



**HP Chromebook (model numbers 11-2100
through 11-2199)
and HP Chromebook 11 G3**

**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. This computer may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows 8 functionality. See for <http://www.microsoft.com> details.

Safety warning notice


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

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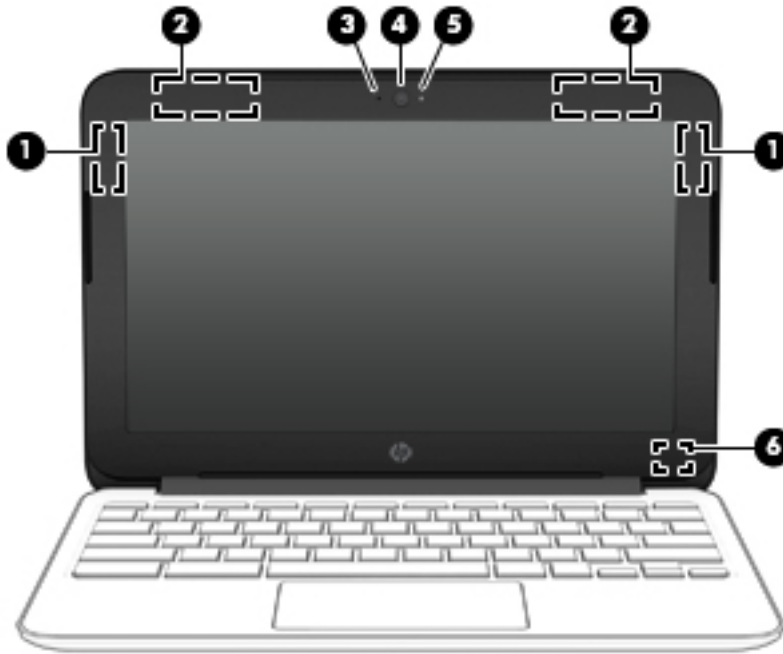
1 Product description

Category	Description
Product Name	HP Chromebook (model numbers 11-2100 through 11-2199) HP Chromebook 11 G3
Processor	Intel® Celeron™ N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) Intel Celeron N2830 2.16-GHz (SC turbo up to 2.41-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W)
Chipset	Integrated soldered-on-circuit (SoC) platform controller hub (PCH)
Graphics	Internal Graphics: Intel HD Graphics Supports HD decode, DX11, and HDMI
Panel	11.6-in (1366×768), high-definition (HD), SVA, white light-emitting diode (WLED), AntiGlare; 16:9 aspect ratio; typical brightness: 200 nits; flat (3.6-mm); Supports low-voltage differential signaling (LVDS)
Memory	Supports DDR3L-1600MHz Supports up to 2048-MB maximum on-board system memory (4 pieces of 256-MB × 16)
Storage	Supports 16-GB embedded MultiMedia Controller (eMMC)
Audio and video	Fixed integrated VGA webcam, 640×480 by 30 frames per second Single digital microphone Two speakers HD audio
Sensors	Trusted platform module (TPM)
Wireless	Integrated wireless local area network (WLAN) options by way of wireless module Two built-in WLAN antennas Supports the following WLAN modules: <ul style="list-style-type: none">• Intel Dual Band Wireless-AC 7260 802.11 ac 2×2 WiFi + Bluetooth 4.0 Combo Adapter• Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n 2×2 WiFi + Bluetooth 4.0 Combo Adapter
	Integrated wireless wide area network (WWAN) options by way of wireless module Two built-in WWAN antennas Supports a HP It41 10 LTE/HSPA+ 4G WWAN Module
Ports	Headphone/microphone combo jack USB 2.0 ports (2)
Keyboard/pointing devices	Full-sized, textured, island-style, Google keyboard Touchpad requirements:

Category	Description
	Multitouch gestures enabled
Keyboard/pointing devices <i>(continued)</i>	Taps enabled as default
Power requirements	Supports a 3-cell, 36-WHr, 3.25-WHr, Li-Ion battery Supports a 65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm) and 45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm) AC adapter
Operating system	Preinstalled: Google Chrome operating system
Serviceability	End user replaceable parts: AC adapter

2 External component identification

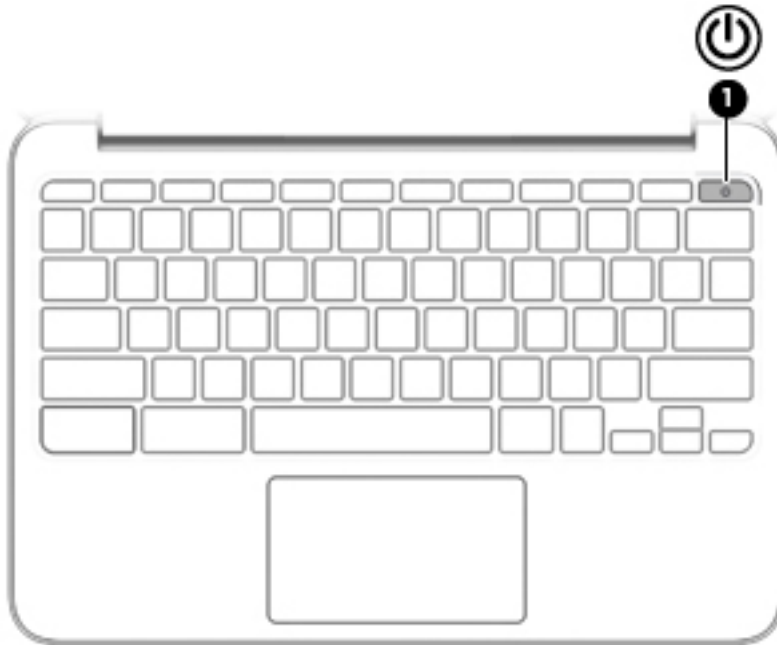
Display



Item	Component	Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with WLANs. NOTE: The position of the WLAN antennas may differ, depending on model.
(2)	WWAN antennas (2)*	Send and receive wireless signals to communicate with WWANs. NOTE: The antennas are not visible from the outside of the device. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the <i>Regulatory, Safety, and Environmental Notices</i> that applies to your country or region.
(3)	Internal microphone	Records sound.
(4)	Webcam	Records video, captures still photographs, and allows video conferences and online chat by means of streaming video.
(5)	Webcam light	On: The webcam is in use.
(6)	Internal display switch	Turns off the display or initiates Sleep if the display is closed while the power is on. NOTE: The display switch is not visible from the outside of the computer.

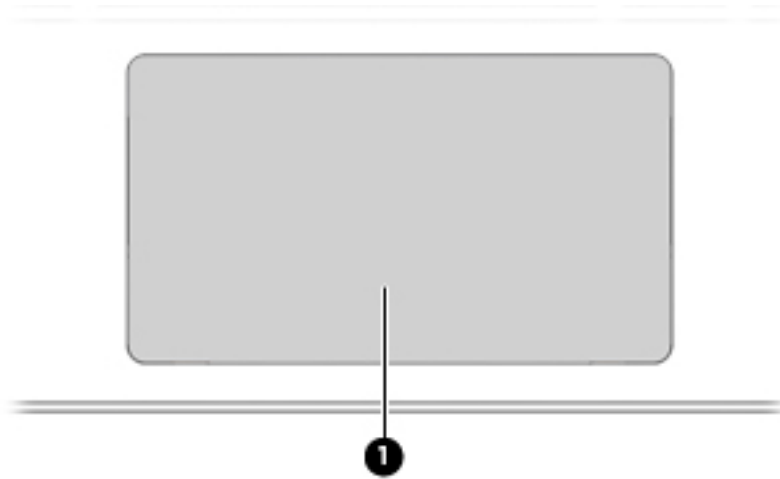
*The antennas, IR emitters (select models only), and sensors are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas, IR emitters, and sensors free from obstructions. For wireless regulatory notices, see the section of the *Regulatory,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

Button



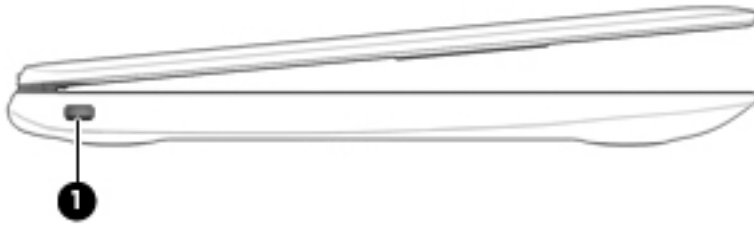
Item	Component	Description
(1)	Power button	<ul style="list-style-type: none">• When the computer is off, press the button to turn on the computer.• When the computer is in the Sleep state, press the button briefly to exit Sleep.• When the computer is on and you want to lock the screen, press the power button until you see the sign-in screen appear. Pressing the power button during screen-lock mode turns off the computer.• When the computer is on and you want to turn it off, press and hold the power.

TouchPad



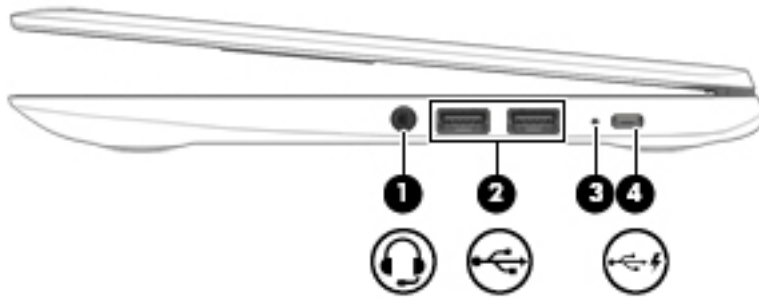
Item	Component	Description
(1)	TouchPad zone	Moves the on-screen pointer and selects or activates items on the screen.

Left side



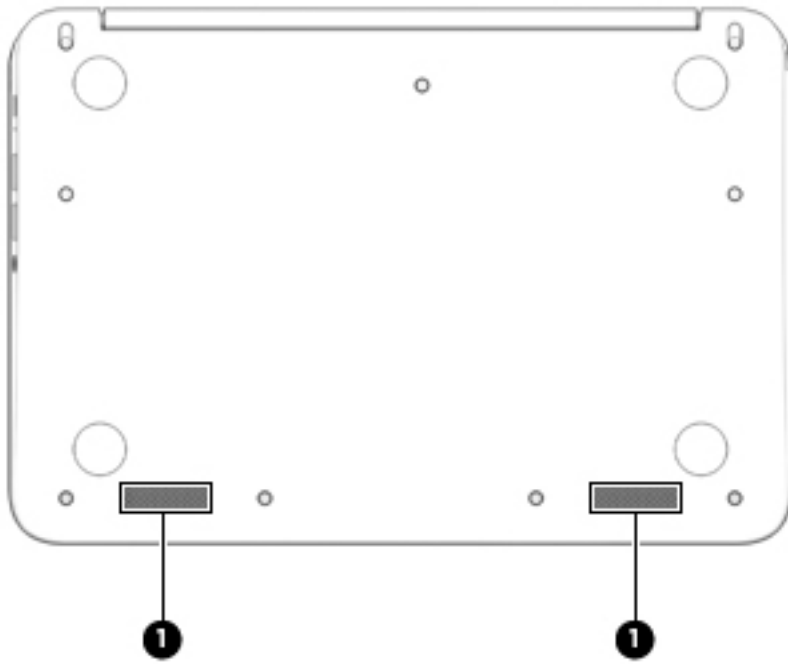
Item	Component	Description
(1)	Security cable slot	Attaches an optional security cable to the computer. NOTE: The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(2)	Power connector	Connects an AC adapter.
(3)	AC adapter light	<ul style="list-style-type: none">• White: The AC adapter is connected and the battery is charged.• Amber: The AC adapter is connected and the battery is charging.• Off: The computer is using battery power.
(4)	SIM slot (select models only)	Supports a wireless subscriber identity module (SIM).
(5)	Memory card reader	Reads optional memory cards that store, manage, share, or access information. To insert a card: <ul style="list-style-type: none">▲ 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: <ul style="list-style-type: none">▲ Press in on the card it until it pops out.

Right side



Item	Component	Description
(1)	Power light	<ul style="list-style-type: none"> White: Computer is on. Blinking white: Computer is in Sleep mode. Off: The computer is off.
(2)	Audio-out (headphone)/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.</p> <p>WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset.</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 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p>
(3)	USB 2.0 port	Connect optional USB devices, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(4)	USB 3.0 charging (powered) port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub. Standard USB ports will not charge all USB devices or will charge using a low current. Some USB devices require power and require you to use a powered port.
(5)	HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High-Definition Multimedia Interface (HDMI) device.

Bottom



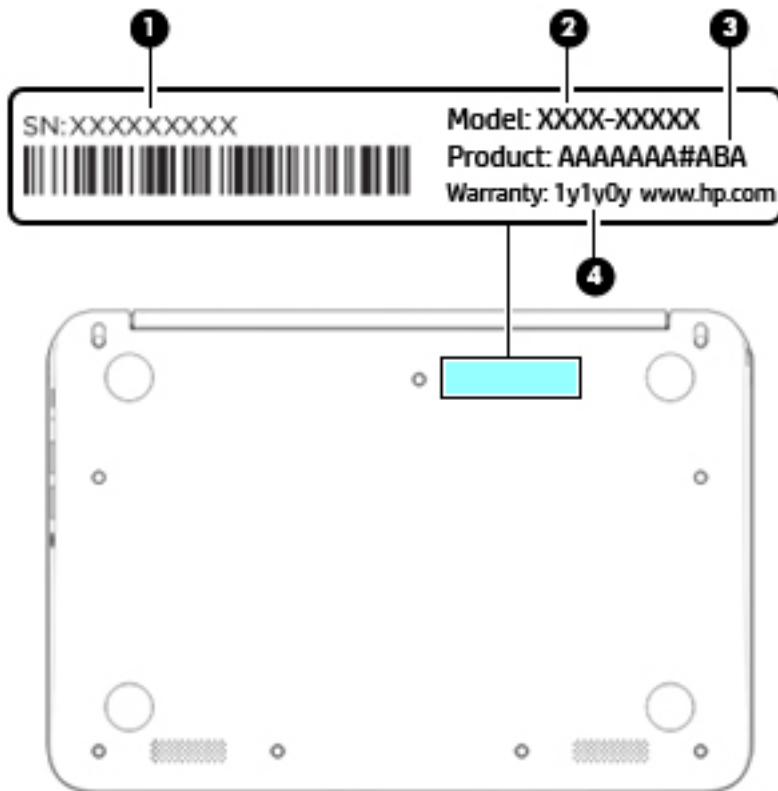
Item	Component	Description
(1)	Speakers (2)	Produce sound.

3 Illustrated parts catalog

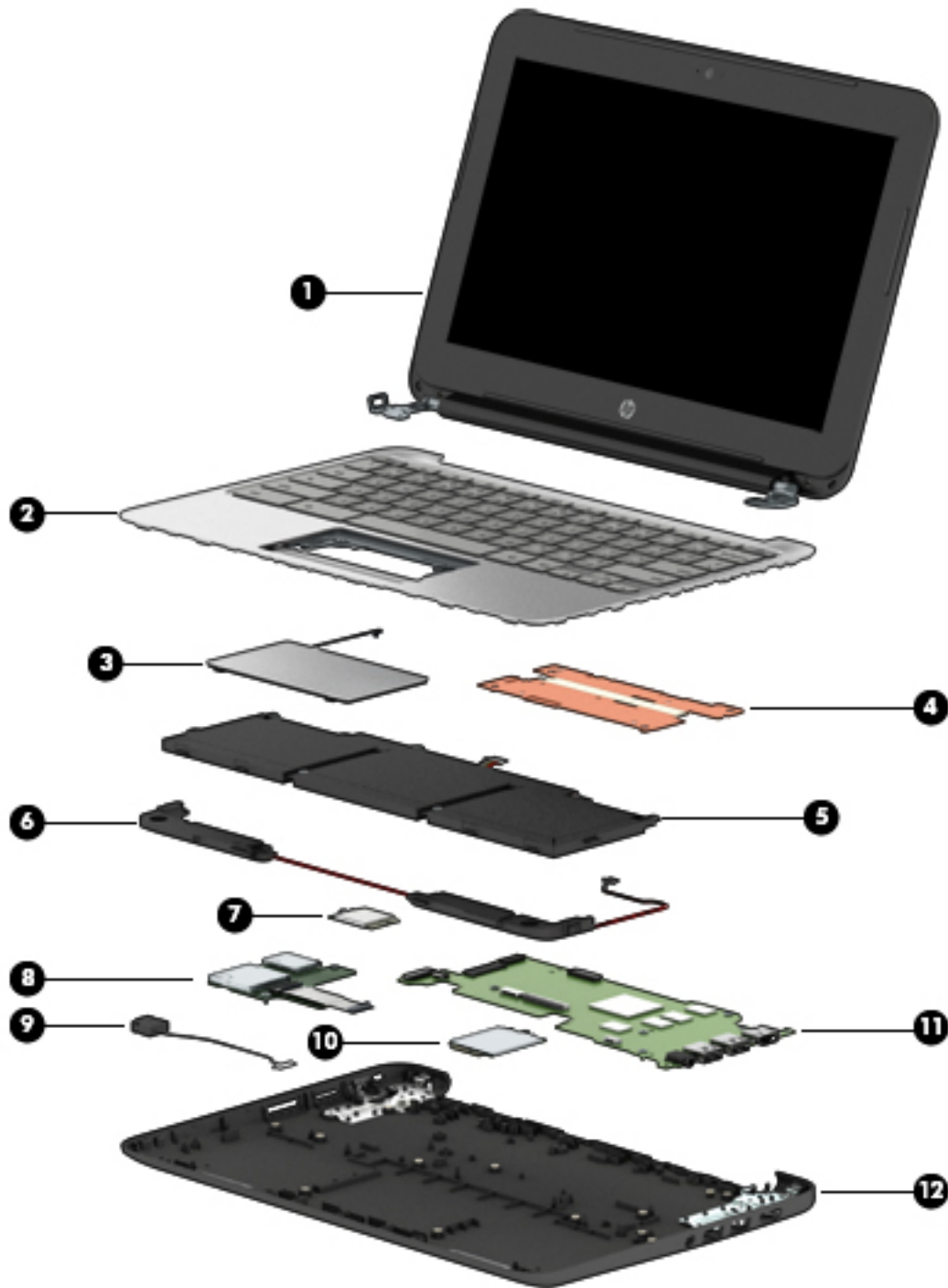
 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

Locating the serial number, model number, product number, and warranty information

The serial number **(1)**, model number **(2)**, product number **(3)**, and warranty information **(4)** are located on the bottom of the computer. This information may be needed when travelling internationally or when contacting support.



Computer major components

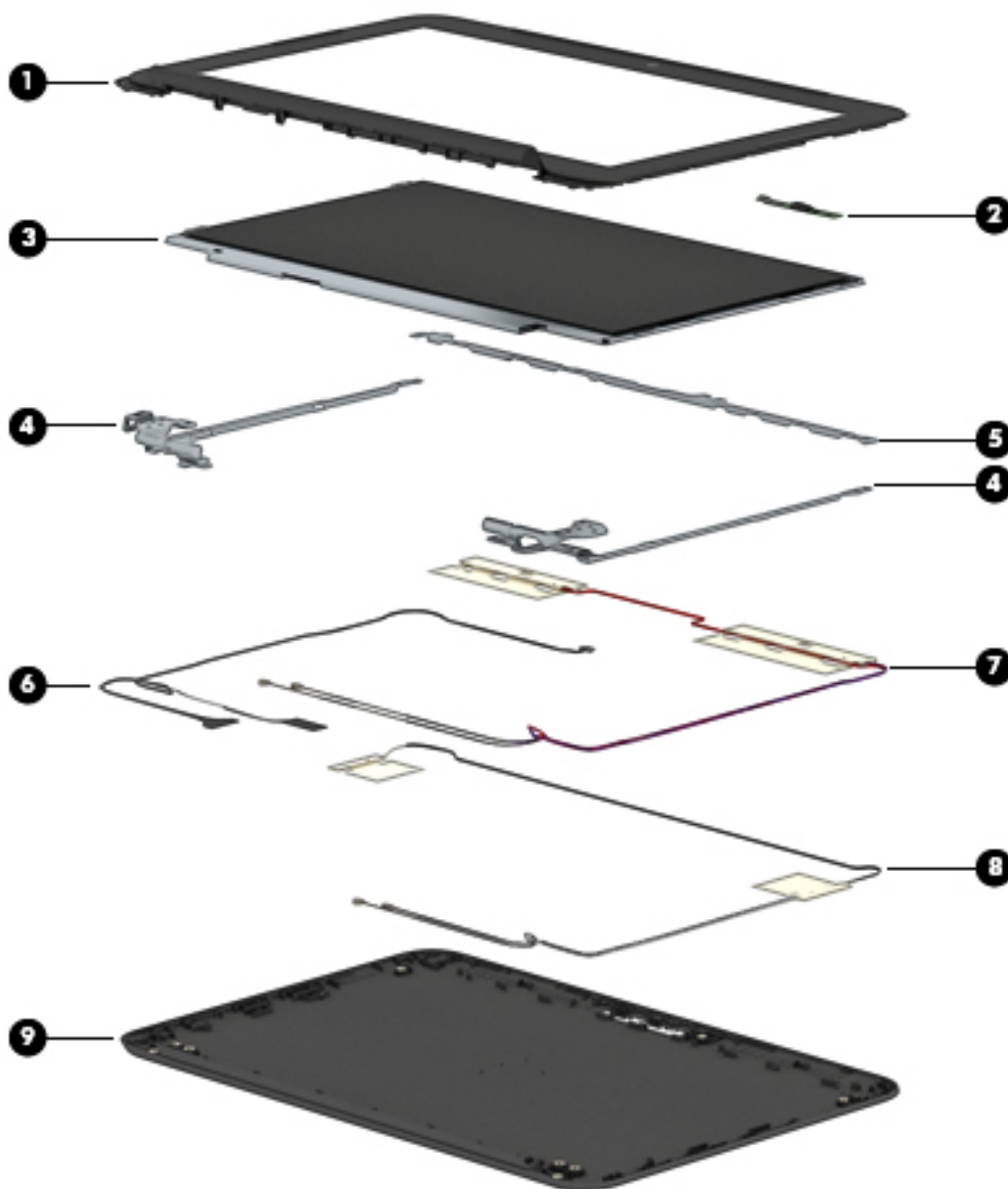


Item	Component	Spare part number
(1)	Display assembly: The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see Display assembly subcomponents on page 13 .	
(2)	Keyboard/top cover (includes keyboard cable): For use only on HP Chromebook 11-21xx computer models:	

Item	Component	Spare part number
	For use in Belgium	783090-A41
	For use in Canada	783090-DB1
	For use in Denmark, Finland, and Norway	783090-DH1
	For use in France	783090-051
	For use in Germany	783090-041
	For use in Italy	783090-061
	For use in Japan	783090-291
	For use in Latin America	783090-161
	For use in the Netherlands	783090-B31
	For use in Russia	783090-251
	For use in Spain	783090-071
	For use in Switzerland	783090-BG1
	For use in the United Kingdom	783090-031
	For use in the United States	783090-001
	For use only on HP Chromebook 11 G3 computer models:	
	For use in Belgium	788639-A41
	For use in Canada	788639-DB1
	For use in Denmark, Finland, and Norway	788639-DH1
	For use in France	788639-051
	For use in Germany	788639-041
	For use in Italy	788639-061
	For use in Japan	788639-291
	For use in Latin America	788639-161
	For use in the Netherlands	788639-B31
	For use in Russia	788639-251
	For use in Spain	788639-071
	For use in Switzerland	788639-BG1
	For use in the United Kingdom	788639-031
	For use in the United States	788639-001
(3)	TouchPad board (includes cable and double-sided adhesive)	783086-001
(4)	Heat sink (includes replacement thermal material)	783084-001
(5)	Battery (3-cell, 36-WHr, 3.25-AHr, Li-ion; includes cable)	767068-005
(6)	Speaker Kit (includes left and right speakers and cables)	788555-001
(7)	WLAN module:	

Item	Component	Spare part number
	Intel Dual Band Wireless-AC 7260 802.11 ac 2x2 WiFi + Bluetooth 4.0 Combo Adapter	784645-005
	Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n 2x2 WiFi + Bluetooth 4.0 Combo Adapter	784647-005
(8)	Connector board (includes cable):	
	For use only on computer models equipped with WWAN capability (includes SD Card Reader slot and SIM slot)	785884-001
	For use only on computer models not equipped with WWAN capability (includes SD Card Reader slot)	783087-001
(9)	Power connector cable	787922-001
(10)	HP It4110 LTE/HSPA+ 4G WWAN Module	755529-005
(11)	System board equipped with 16-GB of eMMC primary storage (includes replacement thermal material):	
	Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) and 4.0-GB of system memory	790940-001
	Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) and 2.0-GB of system memory	790939-001
	Equipped with an Intel Celeron N2830 2.16-GHz (SC turbo up to 2.41-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) and 4.0-GB of system memory	783074-001
	Equipped with an Intel Celeron N2830 2.16-GHz (SC turbo up to 2.41-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) and 2.0-GB of system memory	783073-001
(12)	Base enclosure:	
	For use only on HP Chromebook 11-21xx computer models equipped with WWAN capability:	
	In ocean turquoise finish	783078-001
	In sweet yellow finish	783082-001
	In snow white finish	783080-001
	For use only on HP Chromebook 11-21xx computer models not equipped with WWAN capability:	
	In ocean turquoise finish	783077-001
	In sweet yellow finish	783081-001
	In snow white finish	783079-001
	For use only on HP Chromebook 11 G3 computer models equipped with WWAN capability	784192-001
	For use only on HP Chromebook 11 G3 computer models not equipped with WWAN capability	784191-001
	Rubber Kit (not illustrated, includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers)	
	For use only on HP Chromebook 11-21xx computer models in ocean turquoise finish	762581-001
	For use only on HP Chromebook 11-21xx computer models in snow white finish	762583-001
	For use only on HP Chromebook 11-21xx computer models in sweet yellow finish	762582-001
	For use only on HP Chromebook 11 G3 computer models	773211-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	Display bezel:	
	For use only on HP Chromebook 11-21xx computer models in ocean turquoise finish	761966-001
	For use only on HP Chromebook 11-21xx computer models in snow white finish	761965-001
	For use only on HP Chromebook 11-21xx computer models in sweet yellow finish	761964-001
	For use only on HP Chromebook 11 G3 computer models	773210-001
(2)	Webcam/microphone module (includes double-sided adhesive)	783088-001
(3)	Display panel , 11.6-inch, AG, HD, SVA, LED	783089-001

Item	Component	Spare part number
(4)	Display Hinge Kit (includes left and right display hinges)	761972-001
(5)	Display panel bracket (for use only on HP Chromebook 11-21xx computer models)	783085-001
(6)	Display panel cable (includes webcam/microphone module cable):	
	For use only on computer models equipped with WWAN capability	792091-001
	For use only on computer models not equipped with WWAN capability	783083-001
(7)	WWAN antenna (includes left and right WWAN cables and transceivers)	783076-001
(8)	WLAN antenna (includes left and right WLAN cables and transceivers)	783075-001
(9)	Display enclosure (includes rubber padding and shielding)	
	For use only on HP Chromebook 11-21xx computer models in ocean turquoise finish	761955-001
	For use only on HP Chromebook 11-21xx computer models in snow white finish	761957-001
	For use only on HP Chromebook 11-21xx computer models in sweet yellow finish	761956-001
	For use only on HP Chromebook 11 G3 computer models	794732-001

Miscellaneous parts

Component	Spare part number
AC adapter:	
65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm)	714657-001
45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm)	741727-001
HP HDMI-to-VGA adapter	701943-001
HP RJ45-to-USB adapter dongle	539614-001
Power cord:	
For use in Australia	755530-011
For use in Denmark	755530-081
For use in Europe	755530-021
For use in India	755530-D61
For use in Italy	755530-061
For use in Japan	755530-291
For use in North America	755530-001
For use in Switzerland	755530-111
For use in the United Kingdom and Singapore	755530-031
Rubber Kit (includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers)	
For use only on HP Chromebook 11-21xx computer models in ocean turquoise finish	762581-001
For use only on HP Chromebook 11-21xx computer models in snow white finish	762583-001

Component	Spare part number
For use only on HP Chromebook 11-21xx computer models in sweet yellow finish	762582-001
For use only on HP Chromebook 11 G3 computer models	773211-001
Screw Kit:	
For use only on HP Chromebook 11-21xx computer models	761975-001
For use only on HP Chromebook 11 G3 computer models	777366-001

Sequential part number listing

Spare part number	Description
539614-001	HP RJ45-to-USB adapter dongle
701943-001	HP HDMI-to-VGA adapter
714657-001	65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm)
741727-001	45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm)
755529-005	HP lt4110 LTE/HSPA+ 4G WWAN module
755530-001	Power cord for use in North America (3-pin, black, 1.00-m)
755530-011	Power cord for use in Australia (3-pin, black, 1.00-m)
755530-021	Power cord for use in Europe (3-pin, black, 1.00-m)
755530-031	Power cord for use in the United Kingdom and Singapore (3-pin, black, 1.00-m)
755530-061	Power cord for use in Italy (3-pin, black, 1.00-m)
755530-081	Power cord for use in Denmark (3-pin, black, 1.00-m)
755530-111	Power cord for use in Switzerland (3-pin, black, 1.00-m)
755530-291	Power cord for use in Japan (3-pin, black, 1.00-m)
755530-D61	Power cord for use in India (3-pin, black, 1.00-m)
761955-001	Display enclosure in ocean turquoise finish for use only on HP Chromebook 11-21xx computer models (includes rubber padding and shielding)
761956-001	Display enclosure in sweet yellow finish for use only on HP Chromebook 11-21xx computer models (includes rubber padding and shielding)
761957-001	Display enclosure in snow white finish for use only on HP Chromebook 11-21xx computer models (includes rubber padding and shielding)
761964-001	Display bezel in sweet yellow finish for use only on HP Chromebook 11-21xx computer models
761965-001	Display bezel in snow white finish for use only on HP Chromebook 11-21xx computer models
761966-001	Display bezel in ocean turquoise finish for use only on HP Chromebook 11-21xx computer models
761972-001	Display Hinge Kit (includes left and right display hinges)
761975-001	Screw Kit for use only on HP Chromebook 11-21xx computer models
762581-001	Rubber Kit for use on computer models in ocean turquoise finish for use only on HP Chromebook 11-21xx computer models (includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers)

Spare part number	Description
762582-001	Rubber Kit in sweet yellow finish for use only on HP Chromebook 11-21xx computer models (includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers)
762583-001	Rubber Kit in snow white finish for use only on HP Chromebook 11-21xx computer models (includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers)
767068-005	Battery (3-cell, 36-WHR, 3.25-AHr, Li-ion; includes cable)
773210-001	Display bezel for use only on HP Chromebook 11 G3 computer models
773211-001	Rubber Kit for use only on HP Chromebook 11 G3 computer models (includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers)
777366-001	Screw Kit for use only on HP Chromebook 11 G3 computer models
783073-001	System board equipped with an Intel Celeron N2830 2.16-GHz (SC turbo up to 2.41-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 2.0-GB of system memory, and 16-GB of eMMC primary storage (includes replacement thermal material)
783074-001	System board equipped with an Intel Celeron N2830 2.16-GHz (SC turbo up to 2.41-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 16-GB of eMMC primary storage (includes replacement thermal material)
783075-001	WLAN antenna (includes left and right WLAN cables and transceivers)
783076-001	WWAN antenna (includes left and right WWAN cables and transceivers)
783077-001	Base enclosure in ocean turquoise finish for use only on HP Chromebook 11-21xx computer models not equipped with WWAN capability
783078-001	Base enclosure in ocean turquoise finish for use only on HP Chromebook 11-21xx computer models equipped with WWAN capability
783079-001	Base enclosure in sweet yellow finish for use only on HP Chromebook 11-21xx computer models not equipped with WWAN capability
783080-001	Base enclosure in sweet yellow finish for use only on HP Chromebook 11-21xx computer models equipped with WWAN capability
783081-001	Base enclosure in snow white finish for use only on HP Chromebook 11-21xx computer models not equipped with WWAN capability
783082-001	Base enclosure in snow white finish for use only on HP Chromebook 11-21xx computer models equipped with WWAN capability
783083-001	Display panel cable for use only on computer models not equipped with WWAN capability
783084-001	Heat sink (includes replacement thermal material)
783085-001	Display panel bracket for use only on HP Chromebook 11-21xx computer models
783086-001	TouchPad board (includes cable and double-sided adhesive)
783087-001	Connector board for use only on computer models not equipped with WWAN capability (includes cable and SD Card Reader slot)
783088-001	Webcam/microphone module (includes double-sided adhesive)
783089-001	Display panel (11.6-in, HD, WLED, AG, (1366×768), flat (3.6-mm), SVA, LVDS)
783090-001	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in the United States (includes keyboard cable)
783090-031	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in the United Kingdom and Singapore (includes keyboard cable)

Spare part number	Description
783090-041	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Germany (includes keyboard cable)
783090-051	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in France (includes keyboard cable)
783090-061	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Italy (includes keyboard cable)
783090-071	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Spain (includes keyboard cable)
783090-161	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Latin America (includes keyboard cable)
783090-251	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Russia (includes keyboard cable)
783090-291	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Japan (includes keyboard cable)
783090-A41	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Belgium (includes keyboard cable)
783090-B31	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in the Netherlands (includes keyboard cable)
783090-BG1	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Switzerland (includes keyboard cable)
783090-DB1	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Canada (includes keyboard cable)
783090-DH1	Keyboard/top cover for use only on HP Chromebook 11-21xx computer models in Denmark, Finland, and Norway (includes keyboard cable)
784191-001	Base enclosure for use only on HP Chromebook 11 G3 computer models not equipped with WWAN capability
784192-001	Base enclosure for use only on HP Chromebook 11 G3 computer models equipped with WWAN capability
784645-005	Intel Dual Band Wireless-AC 7260 802.11 ac 2x2 WiFi + Bluetooth 4.0 Combo Adapter
784647-005	Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n 2x2 WiFi + Bluetooth 4.0 Combo Adapter
785884-001	Connector board for use only on computer models equipped with WWAN capability (includes cable, SD Card Reader slot, and SIM slot)
787922-001	Power connector cable
788555-001	Speaker Kit (includes left and right speakers and cables)
788639-001	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in the United States (includes keyboard cable)
788639-031	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in the United Kingdom and Singapore (includes keyboard cable)
788639-041	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Germany (includes keyboard cable)
788639-051	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in France (includes keyboard cable)
788639-061	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Italy (includes keyboard cable)

Spare part number	Description
788639-071	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Spain (includes keyboard cable)
788639-161	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Latin America (includes keyboard cable)
788639-251	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Russia (includes keyboard cable)
788639-291	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Japan (includes keyboard cable)
788639-A41	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Belgium (includes keyboard cable)
788639-B31	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in the Netherlands (includes keyboard cable)
788639-BG1	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Switzerland (includes keyboard cable)
788639-DB1	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Canada (includes keyboard cable)
788639-DH1	Keyboard/top cover for use only on HP Chromebook 11 G3 computer models in Denmark, Finland, and Norway (includes keyboard cable)
790939-001	System board equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 2.0-GB of system memory, and 16-GB of eMMC primary storage (includes replacement thermal material)
790940-001	System board equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W), 4.0-GB of system memory, and 16-GB of eMMC primary storage (includes replacement thermal material)
792091-001	Display panel cable for use only on computer models equipped with WWAN capability
794732-001	Display enclosure for use only on HP Chromebook 11 G3 computer models (includes rubber padding and shielding)

4 Removal and replacement preliminary requirements


Tools required

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


- Flat-bladed screw driver
- Magnetic screw driver
- Phillips P0 screw driver

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 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 drive, place it in a static-proof bag.

Avoid exposing a drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE."

Grounding guidelines

Electrostatic discharge damage

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

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

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

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

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

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

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

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

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

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

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

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

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

Workstation guidelines

Follow these grounding workstation guidelines:

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

Equipment guidelines

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

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


The following grounding equipment is recommended to prevent electrostatic damage:


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

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

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

5 Removal and replacement procedures


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

 **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.

Component replacement procedures

There are as many as 54 screws that must be removed, replaced, and/or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Computer feet

 **NOTE:** The computer feet are included in the Rubber Kit, available using the following spare part numbers:

- 762581-001—For use only on HP Chromebook 11-21xx computer models in ocean turquoise finish
- 762583-001—For use only on HP Chromebook 11-21xx computer models in snow white finish
- 762582-001—For use only on HP Chromebook 11-21xx computer models in sweet yellow finish
- 773211-001—For use only on HP Chromebook 11 G3 computer models

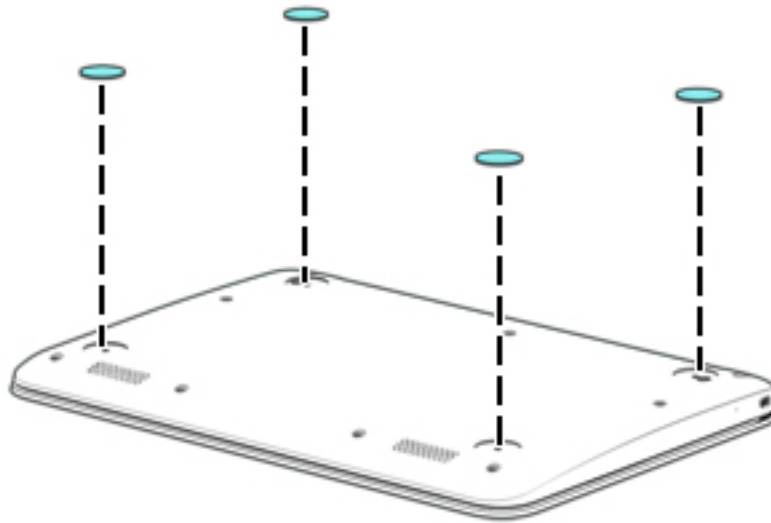
Before replacing the computer feet, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.

Remove the computer feet:

1. Close the computer.
2. Turn the computer upside down with the front toward you.

3. Remove the 4 rubber feet.




To install the rubber feet, remove the protective backing from the rubber feet and install them in the locations indicated in the above illustration.

Keyboard/top cover

Description	Spare part number	Description	Spare part number
For use only on HP Chromebook 11-21xx computer models:			
For use in Belgium	783090-A41	For use in Latin America	783090-161
For use in Canada	783090-DB1	For use in the Netherlands	783090-B31
For use in Denmark, Finland, and Norway	783090-DH1	For use in Russia	783090-251
For use in France	783090-051	For use in Spain	783090-071
For use in Germany	783090-041	For use in Switzerland	783090-BG1
For use in Italy	783090-061	For use in the United Kingdom	783090-031
For use in Japan	783090-291	For use in the United States	783090-001
For use only on HP Chromebook 11 G3 computer models:			
For use in Belgium	788639-A41	For use in Latin America	788639-161
For use in Canada	788639-DB1	For use in the Netherlands	788639-B31
For use in Denmark, Finland, and Norway	788639-DH1	For use in Russia	788639-251
For use in France	788639-051	For use in Spain	788639-071
For use in Germany	788639-041	For use in Switzerland	788639-BG1
For use in Italy	788639-061	For use in the United Kingdom	788639-031
For use in Japan	788639-291	For use in the United States	788639-001


Before removing the keyboard/top cover, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the 2 rear computer feet (see [Computer feet on page 24](#)).

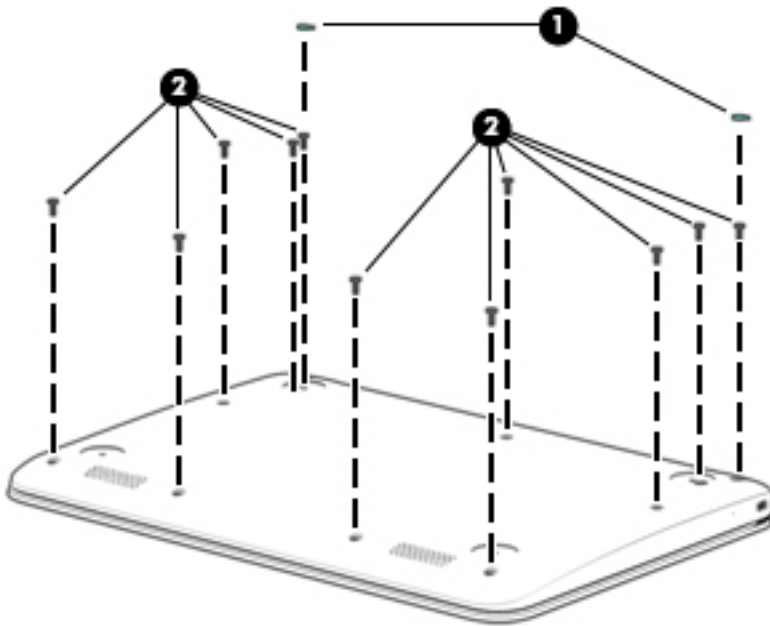
 **NOTE:** When replacing the keyboard/top cover, be sure that the heat sink (see [Heat sink on page 31](#)) and TouchPad (see [TouchPad board on page 32](#)) are removed from the defective keyboard/top cover and installed on the replacement keyboard/top cover.

Remove the keyboard/top cover:

1. Remove the two rubber screw covers **(1)**.

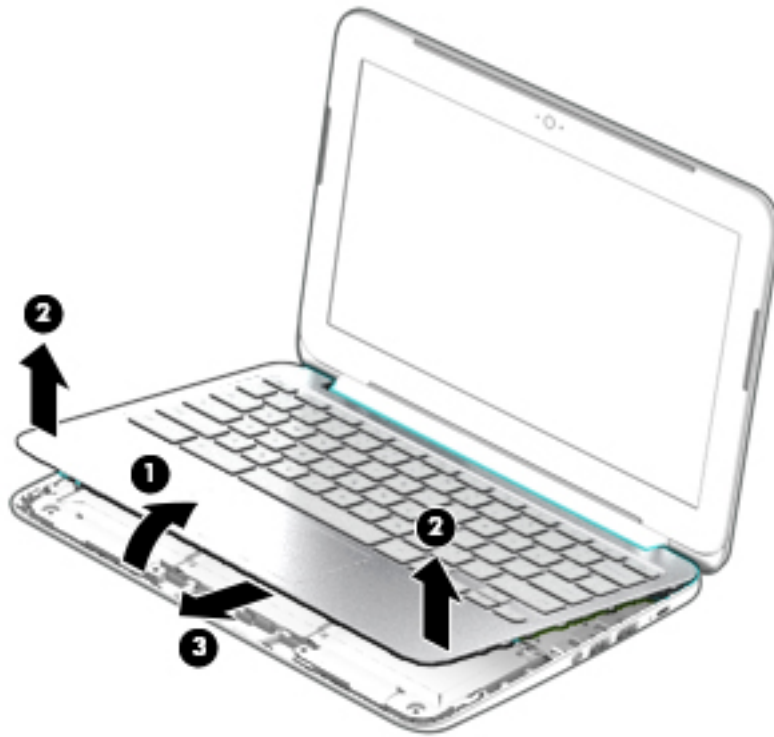
 **NOTE:** The rubber screw covers are included in the Rubber Kit, spare part numbers:

- 762581-001—For use only on HP Chromebook 11-21xx computer models in ocean turquoise finish
 - 762583-001—For use only on HP Chromebook 11-21xx computer models in snow white finish
 - 762582-001—For use only on HP Chromebook 11-21xx computer models in sweet yellow finish
 - 773211-001—For use only on HP Chromebook 11 G3 computer models
2. Remove the eleven Phillips PM1.9×6.7 screws **(2)** that secure the keyboard/top cover to the base enclosure.

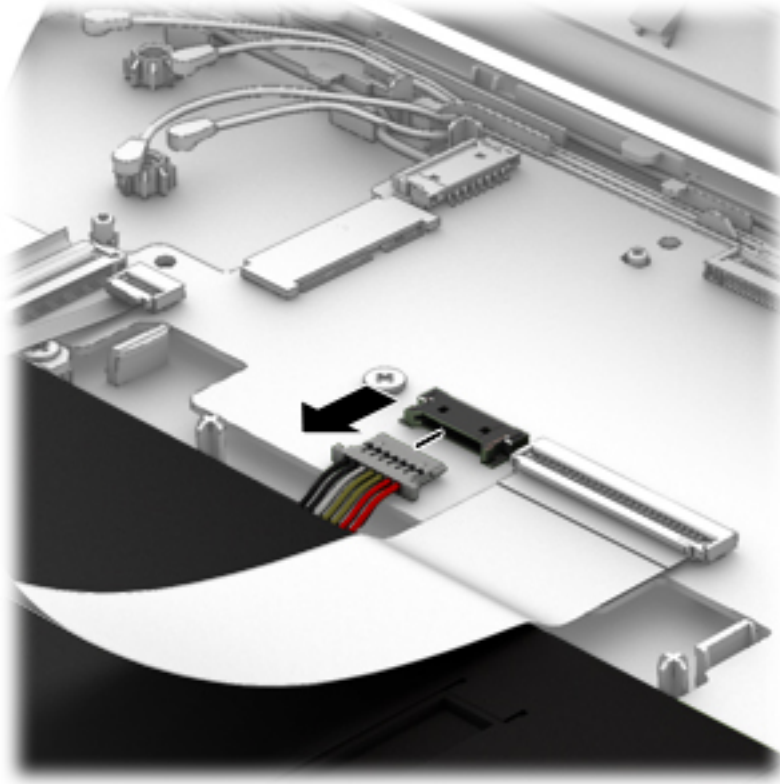


3. Turn the computer right side up with the front toward you.
4. Open the computer as far as it will open.
5. Lift the front edge **(1)** of the keyboard/top cover until it separates from the front edge of the base enclosure.

6. Lift the left **(2)** and right sides of the keyboard/top cover until they separate from the left and right sides of the base enclosure.
7. Slide the keyboard/top cover **(3)** forward until the battery, TouchPad, and keyboard cables are accessible.

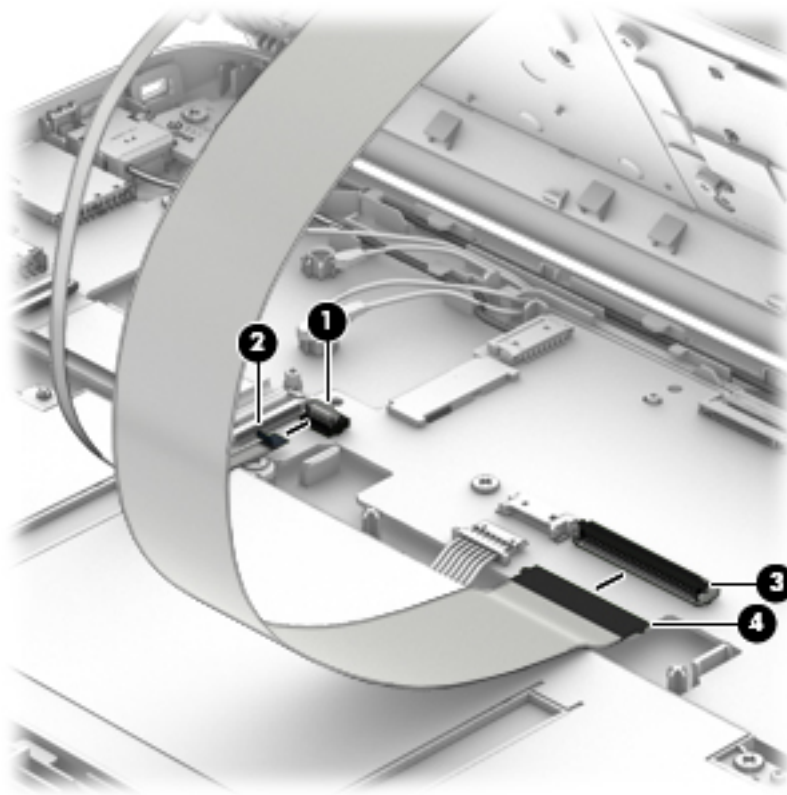


8. Disconnect the battery cable from the system board.




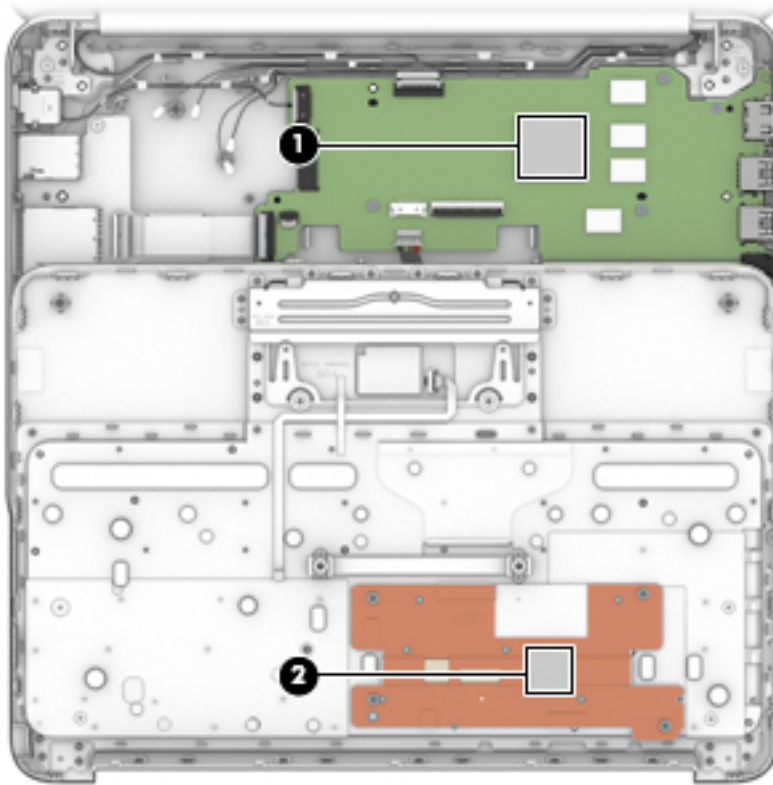
9. Release the zero insertion force (ZIF) connector **(1)** to which the TouchPad cable is attached, and then disconnect the TouchPad cable **(2)** from the system board.

10. Release the ZIF connector **(3)** to which the keyboard cable is attached, and then disconnect the keyboard cable **(4)** from the system board.



11. Remove the keyboard/top cover.

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



Reverse this procedure to install the keyboard/top cover.

Heat sink

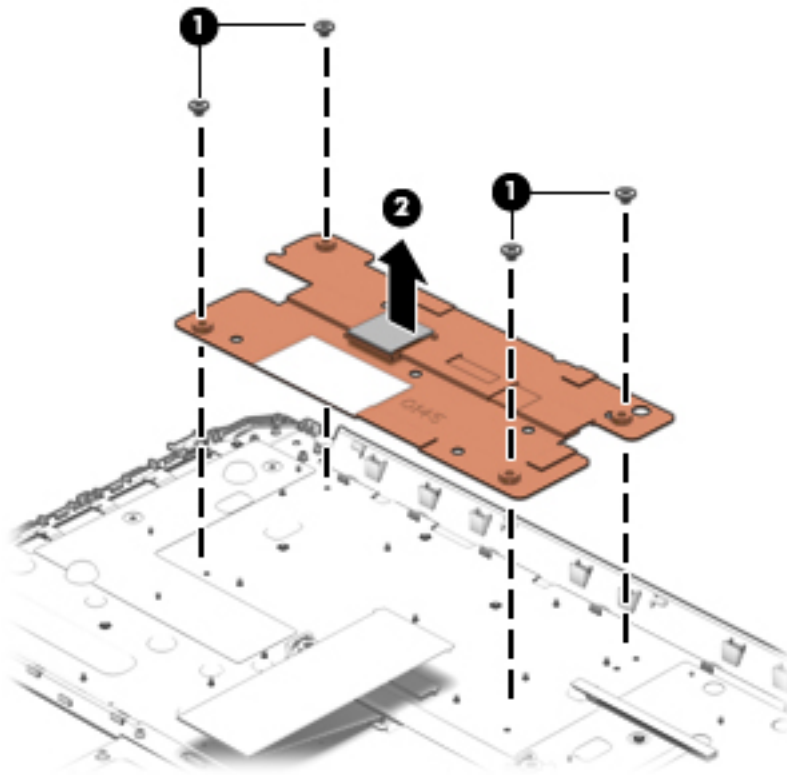
Description	Spare part number
Heat sink (includes replacement thermal material)	783084-001

Before removing the heat sink, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 25](#)).

Remove the heat sink:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Remove the four Phillips PM1.9×2.3 screws **(1)** that secure the heat sink to the keyboard/top cover.
3. Remove the heat sink **(2)**.



Reverse this procedure to install the heat sink.

TouchPad board

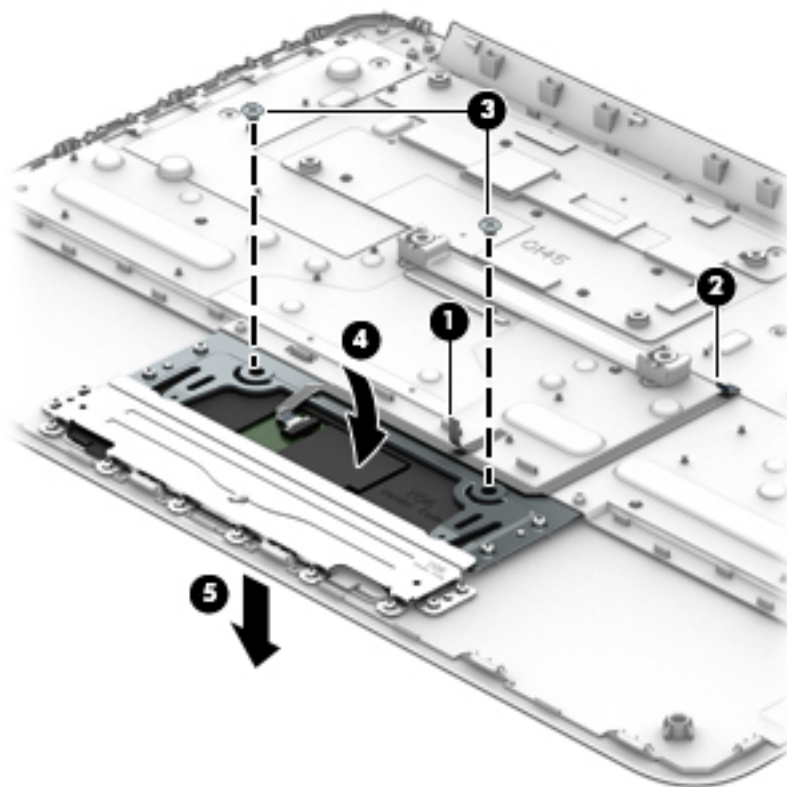
Description	Spare part number
TouchPad board (includes cable and double-sided adhesive)	783086-001

Before removing the TouchPad board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 25](#)).

Remove the TouchPad button board:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Release the grounding tape **(1)** that secures the TouchPad board to the keyboard/top cover.
3. Detach the TouchPad board cable **(2)** from the keyboard/top cover. (The TouchPad board cable is attached to the keyboard/top cover with double-sided adhesive.)
4. Remove the two Phillips PM1.9×2.3 screws **(3)** that secure the TouchPad board to the top cover.
5. Release the TouchPad board **(4)** by pressing it through the opening in the keyboard/top cover.
6. Remove the TouchPad board **(5)** and cable.



Reverse this procedure to install the TouchPad board.

Battery

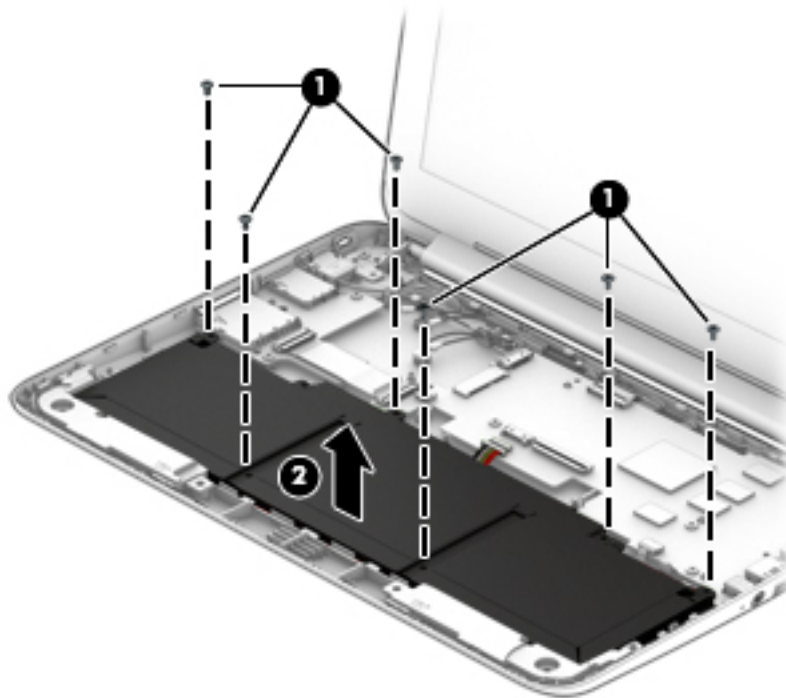
Description	Spare part number
Battery (3-cell, 36-WHr, 3.25-AHr, Li-ion; includes cable)	767068-001

Before removing the battery, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 25](#)).

Remove the battery:

1. Remove the six Phillips PM1.9×4.2 screws (2) that secure the battery to the base enclosure.
2. Remove the battery (2).



Reverse this procedure to install the battery.

WWAN module

Description	Spare part number
HP lt4110 LTE/HSPA+ 4G WWAN Module	755529-005

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

Before removing the WWAN module, follow these steps:

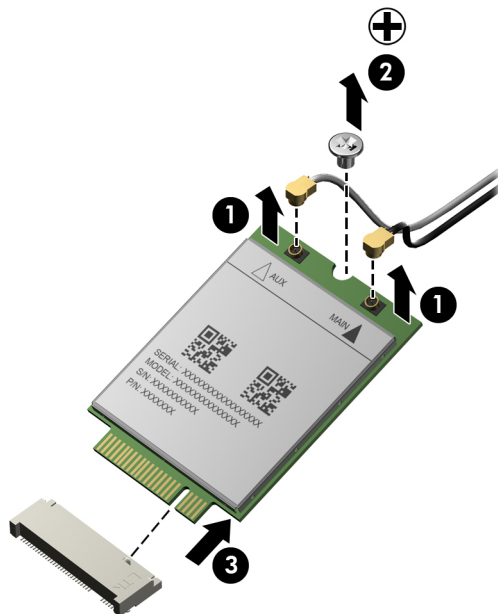
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord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


Remove the WWAN module:

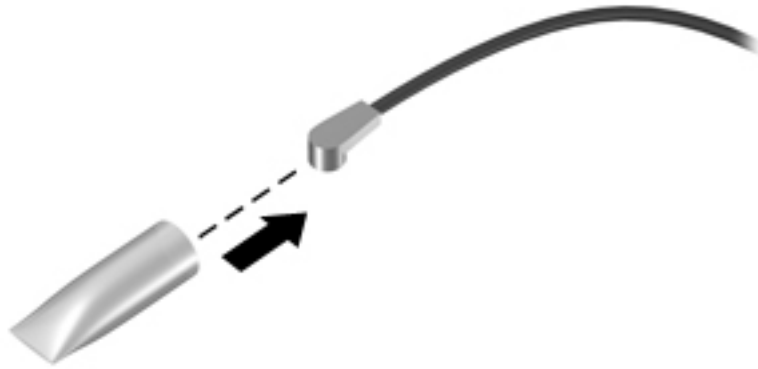
1. Disconnect the WWAN antenna cables (1) from the terminals on the WWAN module.

NOTE: The #5/red WWAN antenna cable connects to the WWAN module #5/Main terminal. The #6/blue WWAN antenna cable connects to the WWAN module #6/Aux terminal.

2. Remove the Phillips PM1.9×4.2 screw (2) that secures the WWAN module to the base enclosure. (The WWAN module tilts up.)
3. Remove the WWAN module (3) by pulling the module away from the slot at an angle.




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



Reverse this procedure to install the WWAN module.

Connector board

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

Description	Spare part number
For use only on computer models equipped with WWAN capability (includes SD Card Reader slot and SIM slot)	785884-001
For use only on computer models not equipped with WWAN capability (includes SD Card Reader slot)	783087-001

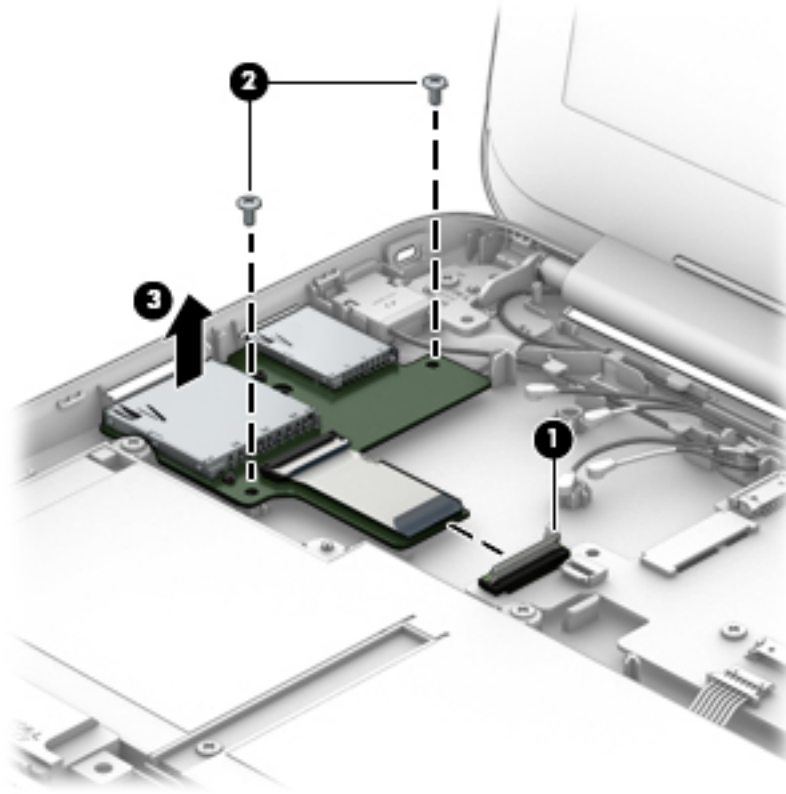
Before removing the connector board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 25](#)).
5. Remove the WWAN module (see [WWAN module on page 34](#)).

Remove the connector board:

1. Release the ZIF connector **(1)** to which the connector board cable is attached, and then disconnect the connector board cable from the system board.
2. Remove the two Phillips PM1.9×4.2 screws **(2)** that secure the connector board to the base enclosure.

3. Remove the connector board (3).



Reverse this procedure to install the connector board.

WLAN module

Description	Spare part number
Intel Dual Band Wireless-AC 7260 802.11 ac 2x2 WiFi + Bluetooth 4.0 Combo Adapter	784645-005
Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n 2x2 WiFi + Bluetooth 4.0 Combo Adapter	784647-005

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

Before removing the WLAN module, follow these steps:

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

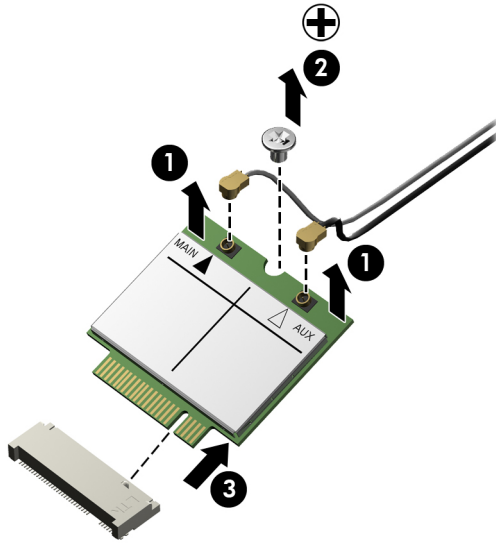
Remove the WLAN module:

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

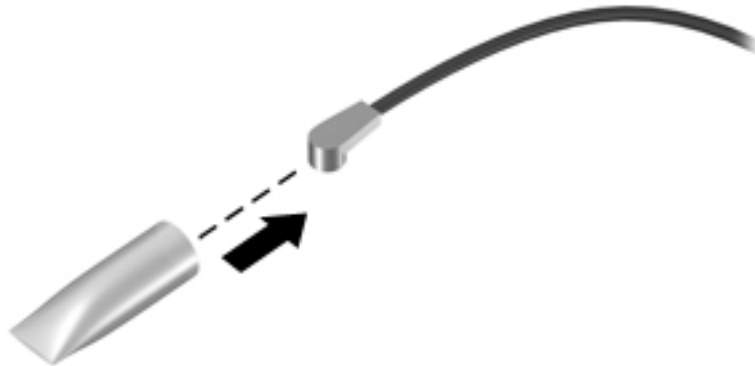


NOTE: The #1/white WLAN antenna cable connects to the WLAN module #1/Main terminal. The #2/black WLAN antenna cable connects to the WLAN module #1/Aux terminal.

2. Remove the Phillips PM1.9×4.2 screw **(2)** that secures the WLAN module to the base enclosure. (The WLAN module tilts up.)
3. Remove the WLAN module **(3)** by pulling the module away from the slot at an angle.



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



Reverse this procedure to install the WLAN module.

Power connector cable

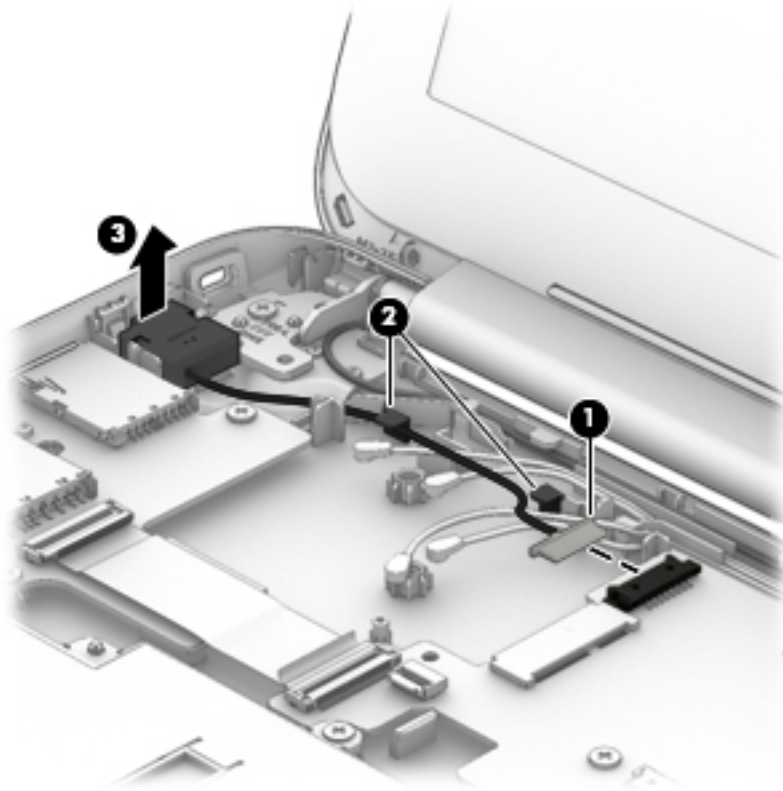
Description	Spare part number
Power connector cable	787922-001

Before removing the power connector cable, follow these steps:

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

Remove the power connector cable:

1. Disconnect the power connector cable **(1)** from the system board.
2. Release the power connector cable from the retention clips **(2)** built into the base enclosure.
3. Release the power connector **(3)** from the retention molding built into the base enclosure.



4. Remove the power connector cable.

Reverse this procedure to install the power connector cable.

System board



NOTE: The system board spare part kit includes 16-GB of eMMC primary storage and replacement thermal material.

Description	Spare part number
Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) and 4.0-GB of system memory	790940-001
Equipped with an Intel Celeron N2840 2.16-GHz (SC turbo up to 2.58-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) and 2.0-GB of system memory	790939-001
Equipped with an Intel Celeron N2830 2.16-GHz (SC turbo up to 2.41-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) and 4.0-GB of system memory	783074-001
Equipped with an Intel Celeron N2830 2.16-GHz (SC turbo up to 2.41-GHz) dual core processor (1.0-GB L2 cache, 1333-MHz FSB, 4.5 W) and 2.0-GB of system memory	783073-001

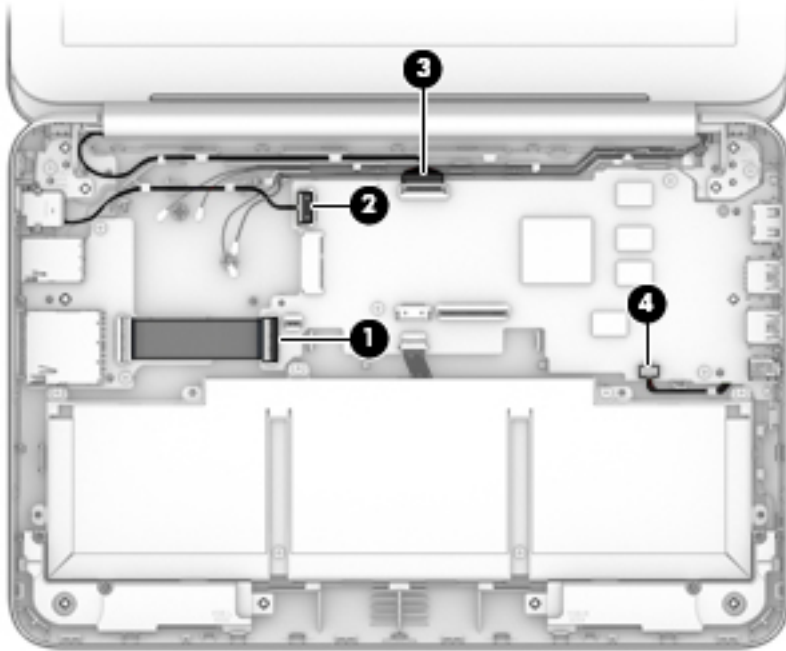
Before removing the system board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 25](#)).
5. Remove the WWAN module (see [WWAN module on page 34](#)).
6. Remove the WLAN module (see [WLAN module on page 36](#)).


Remove the system board:

1. Release the ZIF connector **(1)** to which the connector board cable is attached, and then disconnect the connector board cable from the system board.
2. Disconnect the power connector cable **(2)** from the system board.
3. Release the ZIF connector **(3)** to which the display panel cable is attached, and then disconnect the display panel cable from the system board.

4. Disconnect the speaker cable **(4)** from the system board.

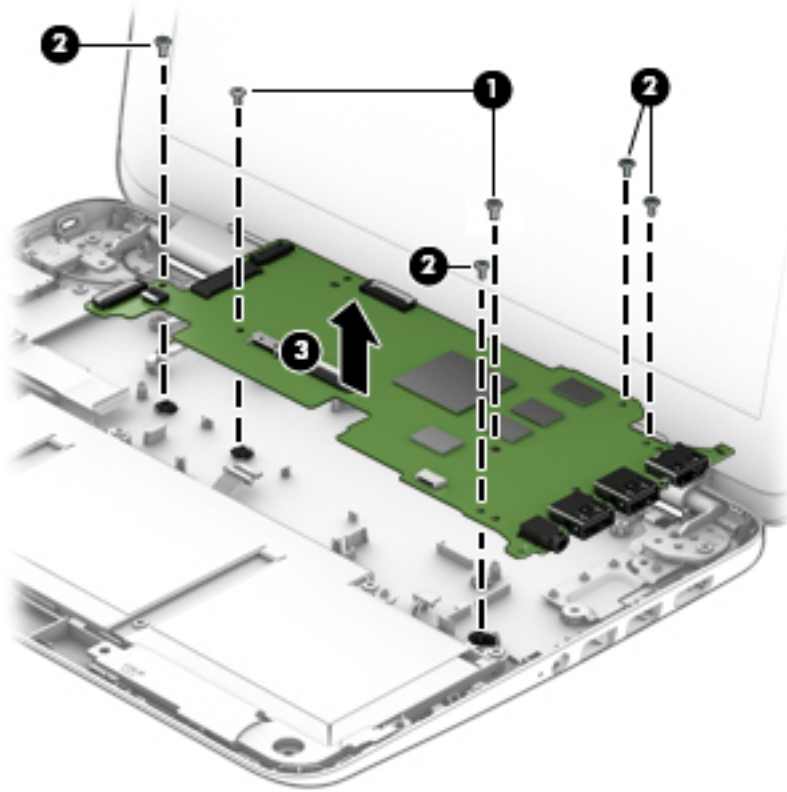


5. Remove the two Phillips PM2.5×3.7 broad head firmware screws **(1)** that secure the system board to the base enclosure.

 **IMPORTANT:** The firmware screws must be installed in the locations shown in the following image. These screws have specific properties that ensure the proper operation of the computer.

6. Remove the four Phillips PM1.9×4.2 screws **(2)** that secure the system board to the base enclosure.

7. Remove the system board (3).



Reverse this procedure to install the system board.

Speakers

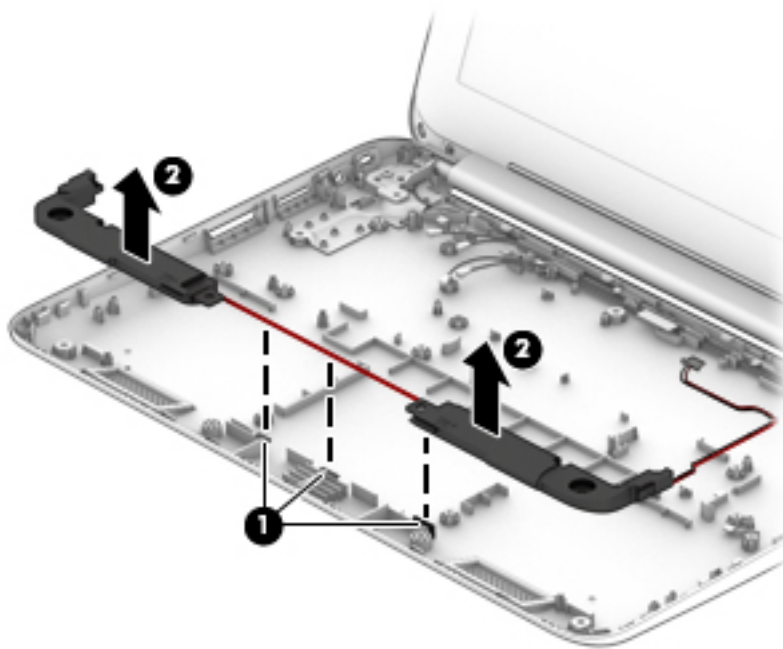
Description	Spare part number
Speaker Kit (includes left and right speakers and cables)	788555-001

Before removing the speakers, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 25](#)).
5. Remove the system board (see [System board on page 39](#)).


Remove the speakers:

1. Release the speaker cables from the routing clips **(1)** and channels built into the base enclosure.
2. Remove the speakers **(2)**.



Reverse this procedure to install the speakers.

Display assembly


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

Before removing the display assembly, follow these steps:


1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 25](#)).

Remove the display assembly:

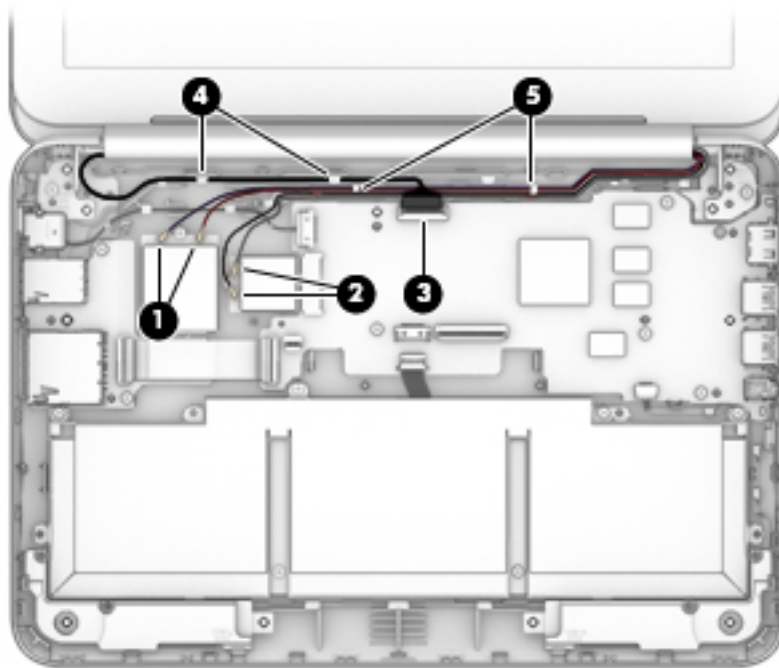
1. Disconnect the WWAN antenna cables (**1**) from the terminals on the WWAN module.

 **NOTE:** The #5/red WWAN antenna cable connects to the WWAN module #5/Main terminal. The #6/blue WWAN antenna cable connects to the WWAN module #6/Aux terminal.

2. Disconnect the WLAN antenna cables (**2**) from the terminals on the WLAN module.

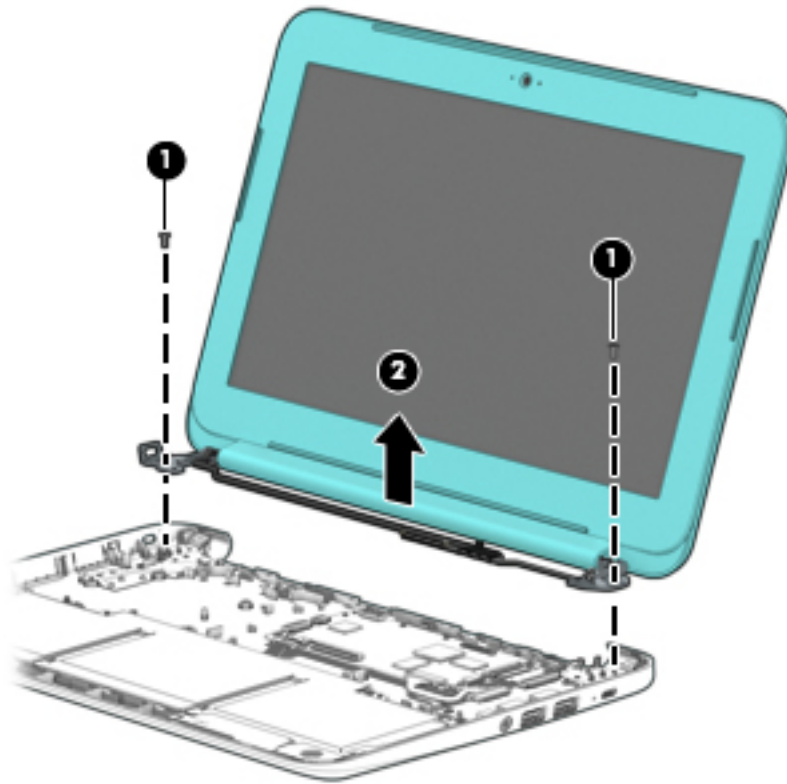
 **NOTE:** The #1/white WLAN antenna cable connects to the WLAN module #1/Main terminal. The #2/black WLAN antenna cable connects to the WLAN module #2/Aux terminal.

3. Release the ZIF connector (**3**) to which the display panel cable is attached, and then disconnect the display panel cable from the system board.
4. Release the display panel cable from the routing clips (**4**) and channel built into the base enclosure.
5. Release the WLAN antenna cables from the routing clips (**5**) and channel built into the base enclosure.




6. Remove the two Phillips PM2.4×5.7 screws (**1**) that secure the display assembly to the base enclosure.

7. Remove the display assembly (2).

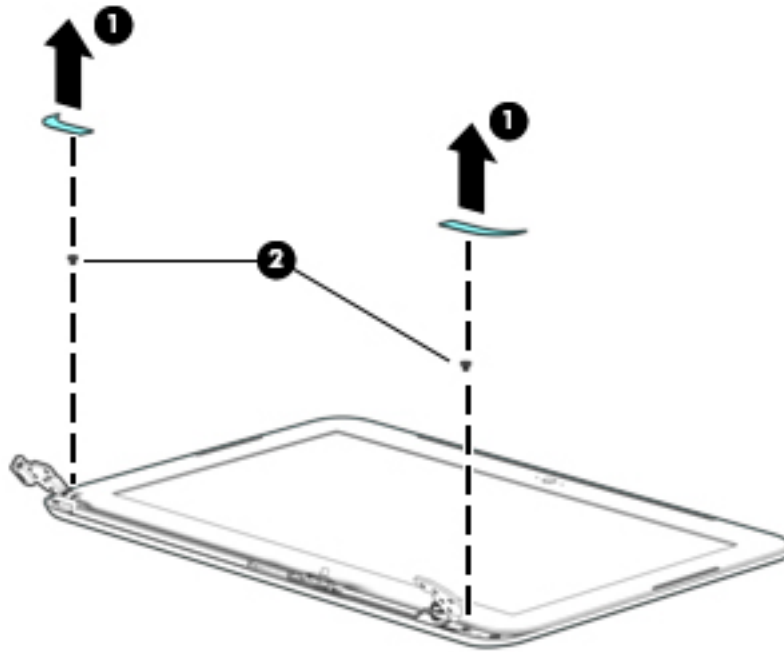


8. If it is necessary to replace the display bezel or any of the display assembly subcomponents:
 - a. Remove the two display bezel screw covers (1).

 **NOTE:** The display bezel screw covers are included in the Rubber Kit, spare part numbers:

- 762581-001—For use only on HP Chromebook 11-21xx computer models in ocean turquoise finish
- 762583-001—For use only on HP Chromebook 11-21xx computer models in snow white finish
- 762582-001—For use only on HP Chromebook 11-21xx computer models in sweet yellow finish
- 773211-001—For use only on HP Chromebook 11 G3 computer models

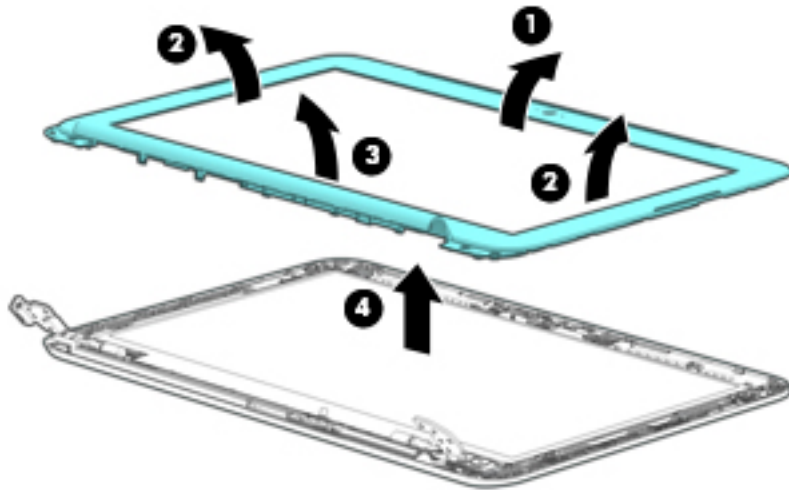
- b. Remove the two Phillips PM1.9×2.3 screws **(2)** that secure the display bezel to the display assembly.



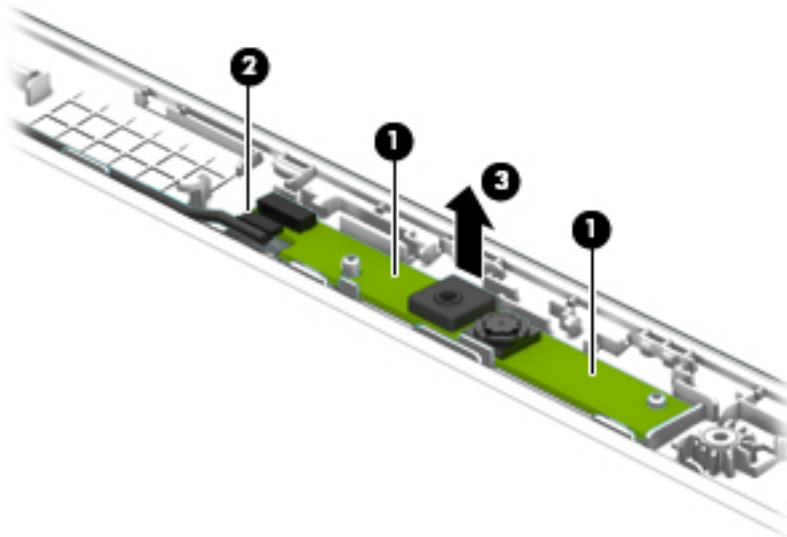
- c. Flex the inside edges of the top edge **(1)**, the left and right sides **(2)**, and the bottom edge **(3)** of the display bezel until the bezel disengages from the display enclosure.
- d. Remove the display bezel **(4)**.

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

- 761966-001—For use only on HP Chromebook 11-21xx computer models in ocean turquoise finish
- 761965-001—For use only on HP Chromebook 11-21xx computer models in snow white finish
- 761964-001—For use only on HP Chromebook 11-21xx computer models in sweet yellow finish
- 773210-001—For use only on HP Chromebook 11 G3 computer models



9. If it is necessary to replace the webcam/microphone module:
 - a. Detach the webcam/microphone module **(1)** from the display enclosure. (The webcam/microphone module is attached to the display enclosure with double-sided adhesive at two locations.)
 - b. Disconnect the webcam/microphone module cable **(2)** from the webcam/microphone module.
 - c. Remove the webcam/microphone module **(3)**.



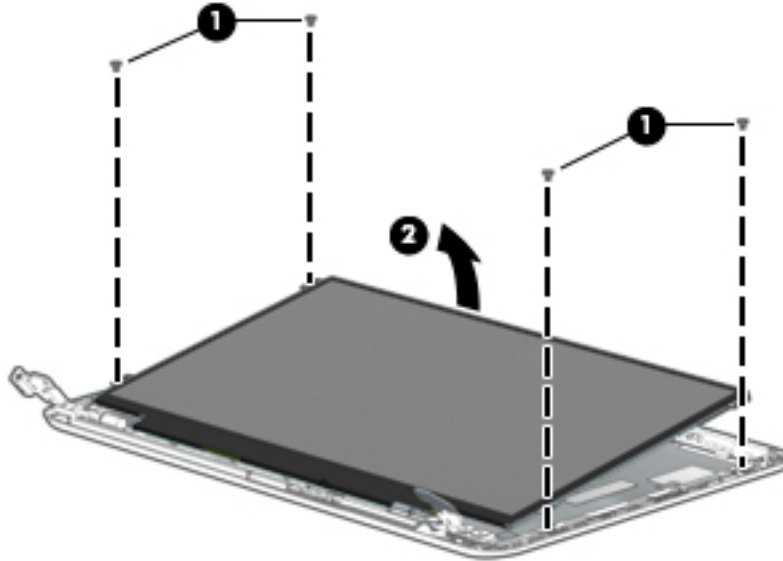
- d. Remove the webcam/microphone module.
The webcam/microphone module is available using spare part number 783088-001.

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

- a. Remove the four Phillips PM1.9×3.4 screws **(1)** that secure the display panel to the display enclosure.

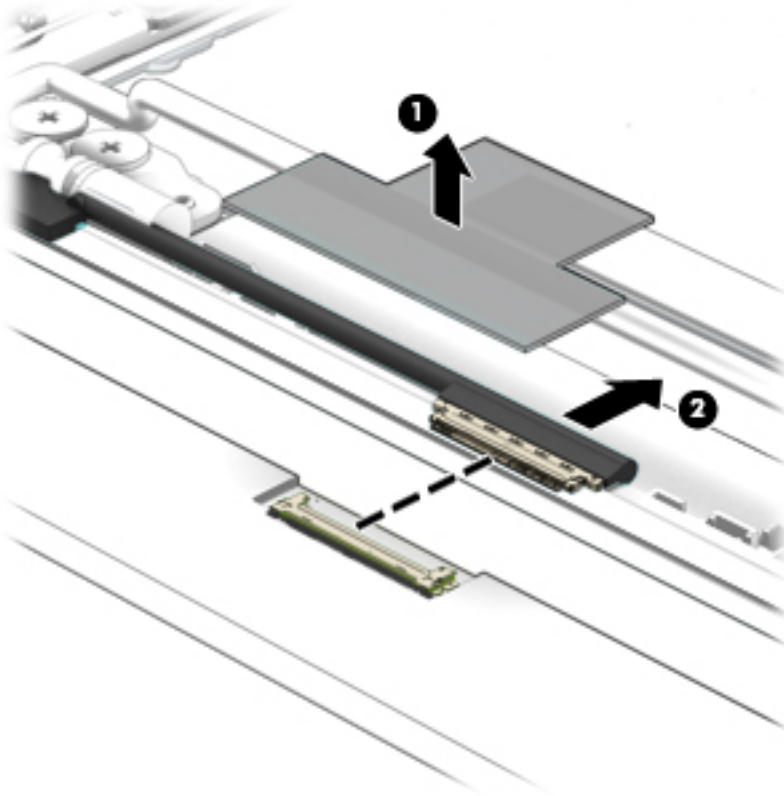
⚠ CAUTION: Before turning the display panel upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display panel.

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



- c. Release the adhesive strip **(1)** that secures the display panel cable connector to the display panel.

- d. Disconnect the display panel cable **(2)** from the display panel.

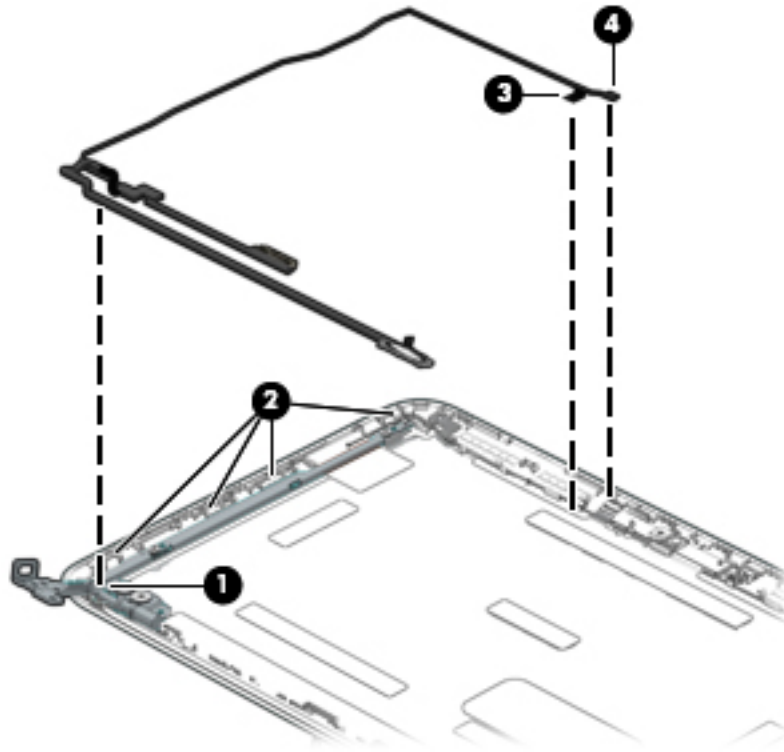


- e. Remove the display panel.

The display panel is available using spare part number 783089-001.

- 11. If it is necessary to replace the display panel cable:
 - a. Release the display panel cable from the retention clip **(1)** built into the left hinge.
 - b. Release the display panel cable from the retention clips **(2)** and routing channel built into the left side of the display enclosure.
 - c. Release the grounding tape **(3)** that secures the display panel cable to the display enclosure.

- d. Disconnect the display panel cable (4) from the webcam/microphone module.



- e. Remove the display panel cable.

The display panel cable is available using spare part numbers 792091-001 (for use only on computer models equipped with WWAN capability) and 783083-001 (for use only on computer models not equipped with WWAN capability) and includes the webcam/microphone module cable.

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

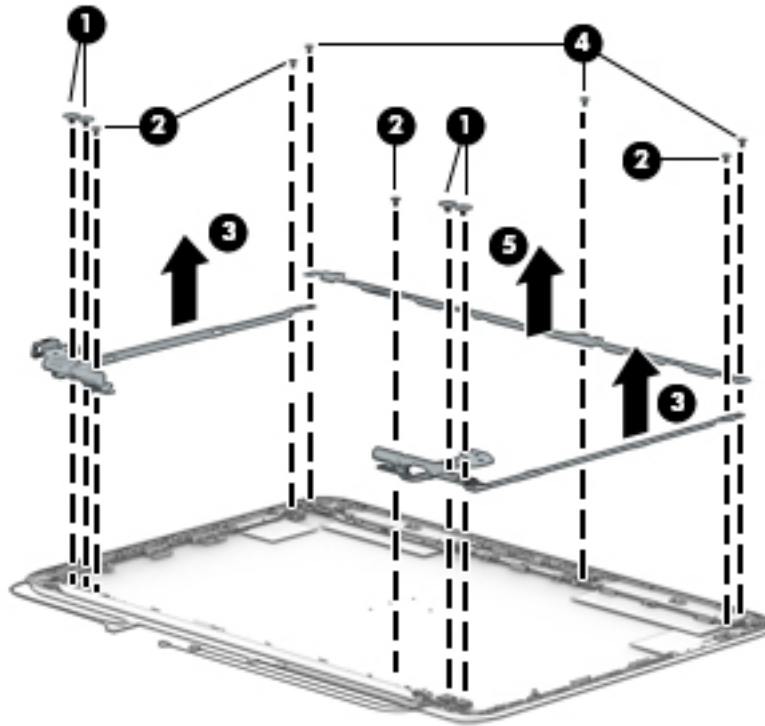
- a. Remove the four Phillips PM2.4×3.6 broad head screws (1) and the four Phillips PM1.9×3.4 screws (2) that secure the display hinges to the display enclosure.
- b. Remove the display hinges (3).

The display hinges are included in the Display Hinge Kit, spare part number 761972-001.

- c. Remove the three Phillips PM1.9×3.4 screws (4) that secure the display panel bracket to the display enclosure.

- d. Remove the display panel bracket (5).

The display panel bracket is available using spare part number 783085-001.

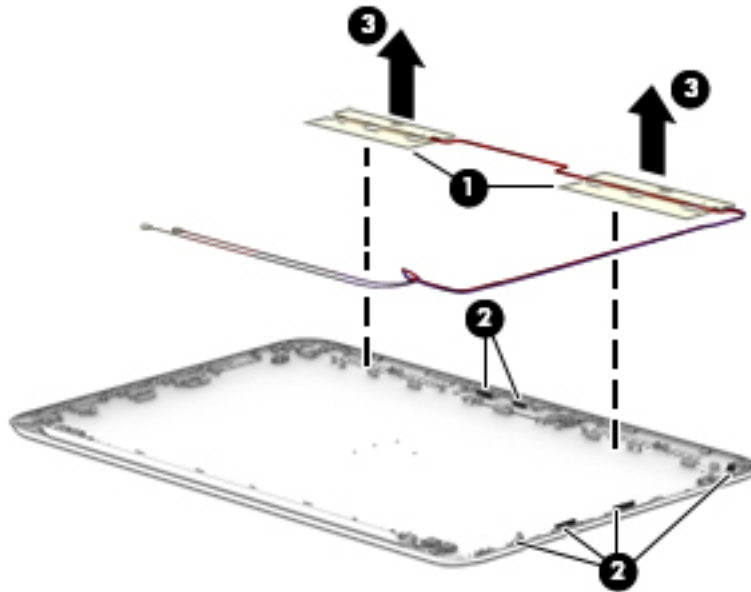


13. If it is necessary to replace the WWAN antenna cables and transceivers:

- a. Detach the WWAN antenna transceivers (1) from the display enclosure. (The WWAN antenna transceivers are attached to the display enclosure with double-sided adhesive.)
- b. Release the WWAN antenna cables from the clips (2) and routing channel built into the top and right edges of the display enclosure.

- c. Remove the WWAN antenna cables and transceivers **(3)**.

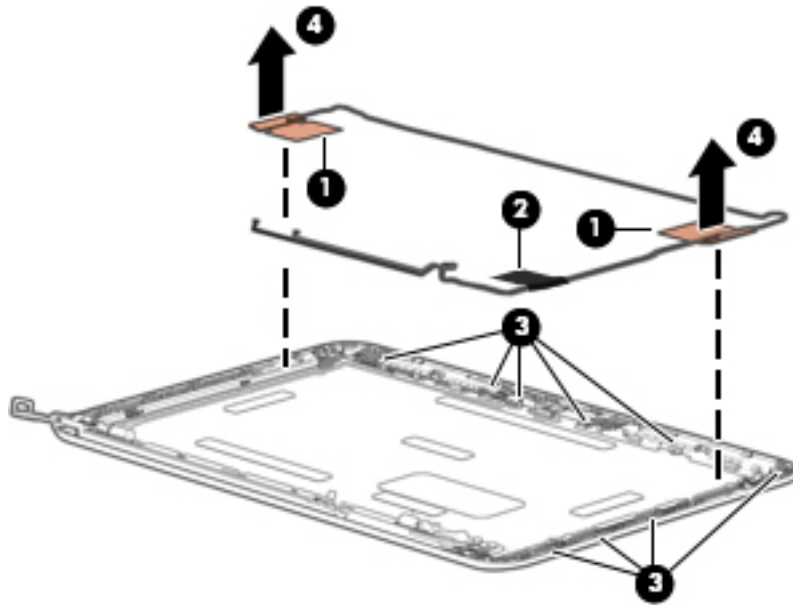
The WWAN antenna cables and transceivers are available using spare part number 783076-001.



- 14. If it is necessary to replace the WLAN antenna cables and transceivers:
 - a. Detach the WLAN antenna transceivers **(1)** from the display enclosure. (The WLAN antenna transceivers are attached to the display enclosure with double-sided adhesive.)
 - b. Release the grounding tape **(2)** that secures the wireless antenna cable to the display enclosure near the right hinge.
 - c. Release the WLAN antenna cables from the clips **(3)** and routing channel built into the top edge of the display enclosure.

- d. Remove the WLAN antenna cables and transceivers (4).

The WLAN antenna cables and transceivers are available using spare part number 783075-001.



Reverse this procedure to reassemble install the display assembly.

6 Specifications

	Metric	U.S.
Computer dimensions		
Width	30.0 cm	11.8 in
Depth	20.6 cm	8.1 in
Height	2.1 cm	0.8 in
Weight	1.3 kg	2.9 lbs
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.

7 Statement of memory volatility


The purpose of this chapter is to provide general information regarding nonvolatile memory in HP Business Notebook PCs. This chapter also provides general instructions for restoring nonvolatile memory that can contain personal data after the system has been powered off and the hard drive has been removed.

HP Business Notebook PC products that use Intel®-based or AMD®-based system boards contain volatile DDR memory. The amount of nonvolatile memory present in the system depends upon the system configuration. Intel-based and AMD-based system boards contain nonvolatile memory subcomponents as originally shipped from HP, assuming that no subsequent modifications have been made to the system and assuming that no applications, features, or functionality have been added to or installed on the system.

Following system shutdown and removal of all power sources from an HP Business Notebook PC system, personal data can remain on volatile system memory (DIMMs) for a finite period of time and will also remain in nonvolatile memory. Use the steps below to remove personal data from the notebook PC, including the nonvolatile memory found in Intel-based and AMD-based system boards.


 **NOTE:** If your tablet has a keyboard base, connect to the keyboard base before beginning steps in this chapter.

1. Follow steps (a) through (j) below to restore the nonvolatile memory that can contain personal data. Restoring or reprogramming nonvolatile memory that does not store personal data is neither necessary nor recommended.
 - a. Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.



 **NOTE:** If the system has a BIOS administrator password, enter the password at the prompt.

- b. Select **Main**, select **Restore Defaults**, and then select **Yes** to load defaults.
- c. Select the **Security** menu, select **Restore Security Level Defaults**, and then select **Yes** to restore security level defaults.
- d. If an asset or ownership tag is set, select the **Security** menu and scroll down to the **Utilities** menu. Select **System IDs**, and then select **Asset Tracking Number**. Clear the tag, and then make the selection to return to the prior menu.
- e. If a DriveLock password is set, select the **Security** menu, and scroll down to **Hard Drive Tools** under the **Utilities** menu. Select **Hard Drive Tools**, select **DriveLock**, then uncheck the checkbox for **DriveLock password on restart**. Select **OK** to proceed.
- f. If an Automatic DriveLock password is set, select the **Security** menu, scroll down to **Hard Drive Tools** under the **Utilities** menu. Select **Hard Drive Tools**, scroll down to **Automatic DriveLock**, then select the desired hard drive and disable protection. At the automatic drive lock warning screen, select **Yes** to continue. Repeat this procedure if more than one hard drive has an Automatic DriveLock password.
- g. Select the **Main** menu, and then select **Reset BIOS Security to factory default**. Click **Yes** at the warning message.
- h. Select the **Main** menu, select **Save Changes and Exit**, select **Yes** to save changes and exit, and then select **Shutdown**.

- i. Reboot the system. If the system has a Trusted Platform Module (TPM) and/or fingerprint reader, one or two prompts will appear—one to clear the TPM and the other to Reset Fingerprint Sensor; press or tap **F1** to accept or **F2** to reject.
 - j. Remove all power and system batteries for at least 24 hours.
2. Complete one of the following:
- Remove and retain the storage drive.
– or –
 - Clear the drive contents by using a third party utility designed to erase data from an SSD.
– or –
 - Clear the contents of the drive by using the following BIOS Setup Secure Erase command option steps:

 **IMPORTANT:** If you clear data using Secure Erase, it cannot be recovered.

- a. Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
 - b. Select the **Security** menu and scroll down to the Utilities menu.
 - c. Select **Hard Drive Tools**.
 - d. Under **Utilities**, select **Secure Erase**, select the hard drive storing the data you want to clear, and then follow the on-screen instructions to continue.
- or –
- Clear the contents of the drive by using the following Disk Sanitizer command steps:

 **IMPORTANT:** If you clear data using Disk Sanitizer, it cannot be recovered.
 **NOTE:** The amount of time it takes for Disk Sanitizer to run can take several hours. Plug the computer into an AC outlet before starting.

- a. Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
 - b. Select the **Security** menu and scroll down to the **Utilities** menu.
 - c. Select **Hard Drive Tools**.
 - d. Under **Utilities**, select **Disk Sanitizer**, select the hard drive holding the data you want to clear, and then follow the on-screen instructions to continue.


Nonvolatile memory usage

Non Volatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write protected?
HP Sure Start flash (select models only)	2 MBytes	No	Yes	Provides protected backup of critical System BIOS code, EC firmware, and critical PC configuration data for select platforms that support HP Sure Start.	Data cannot be written to this device via the host processor. The content is managed solely by the HP Sure Start Embedded Controller.	This memory is protected by the HP Sure Start Embedded Controller.
Real Time Clock (RTC) battery backed-up CMOS configuration memory (CMOS)	256 bytes	No	Yes	Stores system date and time and noncritical data.	RTC battery backed-up CMOS is programmed using the Computer Setup (BIOS), or changing the Microsoft Windows date & time.	This memory is not write-protected.
Controller (NIC) EEPROM	64 KBytes (not customer accessible)	No	Yes	Store NIC configuration and NIC firmware.	NIC EEPROM is programmed using a utility from the NIC vendor that can be run from DOS.	A utility is required to write data to this memory and is available from NIC vendor. Writing data to this ROM in an inappropriate manner will render the NIC non-functional.
DIMM Serial Presence Detect (SPD) configuration data	256 bytes per memory module, 128 bytes programmable (not customer accessible)	No	Yes	Stores memory module information.	DIMM SPD is programmed by the memory vendor.	Data cannot be written to this memory when the module is installed in a PC. The specific write-protection method varies by memory vendor.
System BIOS	4 to 5 MBytes	Yes	Yes	Store system BIOS code and PC configuration data.	System BIOS code is programmed at the factory. Code is updated when the system BIOS is updated. Configuration data and settings are input using the Computer Setup (BIOS) or a custom utility.	A utility is required for writing data to this memory and is available on the HP website; go to http://www.hp.com/support , and select your country. Select Drivers & Downloads , and then follow the on-screen instructions. NOTE: Writing data to this ROM in an inappropriate manner can render the PC non-functional.
Intel Management Engine Firmware (present in only)	1.5 MBytes or 5 MBytes	Yes	Yes	Stores Management Engine Code,	Management Engine Code is programmed at the factory. Code is updated via Intel	The Intel chipset is configured to enforce hardware protection to

Non Volatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write protected?
specific ZBook and EliteBook models. For more information, go to http://www.hp.com/support , and select your country. Select Drivers & Downloads , and then follow the on-screen instructions.)				Settings, Provisioning Data and iAMT third-party data store.	secure firmware update utility. Unique Provisioning Data can be entered at the factory or by an administrator using the Management Engine (MEBx) setup utility. The third party data store contents can be populated by a remote management console or local applications that have been registered by an administrator to have access to the space.	block all direct read/write access to this area. An Intel utility is required for updating the firmware. Only firmware updates digitally signed by Intel can be applied using this utility.
Bluetooth flash	2Mbit	No	Yes	Stores Bluetooth configuration and firmware.	Bluetooth flash is programmed at the factory. Tools for writing data to this memory are not publicly available but can be obtained from the silicon vendor.	A utility is required for writing data to this memory and is made available through newer versions of the driver whenever the flash requires an upgrade.
802.11 WLAN EEPROM	4 Kbit to 8 Kbit	No	Yes	Stores configuration and calibration data.	802.11 WLAN EEPROM is programmed at the factory. Tools for writing data to this memory are not made public.	A utility is required for writing data to this memory and is typically not made available to the public unless a firmware upgrade is necessary to address a unique issue.
Webcam	64K bit	No	Yes	Store webcam configuration and firmware.	Webcam memory is programmed using a utility from the device manufacturer that can be run from Windows.	A utility is required for writing data to this memory and is typically not made available to the public unless a firmware upgrade is necessary to address a unique issue.
Fingerprint Reader	512 KByte flash	Yes	Yes	Stores fingerprint templates.	Fingerprint reader memory is programmed by user enrollment in HP ProtectTools Security Manager.	Only a digitally signed application can make the call to write to the flash.

Questions and answers

1. How can the BIOS settings be restored (returned to factory settings)?

 **IMPORTANT:** Restore defaults does not securely erase any data on your hard drive. See question and answer 6 for steps to securely erase data.

Restore defaults does not reset the Customer Secure Boot key. See question and answer 7 for information about resetting the key.

- a. Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
- b. Select **Main**, and then select **Restore defaults**.

The Unified Extensible Firmware Interface (UEFI) BIOS is an industry-standard software interface between the platform firmware and an operating system (OS). It is a replacement for the older BIOS architecture, but supports much of the legacy BIOS functionality.

Like the legacy BIOS, the UEFI BIOS provides an interface to display the system information, configuration settings, and change the configuration of your computer before an OS is loaded. UEFI BIOS provides a secure run-time environment that supports a Graphic User Interface (GUI). In this environment, you can use either a pointing device (Touchscreen, TouchPad, pointing stick, or USB mouse) or the keyboard to navigate and make menu and configuration selections. The UEFI BIOS also contains basic system diagnostics.

The UEFI BIOS provides functionality beyond that of the legacy BIOS. In addition to the UEFI BIOS works to initialize the computer's hardware before loading and executing the OS, the run-time environment allows the loading and execution of software programs from storage devices to provide more functionality, such as advanced hardware diagnostics (with the ability to display more detailed system information) and advanced firmware management and recovery software.

- c. Follow the on-screen instructions.
The UEFI BIOS resides on a flash memory chip. A utility is required to write to the chip.
- d. Select **Main**, select **Save Changes and Exit**, and then follow the on-screen instructions.

2. What is a UEFI BIOS, and how is it different from a legacy BIOS?

3. Where does the UEFI BIOS reside?


4. What kind of configuration data is stored on the DIMM Serial Presence Detect (SPD) memory module? How would this data be written?

The DIMM SPD memory contains information about the memory module, such as size, serial number, data width, speed/timing, voltage, and thermal information. This information is written by the module manufacturer and stored on an EEPROM. This EEPROM cannot be written to when the memory module is installed in a PC. Third-party tools do exist that can write to the EEPROM when the memory module is not installed in a PC. Various third-party tools are available to read SPD memory.

5. What is meant by “Restore the nonvolatile memory found in Intel-based system boards”?

This message relates to clearing the Real Time Clock (RTC) CMOS memory that contains PC configuration data.

6. How can the BIOS security be reset to factory defaults and data erased?

 **IMPORTANT:** Resetting will result in the loss of information. These steps will not reset a Customer Secure Boot Key.

See question and answer 7 for information about resetting the key.

- a. Turn on or restart the computer, and then press **esc** while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
 - b. Select **Main**, and then select **Reset BIOS Security to Factory Default**.
 - c. Follow the on-screen instructions.
 - d. Select **Main**, select **Save Changes and Exit**, and then follow the on-screen instructions.
- 7. How can the Customer Secure Boot Key be reset?**

Secure Boot is a feature to ensure that only authenticated code can start on a platform. If you enabled Secure Boot and created a Customer Secure Boot Key, simply disabling Secure Boot will not clear the keys. You must also select to clear the Secure Boot Keys. Use the same procedure you used to create the Secure Boot Keys, but make the selection to clear or delete all Secure Boot Keys.

Using HP Sure Start (select models only)

Select computer models are configured with HP Sure Start, a technology that continuously monitors your computer's BIOS for attacks or corruption. If the BIOS becomes corrupted or is attacked, HP Sure Start restores the BIOS to its previously safe state, without user intervention. Those select computer models ship with HP Sure Start configured and enabled. HP Sure Start is configured and already enabled so that most users can use the HP Sure Start default configuration. The default configuration can be customized by advanced users.

To access the latest documentation on HP Sure Start, go to <http://www.hp.com/support>, and select your country. Select **Drivers & Downloads**, and then follow the on-screen instructions.

8 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 amps 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 all countries 113

Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	COC	5

Country/region	Accredited agency	Applicable note number
South Korea	EK	4
Sweden	CEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type H05VV-F, 3-conductor, 1.0-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 SPT-3 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) configuration.
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 VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) 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 certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 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.

9 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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