



**HP Pavilion x2 Detachable Notebook PC
HP Split x2 Detachable PC**

Maintenance and Service Guide

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

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Product notice

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

Not all features are available in all editions of Windows 8. Your computer may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows 8 functionality. See <http://www.microsoft.com> for details.

Important Notice about Customer Self-Repair Parts

 **CAUTION:** Your computer includes parts that should only be accessed by an authorized service provider. Accessing parts described in the chapter titled, "Removal and replacement procedures for Authorized Service Provider only parts," can damage the computer or void your warranty.

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. 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).

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1 Product description

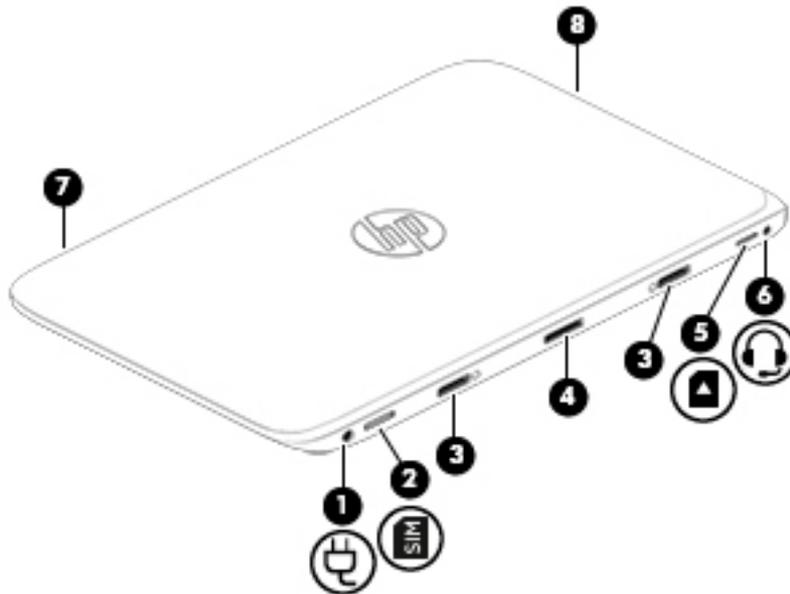
Category	Description	Tablet	Dock
Product Name	HP Pavilion x2 Detachable PC	√	√
	HP Split x2 Detachable PC	√	√
Processors	Tablet: Intel® Core™ i5-4202Y (1.6-GHz, 3-MB L3 cache, 4.5 W) Intel Core i3-4012Y (1.5-GHz, 3-MB L3 cache, 4.5 W)	√	
Chipset	Tablet: Integrated SoC PCH	√	
Graphics	Tablet: Internal graphics 2D/3D Graphics Supports HD playback, streaming, and recording @ 1080p 30fps processors	√	
Panel	Tablet: 33.8-cm (13.3-in), HD, anti-glare, LED (1366×768), slim 3.0-mm. UWVA, 200 nits 33.8-cm (13.3-in), FHD, anti-glare, LED (1920×1080), slim 3.0-mm. UWVA, 400 nits Supports 16:9 ultra wide aspect ratio Support for eDP, touch screen, multi-touch enabled	√	
Memory	Tablet: Supports up to 8-GB system memory DDR3L-1600-MHz, single channel support Intel Haswell Y Supports up to 8 GB: 8192 (8192 × 1) 4096 (4096 × 1)	√	
Storage	Tablet: Supports 500GB (5400 rpm) + 16 GB NAND Hybrid + Free Fall Sensor HDD, 5 mm Supports 500GB (5400 rpm) + 8 GB NAND Hybrid + Free Fall Sensor HDD, 5 mm	√	
Audio	Tablet: Two integrated stereo speakers Beats Audio	√	
Webcam and microphone	Tablet: Webcam, 1080p by 30 frames per second	√	

Category	Description	Tablet	Dock
	Dual array Digital Microphones w/ appropriate software - beam forming, echo cancellation, noise suppression		
Sensors	Tablet: Accelerometer Gyroscope eCompass	√	
Wireless	Tablet: Integrated WLAN options by way of wireless module Dual antennas Supports the following WLAN formats: Broadcom 4752 802.11 a/c + Bluetooth 4.0 combo adapter Intel 802.11 b/g/n + Bluetooth 4.0 combo adapter	√	
External media card	Tablet: Micro Secure Digital (SD) Media Reader Push-push insertion/removal Support SD/SDHC/SDXC with UHS	√	
	Dock: HP Multi-Format Digital Media Reader Push-push insertion/removal Support SD/SDHC/SDXC with UHSC		√
Ports	Tablet Docking connector (to base). Supports docking station capabilities (charging, audio-out, and video-out) Headphone/mic-in combo jack DC-in port Micro SM	√	
	Dock: (2) USB 3.0 Headphone/line-out and mic-in combo jack Docking connector (to tablet) DC-in port HDMI v1.4a supporting up to 1080p @ 60 Hz SD card slot		√
Keyboard	Dock: Full size, island-style keyboard Taps enabled as default Clickpad with image sensor		√

Category	Description	Tablet	Dock
	Supports Windows 8 modern touchpad gestures Multi-touch gestures enabled (Default on for 2-finger scroll and pinch)		
Power requirements	Supports the following HP AC adapters: 45-W Smart nPFC, barrel plug design 1 meter (3.3 ft) length power cord	√	√
	Tablet: 2-cell, 30 WHr battery (self-contained)	√	
	Dock: 2-cell, 21 WHr battery (self-contained)		√
Operating system	Tablet (Preinstalled): Windows 8.1 Professional, 64 bit Windows 8.1 Standard, 64 bit	√	
Serviceability	End-user replaceable parts: AC adapter	√	√

2 External component identification

Tablet edge components



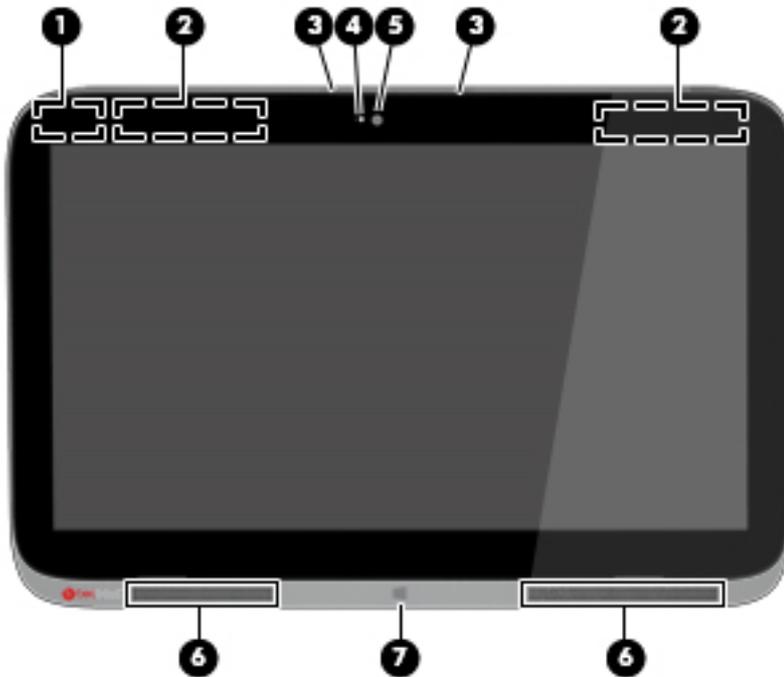
Components	Description
(1)  Power connector	Connects an AC adapter.
(2)  Micro SIM slot (select models only)	Supports a wireless subscriber identity module (SIM).
(3) Alignment post connectors (2)	Align and attach the tablet to the keyboard dock.
(4) Docking port/power connector	Connects the tablet to the keyboard dock and connects an AC adapter.
(5)  Micro memory card reader	Reads optional micro memory cards that store, manage, share, or access information. <ul style="list-style-type: none">• To insert a card, hold the card label-side up, with connectors facing the slot. Insert the card into the slot, and then push in on the card until it is firmly seated.• To remove a card, press in on the card until it pops out.
(6)  Audio-out (headphone)/Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.

Components	Description
(7)  Power button	<p>WARNING! 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>. To access this guide, from the Start screen, type <code>support</code>, select the HP Support Assistant app, select My computer, and then select User guides.</p> <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> <p>NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p> <ul style="list-style-type: none"> • When the computer is off, press the button to turn on the tablet. • When the computer is on, press the button briefly to initiate Sleep. • When the computer is in the Sleep state, press the button briefly to exit Sleep. <p>CAUTION: Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the tablet.</p> <p>To learn more about your power settings, see your power options.  Swipe from the right edge of the TouchPad or touch screen to display the charms, tap Search, and then tap the search box. In the search box, type <code>power</code>, select Settings, and then select Power options.</p> <p>– or –</p> <p> On the Start screen, type <code>power</code>, select Power and sleep settings, and then select Power and sleep.</p>
(8) Webcam (rear) (select models only)	<p>Records video, captures still photographs, and allows video conferences and online chat by means of streaming video.</p> <p> Swipe from the right edge of the TouchPad or touch screen to display the charms, tap Search, and then tap the search box. type <code>c</code>, and then select CyberLink YouCam from the list of applications.</p> <p>– or –</p> <p> From the Start screen, type <code>c</code>, and then select CyberLink YouCam from the list of applications.</p>
(9) Volume up/down button	<p>Controls speaker volume on the tablet.</p> <ul style="list-style-type: none"> • To increase speaker volume, press the + edge of the button.

Components	Description
	<ul style="list-style-type: none"> To decrease speaker volume, press the – edge of the button.

*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region. To access this guide, from the Start screen, type support, select the **HP Support Assistant** app, select **My computer**, and then select **User guides**.

Display



Component	Description
(1) WLAN antennas (2)*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2) WWAN antennas (2) (select models only)	Sends and receives wireless signals to communicate with wireless world wide networks (WWAN).
(3) Internal microphones (2)	Record sound.
(4) Webcam light (front)	On: The webcam is in use.
(5) Webcam (front)	Records video, captures still photographs, and allows you to video conference and chat online using streaming video.



Swipe from the right edge of the TouchPad or touch

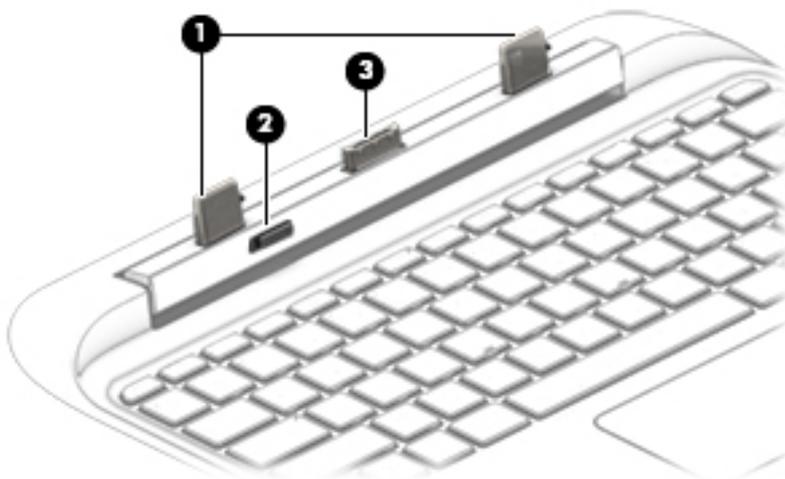
screen to display the charms, tap **Search**, and then tap the search box. type c, and then select **CyberLink YouCam** from the list of applications.

Component	Description
	– or –  From the Start screen, type <code>c</code> , and then select CyberLink YouCam from the list of applications.
(6) Speakers (2)	Produce sound.
(7)  Windows button	Returns you to the Start screen from any app or window.

*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region. To access this guide, from the Start screen, type `support`, select the **HP Support Assistant** app, select **My computer**, and then select **User guides**.

Keyboard dock

Top



Component	Description
(1) Alignment posts	Align and attach the tablet to the keyboard dock.
(2) Release latch	Releases the tablet from the keyboard dock. To release the tablet, slide the release latch to the left.
(3) Docking connector	Connects the tablet to the keyboard dock.

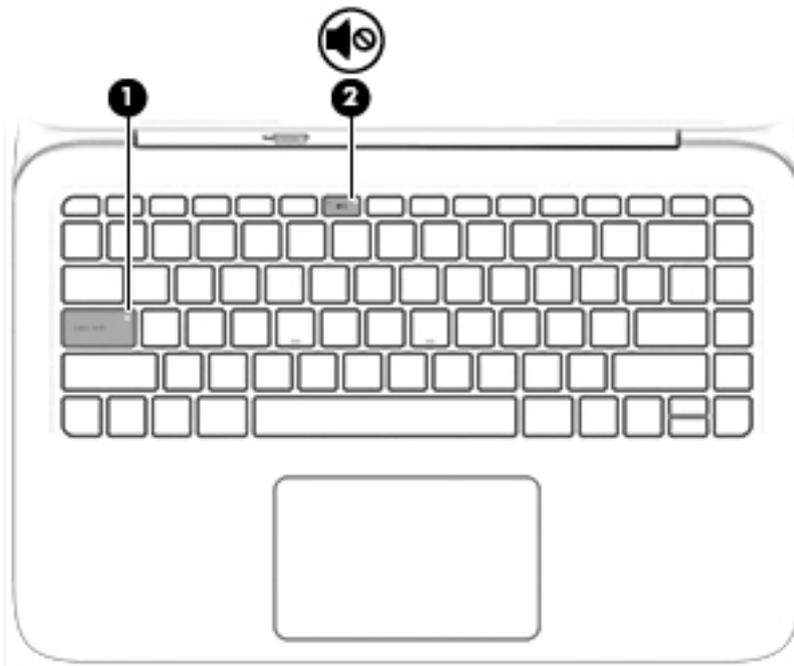
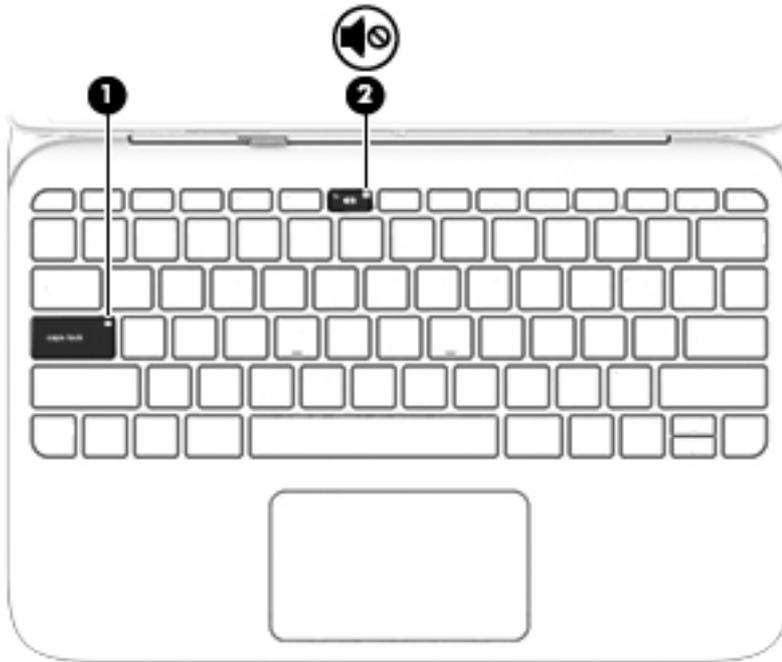
TouchPad



Component	Description
(1) TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen. NOTE: The TouchPad also supports edge-swipe gestures.
(2) Left TouchPad button	Functions like the left button of an external mouse.
(3) Right TouchPad button	Functions like the right button on an external mouse.

Lights

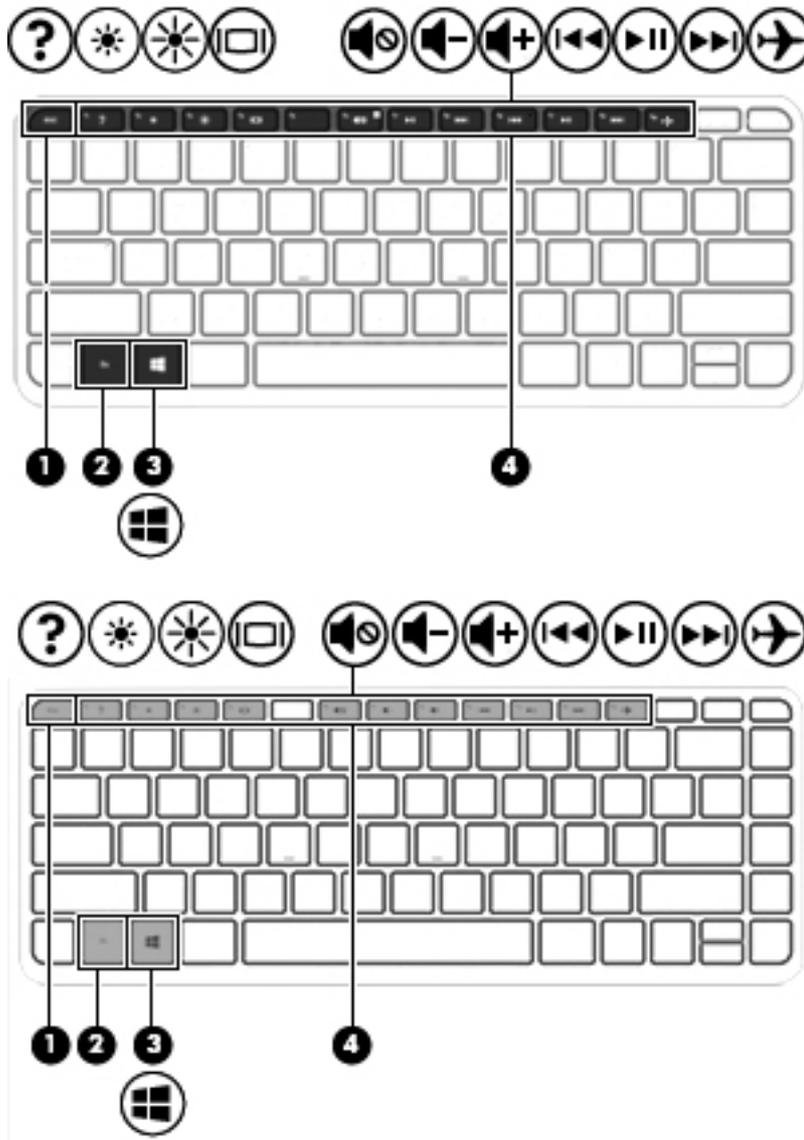
 **NOTE:** Refer to the image that most closely matches your keyboard.



Component	Description
(1) Caps lock light	<ul style="list-style-type: none">• White: Caps lock is on.• Off: Caps lock is off.
(2)  Mute light	<ul style="list-style-type: none">• Amber: Computer sound is off.• Off: Computer sound is on.

Keys

 **NOTE:** Refer to the image that most closely matches your keyboard.



Component	Description
(1)  <code>esc</code> key	Displays system information when pressed in combination with the <code>fn</code> key (select models only).
(2)  <code>fn</code> key	Executes frequently used system functions when pressed in combination with the <code>b</code> key or the <code>esc</code> key (select models only).
(3)  Windows key	Returns you to the Start screen from an open app or the Windows desktop. NOTE: Pressing the Windows key again will return you to the previous screen.
(4) Action keys	Execute frequently used system functions.

Component	Description
	NOTE: Action keys do not display or function on the on-screen keyboard of the tablet.

Front



Component	Description
 Power button	<ul style="list-style-type: none"> • When the computer is off, press the button to turn on the computer. • When the computer is on, press the button briefly to initiate Sleep. • When the computer is in the Sleep state, press the button briefly to exit Sleep. • When the computer is in Hibernation, press the button briefly to exit Hibernation. <p>CAUTION: Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, see your power options. From the Start screen, type <code>power</code>, select Power and sleep settings, and then select Power and sleep from the list of applications.</p>

Right side



Component	Description
 Memory card reader	<p>Connects optional memory cards that store, manage, share, or access information.</p> <ul style="list-style-type: none"> To insert the memory card, hold the card, label side up with connectors facing the slot and push in the card until it is firmly seated. To remove the memory card, press in on the card and quickly release it until it pops out.

Rear side



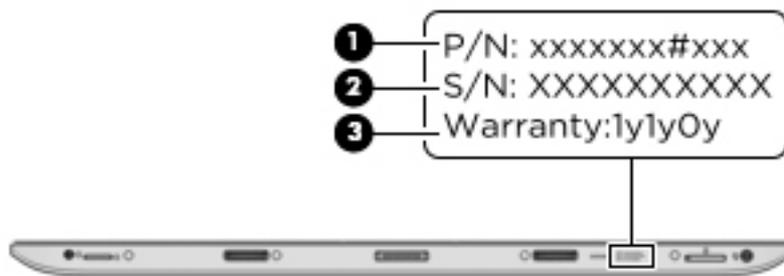
Component	Description
(1)  AC adapter/battery light	<ul style="list-style-type: none"> White: The AC adapter is connected and the battery is charged. Blinking white: The battery has reached a low battery level. Amber: The AC adapter is connected and the battery is charging. Off: The computer is using battery power.
(2)  Power connector	Connects an AC adapter.
(3)  HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI device.
(4)  USB 3.0 ports (2)	Each USB 3.0 port connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)  Audio-out (headphone)/Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.

Component	Description
	<p>WARNING! 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>. To access this guide, from the Start screen, type <code>support</code>, select the HP Support Assistant app, select My computer, and then select User guides.</p> <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> <p>NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p>

Locating system information

Important system information is located on the bottom edge of the tablet or on the keyboard base. You may need the information when travelling internationally or when you contact support:

- (1):** Product number
- (2):** Serial number
- (3):** Warranty period

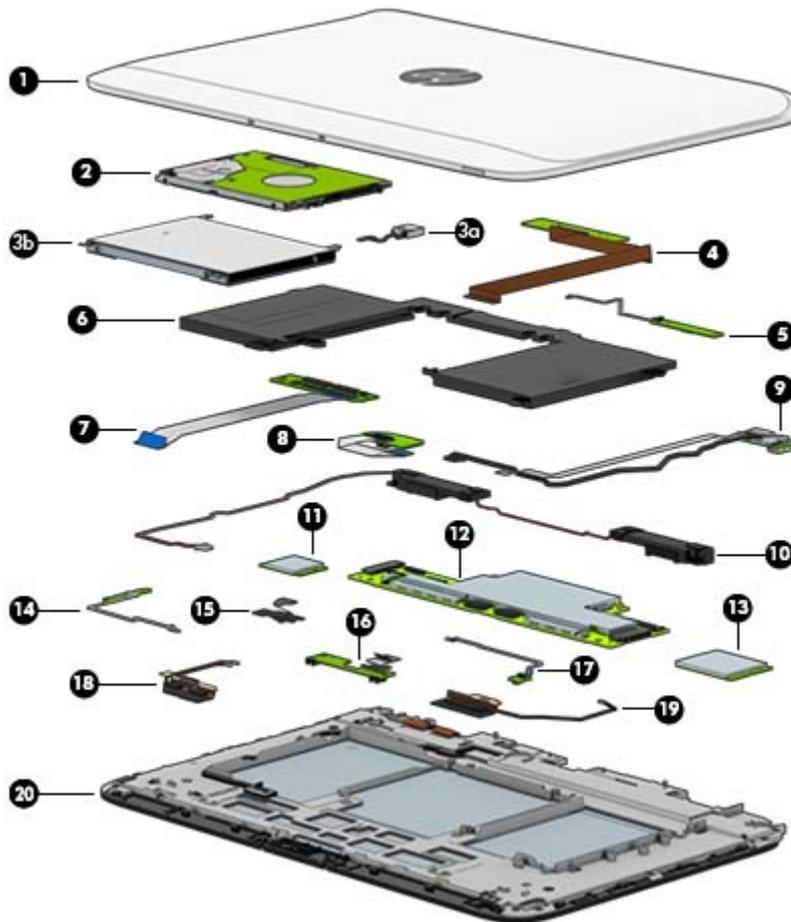


Using Windows, briefly press the **fn+esc** key combination to display the System Information screen, which provides the product name and serial number of your computer, as well as information about the memory, processor, BIOS, and keyboard.

3 Illustrated parts catalog

Tablet components

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

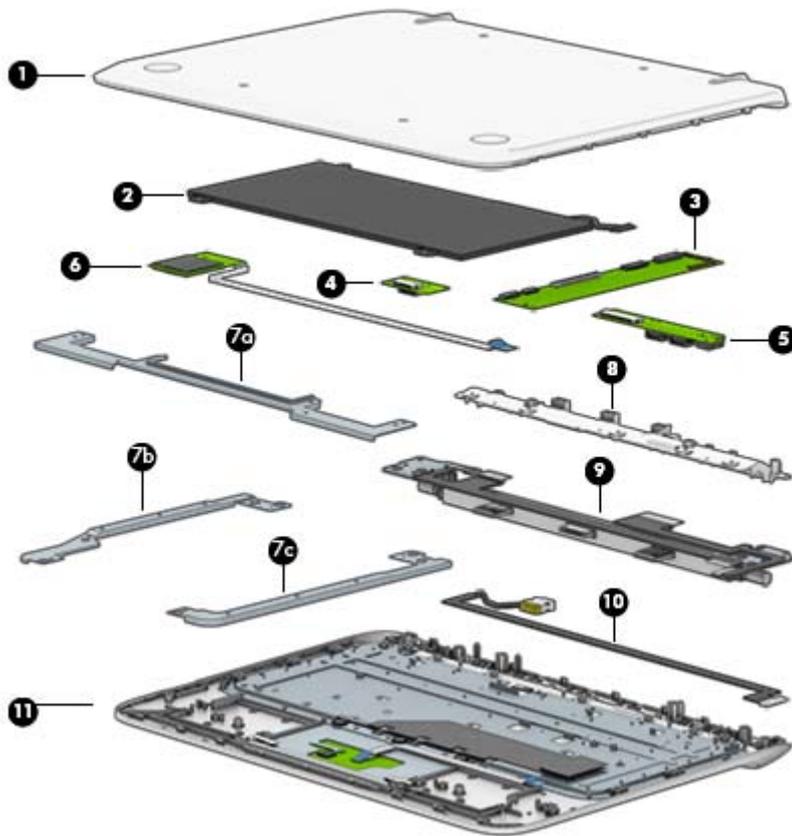


Item	Component	Spare part number
(1)	Tablet cover	
	For use in models without a SIM module	765967-001
	For use in models with a SIM module	765968-001
(2)	Hard drive	
	500-GB, 5400-rpm, hybrid with 16 GB SSD	762179-005
	500-GB, 5400-rpm, hybrid with 8 GB SSD	775520-005
	Hard Drive Hardware Kit (includes cable, cover, and screws)	765922-001

Item	Component	Spare part number
(3a)	Cable	
(3b)	Bracket	
(4)	Docking board (includes cable)	765992-001
(5)	Home button board (includes cable)	765991-001
(6)	Tablet battery (2-cell, 30-WHr, 4.15-AH)	756416-001
(7)	Touch screen board (includes cable)	765987-001
(8)	Audio/SD board (includes cable)	765988-001
(9)	Power connector/SIM board	
	For use in models without a SIM module	765976-001
	For use in models with a SIM module	765977-001
(10)	Speaker Kit (includes left and right speakers)	766006-001
(11)	WLAN module	
	Intel Dual Band Wireless-AC 3160	751416-005
	Broadcom BCM43142 802.11bgn 1x1 Wi-Fi + BT 4.0 Combo Adapter	753078-005
(12)	System board (includes thermal grease)	
	Non-Windows 8 models with an Intel Core i5-4202Y processor and 8 GB of system memory	765995-001
	Windows 8 Standard models with an Intel Core i5-4202Y processor and 8 GB of system memory	765995-501
	Non-Windows 8 models with an Intel Core i5-4202Y processor and 4 GB of system memory	765993-001
	Windows 8 Standard models with an Intel Core i5-4202Y processor and 4 GB of system memory	765993-501
	Non-Windows 8 models with an Intel Core i3-4012Y processor and 8 GB of system memory	765996-001
	Windows 8 Standard models with an Intel Core i3-4012Y processor and 8 GB of system memory	765996-501
	Non-Windows 8 models with an Intel Core i3-4012Y processor and 4 GB of system memory	765994-001
	Windows 8 Standard models with an Intel Core i3-4012Y processor and 4 GB of system memory	765994-501
(13)	SIM module	779122-001
(14)	Volume control board (includes cable)	765990-001
(15)	Webcam	765960-001
(16)	Light sensor board	765936-001
(17)	Power button board (includes cable)	765989-001
(18)	SIM Antenna	779124-001
(19)	WLAN Antenna	779123-001
(20)	Display panel	
	HD (1366×768)	766002-001
	FHD (1920×1080)	773178-001

Keyboard dock parts

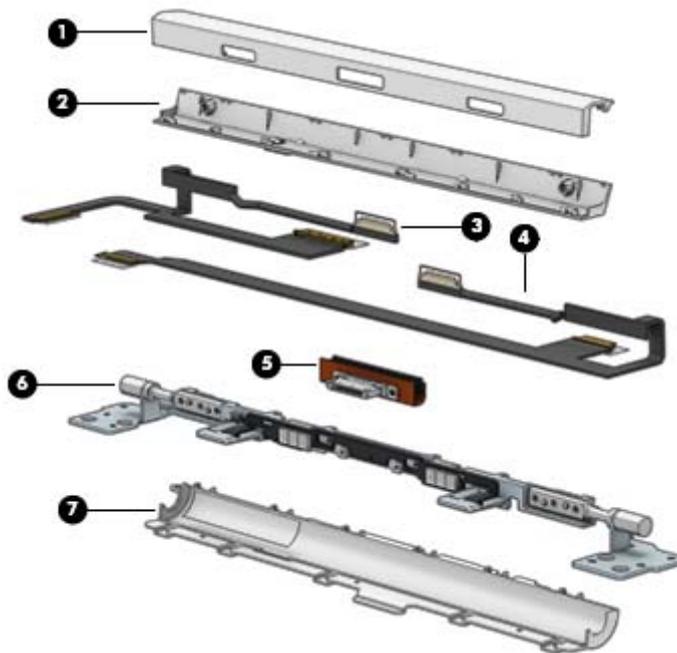
 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.



Item	Component	Spare part number
(1)	Bottom cover	765971-001
(2)	Battery (2-cell, 21-WHr, 2.96-AH)	756417-001
(3)	I/O board	765986-001
(4)	HDMI board	765929-001
(5)	USB/audio board	765928-001
(6)	Card reader (includes cable)	765983-001
	Bracket Kit, includes:	765979-001
(7a)	Bridge bracket	
(7b)	Right upper bracket	
(7c)	Left upper bracket	
(8)	Hinge cavity	765981-001
(9)	Hinge assembly	not spared

Item	Component	Spare part number
	NOTE: The hinge assembly is spared as individual components. For more information, see Hinge assembly parts on page 17 .	
(10)	DC-in power connector	765975-001
(11)	Top cover with keyboard	
	For use in Pavilion x2 models in Canada	766008-DB1
	For use in Pavilion x2 models in Latin America	766008-161
	For use Pavilion x2 models in the United States	766008-001
	For use in Split x2 models in the United States	778938-001

Hinge assembly parts



Item	Component	Spare part number
	Hinge covers	765980-001
(1)	Front	
(2)	Rear	
(3)	HDMI cable	765973-001
(4)	USB cable	765974-001
(5)	Hinge connector	765982-001
(6)	Hinge bracket	765921-001
(7)	Hinge cavity	765981-001

Miscellaneous parts

Description	Spare part number
Rubber Kit (includes dock rear rubber)	766003-001
Screw Kit	766005-001
Hard Drive Hardware Kit (includes cable, cover, and screws)	765922-001
Adapters	
HDMI to VGA adapter	701943-001
RJ-45 to USB adapter	539614-001
AC adapter , 45-W AC adapter, non-slim, nPFC	741727-001
Power cords (1.0 m)	
For use in Argentina	755530-D01
For use in Italy	755530-061
For use in the United States	755530-001

Sequential part number listing

Spare part number	Description
539614-001	RJ-45 to USB adapter
701943-001	HDMI to VGA adapter
741727-001	45-W AC adapter, non-slim, nPFC
751416-005	Intel Dual Band Wireless-AC 3160
753078-005	Broadcom BCM43142 802.11bgn 1x1 Wi-Fi + BT 4.0 Combo Adapter
755530-001	Power cord for use in North America
755530-061	Power cord for use in Italy
755530-D01	Power cord for use in Argentina
755530-D61	Power cord for use in India
756416-001	2-cell, 30-WHr, 4.15-AH battery (Tablet)
756417-001	2-cell, 21-WHr, 2.96-AH battery (Keyboard dock)
762179-005	500-GB, 5400-rpm, hybrid hard drive with 16 GB SSD
765921-001	Hinge connector
765922-001	Hard Drive Hardware Kit (includes cable, cover, and screws)
765928-001	USB/audio board
765929-001	HDMI board
765936-001	Light sensor board
765960-001	Webcam

Spare part number	Description
765967-001	Tablet cover for use in models without a SIM module
765968-001	Tablet cover for use in models with a SIM module
765971-001	Bottom cover
765975-001	Power connector
765976-001	Power connector/SIM board for use in models without a SIM module
765977-001	Power connector/SIM board for use in models with a SIM module
765979-001	Bracket Kit, includes bridge bracket and upper left and right brackets
765983-001	Card reader (includes cable)
765986-001	I/O board
765987-001	Touch screen board (includes cable)
765988-001	Audio/SD board (includes cable)
765989-001	Power button board (includes cable)
765990-001	Volume control board (includes cable)
765991-001	Home button board (includes cable)
765992-001	Docking board (includes cable)
765993-001	System board for use with non-Windows 8 models with an Intel Core i5-4202Y processor and 4 GB of system memory (includes processor and replacement thermal material)
765993-501	System board for use with Windows 8 Standard models with an Intel Core i5-4202Y processor and 4 GB of system memory (includes processor and replacement thermal material)
765994-001	System board for use with non-Windows 8 models with an Intel Core i3-4012Y processor and 4 GB of system memory (includes replacement thermal material)
765994-501	System board for use with Windows 8 Standard models with an Intel Core i3-4012Y processor and 4 GB of system memory (includes replacement thermal material)
765995-001	System board for use with non-Windows 8 models with an Intel Core i5-4202Y processor and 8 GB of system memory (includes processor and replacement thermal material)
765995-501	System board for use with Windows 8 Standard models with an Intel Core i5-4202Y processor and 8 GB of system memory (includes processor and replacement thermal material)
765996-001	System board for use with non-Windows 8 models with an Intel Core i3-4012Y processor and 8 GB of system memory (includes processor and replacement thermal material)
765996-501	System board for use with Windows 8 Standard models with an Intel Core i3-4012Y processor and 8 GB of system memory (includes processor and replacement thermal material)
766002-001	Display panel, HD
766003-001	Rubber Kit (includes dock rear rubber)
766005-001	Screw Kit
766006-001	Speaker Kit (includes left and right speakers)
766008-001	Top cover with keyboard for use in Pavilion x2 models in the United States
766008-161	Top cover with keyboard for use in Pavilion x2 models in Latin America
766008-DB1	Top cover for use in Pavilion x2 models in Canada

Spare part number	Description
773178-001	Display panel, FHD
775520-005	500-GB, 5400-rpm, hybrid hard drive with 8 GB SSD
778938-001	Top cover with keyboard for use in Split x2 models in the United States
779122-001	SIM module
779123-001	Antennas for use with a WLAN module
779124-001	Antennas for use with a SIM module

4 Removal and replacement procedures preliminary requirements

Tools required

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

- Flat-bladed screwdriver
- Phillips P0 and P1 screwdrivers
- Torx T8 screwdriver

Service considerations

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

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

Plastic parts

 **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, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

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

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

Avoid exposing a 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, and 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.

Use nonmagnetic tools.

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 strips must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tapes
- 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 plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

5 Removal and replacement procedures for Authorized Service Provider parts

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

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

There are as many as 70 screws that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

📄 NOTE: Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Locating system information on page 13](#) for details.

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

Releasing the tablet from the keyboard dock



To release the tablet from the keyboard dock, follow these steps:

1. Slide the release latch on the keyboard dock to the left **(1)**.
2. Lift and remove the tablet **(2)**.

Keyboard dock components

The following sections describe the removal and replacement procedure of the dock components

Dock bottom cover

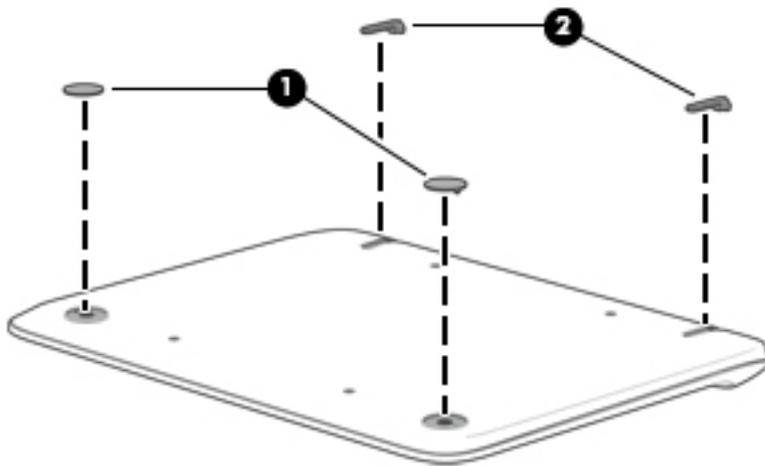
Description	Spare part number
Bottom cover	765971-001

Before disassembling the keyboard dock, follow these steps:

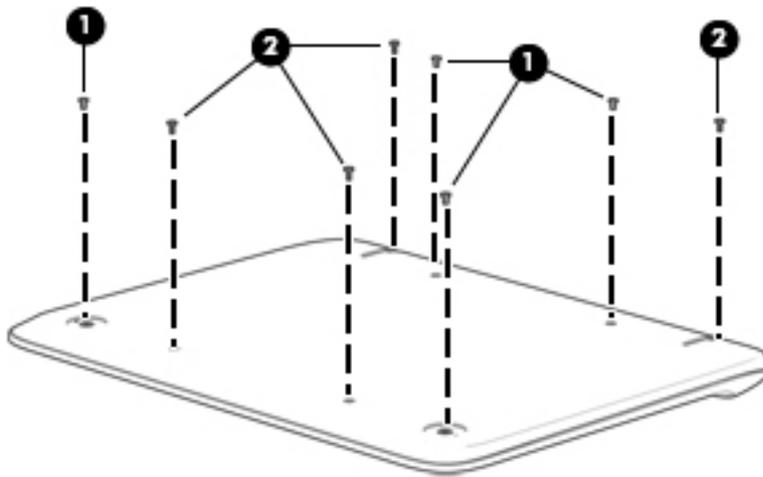
1. Shut down the keyboard dock. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).

Remove the dock bottom cover:

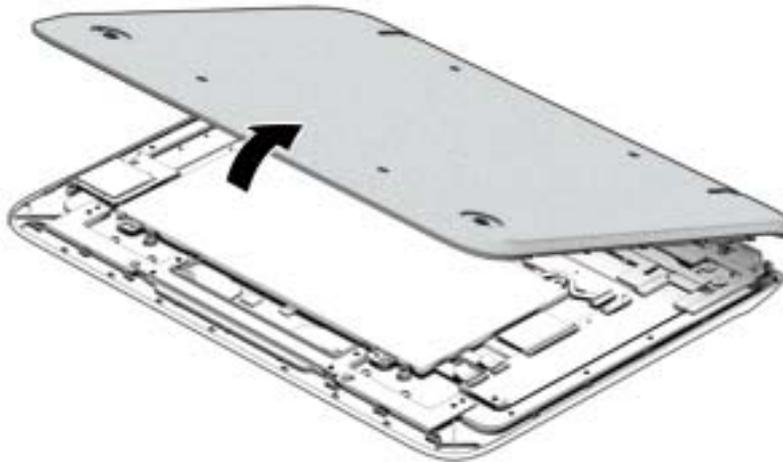
1. Position the dock upside-down.
2. Pry off the two round rubber feet **(1)**, and then the two rectangular rubber feet **(2)** underneath.



3. Remove the four smaller Phillips PM2.5×4.0 screws **(1)** four larger Phillips PM2.5×6.5 screws **(2)**.



4. Lift the bottom of the cover, and remove it from the dock.



Reverse this procedure to install the dock bottom cover.

Battery cable

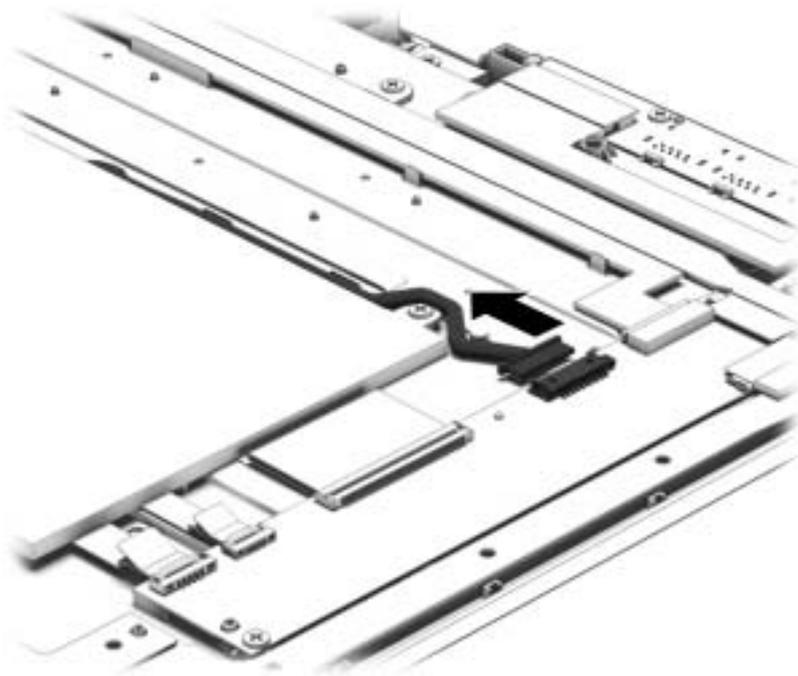
You do not have to remove the internal battery before removing several internal components. However, if you leave the battery installed while removing components, be sure to disconnect the battery cable to remove power from internal components.

Before disconnecting the battery cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).

Disconnect the battery cable:

- ▲ Disconnect the battery cable from the system board connector.



HDMI board

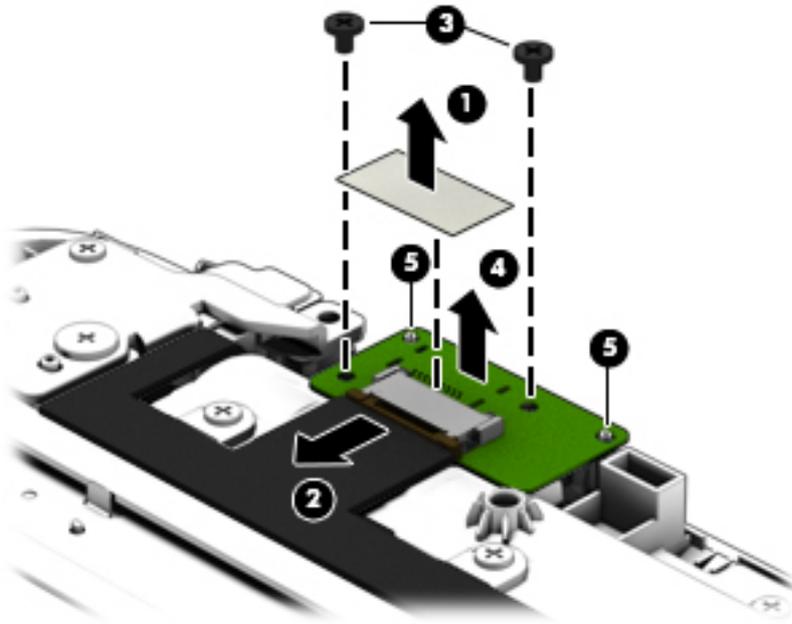
Description	Spare part number
HDMI board	765929-001

Before removing the HDMI board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).
6. Disconnect the battery cable (see [Battery cable on page 28](#)).

To remove the HDMI board:

1. Remove the tape from atop the connector **(1)**.
2. Disconnect the cable **(2)** from the board.
3. Remove the two Phillips PM2.0×3.0 screws **(3)** that secure the HDMI board to the dock.
4. Lift the board to remove it from the dock **(4)**. Note the posts **(5)** that hold the board in place.



Reverse this procedure to install the HDMI board.

USB/audio board

Description	Spare part number
USB/audio board (includes cable)	765928-001

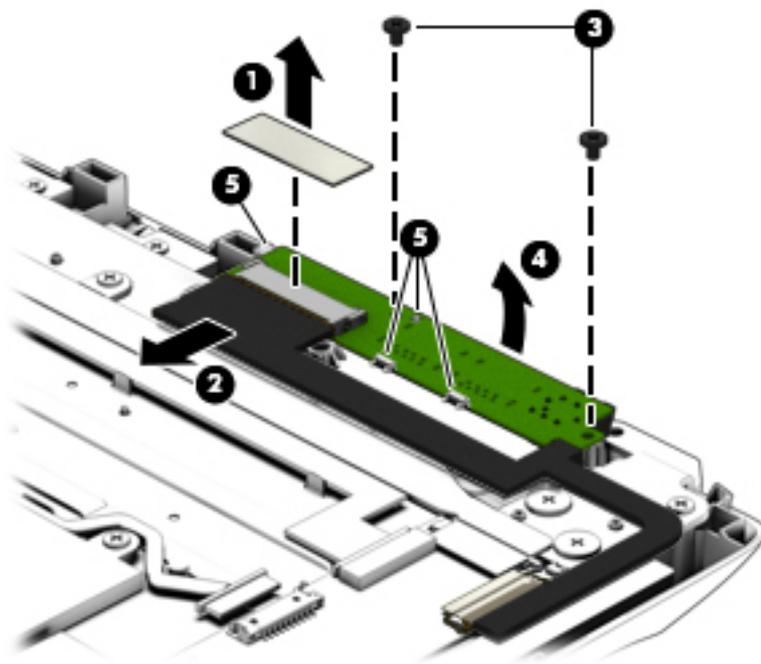
Before removing the USB/audio board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).
6. Disconnect the battery cable (see [Battery cable on page 28](#)).

Remove the USB/audio board:

1. Remove the tape from atop the connector **(1)**.
2. Disconnect the cable **(2)** from the board.
3. Remove the two Phillips PM2.0×3.0 screws **(3)** that secure the USB/audio board to the dock.
4. Rotate the side of the board up and remove it from the dock **(4)**.

 **NOTE:** When installing the USB/audio board, make sure to insert the notches in the board onto the posts on the computer **(5)**.



Reverse this procedure to install the USB/audio board.

I/O board

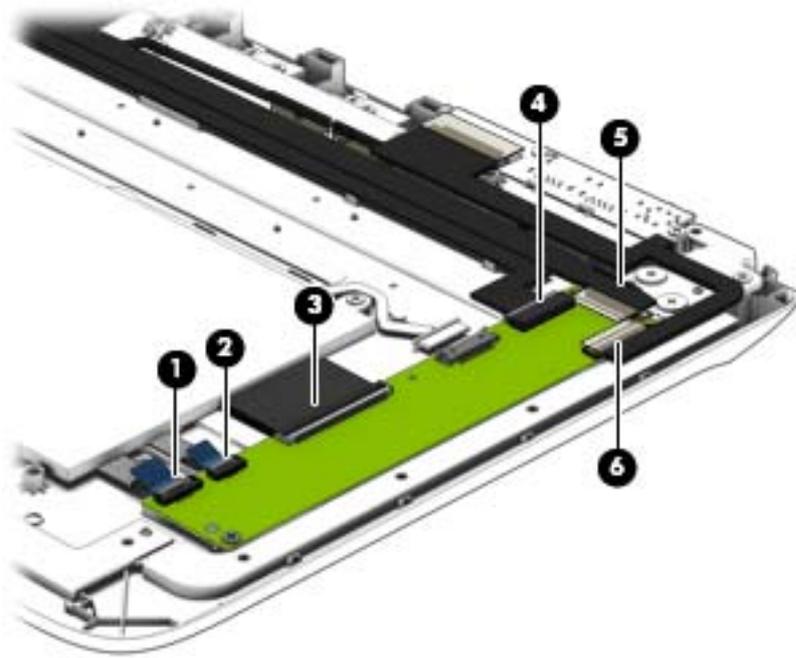
Description	Spare part number
I/O board (includes cable)	765986-001

Before removing the I/O board, follow these steps:

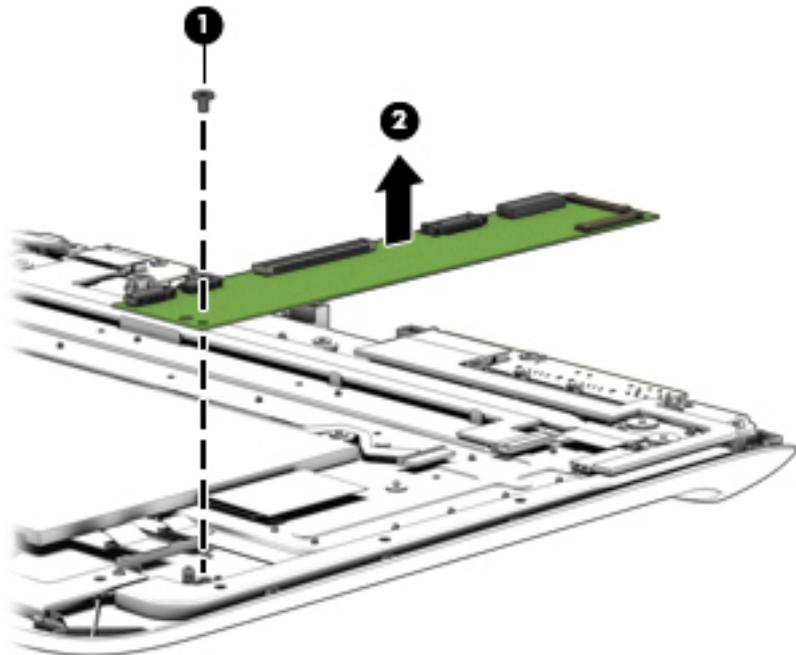
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).
6. Disconnect the battery cable (see [Battery cable on page 28](#)).

Remove the I/O board:

1. Disconnect the following cables from the board:
 - (1): Card reader board
 - (2): Touchpad board
 - (3): Keyboard cable
 - (4): Power connector cable
 - (5): HDMI cable
 - (6): USB cable



2. Remove the Phillips PM2.0×3.0 screw **(1)** that secures the I/O board to the dock.
3. Lift the board up and off the dock **(2)**.



Reverse this procedure to install the I/O board.

Power connector

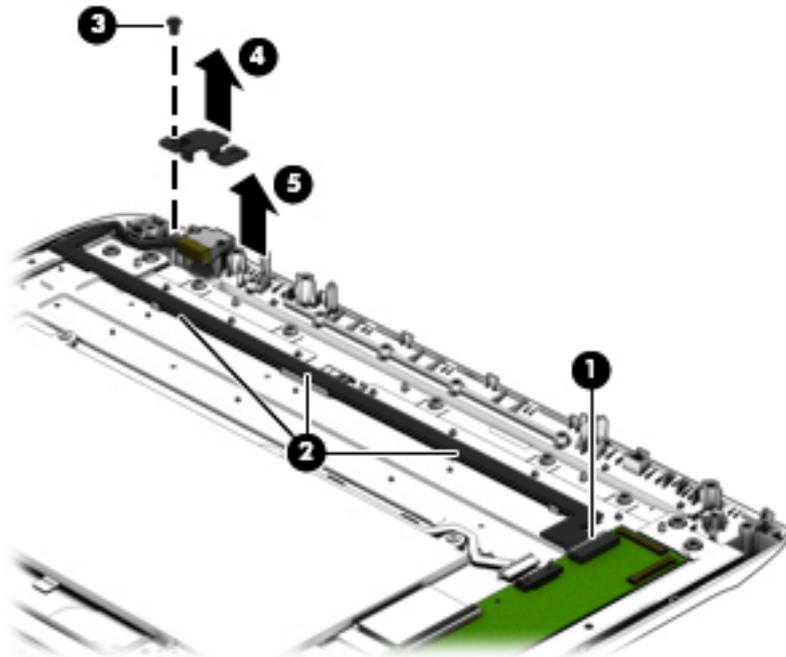
Description	Spare part number
Power connector	765975-001

Before removing the power connector, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).
6. Disconnect the battery cable (see [Battery cable on page 28](#)).

Remove the power connector:

1. Disconnect the power connector cable from the I/O board (**1**).
2. Remove the cable from its routing path on the bottom of the dock (**2**).
3. Remove the Phillips PM2.5×4.0 screw (**3**) that secures the power connector bracket to the dock.
4. Remove the bracket from atop the connector (**4**), and then remove the power connector cable from the dock (**5**).



Reverse this procedure to install the power connector.

Hinge assembly

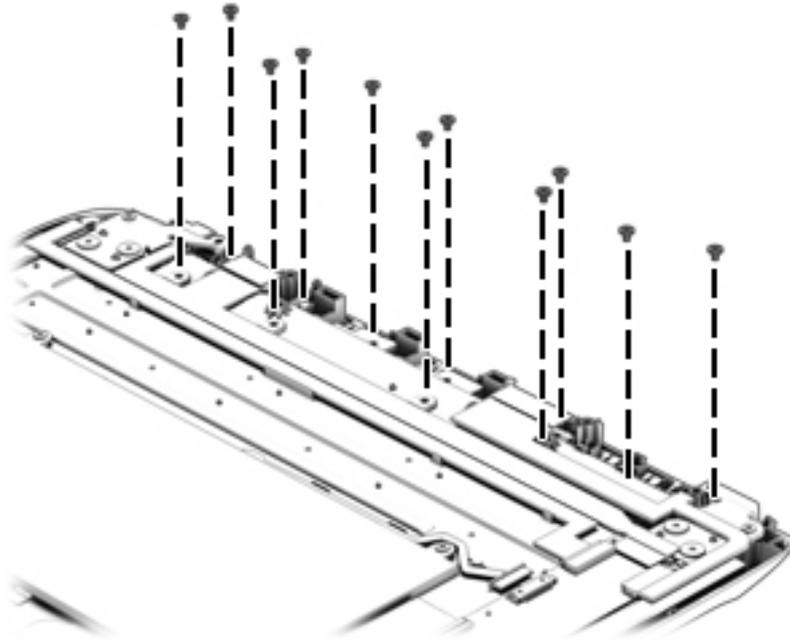
Description	Spare part number
Hinge covers	765980-001
Hinge bracket	765982-001
HDMI cable	765973-001
USB cable	765974-001
Hinge docking connector	xxxxxx-001
Hinge cavity	765981-001

Before removing the hinge, follow these steps:

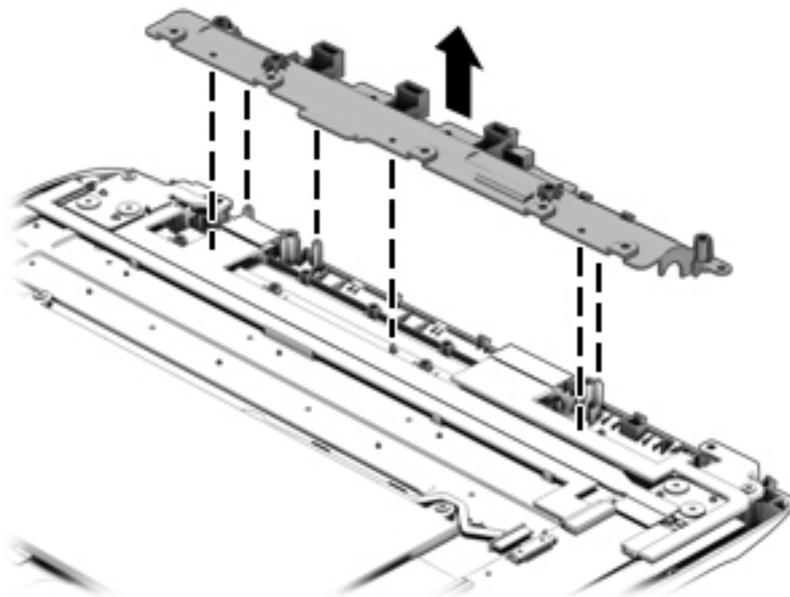
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).
6. Disconnect the battery cable (see [Battery cable on page 28](#)).
7. Remove the HDMI board (see [HDMI board on page 29](#)).
8. Remove the USB board (see [USB/audio board on page 30](#)).
9. Remove the power connector cable (see [Power connector on page 34](#)).

Remove the hinge assembly:

1. Remove the 11 Phillips PM2.0×3.0 screws that secure the hinge cover to the dock.

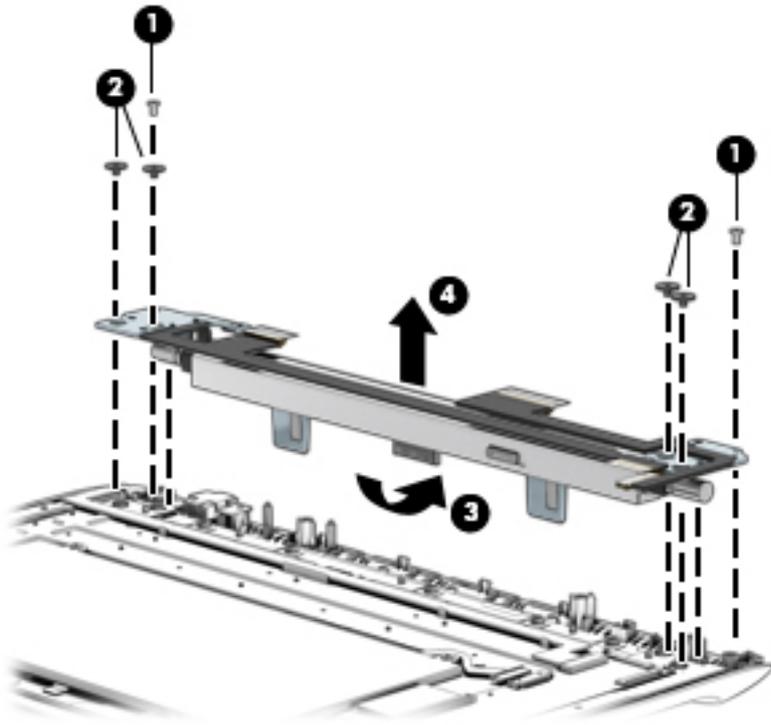


2. Lift the hinge cover off the dock.



3. Remove the two Phillips PM2.5×6.0 screws **(1)** and the four Phillips PM2.5×2.7 broadhead screws **(2)** that secure the hinge assembly to the dock.

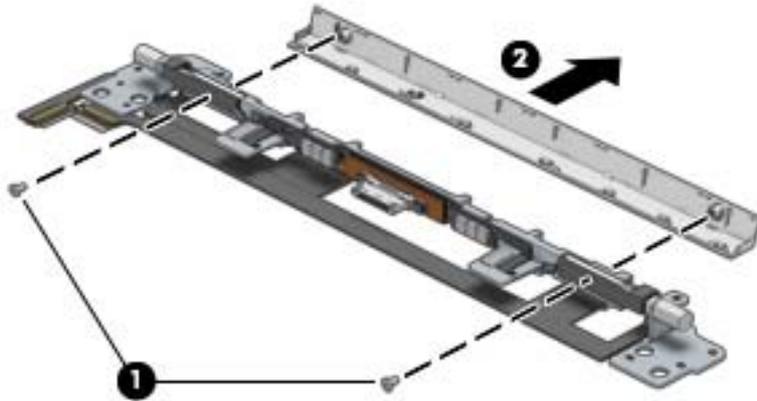
4. Rotate the bottom of the assembly away from the dock (3), and then remove the hinge assembly from the dock (4).



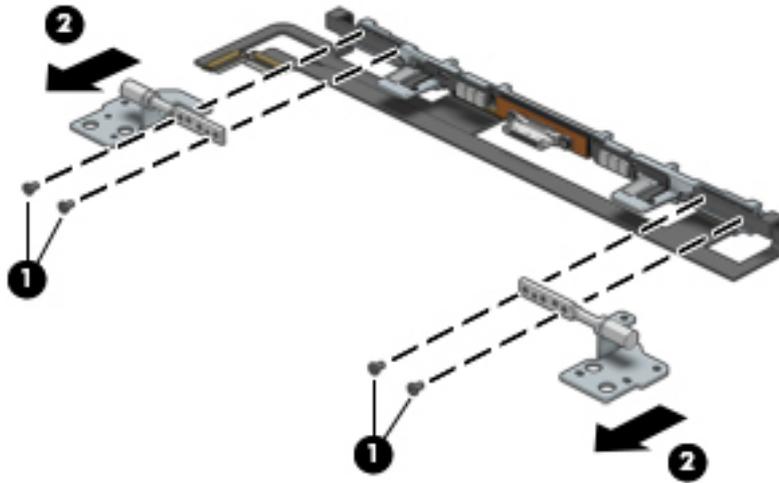
5. Pull from front cover off the hinge assembly.



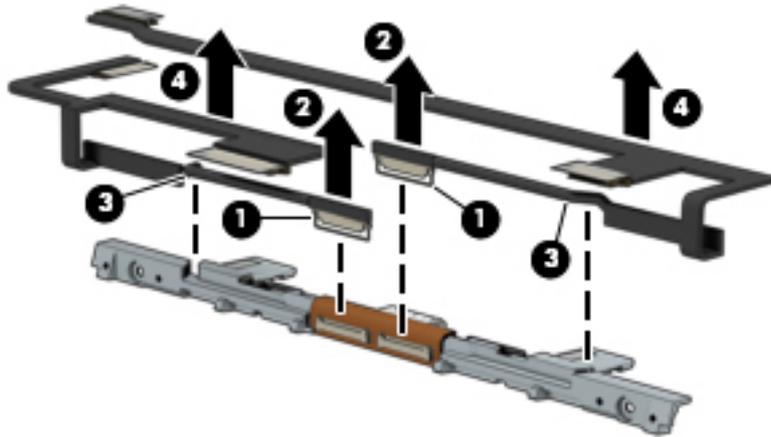
6. Remove the two Phillips PM2.5×6.0 screws (1) that secure the rear hinge cover, and then remove the rear hinge cover from the hinge assembly (2).



7. Remove the four Phillips PM2.5×6.5 screws (1) that secure the brackets to the assembly, and then remove the brackets from the hinge assembly (2).



8. Remove the cables (1) from the front connectors (2), remove the tape (3) that secures the cables to the base hinge, and then remove the cables (4).

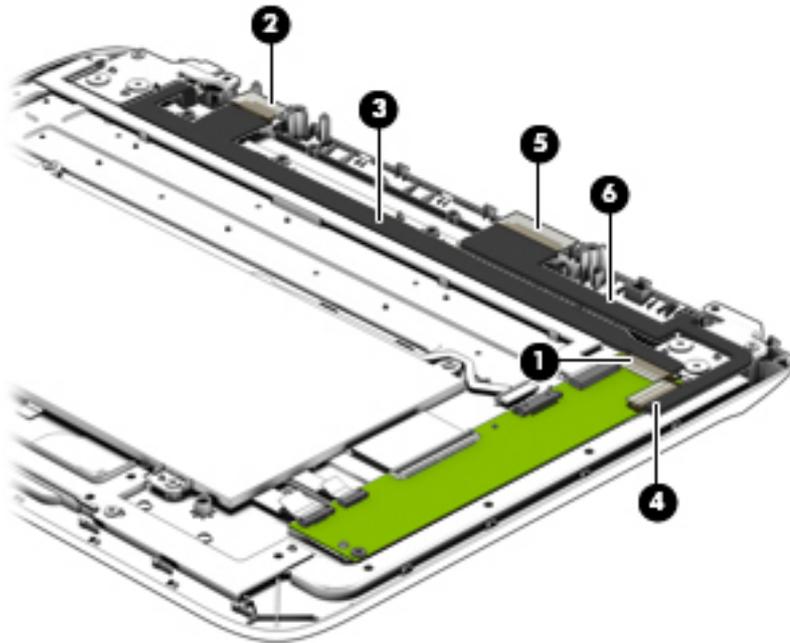


Reverse this procedure to install the hinge assembly.

For reassembly reference, note the cable routing:

The HDMI cable (3) runs from the I/O board (1) to the hinge assembly (2).

The USB cable (6) runs from the I/O board (4) to the hinge assembly (5).



Battery

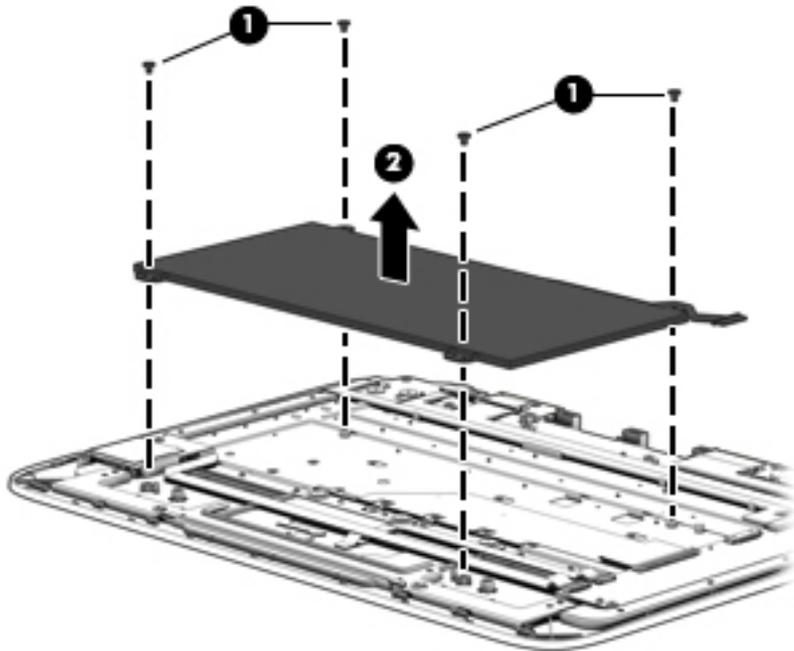
Description	Spare part number
2-cell, 21-WHr, 2.96-AH battery	756417-001

Before removing the battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).
6. Disconnect the battery cable (see [Battery cable on page 28](#)).

Remove the battery:

1. Remove the four Phillips PM2.0×3.0 screws (**1**) that secure the battery to the dock.
2. Lift the battery (**2**) from the dock.



Reverse this procedure to install the battery.

Card reader board

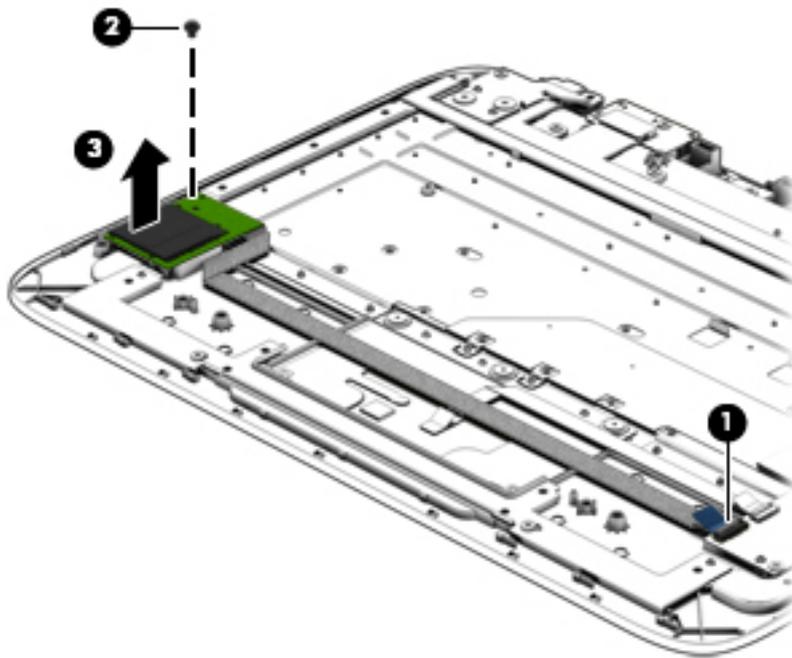
Description	Spare part number
Card reader board (includes cable)	765983-001

Before removing the card reader board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).
6. Disconnect the battery cable (see [Battery cable on page 28](#)).
7. Remove the battery (see [Battery on page 40](#)).

Remove the card reader board:

1. Disconnect the card reader cable **(1)** from the I/O board.
2. Remove the Phillips PM2.0×4.0 screw **(2)** that secures the card reader board to the dock.
3. Lift the card reader board from the dock **(3)**.



Reverse these procedures to install the card reader board.

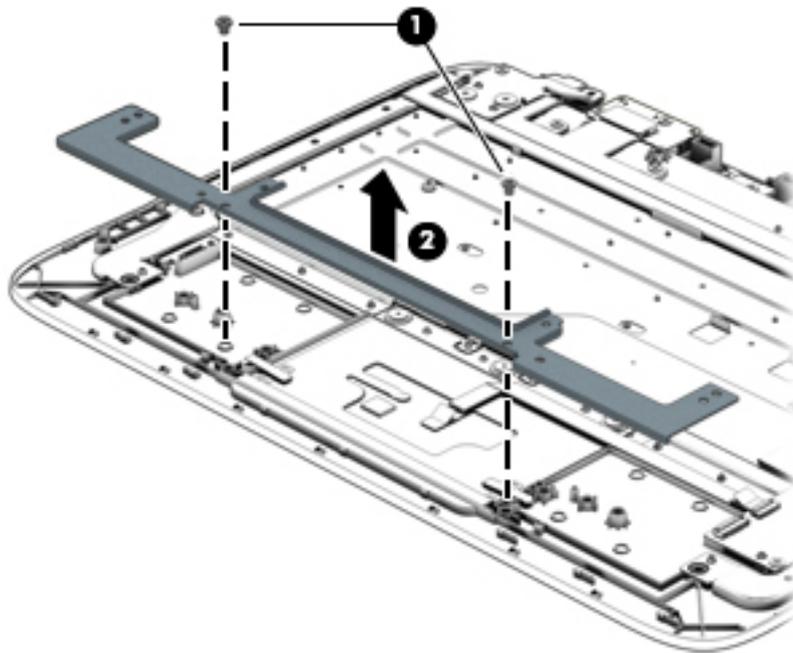
Touchpad board

Before removing the touchpad board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the dock bottom cover (see [Dock bottom cover on page 26](#)).
6. Disconnect the battery cable (see [Battery cable on page 28](#)).
7. Remove the battery (see [Battery on page 40](#)).

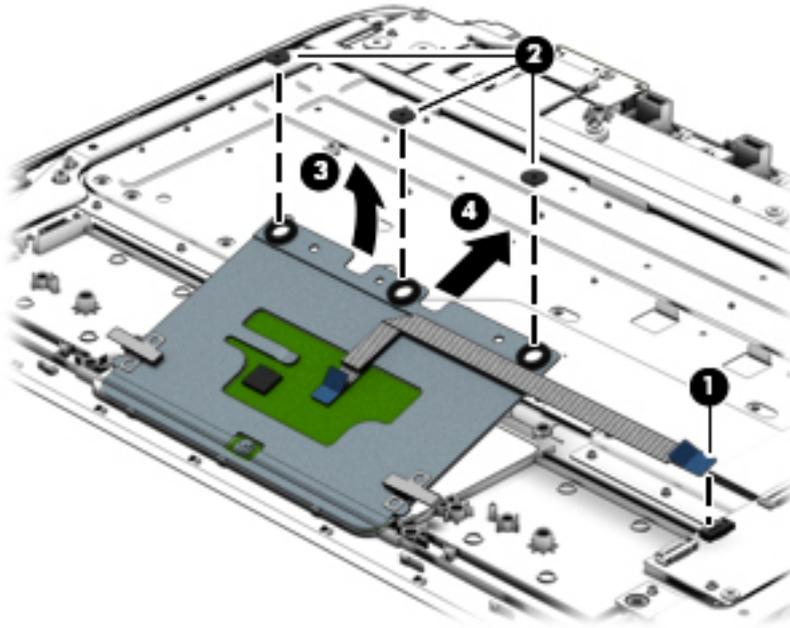
Remove the touchpad board and cable:

1. Remove the two Phillips PM2.5×3.5 screws **(1)** that secure the bracket to the dock.
2. Remove the bracket from the dock **(2)**.



3. Disconnect the touchpad cable from the I/O board **(1)**.
4. Remove the three Phillips PM2.0×2.0 broadhead screws **(2)** that secure the touchpad board to the dock.

5. Lift the top of the touchpad upward **(3)**, and then remove the touchpad from the dock **(4)**.



Reverse this procedure to install the touchpad board.

Tablet components

The following sections show the removal and replacement procedures for the tablet parts.

Tablet cover

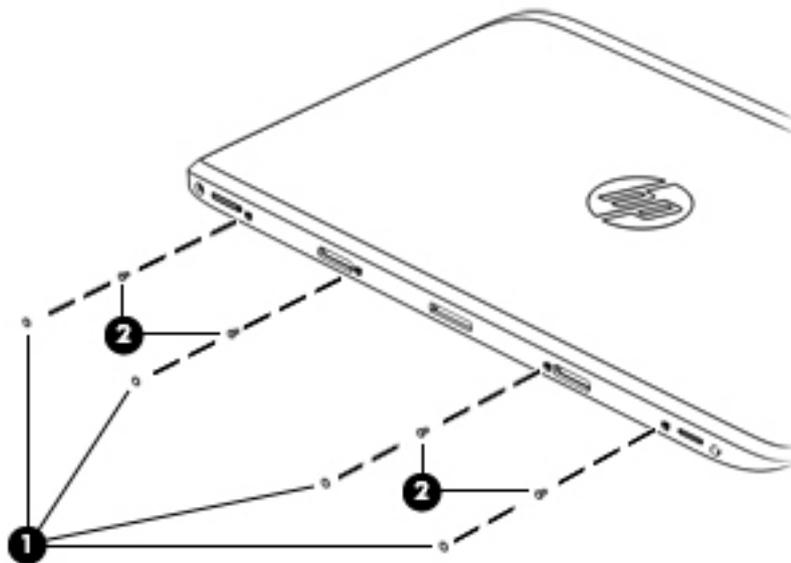
Description	Spare part number
Tablet cover for use in models without a SIM module	765967-001
Tablet cover for use in models with a SIM module	765968-001

Before removing the tablet cover, follow these steps:

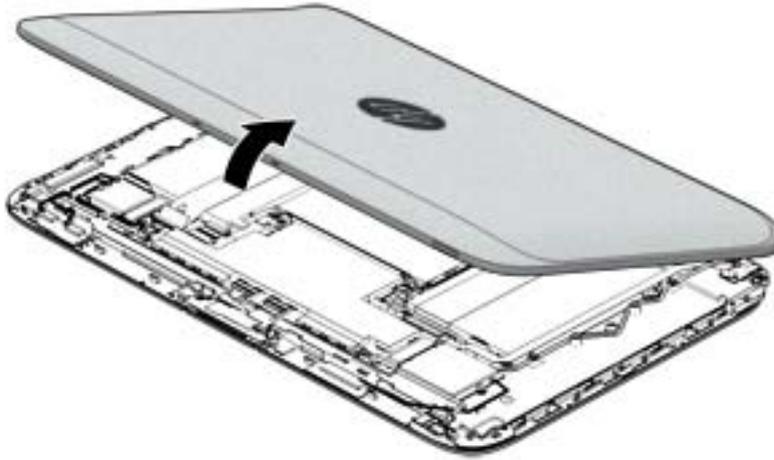
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).

Remove the tablet cover:

1. Remove the four rubber screw covers **(1)** and four Phillips PM1.0×3.0 screws **(2)** that secure the cover to the tablet.



2. Lift the top of the cover upward, and then remove it from the tablet.



Reverse this procedure to install the tablet cover.

Battery cable

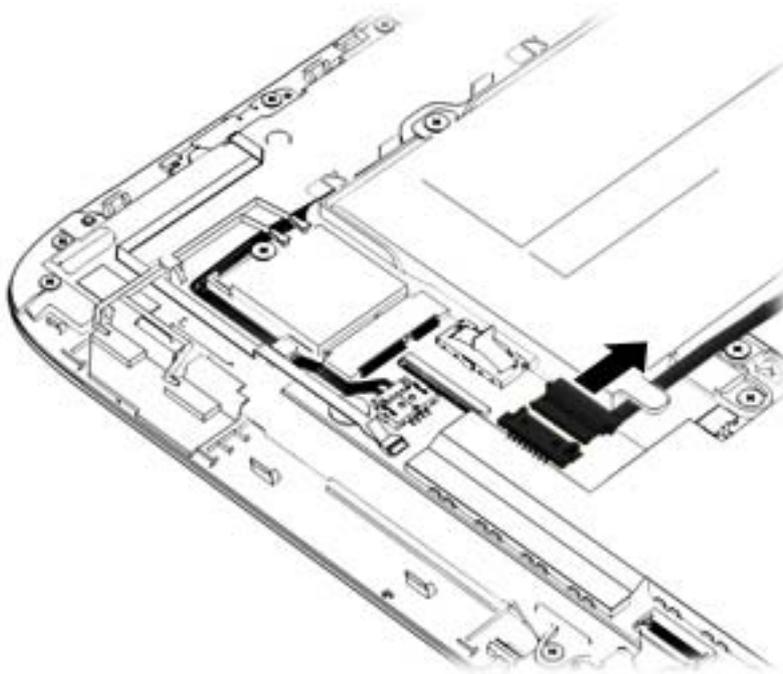
You do not have to remove the internal battery before removing several internal components. However, if you leave the battery installed while removing components, be sure to disconnect the battery cable from the system board to remove power from internal components.

Before disconnecting the battery cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).

Disconnect the battery cable:

- ▲ Pull to disconnect the cable from the system board.



Cables, docking and touch

The docking cable and touch cable lay across the top of several internal components. Remove these cables as needed to access the components underneath.

The docking cable is included in the docking board kit, spare part number 765992-001

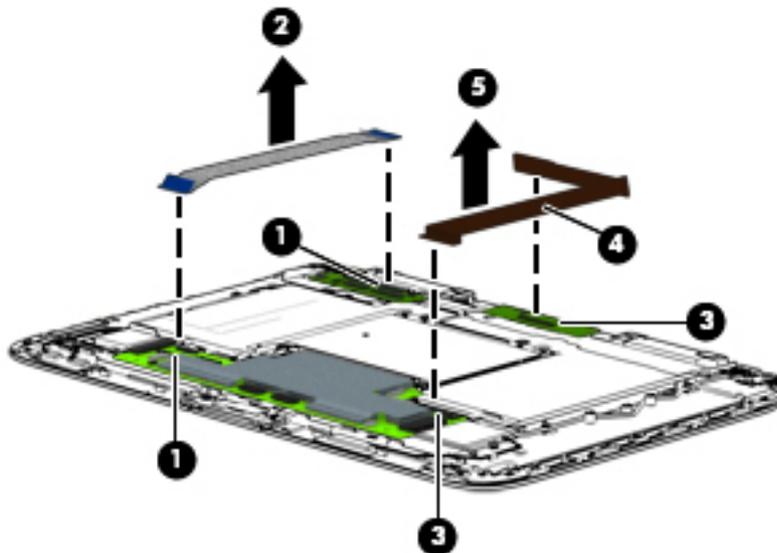
The docking cable is included in the touch board kit, spare part number 765987-001

Before removing the touch cable and the docking cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

Remove the touch cable and docking cable:

1. Disconnect the touch cable from the system board **(1)** and touch board **(1)**.
2. Remove the touch cable from the tablet **(2)**.
3. Disconnect the docking cable from the system board **(3)** and the dock board **(3)**.
4. Lift up on the docking cable to disengage the adhesive **(4)** that secures the cable.
5. Remove the docking cable from the tablet **(5)**.



Reverse this procedure to install the touch cable and docking cable.

Home button board

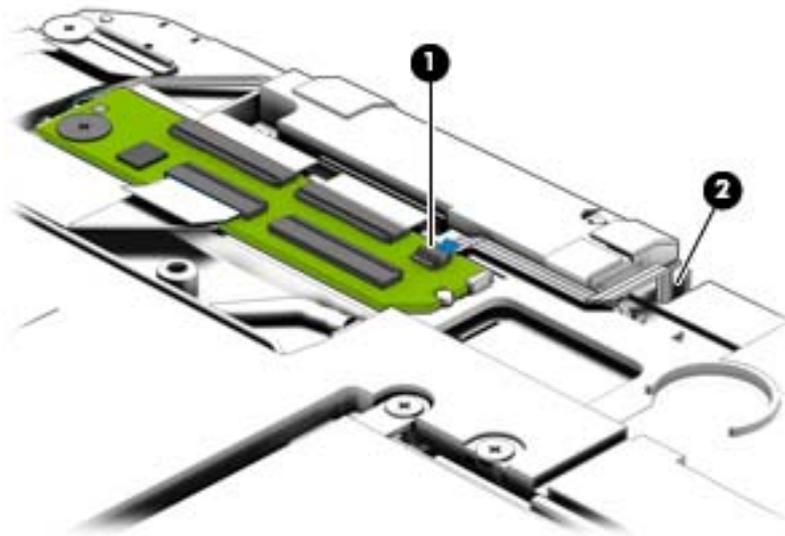
Description	Spare part number
Home button board	765991-001

Before removing the home button board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

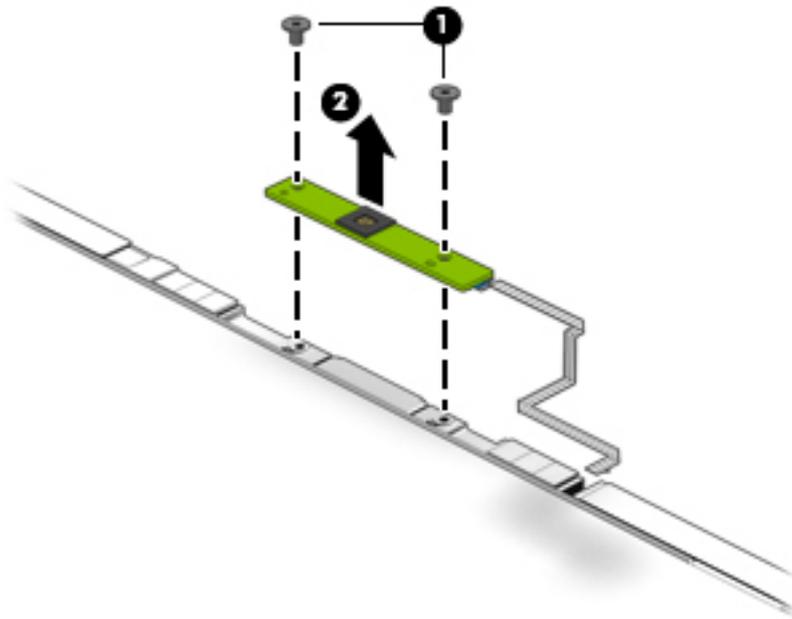
To remove the home button board:

1. Position the tablet with the screen facing downward.
2. Disconnect the home button board cable from the touch board **(1)**, and then pull the cable through the routing path from the front of the back of the tablet **(2)**.



3. Position the tablet with the screen facing upward.
4. Remove the two Phillips PM2.0×3.0 screws **(1)** that secure the board to the tablet.

5. Remove the board from the tablet **(2)**.



Reverse this procedure to install the home button board.

Hard drive

Component	Spare part number
500-GB, 5400-rpm, hybrid hard drive with 16 GB SSD	762179-005
500-GB, 5400-rpm, hybrid hard drive with 8 GB SSD	775520-005
Hard Drive Hardware Kit (includes cable, cover, and screws)	765922-001

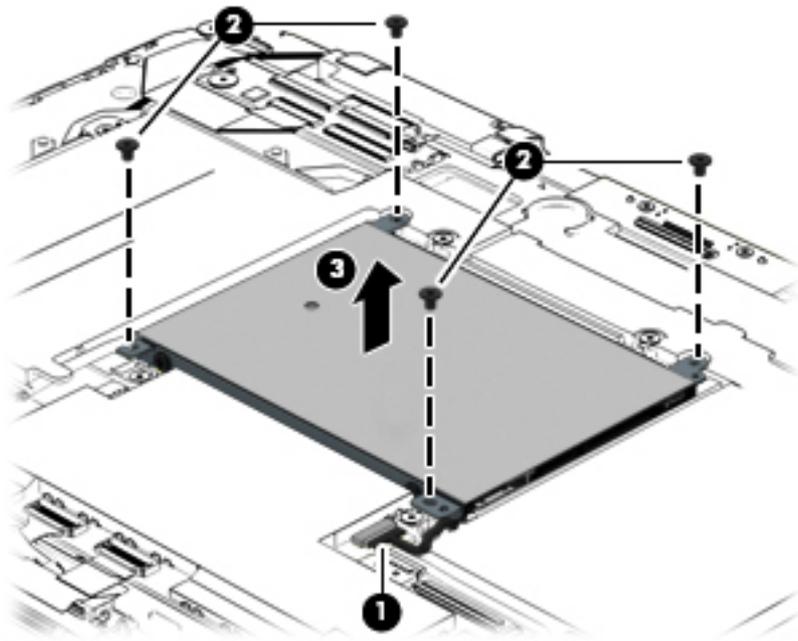
Before removing the hard drive, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

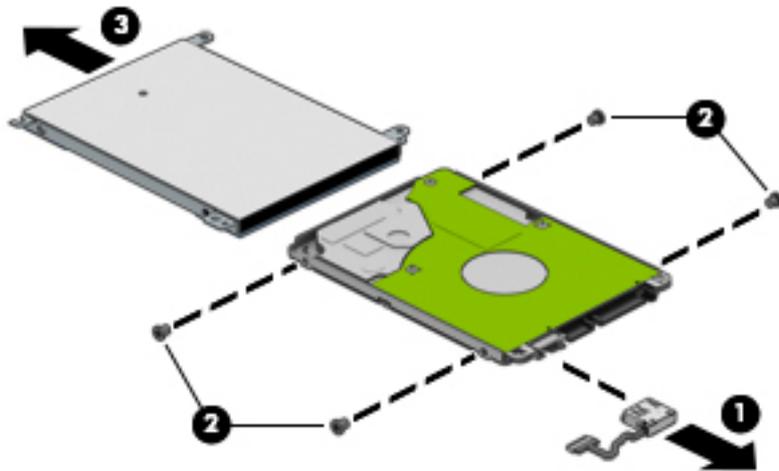
Remove the hard drive:

1. Disconnect the hard drive cable from the system board **(1)**.
2. Remove the four Phillips PM2.0×4.0 screws **(2)** that secure the hard drive to the tablet.

3. Remove the hard drive from the tablet **(3)**.



4. If you need to remove the hard drive from the hard drive cover, disconnect the cable from the hard drive **(1)**, remove the four Phillips PM3.0×3.0 screws **(2)** that secure the cover to the hard drive.
5. Slide the cover off the hard drive **(3)**.



Reverse this procedure to install the hard drive.

Power connector/SIM board

Description	Spare part number
Power connector board for use in models without a SIM module (includes cable)	765976-001
Power connector/SIM board for use in models with a SIM module (includes cable)	765977-001

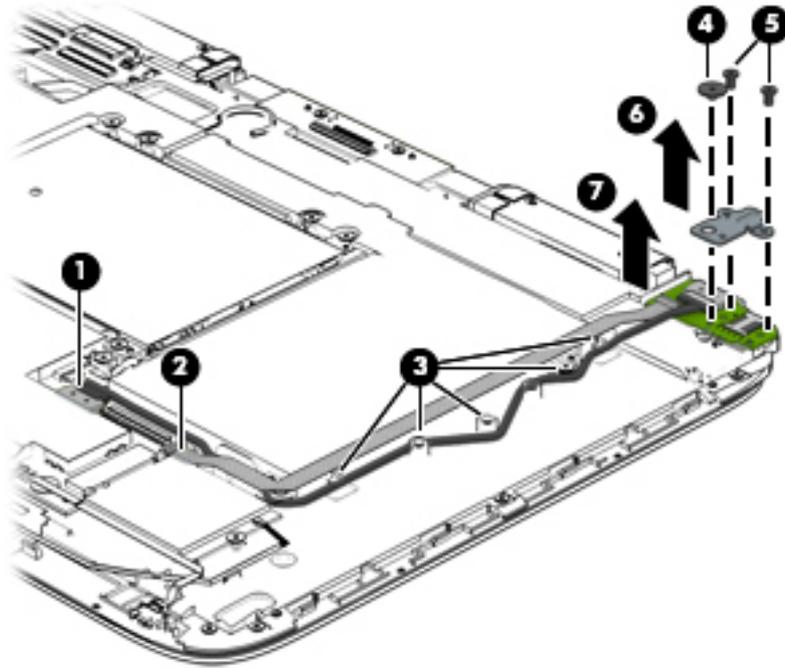
Before removing the power connector/SIM board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

Remove the power connector/SIM board:

1. Disconnect the power connector/SIM board cables from the system board **(1)(2)**.
2. Remove the cable from the clips built into the tablet **(3)**.
3. Remove the Phillips PM2.0×2.0 broadhead screw **(4)** and the two the Phillips PM2.0×3.0 screws **(5)** that secure the board to the tablet.
4. Lift the bracket from atop the connector **(6)**.

5. Remove the power connector/SIM board (7) from the tablet.



Reverse this procedure to install the power connector/SIM board.

Volume board

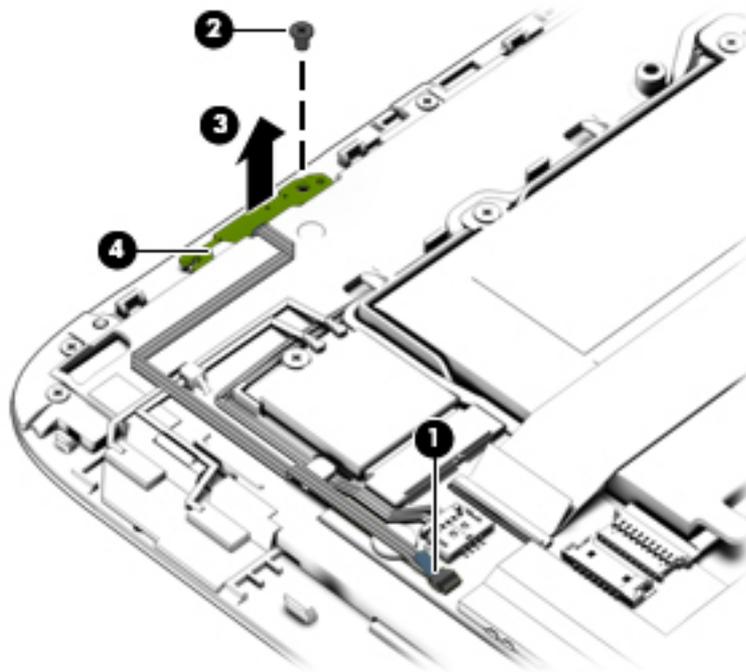
Description	Spare part number
Volume board (includes cable)	765990-001

Before removing the volume board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

To remove the volume board:

1. Disconnect the volume board cable from the system board **(1)**.
2. Remove the Phillips PM2.0×3.0 screw **(2)** that secures the board to the tablet.
3. Lift the volume board from the tablet **(3)**. You have to pull the board out from under the tab **(4)** built into the tablet.



Reverse this procedure to install the volume board.

Audio/SD board

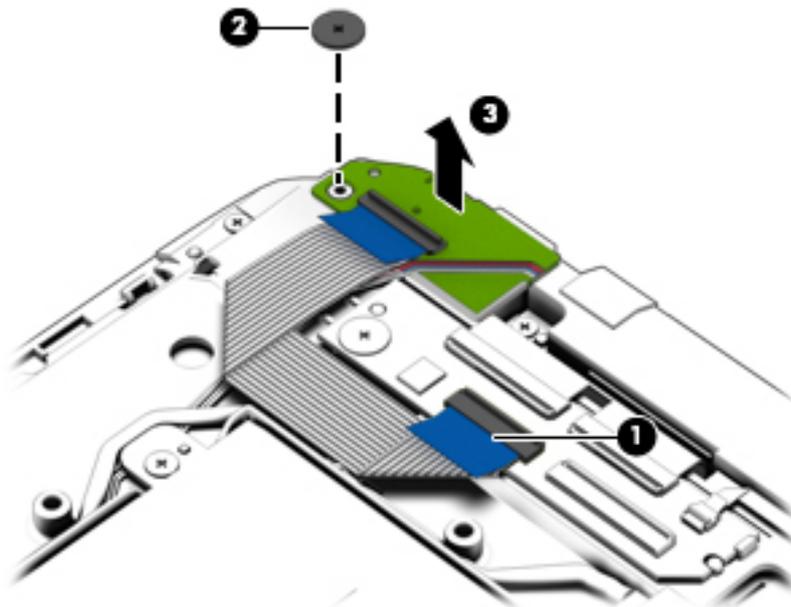
Description	Spare part number
Audio/SD board (includes cable)	765988-001

Before removing the audio/SD board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

To remove the audio/SD board:

1. Disconnect the cable from the touch board **(1)**.
2. Remove the Phillips PM2.0×2.0 broadhead screw **(2)** that secures the board to the tablet.
3. Lift the audio/SD board from the tablet **(3)**.



Reverse this procedure to install the audio/SD board.

Light sensor board

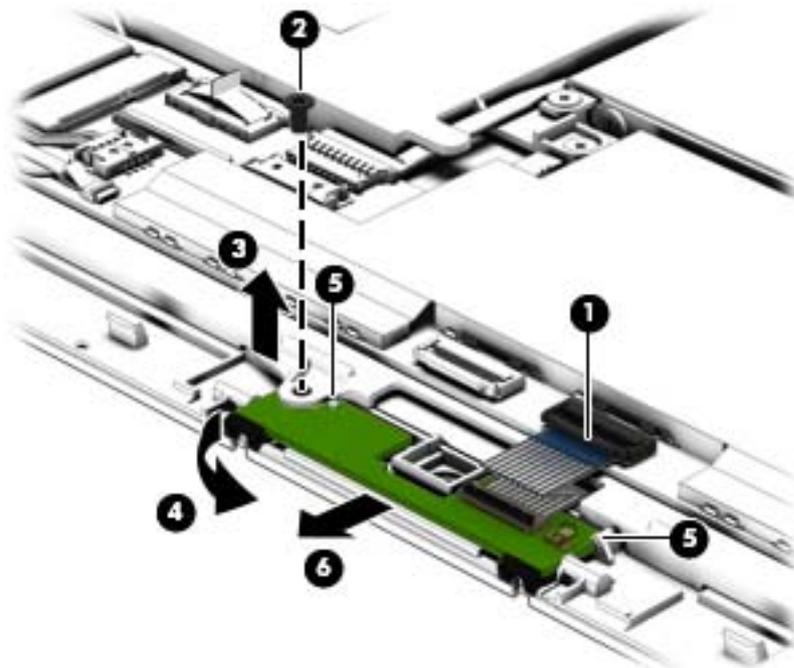
Description	Spare part number
Light sensor board (includes cable)	765936-001

Before removing the light sensor board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

Remove the light sensor board:

1. Disconnect the light sensor board cable **(1)** from the system board.
2. Remove the Phillips PM2.0×3.0 screw **(2)** that secures the board to the tablet.
3. Lift the board upward **(3)**, rotate it outward **(4)**, and then remove it from the tabs and post **(5)** that help to secure it.
4. Remove the light sensor board **(6)** from the tablet.



Reverse this procedure to install the light sensor board.

Dock board

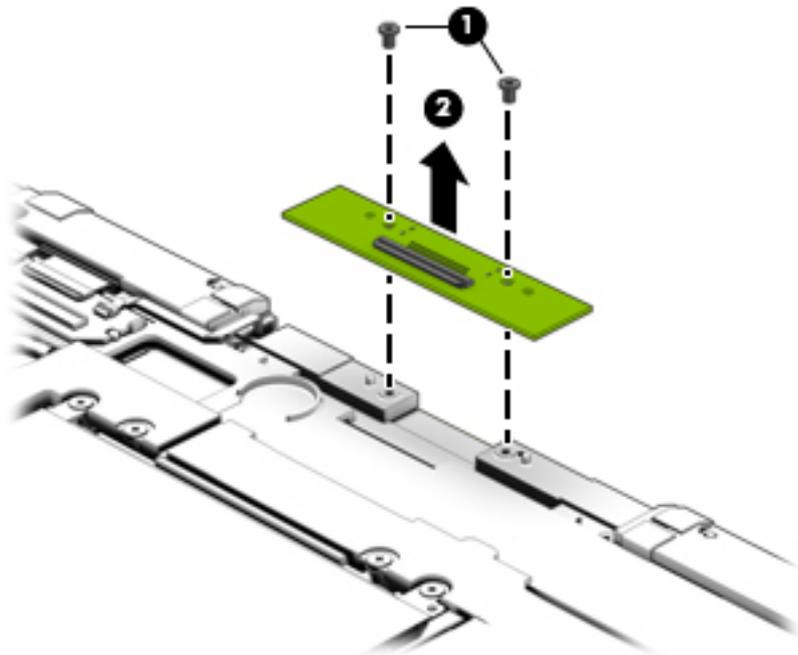
Description	Spare part number
Dock board (includes cable)	765992-001

Before removing the dock board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).
7. Disconnect the docking cable (see [Cables, docking and touch on page 47](#)).

To remove the dock board:

1. Remove the two Phillips PM2.0×3.0 screws **(1)** that secure the board to the tablet.
2. Lift the dock board from the tablet **(2)**.



Reverse this procedure to install the dock board.

Touch screen board

Description	Spare part number
Touch screen board (includes cable)	765987-001

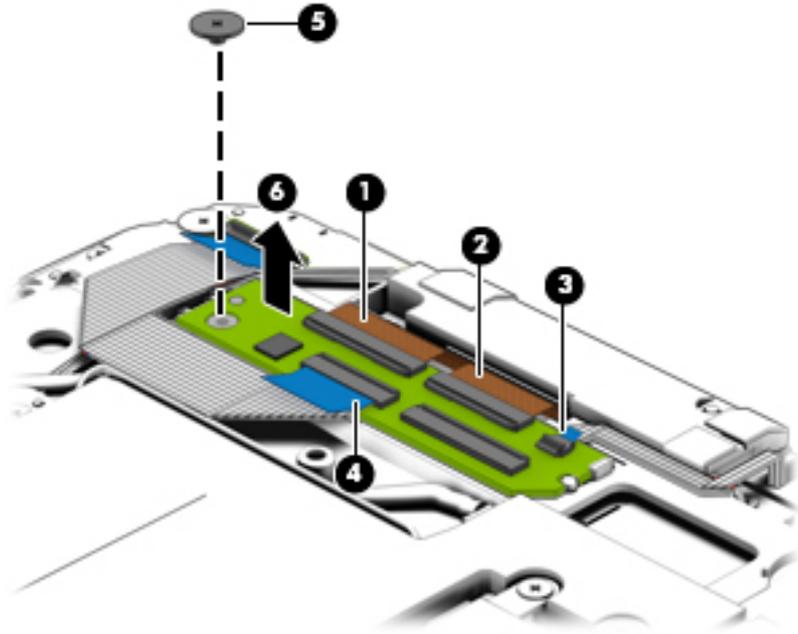
Before removing the touch screen board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).
7. Disconnect the docking cable (see [Cables, docking and touch on page 47](#)).

Remove the touch screen board:

1. Disconnect the following cables:
 - (1): Top left cable
 - (2): Top right cable
 - (3): TS/B cable (small)
 - (4): Touch cable that connects to the power connector board

2. Remove the Phillips PM2.0×2.0 broadhead screw **(5)** that secures the board to the tablet, and then remove the board **(6)** from the tablet.



Reverse this procedure to install the touch screen board.

WLAN/Bluetooth combo card

The computer uses a card that provides both WLAN and Bluetooth functionality.

Description	Spare part number
Intel Dual Band Wireless-AC 3160	751416-005
Broadcom BCM43142 802.11bgn 1x1 Wi-Fi + BT 4.0 Combo Adapter	753078-005

Before removing the WLAN module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

Remove the WLAN module:

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

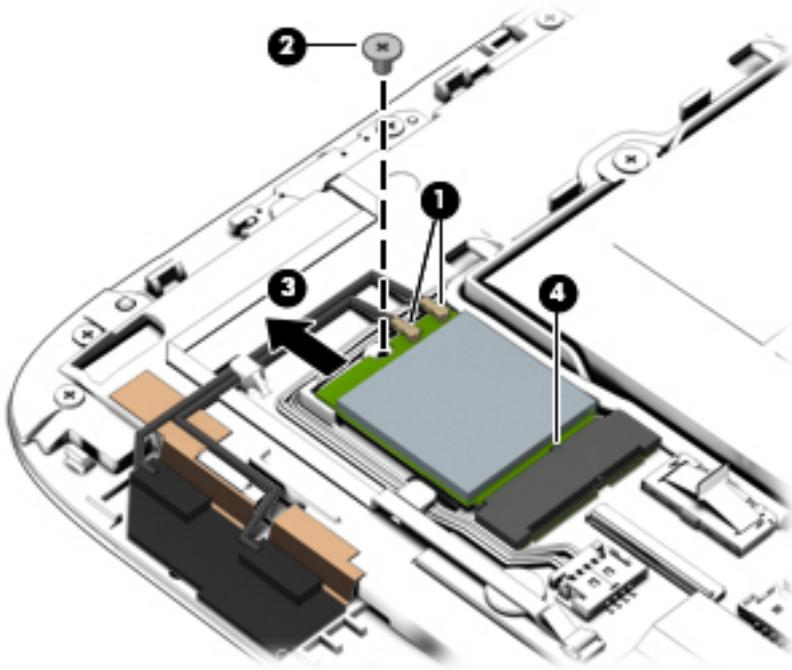


NOTE: The WLAN antenna cable labeled “1” connects to the WLAN module “Main” terminal labeled “1”. The WLAN antenna cable labeled “2” connects to the WLAN module “Aux” terminal labeled “2”. If the computer is equipped with an 802.11a/b/g/n WLAN module, the yellow WLAN antenna cable connects to the middle terminal on the WLAN module.

2. Remove the Phillips PM2.5×3.0 screw **(2)** that secures the WLAN module to the tablet. (The edge of the module opposite the slot rises away from the tablet.)

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

 **NOTE:** WLAN modules are designed with a notch (4) to prevent incorrect insertion.



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



Reverse this procedure to install the WLAN module.

SIM module

Description	Spare part number
SIM module	779122-001

Before removing the SIM module, follow these steps:

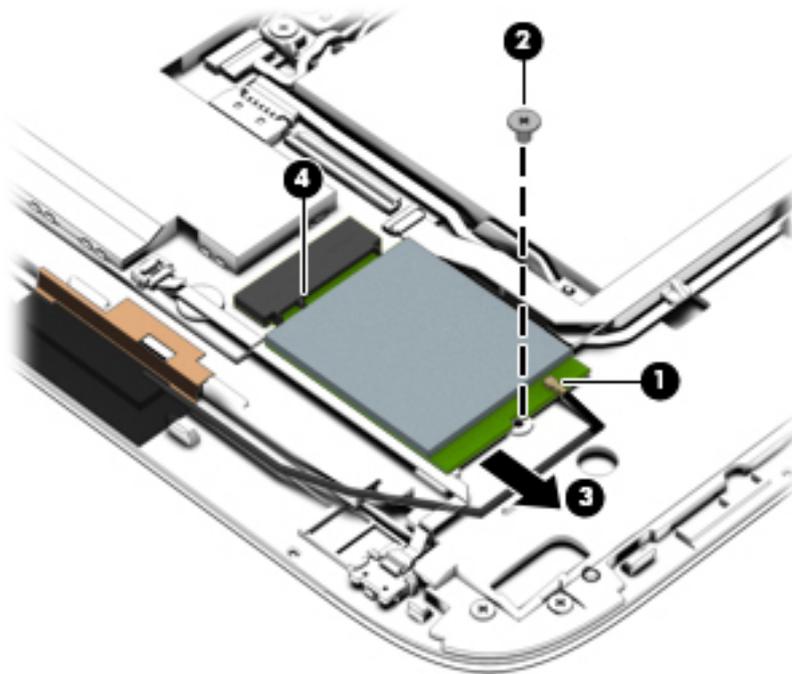
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

Remove the SIM module:

1. Disconnect the antenna cable **(1)** from the SIM module connector.
2. Remove the Phillips PM2.5×3.0 screw **(2)** that secures the module to the tablet.
3. Remove the SIM module **(3)** by pulling the module away from the slot at an angle.



NOTE: The SIM modules are designed with a notch **(4)** to prevent incorrect insertion.



Reverse this procedure to install the SIM module.

Power button board

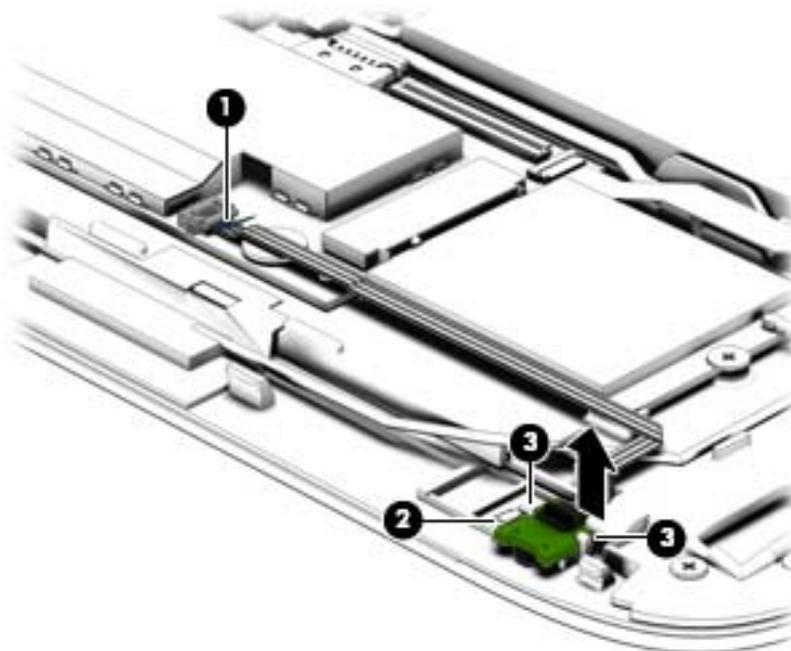
Description	Spare part number
Power button board (includes cable)	765989-001

Before removing the power button board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

Remove the power button board:

1. Disconnect the power button board cable from the system board **(1)**.
2. Use a flat tool to pry the board up and loosen the adhesive that secures it to the tablet **(2)** until it clears the plastic holder **(3)**.
3. Remove the power button board from the tablet.



Reverse this procedure to install the power button board.

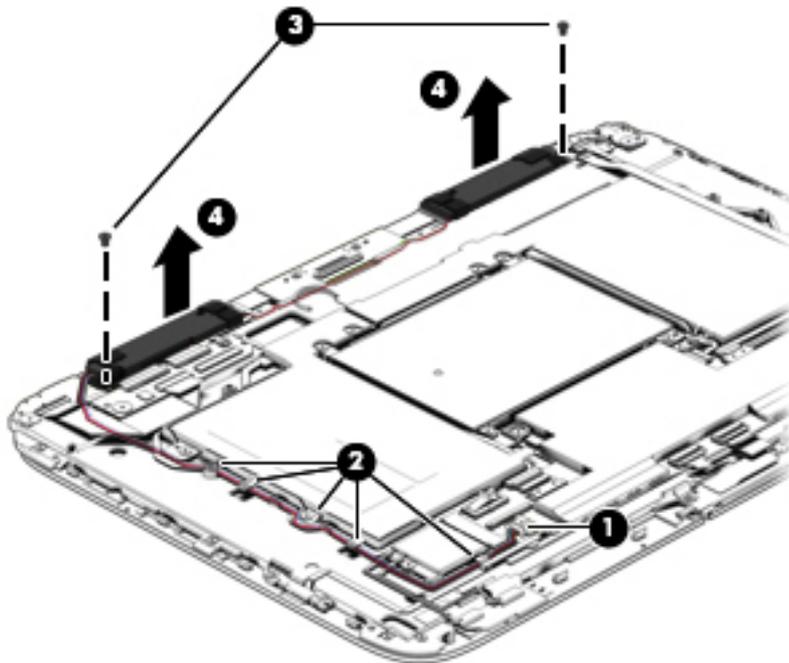
Speakers

Description	Spare part number
Speaker Kit (includes left and right speakers)	766006-001

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

Remove the speakers:

1. Disconnect the speaker cable from the system board **(1)**.
2. Release the speaker cable from the clips built into the tablet **(2)**.
3. Remove the two Phillips PM2.0×3.0 screws **(3)** that secure the speakers to the tablet.
4. Remove the speakers from the tablet **(4)**.



Reverse these procedures to install the speakers.

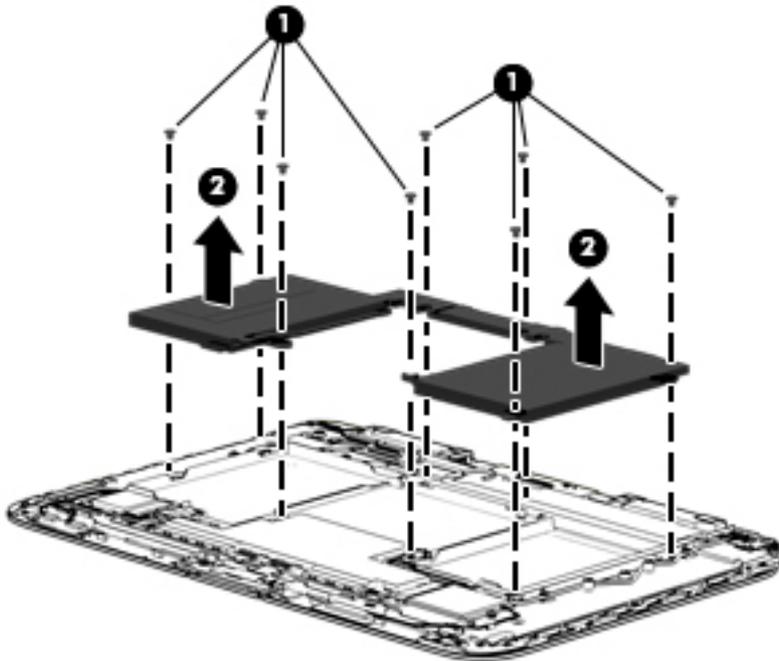
Battery

Description	Spare part number
2-cell, 30-WHr, 4.15-AH battery	756416-001

The tablet includes an internal battery.

Before removing the battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the docking cable and touch cable (see [Cables, docking and touch on page 47](#)).
7. Disconnect the battery cable (see [Battery cable on page 46](#)).
1. Remove the eight Phillips PM2.0×3.0 screws **(1)** that secure the battery to the tablet.
2. Remove the battery **(2)** from the tablet.



Reverse this procedure to install the battery.

System board



NOTE: The system board spare part kits include replacement thermal material.

Description	Spare part number
System board for use with non-Windows 8 models; Intel Core i5-4202Y processor; 8 GB of system memory	765995-001
System board for use with Windows 8 Standard models; Intel Core i5-4202Y processor; 8 GB of system memory	765995-501
System board for use with non-Windows 8 models; Intel Core i5-4202Y processor; 4 GB of system memory	765993-001
System board for use with Windows 8 Standard models; Intel Core i5-4202Y processor; 4 GB of system memory	765993-501
System board for use with non-Windows 8 models; Intel Core i3-4012Y processor; 8 GB of system memory	765996-001
System board for use with Windows 8 Standard models; Intel Core i3-4012Y processor; 8 GB of system memory	765996-501
System board for use with non-Windows 8 models; Intel Core i3-4012Y processor; 4 GB of system memory	765994-001
System board for use with Windows 8 Standard models; Intel Core i3-4012Y processor; 4 GB of system memory	765994-501

Before removing the system board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the following components:
 - Tablet cover (see [Tablet cover on page 44](#))
 - Docking cable and touch cable (see [Cables, docking and touch on page 47](#))
 - WLAN module (see [WLAN/Bluetooth combo card on page 59](#))
 - Hard drive (see [Hard drive on page 49](#))
 - SIM module (see [SIM module on page 61](#))
 - Touch screen board cable and dock cable (see [Touch screen board on page 57](#))
 - Battery (see [Battery on page 64](#))

Remove the system board:

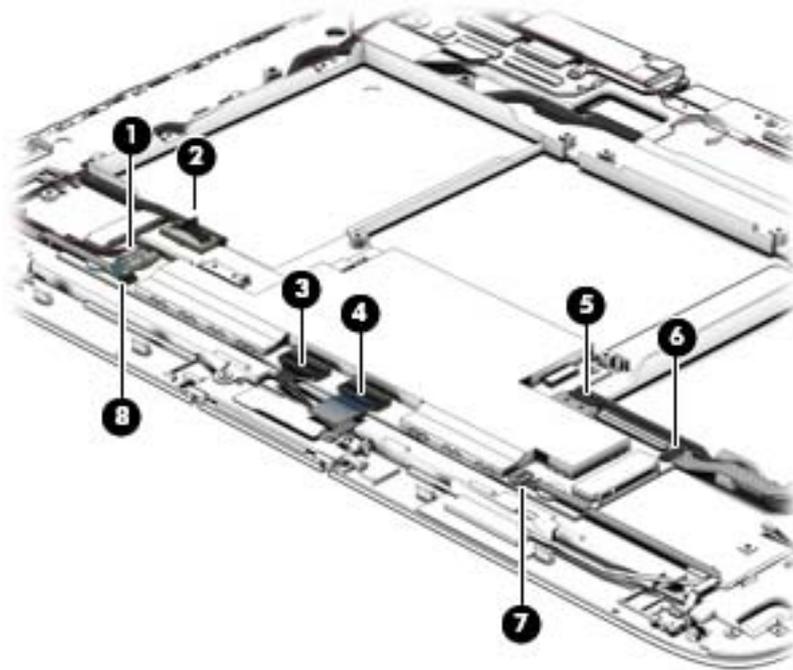
1. Disconnect the following cables from the system board:
 - (1): Speaker cable
 - (2): Touch board
 - (3): Webcam cable
 - (4): Light sensor board cable

(5): Power connector/SIM board cable

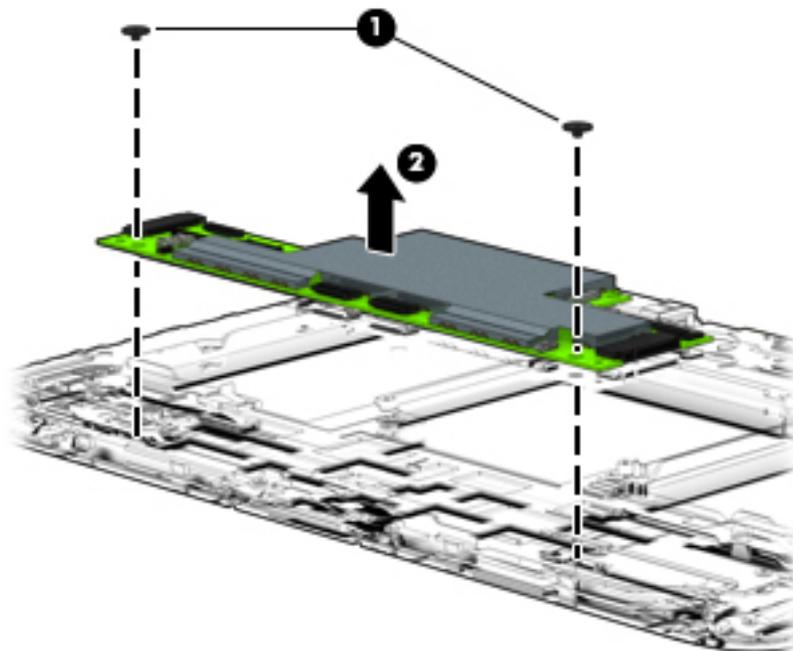
(6): Power connector/SIM board cable

(7): Power button board cable

(8): Volume board cable



2. Remove the two Phillips PM 2.0x3.0 screws **(1)** that secure the system board to the tablet.
3. Lift the system board **(2)** out of the tablet.



Reverse this procedure to install the system board.

Webcam

Description	Spare part numbers
Webcam	765960-001

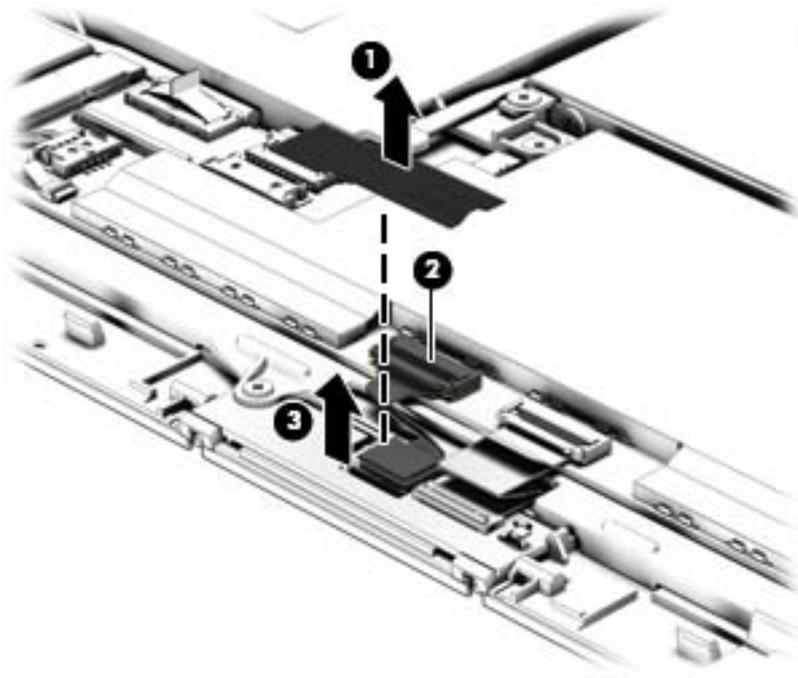
Before removing the webcam:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the following components:
 - Tablet cover (see [Tablet cover on page 44](#))
 - WLAN module (see [WLAN/Bluetooth combo card on page 59](#))
 - Touchscreen board cable (see [Touch screen board on page 57](#))
 - Audio board (see [Audio/SD board on page 54](#))
 - Card reader cable (see [Card reader board on page 41](#))
 - Speakers (see [Speakers on page 63](#))
 - Battery (see [Battery on page 64](#))

Remove the webcam:

1. Lift the bracket from atop the webcam **(1)**.
2. Disconnect the webcam cable from the system board **(2)**.

3. Remove the webcam from the tablet (3).



Reverse this procedure to install the webcam.

Antennas (WLAN, SIM)

Description	Spare part number
Antenna for use with a SIM module	779124-001
Antenna for use with a WLAN module	779123-001

Before removing the antennas, follow these steps:

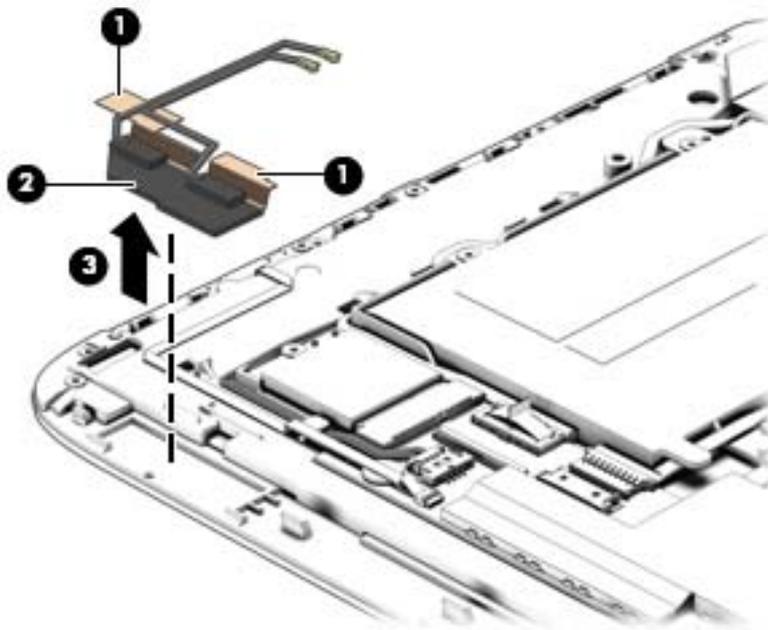
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 25](#)).
5. Remove the tablet cover (see [Tablet cover on page 44](#)).
6. Disconnect the battery cable (see [Battery cable on page 46](#)).

Remove the antennas:

1. If you need to remove the WLAN antenna, use a flat tool to pry the tape that secures the antenna assembly to the tablet (**1**).

⚠ CAUTION: To avoid damaging the antenna cables, do not pull on the cable to loosen them from the tablet.

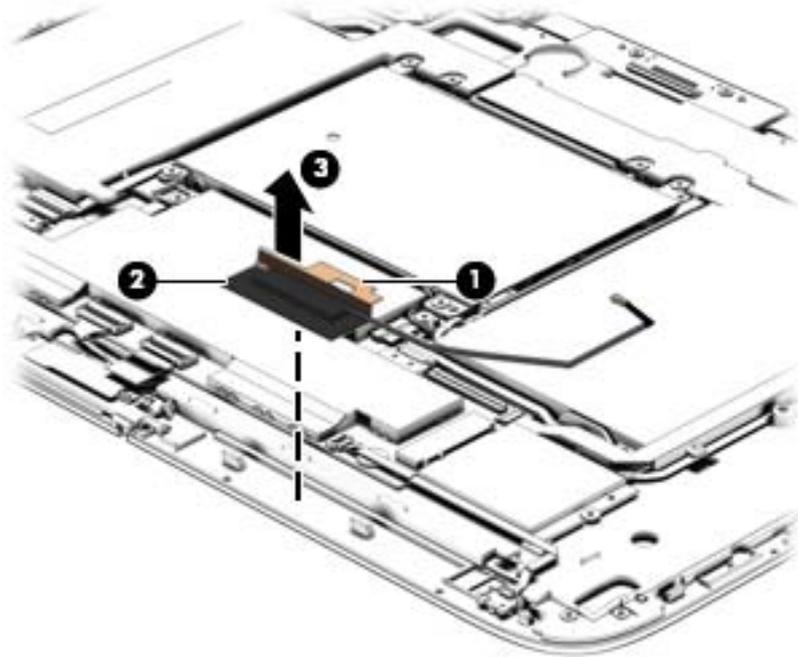
2. Lift the antenna assembly up (**2**), and then remove it from the tablet (**3**).



3. If you need to remove the SIM antenna, use a flat tool to pry the tape that secures the SIM antenna assembly to the tablet **(1)**.

⚠ CAUTION: To avoid damaging the antenna cables, do not pull on the cable to loosen them from the tablet.

4. Lift the antenna assembly up **(2)**, and then remove it from the tablet **(3)**.



Reverse this procedure to install the antennas.

6 Using Setup Utility (BIOS) and HP PC Hardware Diagnostics (UEFI)

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

Starting Setup Utility (BIOS)

To start Setup Utility (BIOS), turn on or restart the computer, quickly press **esc**, and then press **f10**.

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

Updating the BIOS

Updated versions of the BIOS may be available on the HP website.

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

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

Determining the BIOS version

To determine whether available BIOS updates contain later BIOS versions than those currently installed on the computer, you need to know the version of the system BIOS currently installed.

BIOS version information (also known as *ROM date* and *System BIOS*) can be revealed by pressing **fn+esc** (if you are already in Windows) or by using Setup Utility (BIOS).

1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 71](#)).
2. Use the arrow keys to select **Main**.
3. To exit Setup Utility (BIOS) without saving your changes, use the arrow keys to select **Exit**, select **Exit Discarding Changes**, and then press **enter**.
4. Select **Yes**.

Downloading a BIOS update

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

Do not disconnect power from the computer by unplugging the power cord from the AC outlet.

Do not shut down the computer or initiate Sleep.

Do not insert, remove, connect, or disconnect any device, cable, or cord.

1. From the Start screen, type `support`, and then select the **HP Support Assistant** app.
2. Click **Updates and tune-ups**, and then click **Check for HP updates now**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
 - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. If the update is more recent than your BIOS, make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
 - b. Follow the on-screen instructions to download your selection to the hard drive.

If the update is more recent than your BIOS, make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

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

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

1. From the Start screen, type `file`, and then select **File Explorer**.
2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.
4. Double-click the file that has an `.exe` extension (for example, `filename.exe`).

The BIOS installation begins.
5. Complete the installation by following the on-screen instructions.

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

Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

To start HP PC Hardware Diagnostics UEFI:

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

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

- a. Connected USB drive



NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 73](#).

- b. Hard drive
- c. BIOS

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



NOTE: If you need to stop a diagnostic test, press [esc](#).

Downloading HP PC Hardware Diagnostics (UEFI) to a USB device



NOTE: Instructions for downloading HP PC Hardware Diagnostics (UEFI) are provided in English only.

There are two options to download HP PC Hardware Diagnostics to USB device.

Option 1: HP PC Diagnostics homepage—Provides access to the latest UEFI version

1. Go to <http://www.hp.com/go/techcenter/pcdiags>.
2. Click the **UEFI Dowload** link, and then select **Run**.

Option 2: Support and Drivers pages—Provides downloads for a specific product for earlier and later versions.

1. Go to <http://www.hp.com>.
2. Point to Support, located at the top of the page, and then click **Download Drivers**.
3. In the text box, enter the product name, and then click **Go**.

– or –

Click **Find Now** to let HP automatically detect your product.

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, click **HP UEFI Support Environment**.
6. Click **Download**, and then select **Run**.

7 Specifications

Computer specifications

	Metric	U.S.
Dimensions: tablet		
Width	327.9 mm	12.91 in
Depth	217.6 mm	8.57 in
Height	13.4 mm	0.53 in
Dimensions: dock		
Width	327.9 mm	13.4 in
Depth	254.3 mm	10.01 in
Height	9.1 mm	0.36 in
Weight: tablet	1.11 kg	2.45 lb
Weight: dock	880 g	1.95 lb
Input power		
Operating voltage and current	18.5 V dc @ 3.5 A - 45 W	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

33.8-cm (13.3-in) display specifications

	Metric	U.S.
Dimensions		
Height	17.91 cm	7.05 in
Width	28.65 cm	11.28 in
Diagonal	33.8-cm	13.3-in
Number of colors	262,144	
Contrast ratio	200:1 (typical)	
Brightness	HD: 200 nits (typical) FHD: 400 nits (typical)	
Pixel resolution		
Pitch	0.197 mm × 0.197 mm	
Format	HD: 1366 × 768 FHD: 1920 × 1080	
Configuration	RGB vertical stripe	
Backlight	LED	
Character display	80 × 25	
Total power consumption	2.0 W	
Viewing angle	±60° horizontal, ±30° vertical (typical)	

8 Backing up, restoring, and recovering

This chapter provides information about the following processes:

- Creating recovery media and backups
- Restoring and recovering your system

Creating recovery media and backups

1. After you successfully set up the computer, create HP Recovery media. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced.

HP Recovery media you create will provide the following recovery options:

- **System Recovery**—Reinstalls the original operating system and the programs that were installed at the factory.
- **Minimized Image Recovery**—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- **Factory Reset**—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

See [Creating HP Recovery media on page 76](#).

2. Use the Windows tools to create system restore points and create backups of personal information. For more information and steps, see Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

Creating HP Recovery media

HP Recovery Manager is a software program that offers a way to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and the software programs installed at the factory, and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.

- Only one set of HP Recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
- HP Recovery Manager examines the computer and determines the required storage capacity for the blank USB flash drive or the number of blank DVD discs that will be required.
- To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or instead you can use a high-quality blank USB flash drive.
- If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs, or you can obtain recovery discs for your computer from support. See the

Worldwide Telephone Numbers booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub.

- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take up to an hour or more. Do not interrupt the creation process.
- If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue, and the remaining discs will be burned.

To create HP Recovery media:

 **IMPORTANT:** For tablets, connect to the keyboard dock before beginning these steps (select models only).

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Recovery Media Creation**, and then follow the on-screen instructions.

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 78](#).

Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information and steps, see Help and Support. From the Start screen, type `help`, and then select **Help and Support**.
- If you need to correct a problem with a preinstalled application or driver, use the Drivers and Applications Reinstall option of HP Recovery Manager to reinstall the individual application or driver.

From the Start screen, type `recovery`, select **HP Recovery Manager**, select **Drivers and Applications Reinstall**, and then follow the on-screen instructions.

- If you want to reset your computer using a minimized image, you can choose the HP Minimized Image Recovery option from the HP Recovery partition (select models only) or HP Recovery media. Minimized Image Recovery installs only drivers and hardware-enabling applications. Other applications included in the image continue to be available for installation through the Drivers and Applications Reinstall option in HP Recovery Manager.

For more information, see [Recovering using HP Recovery Manager on page 78](#).

- If you want to recover the computer's original factory partitioning and content, you can choose the System Recovery option from the HP Recovery partition (select models only) or use the HP Recovery media that you have created. For more information, see [Recovering using HP Recovery Manager on page 78](#). If you have not already created recovery media, see [Creating HP Recovery media on page 76](#).
- If you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media to restore the factory image to the replacement drive. For more information, see [Recovering using HP Recovery Manager on page 78](#).
- If you wish to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see [Removing the HP Recovery partition \(select models only\) on page 79](#).

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you created or by using the HP Recovery partition (select models only). If you have not already created recovery media, see [Creating HP Recovery media on page 76](#).

Using HP Recovery media, you can choose from one of the following recovery options:

- **System Recovery**—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- **Minimized Image Recovery (select models only)**—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- **Factory Reset**—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select models only) allows System Recovery and Minimized Image Recovery.

What you need to know

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.
- Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.
- HP Recovery media must be used if the computer hard drive fails. If you have not already created recovery media, see [Creating HP Recovery media on page 76](#).
- To use the Factory Reset option, you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media on page 76](#).
- If the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.



IMPORTANT: HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you wish to retain.

Using the HP Recovery partition (select models only)

The HP Recovery partition (select models only) allows you to perform a system recovery or minimized image recovery without the need for recovery discs or a recovery USB flash drive. This type of recovery can only be used if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:



IMPORTANT: For tablets, connect to the keyboard dock before beginning these steps (select models only).

1. Press **f11** while the computer boots.
– or –
Press and hold **f11** as you press the power button.
2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, and then follow the on-screen instructions.

Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.
2. Insert the HP Recovery media that you created, and then restart the computer.



NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See [Changing the computer boot order on page 79](#).

3. Follow the on-screen instructions.

Changing the computer boot order

If computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices listed in BIOS where the computer looks for startup information. You can change the selection for an optical drive or a USB flash drive.

To change the boot order:

1. Insert the HP Recovery media you created.
2. Restart the computer, quickly press **esc**, and then press **f9** for boot options.
3. Select the optical drive or USB flash drive you want to boot from.
4. Follow the on-screen instructions.

Removing the HP Recovery partition (select models only)

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.



IMPORTANT: After you remove the HP Recovery partition, you can no longer use the Windows Refresh option or the Windows option to remove everything and reinstall Windows. In addition, you will not be able to perform System Recovery or Minimized Image Recovery from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media on page 76](#).

Follow these steps to remove the HP Recovery partition:

1. From the Start screen, type *recovery*, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.

9 Power cord set requirements

The wide-range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC, or from 220 to 240 volts 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 and regions must meet the requirements of the country or 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

Country/region	Accredited agency	Applicable note number
Japan	JIS	3
The Netherlands	KEMA	1
New Zealand	SANZ	1
Norway	NEMKO	1
The People's Republic of China	CCC	4
Saudi Arabia	SASO	7
Singapore	PSB	1
South Africa	SABS	1
South Korea	KTL	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	6
Thailand	TISI	1
The United Kingdom	ASTA	1
The United States	UL	2

1. The flexible cord must be Type H05VV-F, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SVT/SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V ac) configuration. CSA or C-UL mark. UL file number must be on each element.
3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² or 1.25-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V ac) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the CCC certification mark.
5. The flexible cord must be Type H05VV-F 3X0.75-mm² conductor size. KTL logo and individual approval number must be on each element. Corset approval number and logo must be printed on a flag label.
6. The flexible cord must be Type HVCTF 3x1.25-mm² conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark.
7. For 127 V ac, the flexible cord must be Type SVT or SJT 3 x 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 3x0.75-/1.00-mm² conductor size, with plug BS 1363/A with BSI or ASTA marks.

10 Recycling

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

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

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