HP Chromebook (model numbers 14-x000 through 14-x099)

Maintenance and Service Guide
IMPORTANT! This document is intended for
HP authorized service providers only.

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).

Table of contents

1 Product description

Category	Description
Product Name	HP Chromebook (model numbers 14-x000 through 14-x099)
	HP Chromebook 14 PC and HP Chromebook 14 G3
Processor	Nvidia CD570M 2.10-GHz quad core processor system-on-chip (SoC) for use only on all computer models
Chipset	Integrated SoC processor controller hub (PCH) for use on all computer models
Graphics	**Internal Graphics**: NVIDIA® Kepler™ Architecture 192 NVIDIA CUDA® Cores for use on all computer models
	Support for HD decode, DX11, and HDMI
Panel	**TouchScreen models**
	• 14.0-in, full high-definition (FHD), white light-emitting diode (WLED), BrightView (1920×1080), slim (3.0 mm), SVA, TouchScreen solution with bezel, multitouch enabled, 270 nits typical brightness for use on all computer models
	14.0-in HD WLED AntiGlare (1366x768) flat (3.6mm) SVA for WWAN
	Non-TouchScreen models
	• 14.0-in, high-definition (HD), WLED, AntiGlare (1366×768), flat (3.6 mm), SVA, 200 nits typical brightness
	14.0-in FHD WLED Antiglare (1920x1080) slim (3.0mm) SVA 300 nits, eDP , non-Touch, non-WWAN,smoke silver ID only
	14.0-in HD WLED AntiGlare (1366x768) flat (3.6mm) SVA 220 nits, eDP, non-Touch only, bridge 220 nits into SA of 200 nits
	Touch solution with bezel, multitouch enabled
Memory	Supports DDR3L-1600MHz
	Supports up to 4096-MB maximum on-board system memory (4 pieces of 256-MB × 16 × 2) for use on all computer models
	Supports up to 2048-MB maximum on-board system memory (4 pieces of 256-MB × 16) for use on all computer models
Storage	Supports 16- and 32-GB embedded MultiMedia Controller (eMMC) for use on all computer models
Audio and video	HP TrueVision HD slim webcam, 1280×720 by 30 frames per second; fixed (no tilt), with activity LED
	Single digital microphone with appropriate echo-cancellation, noise-suppression software
	Two speakers
	HD audio
	For use on all computer models
Sensors	Trusted platform module (TPM) for use on all computer models
Wireless	Integrated wireless local area network (WLAN) options by way of wireless module
	Two built-in WLAN antennas

Category	Description
	Supports a Marvell 88W8897 802.11ac 2×2 Wi-Fi + Bluetooth 4.0 Combo Adapter
	For use on all computer models
	Integrated wireless wide area network (WWAN) options by way of wireless module
	Two built-in WWAN antennas
	SIM card slot for security (user-accessible)
	Support for the following WWAN modules:
	• ME936 HP LT4110 LTE/HPSA+ G4 for use on all computer models
	For use on all computer models
External media cards	HP 2-in-1 multiformat Digital Media Reader Slot with push-push technology. Reads data from and writes data to digital memory cards such as Secure Digital (SD™).
	For use on all computer models
Ports	• AC adapter, HP Smart
	• Audio-in (mono microphone)/audio-out (stereo headphone) combo jack
	• HDMI v1.4 supporting up to 1920×1080 @ 60Hz
Ports *(continued)*	• RJ-45 (Ethernet)
	• USB: one USB 3.0 port, 2 USB 2.0 ports
	For use on all computer models
Keyboard/pointing devices	Full-sized, textured, island-style, Google keyboard Jack black for use only on HP Chromebook 14 G3
	Full-sized, textured, island-style, Google keyboard white for use only on HP Chromebook 14 PC
	Touchpad requirements:
	Multitouch gestures enabled
	Taps enabled as default
Power requirements	Support for a 3-cell, 37-WHr battery
	Support for a 65-W, EM or 45-W AC adapter with a 1.0-M power cord
	For use only on all computer models
Operating system	**Preinstalled:** Google Chrome operating system for use only on all computer models
Serviceability	**End user replaceable parts:** AC adapter for use only on all computer models

2 External component identification

Display
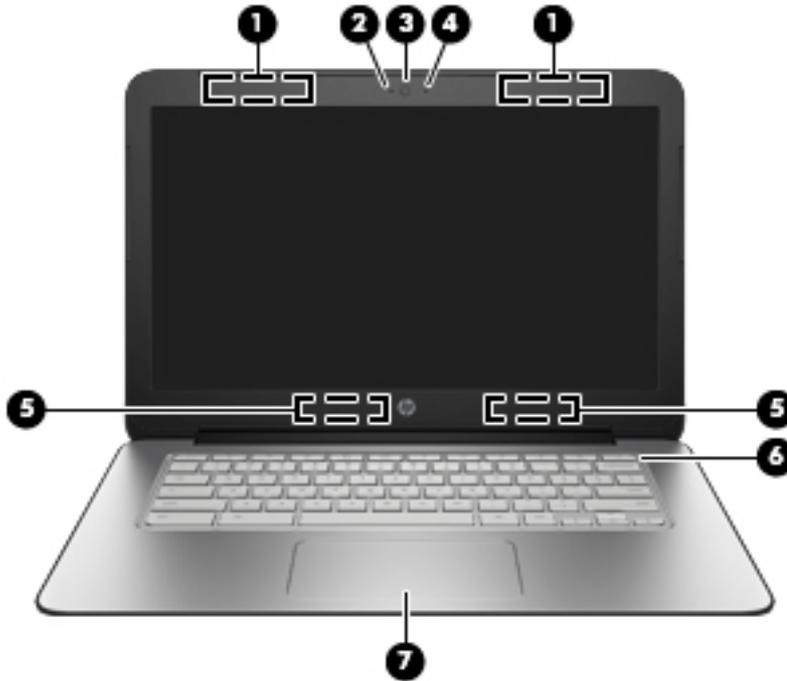
Item	Description	Item	Description
(1)	WWAN antennas (2)*	**(5)**	WLAN antennas (2)*
(2)	Internal microphone	**(6)**	Power button
(3)	HP TrueVision HD Webcam	**(7)**	TouchPad
(4)	Webcam light		

* The position of the WLAN antennas differs, depending on model. Antennas are not visible on the exterior of the device.

Left side
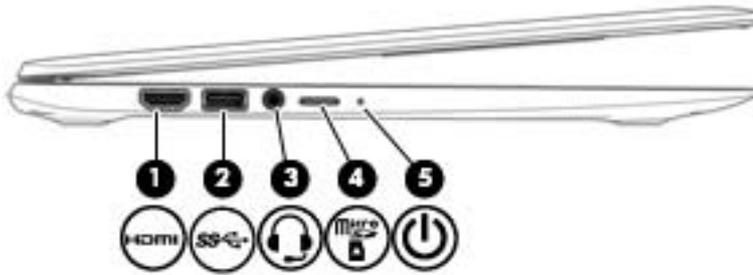
Item	Description	Item	Description
(1)	HDMI port	**(4)**	Media card reader
(2)	USB port	**(5)**	Power light
(3)	Audio-out (headphone)/Audio-in (microphone) jack		

Right side
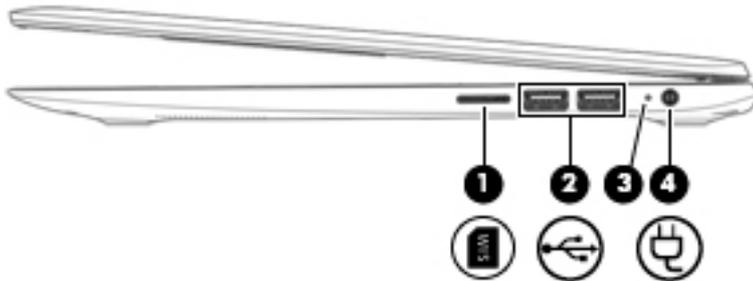
Item	Description	Item	Description
(1)	SIM card reader*	**(3)**	AC adapter/Battery light
(2)	USB port	**(4)**	Power connector (select models only)

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 service tag information

The product name **(1)**, serial number **(2)**, product number **(3)**, warranty information **(4)**, and model number **(5)** are located on the bottom of the computer. This information may be needed when travelling internationally or contacting support.
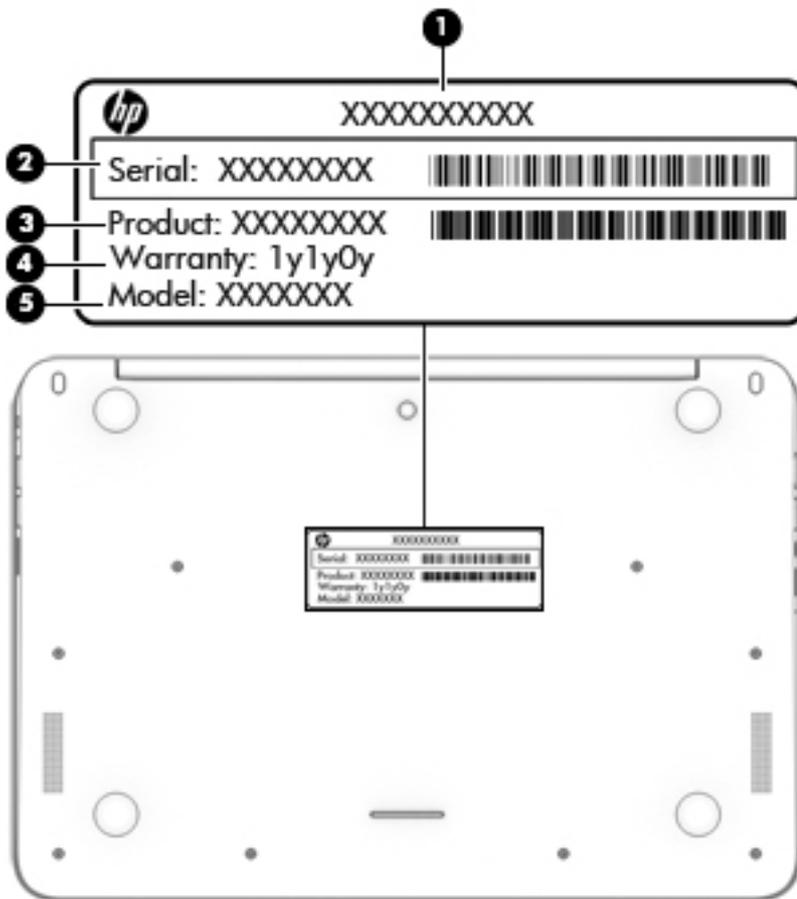
Computer major components
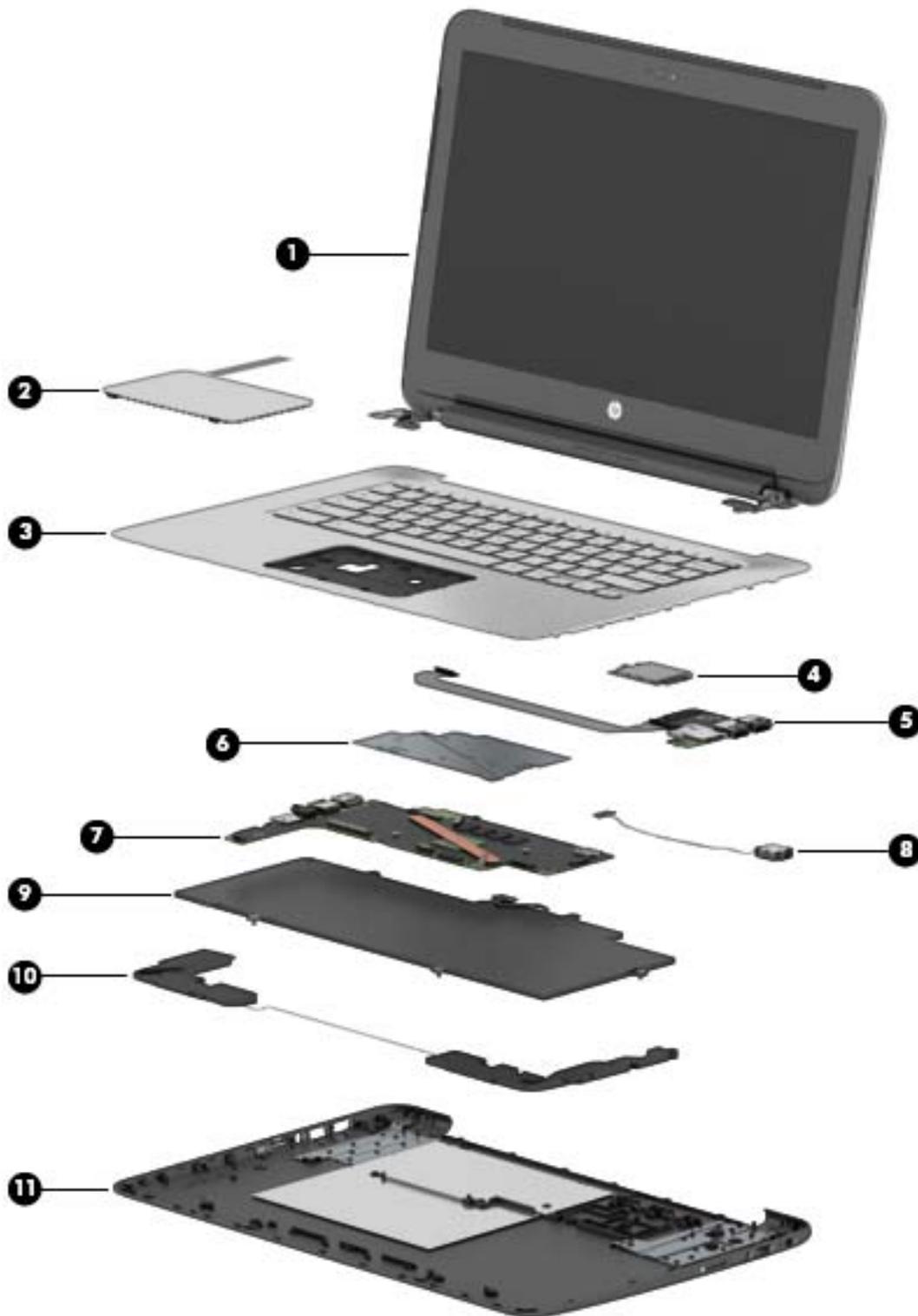
Item	Component	Spare part number
(1)	**Display assembly**: The display assembly is spared at the subcomponent level only. For display assembly spare part information, see Display assembly subcomponents on page 10.	
(2)	**TouchPad** for use on all computer models (includes cable)	787716-001
(3)	**Keyboard/top cover** (includes keyboard cable):	
	In neon green finish:	
	For use in Belgium for use only on HP Chromebook 14 PC	787734-A41
	For use in Canada for use only on HP Chromebook 14 PC	787734-DB1
	For use in Denmark, Finland, and Norway for use only on HP Chromebook 14 PC	787734-DH1
	For use in France for use only on HP Chromebook 14 PC	787734-051
	For use in Germany for use only on HP Chromebook 14 PC	787734-041
	For use in Italy for use only on HP Chromebook 14 PC	787734-061
	For use in the Netherlands for use only on HP Chromebook 14 PC	787734-B31
	For use in Russia for use only on HP Chromebook 14 PC	787734-251
	For use in Spain for use only on HP Chromebook 14 PC	787734-071
	For use in Switzerland for use only on HP Chromebook 14 PC	787734-BG1
	For use in the United Kingdom and Singapore for use only on HP Chromebook 14 PC	787734-031
	For use in the United States for use only on HP Chromebook 14 PC	787734-001
	In ocean turquoise finish:	
	For use in Belgium for use only on HP Chromebook 14 PC	787732-A41
	For use in Canada for use only on HP Chromebook 14 PC	787732-DB1
	For use in Denmark, Finland, and Norway for use only on HP Chromebook 14 PC	787732-DH1
	For use in France for use only on HP Chromebook 14 PC	787732-051
	For use in Germany for use only on HP Chromebook 14 PC	787732-041
	For use in Italy for use only on HP Chromebook 14 PC	787732-061
	For use in the Netherlands for use only on HP Chromebook 14 PC	787732-B31
	For use in Russia for use only on HP Chromebook 14 PC	787732-251
	For use in Spain for use only on HP Chromebook 14 PC	787732-071
	For use in Switzerland for use only on HP Chromebook 14 PC	787732-BG1
	For use in the United Kingdom and Singapore for use only on HP Chromebook 14 PC	787732-031
	For use in the United States for use only on HP Chromebook 14 PC	787732-001
	In smoke silver finish:	
	For use in Belgium for use only on HP Chromebook 14 PC	787735-A41
	For use in Canada for use only on HP Chromebook 14 PC	787735-DB1
	For use in Denmark, Finland, and Norway for use only on HP Chromebook 14 PC	787735-DH1

Item	Component	Spare part number
	For use in France for use only on HP Chromebook 14 PC	787735-051
	For use in Germany for use only on HP Chromebook 14 PC	787735-041
	For use in Italy for use only on HP Chromebook 14 PC	787735-061
	For use in the Netherlands for use only on HP Chromebook 14 PC	787735-B31
	For use in Russia for use only on HP Chromebook 14 PC	787735-251
	For use in Spain for use only on HP Chromebook 14 PC	787735-071
	For use in Switzerland for use only on HP Chromebook 14 PC	787735-BG1
	For use in the United Kingdom and Singapore for use only on HP Chromebook 14 PC	787735-031
	For use in the United States for use only on HP Chromebook 14 PC	787735-001
	In sorbet orange finish:	
	For use in Belgium for use only on HP Chromebook 14 PC	787733-A41
	For use in Canada for use only on HP Chromebook 14 PC	787733-DB1
	For use in Denmark, Finland, and Norway for use only on HP Chromebook 14 PC	787733-DH1
	For use in France for use only on HP Chromebook 14 PC	787733-051
	For use in Germany for use only on HP Chromebook 14 PC	787733-041
	For use in Italy for use only on HP Chromebook 14 PC	787733-061
	For use in the Netherlands for use only on HP Chromebook 14 PC	787733-B31
	For use in Russia for use only on HP Chromebook 14 PC	787733-251
	For use in Spain for use only on HP Chromebook 14 PC	787733-071
	For use in Switzerland for use only on HP Chromebook 14 PC	787733-BG1
	For use in the United Kingdom and Singapore for use only on HP Chromebook 14 PC	787733-031
	For use in the United States for use only on HP Chromebook 14 PC	787733-001
	In Jack black finish	
	For use in the United States for use only on HP Chromebook 14 G3	788511-001
	For use in the United Kingdom for use only on HP Chromebook 14 G3	788511-031
	For use in Germany for use only on HP Chromebook 14 G3	788511-041
	For use in France for use only on HP Chromebook 14 G3	788511-051
	For use in Italy for use only on HP Chromebook 14 G3	788511-061
	For use in the Spain for use only on HP Chromebook 14 G3	788511-071
	For use in Latin America for use only on HP Chromebook 14 G3	788511-161
	For use in Russia for use only on HP Chromebook 14 G3	788511-251
	For use in Thailand for use only on HP Chromebook 14 G3	788511-281
	For use in Japan for use only on HP Chromebook 14 G3	788511-291
	For use in Belgium for use only on HP Chromebook 14 G3	788511-A41

Item	Component	Spare part number
	For use in the Netherlands for use only on HP Chromebook 14 G3	788511-B31
	For use Switzerland for use only on HP Chromebook 14 G3	788511-BG1
	For use Canada for use only on HP Chromebook 14 G3	788511-DB1
	For use in Denmark, Finland, and Norway for use only on HP Chromebook 14 G3	788511-DH1
(4)	**WWAN module:**	
	MME936 HP LT4110 LTE/HPSA+ G4 for use on all computer models	755529-001
(5)	**Connector board** (includes cable and double-sided adhesive):	
	For use only on computer models equipped with WWAN capability (includes SD Card Reader slot and SIM slot) for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3	787715-001
	For use only on computer models not equipped with WWAN capability (includes SD Card Reader slot) for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3	787714-001
(6)	**Heat sink** for use on all computer models (includes grounding tape and replacement thermal material)	787711-001
(7)	**System board** equipped with an Nvidia CD570M 2.10-GHz quad core processor and a graphics subsystem with UMA memory (includes replacement thermal material)	
	Equipped with 4.0-GB of system memory and 32-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability for use on all computer models	787727-001
	Equipped with 4.0-GB of system memory and 16-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability for use on all computer models	787726-001
	Equipped with 2.0-GB of system memory and 32-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability for use on all computer models	787725-001
	Equipped with 2.0-GB of system memory and 16-GB of eMMC primary storage for use only on computer models equipped with WWAN capability for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3	787728-001
	Equipped with 2.0-GB of system memory and 16-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3	787724-001
(8)	**Power connector cable** for use on all computer models	790635-001
(9)	**Battery** for use on all computer models, 3-cell, 37-WHr, 2.96-AHr, Li-ion (includes cable)	774159-001
(10)	**Speakers** for use on all computer models (includes left and right speakers and cables)	787723-001
(11)	**Base enclosure:**	
	In neon green finish for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC	787703-001
	In ocean turquoise finish for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC	787701-001
	In neon smoke silver for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC	787704-001
	In sorbet orange finish for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC	787702-001
	In neon green finish for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC	787699-001

| Item	Component	Spare part number
	In ocean turquoise finish for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC	787697-001
	In neon smoke silver for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC	787700-001
	In sorbet orange finish for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC	787698-001
	Rubber Kit for use only on HP Chromebook 14 PC (not illustrated, includes 2 display bezel screw covers, 4 rubber feet, and 3 rubber screw covers)	787721-001
	Rubber Kit for use only on HP Chromebook 14 G3 (not illustrated, includes 2 display bezel screw covers, 4 rubber feet, and 3 rubber screw covers)	788510-001

Display assembly subcomponents

TouchScreen display assembly components

Item	Description	Spare part number
(1)	**Display panel assembly** (14.0-in, BrightView [1920×1080], FHD, WLED, slim [3.0 mm], SVA; includes bezel, display panel cable, and TouchScreen cable):	
	In neon green finish for use only on HP Chromebook 14 PC	787719-001
	In ocean turquoise finish for use only on HP Chromebook 14 PC	787717-001
	In smoke silver finish for use only on HP Chromebook 14 PC	787720-001
	In sorbet orange finish for use only on HP Chromebook 14 PC	787718-001
(2)	**Webcam/microphone module** for use on all computer models (includes double-sided adhesive)	787736-001
(3)	**Display Hinge Kit** for use on all computer models	787713-001

Item	Description	Spare part number
(4)	**Display panel cable** for use on all computer models (includes webcamera/microphone module cable)	787710-001
(6)	**Display enclosure** (includes wireless antenna cables and transceivers)	
	In neon green finish for use only on HP Chromebook 14 PC	787695-001
	In ocean turquoise finish for use only on HP Chromebook 14 PC	787693-001
	In smoke silver finish for use only on HP Chromebook 14 PC	787696-001
	In sorbet orange finish for use only on HP Chromebook 14 PC	787694-001

Non-TouchScreen display assembly components
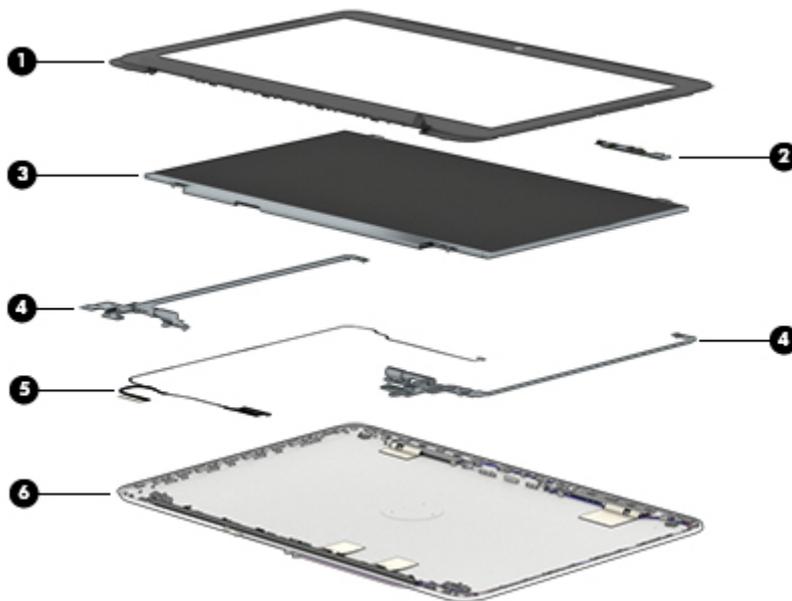
Item	Description	Spare part number
(1)	**Display bezel:**	
	In neon green finish for use only on HP Chromebook 14 PC	787707-001
	In ocean turquoise finish for use only on HP Chromebook 14 PC	787705-001
	In smoke silver finish for use only on HP Chromebook 14 PC	787708-001
	In sorbet orange finish for use only on HP Chromebook 14 PC	787706-001
	In smoke silver for use only on HP Chromebook 14 PC	787708-001
	Jack black for use only on HP Chromebook 14 G3	788507-001
(2)	**Webcam/microphone module** for use only on HP Chromebook 14 PC (includes double-sided adhesive)	787736-001
(3)	**Display panel:**	
	14.0-in, AG, FLT, HD display panel for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC	794316-001

Item	Description	Spare part number
	14.0-in, AG, FHD, slim, display panel for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC	794314-001
	14.0-in, AG, FLT, HD display panel for use only on computer models not equipped with WWAN capability for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3	788509-001
	14.0-in FHD WLED BrightView (1920x1080) slim (3.0mm) SVA for use only on HP Chromebook 14 G3	788508-001
(4)	**Display Hinge Kit** for use on all computer models	787712-001
(5)	**Display panel cable** for use on all computer models (includes webcamera/microphone module cable)	787709-001
(6)	**Display enclosure** (includes wireless antenna cables and transceivers)	
	In neon green finish for use only on HP Chromebook 14 PC	787691-001
	In ocean turquoise finish for use only on HP Chromebook 14 PC	787689-001
	In smoke silver finish for use only on HP Chromebook 14 PC	787692-001
	In sorbet orange finish for use only on HP Chromebook 14 PC	787690-001
	In Jack black non-TouchScreen for use only on HP Chromebook 14 G3	788505-001
	In Jack black TouchScreen for use only on HP Chromebook 14 G3	788506-001
	In Jack black for use only on HP Chromebook 14 G3	788503-001
	In Jack black for use only on HP Chromebook 14 G3 WWAN	788504-001

Miscellaneous parts

Component	Spare part number
AC adapter	
65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm) for use on all computer models	714657-001
45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm) for use on all computer models	741727-001
Power cord (3-pin, 1.0-meter, black):	
For use in Australia for use on all computer models	755530-011
For use in Denmark for use on all computer models	755530-081
For use in Europe for use on all computer models	755530-021
For use in India for use on all computer models	755530-D61
For use in North America for use on all computer models	755530-001
For use in Switzerland for use on all computer models	755530-111
For use in the United Kingdom and Singapore for use on all computer models	755530-031
For use in Italy for use only on HP Chromebook 14 G3	755530-061
For use in Japan for use only on HP Chromebook 14 G3	755530-291

Component	Spare part number
Rubber Kit for use only on HP Chromebook 14 PC (includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers)	787721-001
Rubber Kit for use only on HP Chromebook 14 G3 (includes 2 display bezel screw covers, 4 rubber feet, and 2 rubber screw covers)	788510-001
Screw Kit for use on all computer models	787722-001

Sequential part number listing

Spare part number	Description
714657-001	65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm) for use on all computer models
741727-001	45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm) for use on all computer models
755529-001	HP lt4110 LTE/HSPA+ 4G Module for use on all computer models
755530-001	Power cord for use in North America (3-pin, 1.0-meter, black) for use on all computer models
755530-011	Power cord for use in Australia (3-pin, 1.0-meter, black) for use only on HP Chromebook 14 G3
755530-021	Power cord for use in Europe (3-pin, 1.0-meter, black) for use only on HP Chromebook 14 G3
755530-031	Power cord for use in the United Kingdom and Singapore (3-pin, 1.0-meter, black) for use only on HP Chromebook 14 G3
755530-081	Power cord for use in Denmark (3-pin, 1.0-meter, black) for use only on HP Chromebook 14 G3
755530-111	Power cord for use in Switzerland (3-pin, 1.0-meter, black) for use only on HP Chromebook 14 G3
755530-291	Power cord for use in Japan (3-pin, 1.0-meter, black) for use only on HP Chromebook 14 G3
755530-D61	Power cord for use in India (3-pin, 1.0-meter, black) for use only on HP Chromebook 14 G3
774159-001	Battery (3-cell, 37-WHr, 2.96-AHr, Li-ion; includes cable) for use on all computer models
787689-001	Display enclosure in ocean turquoise finish for use only on computer models equipped with a non-TouchScreen display (includes wireless antenna cables and transceivers) for use only on HP Chromebook 14 PC
787690-001	Display enclosure in sorbet orange finish for use only on computer models equipped with a non-TouchScreen display (includes wireless antenna cables and transceivers) for use only on HP Chromebook 14 PC
787691-001	Display enclosure in neon green finish for use only on computer models equipped with a non-TouchScreen display (includes wireless antenna cables and transceivers) for use only on HP Chromebook 14 PC
787692-001	Display enclosure in smoke silver finish for use only on computer models equipped with a non-TouchScreen display (includes wireless antenna cables and transceivers) for use only on HP Chromebook 14 PC
787693-001	Display enclosure in ocean turquoise finish for use only on computer models equipped with a TouchScreen display (includes wireless antenna cables and transceivers) for use only on HP Chromebook 14 PC
787694-001	Display enclosure in sorbet orange finish for use only on computer models equipped with a TouchScreen display (includes wireless antenna cables and transceivers) for use only on HP Chromebook 14 PC
787695-001	Display enclosure in neon green finish for use only on computer models equipped with a TouchScreen display (includes wireless antenna cables and transceivers) for use only on HP Chromebook 14 PC
787696-001	Display enclosure in smoke finish for use only on computer models equipped with a TouchScreen display (includes wireless antenna cables and transceivers) for use only on HP Chromebook 14 PC
787697-001	Base enclosure in ocean turquoise finish for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC
787698-001	Base enclosure in sorbet orange finish for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC
787699-001	Base enclosure in neon green finish for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC

Spare part number	Description
787700-001	Base enclosure in smoke finish for use only on computer models not equipped with WWAN capability for use only on HP Chromebook 14 PC
787701-001	Base enclosure in ocean turquoise finish for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC
787702-001	Base enclosure in sorbet orange finish for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC
787703-001	Base enclosure in neon green finish for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC
787704-001	Base enclosure in smoke finish for use only on computer models equipped with WWAN capability for use only on HP Chromebook 14 PC
787705-001	Display bezel in ocean turquoise finish (for use only on computer models equipped with a non-TouchScreen display) for use only on HP Chromebook 14 PC
787706-001	Display bezel in sorbet orange finish for (use only on computer models equipped with a non-TouchScreen display) for use only on HP Chromebook 14 PC
787707-001	Display bezel in neon green finish (for use only on computer models equipped with a non-TouchScreen display) for use only on HP Chromebook 14 PC
787708-001	Display bezel in smoke silver finish (for use only on computer models equipped with a non-TouchScreen display) for use only on HP Chromebook 14 PC
787709-001	Display panel cable for use only on computer models equipped with a non-TouchScreen display (includes webcamera/microphone module cable) for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
787710-001	Display panel cable for use only on computer models equipped with a TouchScreen display (includes TouchScreen cable and webcamera/microphone module cable) for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
787711-001	Heat sink (includes grounding tape and replacement thermal material) for use on all computer models
787712-001	Display Hinge Kit for use only on computer models equipped with a non-TouchScreen display for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
787713-001	Display Hinge Kit for use only on computer models equipped with a TouchScreen display for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
787714-001	Connector board for use only on computer models not equipped with WWAN capability (includes cable, SD Card Reader slot, and double-sided adhesive) for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
787715-001	Connector board for use only on computer models equipped with WWAN capability (includes cable, SD Card Reader slot, SIM slot, and double-sided adhesive) for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
787716-001	TouchPad (includes cable) for use on all computer models
787717-001	14.0-in, BrightView [1920×1080], FHD, WLED, slim [3.0 mm], SVA TouchScreen display panel in ocean turquoise finish (includes display panel cable, display TouchScreen cable, and wireless antenna cables) for use only on HP Chromebook 14 PC
787718-001	14.0-in, BrightView [1920×1080], FHD, WLED, slim [3.0 mm], SVA TouchScreen display panel in sorbet orange finish (includes display panel cable, display TouchScreen cable, and wireless antenna cables) for use only on HP Chromebook 14 PC
787719-001	14.0-in, BrightView [1920×1080], FHD, WLED, slim [3.0 mm], SVA TouchScreen display panel in neon green finish (includes display panel cable, display TouchScreen cable, and wireless antenna cables)

Spare part number	Description
787720-001	14.0-in, BrightView [1920×1080], FHD, WLED, slim [3.0 mm], SVA TouchScreen display panel in smoke silver finish (includes display panel cable, display TouchScreen cable, and wireless antenna cables) for use only on HP Chromebook 14 PC
787721-001	Rubber Kit for use only on HP Chromebook 14 PC
787722-001	Screw Kit for use on all computer models
787723-001	Speaker Kit for use on all computer models
787724-001	System board equipped with an Nvidia CD570M 2.10-GHz quad core processor, a graphics subsystem with UMA memory, 2.0-GB of system memory, and 16-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability (includes replacement thermal material) for use on all computer models
787725-001	System board equipped with an Nvidia CD570M 2.10-GHz quad core processor, a graphics subsystem with UMA memory, 2.0-GB of system memory, and 32-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability (includes replacement thermal material) for use on all computer models
787726-001	System board equipped with an Nvidia CD570M 2.10-GHz quad core processor, a graphics subsystem with UMA memory, 4.0-GB of system memory, and 16-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability (includes replacement thermal material) for use on all computer models
787727-001	System board equipped with an Nvidia CD570M 2.10-GHz quad core processor, a graphics subsystem with UMA memory, 4.0-GB of system memory, and 32-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability (includes replacement thermal material) for use on all computer models
787732-001	Keyboard/top cover in ocean turquoise finish for use in the United States (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-031	Keyboard/top cover in ocean turquoise finish for use in the United Kingdom and Singapore (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-041	Keyboard/top cover in ocean turquoise finish for use in France (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-051	Keyboard/top cover in ocean turquoise finish for use in Germany (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-061	Keyboard/top cover in ocean turquoise finish for use in Italy (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-071	Keyboard/top cover in ocean turquoise finish for use in Spain (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-251	Keyboard/top cover in ocean turquoise finish for use in Russia (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-A41	Keyboard/top cover in ocean turquoise finish for use in Belgium (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-B31	Keyboard/top cover in ocean turquoise finish for use in the Netherlands (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-BG1	Keyboard/top cover in ocean turquoise finish for use in Switzerland (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-DB1	Keyboard/top cover in ocean turquoise finish for use in Canada (includes keyboard cable) for use only on HP Chromebook 14 PC
787732-DH1	Keyboard/top cover in ocean turquoise finish for use in Denmark, Finland, and Norway (includes keyboard cable) for use only on HP Chromebook 14 PC

Spare part number	Description
787733-001	Keyboard/top cover in neon green finish for use in the United States (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-031	Keyboard/top cover in neon green finish for use in the United Kingdom and Singapore (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-041	Keyboard/top cover in neon green finish for use in France (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-051	Keyboard/top cover in neon green finish for use in Germany (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-061	Keyboard/top cover in neon green finish for use in Italy (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-071	Keyboard/top cover in neon green finish for use in Spain (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-251	Keyboard/top cover in neon green finish for use in Russia (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-A41	Keyboard/top cover in neon green finish for use in Belgium (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-B31	Keyboard/top cover in neon green finish for use in the Netherlands (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-BG1	Keyboard/top cover in neon green finish for use in Switzerland (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-DB1	Keyboard/top cover in neon green finish for use in Canada (includes keyboard cable) for use only on HP Chromebook 14 PC
787733-DH1	Keyboard/top cover in neon green finish for use in Denmark, Finland, and Norway (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-001	Keyboard/top cover in sorbet orange finish for use in the United States (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-031	Keyboard/top cover in sorbet orange finish for use in the United Kingdom and Singapore (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-041	Keyboard/top cover in sorbet orange finish for use in France (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-051	Keyboard/top cover in sorbet orange finish for use in Germany (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-061	Keyboard/top cover in sorbet orange finish for use in Italy (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-071	Keyboard/top cover in sorbet orange finish for use in Spain (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-251	Keyboard/top cover in sorbet orange finish for use in Russia (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-A41	Keyboard/top cover in sorbet orange finish for use in Belgium (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-B31	Keyboard/top cover in sorbet orange finish for use in the Netherlands (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-BG1	Keyboard/top cover in sorbet orange finish for use in Switzerland (includes keyboard cable) for use only on HP Chromebook 14 PC

Spare part number	Description
787734-DB1	Keyboard/top cover in sorbet orange finish for use in Canada (includes keyboard cable) for use only on HP Chromebook 14 PC
787734-DH1	Keyboard/top cover in sorbet orange finish for use in Denmark, Finland, and Norway (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-001	Keyboard/top cover in smoke silver finish for use in the United States (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-031	Keyboard/top cover in smoke silver finish for use in the United Kingdom and Singapore (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-041	Keyboard/top cover in smoke silver finish for use in France (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-051	Keyboard/top cover in smoke silver finish for use in Germany (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-061	Keyboard/top cover in smoke silver finish for use in Italy (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-071	Keyboard/top cover in smoke silver finish for use in Spain (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-251	Keyboard/top cover in smoke silver finish for use in Russia (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-A41	Keyboard/top cover in smoke silver finish for use in Belgium (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-B31	Keyboard/top cover in smoke silver finish for use in the Netherlands (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-BG1	Keyboard/top cover in smoke silver finish for use in Switzerland (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-DB1	Keyboard/top cover in smoke silver finish for use in Canada (includes keyboard cable) for use only on HP Chromebook 14 PC
787735-DH1	Keyboard/top cover in smoke silver finish for use in Denmark, Finland, and Norway (includes keyboard cable) for use only on HP Chromebook 14 PC
787736-001	Webcam/microphone module (includes double-sided adhesive) for use on all computer models
788503-001	Display enclosure in Jack black for use only on HP Chromebook 14 G3
788504-001	Display enclosure in Jack black for use only on HP Chromebook 14 G3 WWAN
788505-001	Display enclosure in Jack black non-TouchScreen for use only on HP Chromebook 14 G3
788506-001	Display enclosure in Jack black TouchScreen for use only on HP Chromebook 14 G3
788507-001	Display bezel in ack black for use only on HP Chromebook 14 G3
788508-001	Display panel 14.0-in FHD WLED BrightView (1920x1080) slim (3.0mm) SVA for use only on HP Chromebook 14 G3
788509-001	Display panel 14.0-in, AG, FLT, HD display panel for use only on computer models equipped with a non-TouchScreen display assembly without WWAN capability for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
788510-001	Rubber Kit (not illustrated, includes 2 display bezel screw covers, 4 rubber feet, and 3 rubber screw covers) for use only on HP Chromebook 14 G3
788511-001	Keyboard/top cover in Jack black finish for use in the United States for use only on HP Chromebook 14 G3

Spare part number	Description
788511-031	Keyboard/top cover in Jack black finish for use in the United Kingdom for use only on HP Chromebook 14 G3
788511-041	Keyboard/top cover in Jack black finish for use in Germany for use only on HP Chromebook 14 G3
788511-051	Keyboard/top cover in Jack black finish for use in France for use only on HP Chromebook 14 G3
788511-071	Keyboard/top cover in Jack black finish for use in Spain for use only on HP Chromebook 14 G3
788511-161	Keyboard/top cover in Jack black finish for use in Latin America for use only on HP Chromebook 14 G3
788511-251	Keyboard/top cover in Jack black finish for use in Russia for use only on HP Chromebook 14 G3
788511-281	Keyboard/top cover in Jack black finish for use in Thailand for use only on HP Chromebook 14 G3
788511-291	Keyboard/top cover in Jack black finish for use in Japan for use only on HP Chromebook 14 G3
788511-A41	Keyboard/top cover in Jack black finish for use in Belgium for use only on HP Chromebook 14 G3
788511-B31	Keyboard/top cover in Jack black finish for use in the Netherland for use only on HP Chromebook 14 G3
788511-BG1	Keyboard/top cover in Jack black finish for use in Switzerland for use only on HP Chromebook 14 G3
788511-DH1	Keyboard/top cover in Jack black finish for use in Denmark, Finland, and Norway for use only on HP Chromebook 14 G3
790635-001	Power connector cable for use on all computer models
794314-001	14.0-in, AG, FHD, slim, display panel for use only on computer models equipped with a non-TouchScreen display assembly without WWAN capability for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
794316-001	14.0-in, AG, FLT, HD display panel for use only on computer models equipped with a non-TouchScreen display assembly with WWAN capability for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3

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			
	Relative humidity		
Event	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 ±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 58 screws that must be removed, replaced, and/or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Keyboard/top cover

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

Description	Spare part number	Description	Spare part number
Keyboard/top cover in neon green finish with white keys for use only on HP Chromebook 14 PC:			
For use in Belgium	787734-A41	For use in the Netherlands	787734-B31
For use in Canada	787734-DB1	For use in Russia	787734-251
For use in Denmark, Finland, and Norway	787734-DH1	For use in Spain	787734-071
For use in France	787734-051	For use in Switzerland	787734-BG1
For use in Germany	787734-041	For use in the United Kingdom and Singapore	787734-031
For use in Italy	787734-061	For use in the United States	787734-001
Keyboard/top cover in ocean turquoise finish with white keys for use only on HP Chromebook 14 PC:			
For use in Belgium	787732-A41	For use in the Netherlands	787732-B31
For use in Canada	787732-DB1	For use in Russia	787732-251
For use in Denmark, Finland, and Norway	787732-DH1	For use in Spain	787732-071
For use in France	787732-051	For use in Switzerland	787732-BG1
For use in Germany	787732-041	For use in the United Kingdom and Singapore	787732-031
For use in Italy	787732-061	For use in the United States	787732-001
Keyboard/top cover in smoke silver finish with white keys for use only on HP Chromebook 14 PC:			
For use in Belgium	787735-A41	For use in the Netherlands	787735-B31
For use in Canada	787735-DB1	For use in Russia	787735-251

Description	Spare part number	Description	Spare part number
For use in Denmark, Finland, and Norway	787735-DH1	For use in Spain	787735-071
For use in France	787735-051	For use in Switzerland	787735-BG1
For use in Germany	787735-041	For use in the United Kingdom and Singapore	787735-031
For use in Italy	787735-061	For use in the United States	787735-001
Keyboard/top cover in sorbet orange finish with white keys for use only on HP Chromebook 14 PC:			
For use in Belgium	787733-A41	For use in the Netherlands	787733-B31
For use in Canada	787733-DB1	For use in Russia	787733-251
For use in Denmark, Finland, and Norway	787733-DH1	For use in Spain	787733-071
For use in France	787733-051	For use in Switzerland	787733-BG1
For use in Germany	787733-041	For use in the United Kingdom and Singapore	787733-031
For use in Italy	787733-061	For use in the United States	787733-001
Keyboard/top cover in Jack black finish for use only on HP Chromebook 14 G3			
For use in Belgium	788511-A41	For use in the Netherlands	788511-B31
For use in Canada	788511-DB1	For use in Russia	788511-251
For use in Denmark, Finland, and Norway	788511-DH1	For use in Spain	788511-071
For use in France	788511-051	For use in Switzerland	788511-BG1
For use in Germany	788511-041	For use in the United Kingdom and Singapore	788511-031
For use in Italy	788511-061	For use in the United States	788511-001
For use in Latin America	788511-161	For use in Thailand	788511-281
For use in Japan	788511-291		

Before removing the disassembling the computer, 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.

NOTE: When replacing the keyboard/top cover, be sure that the heat sink (see Heat sink on page 37) and TouchPad (see TouchPad on page 29) are removed from the defective keyboard/top cover and installed on the replacement keyboard/top cover.

Remove the keyboard/top cover:

1. Close the computer.

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

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

4. Remove the two rear rubber feet **(2).**

5. Remove the middle rubber screw cover **(3).**

    📝 **NOTE:**   The display bezel screw covers are included in the Rubber Kit, spare part number 787721-001 for use only on HP Chromebook 14 PC, and 788510-001 for use only on HP Chromebook 14 G3.
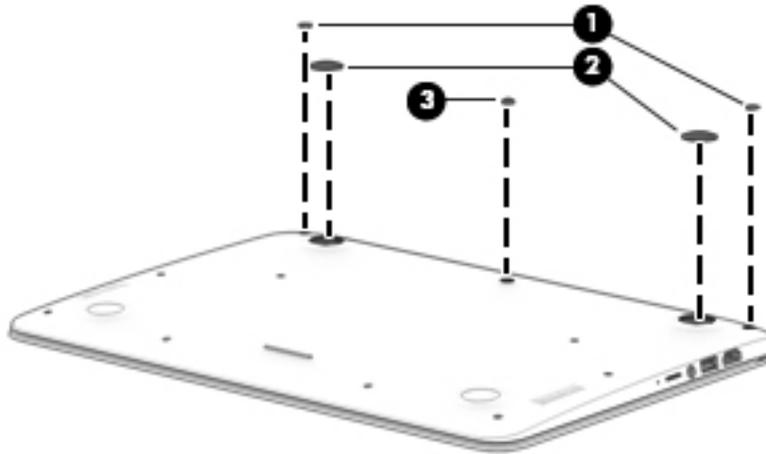
6. Remove the thirteen Phillips PM1.9×5.7 screws that secure the keyboard/top cover to the base enclosure.
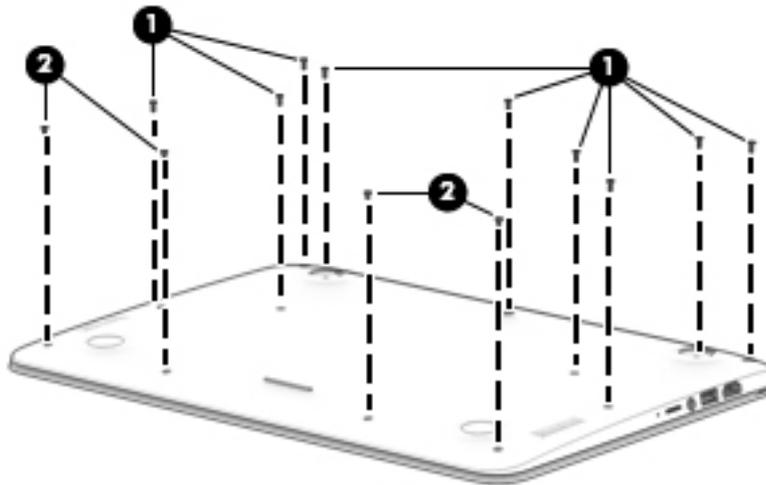
7. Turn the computer right side up with the front toward you.

8. Open the computer as far as it will open.

9. Lift the front edge **(1)** of the keyboard/top cover until it separates from the front edge of the base enclosure.

10. 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.

11. Disconnect the battery cable **(3)** from the system board.

12. Release the zero insertion force (ZIF) connector **(4)** to which the keyboard cable is attached, and then disconnect the keyboard cable from the system board.

13. Release the ZIF connector **(5)** to which the TouchPad cable is attached, and then disconnect the TouchPadd cable from the system board.

14. Remove keyboard/top cover **(6)** by sliding it forward.

Reverse this procedure to install the keyboard/top cover.

TouchPad

| Description	Spare part number
TouchPad (includes TouchPad cable) for use on all computer models	787716-001

Before removing the TouchPad, 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. Detach the TouchPad cable **(1)** from the keyboard/top cover. (The TouchPad cable is attached to the keyboard/top cover with double-sided adhesive.)

3. Remove the two Phillips PM1.9×2.4 broad head screws **(2)** that secure the TouchPad to the keyboard/top cover.

4. Detach the two pieces of grounding tape **(3)** that secure the TouchPad to the keyboard/top cover.

5. Release the TouchPad **(4)** by pressing it through the opening in the keyboard/top cover.

6. Remove the TouchPad **(5)** and cable.
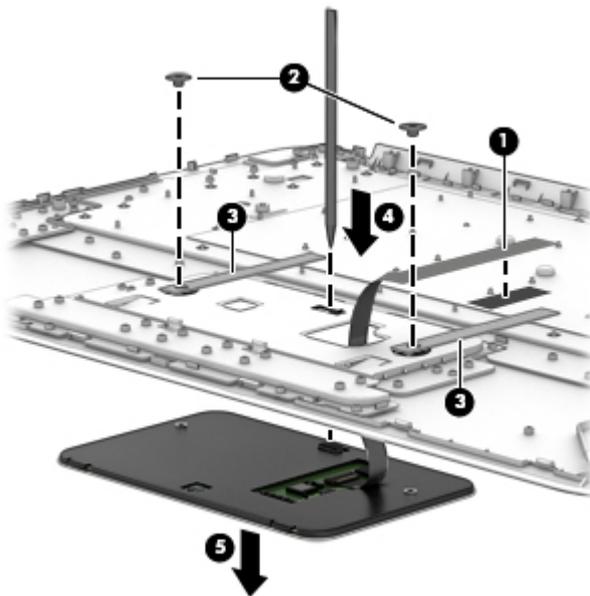
Reverse this procedure to install the TouchPad.

WWAN module

Description	Spare part number
HP lt4110 LTE/HSPA+ 4G Module for use on all computer models	755529-001

⚠ **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).

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 Main terminal. The #6/blue WWAN antenna cable connects to the WWAN module 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.
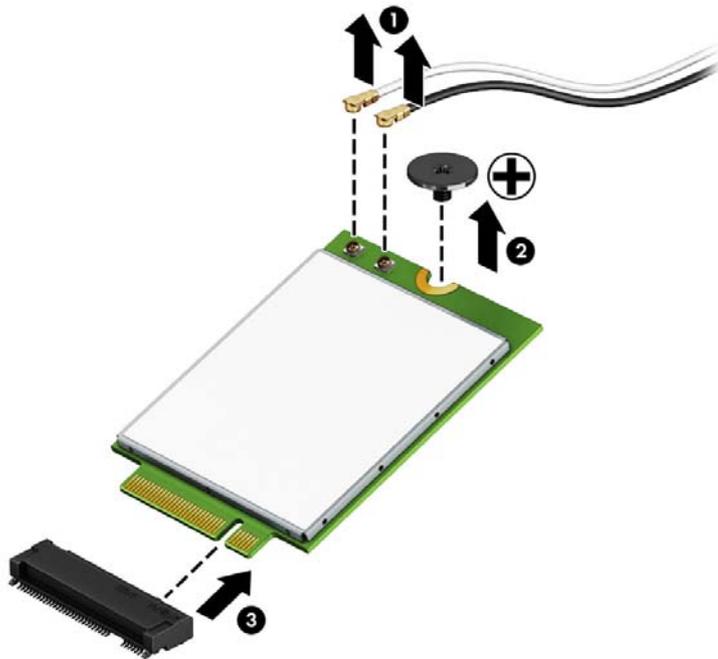
NOTE: If the WWAN antenna is not connected to the terminal on the WWAN module, a protective sleeve must be installed on the antenna connector, as shown in the following illustration.

Reverse this procedure to install the WWAN module.

Battery

Description	Spare part number
Battery, 3-cell, 37-WHr, 2.96-AHr, Li-ion for use on all computer models (includes cable)	774159-001

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:

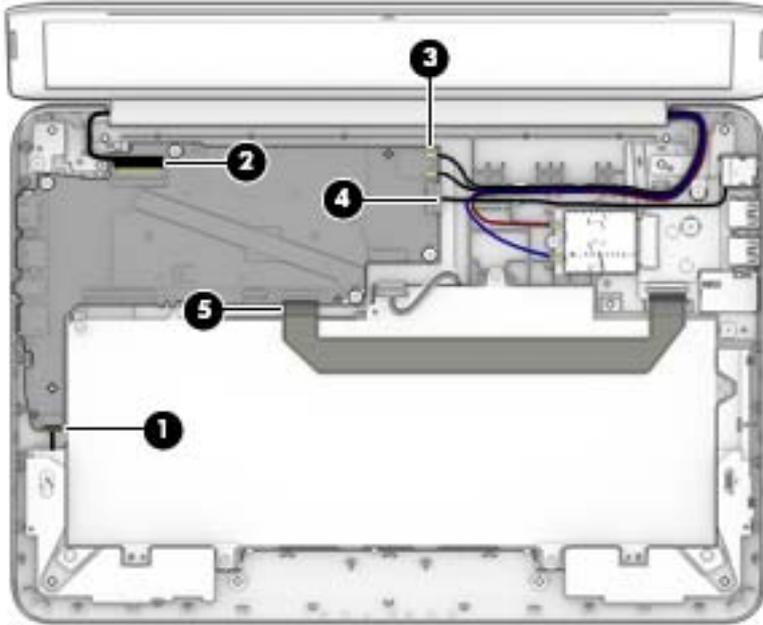1. Remove the eight Phillips PM1.9×2.8 screws **(1)** that secure the battery to the base enclosure.

2. Detach the connector board cable **(2)** from the battery. (The connector board cable is attached to the battery with double-sided adhesive.)

3. Lift the front edge of the battery **(3)** until it rests at an angle.

4. Remove the battery **(4)** by sliding it up and forward at an angle.
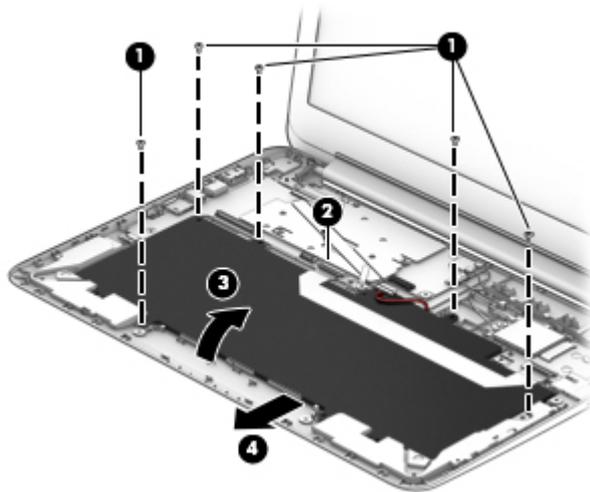
Reverse this procedure to install the battery.

Connector board

📝 **NOTE:** The connector board spare part kit includes a cable and double-sided adhesive.

| Description	Spare part number
For use only on computer models equipped with WWAN capability (includes SD Card Reader slot and SIM slot) for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3	787715-001
For use only on computer models not equipped with WWAN capability (includes SD Card Reader slot) for use on all computer models	787714-001

Before removing the connector 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).

Remove the connector board:

1. Release the ZIF connector **(1)** to which the connector board ribbon cable is attached, and then disconnect the connector board ribbon cable from the system board.

2. Detach the connector board cable **(2)** from the battery. (The connector board cable is attached to the battery with double-sided adhesive.)

3. Remove the two Philllips PM1.9×2.4 broad head screws **(3)** that secure the connector board to the base enclosure.

4. Remove the connector board **(4)** and cable.
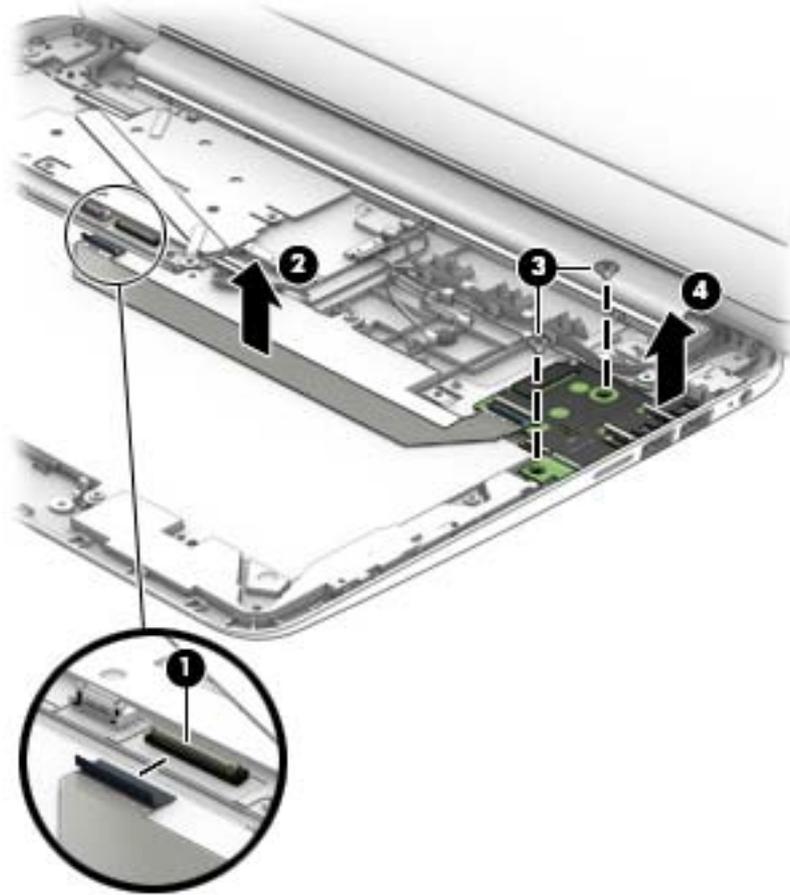
Reverse this procedure to install the connector board.

System board

NOTE: The system board is equipped with an Nvidia CD570M 2.10-GHz quad core processor and a graphics subsystem with UMA memory and includes replacement thermal material.

Description	Spare part number
Equipped with 4.0-GB of system memory and 32-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability for use on all computer models	787727-001
Equipped with 4.0-GB of system memory and 16-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability for use on all computer models	787726-001
Equipped with 2.0-GB of system memory and 32-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability for use on all computer models	787725-001
Equipped with 2.0-GB of system memory and 16-GB of eMMC primary storage for use only on computer models not equipped with WWAN capability for use on all computer models	787724-001

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).

Remove the system board:

1. Disconnect the speaker cable **(1)** from the system board.

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

3. Disconnect the WLAN antenna cables **(3)** from the WLAN terminals on the system board.

NOTE: The white WLAN antenna cable labeled "1/Main" connects to the system board "Main" terminal. The black WLAN antenna cable labeled "2/Aux" connects to the system board "Aux" terminal.

4. Disconnect the power connector cable **(4)** from the system board.

5. Release the ZIF connector **(5)** to which the connector board cable is attached, and then disconnect the connector board cable from the system board.

6. Remove the four Philllips PM1.9×2.4 broad head screws **(1)** that secure the system board to the base enclosure.

7. Lift the right side of the system board **(2)** until it rests at an angle.

8. Remove the system board **(3)** by sliding it up and to the right at an angle.
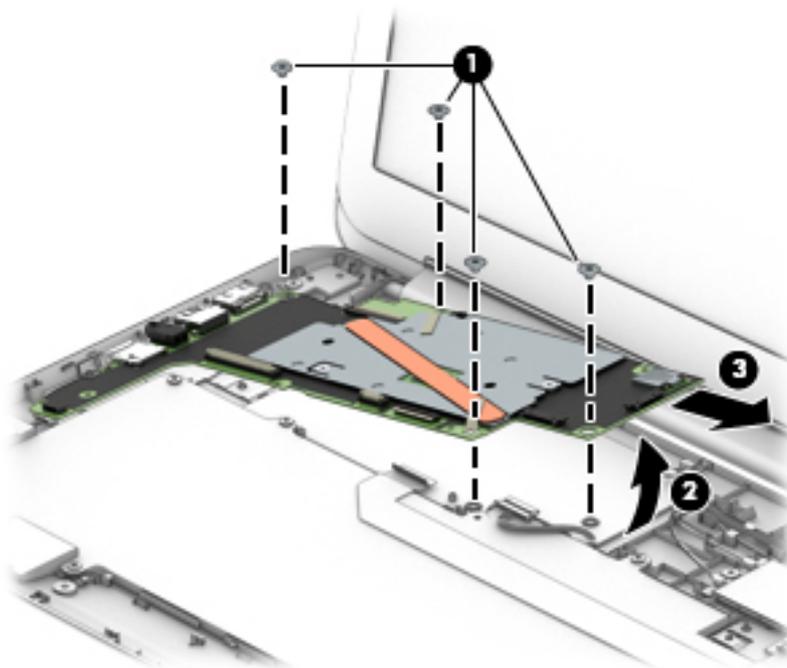
Reverse this procedure to install the system board.

Heat sink

Description	Spare part number
Heat sink (includes grounding tape and replacement thermal material) for use on all computer models	787711-001

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).

5. Remove the system board (see System board on page 35).

Remove the heat sink:

1. Detach the two pieces of ground tape **(1)** that secure the heat sink to the system board.

2. Remove the two Phillips PM1.9×1.9 screws **(2)** that secure the heat sink to the system board.

3. Remove the heat sink **(3)**.
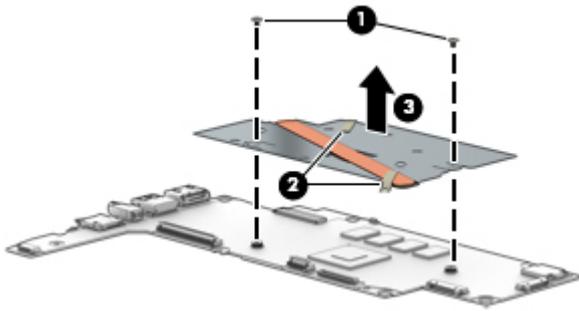
> **NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the system board and the heat sink components each time the heat sink is removed. Thermal paste is used on the processor **(1)** and the heat sink section **(2)** that services it.
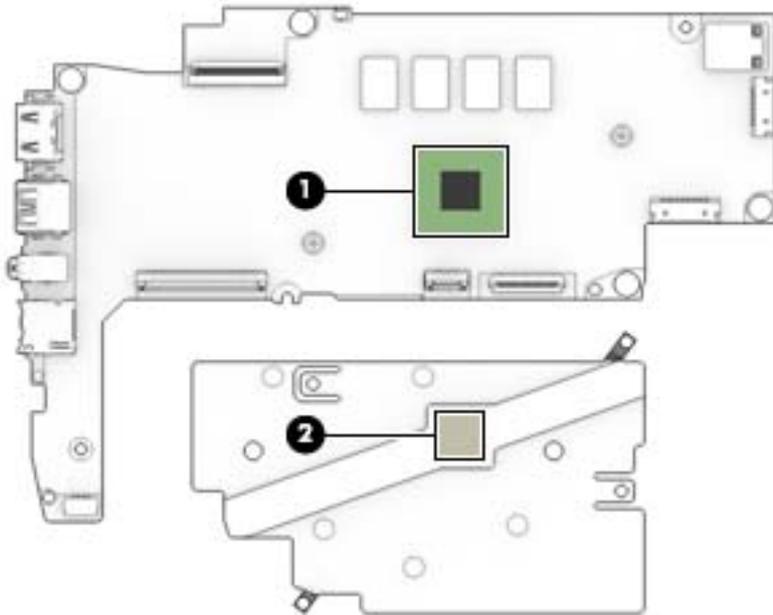
Reverse this procedure to install the heat sink.

Speakers

Description	Spare part number
Speakers for use on all computer models (include left and right speakers and cables)	787723-001

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 battery (see Battery on page 32).

Remove the speakers:

1. Disconnect the speaker cable **(1)** from the system board.

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

3. Remove the speakers **(3)**.
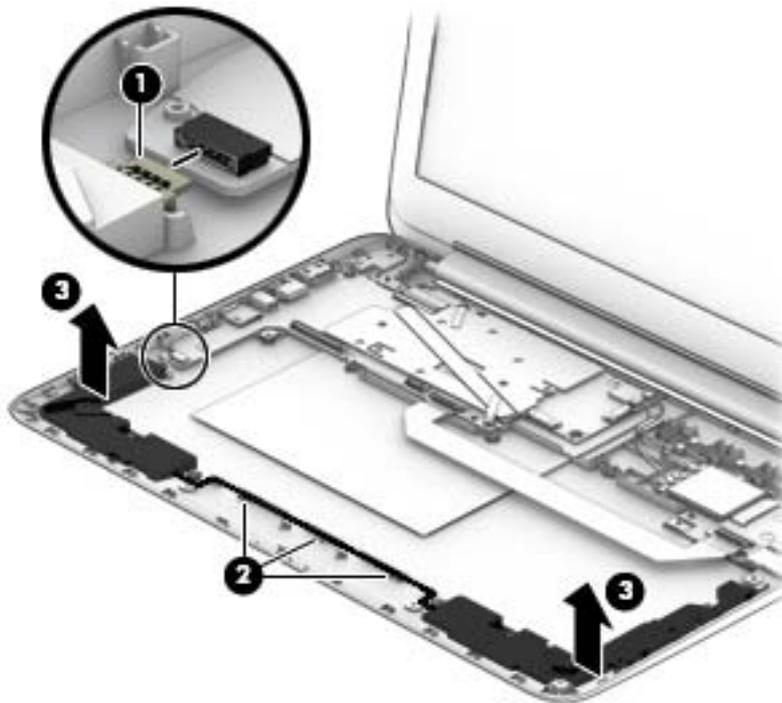
Reverse this procedure to install the speakers.

Display assembly

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

2. Disconnect the wireless antenna cables **(2)** from the WLAN terminals on the system board and WWAN terminals on the WWAN module.

    📝 **NOTE:** The white WLAN antenna cable labeled "1/Main" connects to the system board "Main" terminal. The black WLAN antenna cable labeled "2/Aux" connects to the system board "Aux" terminal.

    The red WWAN antenna cable labeled "5/Main" connects to the WWAN module "Main" terminal. The blue WWAN antenna cable labeled "6/Aux" connects to the WWAN module "Aux" terminal.

3. Release the wireless antenna cables from the routing clips **(3)** built into the base enclosure.

4. Remove the two Phillips PM1.9×3.3 screws **(4)** that secure the display assembly to the base enclosure.

5. Remove the display assembly **(5)**.
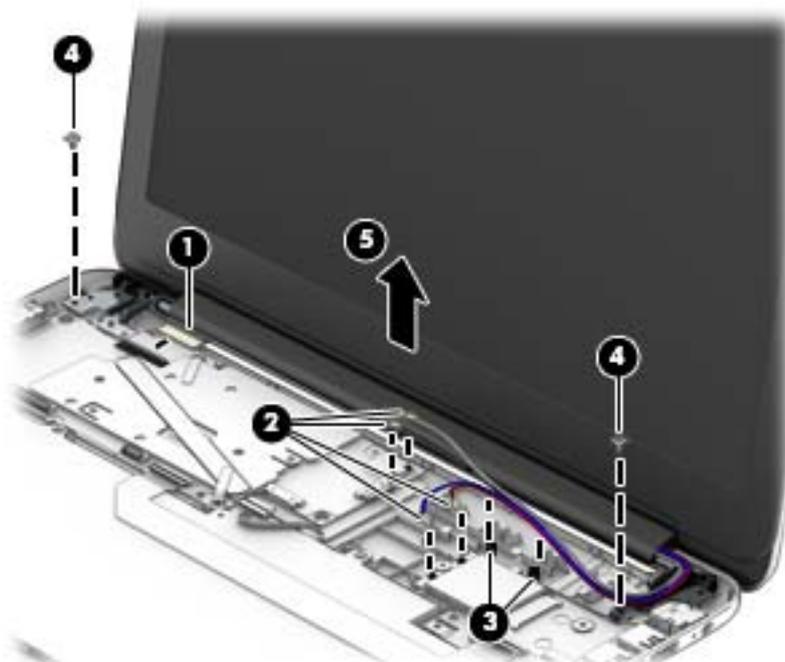
📝 **NOTE:** Steps 6 through 9 provide disassembly instructions for computer models equipped with a TouchScreen display assembly. See steps 10 through 14 for disassembly instructions for computer models equipped with a non-TouchScreen display assembly.

6. If it is necessary to replace the display enclosure or any of the display assembly subcomponents:

a.   Remove the two display bezel screw covers **(1)**.

The display bezel screw covers are included in the Rubber Kit, spare part number 787721–001 for use only on HP Chromebook 14 PC and 788510–001 for use only on HP Chromebook 14 G3.

b.   Remove the two Phillips PM2.0×2.2 broad head screws **(2)** that secure the display enclosure to the display panel assembly.
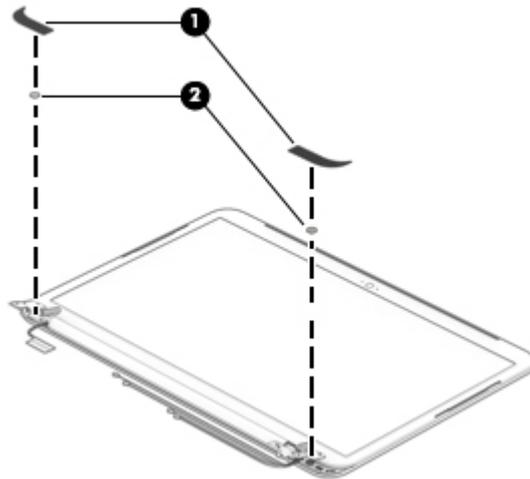
⚠ **CAUTION:**   Before turning the display panel upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display panel.

c.   Turn the display assembly upside down with the top edge toward you.

d.   Use a case utility tool **(1)** or similar flat plastic tool to separate the display enclosure from the display panel assembly.

e.   Lift the top edge of the display enclosure **(2)** until it separates from the display panel assembly.
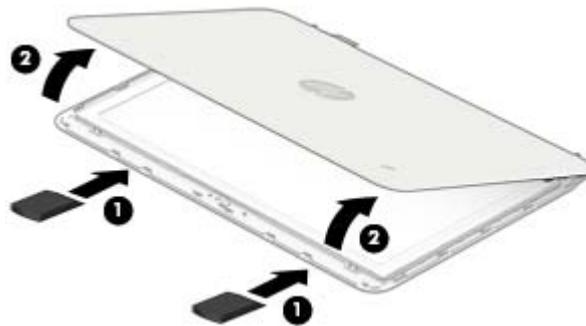
f.   Swing the top edge of the display enclosure **(1)** up and back until it rests upside down behind the display panel assembly.

g.   Release the adhesive strip **(2)** that secures the display panel cable connector to the display panel.

h.   Disconnect the display panel cable **(3)** from the display panel.

i.   Remove the display enclosure **(4)**.

The TouchScreen display assembly display enclosure is available using the following spare part numbers:

- 787695-001–For use on TouchScreen computer models in neon green finish for use only on HP Chromebook 14 PC

- 787693-001–For use on TouchScreen computer models in ocean turquoise finish for use only on HP Chromebook 14 PC

- 787696-001–For use on TouchScreen computer models in smoke silver finish for use only on HP Chromebook 14 PC

- 787694-001–For use on TouchScreen computer models in sorbet orange finish for use only on HP Chromebook 14 PC

- 787691-001–For use on non-TouchScreen computer models in neon green finish for use only on HP Chromebook 14 PC

- 787692-001–For use on non-TouchScreen computer models in smoke silver finish for use only on HP Chromebook 14 PC

- 787689-001–For use on non-TouchScreen computer models in ocean turquoise finish for use only on HP Chromebook 14 PC

- 787690-001–For use on non-TouchScreen computer models in sorbet orange for use only on HP Chromebook 14 PC

- 788505-001–For use on non-TouchScreen computer models in Jack black finish for use only on HP Chromebook 14 G3

- 788506-001–For use on TouchScreen computer models in Jack black finish for use only on HP Chromebook 14 G3
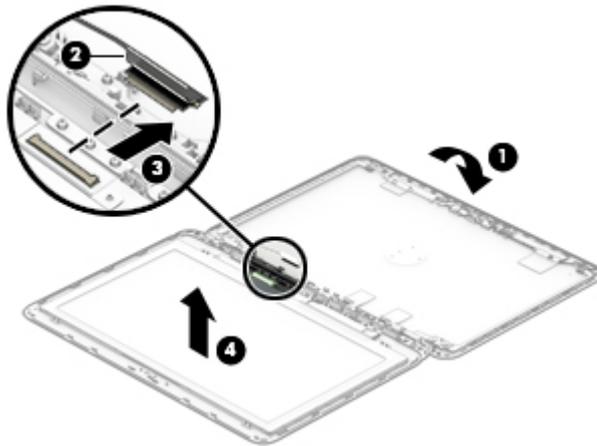
7. If it is necessary to replace the webcam/microphone module:

   a. Remove the display enclosure.

   b. 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.)

c. Disconnect the webcam/microphone module cable **(2)** from the webcam/microphone module.
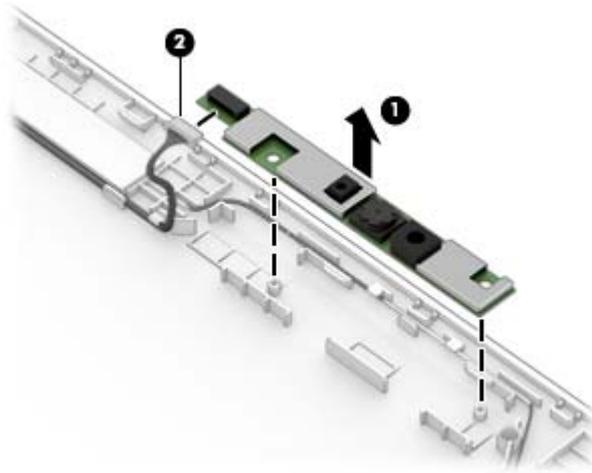
d. Remove the webcam/microphone module.

The webcam/microphone module is available using spare part number 787736-001 for use on all computer models.

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

a. Remove the display enclosure.

b. Remove the following screws that secure the display hinges and display hinge support bracket to the display enclosure:

(1) Two Phillips PM1.9×2.9 screws that secure the display hinge brackets

(2) Four Phillips PM2.4×3.1 screws that secure the display hinges

(3) Two Phillips PM2.4×3.6 screws that secure the display hinges

c. Remove the display hinges and display hinge support brackets **(4)**.

The TouchScreen display assembly display hinges are included in the Display Hinge Kit, spare part number:787712-001 for use on all computer models.

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

a. Disconnect the display panel cable **(1)** from the webcam/microphone module.

b. Detach the wireless antenna transceiver **(2)** from the display enclosure. (The wireless antenna transceiver is attached to the display enclosure with double-sided adhesive.)

c. Release the display panel cable from the routing path **(3)** built into the display enclosure.

d. Remove the display panel cable **(4)**.

The TouchScreen display assembly display panel cable is available using spare part number 787710-001 for use on all computer models and includes the webcam/microphone module cable.
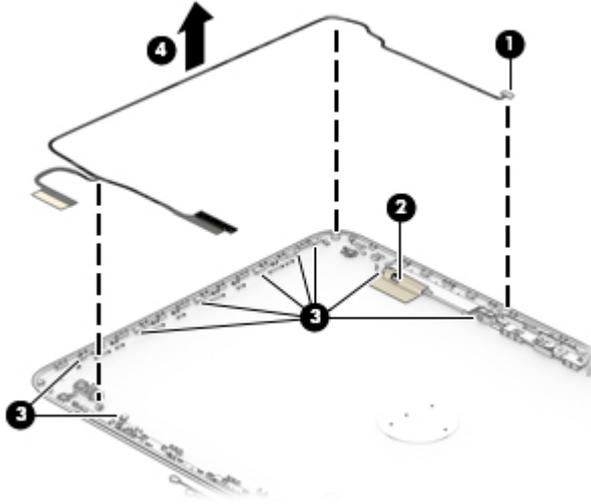
📝 **NOTE:** Steps 10 through 14 provide disassembly instructions for computer models equipped with a non-TouchScreen display assembly. See steps 6 through 9 for disassembly instructions for computer models equipped with a TouchScreen display assembly.

10. 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 number 787721-001 for use only on HP Chromebook 14 PC and 788510-001 for use only on HP Chromebook 14 G3.

b. Remove the two Phillips PM2.0×2.2 broad head screws **(2)** that secure the display panel to the display enclosure.

c. Flex the inside edges of the bottom edge **(3)**, the left and right sides **(4)**, and the bottom edge **(5)** of the display bezel until the bezel disengages from the display enclosure.

d. Remove the display bezel **(6)**.

The non-TouchScreen display assembly display bezel is available using the following spare part numbers:

- 787707-001–For use on computer models in neon green finish for use only on HP Chromebook 14 PC

- 787705-001–For use on computer models in ocean turquoise finish for use only on HP Chromebook 14 PC

- 787708-001–For use on computer models in smoke silver finish for use only on HP Chromebook 14 PC

- 787706-001–For use on computer models in sorbet orange finish for use only on HP Chromebook 14 PC

- 788507-001–For use on computer models in Jack black for use only on HP Chromebook 14 G3
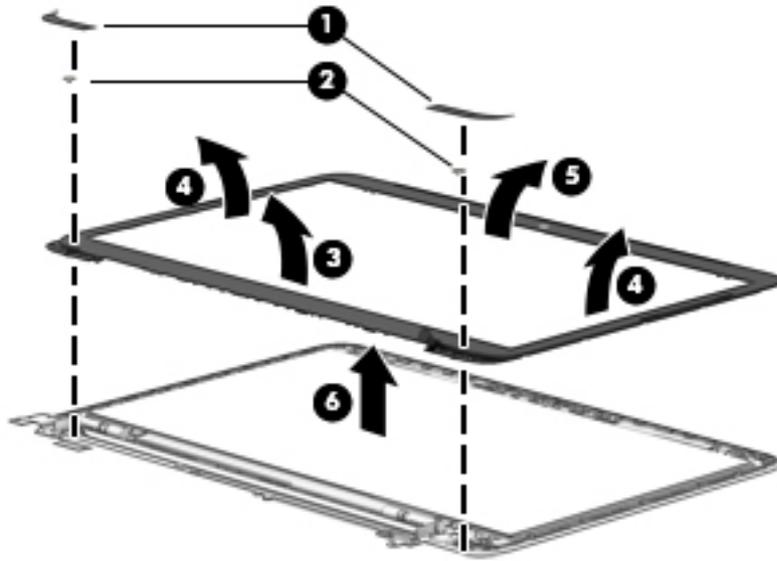
11. If it is necessary to replace the webcam/microphone module:

   a. Remove the display bezel.

   b. 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.)

   c. Disconnect the webcam/microphone module cable **(2)** from the webcam/microphone module.
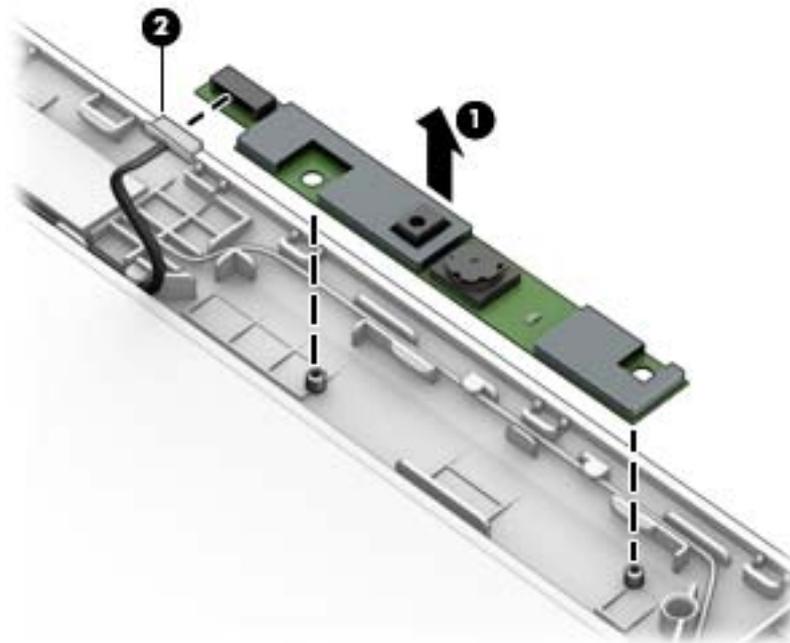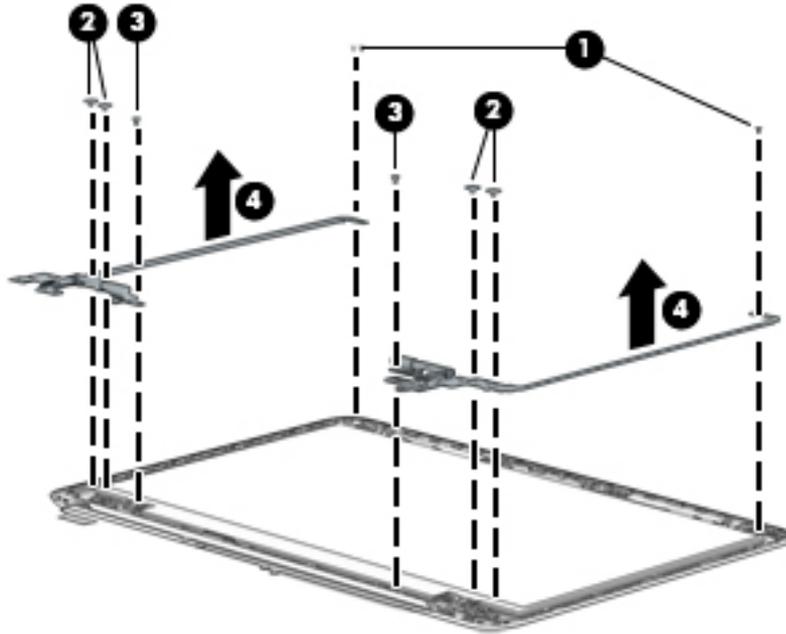

   d. Remove the webcam/microphone module.

   The webcam/microphone module is available using spare part number 787736-001 for use on all computer models.

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

a. Remove the display bezel.

b. Remove the four Phillips PM2.0×2.2 broad head 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.

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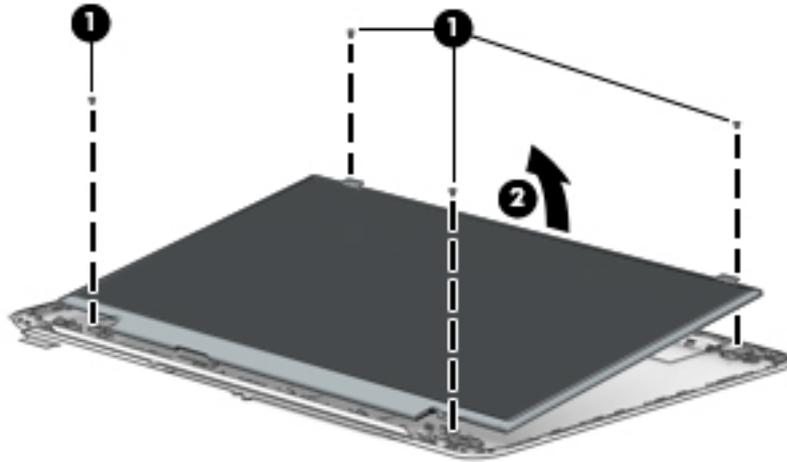
d. Release the adhesive strip **(1)** that secures the display panel cable connector to the display panel.

e. Disconnect the display panel cable **(2)** from the display panel.

f. Remove the display panel **(3)**.

The non-TouchScreen display assembly display panel is available using the following spare part numbers:

- 787719-001–For use on computer models in ocean turquoise finish for use only on HP Chromebook 14 PC

- 787717-001–For use on computer models in ocean turquoise finish for use only on HP Chromebook 14 PC

- 787720-001–For use on computer models in ocean turquoise finish for use only on HP Chromebook 14 PC

- 787718-001–For use on computer models in ocean turquoise finish for use only on HP Chromebook 14 PC

- 788508-001–For use on TouchScreen computer models in Jack black finish for use only on HP Chromebook 14 G3

- 788509-001–For use on non-TouchScreen computer models in Jack black finish for use on HP Chromebook 14 PC, and for use on HP Chromebook 14 G3
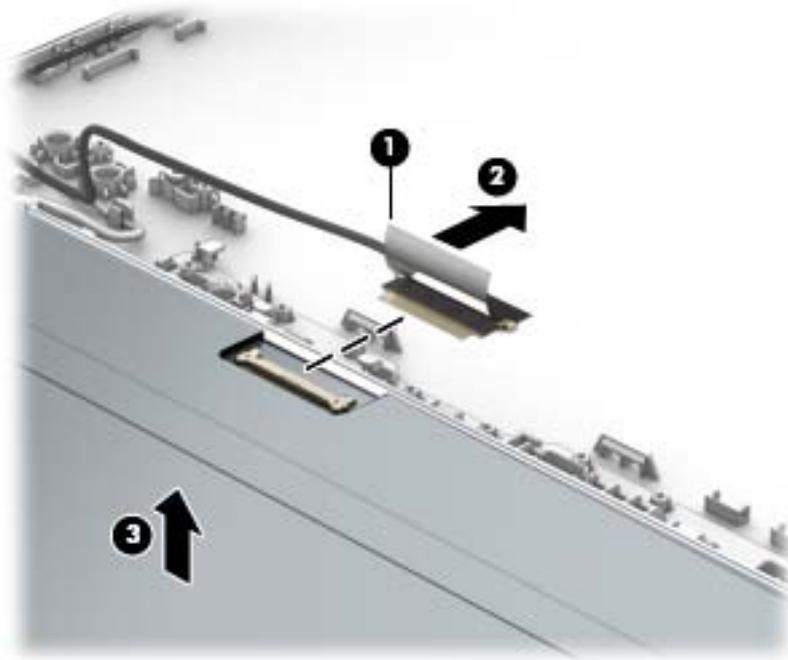
13. If it is necessary to replace the display hinges:

 a. Remove the display bezel.

 b. Remove the display panel.

 c. Remove the following screws that secure the display hinges and display hinge support brackets to the display enclosure:

 (1) Two Phillips PM1.9×2.9 screws that secure the display hinge brackets

 (2) Four Phillips PM2.4×3.1 broad head screws that secure the display hinges

 (3) Two Phillips PM2.4×3.6 screws that secure the display hinges

d. Remove the display hinges **(4)**.

The non-TouchScreen display assembly display hinges are included in the Display Hinge Kit, spare part number 787712-001 for use on all computer models.

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

a. Disconnect the display panel cable from the webcam/microphone module.

b. Remove the display panel.

c. Remove the display hinges and brackets.

d. Release the display panel cable from the retention clips **(1)** and channel built into the top, left, and bottom edges of the display enclosure.

e. Remove the display panel cable **(2)**.

The non-TouchScreen display assembly display panel cable is available using spare part number 787709-001 for use on all computer models and includes the webcam/microphone module cable.
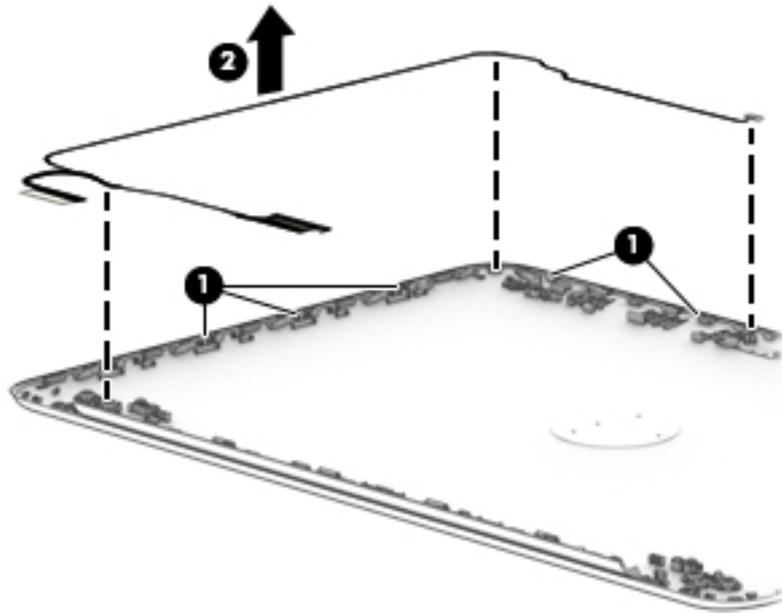
Reverse this procedure to reassemble and install the display assembly.

6 Specifications

	Metric	U.S.
Computer dimensions		
Width	**34.4 cm**	13.5 in
Depth	**24.0 cm**	9.5 in
Height	**1.8 cm**	0.7 in
Weight	**1.7 kg**	3.8 lbs
Operating voltage and current:	19.5V dc @ 2.31 A – 45 W	
	19.5V dc @ 3.33 A – 65 W	

NOTE: This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 V rms.

NOTE: The device operating voltage and current can be found on the system regulatory label.

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 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 HO5VV-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.

8 Statement of memory volatility

This chapter applies only to HP Chromebook 11 G3 computer models.

The purpose of this chapter is to provide general information regarding nonvolatile memory in HP Business 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 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 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 PC, including the nonvolatile memory found in Intel-based and AMD-based system boards.

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. **ERROR! Target for reference type variable.varref, ID was not found! ERROR!**

        📝 **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.   **ERROR! Target for reference type variable.varref, ID was not found! ERROR!**

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.   **ERROR! Target for reference type variable.varref, ID was not found! ERROR!**

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 storing the data you want to clear, and then follow the on-screen instructions to continue.

Nonvolatile memory usage

Nonvolatile 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. For more information, see Using HP Sure Start (select models only) on page 58.	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	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	Stores 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 the 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 MBytes to 5 MBytes	Yes	Yes	Stores 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.	**NOTE:** Writing data to this ROM in an inappropriate manner can render the PC non-functional. 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 &**

Nonvolatile 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?
						Downloads, and then follow the on-screen instructions.
Intel Management Engine Firmware (present in only 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.)	1.5 MBytes or 5 MBytes	Yes	Yes	Stores Management Engine Code, Settings, Provisioning Data and iAMT third-party data store.	Management Engine Code is programmed at the factory. Code is updated via Intel 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.	The Intel chipset is configured to enforce hardware protection to 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	2 Mbit	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.
Web camera	64 Kbit	No	Yes	Stores 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 Custom Secure Boot keys. See question and answer 7 for information about resetting the keys.

   a. **ERROR! Target for reference type variable.varref, ID was not found! ERROR!**

   b. Select **Main**, and then select **Restore defaults**.

   c. Follow the on-screen instructions.

   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?**

   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 and configuration settings and to change the configuration of your computer before an OS is loaded. 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, 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.

   HP has provided options in Computer Setup (BIOS) to allow you to run in legacy BIOS, if required by the operating system. Examples of this requirement would be if you upgrade or downgrade the OS.

3. **Where does the UEFI BIOS reside?**

   The UEFI BIOS resides on a flash memory chip. A utility is required to write to the chip.

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 Custom Secure Boot Keys. See question and answer 7 for information about resetting the keys.

    a.   **ERROR! Target for reference type variable.varref, ID was not found! ERROR!**

    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 Custom Secure Boot Keys 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 Custom Secure Boot Keys, simply disabling Secure Boot will not clear the keys. You must also select to clear the Custom Secure Boot Keys. Use the same Secure Boot access procedure you used to create the Custom Secure Boot Keys, but make the selection to clear or delete all Secure Boot Keys.

    a.   **ERROR! Target for reference type variable.varref, ID was not found! ERROR!**

    b.   Select the **Security** menu, select **Secure Boot Configuration**, and then follow the on-screen instructions.

    c.   At the **Secure Boot Configuration** window, select **Secure Boot**, select **Clear Secure Boot Keys**, and then follow the on-screen instructions to continue.

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.

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.

Index