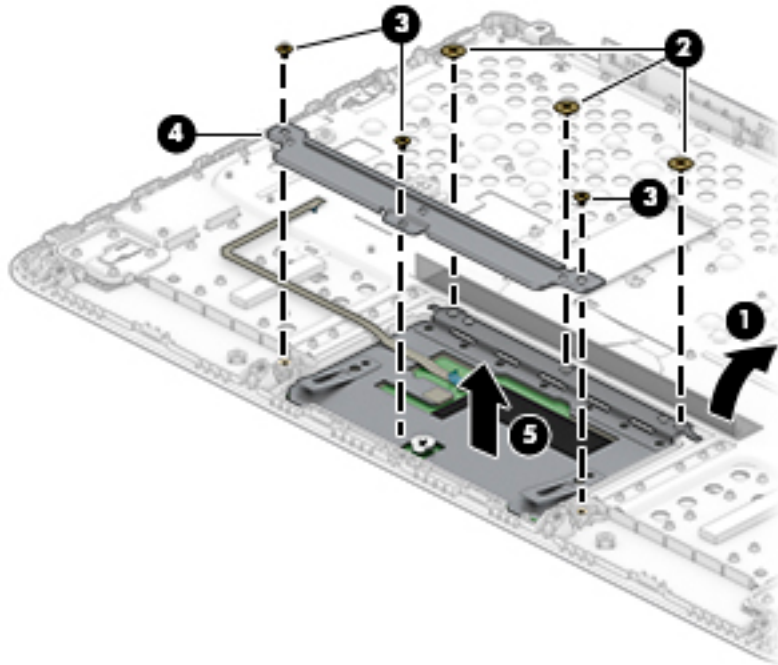
Before removing the TouchPad, follow these steps:

1. 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.
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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).

Remove the TouchPad:

1. Turn the keyboard/top cover upside with the front toward you.
2. Fold back the shielding material **(1)** that covers the TouchPad screws.
3. Remove the three Phillips M2.0×2.3 broad head screws **(2)** that secure the TouchPad to the keyboard/top cover.
4. Remove the three Phillips M2.0×2.8 screws **(3)** that secure the TouchPad and bracket to the keyboard/top cover.
5. Remove the TouchPad bracket **(4)**.

6. Remove the TouchPad (5).



Reverse this procedure to install the TouchPad.

## Battery

**Table 5-3** Battery description and spare part number information

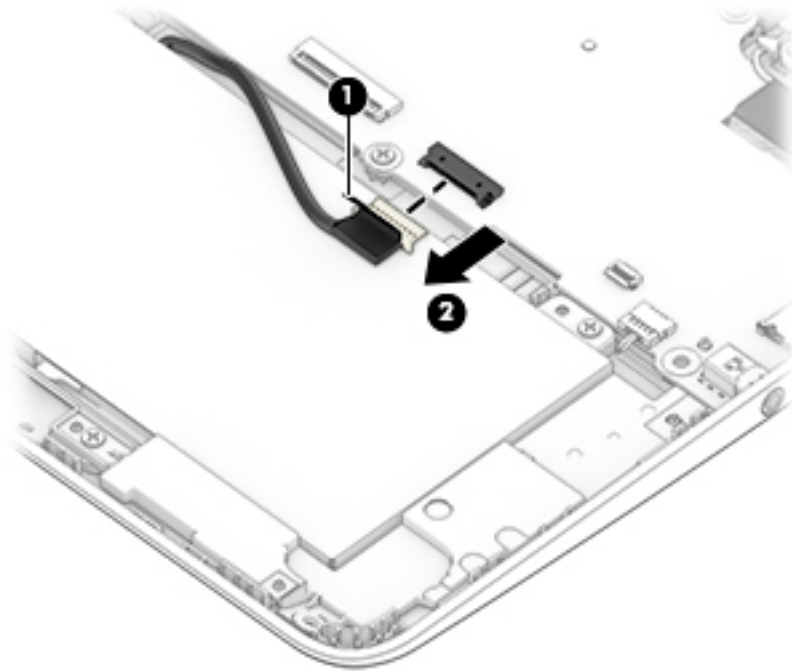
| Description                              | Spare part number |
|--|-------------------|
| 2-cell, 47-WHr, 6.18-AHr, Li-ion battery | L42583-002        |

Before removing the battery, follow these steps:

1. 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.
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 keyboard/top cover (see [Keyboard/top cover on page 21](#)).

Remove the battery:

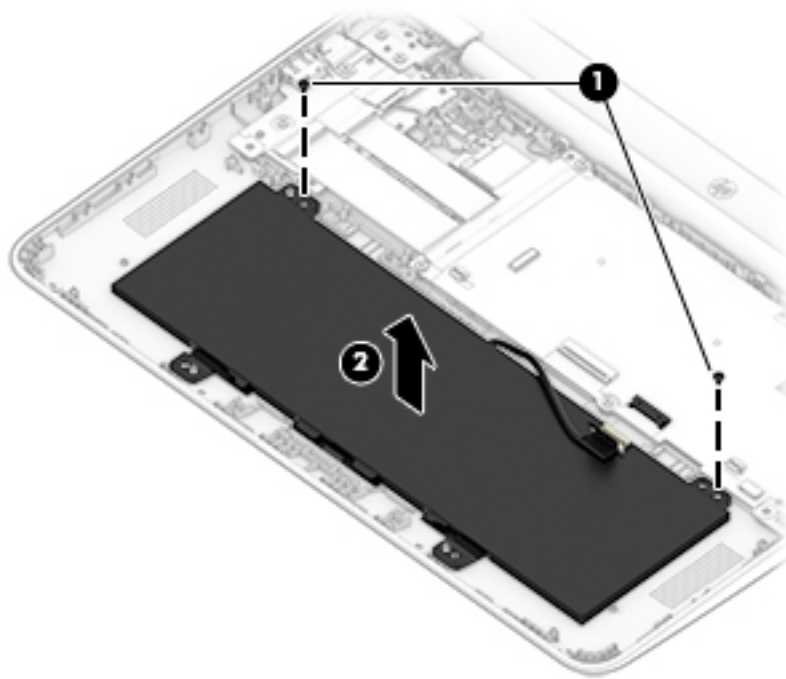
1. Release the battery tape **(1)** that secures the battery cable to the battery connector.  
The battery tape is available using spare part number L14905-001.
2. Disconnect the battery cable **(2)** from the system board.



3. Remove the two Phillips M2.0×3.5 screws **(1)** that secure the battery to the base enclosure.



4. Remove the battery (2).



Reverse this procedure to install the battery.

# Speakers

Table 5-4 Speakers description and spare part number information

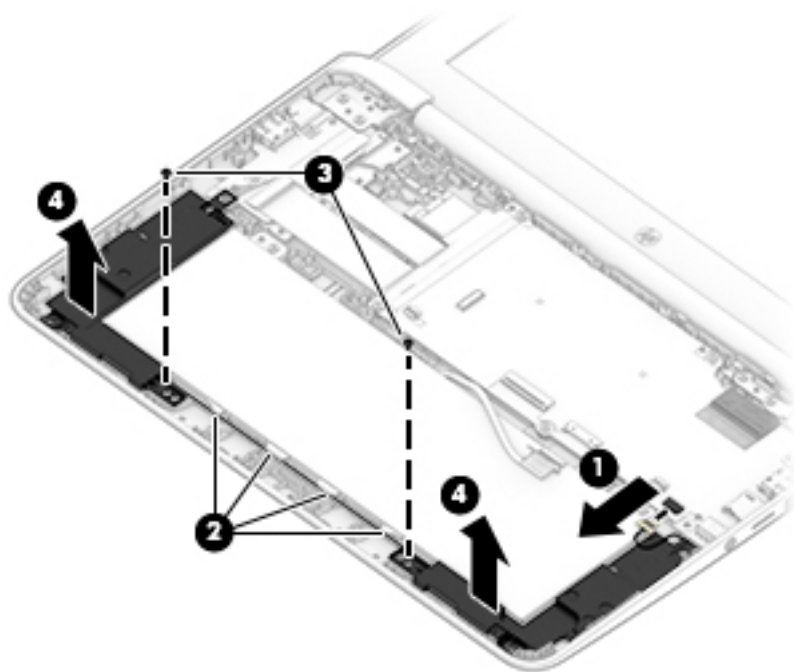
| Description               | Spare part number |
|---------------------------|-------------------|
| Speakers (include cables) | L52567-001        |

Before removing the speakers, follow these steps:

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 first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 28](#)).

Remove the speakers:

1. Disconnect the speaker cable (1) from the system board.
2. Release the speaker cables from the retention clips/routing channels (2) built into the front edge of the battery.
3. Remove the two Phillips M2.0×4.1 screws (3) that secure the speakers to the base enclosure.
4. Remove the speakers (4).




Reverse this procedure to install the speakers.

## WLAN module

**Table 5-5** WLAN drive description and spare part number information

| Description  | Spare part number |
|--|-------------------|
| Intel 9560 ac 2×2 + Bluetooth® 5.0 MU-MIMO M.2 2230 non-vPro MIPI+BRI WW WLAN module with two antennas | L41693-005        |

 **CAUTION:** 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. 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 first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 28](#)).

Remove the WLAN module:


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

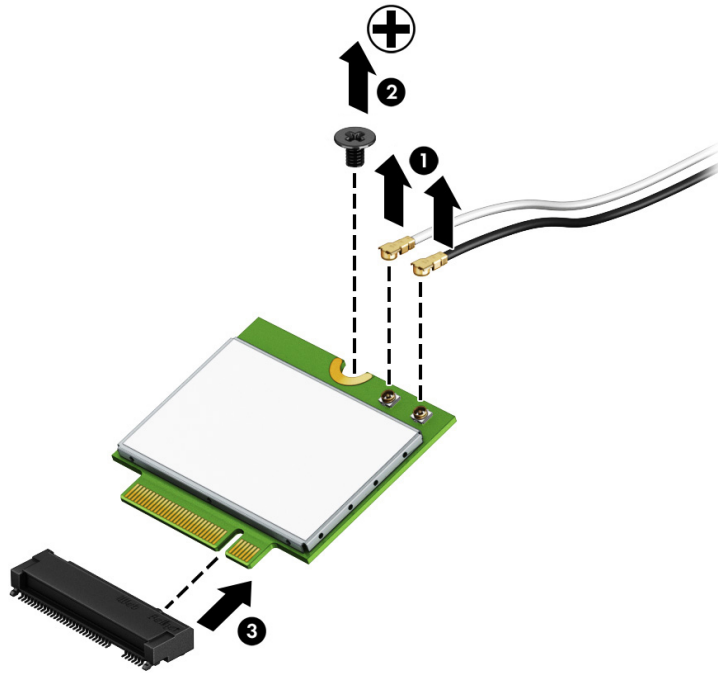


**NOTE:** The #1/white WLAN antenna cable connects to the WLAN module "#1/Main" terminal. The #2/black WLAN antenna cable connects to the WLAN module "#2/Aux" terminal.

2. Remove the Phillips M2.0×2.2 broad head 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.

 **NOTE:** The WLAN module is designed with a notch to prevent incorrect insertion.



Reverse this procedure to install the WLAN module.

## Power board cables

 **NOTE:** The power board spare part kit does not include the power board cable. The power board cable is included in the Cable Kit, spare part number L52549-001.

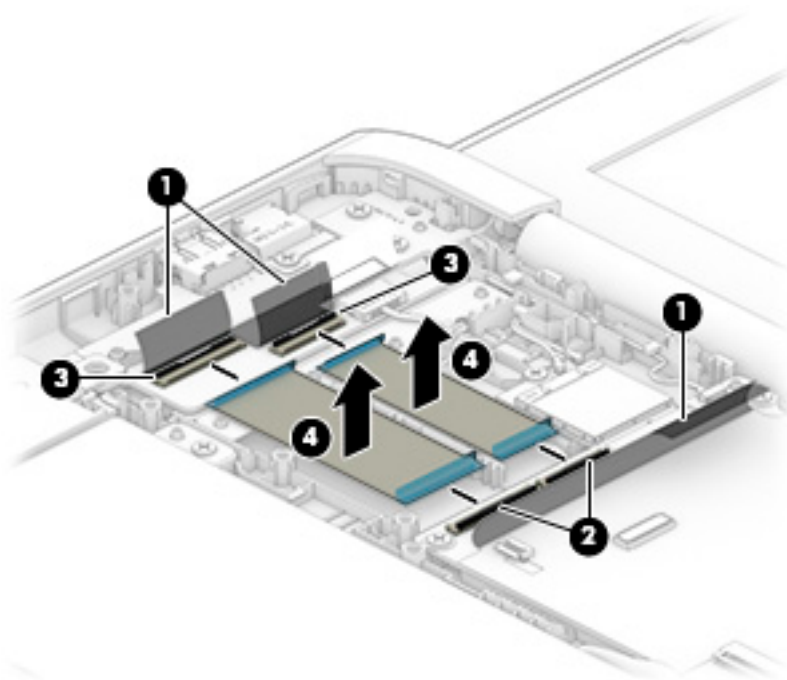
Before removing the power board cables, follow these steps:

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 first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 28](#)).

Remove the power board:

1. Release the shielding (1) that covers the power board cable connectors.
2. Release the ZIF connectors (2) to which power board cables are connected, and then disconnect the power board cables from the system board.
3. Release the ZIF connectors (3) to which power board cables are connected, and then disconnect the power board cables from the power board.

4. Remove the power board cables (4).



Reverse this procedure to install the power board cables.

## Power board

**Table 5-6** Power board description and spare part number information

| Description | Spare part number |
|-------------|-------------------|
| Power board | L52571-001        |

**NOTE:** The power board spare part kit does not include the power board cable. The power board cable is included in the Cable Kit, spare part number L52549-001.

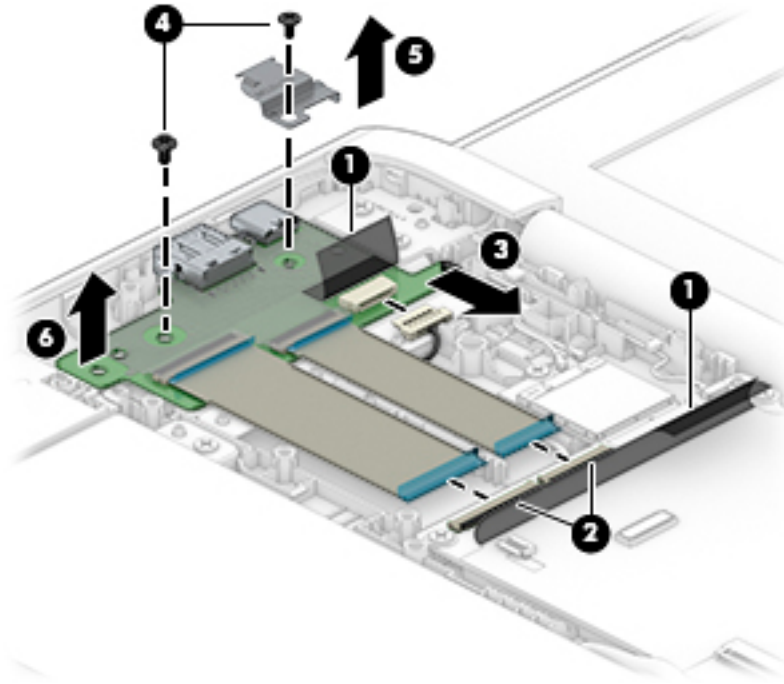
Before removing the power board, follow these steps:

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 first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 28](#)).

Remove the power board:

1. Release the shielding (1) that covers the power board cable and power cable connectors.
2. Release the ZIF connectors (2) to which power board cables are connected, and then disconnect the power board cables from the system board.
3. Disconnect the power cable (3) from the power board.

4. Remove the two Phillips M2.0×4.1 screws (4) that secure the power board to the keyboard/top cover.
5. Remove the power board bracket (5).  
The power board bracket is available using spare part number L52571-001.
6. Remove the power board (6) and cables.



Reverse this procedure to install the power board.

## System board

 **NOTE:** The system board spare part kit includes a graphics subsystem with UMA memory, the heat sink, and replacement thermal material).

**Table 5-7 System board description and spare part number information**

| Description  | Spare part number |
|--|-------------------|
| Equipped with an Intel Celeron N4100 1.1-GHz (turbo up to 2.4-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, quad core, 6 W), 8.0-GB of system memory, 64-GB of eMMC storage, and the Chrome 64-bit operating system | L52561-001        |
| Equipped with an Intel Celeron N4100 1.1-GHz (turbo up to 2.4-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, quad core, 6 W), 4.0-GB of system memory, 32-GB of eMMC storage, and the Chrome 64-bit operating system | L52560-001        |
| Equipped with an Intel Celeron N4000 1.1-GHz (turbo up to 2.6-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, dual core, 6 W), 8.0-GB of system memory, 64-GB of eMMC storage, and the Chrome 64-bit operating system | L52559-001        |
| Equipped with an Intel Celeron N4000 1.1-GHz (turbo up to 2.6-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, dual core, 6 W), 4.0-GB of system memory, 32-GB of eMMC storage, and the Chrome 64-bit operating system | L52558-001        |
| Equipped with an Intel Celeron N4000 1.1-GHz (turbo up to 2.6-GHz) processor (2400-MHz FSB, 4.0-MB L2 cache, dual core, 6 W), 4.0-GB of system memory, 16-GB of eMMC storage, and the Chrome 64-bit operating system | L52557-001        |

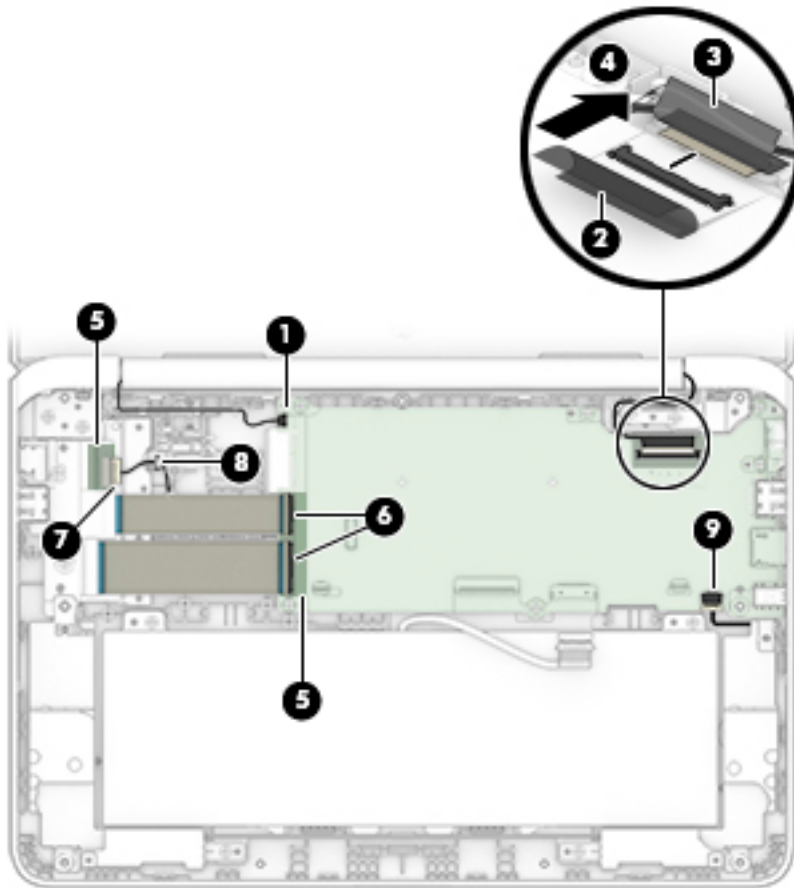
Before removing the system board, follow these steps:

1. 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.
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 bottom cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 28](#)).

Remove the system board:

1. Disconnect the webcam/microphone cable **(1)** from the system board.
2. Release the shielding **(2)** that covers the display panel cable connector.
3. Release the adhesive support strip **(3)** that secures the display panel cable to the system board.
4. Disconnect the display panel cable **(4)** from the system board.
5. Release the shielding **(5)** that covers the power board cables connector and the power cable.
6. Release the ZIF connectors **(6)** to which power board cables are connected, and then disconnect the power board cables from the system board.
7. Disconnect the power cable **(7)** from the power board.
8. Release the power cable from the retention clips/routing channel **(8)** built into the base enclosure.

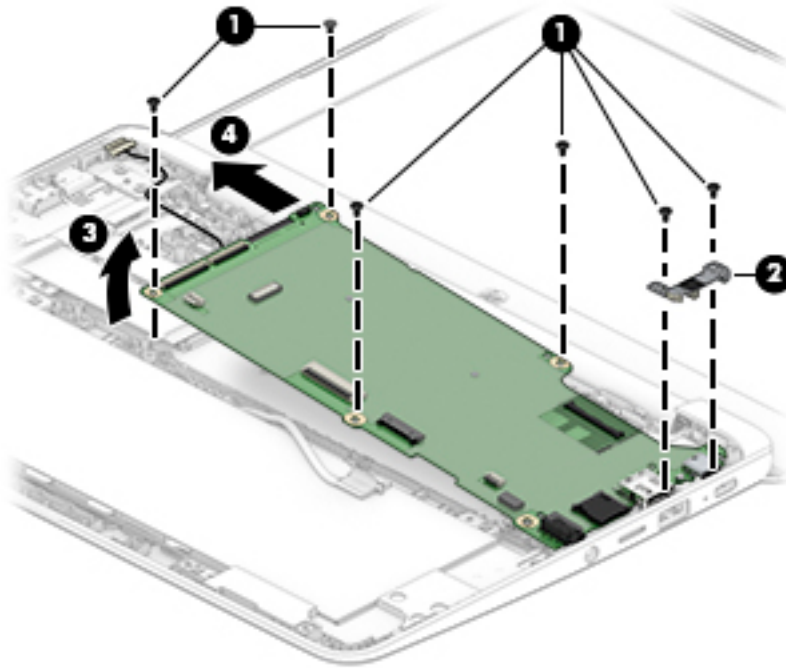
9. Disconnect the speaker cable (9) from the system board.



10. Remove the six Phillips M2.0×4.1 screws (1) that secure the system board to the base enclosure.
11. Remove the I/O bracket (2).
12. Lift the left side of the system board (3) until it rests at an angle.



13. Remove the system board (4) by sliding it up and to the left at an angle.



Reverse this procedure to install the system board.

## Power cable



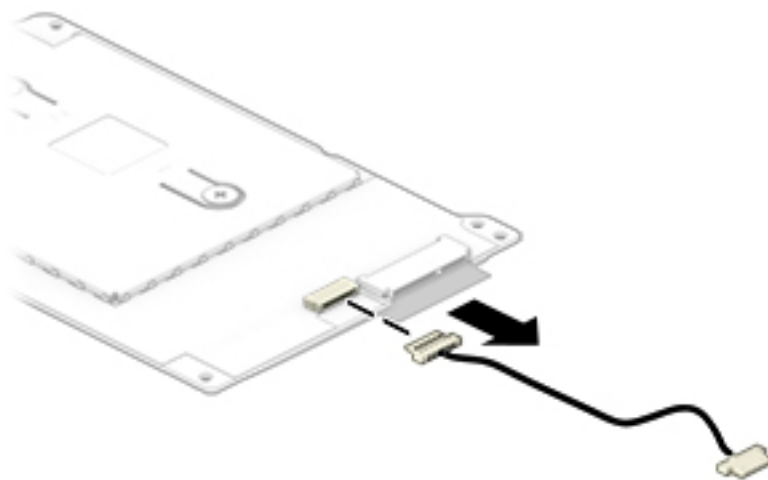
**NOTE:** The power board spare part kit does not include the power cable. The power cable is included in the Cable Kit, spare part number L52549-001.

Before removing the power cable, follow these steps:

1. 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.
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 bottom cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 28](#)).
6. Remove the system board (see [System board on page 34](#)).

Remove the power cable:

1. Turn the system board upside down with the rear toward you.
2. Disconnect the power cable from the system board.



Reverse this procedure to install the power cable.

## Display assembly



**NOTE:** The display assembly is spared at the subcomponent level. For display assembly spare part information, see the individual removal subsections.

Before removing the display assembly, follow these steps:

1. 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.
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 bottom cover (see [Keyboard/top cover on page 21](#)).
5. Disconnect the battery cable from the system board (see [Battery on page 28](#)).

Remove the display assembly:

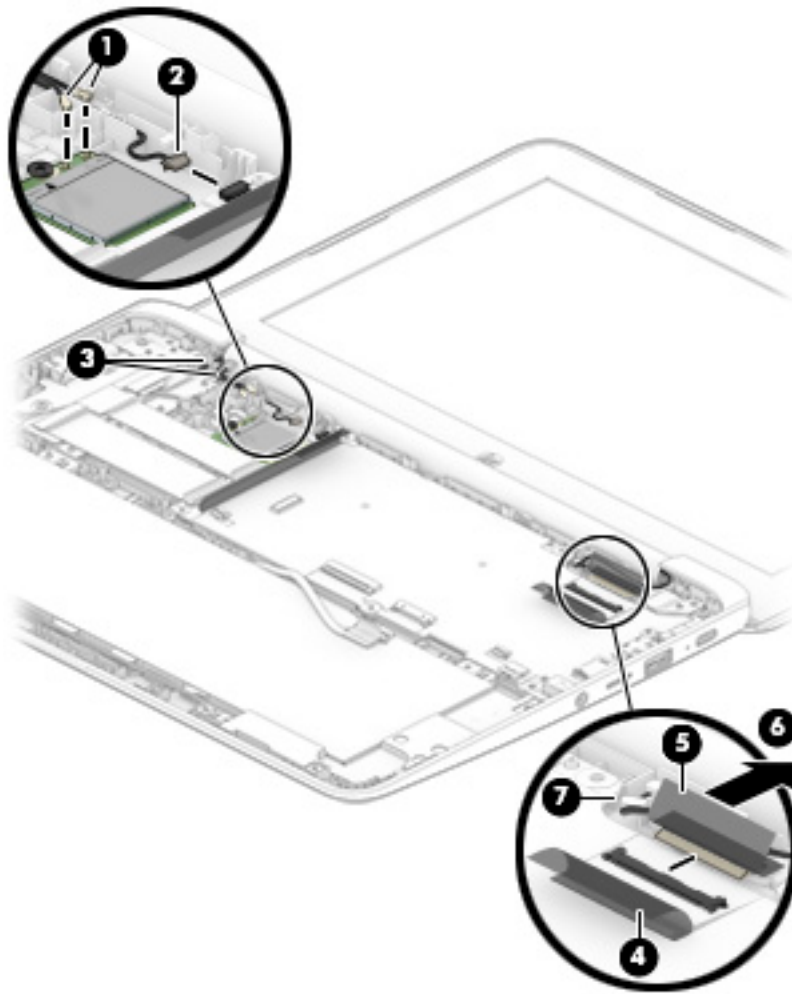
1. Disconnect the WLAN antenna cables **(1)** from the WLAN module.



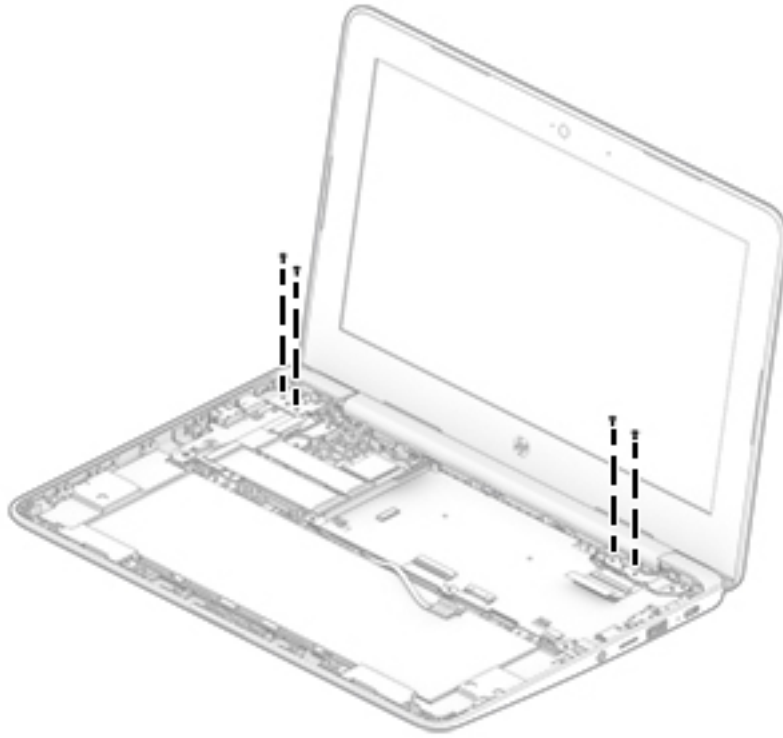
**NOTE:** The #1/white WLAN antenna cable connects to the WLAN module "#1/Main" terminal. The #2/black WLAN antenna cable connects to the WLAN module "#2/Aux" terminal.

2. Disconnect the webcam/microphone module cable **(2)** from the system board.
3. Release the webcam/microphone module cable and the WLAN antenna cables from the retention clips **(3)** and routing channel built into the base enclosure.
4. Release the shielding **(4)** that covers the display panel cable connector.
5. Release the adhesive support strip **(5)** that secures the display panel cable to the system board.
6. Disconnect the display panel cable **(6)** from the system board.

7. Release the display panel cable from the retention clips (7) and routing channel built into the base enclosure.

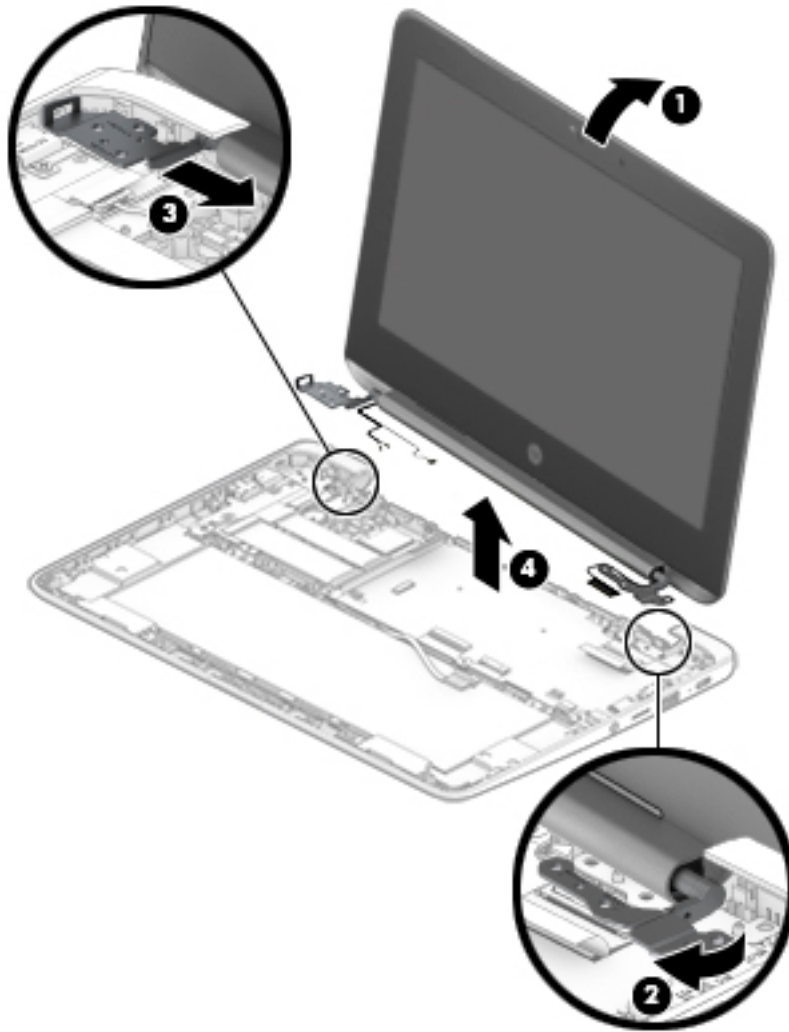


8. Remove the four Phillips M2.5×5.1 screws that secure the display assembly to the base enclosure.



9. Swing the display assembly **(1)** up and back until the display assembly is in an upright position.
10. Rotate the right display hinge **(2)** clockwise until the hinge releases from the base enclosure.
11. Slide the left display hinge **(3)** away from the base enclosure at an angle until the hinge release from the base enclosure.

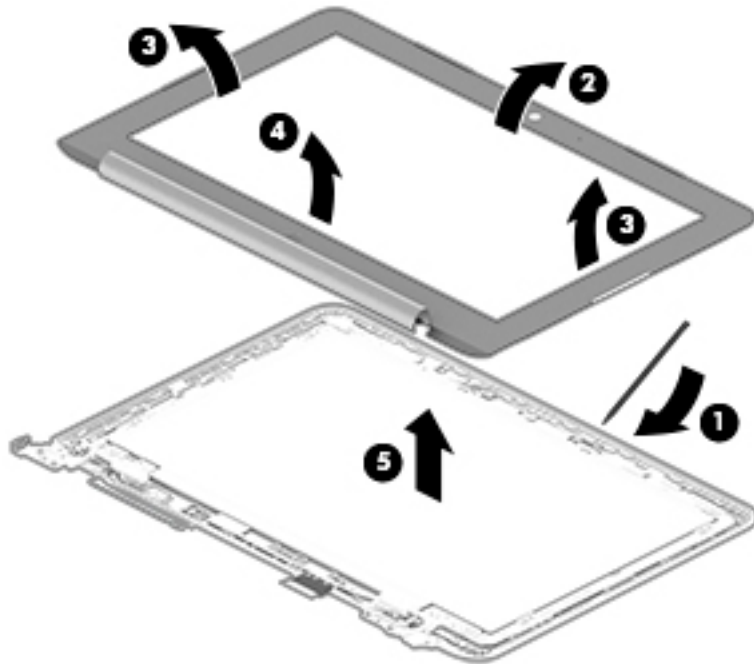
12. Remove the display assembly (4).



13. If it is necessary to replace the display bezel or any of the display assembly subcomponents:
- Insert a case utility tool (1) or similar thin, plastic tool into the top edge of the display assembly.
  - Swing the inside edge of the display panel assembly top edge (2) up and back until it releases from the display back cover.
  - Swing the inside edges of the display panel assembly left and right edges (3) up and out until they release from the display back cover.
  - Swing the inside edge of the display panel assembly bottom edge (4) up and out until it releases from the display back cover.

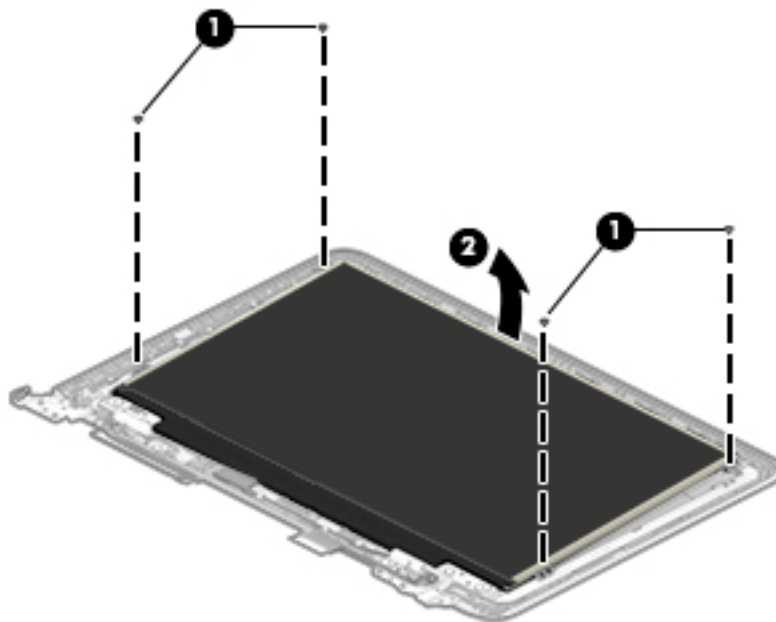
- e. Remove the display bezel (5).

The display bezel is available using spare part number L52553-001.



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

- a. Remove the display assembly.
- b. Remove the display bezel.
- c. Remove the four Phillips M2.0×2.8 screws (1) that secure the display panel to the display back cover.
- d. Lift the display panel top edge (2) and swing it up and forward until it rests upside down in front of the display back cover.



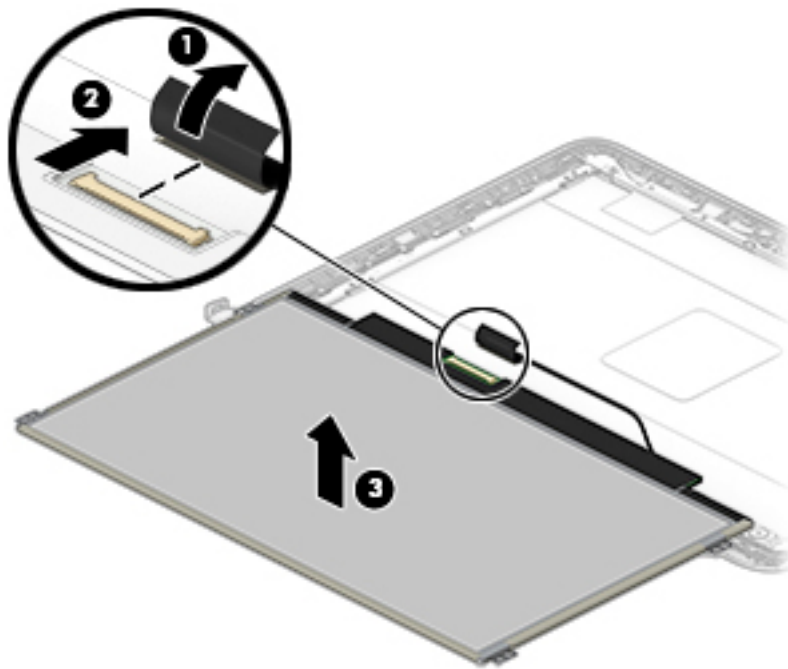
- e. Release the adhesive support strip **(1)** that secures the display panel cable to the display panel.
- f. Disconnect the display panel cable **(2)** from the display panel.
- g. Remove the display panel **(3)**.

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

L52562-001 – 11.6-in., BrightView, LED, UWVA TouchScreen display panel

L52564-001 – 11.6-in., HD, AntiGlare, LED, UWVA non-TouchScreen display panel

L52563-001 – 11.6-in., HD, AntiGlare, LED, SVA non-TouchScreen display panel

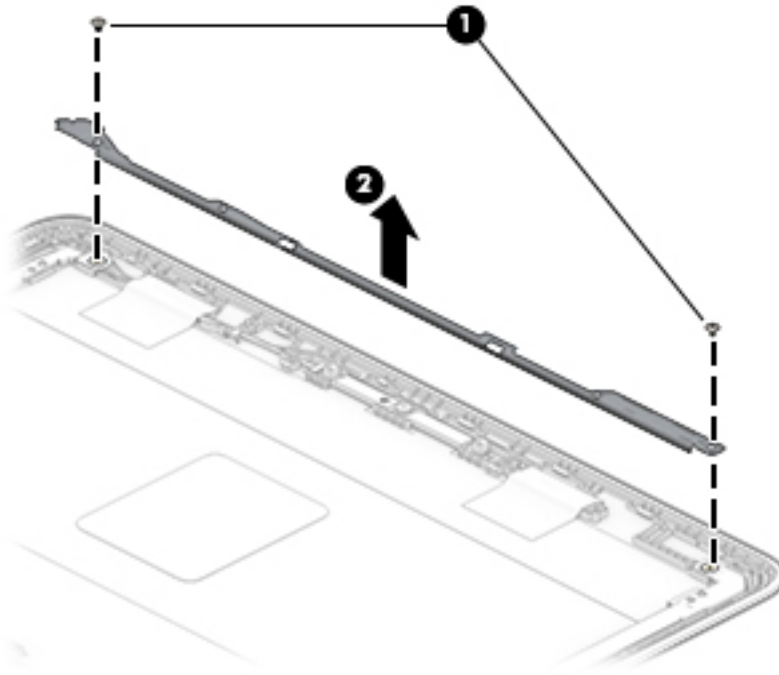


15. If it is necessary to replace the display bracket:
- a. Remove the display assembly.
  - b. Remove the display bezel.
  - c. Remove the display panel.
  - d. Remove the two Phillips M2.0×2.8 screws **(1)** that secure the display bracket to the display back cover.



- e. Remove the display bracket (2).

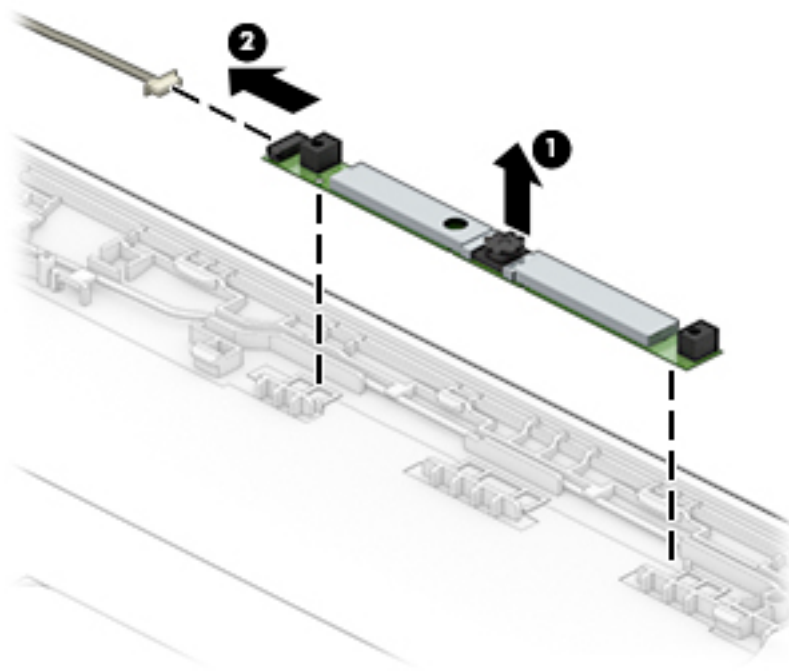
The display bracket is available using spare part number L52554-001.



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

- a. Remove the display assembly.
- b. Remove the display bezel.
- c. Remove the display panel.
- d. Remove the display bracket.
- e. Detach the webcam/microphone module (1) from the display back cover. (The webcam/microphone module is attached to the display back cover with double-sided adhesive.)

- f. Disconnect the webcam/microphone module cable (2) from the webcam/microphone module.



- g. Remove the webcam/microphone module.

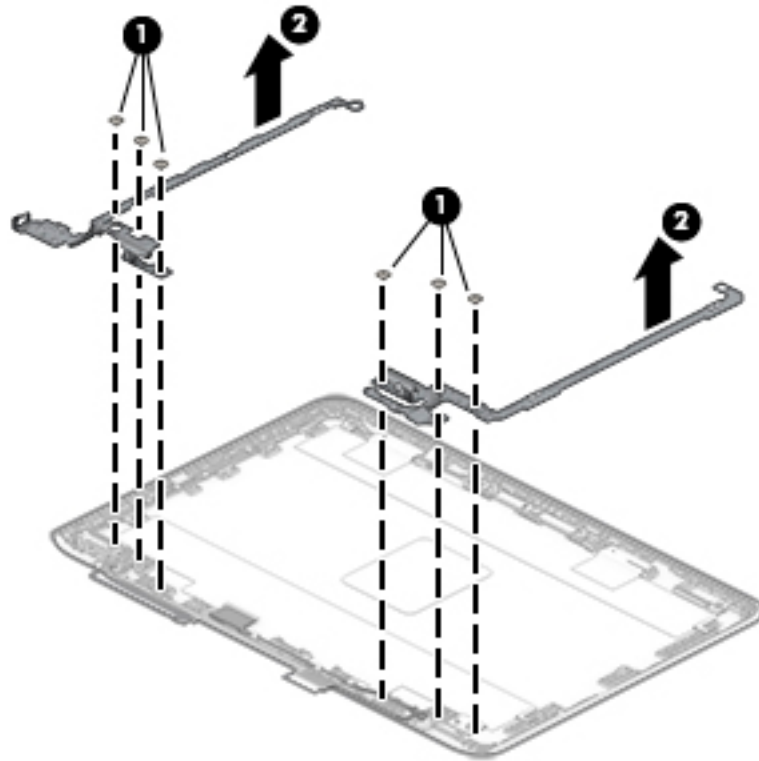
The webcam/microphone module is available using spare part number L52572-001.

17. If it is necessary to replace the display hinges:

- a. Remove the display assembly.
- b. Remove the display bezel.
- c. Remove the display panel.
- d. Remove the display bracket.
- e. Remove the six Phillips M2.0×2.9 broad head screws (1) that secure the hinges to the display back cover.

- f. Remove the display hinges (2).

The display hinges are available using spare part number L52550-001.

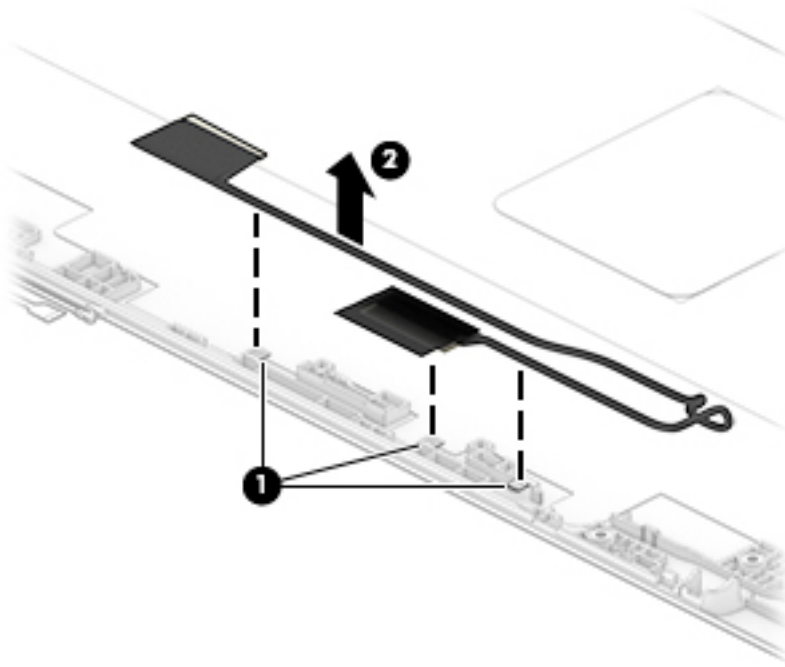


18. If it is necessary to replace the display panel cable:

- a. Remove the display assembly.
- b. Remove the display bezel.
- c. Remove the display panel.
- d. Remove the display bracket.
- e. Remove the display right hinge.
- f. Release the display panel cable from the retention clips (1) and routing channel built into the display back cover.

- g. Remove the display panel cable (2).

The display panel cable is available using spare part numbers L52556-001 (for use only on computer models equipped with a TouchScreen display assembly) and L52555-001 (for use only on computer models equipped with a non-TouchScreen display assembly).

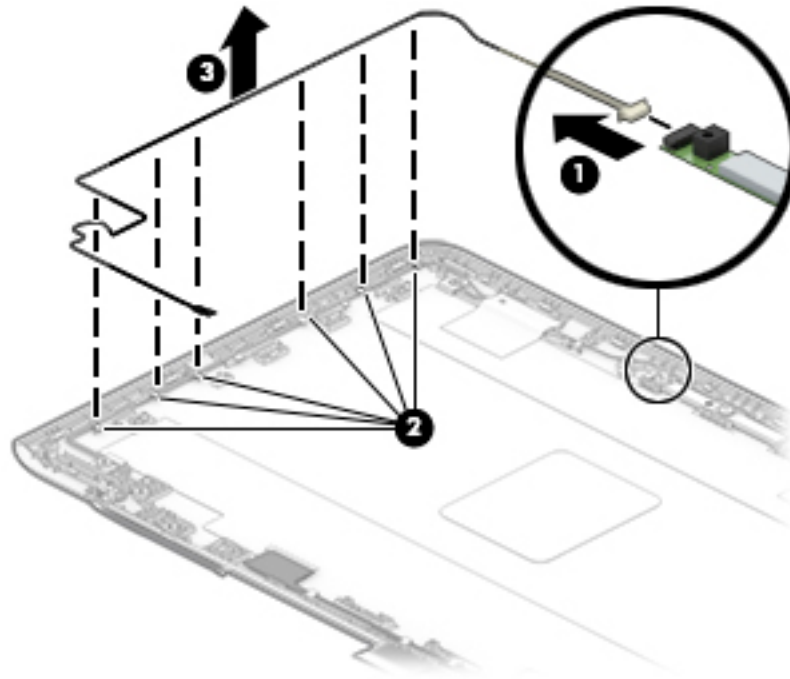


19. If it is necessary to replace the webcam/microphone module cable:

- a. Remove the display assembly.
- b. Remove the display bezel.
- c. Remove the display panel.
- d. Remove the display bracket.
- e. Remove the display left hinge.
- f. Remove the display panel cable.
- g. Remove the display left hinge.
- h. Disconnect the webcam/microphone module cable (1) from the webcam/microphone module.
- i. Release the webcam/microphone module cable from the retention clips (2) and routing channel built into the left side of the display back cover.

- j. Remove the webcam/microphone module cable (3).

The webcam/microphone module cable is included in the Cable Kit, spare part number L52549-001.



Reverse this procedure to reassemble and install the display assembly.

## 6 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 50](#)).
- **Creating a restore point**—You can use Windows tools to create a restore point (see [Using Windows tools on page 50](#)).
- **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 50](#)).
- **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 50](#)).



**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 50](#).

### 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 50](#).



**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.

## 7 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 52](#).

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. Right-click **HP PC Hardware Diagnostics Windows**, select **More**, and then select **Run as administrator**.

— 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 54](#).

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](#).

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## 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 54](#).

---

- b. Hard drive


- c. BIOS

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

## Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive

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


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### 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.

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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.

## 8 Specifications

### Computer specifications

Table 8-1 Computer specifications

|   | Metric                                       | U.S.   |
|---|--|--|
| <b>Dimensions</b>   |  |  |
| Width   | 30.6 cm                                      | 12.0 in                                      |
| Depth   | 20.7 cm                                      | 8.1 in                                       |
| Height (front to back)  | 1.1 cm                                       | 0.43 in                                      |
| <b>Weight</b>   | 2.09 or 2.29 kg (depending on configuration) | 4.61 lb or 5.05 (depending on configuration) |
| <b>Input power</b>  |  |  |
| 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) |  |
| <b>Temperature</b>  |  |  |
| Operating   | 5°C to 35°C                                  | 41°F to 95°F                                 |
| Nonoperating  | -20°C to 60°C                                | -4°F to 140°F                                |
| <b>Relative humidity</b> (noncondensing)  |  |  |
| Operating   | 10% to 90%                                   |  |
| Nonoperating  | 5% to 95%                                    |  |
| <b>Maximum altitude</b> (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                          |
| <b>NOTE:</b> Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures. |  |  |

---

## 9 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 9-1** Power cord requirements for specific countries and regions

| Country/region                 | Accredited agency | Applicable note number |
|--------------------------------|-------------------|------------------------|
| Argentina                      | IRAM              | 1                      |
| Australia                      | SAA               | 1                      |
| Austria                        | OVE               | 1                      |
| Belgium                        | CEBEC             | 1                      |
| Brazil                         | ABNT              | 1                      |
| Canada                         | CSA               | 2                      |
| Chile                          | IMQ               | 1                      |
| Denmark                        | DEMKO             | 1                      |
| Finland                        | FIMKO             | 1                      |
| France                         | UTE               | 1                      |
| 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 mm<sup>2</sup> 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 9-1 Power cord requirements for specific countries and regions (continued)**

| Country/region | Accredited agency | Applicable note number  |
|----------------|-------------------|---|
|                |                   | <p>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.</p> <p>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<sup>2</sup> or 1.25 mm<sup>2</sup> conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V AC) configuration.</p> <p>4. The flexible cord must be Type RVV, 3-conductor, 0.75 mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the CCC certification mark.</p> <p>5. The flexible cord must be Type H05VV-F 3-conductor, 0.75 mm<sup>2</sup> 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.</p> <p>6. The flexible cord must be Type HVCTF 3-conductor, 1.25 mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark.</p> <p>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<sup>2</sup> or 1.00 mm<sup>2</sup> conductor size, with plug BS 1363/A with BSI or ASTA marks.</p> |



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## 10 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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