



# HP Pavilion 14 Chromebook

## Maintenance and Service Guide

### SUMMARY

**CAUTION:** Your computer has user-replaceable parts and *non-user-replaceable parts that should only be replaced by an authorized service provider*. Accessing some internal parts can damage the computer or void your warranty. Go to [Removal and replacement procedures on page 15](#) for details.

© Copyright 2013 Hewlett-Packard  
Development Company, L.P.

Bluetooth is a trademark owned by its proprietor and used by Hewlett-Packard Company under license. Google is a trademark of Google Inc. Intel and Celeron are trademarks of Intel Corporation in the U.S. and other countries. SD Logo is a trademark of its proprietor.

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

Second Edition: April 2013

First Edition: January 2013

Document Part Number: 709592-002

## 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).

---



---

# Table of contents

|                                                   |           |
|---------------------------------------------------|-----------|
| <b>1 Product description .....</b>                | <b>1</b>  |
| <b>2 External component identification .....</b>  | <b>3</b>  |
| Display .....                                     | 3         |
| Top .....                                         | 4         |
| TouchPad .....                                    | 4         |
| Lights, speakers, and buttons .....               | 5         |
| Left side .....                                   | 6         |
| Right side .....                                  | 7         |
| Bottom .....                                      | 8         |
| <b>3 Illustrated parts catalog .....</b>          | <b>9</b>  |
| Service label .....                               | 9         |
| Computer major components .....                   | 10        |
| Display assembly subcomponents .....              | 12        |
| Miscellaneous parts .....                         | 12        |
| Sequential part number listing .....              | 13        |
| <b>4 Removal and replacement procedures .....</b> | <b>15</b> |
| Preliminary replacement requirements .....        | 15        |
| Tools required .....                              | 15        |
| Service considerations .....                      | 15        |
| Plastic parts .....                               | 15        |
| Cables and connectors .....                       | 15        |
| Drive handling .....                              | 16        |
| Grounding guidelines .....                        | 16        |
| Electrostatic discharge damage .....              | 16        |
| Packaging and transporting guidelines .....       | 17        |
| Component replacement procedures .....            | 19        |
| Service label .....                               | 19        |
| Battery .....                                     | 20        |
| Computer feet .....                               | 21        |
| Display panel .....                               | 22        |
| Keyboard .....                                    | 24        |
| Top cover .....                                   | 28        |
| Power button board .....                          | 30        |

|                                                       |           |
|-------------------------------------------------------|-----------|
| Hard drive .....                                      | 32        |
| USB board/Audio jack .....                            | 34        |
| WLAN module .....                                     | 35        |
| System board .....                                    | 38        |
| Memory module .....                                   | 41        |
| RTC battery .....                                     | 44        |
| PCH heat sink .....                                   | 45        |
| Heat sink .....                                       | 46        |
| Fan .....                                             | 47        |
| Speaker assembly .....                                | 48        |
| RJ-45 cover .....                                     | 49        |
| Display Assembly .....                                | 50        |
| Power connector .....                                 | 53        |
| <b>5 Specifications .....</b>                         | <b>55</b> |
| Computer specifications .....                         | 55        |
| 35.6 cm (14.0 in), display specifications .....       | 56        |
| Hard drive specifications .....                       | 56        |
| Solid-state drive specifications .....                | 57        |
| <b>6 Power cord set requirements .....</b>            | <b>58</b> |
| Requirements for all countries .....                  | 58        |
| Requirements for specific countries and regions ..... | 59        |
| <b>7 Recycling .....</b>                              | <b>61</b> |
| <b>Index .....</b>                                    | <b>62</b> |

# 1 Product description

| Category        | Description                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name    | HP Pavilion 14 Chromebook                                                                                                                                                                                                                                                                                                                                                               |
| Processor       | Intel® Celeron® 847 (1.1GHz, 1333 MHz/2 MB L3 Cache, dual core, controllable TDP, 8 W-17 W)                                                                                                                                                                                                                                                                                             |
| Chipset         | Intel NM70 Express chipset                                                                                                                                                                                                                                                                                                                                                              |
| Graphics        | Intel HD Graphics<br>Supports HD Decode, DX11, and HDMI                                                                                                                                                                                                                                                                                                                                 |
| Display panel   | <b>35.6 cm</b> (14.0 in), high-definition (HD), white light-emitting diode (WLED), flat (3.6 mm) SVA BrightView (1366×768) display: <ul style="list-style-type: none"><li>• Typical brightness: 200 cd/m<sup>2</sup> (nits)</li><li>• All display assemblies include two wireless local area network (WLAN) antenna cables</li><li>• Supports 16:9 ultra-wide aspect ratio</li></ul>    |
| Memory          | One SODIMM memory module slot<br>Dual-channel memory support<br>DDR3L-1600 MHz Dual Channel support<br>DDR3-1333 MHz support (DDR3L-1600 downgraded to DDR3-1333)<br>Supports up to 4 GB of system RAM in the following configurations: <ul style="list-style-type: none"><li>• 4096 MB total system memory (4096 MB × 1)</li><li>• 2048 MB total system memory (2048 MB × 1)</li></ul> |
| Hard drives     | Supports <b>6.35 cm</b> (2.5 in) hard drives in<br><b>9.5 mm</b> (.37 in) and <b>7.0 mm</b> (.28 in) thicknesses<br>Serial ATA (SATA)<br>Supports the following single hard drive configurations: <ul style="list-style-type: none"><li>• 320 GB, 5400 rpm, 9.5 mm</li><li>• 320 GB, 5400 rpm, 7.0 mm</li><li>• 16 GB solid-state drive</li></ul>                                       |
| Audio and video | One digital microphone<br>HD audio<br>Two Altec Lansing speakers<br>HP TrueVision HD camera (fixed, no tilt) with activity LED, USB 2.0, M-JPEG, 1280 x 720 by 30 frames per second                                                                                                                                                                                                     |
| Ethernet        | Integrated 10/100 network interface card (NIC)                                                                                                                                                                                                                                                                                                                                          |
| Wireless        | Integrated wireless local area network (WLAN) options by way of wireless module                                                                                                                                                                                                                                                                                                         |

| Category                         | Description                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                  | Two WLAN antennas built into display assembly                                                                                                                                                                                                                                                                                                                    |
|                                  | Support for the following WLAN formats:                                                                                                                                                                                                                                                                                                                          |
|                                  | <ul style="list-style-type: none"> <li>Atheros AR9462 802.11 a/b/g/n 2x2 Bluetooth® 4.0 combo adapter, HMC</li> </ul>                                                                                                                                                                                                                                            |
| <b>External media card</b>       | <p>HP Multi-Format Digital Media Reader slot with push-push technology, supporting the following digital card formats:</p> <ul style="list-style-type: none"> <li>Secure Digital (SD) Memory Card</li> <li>Secure Digital High Capacity (SDHC) Memory Card</li> <li>Secure Digital Extended Capacity (SDXC) Memory Card</li> <li>MultiMediaCard (MMC)</li> </ul> |
| <b>Internal media cards</b>      | <ul style="list-style-type: none"> <li>One half-size Mini Card slot for WLAN</li> </ul>                                                                                                                                                                                                                                                                          |
| <b>Ports</b>                     | <ul style="list-style-type: none"> <li>Audio-in/Audio-out (combination headphone/microphone)</li> <li>HDMI version 1.4 supporting up to 1920×1200 @ 60Hz</li> <li>HP AC power adapter</li> <li>RJ-45 (Ethernet, includes link and activity lights)</li> <li>USB 2.0 (3 ports)</li> </ul>                                                                         |
| <b>Keyboard/pointing devices</b> | <p>Full-size, island-style keyboard</p> <p>TouchPad with two buttons:</p> <ul style="list-style-type: none"> <li>Multitouch gesture support enabled as default</li> <li>Taps enabled by default</li> </ul>                                                                                                                                                       |
| <b>Power requirements</b>        | <p><b>AC adapter</b></p> <p>65 W AC adapter, nPFC</p> <p><b>Battery</b></p> <p>4 cell, 37 Whr, 2.55 Ah, Li-ion battery</p> <p>Supports fast charge</p>                                                                                                                                                                                                           |
| <b>Security</b>                  | <p>Security cable slot</p> <p>Trusted Platform Module (TPM) functionality</p>                                                                                                                                                                                                                                                                                    |
| <b>Operating system</b>          | <p><b>Preinstalled:</b></p> <ul style="list-style-type: none"> <li>Google™ Chrome OS</li> </ul>                                                                                                                                                                                                                                                                  |
| <b>Serviceability</b>            | <p><b>End-user replaceable parts:</b></p> <ul style="list-style-type: none"> <li>AC adapter</li> <li>Battery</li> <li>Keyboard</li> </ul>                                                                                                                                                                                                                        |

## 2 External component identification

### Display

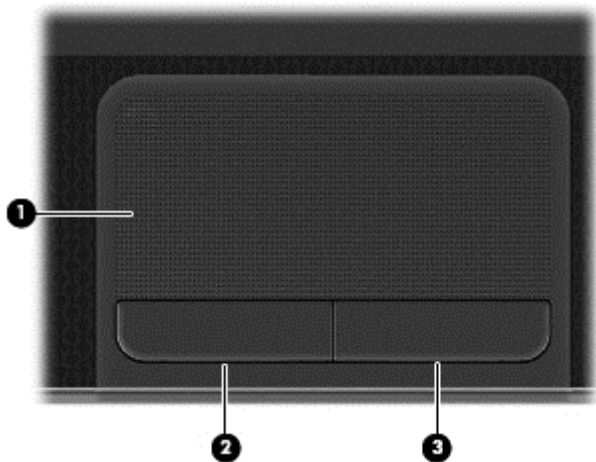


| Component |                         | Description                                                                                                          |
|-----------|-------------------------|----------------------------------------------------------------------------------------------------------------------|
| (1)       | WLAN antennas (2)*      | Send and receive wireless signals to communicate with wireless local area networks (WLANs).                          |
| (2)       | Webcam light            | On: The webcam is in use.                                                                                            |
| (3)       | HP TrueVision HD Webcam | Records video, captures still photographs, and allows you to video conference and chat online using streaming video. |
| (4)       | Internal microphone     | Records sound.                                                                                                       |

\*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region.

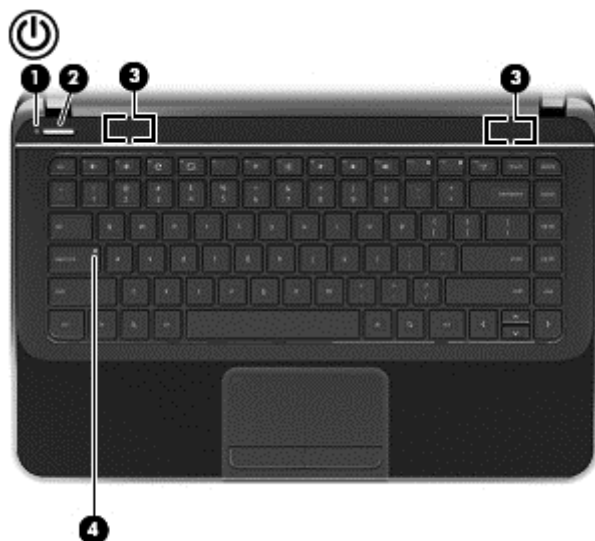
# Top

## TouchPad



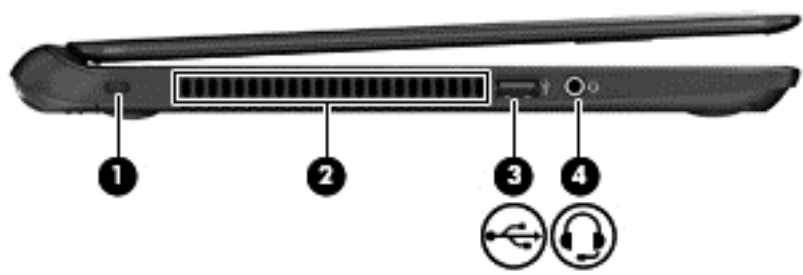
| Component |                       | Description                                                               |
|-----------|-----------------------|---------------------------------------------------------------------------|
| (1)       | TouchPad zone         | Moves the on-screen pointer and selects or activates items on the screen. |
| (2)       | Left TouchPad button  | Functions like the left button on an external mouse.                      |
| (3)       | Right TouchPad button | Functions like the right button on an external mouse.                     |

## Lights, speakers, and buttons



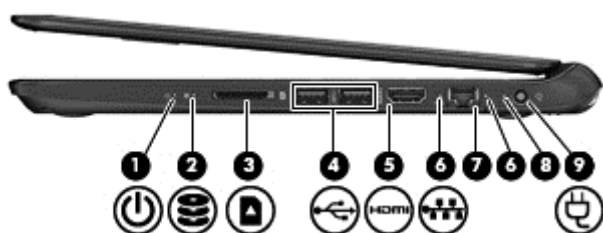
| Component |                                                                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1)       |  Power light | <ul style="list-style-type: none"><li>• White: The computer is on.</li><li>• Blinking white: The computer is in the Sleep state, which is an energy-saving mode. The computer shuts off power to the display and other unneeded components.</li><li>• Off: The computer is off.</li></ul>                                                                                                                                                                                                                                                                               |
| (2)       | Power button                                                                                  | <ul style="list-style-type: none"><li>• When the computer is off, press the button to turn on the computer.</li><li>• When the computer is in the Sleep state, press the button briefly to exit that state.</li><li>• When the computer is on and you want to lock the screen, briefly press the power button until you see the sign-in screen appear. Pressing the power button during screen lock mode will turn off the computer.</li><li>• When computer is on and you want to turn off the computer, press and hold the power button until it turns off.</li></ul> |
| (3)       | Speakers (2)                                                                                  | Produce sound.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| (4)       | Caps lock light                                                                               | White: Caps lock is on, which switches the letter keys to all capital letters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

# Left side



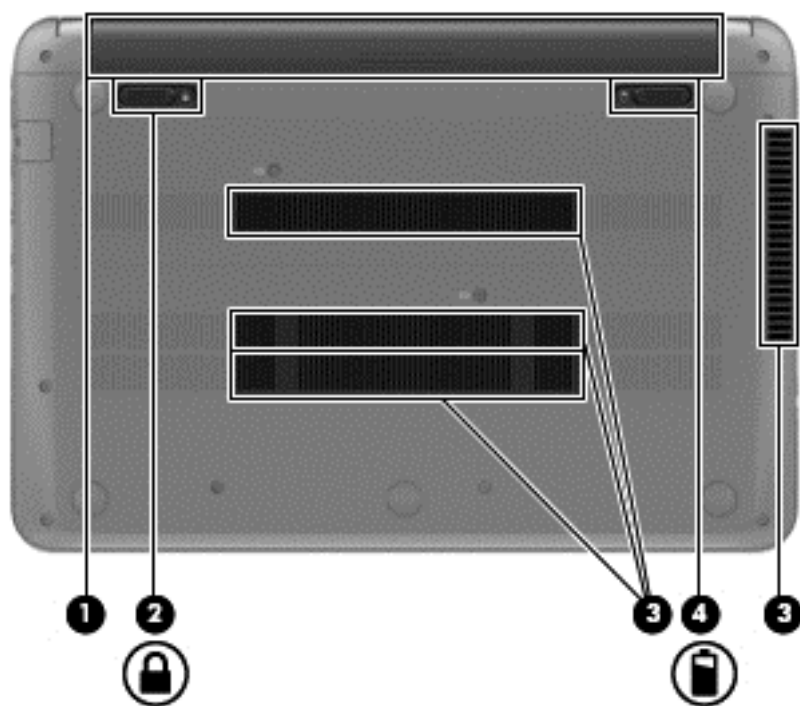
| Component |                                                                                                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1)       | 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)       | Vent                                                                                                                                     | Enables 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (3)       |  USB 2.0 port                                           | Connects an optional USB 2.0 device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (4)       |  Audio-out (headphone) jack/Audio-in (microphone) jack | Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio. Also connects an optional headset microphone. The jack does not support optional microphone-only devices.<br><br><b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety and Environmental Notices</i> .<br><br><b>NOTE:</b> When a device is connected to the jack, the computer speakers are disabled.<br><br><b>NOTE:</b> Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone). |

## Right side



| Component                                                                                                    | Description                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1)  Power light            | <ul style="list-style-type: none"> <li>• White: The computer is on.</li> <li>• Blinking white: The computer is in the Sleep state, which is an energy-saving mode. The computer shuts off power to the display and other unneeded components.</li> <li>• Off: The computer is off.</li> </ul>                         |
| (2)  Drive light            | <ul style="list-style-type: none"> <li>• Blinking white: The drive is being accessed.</li> </ul>                                                                                                                                                                                                                      |
| (3)  Digital Media Slot     | <p>Supports the following digital card formats:</p> <ul style="list-style-type: none"> <li>• Secure Digital (SD) Memory Card</li> <li>• Secure Digital High Capacity (SDHC) Memory Card</li> <li>• Secure Digital Extended Capacity (SDxC) Memory Card</li> <li>• MultiMediaCard (MMC)</li> </ul>                     |
| (4)  USB 2.0 ports (2)    | Connect optional USB 2.0 devices.                                                                                                                                                                                                                                                                                     |
| (5)  HDMI port            | Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio device.                                                                                                                                                                                          |
| (6) RJ-45 (network) jack lights                                                                              | <ul style="list-style-type: none"> <li>• White: Computer is connected to a network.</li> <li>• Blinking amber: Data is being transferred.</li> </ul> <p><b>NOTE:</b> When both lights are off the computer is not connected to a network.</p>                                                                         |
| (7)  RJ-45 (network) jack | Connects a network cable.                                                                                                                                                                                                                                                                                             |
| (8) AC adapter light                                                                                         | <ul style="list-style-type: none"> <li>• White: The AC adapter is connected and the battery is charged.</li> <li>• Blinking white: The battery has reached a low battery level.</li> <li>• Amber: The AC adapter is connected and the battery is charging.</li> <li>• Off: The computer is using DC power.</li> </ul> |
| (9)  Power connector      | Connects an AC adapter.                                                                                                                                                                                                                                                                                               |

# Bottom



| Component |                                                                                                           | Description                                                                                                                                                                                                                               |
|-----------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1)       | Battery bay                                                                                               | Holds the battery.                                                                                                                                                                                                                        |
| (2)       |  Battery lock          | Unlocks and locks the battery.                                                                                                                                                                                                            |
| (3)       | Vents (4)                                                                                                 | Enable airflow to cool internal components.<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. |
| (4)       |  Battery release latch | Releases the battery from the battery bay.                                                                                                                                                                                                |

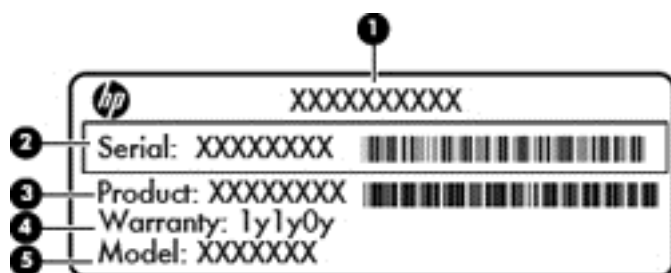
## 3 Illustrated parts catalog

### Service label

When ordering parts or requesting information, provide the computer serial number and model description provided on the service label. The service label is located on the bottom of the computer.

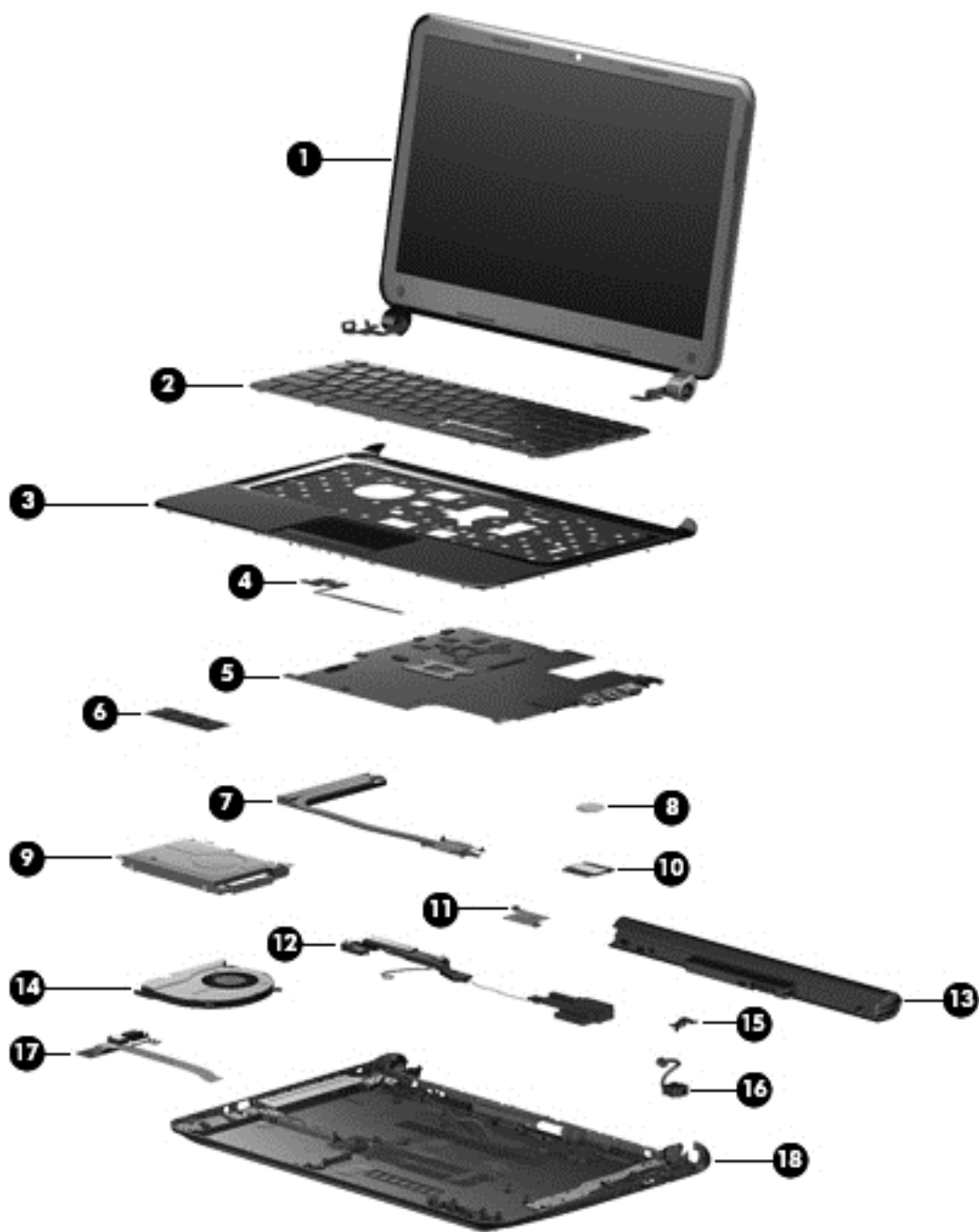


**NOTE:** Your label may look slightly different from the illustration in this section.



| Item | Description                               | Function                                                                                                                                                                         |
|------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1)  | Product name                              | This is the model name for the computer.                                                                                                                                         |
| (2)  | Serial number                             | This is an alphanumeric identifier that is unique to each product.                                                                                                               |
| (3)  | Product part number                       | This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed. |
| (4)  | Warranty period                           | This number describes the duration of the warranty period for the computer.                                                                                                      |
| (5)  | Model description<br>(select models only) | This is the alphanumeric identifier needed to locate documents, drivers, and support for the computer.                                                                           |

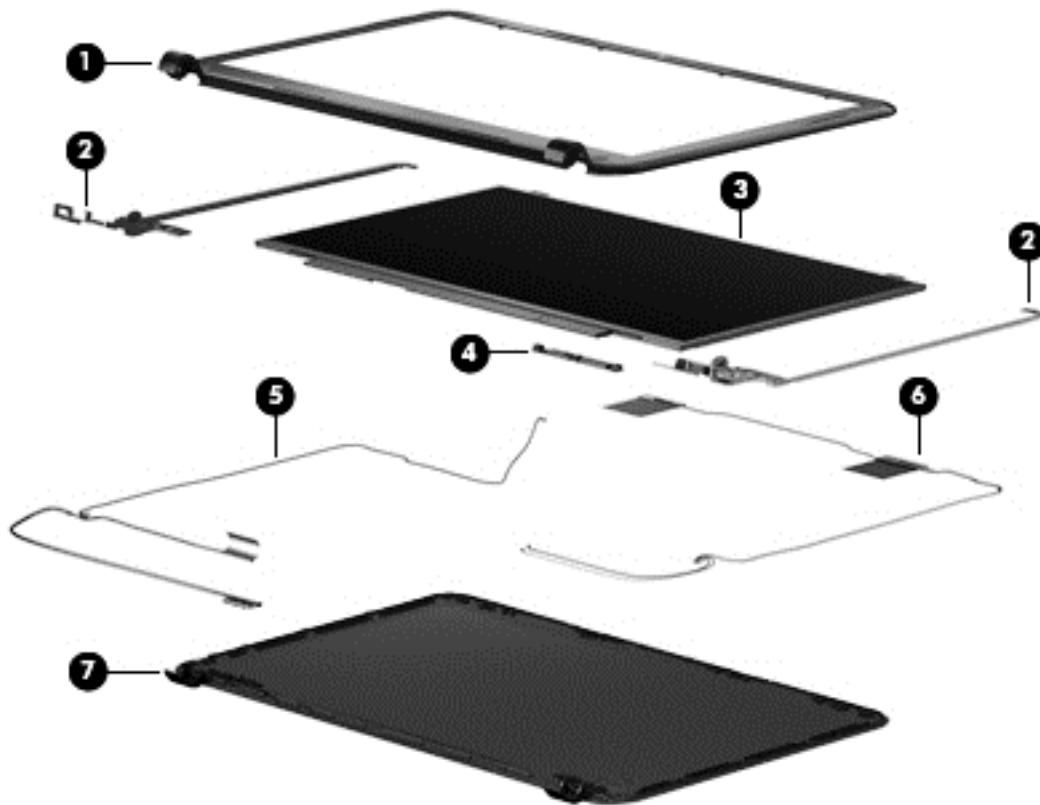
# Computer major components



| Item | Component                                                                                                                                                                                                                                                                              | Spare part number |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| (1)  | <b>35.6 cm (14.0 in), high definition (HD), WLED, SVA BrightView flat display assembly.</b> The display assembly is spared at the subcomponent level only.<br><br><b>NOTE:</b> For a full list of display spare parts, see <a href="#">Display assembly subcomponents on page 12</a> . |                   |
| (2)  | <b>Keyboard, black finish (includes keyboard cable):</b> <ul style="list-style-type: none"><li>For use in France</li></ul>                                                                                                                                                             | 708135-051        |

| Item | Component                                                                                                            | Spare part number |
|------|----------------------------------------------------------------------------------------------------------------------|-------------------|
|      | <ul style="list-style-type: none"> <li>For use in Germany</li> </ul>                                                 | 708135-041        |
|      | <ul style="list-style-type: none"> <li>For use Internationally</li> </ul>                                            | 708135-B31        |
|      | <ul style="list-style-type: none"> <li>For use in the Nordic Region</li> </ul>                                       | 708135-DH1        |
|      | <ul style="list-style-type: none"> <li>For use in Latin America</li> </ul>                                           | 708135-161        |
|      | <ul style="list-style-type: none"> <li>For use in the United Kingdom</li> </ul>                                      | 708135-031        |
|      | <ul style="list-style-type: none"> <li>For use in the United States</li> </ul>                                       | 708135-001        |
| (3)  | <b>Top cover</b> , sparkling black (includes TouchPad)                                                               | 708136-001        |
| (4)  | <b>Power button board</b> (includes cable)                                                                           | 697901-001        |
| (5)  | <b>System board</b> (includes processor and replacement thermal material)                                            | 704989-001        |
| (6)  | <b>Memory module</b> (DDR3-1600 MHz, PC3-12800):                                                                     |                   |
|      | <ul style="list-style-type: none"> <li>4 GB</li> </ul>                                                               | 641369-005        |
|      | <ul style="list-style-type: none"> <li>2 GB</li> </ul>                                                               | 652972-005        |
| (7)  | <b>Heat sink</b> (includes replacement thermal material)                                                             | 697915-001        |
| (8)  | <b>RTC battery</b>                                                                                                   | 697917-001        |
| (9)  | <b>Hard drive</b> SATA, (does not include hard drive bracket or cable):                                              |                   |
|      | <b>9.5 mm</b> (0.37 in) x <b>6.35 cm</b> (2.50 in):                                                                  |                   |
|      | <ul style="list-style-type: none"> <li>320 GB, 5400 rpm</li> </ul>                                                   | 622643-005        |
|      | <b>7.0 mm</b> (0.28 in) x <b>6.35 cm</b> (2.50 in):                                                                  |                   |
|      | <ul style="list-style-type: none"> <li>320 GB, 5400 rpm</li> </ul>                                                   | 645193-005        |
|      | <b>Solid-state drive</b> , 16 GB                                                                                     | 713526-001        |
|      | <b>Hard Drive Hardware Kit</b> , not illustrated, (includes hard drive bracket, screws, and cable)                   | 697905-001        |
| (10) | <b>WLAN module</b> :                                                                                                 |                   |
|      | <ul style="list-style-type: none"> <li>Atheros AR9462 802.11 a/b/g/n 2x2 Bluetooth 4.0 combo adapter, HMC</li> </ul> | 676786-005        |
| (11) | <b>Platform Controller Hub (PCH) heat sink</b>                                                                       | 699248-001        |
| (12) | <b>Speaker assembly</b> (includes left and right speakers and cable)                                                 | 697918-001        |
| (13) | <b>Battery</b> , 4 cell, 37 Whr, (2.55 Ah)                                                                           | 695192-001        |
| (14) | <b>Fan</b>                                                                                                           | 697914-001        |
| (15) | <b>RJ-45 cover</b>                                                                                                   | 700428-001        |
| (16) | <b>Power connector</b>                                                                                               | 697921-001        |
| (17) | <b>USB board</b> (includes cable and audio-out/audio-in jack)                                                        | 697902-001        |
| (18) | <b>Base enclosure</b>                                                                                                | 708134-001        |
|      | <b>Rubber Feet Kit</b> , not illustrated                                                                             | 697906-001        |

## Display assembly subcomponents



| Item | Component                                                                                 | Spare part number |
|------|-------------------------------------------------------------------------------------------|-------------------|
| (1)  | Display bezel                                                                             | 697907-001        |
| (2)  | Display Hinge Kit (includes left and right display hinges and brackets)                   | 697908-001        |
| (3)  | 35.6 cm (14.0 in), HD, WLED, SVA BrightView flat display panel                            | 698523-001        |
| (4)  | Webcam/microphone module                                                                  | 697903-001        |
| (5)  | Antenna Kit (includes left and right wireless antenna cables and transceivers)            | 697913-001        |
| (6)  | Display Panel Cable Kit (includes display panel cable and webcam/microphone module cable) | 697911-001        |
| (7)  | Back cover, sparkling black                                                               | 708133-001        |

## Miscellaneous parts

| Component                                 | Spare part number |
|-------------------------------------------|-------------------|
| <b>AC adapter</b>                         |                   |
| • 65 W RC V AC                            | 693715-001        |
| • 65 W RC V AC (select models only)       | 707750-001        |
| <b>Power cord</b> (3-pin, black, 1.83 m): |                   |

| Component                                     | Spare part number |
|-----------------------------------------------|-------------------|
| • For use in Australia                        | 490371-011        |
| • For use in Denmark                          | 490371-081        |
| • For use in Europe                           | 490371-021        |
| • For use in India                            | 490371-D61        |
| • For use in North America                    | 490371-001        |
| • For use in the United Kingdom and Singapore | 490371-031        |
| <b>Screw Kit</b> (not illustrated)            | 697912-001        |
| <b>Thermal Material Kit</b>                   | 680571-001        |

## Sequential part number listing

| Spare part number | Description                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 490371-001        | Power cord for use in North America (black, 3-pin, 1.83 m)                                                            |
| 490371-011        | Power cord for use in Australia (black, 3-pin, 1.83 m)                                                                |
| 490371-021        | Power cord for use in Europe (black, 3-pin, 1.83 m)                                                                   |
| 490371-031        | Power cord for use in the United Kingdom and Singapore (black, 3-pin, 1.83 m)                                         |
| 490371-081        | Power cord for use in Denmark (black, 3-pin, 1.83 m)                                                                  |
| 490371-D61        | Power cord for use in India (black, 3-pin, 1.83 m)                                                                    |
| 622643-005        | 320 GB, 5400 rpm hard drive (9.5 mm (0.37 in) × 6.35 cm (2.50 in) SATA, does not include hard drive bracket or cable) |
| 641369-005        | 4 GB memory module (DDR3-1600 MHz, PC3-12800)                                                                         |
| 645193-005        | 320 GB, 5400 rpm hard drive (7.0 mm (0.28 in) × 6.35 cm (2.50 in) SATA, does not include hard drive bracket or cable) |
| 652972-005        | 2 GB memory module (DDR3-1600 MHz, PC3-12800)                                                                         |
| 676786-005        | Atheros AR9462 802.11 a/b/g/n 2x2 Bluetooth 4.0 combo adapter, HMC                                                    |
| 680571-001        | Thermal Material Kit (includes replacement thermal paste and pads)                                                    |
| 693715-001        | 65 W, nPFC, AC adapter                                                                                                |
| 695192-001        | 4 cell, 37 Whr, 2.55 Ah Li-ion battery                                                                                |
| 697901-001        | Power button board (includes cable)                                                                                   |
| 697902-001        | USB board (includes cable and audio-out/audio-in jack)                                                                |
| 697903-001        | Webcam/microphone module                                                                                              |
| 697905-001        | Hard Drive Hardware Kit (includes hard drive bracket, screws, and cable)                                              |
| 697906-001        | Rubber Feet Kit                                                                                                       |
| 697907-001        | Display bezel                                                                                                         |
| 697908-001        | Display Hinge Kit (includes left and right display hinges and brackets)                                               |

| Spare part number | Description                                                                               |
|-------------------|-------------------------------------------------------------------------------------------|
| 697911-001        | Display Panel Cable Kit (includes display panel cable and webcam/microphone module cable) |
| 697912-001        | Screw Kit                                                                                 |
| 697913-001        | Antenna Kit (includes left and right wireless antenna cables and transceivers)            |
| 697914-001        | Fan                                                                                       |
| 697915-001        | Heat sink (includes replacement thermal material)                                         |
| 697917-001        | RTC battery                                                                               |
| 697918-001        | Speaker assembly (includes left and right speakers and cable)                             |
| 697921-001        | Power connector                                                                           |
| 698523-001        | 35.6 cm (14.0 in), HD, WLED, SVA BrightView flat display panel                            |
| 699248-001        | PCH heat sink                                                                             |
| 700428-001        | RJ-45 cover                                                                               |
| 704989-001        | System board (includes processor and replacement thermal material)                        |
| 707750-001        | 65 W, nPFC, AC adapter (select models only)                                               |
| 708133-001        | Back cover, sparkling black                                                               |
| 708134-001        | Base enclosure                                                                            |
| 708135-001        | Keyboard with black finish for use in the United States (includes cable)                  |
| 708135-031        | Keyboard with black finish for use in the United Kingdom (includes cable)                 |
| 708135-041        | Keyboard with black finish for use in Germany (includes cable)                            |
| 708135-051        | Keyboard with black finish for use in France (includes cable)                             |
| 708135-161        | Keyboard with black finish for use in Latin America (includes cable)                      |
| 708135-B31        | Keyboard with black finish for use Internationally (includes cable)                       |
| 708135-DH1        | Keyboard with black finish for use in the Nordic Region (includes cable)                  |
| 708136-001        | Top cover, sparkling black (includes TouchPad)                                            |
| 713526-001        | 16 GB solid-state drive                                                                   |

---

## 4 Removal and replacement procedures

---

 **CAUTION:** The user-replaceable parts for this computer are:

AC adapter

Battery

Keyboard

For all parts that are **not** user-replaceable, 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.

---

### Preliminary replacement 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 parts. Apply pressure only at the points designated in the maintenance instructions.

---

#### 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.

## 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, turn off the computer.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

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 a diskette 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."

---

## 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 Styrofoam         | 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 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.

## 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 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                  |

# Component replacement procedures

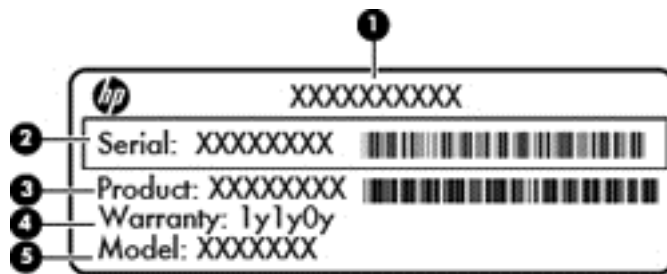
This chapter provides removal and replacement procedures.

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

## Service label

When ordering parts or requesting information, provide the computer serial number and model number provided on the service label. The service label is located on the bottom of the computer.

 **NOTE:** Your label may look slightly different from the illustration in this section.



| Item | Description                            | Function                                                                                                                                                                         |
|------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1)  | Product name                           | The name affixed to the front of the computer.                                                                                                                                   |
| (2)  | Serial number                          | This is an alphanumeric identifier that is unique to each product.                                                                                                               |
| (3)  | Product part number                    | This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed. |
| (4)  | Warranty period                        | This number describes the duration of the warranty period for the computer.                                                                                                      |
| (5)  | Model description (select models only) | This is the alphanumeric identifier needed to locate documents, drivers, and support for the computer.                                                                           |

## Battery

| Description                            | Spare part number |
|----------------------------------------|-------------------|
| 4 cell, 37 Whr, 2.55 Ah Li-ion battery | 695192-001        |

Before disassembling the computer, 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 battery:

1. Turn the computer upside down on a flat surface.
2. Slide the battery release lock **(1)** far enough that it rests in the unlocked position.
3. Slide the battery release latch **(2)** to release the battery.
4. Slide the battery **(3)** from the middle to remove it from the computer.

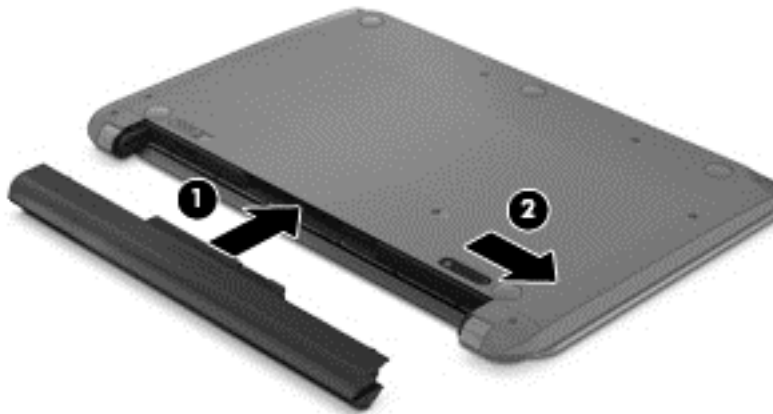


To insert the battery, follow these steps:

**CAUTION:** Do not slant the battery as you insert it.

1. Holding the battery in the middle, slide the battery **(1)** straight into the computer until the battery release latch locks into place.

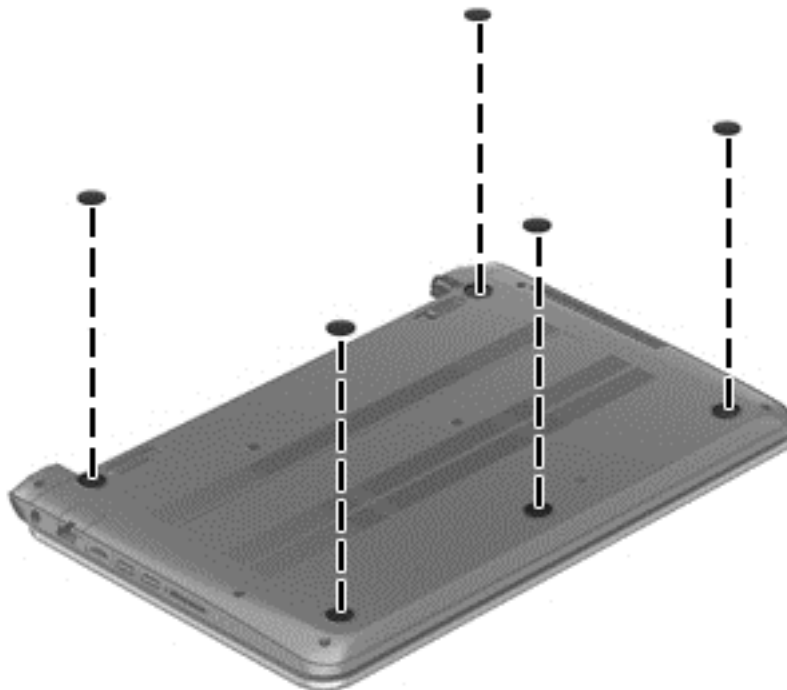
2. Reset the battery release lock **(2)** to the locked position.



## Computer feet

| Description     | Spare part number |
|-----------------|-------------------|
| Rubber Feet Kit | 697906-001        |

The computer feet are adhesive-backed rubber pads. There are 5 rubber feet that attach to the base enclosure in the locations illustrated below.



## Display panel

| Description                                                    | Spare part number |
|----------------------------------------------------------------|-------------------|
| Display bezel                                                  | 697907-001        |
| 35.6 cm (14.0 in), HD, WLED, SVA BrightView flat display panel | 698523-001        |



**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:

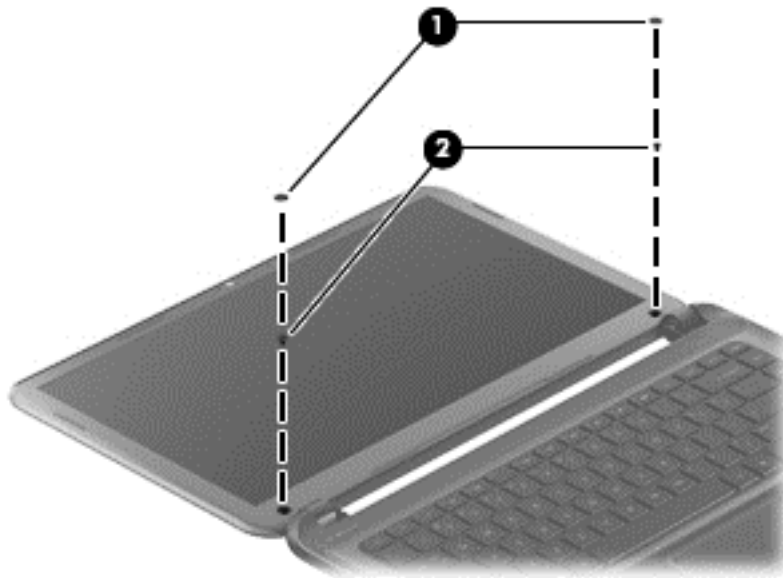
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).



**NOTE:** To replace the entire display assembly, additional steps are required (see [Display Assembly on page 50](#)).

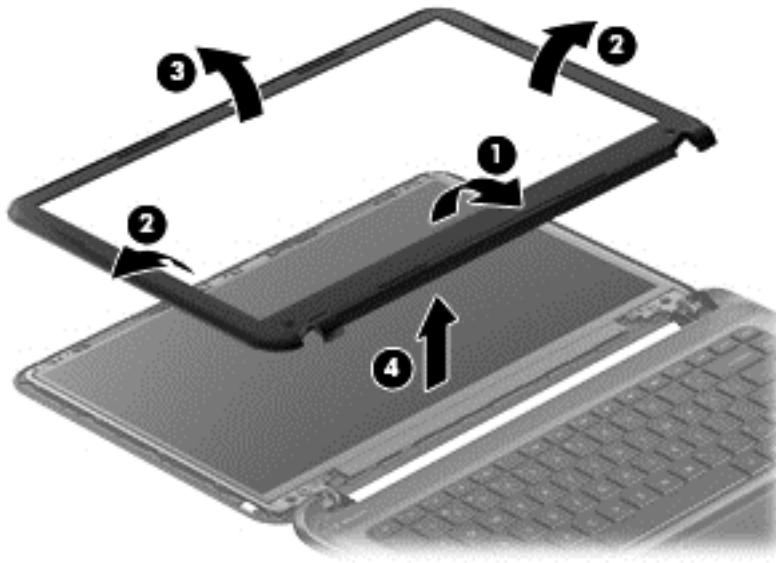
Remove the panel:

1. Remove the plastic screw covers (1) and the two Phillips screws (2) that secure the display bezel to the display assembly.

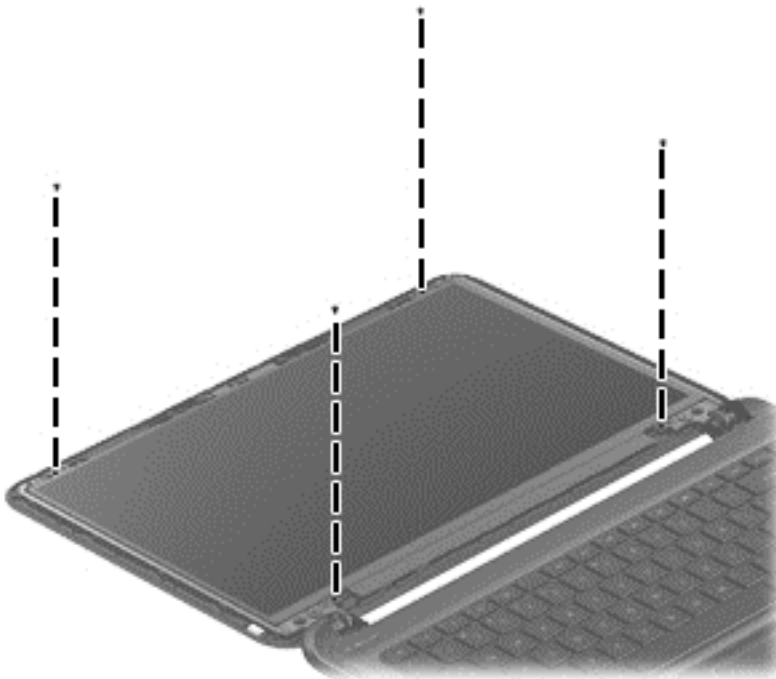


2. Flex the inside edges of the bottom edge (1), the left and right sides (2), and the top edge (3) of the display bezel until the bezel disengages from the display enclosure.

3. Remove the display bezel (4).



4. Remove the four Phillips screws for the display panel.



**NOTE:** Support the display panel as you lean the panel forward.

5. Move the panel toward the keyboard (1).
6. Release the adhesive support strip (2) that secures the display panel cable connector to the display panel.

7. Disconnect the display panel cable (3) from the display panel, and then remove the panel (4).



Reverse this procedure to replace the panel.

## Keyboard



**NOTE:** The keyboard spare part kit includes a keyboard cable.

| Description                     | Spare part number |
|---------------------------------|-------------------|
| <b>Black keyboard:</b>          |                   |
| • For use in France             | 708135-051        |
| • For use in Germany            | 708135-041        |
| • For use Internationally       | 708135-B31        |
| • For use in Latin America      | 708135-161        |
| • For use in the Nordic Region  | 708135-DH1        |
| • For use in the United Kingdom | 708135-031        |
| • For use in the United States  | 708135-001        |



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

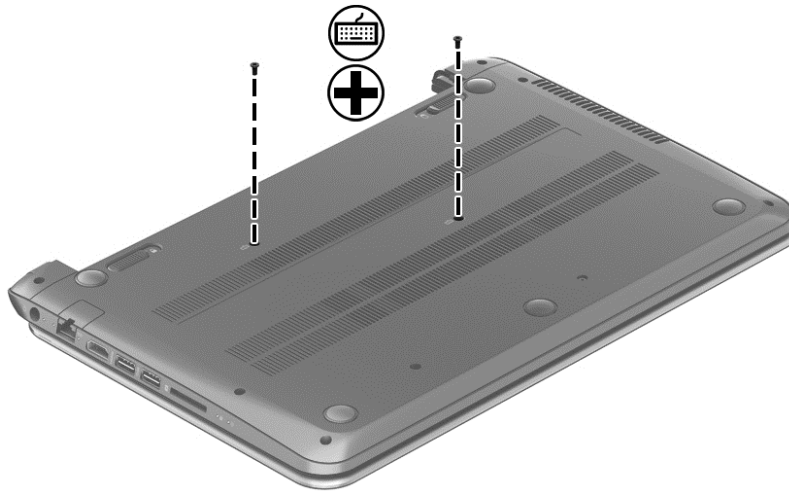
Before removing the keyboard, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.

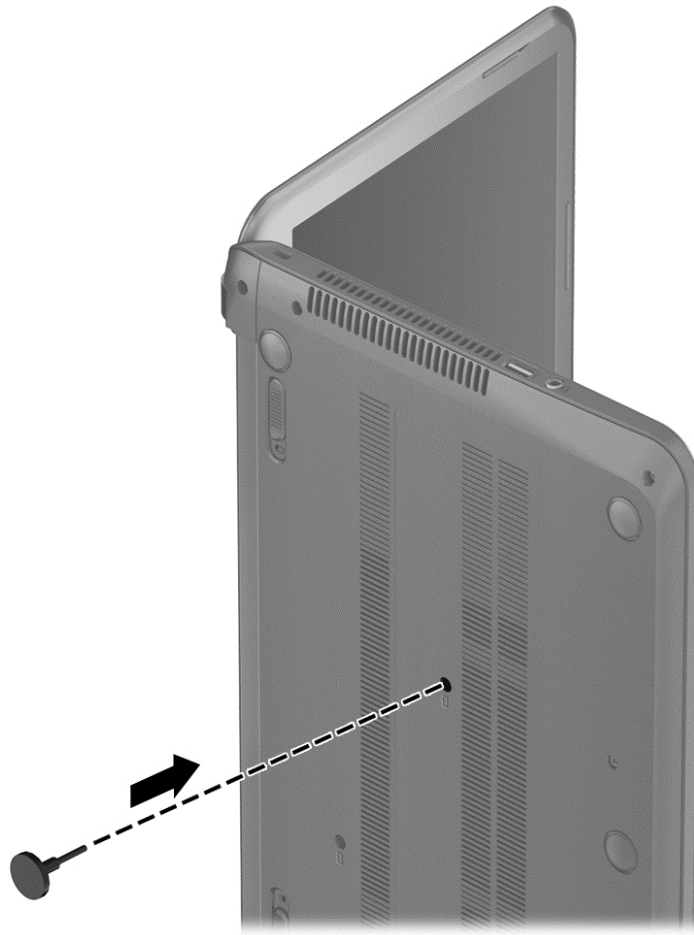
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).

Remove the keyboard:

1. Remove the two Phillips screws that secure the keyboard to the computer.



2. Turn the computer right-side up with the front toward you. Open the display and stand the computer on its right side. Insert a thin tool through the keyboard access hole. (The keyboard icon indicates the keyboard access hole.) Push firmly on the bottom of the keyboard until it disengages from the computer.

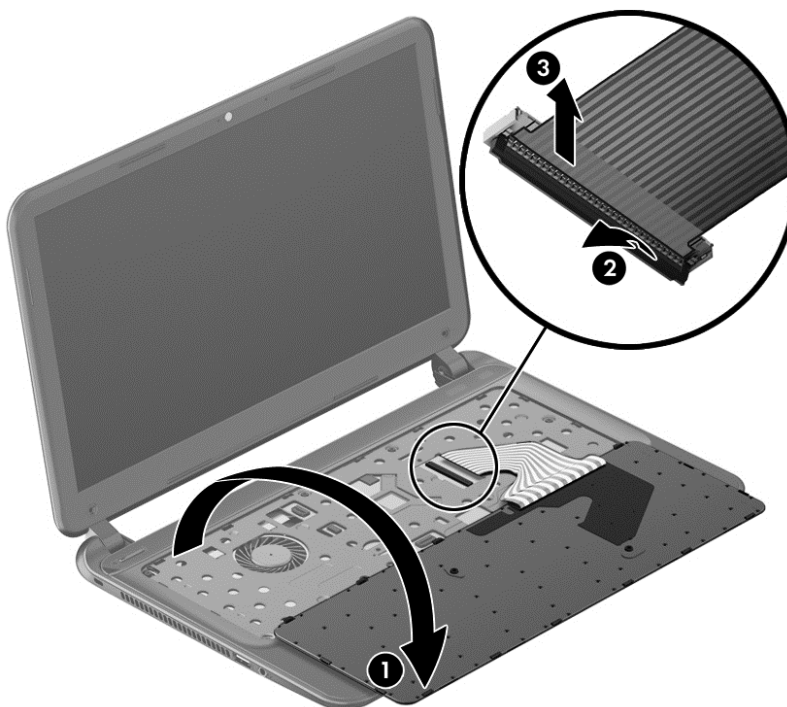


3. Turn the computer right-side up with the front toward you and open the display.

4. Gently slide your finger along the top edge of the keyboard to release the keyboard clips. Lift up on the rear of the keyboard.



5. Tilt the keyboard forward (1) onto the palm rest. Release the zero insertion force (ZIF) connector (2) to which the keyboard cable is attached, and then disconnect the keyboard cable (3) from the system board.



6. Remove the keyboard.

Reverse this procedure to install the keyboard.

## Top cover



**NOTE:** The top cover spare part kit includes the TouchPad support, TouchPad board and TouchPad cable.

| Description               | Spare part number |
|---------------------------|-------------------|
| Sparkling black top cover | 708136-001        |



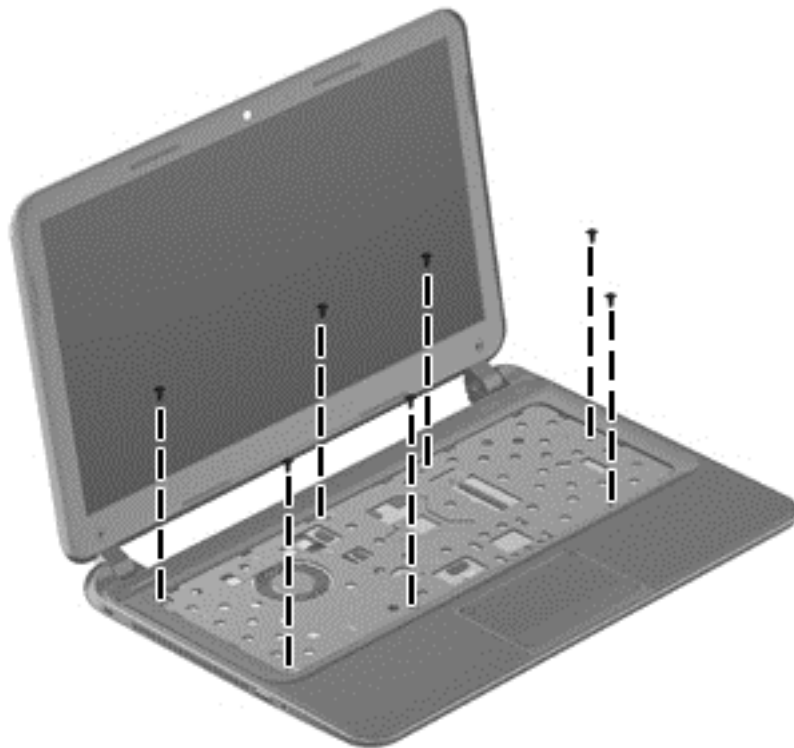
**IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the top cover, follow these steps:

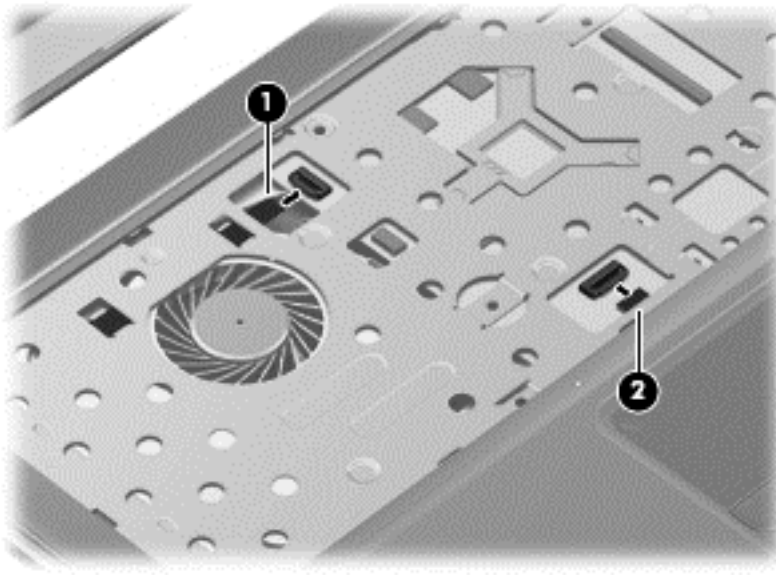
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).

Remove the top cover:

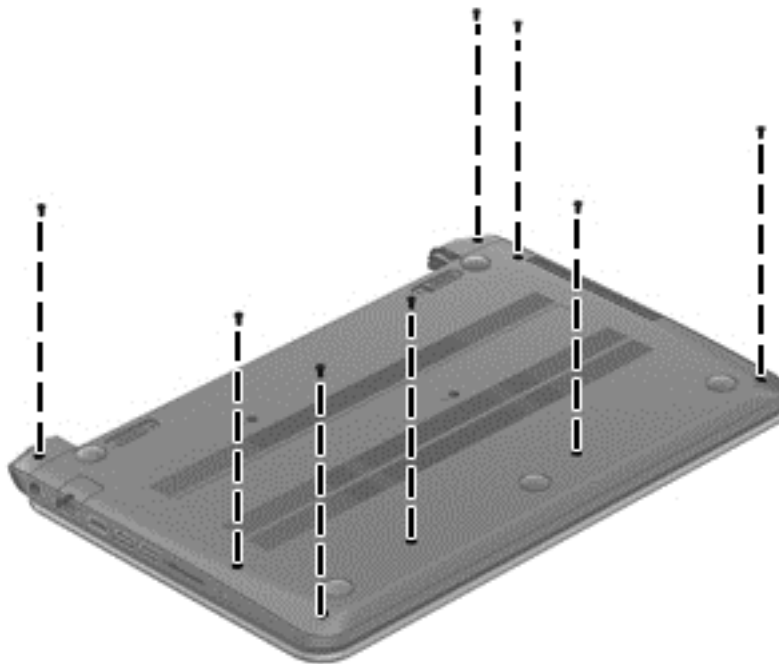
1. Remove the seven Phillips screws that secure the top cover to the base enclosure.



2. Disconnect the power button cable (1) and the TouchPad cable (2).

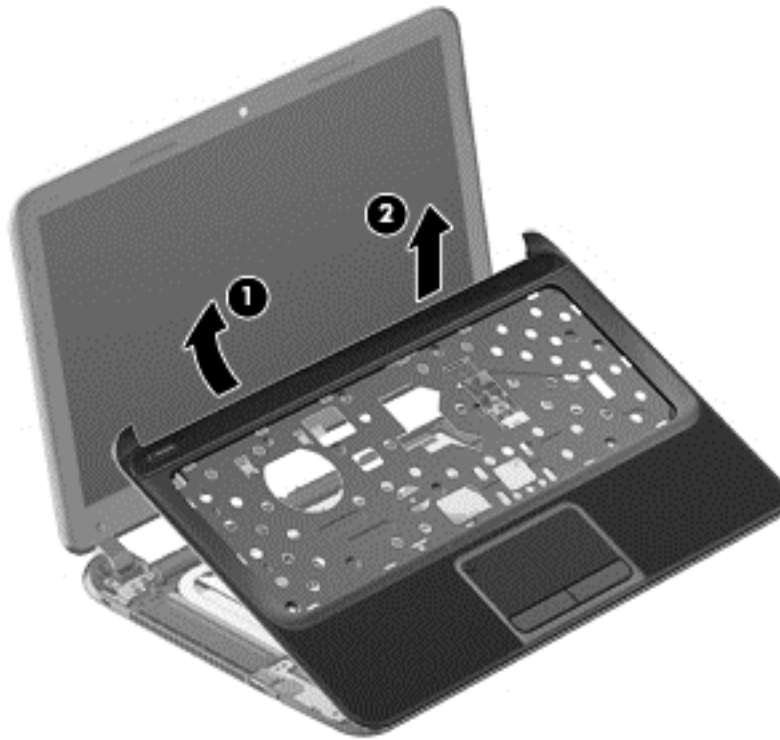


3. Close the display and turn the computer upside down.
4. Remove the eight Phillips screws from the bottom of the computer.



5. Turn the computer over and open the display.

6. Gently lift around the edges of the top cover (1) and lift to remove the top cover (2).



When replacing the top cover, be sure that the following components are removed from the defective top cover and installed on the replacement top cover:

- Power button board and cable (see [Power button board on page 30](#)).

Reverse this procedure to install the top cover.

## Power button board

| Description                         | Spare part number |
|-------------------------------------|-------------------|
| Power button board (includes cable) | 697901-001        |



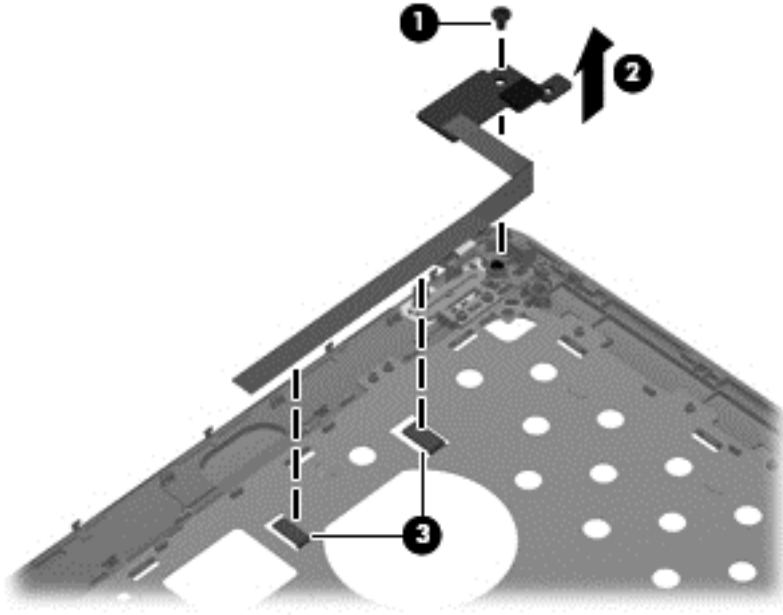
**IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

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 battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).

Remove the power button board:

1. Turn the top cover upside down, with the front toward you.
2. Remove the Phillips screw (1) and tape that secure the power button board to the top cover.
3. Release the clips, lift the power button board (2), and carefully slide the power button cable out from the guides (3) to remove the power button board.



Reverse this procedure to install the power button board.

## Hard drive

 **NOTE:** The hard drive spare part kit does not include the hard drive cable, or hard drive bracket and screws.

| Description                                                                            | Spare part number |
|----------------------------------------------------------------------------------------|-------------------|
| 9.5 mm (0.37 in) × 6.35 cm (2.50 in), 320 GB, 5400 rpm, SATA                           | 622643-005        |
| 7.0 mm (0.28 in) × 6.35 cm (2.50 in), 320 GB, 5400 rpm, SATA                           | 645193-005        |
| 16 GB solid-state drive, SATA                                                          | 713526-001        |
| Hard Drive Hardware Kit (includes hard drive cable, and hard drive bracket and screws) | 697905-001        |

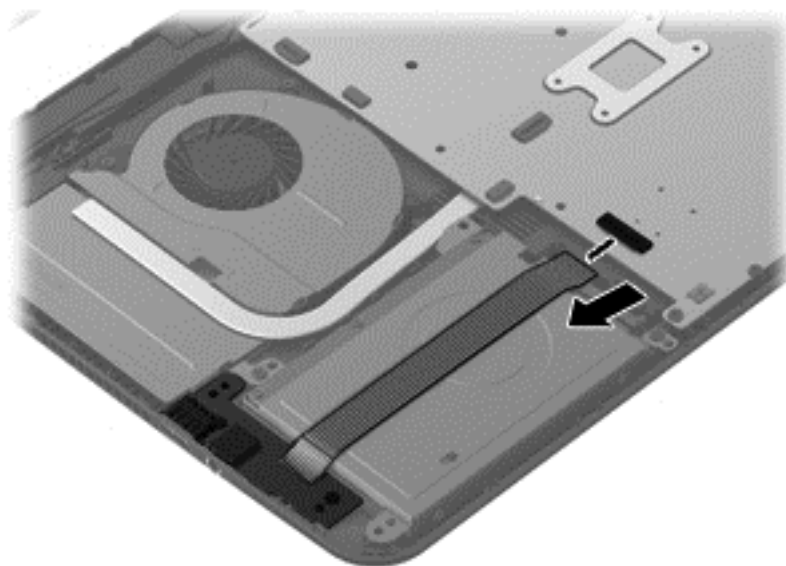
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the hard drive, 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 battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).

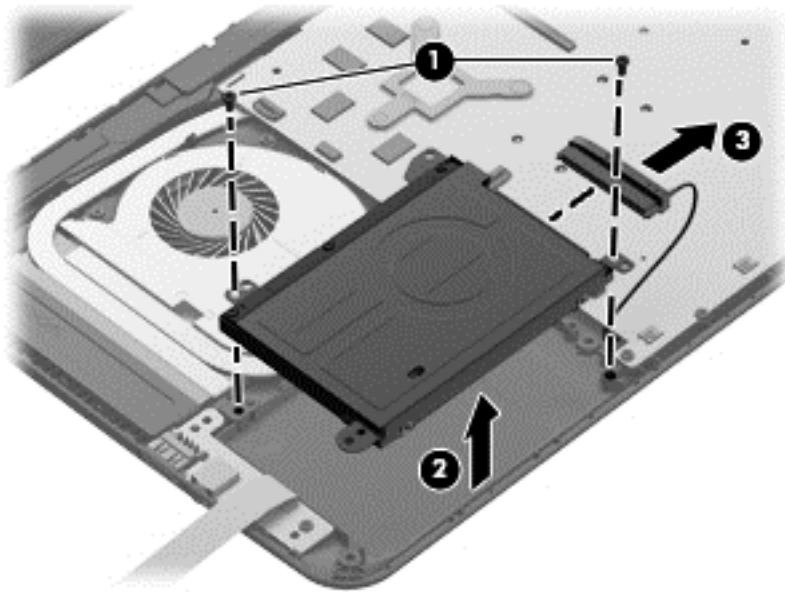
Remove the hard drive:

1. Disconnect the USB cable on top of the hard drive from the computer.

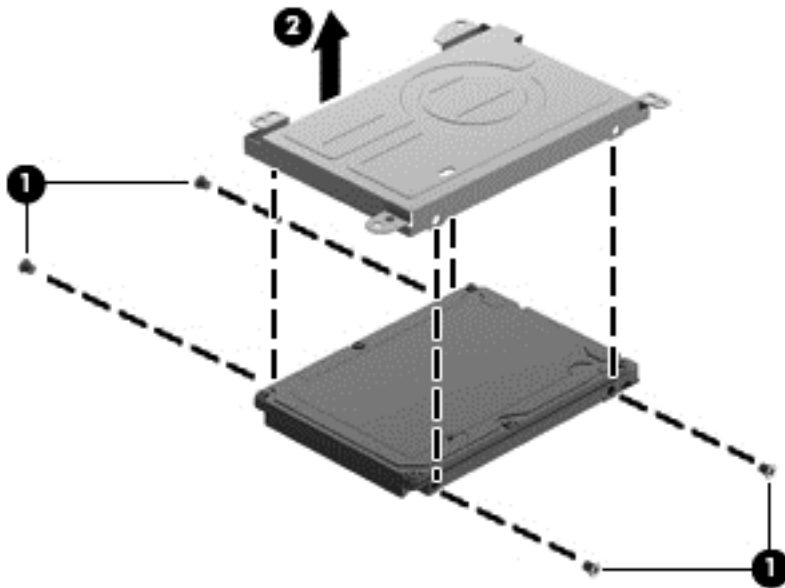


 **NOTE:** If it is necessary to replace the hard drive cable, see [System board on page 38](#).

2. Remove the two Phillips screws (1). Lift the hard drive (2) to remove and disconnect the hard drive cable (3).



3. Remove the four Phillips screws (1), and then remove the bracket (2) from the hard drive.



To install a hard drive, reverse the removal procedure.

## USB board/Audio jack

| Description                                                   | Spare part number |
|---------------------------------------------------------------|-------------------|
| <b>USB board</b> (includes cable and audio-out/audio-in jack) | 697902-001        |

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

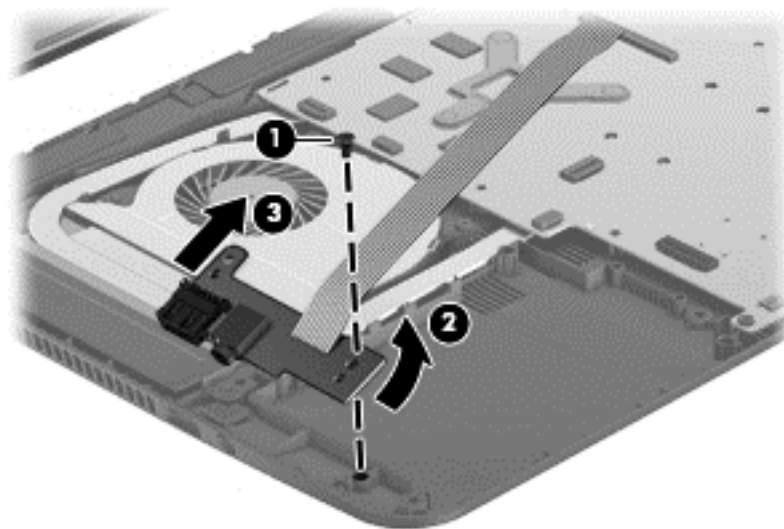
Before removing the USB board, follow these steps:

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 battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).

Remove the USB board:

 **NOTE:** One side of the USB cable lies across the hard drive. It is disconnected during the hard drive removal process.

1. Remove the screw (1) and gently lift the USB board (2) up.
2. Slide the USB board (3) out to remove it.



Reverse this procedure to install the USB board.

## WLAN module

| Description                                                        | Spare part number |
|--------------------------------------------------------------------|-------------------|
| Atheros AR9462 802.11 a/b/g/n 2x2 Bluetooth 4.0 combo adapter, HMC | 676786-005        |



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



**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:

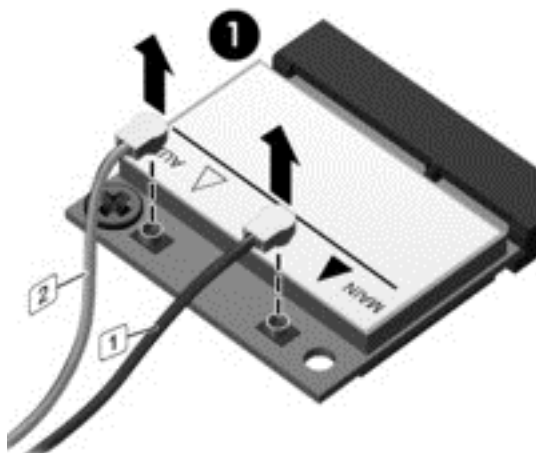
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).

Remove the WLAN module:

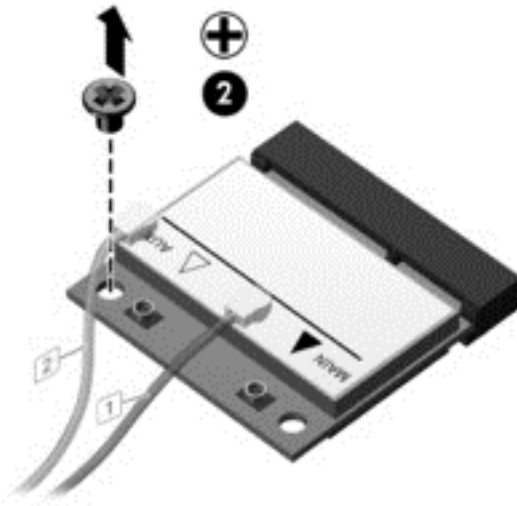
1. Disconnect the WLAN antenna cables (1) from the terminals on the WLAN module.



**NOTE:** The 1/black WLAN antenna cable is connected to the WLAN module 1/Main terminal. The 2/white WLAN antenna cable is connected to the WLAN module 2/Aux terminal.



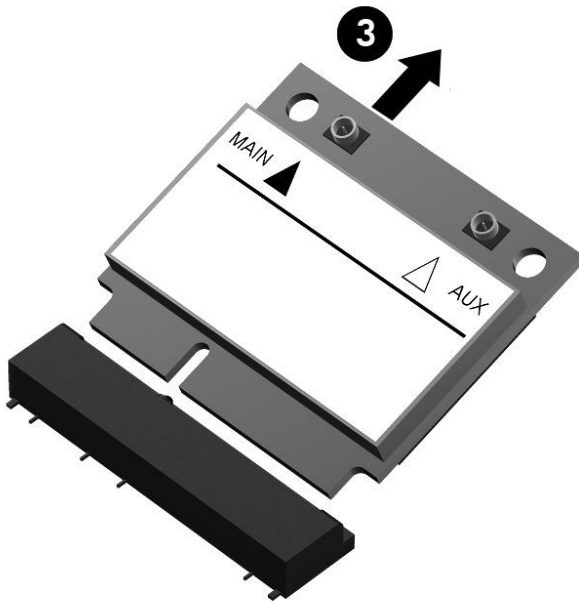
2. Remove the Phillips screw **(2)** that secures the WLAN module to the system board. (The WLAN module tilts up.)



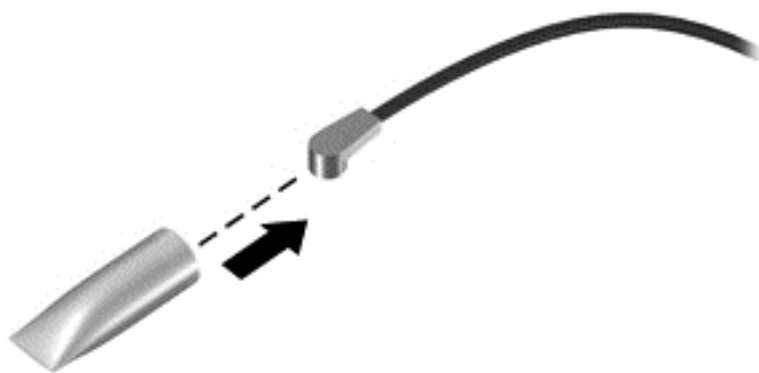
3. Remove the WLAN module by pulling the module away from the slot at an angle **(3)**.



**NOTE:** The WLAN module is designed with a notch to prevent incorrect installation into the WLAN module socket.



**NOTE:** If the WLAN antennas are not connected to the terminals on the WLAN module, the protective sleeves should be installed on the antenna connectors, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

## System board



**NOTE:** The processor is included on the system board.

The system board Thermal Material Kit, part number 680571-001, includes replacement thermal paste and pads.

| Description  | Spare part number |
|--------------|-------------------|
| System board | 704989-001        |



**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:

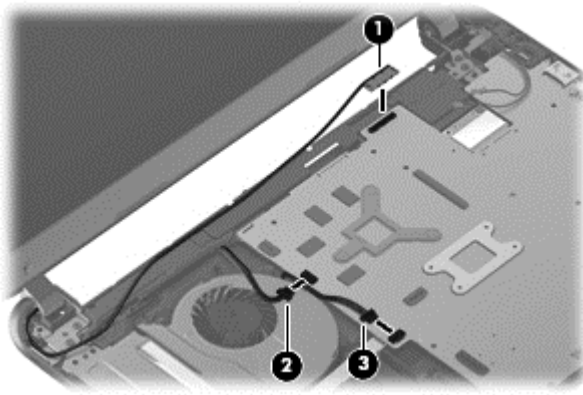
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).

After removing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

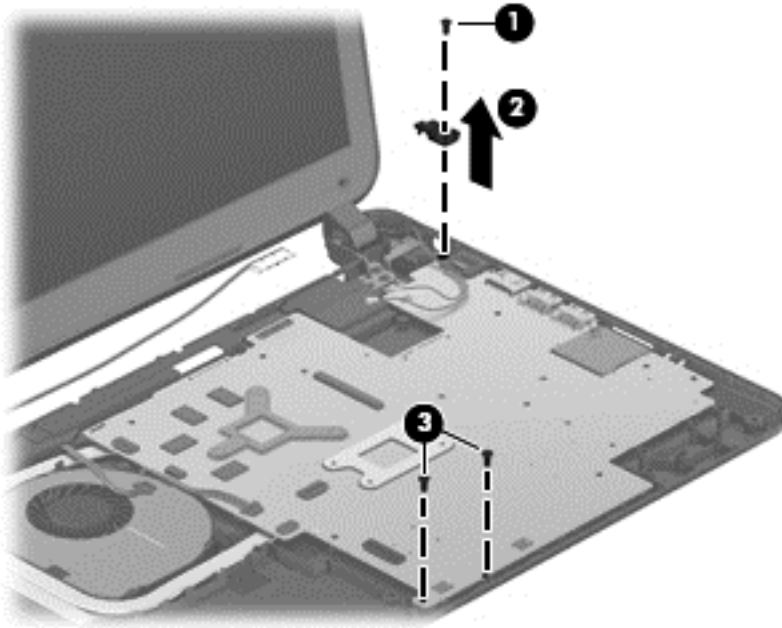
- Memory module (see [Memory module on page 41](#))
- RTC battery (see [RTC battery on page 44](#))
- Heat sink (see [Heat sink on page 46](#))
- PCH heat sink (see [PCH heat sink on page 45](#))

Remove the system board:

1. Disconnect the following cables from the system board:
  - Display panel cable **(1)**
  - Speaker cable **(2)**
  - Fan power connector **(3)**

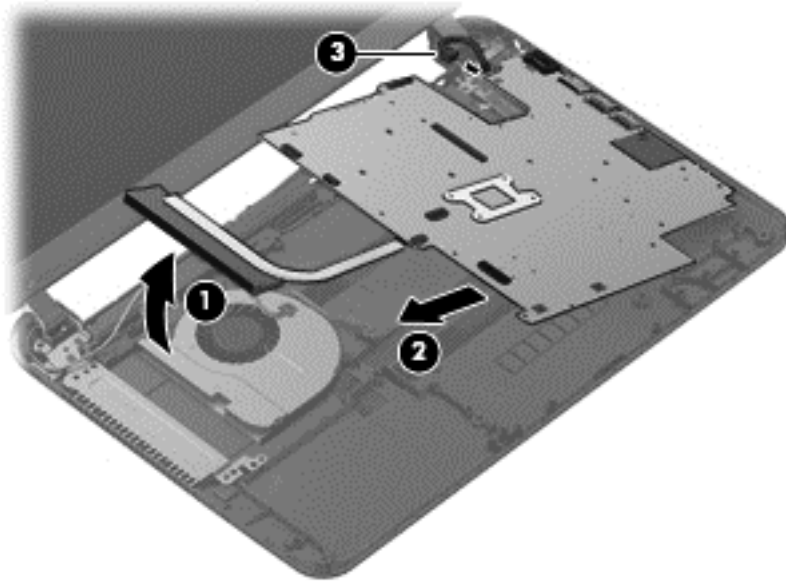


2. Remove the power connector bracket Phillips screw **(1)** and remove the power connector bracket **(2)**.
3. Remove the two Phillips screws **(3)** that secure the system board to the base enclosure.

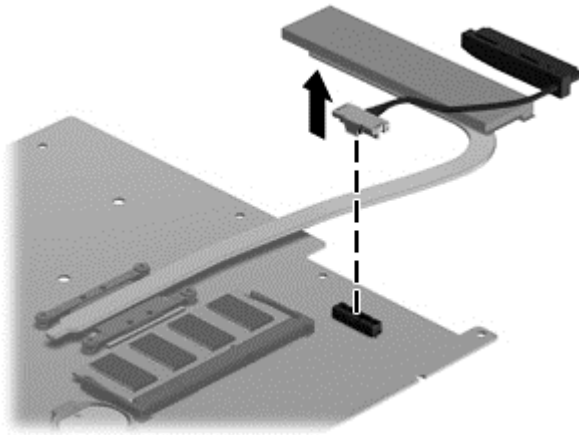


4. Lift the left side of the system board **(1)** until it rests at an angle.
5. Remove the system board by sliding it up and to the left at an angle **(2)**.

6. Disconnect the power connector cable (3).



7. Remove the hard drive cable:
- Turn the system board upside down, with the front toward you.
  - Disconnect the hard drive cable from the system board.



Reverse this procedure to install the system board.

## Memory module

 **WARNING!** To reduce the risk of electric shock and damage to the equipment, unplug the power cord and remove all batteries before installing a memory module.

 **CAUTION:** Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, ensure that you are discharged of static electricity by touching a grounded metal object.

| Description                     | Spare part number |
|---------------------------------|-------------------|
| 4 GB (DDR3-1600 MHz, PC3-12800) | 641369-005        |
| 2 GB (DDR3-1600 MHz, PC3-12800) | 652972-005        |

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

Before removing a memory module, follow these steps:

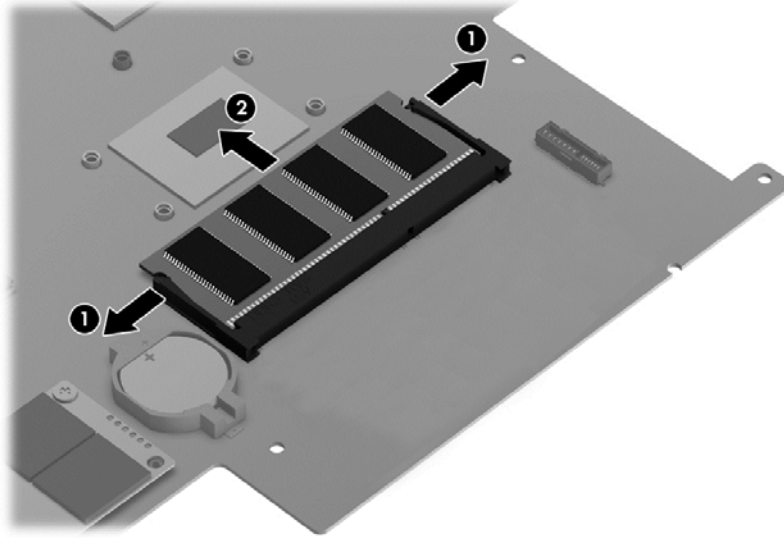
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).
10. Remove the system board (see [System board on page 38](#)).

To remove a memory module:

1. Turn the system board upside down to access the memory module.
2. Spread the retention clips (1) on each side of the memory module slot to release the memory module. (The memory module tilts up.)

3. Remove the memory module (2) by pulling it away from the slot at an angle.

**CAUTION:** To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module.

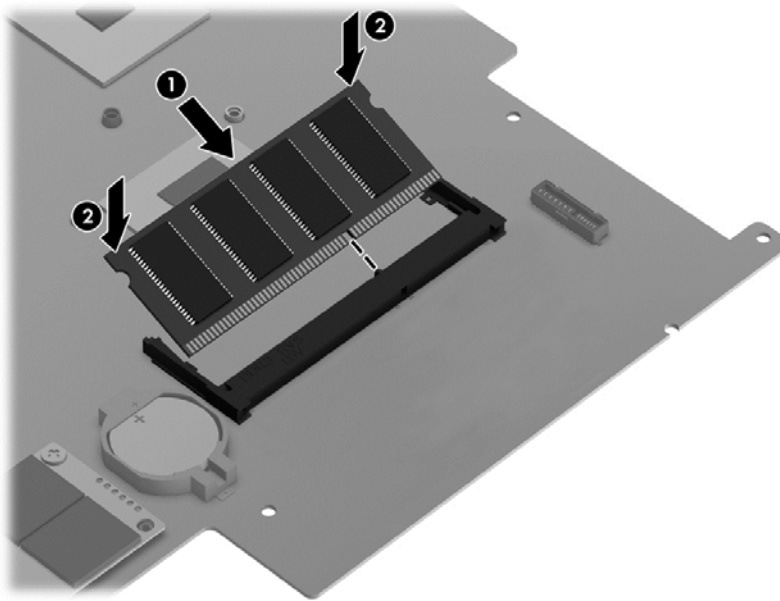


**CAUTION:** To protect a memory module after removal, place it in an electrostatic-safe container.

To replace the memory module:

1. Align the notched edge of the replacement memory module with the tab in the memory module slot, and then press the module (1) into the slot at a 45-degree angle until it is firmly seated.

2. Press down on the left and right sides of the memory module **(2)** until the side retention clips snap back into place.



3. Reverse the previous steps to replace the following items:
- System board
  - WLAN
  - USB board
  - Hard drive
  - Top cover
  - Keyboard
  - Battery
  - Any external devices and the AC adapter

## RTC battery

| Description | Spare part number |
|-------------|-------------------|
| RTC battery | 697917-001        |



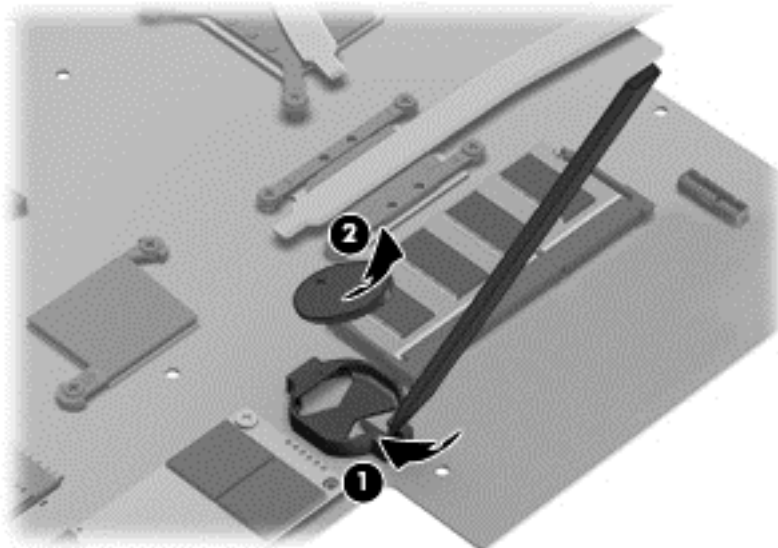
**IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the RTC 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 battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).
10. Remove the system board (see [System board on page 38](#)).

Remove the RTC battery:

1. Turn the system board upside down, with the front toward you.
2. Remove the RTC battery (1) by pressing down with a thin plastic tool or your finger. The battery is spring loaded and will pop up. Lift and remove the RTC battery (2).



Reverse this procedure to install the RTC battery.

## PCH heat sink

| Description   | Spare part number |
|---------------|-------------------|
| PCH heat sink | 699248-001        |



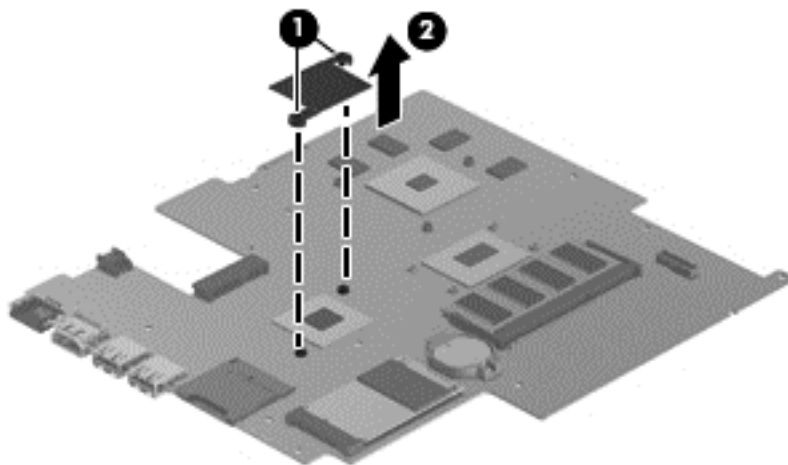
**IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the PCH heat sink, 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 battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).
10. Remove the system board (see [System board on page 38](#)).

Remove the PCH heat sink:

1. Turn the system board upside down, with the front toward you.
2. Remove the two Phillips screws (1) and lift off the PCH heat sink (2).



Reverse this procedure to install the PCH heat sink onto a replacement system board.

## Heat sink

| Description | Spare part number |
|-------------|-------------------|
| Heat sink   | 697915-001        |



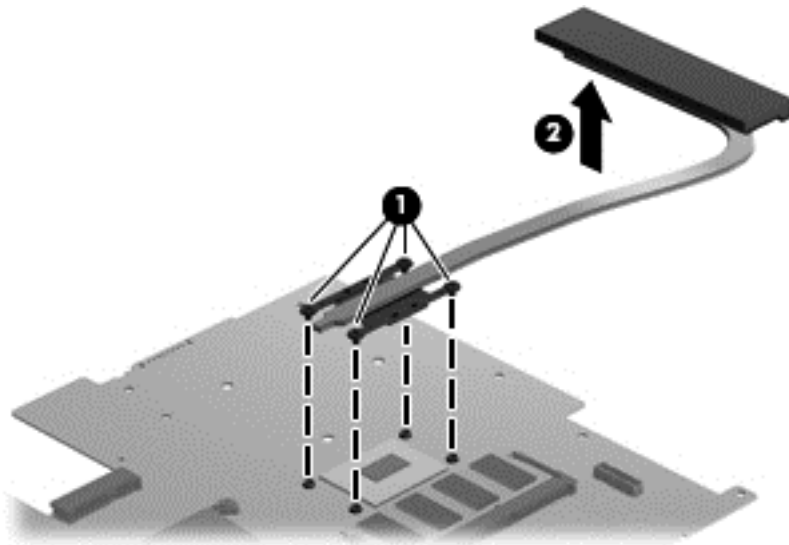
**IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the heat sink, follow these steps:

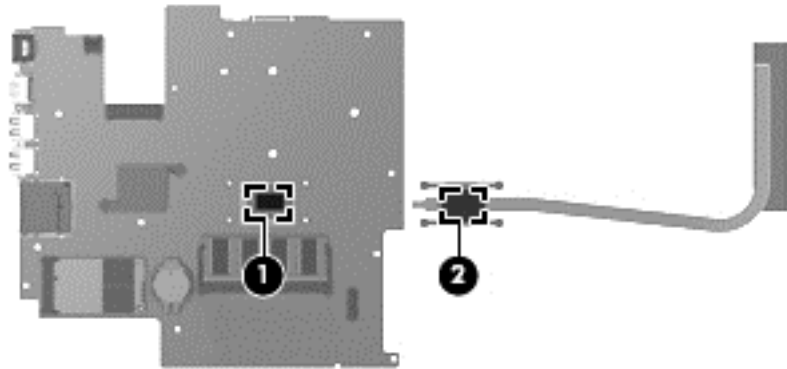
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).
10. Remove the system board (see [System board on page 38](#)).

Remove the heat sink:

1. Turn the system board upside down, with the front toward you.
2. Remove the heat sink.
  - a. Loosen the captive screws (1) and lift the heat sink (2) from the system board.



- b. Thoroughly clean the thermal connections (1) on the system board and the heat sink (2) before replacing a heat sink onto a system board.



3. Reverse this procedure to replace the heat sink. Replace the thermal material that ships with the replacement heat sink.

## Fan

| Description | Spare part number |
|-------------|-------------------|
| Fan         | 697914-001        |

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

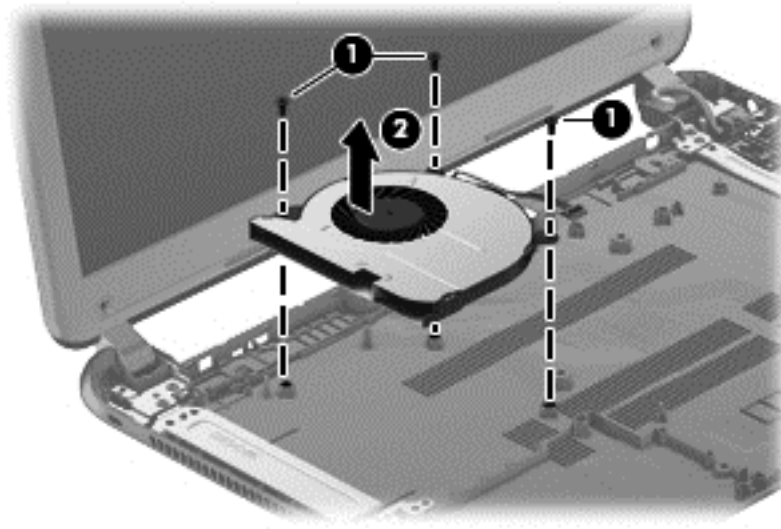
Before removing the fan, follow these steps:

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 battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).
10. Remove the system board (see [System board on page 38](#)).

To remove the fan from the base enclosure:

1. Disconnect the fan cable.

2. Remove the three Phillips screws (1) from the fan (2) and lift up to remove the fan.



Reverse this procedure to install the cooling fan in the base enclosure.

## Speaker assembly

| Description      | Spare part number |
|------------------|-------------------|
| Speaker assembly | 697918-001        |

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

Before removing the speaker assembly, follow these steps:

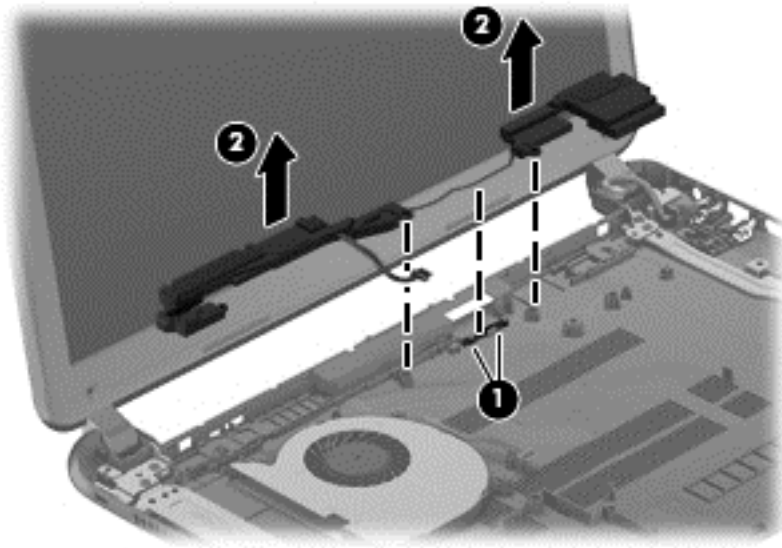
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).
10. Remove the system board (see [System board on page 38](#)).

Remove the speaker assembly:

 **NOTE:** The speaker screws were removed during the process to remove the top cover.

1. Gently release the wires (1) routed along the top of the base enclosure.

2. Lift both pieces of the speaker assembly (2).



Reverse this procedure to install the speaker assembly on the base enclosure.

## RJ-45 cover

| Description | Spare part number |
|-------------|-------------------|
| RJ-45 cover | 700428-001        |



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

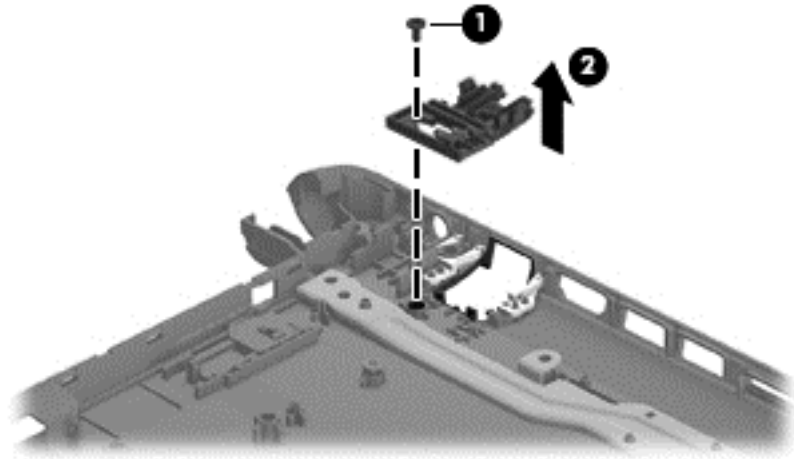
Before removing the RJ-45 cover, follow these steps:

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 battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).
10. Remove the system board (see [System board on page 38](#)).

Remove the RJ-45 cover:

1. Remove the Phillips M screw (1) for the RJ-45 cover.

2. Lift the RJ-45 cover (2) to remove it from the base enclosure.



Reverse these procedures to replace the RJ-45 cover.

## Display Assembly

| Description                                                                                      | Spare part number |
|--------------------------------------------------------------------------------------------------|-------------------|
| <b>Antenna Kit</b> (includes left and right wireless antenna cables and transceivers)            | 697913-001        |
| <b>Display Panel Cable Kit</b> (includes display panel cable and webcam/microphone module cable) | 697911-001        |
| <b>Back cover</b> , sparkling black                                                              | 708133-001        |
| <b>Display Hinge Kit</b> (includes left and right display hinges and brackets)                   | 697908-001        |
| <b>Webcam/microphone module</b>                                                                  | 697903-001        |



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

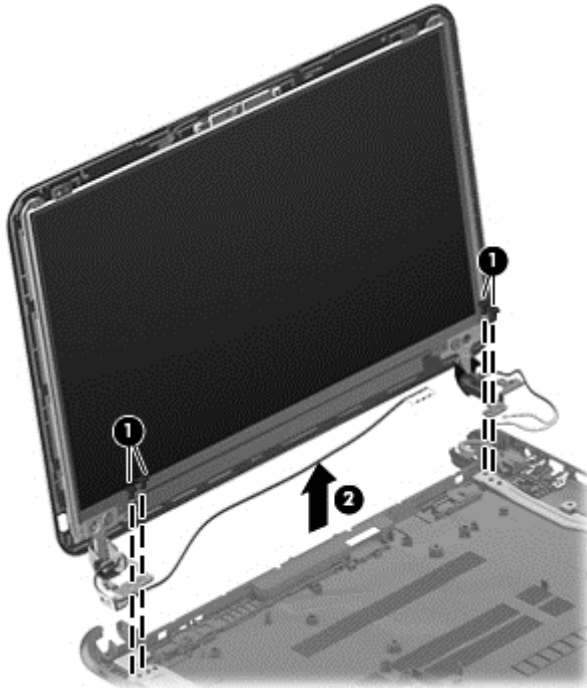
Before removing the display assembly, follow these steps:

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 battery (see [Battery on page 20](#)).
5. Remove the display panel (see [Display panel on page 22](#)).
6. Remove the keyboard (see [Keyboard on page 24](#)).
7. Remove the top cover (see [Top cover on page 28](#)).
8. Remove the hard drive (see [Hard drive on page 32](#)).
9. Remove the USB board (see [USB board/Audio jack on page 34](#)).
10. Remove the WLAN (see [WLAN module on page 35](#)).
11. Remove the system board (see [System board on page 38](#)).

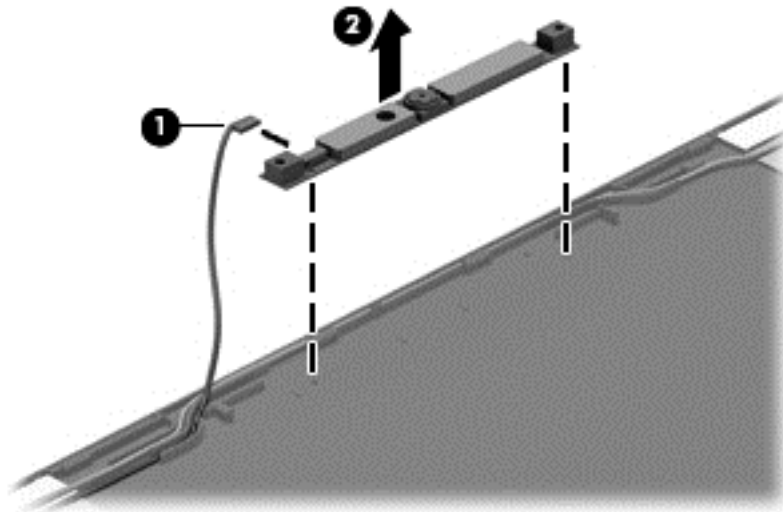
Remove the display assembly:

**CAUTION:** Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

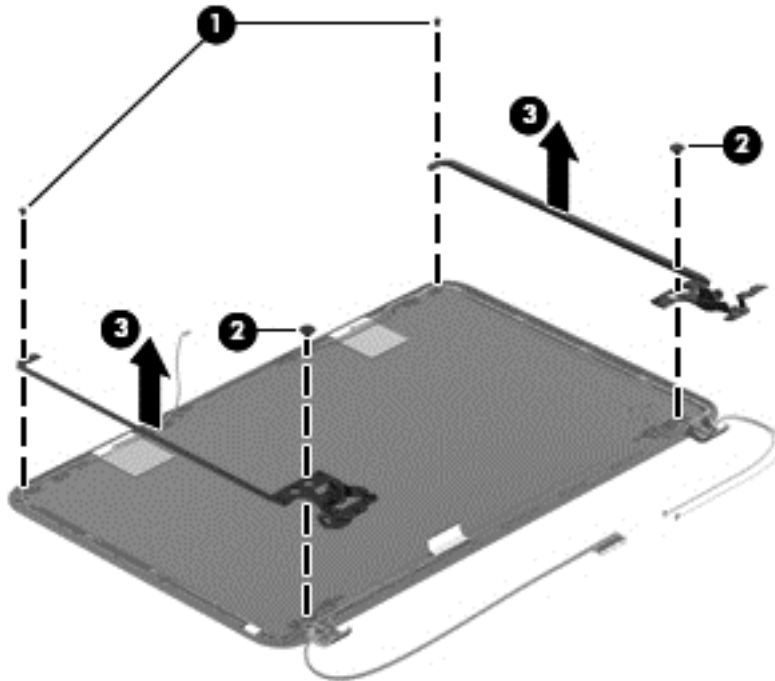
1. Remove the four Phillips screws from the display hinges (1) and lift the display assembly (2).



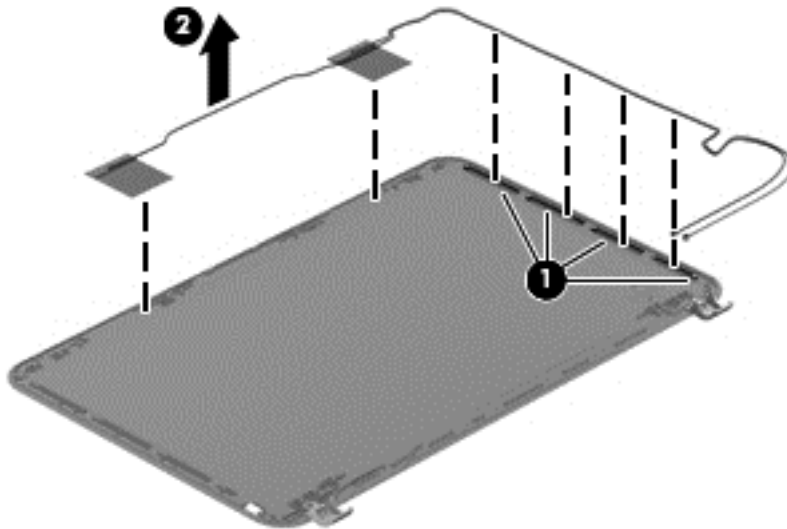
2. If it is necessary to replace the webcam/microphone module:
  - a. Detach and release the webcam/microphone module as far as the webcam/microphone module cable allows. (The webcam/microphone module is attached to the back cover with double-sided tape.)
  - b. Disconnect the webcam/microphone cable (1) from the webcam/microphone module.
  - c. Remove the webcam/microphone module (2).



3. Remove the two top screws (1) and two bottom screws (2) from the display bracket and lift the display brackets (3) to remove them.

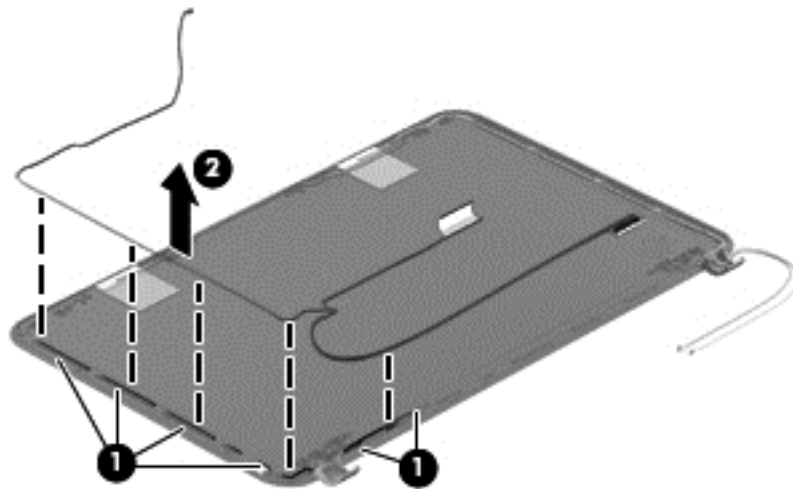


4. If it is necessary to replace the display panel cable:
- Gently remove the cable from the routing clips (1).
  - Detach and release the cable (it is attached to the back cover with double-sided tape), and remove the cable (2).



5. If it is necessary to replace the wireless antenna cables and transceivers:
- Release the wireless antenna cables from the clips (1) built into the back cover.
  - Release the wireless antenna transceivers from the back cover. (The wireless antenna transceivers are attached to the back cover with double-sided tape.)

- c. Remove the wireless antenna cables and transceivers (2).



Reverse this procedure to reassemble and install the display assembly.

## Power connector

| Description     | Spare part number |
|-----------------|-------------------|
| Power connector | 697921-001        |



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

Before removing the power connector, follow these steps:

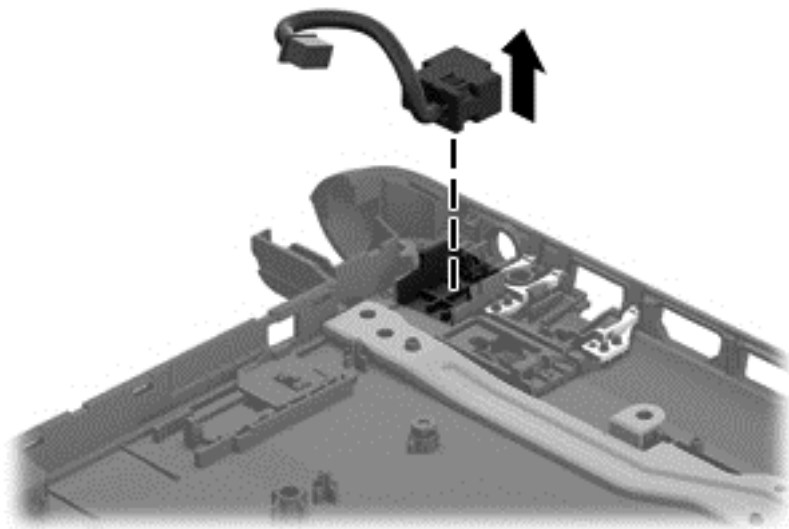
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 20](#)).
5. Remove the keyboard (see [Keyboard on page 24](#)).
6. Remove the top cover (see [Top cover on page 28](#)).
7. Remove the hard drive (see [Hard drive on page 32](#)).
8. Remove the USB board (see [USB board/Audio jack on page 34](#)).
9. Remove the WLAN (see [WLAN module on page 35](#)).
10. Remove the system board (see [System board on page 38](#)).
11. Remove the display assembly (see [Display panel on page 22](#)).

Remove the power connector:

 **NOTE:** The power connector screw and bracket were removed during the process to remove the system board.

---

- ▲ Lift out the power connector to remove it from the base enclosure.



Reverse these procedures to replace the power connector.

# 5 Specifications

## Computer specifications

|                                                                                                                                                      | Metric                                                        | U.S.                |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------|
| Dimensions:                                                                                                                                          |                                                               |                     |
| Width                                                                                                                                                | 34.7 cm                                                       | 13.67 in            |
| Depth                                                                                                                                                | 23.8 cm                                                       | 9.37 in             |
| Height (front to back)                                                                                                                               | 2.1 cm to 2.1 cm                                              | .83 in to .83 in    |
| Weight:                                                                                                                                              | 1.8 kg                                                        | 3.96 lbs            |
| Input power                                                                                                                                          |                                                               |                     |
| Operating voltage and current                                                                                                                        | 19.5 V dc @ 3.33 A – 65 W                                     |                     |
| Temperature                                                                                                                                          |                                                               |                     |
| Operating                                                                                                                                            | 5°C to 35°C                                                   | 41°F to 95°F        |
| Nonoperating                                                                                                                                         | -20°C to 60°C                                                 | -4°F to 140°F       |
| Relative humidity                                                                                                                                    |                                                               |                     |
| Operating                                                                                                                                            | 10% to 90%                                                    |                     |
| Nonoperating                                                                                                                                         | 5% to 95%                                                     |                     |
| Maximum altitude (unpressurized)                                                                                                                     |                                                               |                     |
| Operating (14.7 to 10.1 psia)                                                                                                                        | -15 m to 3,048 m                                              | -50 ft to 10,000 ft |
| Nonoperating (14.7 to 4.4 psia)                                                                                                                      | -15 m to 12,192 m                                             | -50 ft to 40,000 ft |
| Shock                                                                                                                                                |                                                               |                     |
| Operating                                                                                                                                            | 125 g, 2 ms, half-sine                                        |                     |
| Nonoperating                                                                                                                                         | 200 g, 2 ms, half-sine                                        |                     |
| Random vibration                                                                                                                                     |                                                               |                     |
| Operating                                                                                                                                            | 0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate |                     |
| Nonoperating                                                                                                                                         | 1.50 g zero-to-peak, 10 Hz to 500 Hz, 0.5 oct/min sweep rate  |                     |
| NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures. |                                                               |                     |

## 35.6 cm (14.0 in), display specifications

|                         | Metric                                                  | U.S.    |
|-------------------------|---------------------------------------------------------|---------|
| <b>Dimensions</b>       |                                                         |         |
| Width                   | 32.4 cm                                                 | 12.8 in |
| Height                  | 19.3 cm                                                 | 7.6 in  |
| Diagonal                | 35.6 cm                                                 | 14.0 in |
| Number of colors        | 262K (6 bit)                                            |         |
| Contrast ratio          | 500:1 (typical)                                         |         |
| Brightness              | 200 cd/m <sup>2</sup> (nits) (typical)                  |         |
| Backlight               | WLED                                                    |         |
| Total power consumption | 3.2 W (max)                                             |         |
| Viewing angle           | ±45° horizontal, +15° up & -35° down vertical (typical) |         |

## Hard drive specifications

|                                                                                                                                   |                   |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                                                                                                                   | 320 GB*           |
| <b>Dimensions</b>                                                                                                                 |                   |
| Height                                                                                                                            | 9.5 mm and 7.0 mm |
| Width                                                                                                                             | 70 mm             |
| Weight                                                                                                                            | 107 g max         |
| Interface type                                                                                                                    | SATA              |
| Transfer rate                                                                                                                     | 300 MB/sec        |
| Security                                                                                                                          | ATA security      |
| <b>Seek times</b> (typical read, including setting)                                                                               |                   |
| Single track                                                                                                                      | 2.0 ms            |
| Average                                                                                                                           | 12.0 ms           |
| Maximum                                                                                                                           | 22.0 ms           |
| Logical blocks                                                                                                                    | 625,121,433       |
| Disk rotational speed                                                                                                             | 5400 rpm          |
| <b>Operating temperature</b>                                                                                                      |                   |
| *Size refers to hard drive storage capacity. Actual accessible capacity is less. Actual drive specifications may differ slightly. |                   |
| <b>NOTE:</b> Certain restrictions and exclusions apply. Contact support for details.                                              |                   |

# Solid-state drive specifications

|                                     |                                                                            |
|-------------------------------------|----------------------------------------------------------------------------|
| <b>Performance</b>                  |                                                                            |
| Sequential read (maximum)           | up to 220 MB/s                                                             |
| Sequential write (maximum)          | up to 50 MB/s                                                              |
| <b>Characteristics</b>              |                                                                            |
| Interface                           | SATA 3.0                                                                   |
| Flash type                          | Multi-Level Cell (MLC) NAND                                                |
| Flash capacity                      | 16 GB                                                                      |
| Features                            | ATA Security; ATA8-ACS; SATA 3.0; Device Initiated Power Management (DIPM) |
| <b>Environmental specifications</b> |                                                                            |
| Operating temperature               | 0°C to +70°C (32°F to 158°F)                                               |
| Storage temperature                 | -55°C to +85°C (-67°F to 185°F)                                            |
| Shock                               | 1500 g/0.5msec half sine                                                   |
| Vibration (operating)               | 5 Grms, 10-2000 Hz                                                         |
| <b>Physical specifications</b>      |                                                                            |
| Connector                           | 7+15 pin SATA connector                                                    |
| Weight                              | 53 g (1.87 oz)                                                             |

---

## 6 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                          | ISI               | 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                      |

| Country/region                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Accredited agency | Applicable note number |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------|
| The United States                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | UL                | 2                      |
| <ol style="list-style-type: none"> <li>1. The flexible cord must be Type HO5VV-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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ol> |                   |                        |

---

## 7 Recycling

When a battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal. HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries.

For more information about recycling programs, see the HP website at [www.hp.com/recycle](http://www.hp.com/recycle).

---

# Index

- A**
- AC adapter
    - lights 7
    - product description 2
    - spare part number 12, 13, 14
  - antenna
    - identifying 3, 12
    - removal 50
    - spare part number 12, 14, 50
  - Antenna Kit
    - identifying 12
    - removal 50
    - spare part number 12, 14, 50
  - audio, product description 1
  - audio-in jack
    - identifying 6, 11
    - removal 34
    - spare part number 11, 13, 34
  - audio-out jack
    - identifying 6, 11
    - removal 34
    - spare part number 11, 13, 34
- B**
- back cover
    - identifying 12
    - removal 50
    - spare part number 12, 14, 50
  - base enclosure
    - identifying 11
    - spare part number 11, 14
  - battery
    - identifying 11
    - product description 2
    - removal 20
    - replacement 20
    - spare part number 11, 13, 20
  - battery bay 8
  - battery lock, identifying 8
  - battery release latch, identifying 8
  - battery, RTC
    - identifying 11
    - removal 44
    - spare part number 11, 14, 44
- C**
- buttons
    - left TouchPad 4
    - power 5
    - right TouchPad 4
  - cables, service considerations 15
  - caps lock light, identifying 5
  - chipset, product description 1
  - components
    - bottom 8
    - display 3
    - left side 6
    - right side 7
    - top 4
  - computer feet
    - locations 21
    - spare part number 11, 13, 21
  - computer major components 10
  - computer specifications 55
  - connectors, service considerations 15
- D**
- Digital Media Slot, identifying 7
  - display assembly
    - removal 50
    - spare part number 10, 50
    - subcomponents 12
  - display bezel
    - identifying 12
    - spare part number 12, 13, 22
  - Display Hinge Kit
    - identifying 12
    - removal 50
    - spare part number 12, 13, 50
  - display panel
    - identifying 12
    - product description 1
    - removal 22
    - spare part number 12, 14, 22
  - Display Panel Cable Kit
    - identifying 12
    - removal 50
    - spare part number 12, 14, 50
- E**
- electrostatic discharge 16
  - equipment guidelines 18
  - Ethernet, product description 1
  - external media cards, product description 2
- F**
- fan
    - identifying 11
    - removal 47
    - spare part number 11, 14, 47
  - feet
    - locations 21
    - spare part number 11, 13, 21
- G**
- graphics, product description 1
  - grounding guidelines 16
  - guidelines
    - equipment 18
    - grounding 16
    - packaging 17
    - transporting 17
    - workstation 17
- H**
- hard drive
    - identifying 11
    - precautions 16
    - product description 1
    - removal 32
    - spare part number 11, 13, 32
    - specifications 56
  - Hard Drive Hardware Kit, spare part number 11, 13, 32
  - hard drive light, identifying 7
  - HDMI port, identifying 7
  - headphone
    - identifying 6
    - spare part number 11, 13, 34

- heat sink
  - identifying 11
  - removal 46
  - spare part number 11, 14, 46
- hinge
  - identifying 12
  - spare part number 12, 13, 50

**I**

- integrated webcam light,
  - identifying 3
- internal media card, product description 2
- internal microphone, identifying 3

**J**

- jack
  - audio-in 6
  - audio-out 6
  - headphone 6
  - microphone 6
  - network 7
  - RJ-45 (network) 7
  - RJ-45 (network) lights 7

**K**

- keyboard
  - identifying 10
  - product description 2
  - removal 24
  - spare part number 10, 14, 24

**L**

- latch, battery release 8
- lights
  - AC adapter 7
  - caps lock 5
  - drive 7
  - hard drive 7
  - power 5, 7
  - webcam 3

**M**

- mass storage device
  - precautions 16
  - removal 32
  - spare part number 32
- memory module
  - identifying 11
  - installation 41
  - product description 1

- removal 41
- spare part number 11, 13, 41
- microphone
  - identifying 6
  - product description 1
  - removal 50
  - spare part number 11, 13, 34, 50
- model name 1

**N**

- network jack, identifying 7

**O**

- operating system, product description 2

**P**

- packaging guidelines 17
- PCH heat sink
  - identifying 11
  - removal 45
  - spare part number 11, 14, 45
- plastic parts, service considerations 15
- pointing device, product description 2
- ports
  - HDMI 7
  - product description 2
  - USB 2.0 6, 7
- power button board
  - identifying 11
  - removal 30
  - spare part number 11, 13, 30
- power button, identifying 5
- power connector
  - identifying 7, 11
  - removal 53
  - spare part number 11, 14, 53
- power cord
  - requirements for all countries 58
  - requirements for specific countries and regions 59
  - set requirements 58
  - spare part number 12, 13
- power lights, identifying 5, 7
- power requirements, product description 2
- processor, product description 1

- product description
  - AC adapter 2
  - audio 1
  - battery 2
  - chipset 1
  - display panel 1
  - drive 1
  - Ethernet 1
  - external media cards 2
  - graphics 1
  - hard drive 1
  - internal media card 2
  - keyboard 2
  - memory module 1
  - microphone 1
  - operating system 2
  - pointing device 2
  - ports 2
  - power requirements 2
  - processor 1
  - product name 1
  - security 2
  - serviceability 2
  - solid-state drive 1
  - video 1
  - wireless 1
- product name 1

**R**

- recycling 61
- removal/replacement
  - preliminaries 15
  - procedures 19
- RJ-45 (network) jack lights, identifying 7
- RJ-45 (network) jack, identifying 7
- RJ-45 cover
  - identifying 11
  - removal 49
  - spare part number 11, 14, 49
- RTC battery
  - identifying 11
  - removal 44
  - spare part number 11, 14, 44
- Rubber Feet Kit
  - spare part number 11, 13, 21

## S

- Screw Kit, spare part number 13, 14
- security cable slot, identifying 6
- security, product description 2
- service considerations
  - cables 15
  - connectors 15
  - plastic parts 15
- service label 9, 19
- serviceability, product description 2
- slots
  - Digital Media 7
  - security cable 6
- solid-state drive
  - identifying 11
  - spare part number 11, 14, 21
  - specifications 57
- speaker assembly
  - identifying 11
  - removal 48
  - spare part number 11, 14, 48
- Speaker Kit, spare part number 11, 14, 48
- speakers, identifying 5
- specifications
  - computer 55
  - display 56
  - hard drive 56
  - solid-state drive 57
- system board
  - identifying 11
  - removal 38
  - spare part number 11, 14, 38

## T

- Thermal Material Kit, spare part number 13
- tools required 15
- top cover
  - identifying 11
  - removal 28
  - spare part number 11, 14, 28
- TouchPad buttons 4
- TouchPad zone, identifying 4
- transporting guidelines 17

## U

- USB 2.0 ports, identifying 6, 7

## USB board

- identifying 11
- removal 34
- spare part number 11, 13, 34

## V

- vents, identifying 6, 8
- video, product description 1

## W

- webcam light, identifying 3
- webcam, identifying 3
- webcam/microphone module
  - identifying 12
  - removal 50
  - spare part number 12, 13, 50
- wireless antenna
  - identifying 12
  - removal 50
  - spare part number 12, 14, 50
- wireless, product description 1
- WLAN antennas, identifying 3
- WLAN module
  - identifying 11
  - removal 35
  - spare part number 11, 13, 35
- workstation guidelines 17