HP Elite x2 1011 G1

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

Second Edition: August 2015

First Edition: February 2015

Document Part Number: 780896-002

Product notice

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

Not all features are available in all editions of Windows 10 and Windows 8. This slate may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows 10 and Windows 8 functionality. See for http://www.microsoft.com details.

Safety warning notice

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

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1 Product description

Category	Description
Product Name	HP Elite x2 1011 G1
Processor	- Intel® Core™ i7 M-5Y71 processor - Intel Core i5 M-5Y51 processor - Intel Core i3 M-5Y10c processor
Chipset	Intel soldered-on chipset (SoC)
Graphics	Intel HD unified memory architecture (UMA) Graphics
Panel	11.6-in, TouchScreen, full-high definition (FHD), BrightView (BV), (1920×1080), in-plane switching (IPS), 50% CG, typical brightness 400 nits, eDP 1.3, ultra-slim with and without digitizer 11.6-in, TouchScreen, high definition (HD), BV, (1366×768), IPS, 50% CG, typical brightness 400 nits, eDP 1.2, ultra-slim with and without digitizer
Memory	2 SODIMM slots DDR3L-1600MHz Support for DDR3L-1600MHz Support for dual channel Supports up to 8192-MB maximum system memory Supports 8192-MB (16-GB, 256-MB×16×4, qty 4) and 4096-MB (8-GB @ 128-MB×32×2, qty 4) memory configurations
Primary storage	Support for M2 solid-state drive, SS 2280 Support for the following solid-state drives: 512-GB, M2, SATA-3 solid-state drive 256-GB, M2, SATA-3 solid-state drive 256-GB, M2, SATA-3 solid-state drive supporting triple-level cell (TLC) 256-GB, M2, SATA-3 self-encrypting drive (SED) solid-state drive supporting Opal 2 256-GB, M2, SanDisk X110 locked solid-state drive 180-GB, M2, SATA-3 solid-state drive 180-GB, M2, SATA-3 SED solid-state drive supporting Opal 2 128-GB, M2, SATA-3 solid-state drive 128-GB, M2, SATA-3 solid-state drive supporting TLC
Audio and video	2.0-MP (1080p) front-facing webcam 5.0-MP (1080p) rear-facing webcam Dual array microphones HD audio with DTS Studio Sound Stereo speakers (2)
Wireless	Integrated wireless local area network (WLAN) options by way of wireless module

Category	Description
Wireless *(continued)*	One built-in WLAN antenna (in display panel assembly)
	Support for the following WLAN modules:
	• Intel 7265.NGWGQ.I 2 ac 2×2 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 Combo Adapter
	• Intel Tri Band Wireless-AC 17265 802.11a/b/g/n/ac 2×2 and Bluetooth 4.0 + WiGig Combo Adapter
	• Intel Dual Band Wireless-AC 7265 802.11a/b/g/n/ac 2×2 WiFi and Bluetooth 4.0 Combo Adapter
	• Intel Dual Band Wireless-AN 7265 802.11a/b/g/n 2×2 and Bluetooth 4.0 Combo Adapter
	Integrated wireless personal area network (WPAN) options supported only through Bluetooth 4.0 combination card
	Integrated wireless wide area network (WWAN) options by way of wireless module
	Two built-in WWAN antennas (in display panel assembly)
	Support for the following WWAN modules:
	• HP lt4226 LTE/HSPA+ 4G Module
	• HP lt4225 LTE/EV-DO 4G Module
	• HP lt4211 LTE/EV-DO/HSPA+ 4G Module
	• HP lt4112 LTE/HSPA+ 4G Module
	• HP hs3110 HSPA+ Mobile Broadband Module
External media cards	HP multiformat Micro Digital Media Reader Slot with push-push technology. Reads data from and writes data to digital memory cards such as Secure Digital (SD).
Ports	**Slate:**
	• Audio: one combo audio-out (headphone)/audio-in (microphone) jack, supports jack auto-detection
	• Docking (via dongle)
	• Micro SD card
	• Micro SIM
	Keyboard base:
	• Audio: one combo audio-out (headphone)/audio-in (microphone) jack, supports jack auto-detection
	• DisplayPort 1.2
	• Docking (via dongle)
	• HP Smart AC adapter (4.5-mm barrel)
	• Smart card
	• USB 3.0 (2: charging and non-charging)
Keyboard/pointing devices	Spill-resistant keyboard with drain
	Backlit
	Touchpad requirements:
	• ForcePad
	• Glass with chemical etched surface

Category	Description
Keyboard/pointing devices *(continued)*	● Supports two-way scroll
	● Gestures enabled by default: 2-finger scrolling, 2-finger zoom (pinch)
Power requirements	Support for the following AC adapters:
	● 65-W HP Smart adapter (non-PFC, 3-wire) and 45-W HP Smart adapter (non-PFC, RC, 3-wire)
	● 65-W HP Smart travel adapter (non-PFC)
	● 45-W ElitePad HP Smart adapter (4.5-mm)
	● 45-W HP Smart adapter (non-PFC, RC, 4.5-mm)
	● 45-W HP Smart adapter (non-PFC, RC, 4.5-mm, 2-wire)
	Support for the following batteries:
	Keyboard base: 6-cell, 21-WHr, 0.95-AHr, LI battery (includes cable)
	Slate: 2-cell, 33-WHr, 4.56-AHr, LI battery (includes cable)
Security	Fingerprint reader
	Trusted Platfom Module (TPM) 1.2 / 2.0 (Infineon, soldered)
	Integrated Smart card reader (active)
	Full-volume encryption
	Preboot authentication (password, smart card)
Operating system	**Preinstalled:**
	Windows 10:
	● Windows 10 Home 64-bit (not available on computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory)
	● Windows 10 Home Chinese Market 64-bit (not available on computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory)
	● Windows 10 Home Chinese Market CPPP 64-bit (only available with People's Republic of China Country Loc)
	● Windows 10 Home Chinese Market High End 64-bit (only available on computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory)
	● Windows 10 Home High End 64-bit (only available on computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory)
	● Windows 10 Home Single Language 64-bit (not available on computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory)
	● Windows 10 Home Single Language High End 64-bit (only available on computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory)
	● Windows 10 Professional 64-bit
	● Windows 10 Professional 64-bit with Windows 7 Professional 64-bit image
	Windows 8.1:
	● Windows 8.1 Chinese 64-bit (only available with People's Republic of China Country Loc; not available on computer models equipped with an Intel i7 processor and more than 4.0-GB of system memory and computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory)
	● Windows 8.1 Emerging Markets 64-bit (not available on computer models equipped with an Intel i7 processor and more than 4.0-GB of system memory and computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory)

Category	Description
Operating system *(continued)*	- Windows 8.1 Emerging Markets 64-bit High End (only available on computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory) - Windows 8.1 Multi-language 64-bit (not available on computer models equipped with an Intel i7 processor and more than 4.0-GB of system memory and computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory) - Windows 8.1 Multi-language 64-bit High End (only available on computer models equipped with an FHD display assembly and more than or equal 8.0-GB of system memory) - Windows 8.1 Professional 64-bit - Windows 8.1 Professional 64-bit – MSNA - Windows 8.1 Professional 64-bit for Education - Windows 8.1 Professional 64-bit with Windows 7 Professional 64-bit image - Windows 8.1 Professional 64-bit with Windows 7 Professional 64-bit image – MSNA Windows 7 Professional 64-bit – MSNA FreeDOS 2.0 **Restore media – DRDVD:** - DRDVD Windows 10 (available with any Windows 10 operating system, required with any Windows 10 downgrade operating system) - DRDVD Windows 8.1 (available with any Windows 8.1 loc, required with any Windows 8.1 Professional downgrade operating system) - DRDVD Windows 7 (available with any Windows 10 Professional, Windows 8.1 Professional, or Windows 7 downgrade loc) **OSDVD:** - Windows 10 OSDVD Downgrade RTF (required with any Windows 10 Downgrade operating system) - Windows 8.1 64-bit (update, for service only) - Windows 8.1 Country–specific 64-bit (update, for service only) - Windows 8.1 Emerging Markets 64-bit (update, for service only) - Windows 8.1 Professional 64-bit (update, only available and required with Windows 8.1 Downgrade operating system. Do not include for Asia Pacific countries and regions and the People's Republic of China) - Windows 8.1 Professional 64-bit for Education (update, for service only) - Windows 7 Professional 64-bit (available with any Windows 10 Professional, Windows 8.1 Professional, or Windows 7 Professional downgrade except in Asia Pacific countries and regions and the People's Republic of China) **Certified**: Microsoft WHQL **Web-only support:** - Windows 10 Enterprise - Windows 8.1 Enterprise 64-bit - Windows 8 Chinese Market 64-bit - Windows 8 Emerging Markets 64-bit - Windows 8 Multi-language 64-bit - Windows 8 Professional 64-bit

Category	Description
Operating system *(continued)*	• Windows 7 Enterprise 64-bit
	• Windows 7 Enterprise 32-bit
	• Windows 7 Professional 32-bit
Serviceability	**End user replaceable parts:** AC adapter

2   External component identification

Slate edge components

Item	Component	Description
(1)	Internal microphone	Record sound.
(2)	Vents	Enable airflow to cool internal components. **NOTE:** The slate fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(3)	Rear-facing webcam	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video. For information on using the webcam: ● **Windows 10** – Type `camera` in the taskbar search box, and then select **Camera**. ● **Windows 8** – Access HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app. ● **Windows 7** – Select **Start > All Programs > Communication and Chat > HP WebCam**.
(4)	Camera flash	Provides light for rear-facing webcam photos.
(5)	Rotate lock button	When the slate is on, press the rotate lock button to lock the autorotate feature of the display. To unlock the autorotate feature, press the button again.
(6)	Volume button	Controls speaker volume on the slate.

Item	Component	Description
		• To increase speaker volume, press the **+** edge of the button.
		• To decrease speaker volume, press the **–** edge of the button.
(7)	Pen holder (select models only)	Holds the digital pen.
(8)	Alignment post connectors (2)	Align and attach the slate to the keyboard.
(9)	Docking/adapter port	Connects the slate to the keyboard, or as a slate only, connects an optional adapter.
(10)	Audio-out (headphone)/Audio-in (microphone) jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.
		NOTE: When a device is connected to the jack, the slate speakers are disabled.
		NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).
		WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the *Regulatory, Safety, and Environmental Notices.*
		To access this guide:
		Windows 10:
		Select the **Start** button, select **All apps**, select **HP Help and Support**, and then select **HP Documentation**.
		Windows 8 or **Windows 7:**
		▲ Select the **HP Support Assistant** app on the Start screen, select **My computer**, and then select **User guides**.
(11)	SIM/SD card release access	A pinhole for use in ejecting the door covering the SIM and SD card slots.
(12)	SIM Card slot (select models only)	A slot for a SIM card.
		NOTE: This feature is available on select models only.
(13)	Micro SD memory card reader	Reads optional memory cards that store, manage, share, or access information.
		To insert a card:
		Hold the card label-side up, with connectors facing the slot, insert the card into the slot, and then push in on the card until it is firmly seated.
		To remove a card:
		Press in on the card it until it pops out.
(14)	Power button	• When the slate is off, press the button to turn on the slate.
		• When the slate is on, press the button briefly to initiate Sleep.

Item	Component	Description
		• When the slate is in the Sleep state, press the button briefly to exit Sleep.
		• When the slate is in Hibernation, press the button briefly to exit Hibernation.
		CAUTION: Pressing and holding down the power button will result in the loss of unsaved information.
		If the slate has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button for at least 15 seconds to turn off the slate.
		NOTE: For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your slate to resume quickly from inactivity.
		To learn more about your power settings:
		Windows 10: Type `power` in the taskbar search box, and then select **Power and sleep settings**.
		– or –
		Right-click the **Start** button, and then select **Power Options**.
		Windows 8: See your power options. From the Start screen, type `power`, select **Settings**, and then select **Power Options**.
		Windows 7: See your power options. Select **Start > Control Panel > System and Settings > Power Options**.
		Linux:
		1. Select **Computer > Control Center**.
		2. In the left pane, click **System**, and then click **Power Management** in the right pane.

Slate display components

Item	Component	Description
(1)	WLAN antenna*	Sends and receives wireless signals to communicate with WLANs.
(2)	WWAN antennas (2)*	Send and receive wireless signals to communicate with WWANs.
(3)	Webcam light	On: The webcam is in use.
(4)	Front-facing webcam	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video. For information on using the webcam: • **Windows 10** – Type `camera` in the taskbar search box, and then select **Camera**. • **Windows 8** – Access HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app. • **Windows 7** – Select **Start > All Programs > Communication and Chat > HP WebCam**.
(5)	WiGig antenna*	Sends and receives wireless signals.
(6)	Ambient light sensor	Automatically adjusts the display brightness based on the lighting conditions in your environment.
(7)	Internal microphone	Record sound.
(8)	Speakers (2)	Produce sound.

Item	Component	Description
(9)	Windows button	Displays the Windows Start menu.

*The antennas are not visible on the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions.

For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this guide:

Windows 10:

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Windows 8 or **Windows 7:**

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Keyboard base
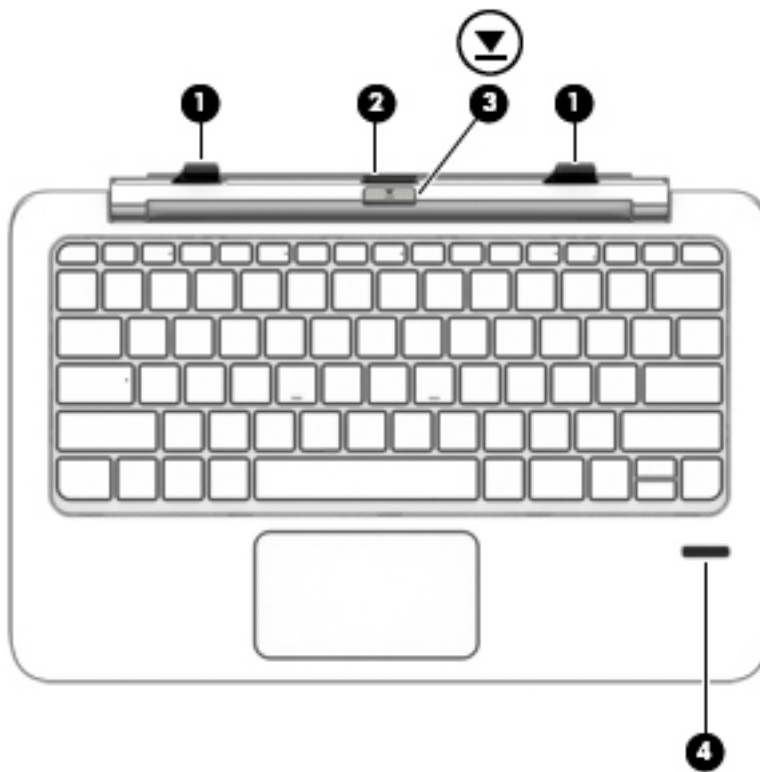
Item	Component	Description
(1)	Alignment posts (2)	Align and attach the slate to the keyboard.
(2)	Docking connector	Connects the slate to the keyboard.
		CAUTION: To prevent damage to the docking connector, do not touch the connector when the slate is detached from the keyboard.
(3)	Release latch	Releases the slate from the keyboard. To release the slate, press the release latch.
(4)	Fingerprint reader (select models only)	Allows a fingerprint logon to Windows, instead of a password logon.

Keys

Item	Component	Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	Function keys	Execute frequently used system functions when pressed in combination with the fn key.
		NOTE: Function keys do not display or function from the on-screen slate keyboard.
(3)	num lock key	Turns the embedded numeric keypad on and off when pressed in combination with the fn key.
(4)	fn key	Executes frequently used system functions when pressed in combination with a function key, the num lock key, or the esc key.
(5)	Windows key	Displays the Windows Start menu.
(6)	Embedded numeric keypad	When num lock has been enabled, it can be used like an external numeric keypad.
		Each key on the keypad performs the function indicated by the icon in the upper-right corner of the key.

Lights

Item	Component	Description
(1)	Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.
(2)	TouchPad light	• On: The TouchPad is off. • Off: The TouchPad is on.
(3)	Mute light	• Amber: Slate sound is off. • Off: Slate sound is on.
(4)	Microphone mute light	• Amber: microphone sound is off. • Off: microphone sound is on.
(5)	Wireless light	On: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth device, is on. **NOTE:** On some models, the wireless light is amber when all wireless devices are off.
(6)	Num lock light	On: Num lock is on.

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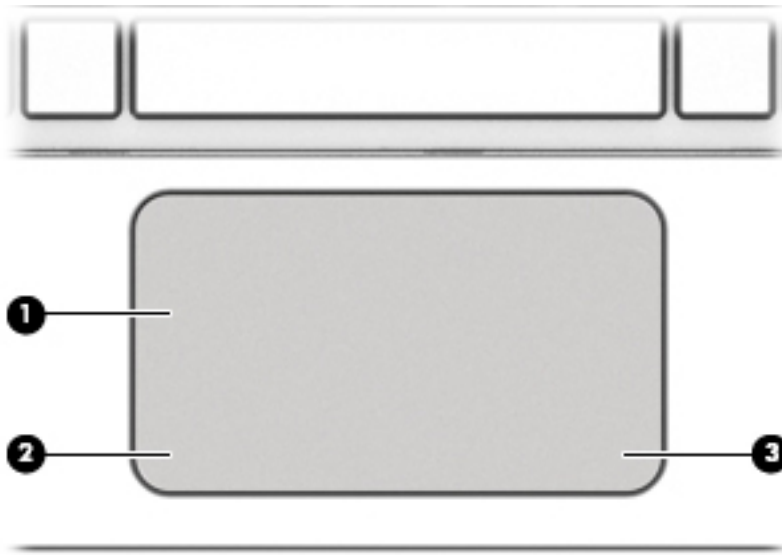
Item	Component	Description
(1)	TouchPad zone	Moves the pointer and selects or activates items on the screen.
(2)	Left TouchPad button	Functions like the left button on an external mouse.
(3)	Right TouchPad button	Functions like the right button on an external mouse.

Left side

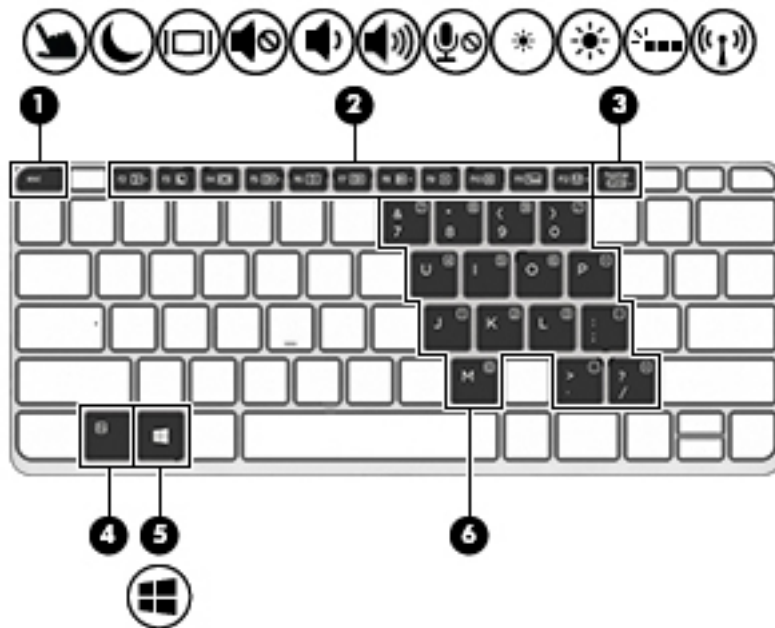| Item	Component	Description
(1)	Volume button	Controls speaker volume on the slate.
		● To increase speaker volume, press the **+** edge of the button.
		● To decrease speaker volume, press the **–** edge of the button.
(2)	LCD rotation lock button	Locks orientation of the display, preventing automatic rotation.
(3)	Docking/adapter port	Connects the slate to the keyboard, or as a slate only, connects an optional adapter.
(4)	USB 3.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)	Audio-out (headphone)/Audio-in (microphone) jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.
		NOTE: When a device is connected to the jack, the slate speakers are disabled.
		NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).
		WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the *Regulatory, Safety, and Environmental Notices*.
		To access this guide:
		Windows 10:
		Select the **Start** button, select **All apps**, select **HP Help and Support**, and then select **HP Documentation**.
		Windows 8 or **Windows 7:**

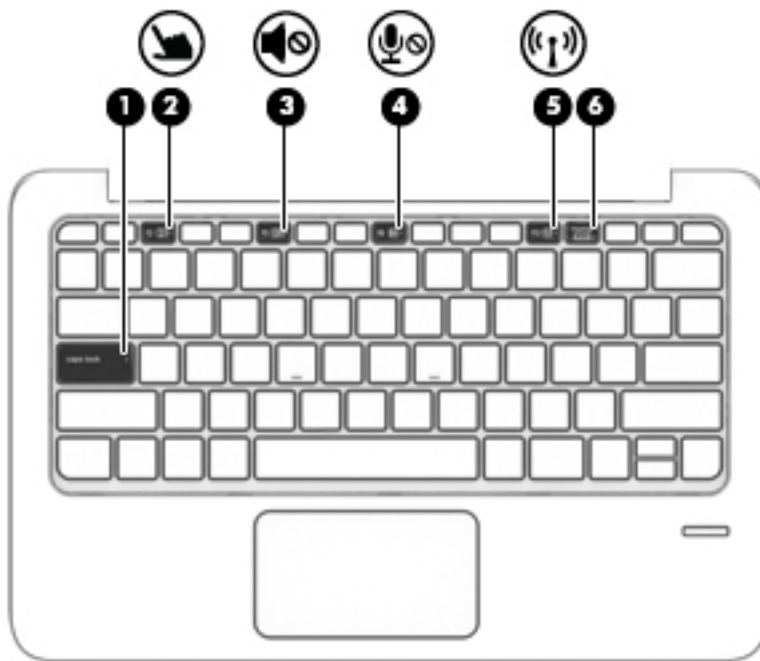| Item	Component	Description
		▲ Select the **HP Support Assistant** app on the Start screen, select **My computer**, and then select **User guides**.
(6)	Smart card reader	Supports optional Smart cards.

Right side

Item	Component	Description
(1)	Internal microphone	Records sound.
(2)	Power button	• When the slate is off, press the button to turn on the slate.
		• When the slate is on, press the button briefly to initiate Sleep.
		• When the slate is in the Sleep state, press the button briefly to exit Sleep.
		• When the slate is in Hibernation, press the button briefly to exit Hibernation.
		CAUTION: Pressing and holding down the power button will result in the loss of unsaved information.
		If the slate has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the slate.
		NOTE: For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your slate to resume quickly from inactivity.
		To learn more about your power settings:
		Windows 10: Type `power` in the taskbar search box, and then select **Power and sleep settings**.
		– or –
		Right-click the **Start** button, and then select **Power Options**.

Item	Component	Description
		Windows 8: See your power options. From the Start screen, type `power`, select **Settings**, and then select **Power Options**.
		Windows 7: See your power options. Select **Start > Control Panel > System and Settings > Power Options**.
		Linux:
		1. Select **Computer > Control Center**.
		2. In the left pane, click **System**, and then click **Power Management** in the right pane.
(3)	Micro SD memory card reader	Reads optional memory cards that store, manage, share, or access information. To insert a card: Hold the card label-side up, with connectors facing the slot, insert the card into the slot, and then push in on the card until it is firmly seated. To remove a card: Press in on the card it until it pops out.
(4)	SIM Card slot (select models only)	A slot for a SIM card.
(5)	SIM/SD card release access	A pinhole for use in ejecting the door covering the SIM and SD card slots.
(6)	USB 3.0 charging (powered) port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub. Standard USB ports will not charge all USB devices or will charge using a low current. Some USB devices require power and require you to use a powered port. **NOTE:** USB charging ports can also charge select models of cell phones and MP3 players, even when the slate is off.
(7)	Dual-Mode DisplayPort	Connects an optional digital display device, such as a high-performance monitor or projector.
(8)	AC adapter/battery light	• White: The slate is connected to external power and the battery is charged from 90 to 99 percent. • Amber: The slate is connected to external power and the battery is charged from 0 to 90 percent. • Blinking amber: A battery that is the only available power source has reached a low battery level. When the battery reaches a critical battery level, the battery light begins blinking rapidly. • Off: The battery is fully charged.
(9)	Power connector	Connects an AC adapter.

*The antennas are not visible on the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions.

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To access this guide:

Windows 10:

Select the **Start** button, select **All apps**, select **HP Help and Support**, and then select **HP Documentation**.

Item	Component	Description

Windows 8 or **Windows 7:**

▲   Select the **HP Support Assistant** app on the Start screen, select **My computer**, and then select **User guides**.

3 Illustrated parts catalog

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

The product name **(1)**, serial number **(2)**, product number **(3)**, warranty information **(4)**, and model name **(5)** are located on the bottom of the slate. You may need this information when you travel internationally or when you contact support.
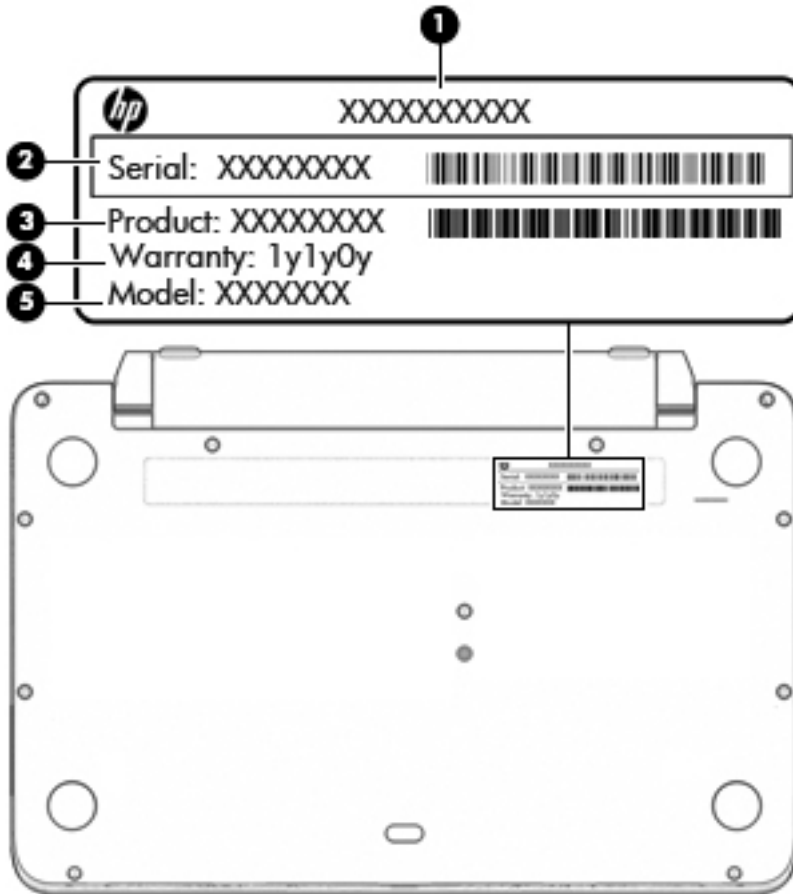
Slate major components
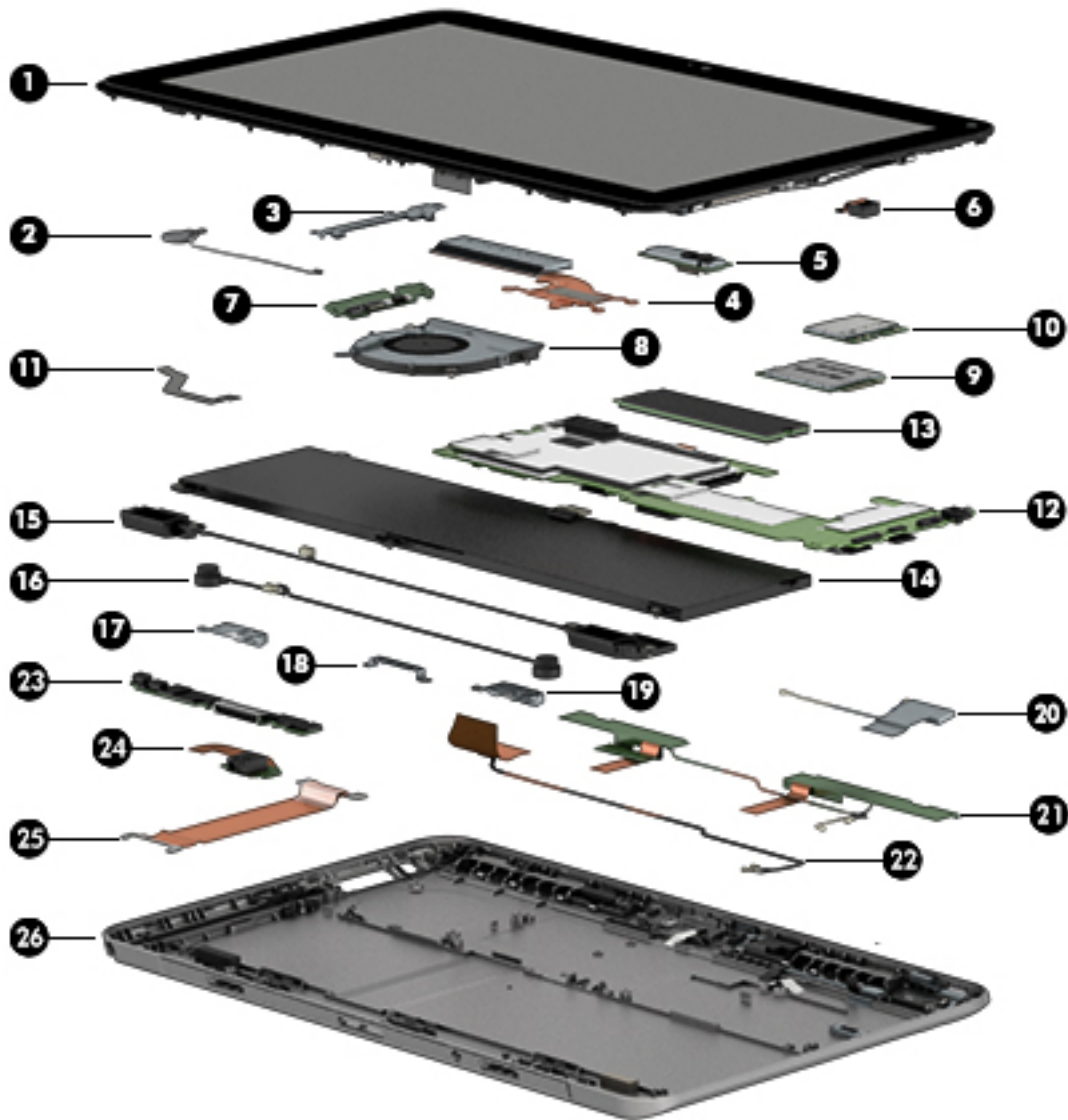
Item	Component	Spare part number
(1)	**11.6-in, TouchScreen display panel assembly:**	
	FHD, BV, (1920×1080), IPS, 50% CG, typical brightness 400 nits, eDP 1.3, ultra-slim with digitizer	793736-001
	FHD, BV, (1920×1080), IPS, 50% CG, typical brightness 400 nits, eDP 1.3, ultra-slim without digitizer	804352-001
	HD, BV, (1366×768), IPS, 50% CG, typical brightness 400 nits, eDP 1.2, ultra-slim with digitizer	793737-001
	HD, BV, (1366×768), IPS, 50% CG, typical brightness 400 nits, eDP 1.2, ultra-slim without digitizer	804351-001
	Speaker grille (not illustrated; 2 pieces, includes double-sided adhesive)	793734-001
(2)	**RTC battery** (includes cable and double-sided adhesive)	793723-001

Item	Component	Spare part number
(3)	**Volume button board bracket**: Included in the Slate Bracket Kit, spare part number 793728-001.	
(4)	**Heat sink** (includes replacement thermal material)	793726-001
(5)	**Front-facing webcam** (includes double-sided adhesive): Included in the Webcam Kit, spare part number 793724-001.	
	NOTE: The front-facing webcam spare part kit does not include the front-facing webcam cable. The front-facing webcam cable is included in the Slate Cable Kit, spare part number 793721-001.	
(6)	**Rear-facing webcam**: Included in the Webcam Kit, spare part number 793724-001.	
	NOTE: The rear-facing webcam spare part kit does not include the rear-facing webcam cable. The rear-facing webcam cable is included in the Slate Cable Kit, spare part number 793721-001.	
(7)	**Volume button board**	793733-001
	NOTE: The volume button board spare part kit does not include the volume button board cable. The volume button board cable is included in the Slate Cable Kit, spare part number 793721-001.	
(8)	**Fan** (includes cable)	793735-001
(9)	**WWAN module:**	
	HP lt4226 LTE/HSPA+ 4G Module	736675-005
	HP lt4225 LTE/EV-DO 4G Module	793736-005
	HP lt4211 LTE/EV-DO/HSPA+ 4G Module	793116-005
	HP lt4112 LTE/HSPA+ 4G Module	790198-005
	HP hs3110 HSPA+ Mobile Broadband Module	793516-005
(10)	**WLAN module:**	
	Intel 7265.NGWGQ.I 2 ac 2×2 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 Combo Adapter	783721-005
	Intel Tri Band Wireless-AC 17265 802.11a/b/g/n/ac 2×2 and Bluetooth 4.0 + WiGig Combo Adapter	806724-005
	Intel Dual Band Wireless-AC 7265 802.11a/b/g/n/ac 2×2 WiFi and Bluetooth 4.0 Combo Adapter	756749-005
	Intel Dual Band Wireless-AN 7265 802.11a/b/g/n 2×2 and Bluetooth 4.0 Combo Adapter	756748-005
(11)	**Display panel cable** (includes double-sided adhesive)	804344-001
(12)	**System board** (includes a graphics subsystem with UMA memory and replacement thermal material):	
	Equipped with an Intel Core i7 M-5Y71 processor, 8.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805071-601
	Equipped with an Intel Core i7 M-5Y71 processor, 8.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805071-501
	Equipped with an Intel Core i7 M-5Y71 processor, 8.0-GB of system memory, and a non-Windows operating system	805071-001
	Equipped with an Intel Core i7 M-5Y71 processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805072-601
	Equipped with an Intel Core i7 M-5Y71 processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805072-501
	Equipped with an Intel Core i7 M-5Y71 processor, 4.0-GB of system memory, and a non-Windows operating system	805072-001

Item	Component	Spare part number
	Equipped with an Intel Core i5 M-5Y51 processor, 8.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805070-601
	Equipped with an Intel Core i5 M-5Y51 processor, 8.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805070-501
	Equipped with an Intel Core i5 M-5Y51 processor, 8.0-GB of system memory, and a non-Windows operating system	805070-001
	Equipped with an Intel Core i5 M-5Y51 processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805069-601
	Equipped with an Intel Core i5 M-5Y51 processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805069-501
	Equipped with an Intel Core i5 M-5Y51 processor, 4.0-GB of system memory, and a non-Windows operating system	805069-001
	Equipped with an Intel Core i3 M-5Y10c processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805068-601
	Equipped with an Intel Core i3 M-5Y10c processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805068-501
	Equipped with an Intel Core i3 M-5Y10c processor, 4.0-GB of system memory, and a non-Windows operating system	805068-001
(13)	**Solid-state drive:**	
	512-GB, M2, SATA-3 solid-state drive	811391-001
	256-GB, M2, SATA-3	793709-001
	256-GB, M2, SATA-3 solid-state drive supporting TLC	811393-001
	256-GB, M2, SATA-3, SED solid-state drive supporting Opal 2	810987-001
	256-GB, M2, SanDisk X110 locked solid-state drive	824109-001
	180-GB, M2, SATA-3	811389-001
	180-GB, M2, SATA-3, SED solid-state drive supporting Opal 2	811390-001
	128-GB, M2, SATA-3	793708-001
	128-GB, M2, SATA-3 solid-state drive supporting TLC	811392-001
(14)	**Battery**, 2-cell, 33-WHr, 4.56-AHr, LI (includes cable)	750549-005
(15)	**Speakers** (includes left and right speakers and cables)	793729-001
(16)	**Vibrator module** (includes left and right vibrator modules and cables)	793730-001
(17)	**Alignment bracket, left**: Included in the Slate Bracket Kit, spare part number 793728-001.	
(18)	**Docking connector bracket**: Included in the Slate Bracket Kit, spare part number 793728-001.	
(19)	**Alignment bracket, right**: Included in the Slate Bracket Kit, spare part number 793728-001.	
	Antenna Kit, includes:	
(20)	WiGig antenna cable and transceiver (for use only on slate models equipped with WiGig capability)	805066-001
(21)	WWAN main and auxiliary cables and transceivers	
(22)	WLAN antenna cable and transceiver	

Item	Component	Spare part number
	For use in African, European, and Middle Eastern countries and regions	805065-001
	For use in Japan	806251-001
	For use in North America	805067-001
(23)	**Docking connector board**	793731-001
	NOTE: The docking connector board spare part kit does not include the docking connector board cable. The docking connector board cable is included in the Slate Cable Kit, spare part number 793721-001.	
(24)	**Audio jack board** (includes cable)	793732-001
(25)	**Docking connector board cable**: Included in the Slate Cable Kit, spare part number 793721-001.	
(26)	**Back cover**	793725-001

Keyboard base
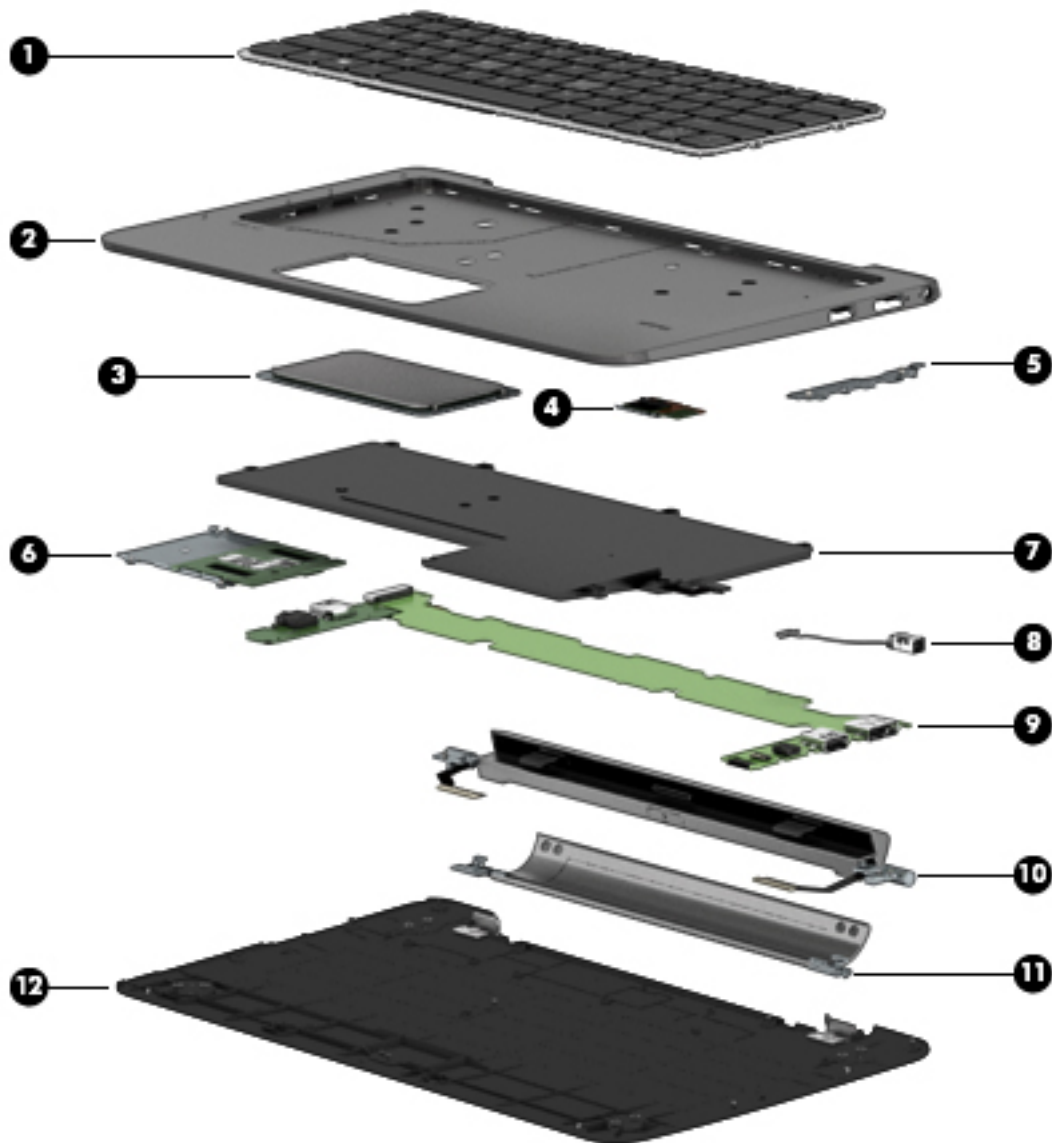
Item	Description	Spare part number
(1)	**Keyboard** (includes keyboard cable and keyboard backlight cable):	
	For use in Belgium	793738-A41
	For use in Brazil	793738-201
	For use in Bulgaria	793738-261
	For use in Canada	793738-DB1
	For use in the Czech Republic and Slovakia	793738-FL1
	For use in Denmark	793738-081
	For use in France	793738-051
	For use in Germany	793738-041

Item	Description	Spare part number
	For use in Greece	793738-151
	For use in Hungary	793738-211
	For use in Iceland	793738-DD1
	For use in India	793738-D61
	For use in Israel	793738-BB1
	For use in Italy	793738-061
	For use in Japan	793738-291
	For use in Latin America	793738-161
	For use in the Netherlands	793738-B31
	For use in Northwest Africa	793738-FP1
	For use in Norway	793738-091
	For use in Portugal	793738-131
	For use in Romania	793738-271
	For use in Russia	793738-251
	For use in Saudi Arabia	793738-171
	For use in Slovenia	793738-BA1
	For use in South Korea	793738-AD1
	For use in Spain	793738-071
	For use in Sweden and Finland	793738-B71
	For use in Switzerland	793738-111
	For use in Taiwan	793738-AB1
	For use in Thailand	793738-281
	For use in Turkey	793738-141
	For use in the United Kingdom and Singapore	793738-031
	For use in the United States	793738-001
(2)	**Top cover**	793718-001
(3)	**TouchPad** (includes cable)	793720-001
(4)	**Fingerprint reader board**	793713-001
	NOTE: The fingerprint reader board spare part kit does not include the fingerprint reader board cable. The fingerprint reader board cable is included in the Keyboard Base Cable Kit, spare part number 793721-001.	
(5)	**Connector board** (includes USB port and DisplayPort)	804350-001
	NOTE: The connector board spare part kit does not include the connector board cable. The connector board cable is included in the Keyboard Base Cable Kit, spare part number 793721-001.	
(6)	**Smart card reader board**	793711-001

Item	Description	Spare part number
	NOTE: The smart card reader board spare part kit does not include the smart card reader board cable. The smart card reader board cable is included in the Keyboard Base Cable Kit, spare part number 793721-001.	
(7)	**Battery**, 6-cell, 21-WHr, 0.95-AHr, LI (includes cable)	750550-005
(8)	**Power connector cable**	793714-001
(9)	**Keyboard base system board** (includes docking/adapter port, USB port, and audio jack)	806252-001
(10)	**Hinge assembly** (includes left and right cables)	793717-001
(11)	**Kickstand** (includes rubber feet)	793715-001
	Kickstand Hinge Kit (not illustrated)	793716-001
(12)	**Bottom cover**	793710-001
	Rubber Kit (not illustrated, includes bottom cover rubber feet)	804348-001

Miscellaneous parts

Component	Spare part number
AC adapter:	
65-W HP Smart adapter (non-PFC, EM, 4.5-mm)	714657-001
65-W HP Smart travel adapter (non-PFC)	693716-001
45-W ElitePad HP Smart adapter (4.5-mm)	790129-001
45-W HP Smart adapter (non-PFC, RC, 4.5-mm)	741727-001
45-W HP Smart adapter (non-PFC, RC, 4.5-mm, 2-wire)	742436-001
Bracket Kit:	
For use on the keyboard base, includes: ● Connector board cable ● Fingerprint reader board cable ● Smart card reader board cable	793712-001
For use on the slate, includes: ● Alignment guide left bracket ● Alignment guide right bracket ● Docking connector board bracket ● Volume button board bracket	793728-001
Cable Kit:	
For use on the keyboard base, includes: ● Connector board cable ● Fingerprint reader board cable ● Smart card reader board cable	793719-001

Component	Spare part number
For use on the slate, includes:	793721-001
• Digitizer board cable	
• Docking connector board cable	
• Front-facing webcam cable	
• Rear-facing webcam cable	
• TouchScreen cable	
• Volume button board cable	
Digitizer pen	804346-001
Travel keyboard:	
For use Belgium	800577-A41
For use in Brazil	800577-201
For use in Bulgaria	800577-261
For use in the Czech Republic and Slovakia	800577-FL1
For use in Denmark	800577-081
For use in Denmark, Finland, and Norway	800577-DH1
For use in France	800577-051
For use in Germany	800577-041
For use in Greece	800577-151
For use in Hungary	800577-211
For use in Iceland	800577-DD1
For use in India	800577-D61
For use in Israel	800577-BB1
For use in Italy	800577-061
For use in Japan	800577-291
For use in Latin America	800577-161
For use in the Netherlands	800577-B31
For use in North Africa	800577-FP1
For use in Norway	800577-091
For use in Portugal	800577-131
For use in Romania	800577-271
For use in Russia	800577-251
For use in Saudi Arabia	800577-171
For use in Slovenia	800577-BA1
For use in South Korea	800577-AD1
For use in Spain	800577-071

Component	Spare part number
For use in Sweden and Finland	800577-B71
For use in Switzerland	800577-111
For use in Taiwan	800577-AB1
For use in Thailand	800577-281
For use in Turkey	800577-141
For use in the United Kingdom and Singapore	800577-031
For use in the United States	800577-001
Plastics Kit for use on the slate, includes:	804347-001

- Power button actuator
- Rotate lock button actuator
- SD card/SIM cover
- Volume button actuator

Power cord, 3-pin, black, 1.83-m:	
For use in Argentina	490371-D01
For use in Australia	490371-011
For use in Brazil	490371-202
For use in Denmark	490371-081
For use in Europe	490371-021
For use in India	490371-D61
For use in Israel	490371-BB1
For use in Italy	490371-061
For use in Japan	490371-291
For use in North America	490371-001
For use in the People's Republic of China	490371-AA1
For use in South Africa	490371-AR1
For use in South Korea	490371-AD1
For use in Switzerland	490371-111
For use in Taiwan	490371-AB1
For use in Thailand	490371-201
For use in the United Kingdom and Singapore	490371-031
Power cord, 3-pin, black, 1.00-m:	
For use in Argentina	755530-D01
For use in Australia	755530-011
For use in Brazil	755530-202

Component	Spare part number
For use in Denmark	755530-081
For use in Europe	755530-021
For use in India	755530-D61
For use in Israel	755530-BB1
For use in Italy	755530-061
For use in Japan	755530-291
For use in North America	755530-001
For use in the People's Republic of China	755530-AA1
For use in South Africa	755530-AR1
For use in South Korea	755530-AD1
For use in Switzerland	755530-111
For use in Taiwan	755530-AB1
For use in Thailand	755530-201
For use in the United Kingdom and Singapore	755530-031
Power cord, 2-pin, black, 1.00-m, for use in Japan	762689-291
Screw Kit:	
For use on the keyboard base	804349-001
For use on the slate	793727-001

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 slate, 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 slate, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the slate.

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.

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 slate 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 slateop 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 – slate

📝 **NOTE:**   This chapter provides removal and replacement procedures for Authorized Service Provider only components. Components described in this chapter should only be accessed by an authorized service provider. Accessing these components can damage the slate or void the warranty.

There are as many as 45 screws that must be removed, replaced, and/or loosened when servicing the slate. Make special note of each screw size and location during removal and replacement.

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

Unlocking the device and disabling Always On Remote Management (select HP devices only)

HP Touchpoint Manager (HPTM) is a complete cloud-based solution for managing devices. For select HP devices with the Windows operating system, the Always On Remote Management (AORM) feature is automatically activated when HP Touchpoint Manager software is installed.

AORM can perform a secure BIOS level lock and can also securely erase internal drives (except for encrypted self-encrypting drives). The HP Touchpoint Manager website (http://www.hptouchpointmanager.com) provides access to the AORM lock feature. The device must be unlocked using an authorized PIN from the same website before you can access HP Slate Setup and start the Windows operating system.

📝 **IMPORTANT:**   A service agent cannot retrieve the PIN from the HP Touchpoint Manager website. If a locked device is returned for service, the agent must contact the customer to obtain the PIN to unlock the device. If a PIN is not available, the entire system board must be replaced.

Before returning the device for service, be sure to unlock the device using the PIN from the HP Touchpoint Manager website (http://www.hptouchpointmanager.com), and also disable the AORM feature in HP Slate Setup.

To disable AORM:

1.   Access HP Slate Setup (F10).

   a.   Turn on or restart the device, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

   b.   Press f10 to enter Slate Setup.

      📝 **NOTE:**   If the BIOS is protected with an Administrator password, enter the password.

2.   Select **Advanced**, and then select **HP Touchpoint Manager Options**.

3.   Clear the **Allow Activation** check box.

4.   Select **Save changes and exit**.

Display panel assembly

Description	Spare part number
11.6-in, TouchScreen, FHD, BV, (1920×1080), IPS, 50% CG, typical brightness 400 nits, eDP 1.3, ultra-slim with digitizer display panel assembly	793736-001
11.6-in, TouchScreen, FHD, BV, (1920×1080), IPS, 50% CG, typical brightness 400 nits, eDP 1.3, ultra-slim without digitizer display panel assembly	804352-001
11.6-in, TouchScreen, HD, BV, (1366×768), IPS, 50% CG, typical brightness 400 nits, eDP 1.2, ultra-slim with digitizer display panel assembly	793737-001
11.6-in, TouchScreen, HD, BV, (1366×768), IPS, 50% CG, typical brightness 400 nits, eDP 1.2, ultra-slim without digitizer display panel assembly	804351-001
Back cover	793725-001

Before removing the disassembling the slate, follow these steps:

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

2. Disconnect the power from the slate by unplugging the power cord from the slate.

3. Disconnect all external devices from the slate.

Remove the display panel assembly:

1. Place the slate on a flat work surface with the docking connector toward you.

2. Remove the speaker grille **(1)** that covers the display panel screws.

   The speaker grille is available using spare part number 793734-001.

3. Remove the six Phillips PM1.5×8.3 screws **(2)** and the three Phillips PM1.5×3.5 screws **(3)** that secure the display panel assembly to the bottom cover.

   ⚠ **CAUTION:** Do not completely separate the display panel assembly from the bottom cover in the next step. There are 2 ribbon cables connecting the display panel assembly to the system board that can be damaged if too much separation is achieved.

4. Lift the bottom edge **(4)** of the display panel assembly until it separates from the bottom cover.
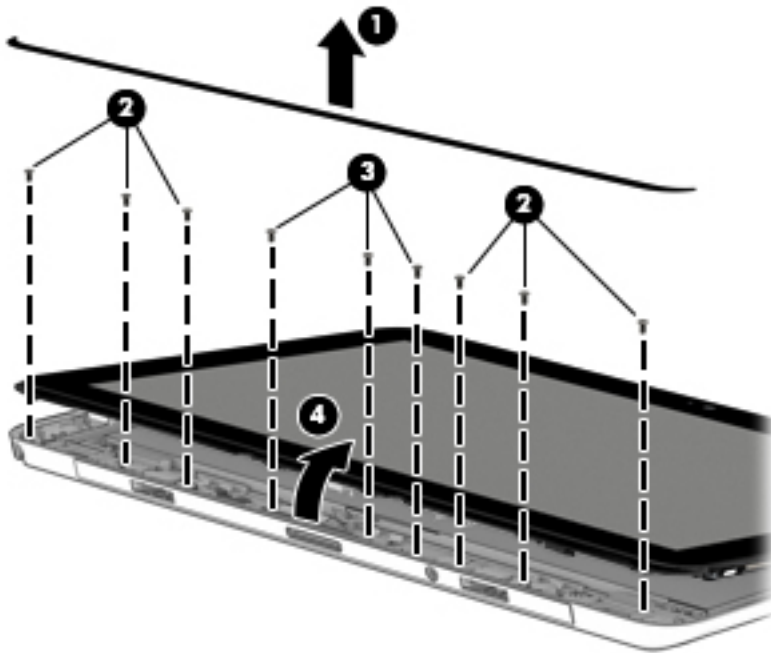
5. Release the zero insertion force (ZIF) connector **(1)** to which the TouchScreen board cable is attached, and then disconnect the TouchScreen board cable from the system board.

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

7. Disconnect the display panel cable **(3)** from the system board.

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

9. Remove the display panel assembly **(5)**.
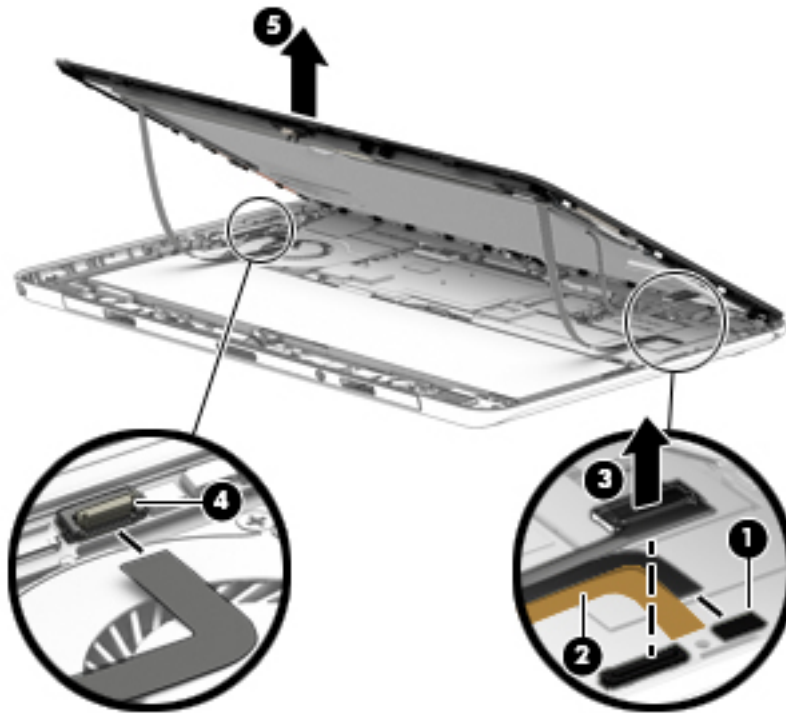
⚠ **CAUTION:** Before turning the display panel upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display panel assembly.

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

   a. Turn the display panel assembly upside down with the docking connector toward you.

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

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

d. Remove the display panel cable **(3)**.

The display panel cable is available using spare part number 804344-001.
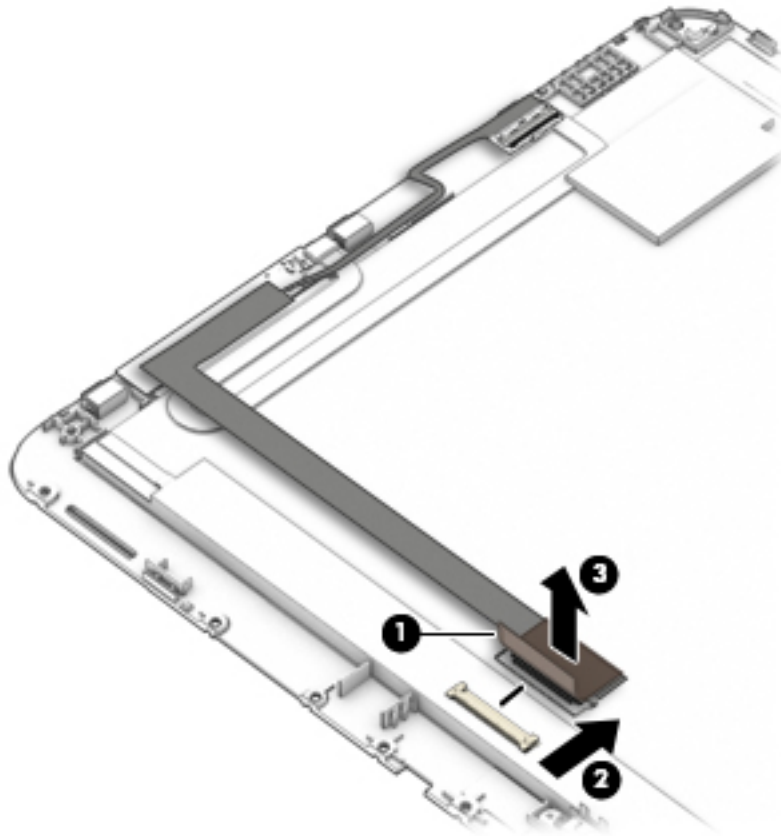
Reverse this procedure to reassemble and install the display panel assembly.

Battery

Description	Spare part number
Battery, 2-cell, 33-WHr, 4.56-AHr, Li-ion (includes cable)	750549-005

Before removing the battery, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35).

⚠ **WARNING!** To reduce potential safety issues, use only the battery provided with the slate, a replacement battery provided by HP, or a compatible battery purchased from HP.

⚠ **CAUTION:** Removing a battery that is the sole power source for the slate can cause loss of information. To prevent loss of information, save your work or shut down the slate through Windows before removing the battery.

Remove the battery:

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

2. Remove the six PM1.6×2.5 screws **(2)** that secure the battery to the bottom cover.

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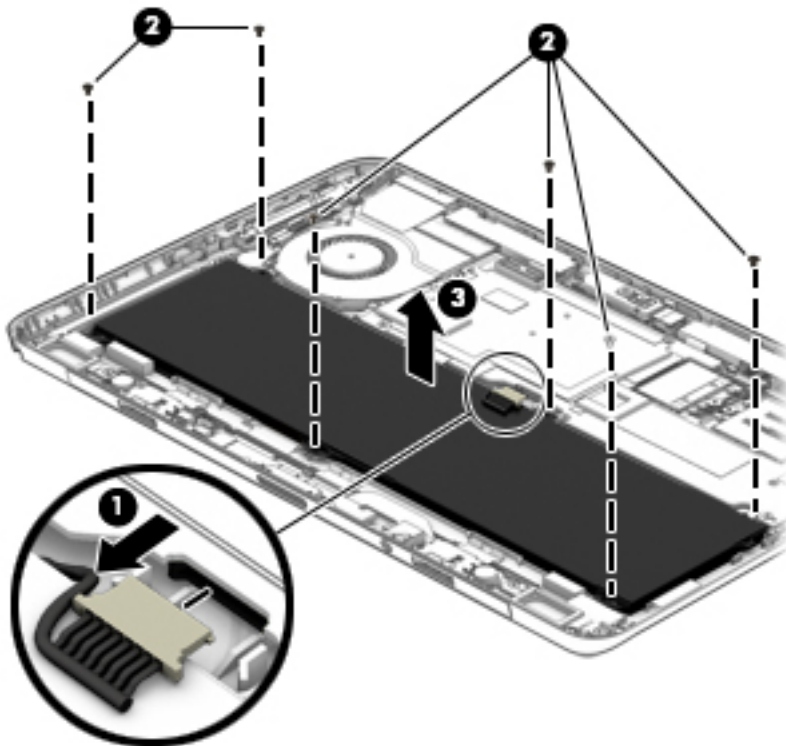
Reverse this procedure to install the battery.

WLAN module

Description	Spare part number
Intel 7265.NGWGQ.I 2 ac 2×2 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 Combo Adapter	783721-005
Intel Tri Band Wireless-AC 17265 802.11a/b/g/n/ac 2×2 and Bluetooth 4.0 + WiGig Combo Adapter	806724-005
Intel Dual Band Wireless-AC 7265 802.11a/b/g/n/ac 2×2 WiFi and Bluetooth 4.0 Combo Adapter	756749-005
Intel Dual Band Wireless-AN 7265 802.11a/b/g/n 2×2 and Bluetooth 4.0 Combo Adapter	756748-005

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

Before removing the WLAN module, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35).

5. Disconnect the battery cable from the system board (see Battery on page 39).
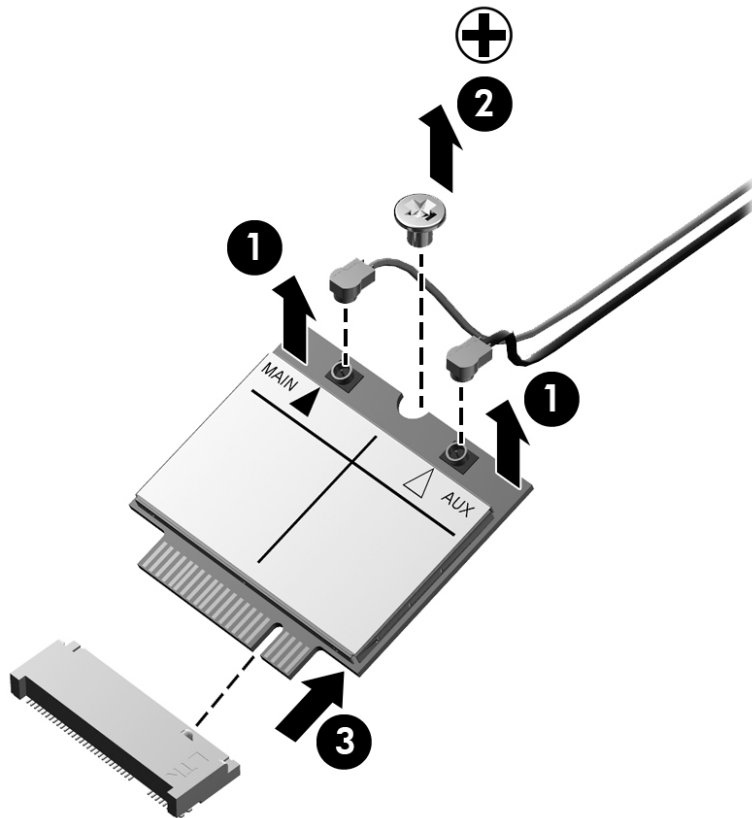
Remove the WLAN module:

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

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

2. Remove the Phillips PM1.9×3.4 screw **(2)** that secures the WLAN module to the bottom cover. (The WLAN module tilts up.)

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

NOTE: If the WLAN antenna cables are not connected to the WLAN module terminals, protective sleeves should be installed on the antenna connectors, as shown in the following illustration.
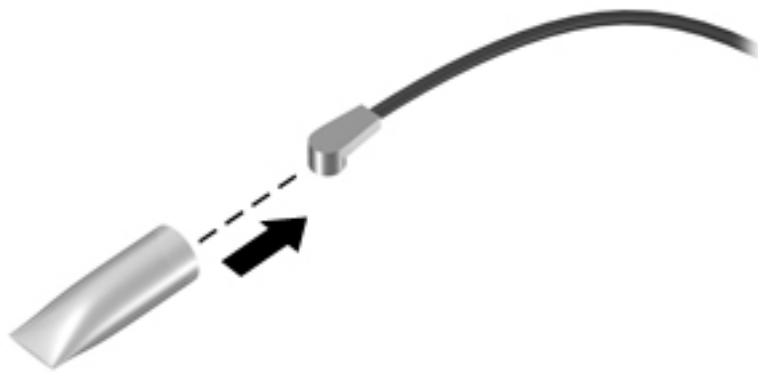
Reverse this procedure to install the WLAN module.

WWAN module

Description	Spare part number
HP lt4226 LTE/HSPA+ 4G Module	736675-005
HP lt4225 LTE/EV-DO 4G Module	793736-005
HP lt4211 LTE/EV-DO/HSPA+ 4G Module	793116-005
HP lt4112 LTE/HSPA+ 4G Module	790198-005
HP hs3110 HSPA+ Mobile Broadband Module	793516-005

⚠ **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the slate 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 slate. If you are unsure whether the slate is off or in Hibernation, turn the slate on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see).

5. Disconnect the battery cable from the system board (see).
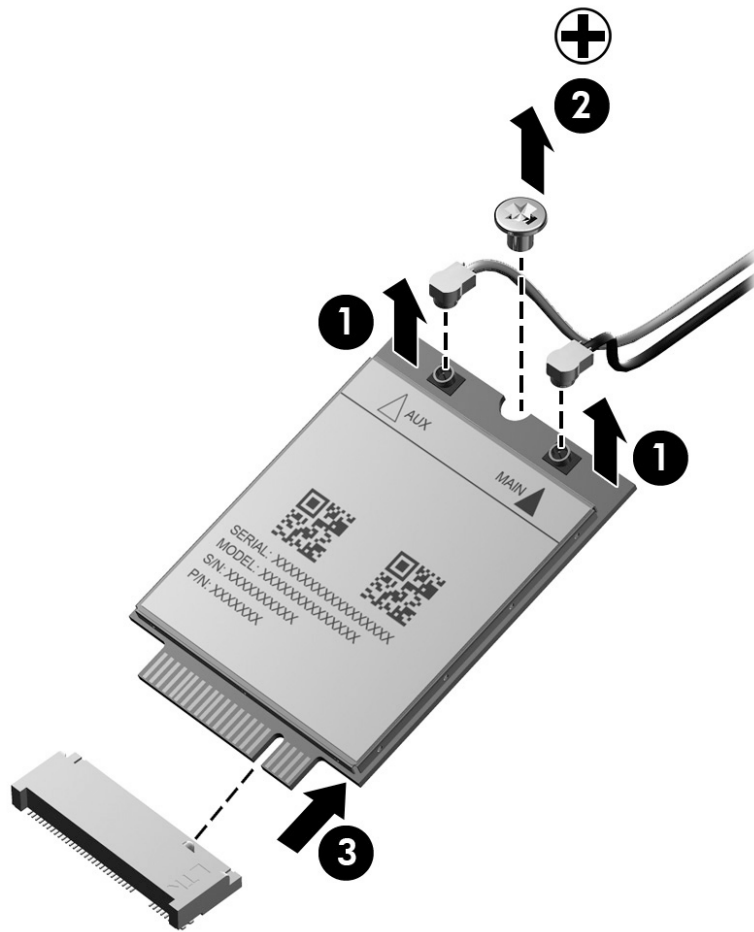
Remove the WWAN module:

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

   📝 **NOTE:** The WWAN antenna cable labeled "5/Main" connects to the WWAN module "5/Main" terminal. The WWAN antenna cable labeled "6/Aux" connects to the WWAN module "6/Aux" terminal.

2. Remove the Phillips PM1.9×3.4 screw **(2)** that secures the WWAN module to the bottom cover. (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 cables are not connected to the WWAN module terminals, protective sleeves should be installed on the antenna connectors, as shown in the following illustration.
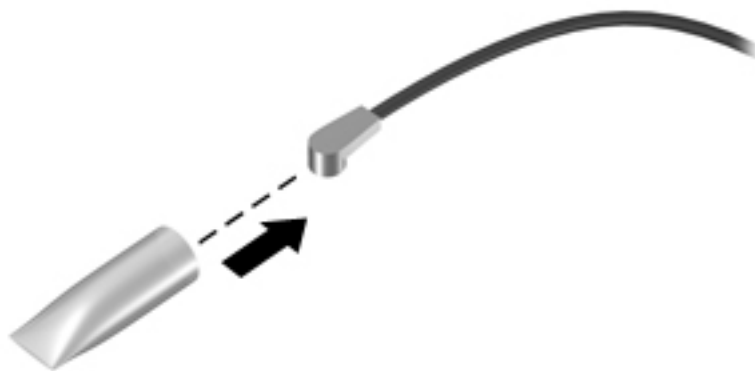
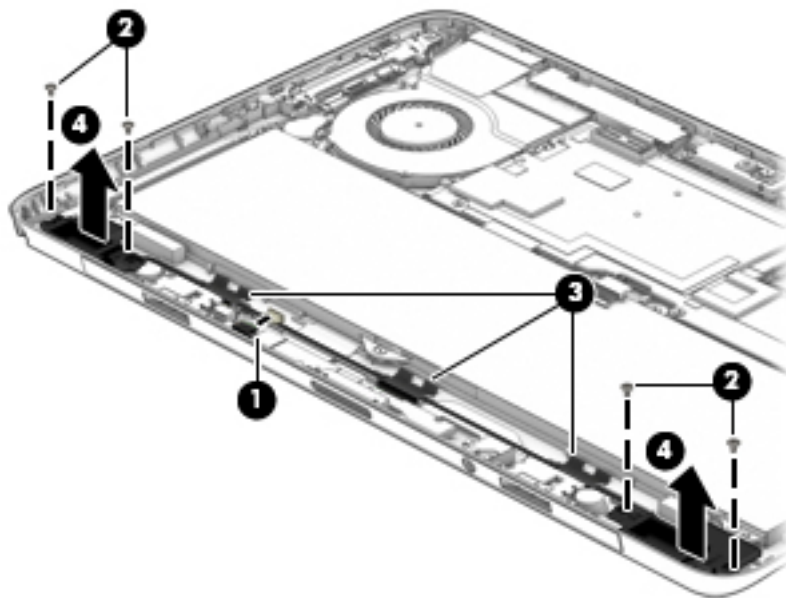Reverse this procedure to install the WWAN module.

Speakers

Description	Spare part number
Speakers (include left and right speakers and cables)	793729-001

Before removing the speakers, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35).

5. Remove the battery (see Battery on page 39).

Remove the speakers:

1. Disconnect the speaker cable **(1)** from the docking connector board.

2. Remove the four Phillips PM1.6×2.5 screws **(2)** that secure the speakers to the bottom cover.

3. Release the speakers cables from the retention tabs **(3)** built into the bottom cover.

4. Remove the speakers **(4)**.

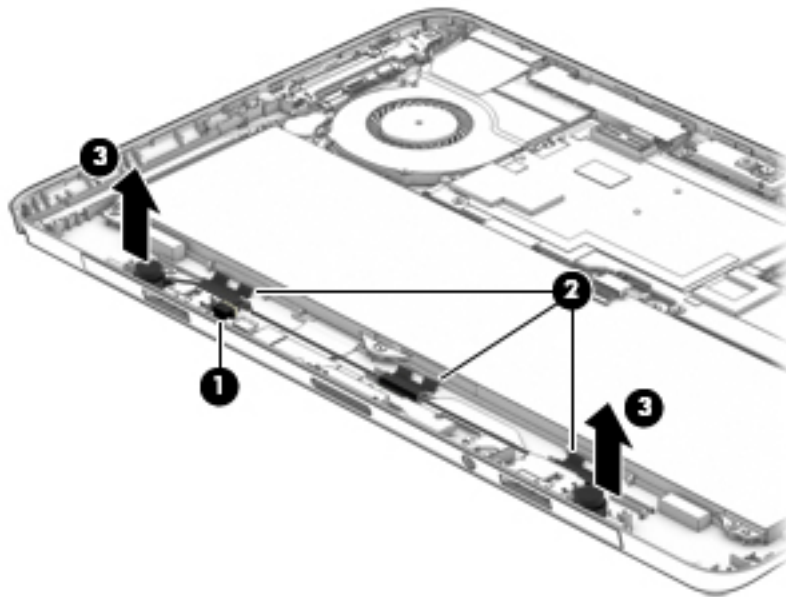Reverse this procedure to install the speakers.

Vibrator module

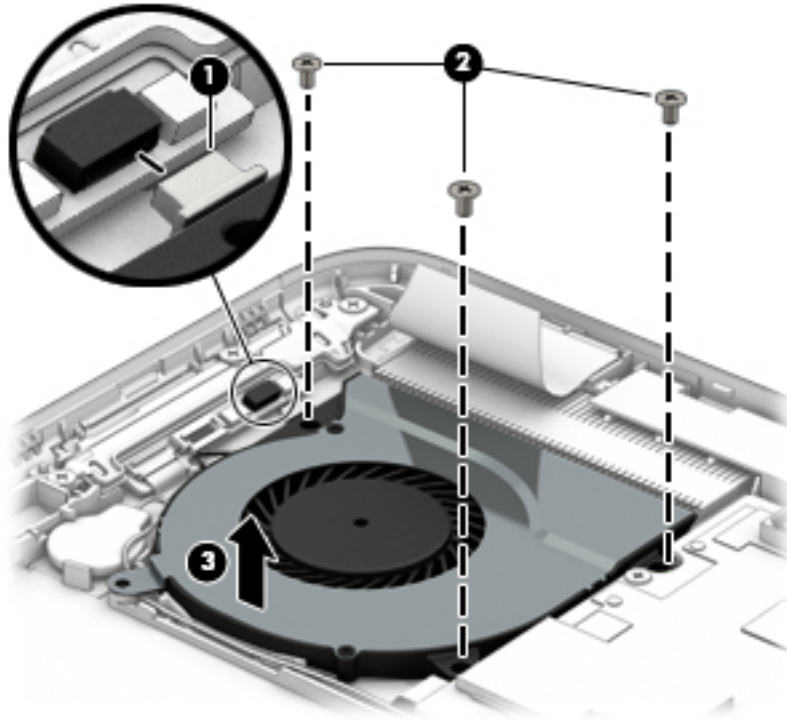| Description	Spare part number
Vibrator module (includes left and right vibrator modules and cables)	793730-001

Before removing the vibrator module, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35).

5. Remove the battery (see Battery on page 39).

Remove the vibrator module:

1. Disconnect the vibrator module cable **(1)** from the docking connector board.

2. Release the vibrator module cables from the retention tabs **(2)** built into the bottom cover.

3. Detach the vibrator module **(3)** from the bottom cover. (The vibrator module is attached to the bottom cover with double-sided adhesive.)

4. Remove the vibrator module.

Reverse this procedure to install the vibrator module.

Fan

Description	Spare part number
Fan (includes cable)	793735-001

NOTE: To properly ventilate the slate, allow at least 7.6 cm (3 in) of clearance on the left side of the slate. The slate uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the slate.

Before removing the fan, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35).

5. Remove the battery (see Battery on page 39).

Remove the fan:

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

2. Remove the three Phillips PM1.9×3.4 screws **(2)** that secure the fan to the bottom cover.

3. Remove the fan **(3)**.

Reverse this procedure to install the fan.

Volume button board

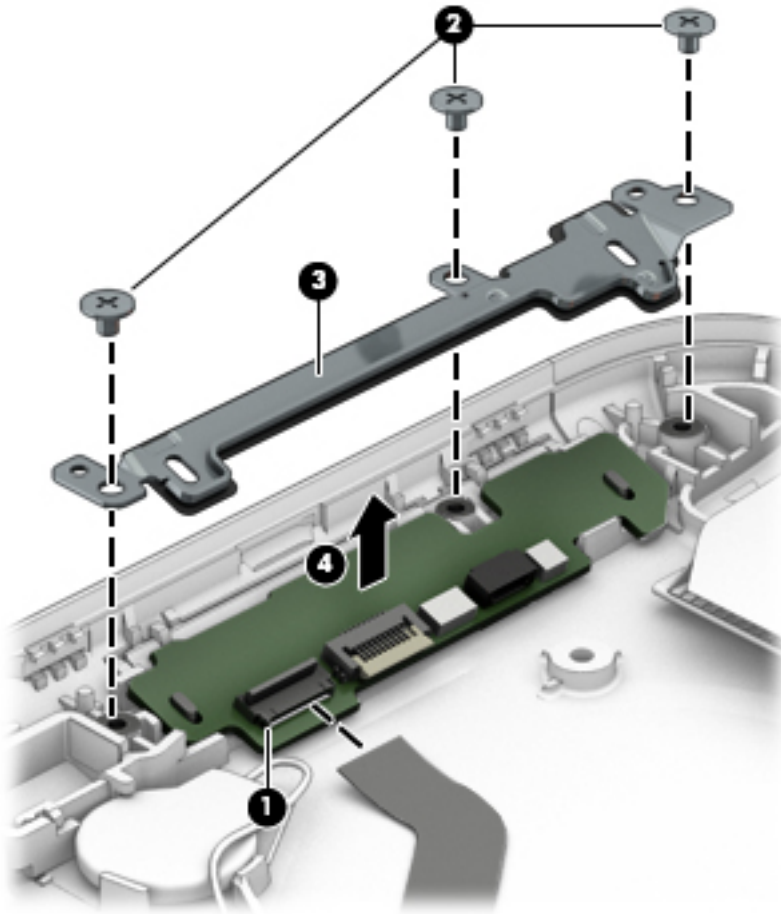| Description	Spare part number
Volume button board	793733-001

NOTE: The volume button board spare part kit does not include the volume button board cable. The volume button board cable is included in the Slate Cable Kit, spare part number 793721-001.

Before removing the volume button board, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see).

5. Remove the battery (see).

Remove the volume button board:

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

2. Remove the three Phillips PM1.5×2.3 screws **(2)** that secure the volume button board to the bottom cover.

3. Remove the bracket **(3)** that secures the volume button board to the bottom cover.

    The volume button board bracket is included in the Slate Bracket Kit, spare part number 793712-001.

4. Remove the volume button board **(4)** and cable.

Reverse this procedure to install the volume button board.

Docking connector board

Description	Spare part number
Docking connector board	793731-001

NOTE: The docking connector board spare part kit does not include the docking connector board cable. The docking connector board cable is included in the Slate Cable Kit, spare part number 793721-001.

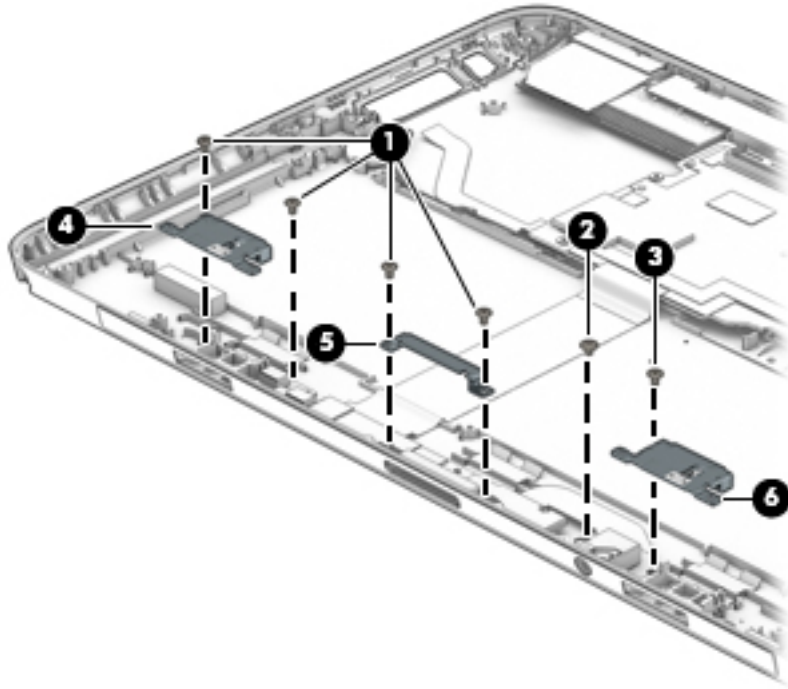Before removing the docking connector board, follow these steps:

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

2. Disconnect the power from the slate by unplugging the power cord from the slate.

3. Disconnect all external devices from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35).

5. Remove the battery (see Battery on page 39).

Remove the docking connector board:

1. Remove the following screws:

   (1) Four Phillips PM1.9×2.5 screws

   (2) One Phillips PM1.5×2.3 screw

   (3) One Phillips PM1.5×3.5 screw

2. Remove the left alignment post connector bracket **(4)**.

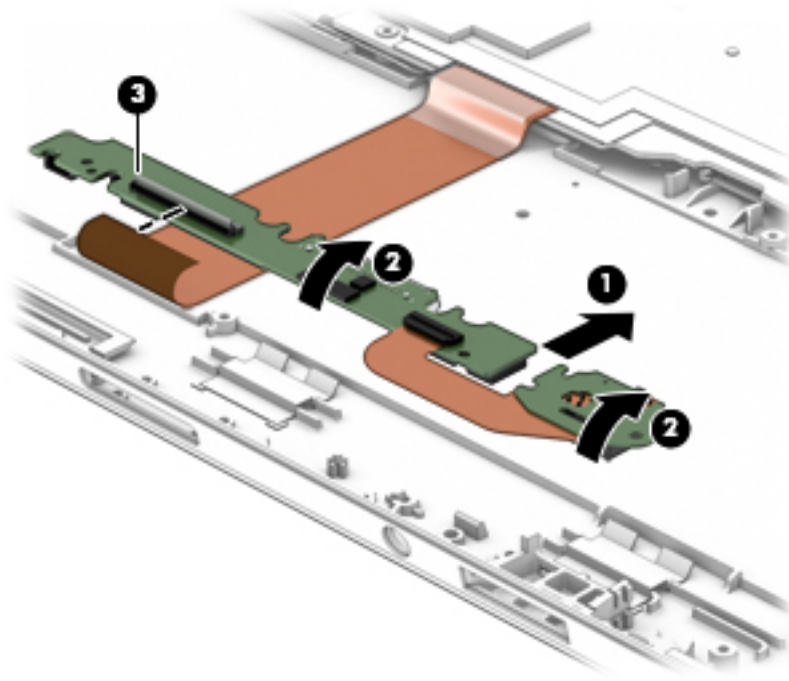3. Remove the docking connector board bracket **(5)**.

4. Remove the right alignment post connector bracket **(6)**.

    The alignment post connector brackets and the docking connector board bracket are included in the Table Bracket Kit, spare part number 793712-001.

5. Release the docking connector board **(1)** and audio jack board by sliding them back until they clear the bottom edge of the bottom cover.

6. Flip the docking connector board **(2)** and audio jack board upside down.

7. Release the ZIF connector **(3)** to which the docking connector board cable is attached, and then disconnect the docking connector board cable from the docking connector board.

8. Remove the docking connector board, audio jack board, and audio jack board cable.

Reverse this procedure to install the docking connector board.

Audio jack board

Description	Spare part number
Audio jack board (includes cable)	793732-001

Before removing the audio jack board, follow these steps:

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

2. Disconnect the power from the slate by unplugging the power cord from the slate.

3. Disconnect all external devices from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35).

5. Remove the battery (see Battery on page 39).

6. Remove the docking connector board (see Docking connector board on page 49).

Remove the audio jack board:

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

2. Remove the audio jack board **(2)** and cable.
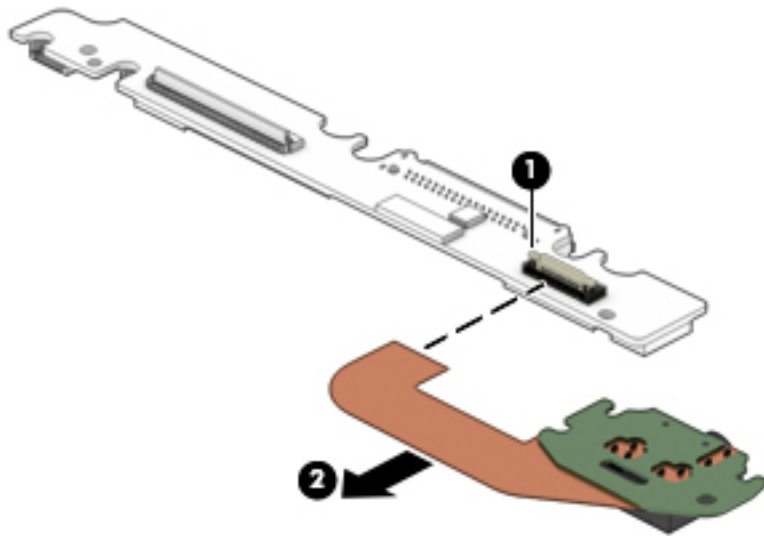
Reverse this procedure to install the audio jack board and cable.

System board

Description	Spare part number
Equipped with an Intel Core i7 M-5Y71 processor, 8.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805071-601
Equipped with an Intel Core i7 M-5Y71 processor, 8.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805071-501
Equipped with an Intel Core i7 M-5Y71 processor, 8.0-GB of system memory, and a non-Windows operating system	805071-001
Equipped with an Intel Core i7 M-5Y71 processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805072-601
Equipped with an Intel Core i7 M-5Y71 processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805072-501
Equipped with an Intel Core i7 M-5Y71 processor, 4.0-GB of system memory, and a non-Windows operating system	805072-001
Equipped with an Intel Core i5 M-5Y51 processor, 8.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805070-601
Equipped with an Intel Core i5 M-5Y51 processor, 8.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805070-501
Equipped with an Intel Core i5 M-5Y51 processor, 8.0-GB of system memory, and a non-Windows operating system	805070-001
Equipped with an Intel Core i5 M-5Y51 processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805069-601
Equipped with an Intel Core i5 M-5Y51 processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805069-501
Equipped with an Intel Core i5 M-5Y51 processor, 4.0-GB of system memory, and a non-Windows operating system	805069-001

Description	Spare part number
Equipped with an Intel Core i3 M-5Y10c processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Professional operating system	805068-601
Equipped with an Intel Core i3 M-5Y10c processor, 4.0-GB of system memory, and the Windows 10 or Windows 8 Standard operating system	805068-501
Equipped with an Intel Core i3 M-5Y10c processor, 4.0-GB of system memory, and a non-Windows operating system	805068-001

Before removing the system board, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

   a. Battery (see Battery on page 39)

   b. WLAN module (see WLAN module on page 40)

   c. WWAN module (see WWAN module on page 42)

   d. Fan (see Fan on page 46)

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

● RTC battery (see RTC battery on page 59)

● Solid-state drive (see Solid-state drive on page 60)

● Heat sink (see Heat sink on page 62)

● Rear-facing webcam (see Rear-facing webcam on page 64)

● Front-facing webcam (see Front-facing webcam on page 65)
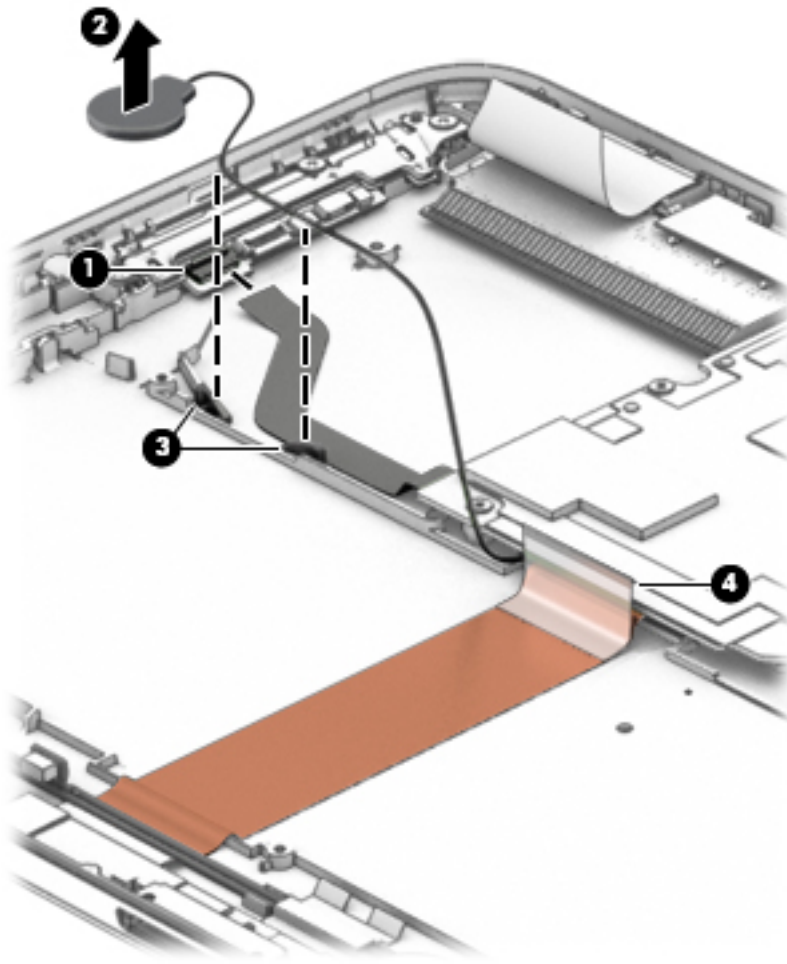
Remove the system board:

1. Detach the WLAN antenna transceiver **(1)** from the bottom cover. (The WLAN antenna transceiver is attached to the bottom cover with double-sided adhesive.)

2. Remove the Phillips PM1.5×2.3 screw **(2)** that secures the front-facing webcam to the bottom cover.

3. Release the front-facing webcam **(3)** from the bottom cover.

4. Detach the rear-facing webcam **(4)** from the bottom cover. (The rear-facing webcam is attached to the bottom cover with double-sided adhesive.)
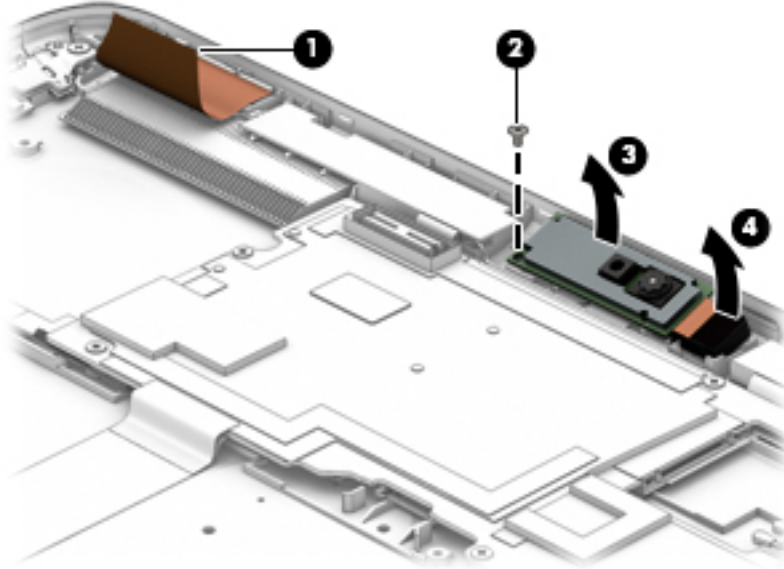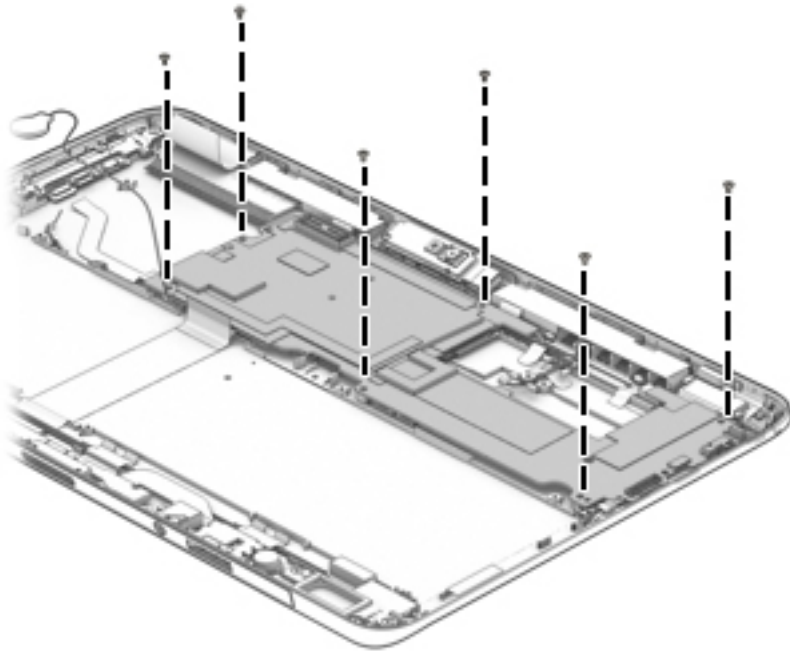
5. Release the ZIF connector **(1)** to which the volume button board cable is attached, and then disconnect the volume button board cable from the volume button board.

6. Detach the RTC battery **(2)** from the bottom cover. (The RTC battery is attached to the bottom cover with double-sided adhesive.)

7. Release the RTC battery cable from the retention clips **(3)** built into the bottom cover.

8. Release the adhesive strip **(4)** that secures the docking connector board cable to the system board.

9. Remove the six Phillips PM1.5×2.3 screws that secure the system board to the bottom cover.

10. Flip the system board **(1)** up and forward so that it rests upside down in the bottom cover.

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

12. Remove the system board **(3)**.
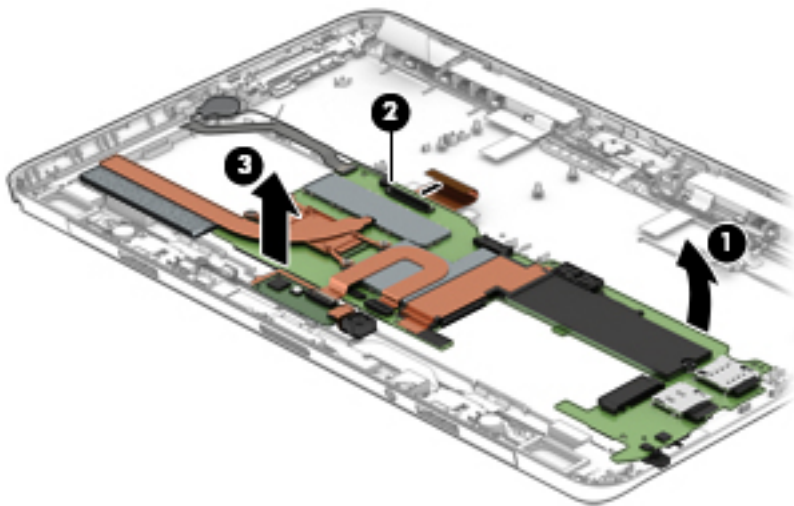
📝 **NOTE:** When removing the system board, it is possible for the power button actuator to accidentally fall out of the bottom cover. To install the power button actuator, follow the ensuing procedure:

1. Toe the power button actuator into the bottom cover, making sure the tabs fit under the ridge built into the right side of the bottom cover.
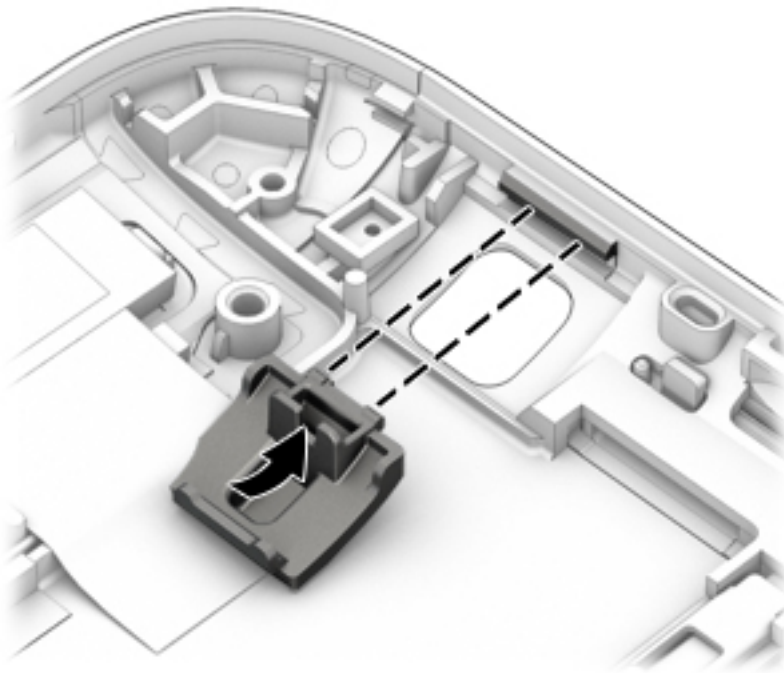
2. When the system board has been installed, make sure the power switch **(1)** engages with the notch **(2)** built into the power button actuator.
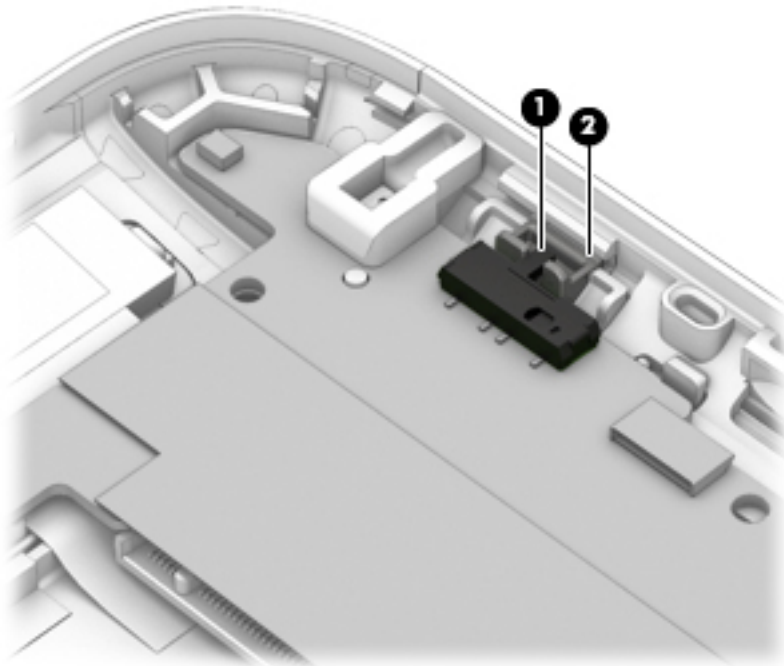
Reverse this procedure to install the system board.
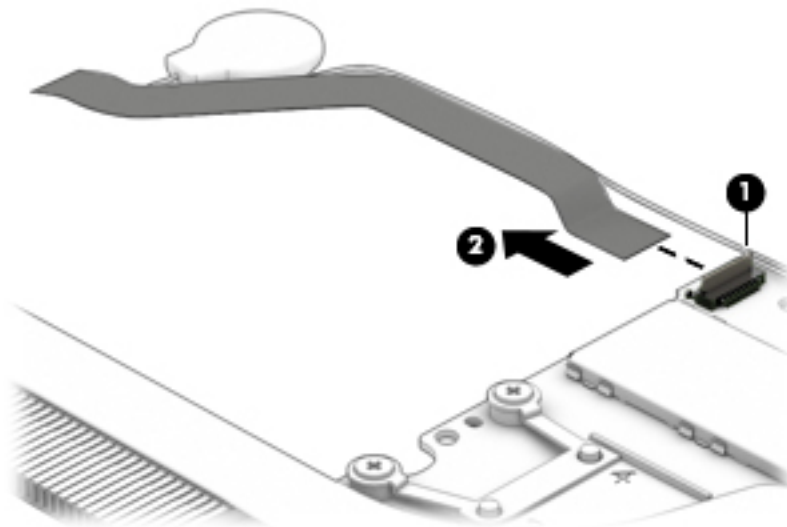
Volume button board cable

📝 **NOTE:** The volume button board cable is included in the Slate Cable Kit, spare part number 793721-001.

Before removing the volume button board cable, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

   a. Battery (see Battery on page 39)

   b. WLAN module (see WLAN module on page 40)

   c. WWAN module (see WWAN module on page 42)

   d. Fan (see Fan on page 46)

   e. System board (see System board on page 52)

Remove the volume button board cable:

1. Turn the system board upside down with the docking connector toward you.

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

3. Remove the volume button board cable **(2)**.

Reverse this procedure to install the volume button board cable.
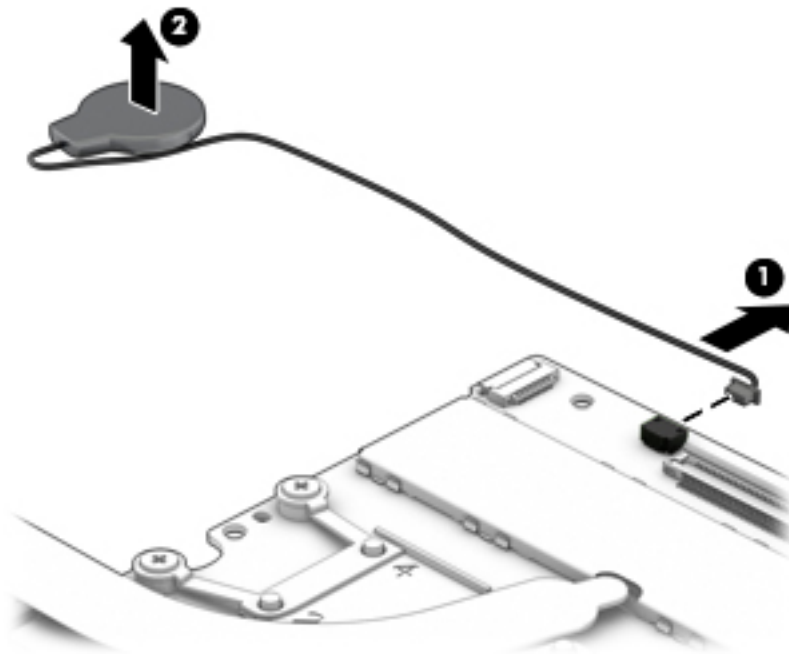
RTC battery

Description	Spare part number
RTC battery (includes cable and double-sided adhesive)	793723-001

Before removing the RTC battery, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

   a. Battery (see Battery on page 39)

   b. WLAN module (see WLAN module on page 40)

   c. WWAN module (see WWAN module on page 42)

   d. Fan (see Fan on page 46)

   e. System board (see System board on page 52)

Remove the RTC battery:

1. Turn the system board upside down with the docking connector toward you.

2. Disconnect the RTC battery cable **(1)** from the system board.

3. Remove RTC battery **(2)**.

Reverse this procedure to install the RTC battery.

Solid-state drive

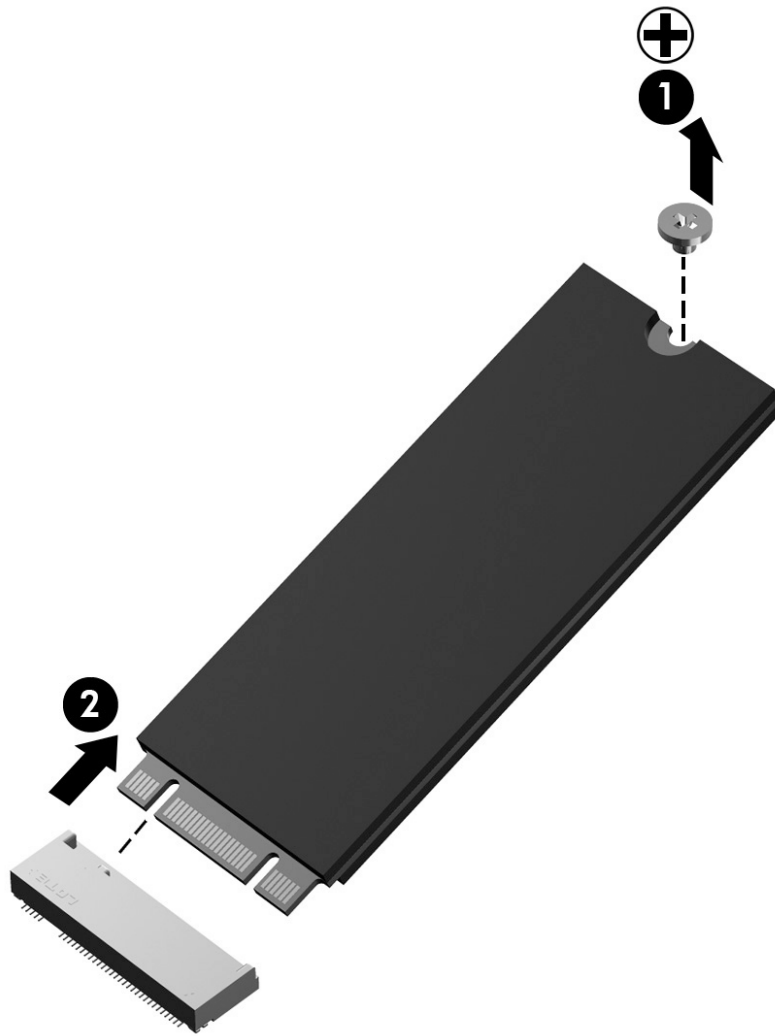| Description	Spare part number
512-GB, M2, SATA-3 solid-state drive	811391-001
256-GB, M2, SATA-3	793709-001
256-GB, M2, SATA-3 solid-state drive supporting TLC	811393-001
256-GB, M2, SATA-3, SED solid-state drive supporting Opal 2	810987-001
256-GB, M2, SanDisk X110 locked solid-state drive	824109-001
180-GB, M2, SATA-3	811389-001
180-GB, M2, SATA-3, SED solid-state drive supporting Opal 2	811390-001
128-GB, M2, SATA-3	793708-001
128-GB, M2, SATA-3 solid-state drive supporting TLC	811392-001

Before removing the solid-state drive, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

    a. Battery (see Battery on page 39)

    b. WLAN module (see WLAN module on page 40)

    c. WWAN module (see WWAN module on page 42)

    d. Fan (see Fan on page 46)

    e. System board (see System board on page 52)

Remove the solid-state drive:

1. Turn the system board upside down with the docking connector toward you.

2. Remove the Phillips PM1.3×1.9 screw that secures the solid-state drive to the system board. (The solid-state drive tilts up.)

3. Remove solid-state drive **(2)**.

Reverse this procedure to install the solid-state drive.

Heat sink

Description	Spare part number
Heat sink (includes replacement thermal material)	793726-001

Before removing the heat sink, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see), and then remove the following components:

   a. Battery (see)

   b. WLAN module (see)

   c. WWAN module (see)

   d. Fan (see)

   e. System board (see)

Remove the heat sink:

1. Turn the system board upside down with the docking connector toward you.

2. Remove the four Phillips PM1.9×3.4 screws **(1)** that secure the heat sink to the system board.

   📝 **NOTE:** Due to the adhesive quality of the thermal material located between the heat sink and system board components, it may be necessary to move the heat sink from side to side to detach it.

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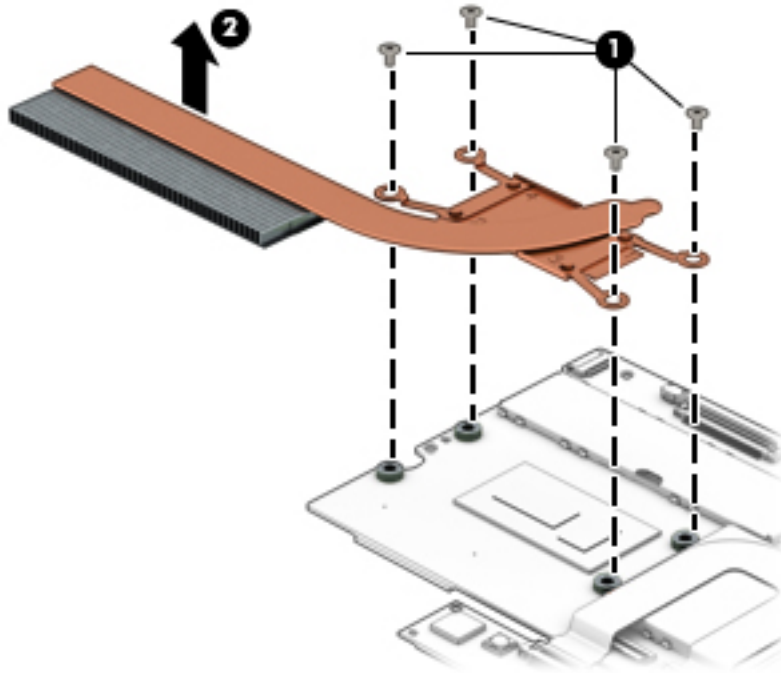
NOTE: The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board each time the heat sink is removed. Thermal paste is used on the processor **(1)** and the heat sink section **(2)** that services it.
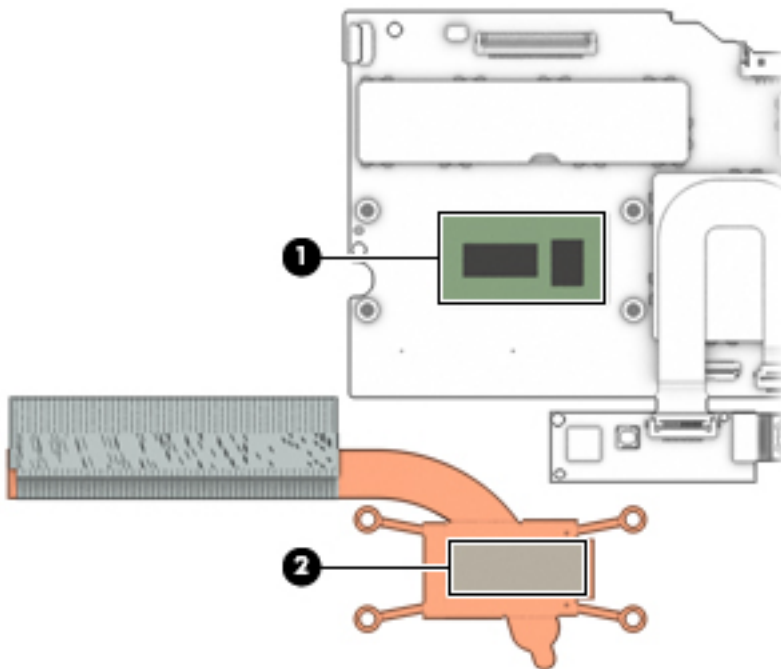
Reverse this procedure to install the heat sink.

Rear-facing webcam

NOTE: The rear-facing webcam is included in the Webcam Kit, spare part number 793724-001.
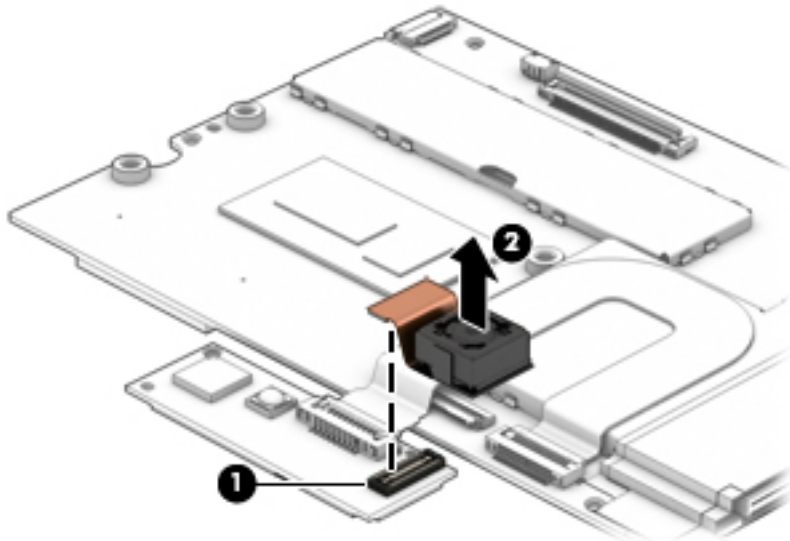
The rear-facing webcam spare part kit does not include the rear-facing webcam cable. The rear-facing webcam cable is included in the Slate Cable Kit, spare part number 793721-001.

Before removing the rear-facing webcam, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

   a. Battery (see Battery on page 39)

   b. WLAN module (see WLAN module on page 40)

   c. WWAN module (see WWAN module on page 42)

   d. Fan (see Fan on page 46)

   e. System board (see System board on page 52)

Remove the rear-facing webcam:

1. Turn the system board upside down with the top edge toward you.

2. Disconnect the rear-facing webcam cable **(1)** from the front-facing webcam board.

3. Remove the rear-facing webcam **(2)**.

Reverse this procedure to install the rear-facing webcam.

Front-facing webcam

📝 **NOTE:** The front-facing webcam is included in the Webcam Kit, spare part number 793724-001, and includes double-sided adhesive.

The front-facing webcam spare part kit does not include the front-facing webcam cable. The front-facing webcam cable is included in the Slate Cable Kit, spare part number 793721-001.
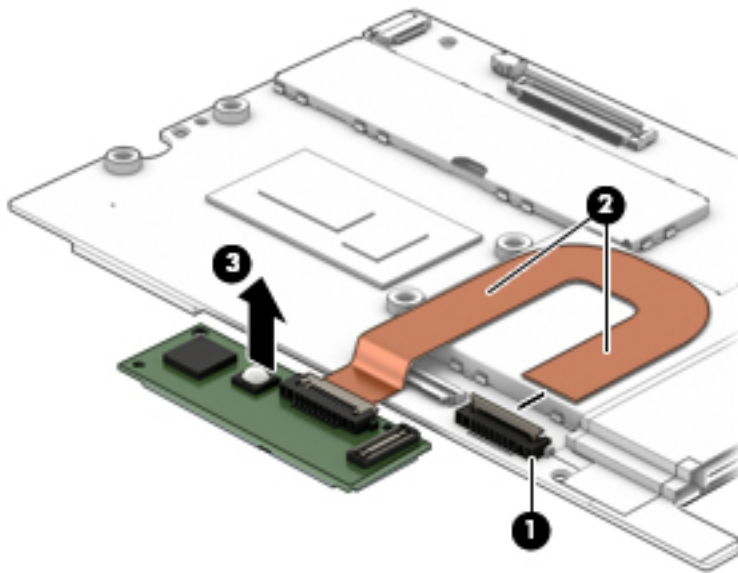
Before removing the front-facing webcam, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

   a. Battery (see Battery on page 39)

   b. WLAN module (see WLAN module on page 40)

   c. WWAN module (see WWAN module on page 42)

   d. Fan (see Fan on page 46)

   e. System board (see System board on page 52)

   f. Rear-facing webcam (see Rear-facing webcam on page 64)

Remove the front-facing webcam:

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

2. Detach the front-facing webcam board cable **(2)** from the system board. (The front-facing webcam board cable is attached to the system board with double-sided adhesive.)

3. Remove the front-facing webcam **(3)** and cable.

Reverse this procedure to install the front-facing webcam.

WWAN antenna

NOTE: The WWAN auxiliary and main antennas are included in the Antenna Kit, using the following spare part numbers:

- 805065-001 – For use in African, European, and Middle Eastern countries and regions
- 806251-001 – For use in Japan
- 805067-001 – For use in North America

Before removing the WWAN antenna, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

    a. Battery (see Battery on page 39)

    b. WLAN module (see WLAN module on page 40)

    c. WWAN module (see WWAN module on page 42)

    d. Fan (see Fan on page 46)

    e. System board (see System board on page 52)
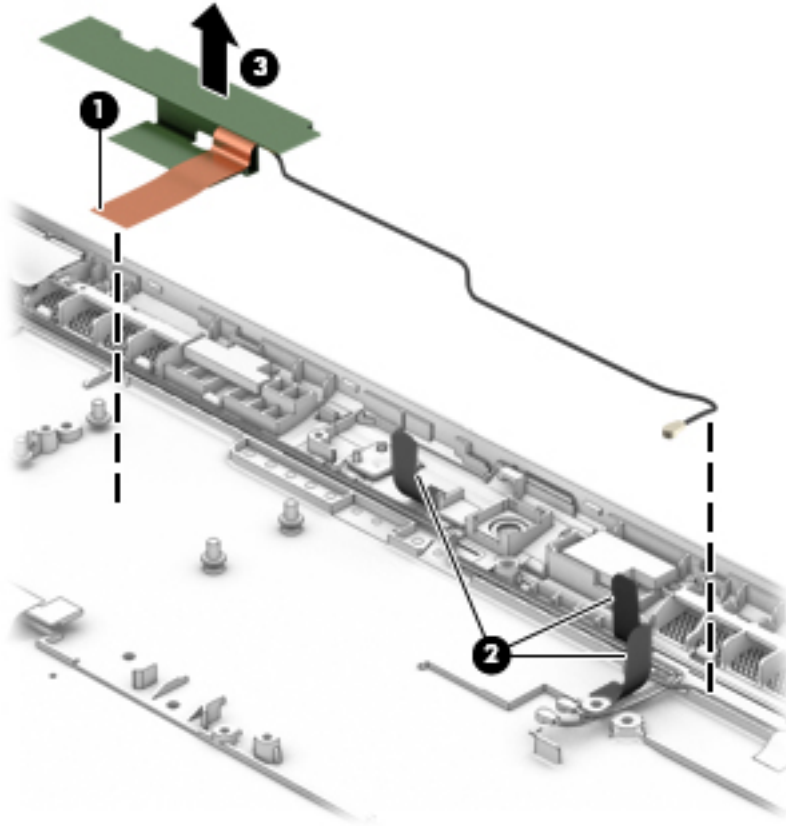
Remove the WWAN antenna:

1. Detach the WWAN main antenna transceiver **(1)** from the bottom cover. (The WWAN main antenna transceiver is attached to the bottom cover with double-sided adhesive.)

2. Release the WWAN main antenna **(2)** transceiver and cable.
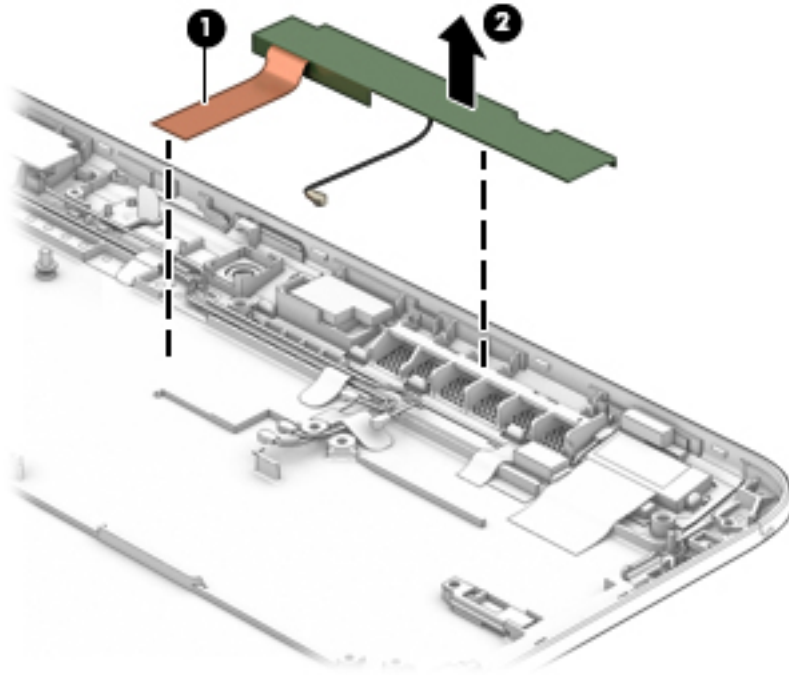
3. Detach the WWAN auxiliary antenna transceiver **(1)** from the bottom cover. (The WWAN auxiliary antenna transceiver is attached to the bottom cover with double-sided adhesive.)

4. Release the WWAN auxiliary antenna cable from the retention tabs **(2)** built into the bottom cover.

5. Release the WWAN auxiliary antenna **(3)** transceiver and cable.

Reverse this procedure to install the WWAN antenna.

WLAN antenna

📝 **NOTE:** The WLAN main antenna is included in the Antenna Kit, using the following spare part numbers:

- 805065-001 – For use in African, European, and Middle Eastern countries and regions
- 806251-001 – For use in Japan
- 805067-001 – For use in North America

Before removing the WLAN antenna, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

   a. Battery (see Battery on page 39)

   b. WLAN module (see WLAN module on page 40)

   c. WWAN module (see WWAN module on page 42)

   d. Fan (see Fan on page 46)

   e. System board (see System board on page 52)

Remove the WLAN antenna:

1. Release the WLAN antenna cable from the retention tabs **(1)** built into the bottom cover.

2. Remove the WLAN antenna **(2)** transceiver and cable.
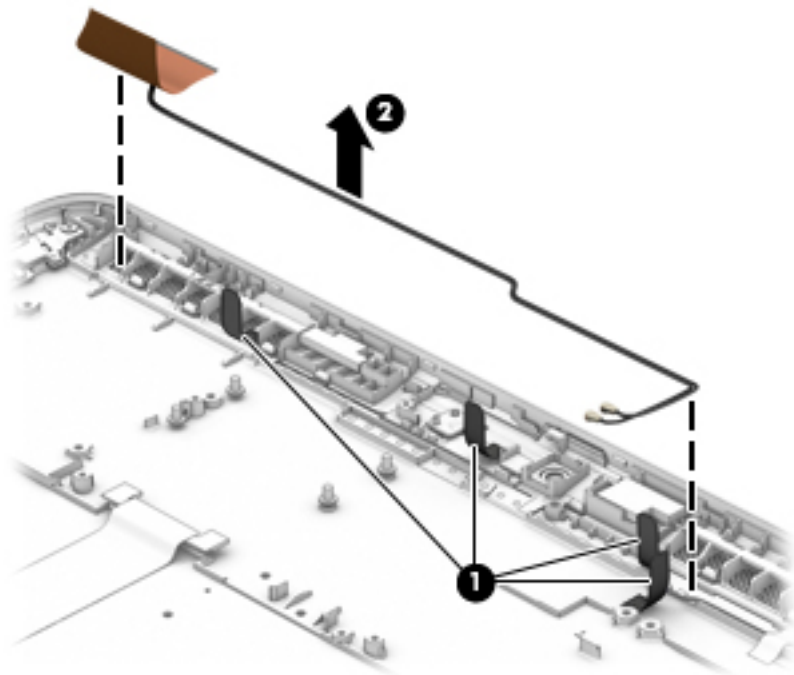
Reverse this procedure to install the WLAN antenna.

WiGig antenna

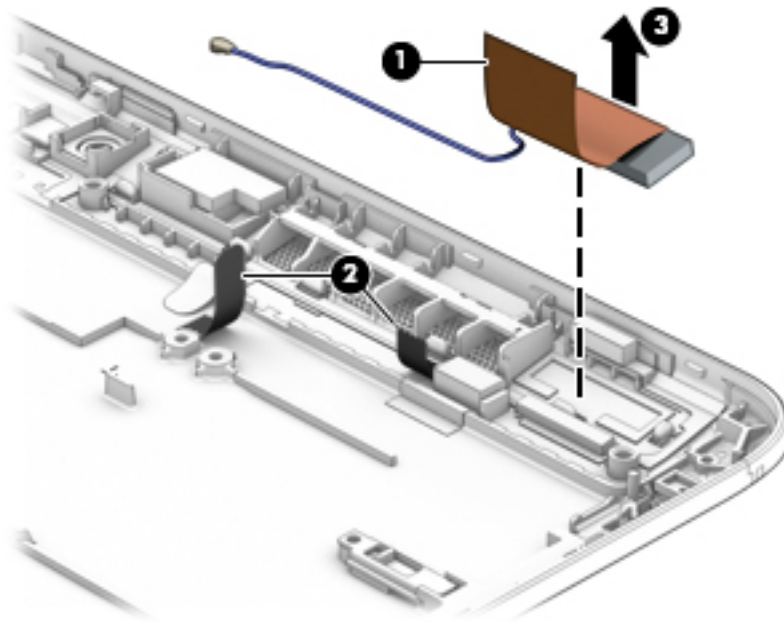| Description	Spare part number
WiGig antenna (includes WiGig antenna cable and transceiver)	805066-001

Before removing the WiGig antenna, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see Display panel assembly on page 35), and then remove the following components:

    a. Battery (see Battery on page 39)

    b. WLAN module (see WLAN module on page 40)

    c. WWAN module (see WWAN module on page 42)

    d. Fan (see Fan on page 46)

    e. System board (see System board on page 52)

Remove the WiGig antenna:

1. Detach the WiGig antenna transceiver **(1)** from the bottom cover. (The WiGig antenna transceiver is attached to the bottom cover with double-sided adhesive.)

2. Release the WiGig antenna cable from the retention tabs **(2)** built into the bottom cover.

3. Remove the WiGig antenna **(3)** cable and transceiver.

Reverse this procedure to install the WiGig antenna.

Docking connector board cable

📝 **NOTE:** The docking connector board cable is included in the Slate Cable Kit, spare part number 793721-001.
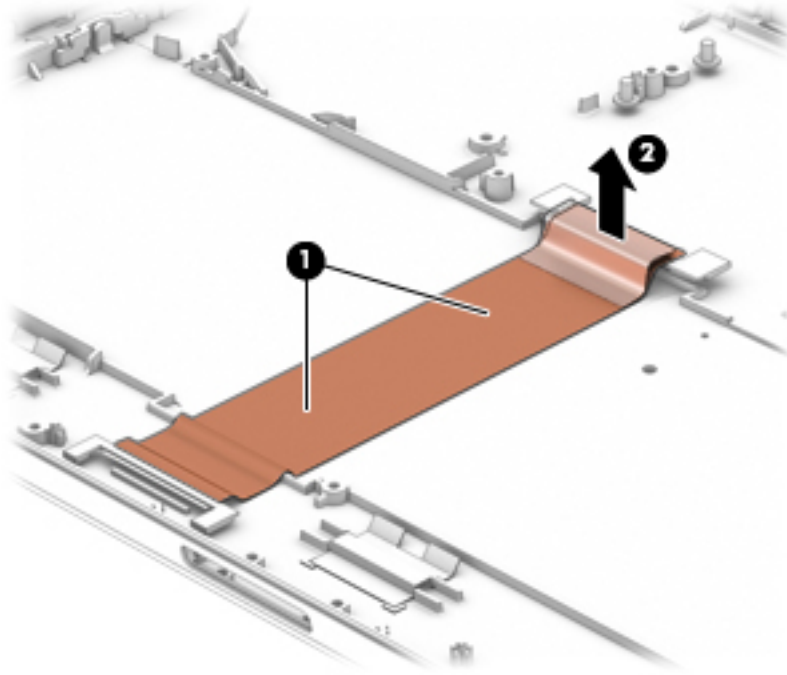
Before removing the docking connector board cable, follow these steps:

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

2. Disconnect all external devices connected to the slate.

3. Disconnect the power from the slate by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the slate.

4. Remove the display panel assembly (see), and then remove the following components:

    a. Battery (see)

    b. WLAN module (see)

    c. WWAN module (see)

    d. Fan (see)

    e. Docking connector board (see)

    f. System board (see)

Remove the docking connector board cable:

1. Detach the docking connector board cable **(1)** from the bottom cover. (The docking connector board cable is attached to the bottom cover with double-sided adhesive.)

2. Remove the docking connector board cable **(2)**.

Reverse this procedure to install the docking connector board cable.

6 Removal and replacement procedures – Keyboard base

> **NOTE:** This chapter provides removal and replacement procedures for Authorized Service Provider only components. Components described in this chapter should only be accessed by an authorized service provider. Accessing these components can damage the keyboard base or void the warranty.

There are as many as 49 screws that must be removed, replaced, and/or loosened when servicing the keyboard base. Make special note of each screw size and location during removal and replacement.

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

Bottom cover

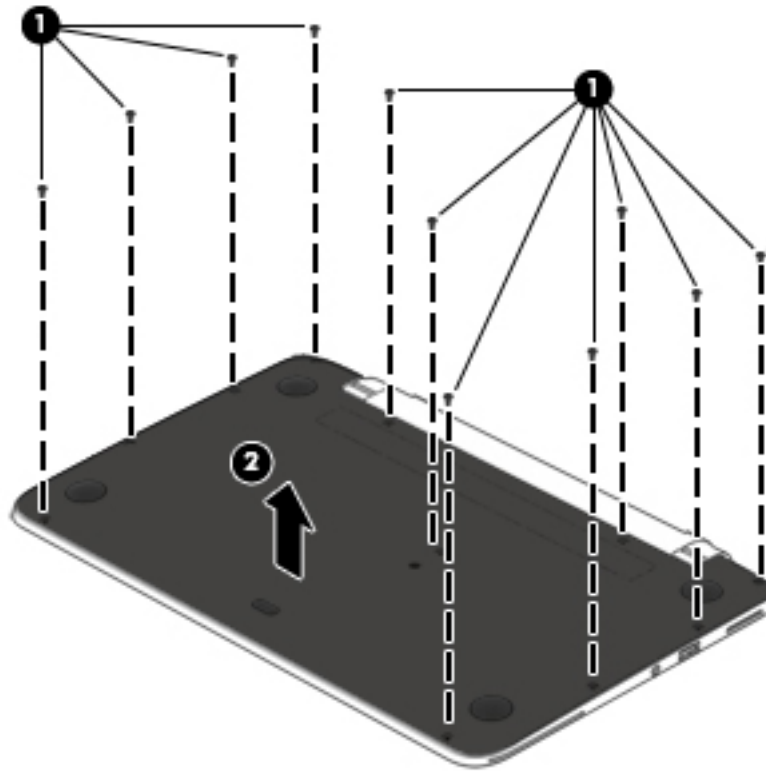| Description	Spare part number
Bottom cover	793710-001
Rubber Kit (includes bottom cover rubber feet)	804348-001

Before disassembling the keyboard base, follow these steps:

1. Turn off the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect the power from the keyboard base by unplugging the power cord from the keyboard base.

3. Disconnect all external devices from the keyboard base.

Remove the bottom cover:

1. Turn the keyboard base upside down on a flat work surface with the front edge toward you.

2. Remove the eleven Torx8 T8M2.0×4.3 screws **(1)** secure the bottom cover to the keyboard base.

3. Remove the bottom cover **(2)**.

Reverse this procedure to install the bottom cover.

Keyboard base battery

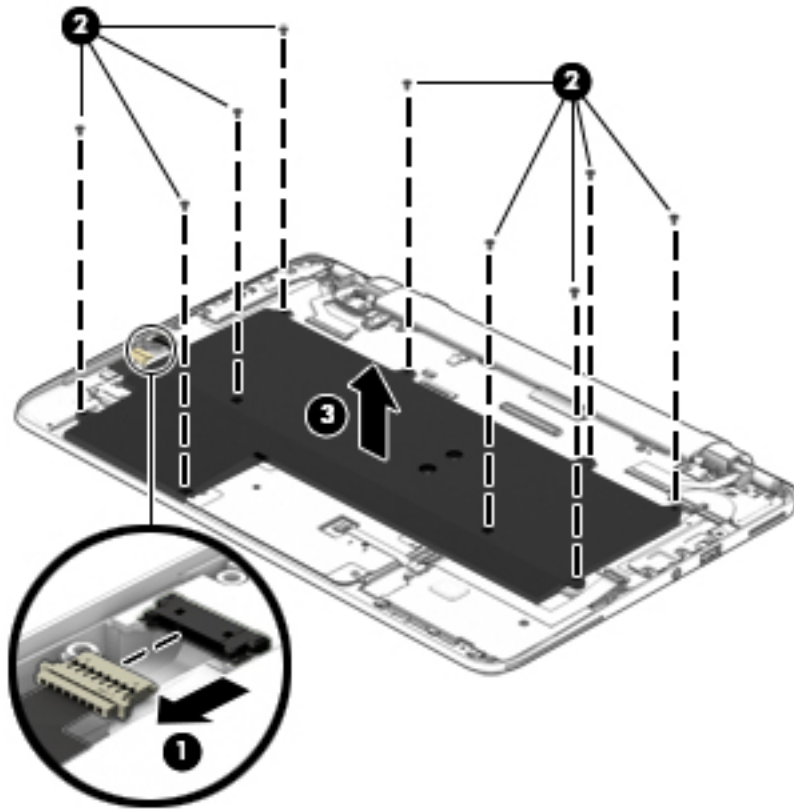| Description	Spare part number
Battery, 6-cell, 21-WHr, 0.95-AHr, LI (includes cable)	750550-005

Before removing the keyboard base battery, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

Remove the keyboard base battery:

1. Disconnect the keyboard base battery cable **(1)** from the keyboard base system board.

2. Remove the nine PM2.0×3.6 screws **(2)** that secure the keyboard base battery to the keyboard base.

3. Remove the keyboard base battery **(3)**.

Reverse this procedure to install the keyboard base battery.

Power connector cable

Description	Spare part number
Power connector cable	793714-001

Before removing the power connector cable, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

5. Disconnect the keyboard base battery cable from the keyboard base system board (see Keyboard base battery on page 75).

Remove the power connector cable:

1. Disconnect the power connector cable **(1)** from the keyboard base system board.

2. Remove the two Phillips PM2.0×3.6 screws **(2)** that secure the power connector cable bracket to the top cover.

3. Remove the power connector cable bracket **(3)**.

   The power connector cable bracket is included in the Keyboard Base Bracket Kit, spare part number 793728-001.

4. Remove the Phillips PM1.5×2.7 screw **(4)** that secures the power connector to the top cover.

5. Remove the power connector cable **(5)**.
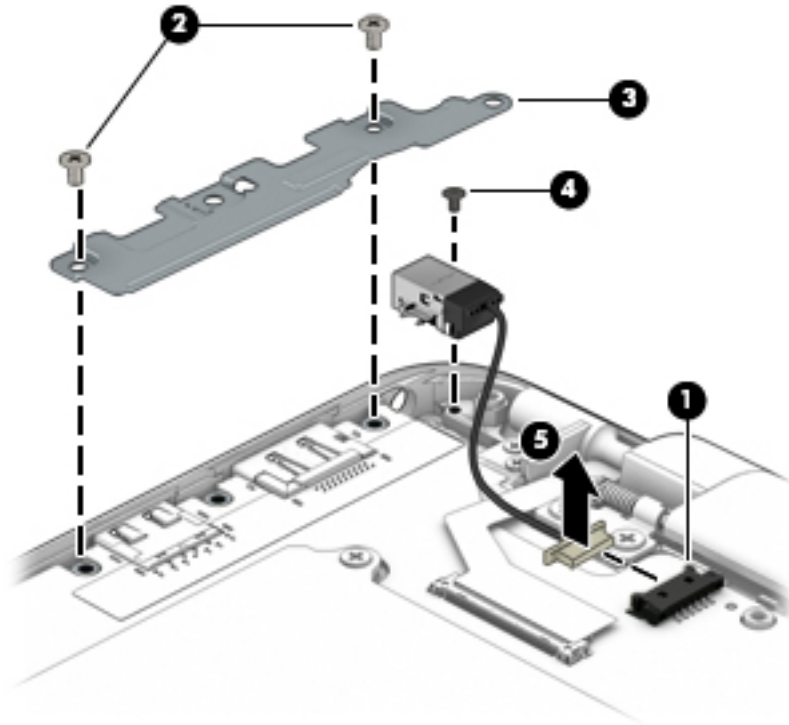
Reverse this procedure to install the power connector cable.

Keyboard

For use in country or region:	Spare part number:	For use in country or region:	Spare part number:
Keyboard (includes keyboard cable and keyboard backlight cable):		For use in the Netherlands	793738-B31
For use in Belgium	793738-A41	For use in Northwest Africa	793738-FP1
For use in Brazil	793738-201	For use in Norway	793738-091
For use in Bulgaria	793738-261	For use in Portugal	793738-131
For use in Canada	793738-DB1	For use in Romania	793738-271
For use in the Czech Republic and Slovakia	793738-FL1	For use in Russia	793738-251
For use in Denmark	793738-081	For use in Saudi Arabia	793738-171

For use in country or region:	Spare part number:	For use in country or region:	Spare part number:
For use in France	793738-051	For use in Slovenia	793738-BA1
For use in Germany	793738-041	For use in South Korea	793738-AD1
For use in Greece	793738-151	For use in Spain	793738-071
For use in Hungary	793738-211	For use in Sweden and Finland	793738-B71
For use in Iceland	793738-DD1	For use in Switzerland	793738-111
For use in India	793738-D61	For use in Taiwan	793738-AB1
For use in Israel	793738-BB1	For use in Thailand	793738-281
For use in Italy	793738-061	For use in Turkey	793738-141
For use in Japan	793738-291	For use in the United Kingdom and Singapore	793738-031
For use in Latin America	793738-161	For use in the United States	793738-001

Before removing the keyboard, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

5. Remove the keyboard base battery (see Keyboard base battery on page 75).

Remove the keyboard:

1. Disconnect the keyboard backlight cable from the low insertion force (LIF) connector **(1)** on keyboard base system board.

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

3. Release the six retention tabs **(3)** that secure the keyboard to the top cover.

4. Insert a case utility tool **(4)** or similar thin, plastic tool into the keyboard release hole and press on the back of the keyboard.

    📝 **NOTE:** When releasing the keyboard, make sure the keyboard backlight cable **(5)** and the keyboard cable **(6)** route cleanly through the openings in the top cover.
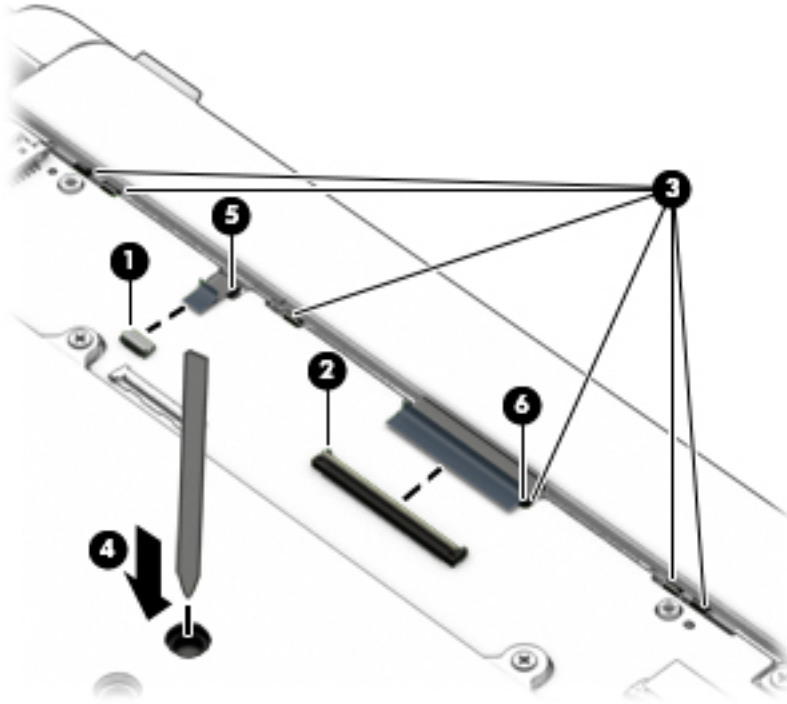
5. Turn the keyboard base right side up with the front edge toward you.

6. Lift the rear edge of the keyboard **(1)** until it rests at an angle.

7. Slide the keyboard **(2)** up and back at an angle until the tabs on the front edge disengage from the slots built into the top cover.

8. Remove the keyboard **(3)**.

Reverse this procedure to install the keyboard.

Fingerprint reader board

Description	Spare part number
Fingerprint reader board	793713-001

NOTE: The fingerprint reader board spare part kit does not include the fingerprint reader board cable. The fingerprint reader board cable is included in the Keyboard Base Cable Kit, spare part number 793721-001.

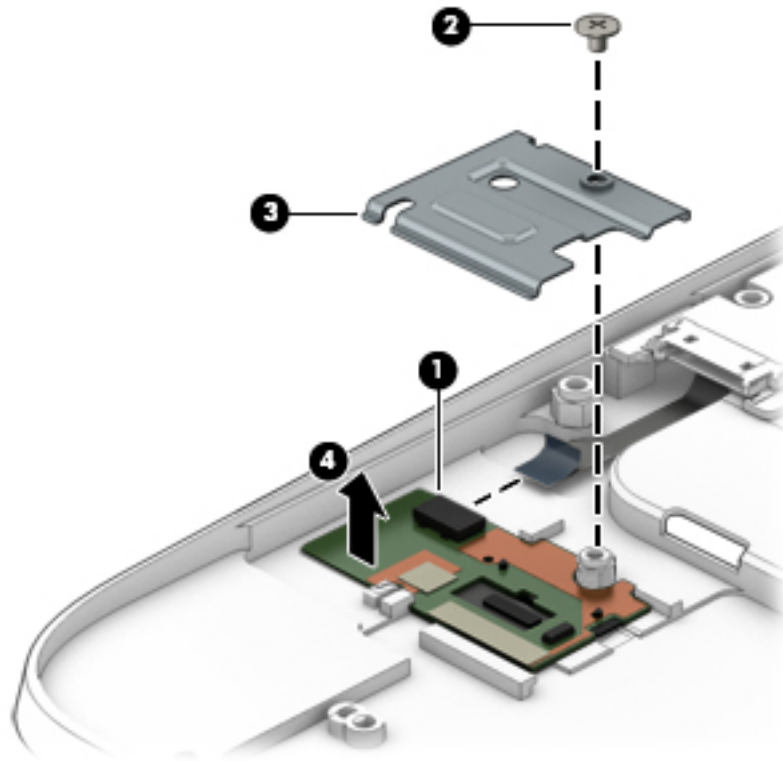Before removing the fingerprint reader board, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

5. Remove the keyboard base battery (see Keyboard base battery on page 75).

Remove the fingerprint reader board:

1. Disconnect the fingerprint reader board cable from the LIF connector **(1)** on fingerprint reader board.

2. Remove the Phillips PM1.5×2.7 screw **(2)** that secures the fingerprint reader board and bracket to the top cover.

3. Remove the fingerprint reader board bracket **(3)**.

   The fingerprint reader board bracket is included in the Keyboard Base Bracket Kit, spare part number 793728-001.

4. Remove the fingerprint reader board **(4)**.

Reverse this procedure to install the fingerprint reader board.

TouchPad

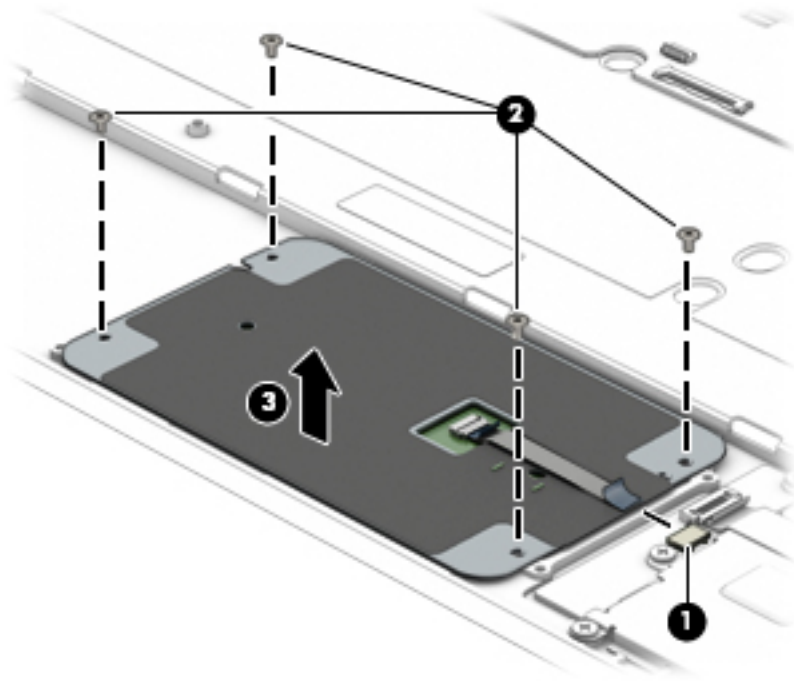| Description	Spare part number
TouchPad (includes cable)	793720-001

Before removing the TouchPad, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

5. Remove the keyboard base battery (see Keyboard base battery on page 75).

Remove the TouchPad:

1. Disconnect the TouchPad cable from the LIF connector **(1)** on smart card reader board.

2. Remove the four Phillips PM1.5×2.7 screws **(2)** that secure the TouchPad to the top cover.

3. Remove the TouchPad **(3)**.

Reverse this procedure to install the TouchPad.

Smart card reader board

Description	Spare part number
Smart card reader board	793711-001

NOTE: The smart card reader board spare part kit does not include the smart card reader board cable. The smart card reader board cable is included in the Keyboard Base Cable Kit, spare part number 793721-001.
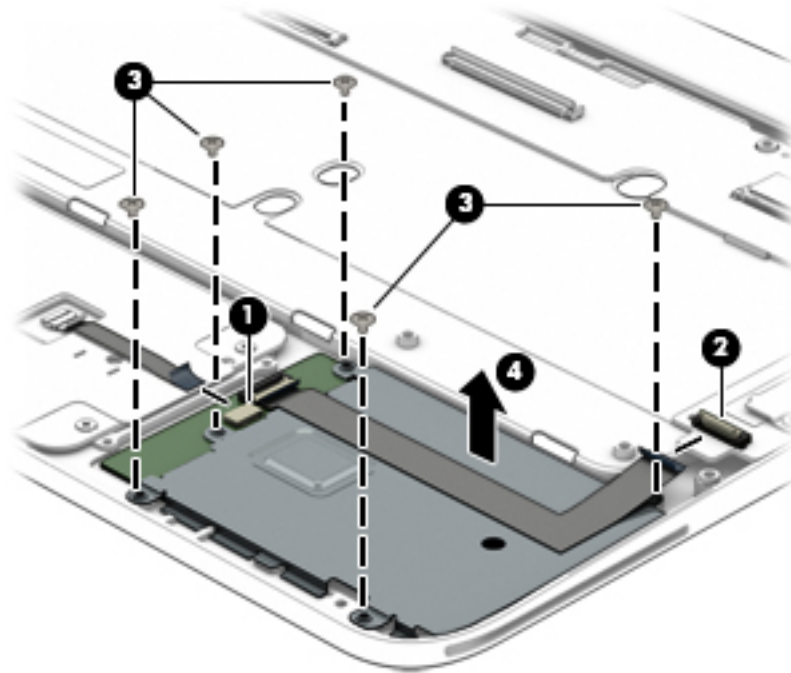
Before removing the smart card reader board, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

5. Remove the battery (see Keyboard base battery on page 75).

Remove the smart card reader board:

1. Disconnect the TouchPad cable from the LIF connector **(1)** on smart card reader board.

2. Release the ZIF connector **(2)** to which the smart card reader board cable is attached, and then disconnect the smart card reader board cable from the keyboard base connector board.

3. Remove the five Phillips PM1.5×2.7 screws **(3)** that secure the smart card reader board to the top cover.

4. Remove the smart card reader board **(4)**.

Reverse this procedure to install the smart card reader board.

Connector board

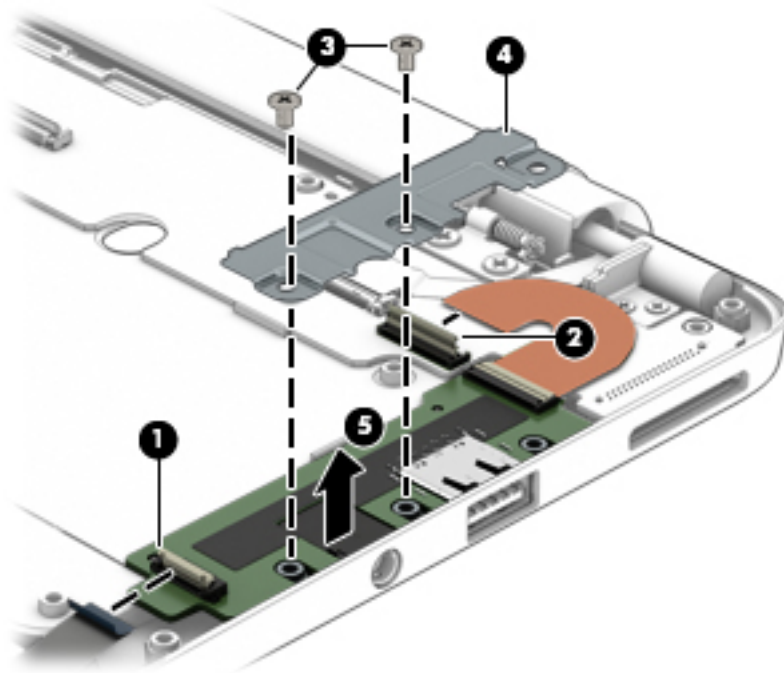| Description	Spare part number
Connector board (includes USB port and DisplayPort)	804350-001

NOTE: The connector board spare part kit does not include the connector board cable. The connector board cable is included in the Keyboard Base Cable Kit, spare part number 793721-001.

Before removing the connector board, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see).

5. Remove the keyboard base battery (see).

Remove the connector board:

1. Release the ZIF connector **(1)** to which the smart card reader board cable is attached, and then disconnect the smart card reader board cable from the keyboard base connector board.

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

3. Remove the two Phillips PM2.0×3.6 screws **(3)** that secure the connector board and bracket to the top cover.

4. Remove the connector board bracket **(4)**.

    The connector board bracket is included in the Keyboard Base Bracket Kit, spare part number 793728-001.

5. Remove the connector board **(5)** and cable.

Reverse this procedure to install the connector board.

Keyboard base system board

| Description	Spare part number
Keyboard base system board (includes docking/adapter port, USB port, and audio jack)	806252-001

Before removing the keyboard base system board, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

5. Remove the keyboard base battery (see Keyboard base battery on page 75).
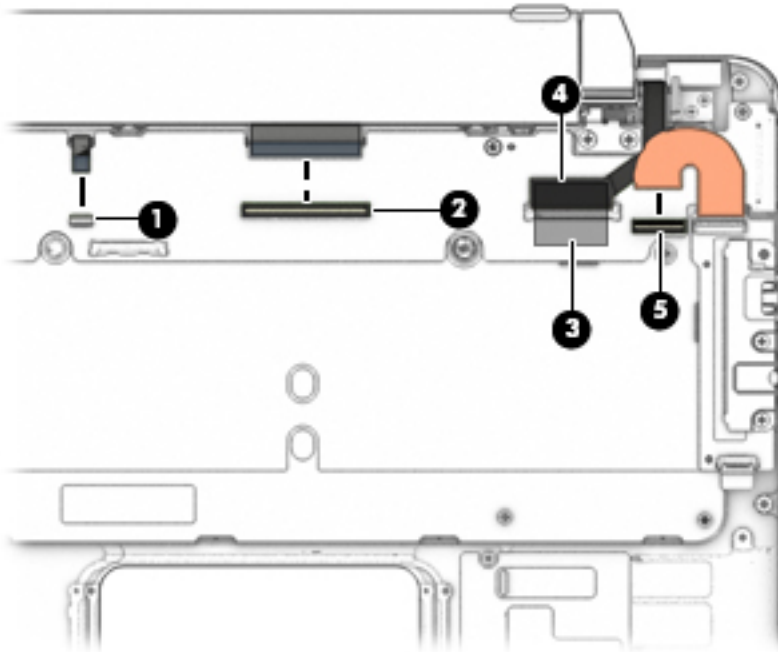
Remove the keyboard base system board:

1. Disconnect the fingerprint reader board cable from the LIF connector **(1)** on fingerprint reader board.

2. Detach the fingerprint reader board cable **(2)** from the top cover. (The fingerprint reader board cable is attached to the top cover with double-sided adhesive.)

3. Release the adhesive strip **(3)** that secures the hinge assembly right cable to the keyboard base system board.

4. Disconnect the hinge assembly right cable **(4)** from the keyboard base system board.

5. Disconnect the power connector cable **(5)** from the keyboard base system board.
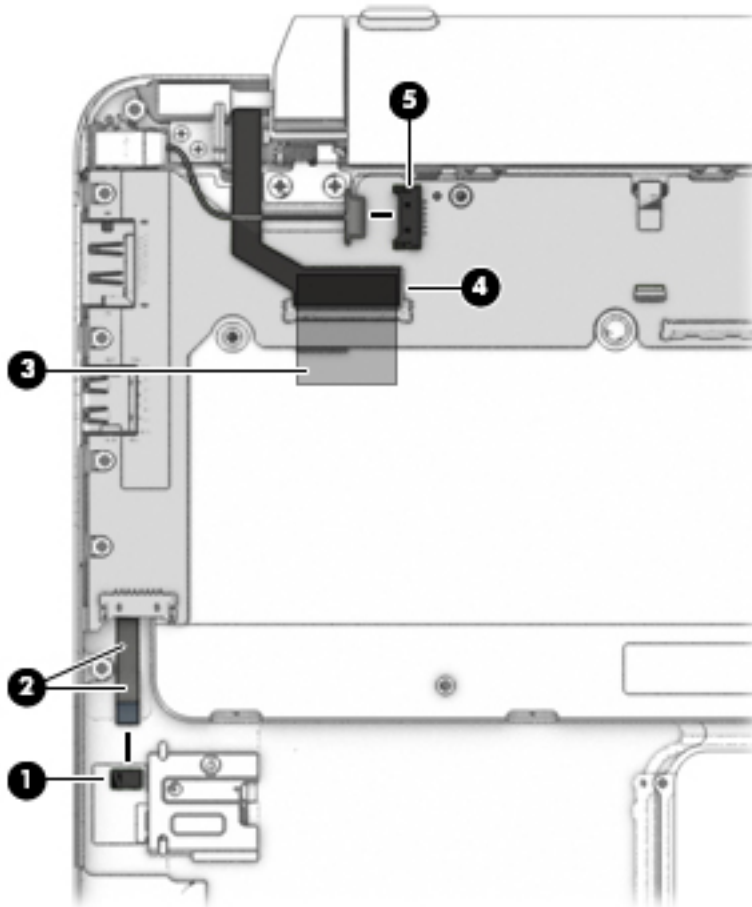

6. Disconnect the keyboard backlight cable from the LIF connector **(1)** on the keyboard base system board.

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

8. Release the adhesive strip **(3)** that secures the hinge assembly left cable to the keyboard base system board.

9. Disconnect the hinge assembly left cable **(4)** from the keyboard base system board.

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

11. Remove the two Phillips PM2.0×2.5 broad head screws **(1)** that secure the keyboard base system board to the top cover.

12. Remove the two Phillips PM2.0×3.6 screws **(2)** that secure the power connector cable bracket to the top cover.

13. Remove the power connector cable bracket **(3)**.

    The power connector cable bracket is included in the Keyboard Base Bracket Kit, spare part number 793728-001.

14. Lift the right side of the keyboard base system board **(4)** until it rests at an angle.

15. Remove the keyboard base system board **(5)** by sliding it up and to the right at an angle.
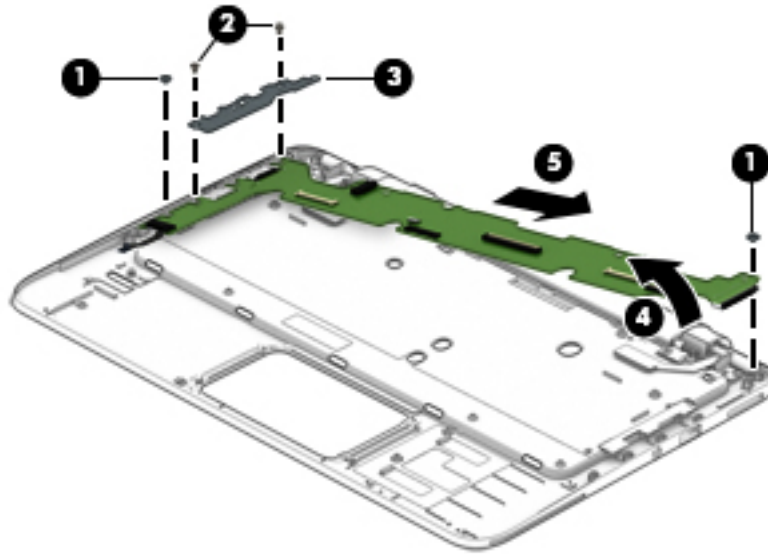
Reverse this procedure to install the keyboard base system board.

Fingerprint reader board cable

📝 **NOTE:** The fingerprint reader board cable is included in the Keyboard Base Cable Kit, spare part number 793721-001.

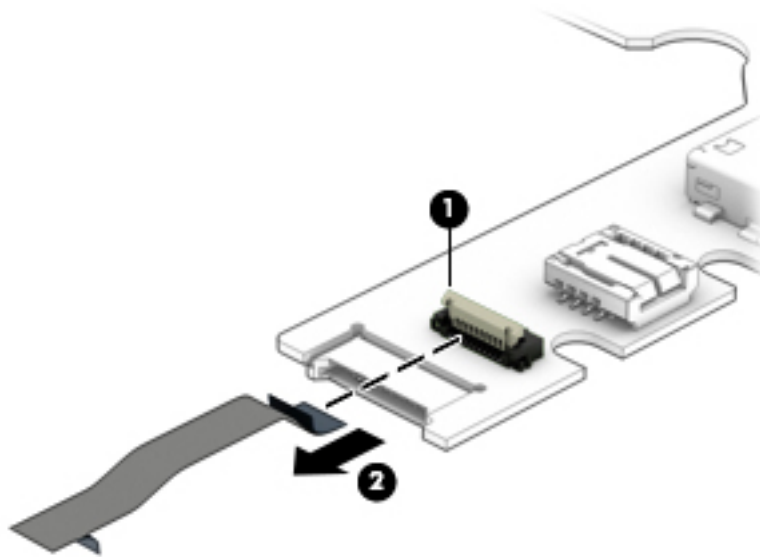Before removing the fingerprint reader board cable, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

5. Remove the keyboard base battery (see Keyboard base battery on page 75).

6. Remove the keyboard system board (see Keyboard base system board on page 84).

Remove the fingerprint reader board cable:

1. Turn the keyboard base system board upside down with the front toward you.

2. Release the ZIF connector **(1)** to which the fingerprint reader board cable is attached, and then disconnect the fingerprint reader board cable from the keyboard base system board.

3. Remove the fingerprint reader board cable **(2)**.

The fingerprint reader board cable is included in the Keyboard Base Cable Kit, spare part number 793721-001.

Reverse this procedure to install the fingerprint reader board cable.

Kickstand

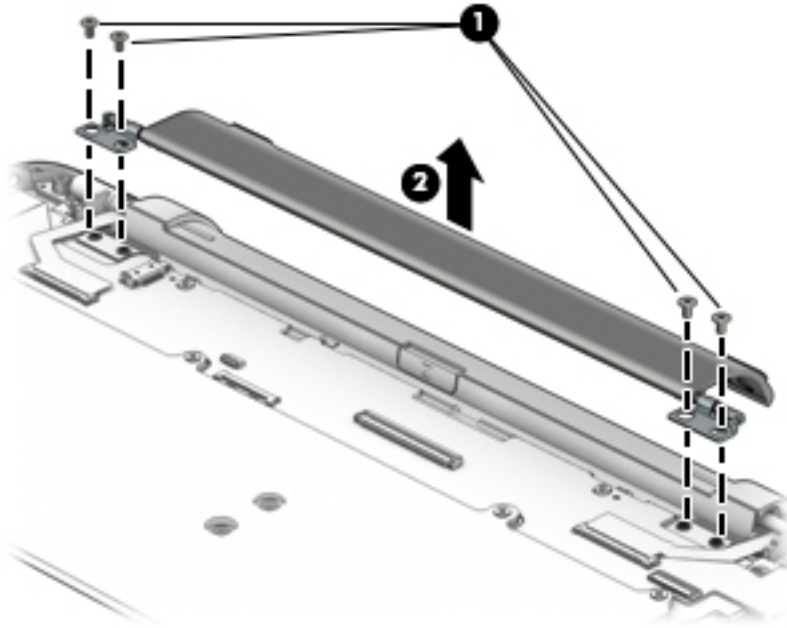| Description	Spare part number
Kickstand (includes rubber feet)	793715-001
Kickstand Hinge Kit	793716-001

Before removing the kickstand, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see).

5. Disconnect the keyboard base battery cable from the keyboard base system board (see).

Remove the kickstand:

1. Remove the four Phillips PM2.0×2.5 broad head screws **(1)** that secure the kickstand to the top cover.

2. Remove the kickstand **(2)**.

Reverse this procedure to install the kickstand.

Hinge assembly

| Description	Spare part number
Hinge assembly (includes left and right cables)	793717-001

Before removing the hinge assembly, follow these steps:

1. Shut down the keyboard base. If you are unsure whether the keyboard base is off or in Hibernation, turn the keyboard base on, and then shut it down through the operating system.

2. Disconnect all external devices connected to the keyboard base.

3. Disconnect the power from the keyboard base by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the keyboard base.

4. Remove the bottom cover (see Bottom cover on page 74).

5. Disconnect the keyboard base battery cable from the keyboard base system board (see Keyboard base battery on page 75).

6. Remove the kickstand (see Kickstand on page 88).

Remove the hinge assembly:

1. Release the adhesive strips **(1)** that secure the hinge assembly cables to the keyboard base system board.

2. Disconnect the hinge assembly cables **(2)** from the keyboard base system board.

3. Remove the four Torx8 T8M2.0×3.2 screws **(3)** that secure the hinge assembly to the top cover.

4. Remove the two Phillips PM2.0×2.5 broad head screws **(4)** that secure the hinge assembly to the top cover.

5. Remove the hinge assembly **(5)**.
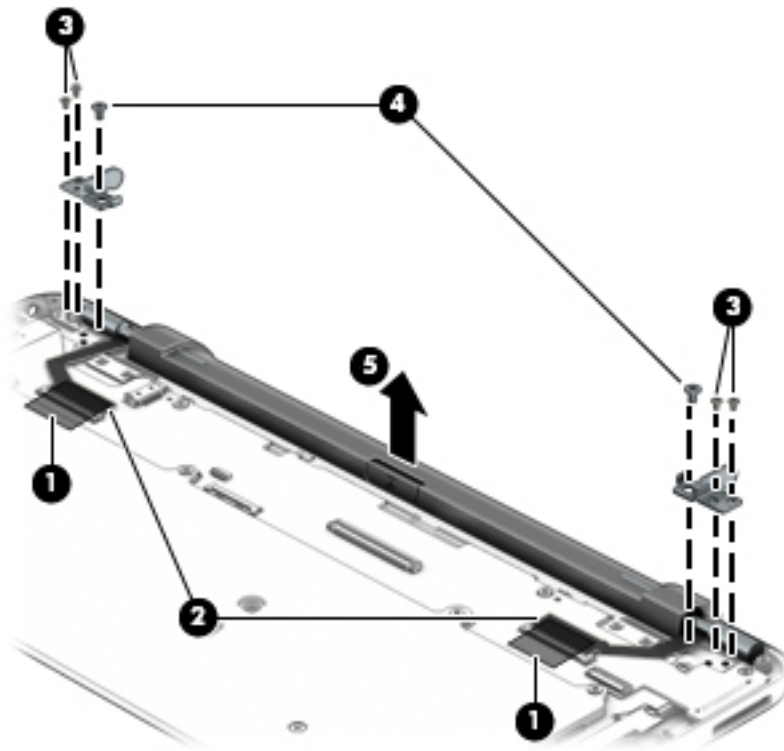
Reverse this procedure to install the hinge assembly.

7 Computer Setup (BIOS), TPM, and HP Sure Start – Windows 10

Using Computer Setup

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

NOTE: Use extreme care when making changes in Computer Setup. Errors can prevent the computer from operating properly.

Starting Computer Setup

NOTE: An external keyboard or mouse connected to a USB port can be used with Computer Setup only if USB legacy support is enabled.

To start Computer Setup, follow these steps:

▲ Start Computer Setup.

- Computers or tablets with keyboards:

  ▲ Turn on or restart the computer, and when the HP logo appears, press f10 to enter Computer Setup.

- Tablets without keyboards:

  ▲ Turn off the tablet. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap F10 to enter Computer Setup.

Navigating and selecting in Computer Setup

- To select a menu or a menu item, use the tab key and the keyboard arrow keys and then press enter, or use a pointing device to select the item.

  NOTE: On tablets without keyboards, you can use your finger to make selections.

- To scroll up and down, select the up arrow or the down arrow in the upper-right corner of the screen, or use the up arrow key or the down arrow key on the keyboard.

- To close open dialog boxes and return to the main Computer Setup screen, press esc, and then follow the on-screen instructions.

To exit Computer Setup menus, choose one of the following methods:

- To exit Computer Setup menus without saving your changes:

  Select the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

  – or –

  Select **Main**, select **Ignore Changes and Exit**, and then press enter.

- To save your changes and exit Computer Setup menus:

  Select the Save icon in the lower-right corner of the screen, and then follow the on-screen instructions.

  – or –

  Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Restoring factory settings in Computer Setup

NOTE: Restoring defaults will not change the hard drive mode.

To return all settings in Computer Setup to the values that were set at the factory, follow these steps:

1. Start Computer Setup. See Starting Computer Setup on page 91.

2. Select **Main**, and then select **Apply Factory Defaults and Exit**.

   NOTE: On select products, the selections may display **Restore Defaults** instead of **Apply Factory Defaults and Exit**.

3. Follow the on-screen instructions.

4. To save your changes and exit, select the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

NOTE: Your password settings and security settings are not changed when you restore the factory settings.

Updating the BIOS

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

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

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

Determining the BIOS

To decide whether you need to update Computer Setup (BIOS), first determine the BIOS version on your computer.

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

1. Start Computer Setup. See .

2. Select **Main**, and then select **System Information**.

3. To exit Computer Setup without saving your changes, select the Exit icon in the lower-right corner of the screen, and then follow the on-screen instructions.

   – or –

   Select **Main**, select **Ignore Changes and Exit**, and then press enter.

To check for later BIOS versions, see .

Downloading a BIOS update

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

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

Do not shut down the computer or initiate Sleep.

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

1. Type support in the taskbar search box, and then select the **HP Support Assistant** app.

   – or –

   Select the question mark icon in the taskbar.

2. Select **Updates**, and then select **Check for updates and messages**.

3. Follow the on-screen instructions.

4. At the download area, follow these steps:

   a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. Make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.

   b. Follow the on-screen instructions to download your selection to the hard drive.

   Make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

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

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

1. Type `file` in the taskbar search box, and then select **File Explorer**.

2. Select your hard drive designation. The hard drive designation is typically Local Disk (C:).

3. Using the hard drive path you recorded earlier, open the folder that contains the update.

4. Double-click the file that has an .exe extension (for example, *filename*.exe).

    The BIOS installation begins.

5. Complete the installation by following the on-screen instructions.

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

Changing the boot order using the f9 prompt

To dynamically choose a boot device for the current startup sequence, follow these steps:

1. Access the Boot Device Options menu:

    ●   Computers or tablets with keyboards:

        ▲ Turn on or restart the computer, and when the HP logo appears, press f9 to enter the Boot Device Options menu.

    ●   Tablets without keyboards:

        ▲ Turn off the tablet. Press the power button in combination with the volume down button until the Startup menu is displayed, and then tap F9 to enter the Boot Device Options menu.

2. Select a boot device, then press enter.

TPM BIOS settings (select products only)

IMPORTANT: Before enabling Trusted Platform Module (TPM) functionality on this system, you must ensure that your intended use of TPM complies with relevant local laws, regulations and policies, and approvals or licenses must be obtained if applicable. For any compliance issues arising from your operation/usage of TPM which violates the above mentioned requirement, you shall bear all the liabilities wholly and solely. HP will not be responsible for any related liabilities.

TPM provides additional security for your computer. You can modify the TPM settings in Computer Setup (BIOS).

NOTE: If you change the TPM setting to Hidden, TPM is not visible in the operating system.

To access TPM settings in Computer Setup:

1. Start Computer Setup. See .

2. Select **Security**, select **TPM Embedded Security**, and then follow the on-screen instructions.

Using HP Sure Start (select products only)

Select computer models are configured with HP Sure Start, a technology that continuously monitors the computer's BIOS for attacks or corruption. If the BIOS becomes corrupted or is attacked, HP Sure Start automatically restores the BIOS to its previously safe state, without user intervention.

HP Sure Start is configured and already enabled so that most users can use the HP Sure Start default configuration. The default configuration can be customized by advanced users.

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

8 HP PC Hardware Diagnostics (UEFI) – Windows 10

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

NOTE: To start BIOS on a convertible computer, your computer must be in notebook mode and you must use the keyboard attached to your tablet. The on-screen keyboard, which displays in tablet mode, cannot access BIOS.

To start HP PC Hardware Diagnostics UEFI:

1. Start BIOS:

    ● Computers or tablets with keyboards:

       ▲ Turn on or restart the computer, quickly press esc.

    ● Tablets without keyboards:

       ▲ Turn on or restart the tablet, and then quickly hold down the volume down button.

       – or –

       Turn on or restart the tablet, and then quickly hold down the Windows button.

2. Press or tap f2.

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

    a. Connected USB drive

       NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see Downloading HP PC Hardware Diagnostics (UEFI) to a USB device on page 97.

    b. Hard drive

    c. BIOS

3. When the diagnostic tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions. On a tablet, press the volume down button to stop a diagnostic test.

NOTE: If you need to stop a diagnostic test on computers or tablets with a keyboard, press esc.

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

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

Download the latest UEFI version:

1. Go to http://www.hp.com/go/techcenter/pcdiags. The HP PC Diagnostics home page is displayed.

2. In the HP PC Hardware Diagnostics section, click the **Download** link, and then select **Run**.

Download any version of UEFI for a specific product:

1. Go to http://www.hp.com/support, and then select your country. The HP Support page is displayed.

2. Click **Drivers & Downloads**.

3. In the text box, enter the product name, and then click **Go**.

   – or –

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

4. Select your computer, and then select your operating system.

5. In the **Diagnostic** section, follow the on-screen instructions to select and download the UEFI version you want.

9 Computer Setup (BIOS), MultiBoot, and HP PC Hardware Diagnostics (UEFI) – Windows 8

Using Computer Setup

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

NOTE: Use extreme care when making changes in Computer Setup. Errors can prevent the computer from operating properly.

Starting Computer Setup

NOTE: An external keyboard or mouse connected to a USB port can be used with Computer Setup only if USB legacy support is enabled.

To start Computer Setup, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f10 to enter Computer Setup.

Navigating and selecting in Computer Setup

To navigate and select in Computer Setup, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

   NOTE: You can use either a pointing device (TouchPad, pointing stick, or USB mouse) or the keyboard to navigate and make selections in Computer Setup.

2. Press f10 to enter Computer Setup.

   - To select a menu or a menu item, use the tab key and the keyboard arrow keys and then press enter, or use a pointing device to click the item.

   - To scroll up and down, click the up arrow or the down arrow in the upper-right corner of the screen, or use the up arrow key or the down arrow key on the keyboard.

   - To close open dialog boxes and return to the main Computer Setup screen, press esc, and then follow the on-screen instructions.

To exit Computer Setup menus, choose one of the following methods:

- To exit Computer Setup menus without saving your changes:

  Click the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Use the arrow keys to select **Main > Ignore Changes and Exit**, and then press enter.

- To save your changes and exit Computer Setup menus:

  Click the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

  – or –

  Use the arrow keys to select **Main > Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Restoring factory settings in Computer Setup

NOTE: Restoring defaults will not change the hard drive mode.

To return all settings in Computer Setup to the values that were set at the factory, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f10 to enter Computer Setup.

3. Use a pointing device or the arrow keys to select **Main > Restore Defaults**.

4. Follow the on-screen instructions.

5. To save your changes and exit, click the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

   – or –

   Use the arrow keys to select **Main > Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

NOTE: Your password settings and security settings are not changed when you restore the factory settings.

Updating the BIOS

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

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

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

Determining the BIOS version

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

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

1.   Start Computer Setup.

2.   Use a pointing device or the arrow keys to select **Main > System Information**.

3.   To exit Computer Setup without saving your changes, click the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

     – or –

     Use the arrow keys to select **Main > Ignore Changes and Exit**, and then press enter.

Downloading a BIOS update

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

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

Do not shut down the computer or initiate Sleep.

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

1.   From the Start screen, type `support`, and then select the HP Support Assistant app.

2.   Click **Updates and tune-ups**, and then click **Check for HP updates now**.

3.   Follow the on-screen instructions.

4.   At the download area, follow these steps:

     a.   Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. Make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.

     b.   Follow the on-screen instructions to download your selection to the hard drive.

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

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

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

1. From the Start screen, type `file`, and then select **File Explorer**.

2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).

3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.

4. Double-click the file that has an .exe extension (for example, *filename*.exe).

   The BIOS installation begins.

5. Complete the installation by following the on-screen instructions.

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

Using MultiBoot

About the boot device order

As the computer starts, the system attempts to boot from enabled devices. The MultiBoot utility, which is enabled at the factory, controls the order in which the system selects a boot device. Boot devices can include optical drives, diskette drives, a network interface card (NIC), hard drives, and USB devices. Boot devices contain bootable media or files that the computer needs to start and operate properly.

NOTE: Some boot devices must be enabled in Computer Setup before they can be included in the boot order.

You can change the order in which the computer searches for a boot device by changing the boot order in Computer Setup. You can also press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen, and then press f9. Pressing f9 displays a menu that shows the current boot devices and allows you to select a boot device. Or, you can use MultiBoot Express to set the computer to prompt you for a boot location each time the computer turns on or restarts.

Choosing MultiBoot preferences

You can use MultiBoot in the following ways:

- To set a new boot order that the computer uses each time it is turned on, by changing the boot order in Computer Setup.

- To dynamically choose the boot device, by pressing esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen, and then pressing f9 to enter the Boot Device Options menu.

- To use MultiBoot Express to set variable boot orders. This feature prompts you for a boot device each time the computer is turned on or restarted.

Setting a new boot order in Computer Setup

To start Computer Setup and set a boot device order that the computer uses each time it is turned on or restarted, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f10 to enter Computer Setup.

3. Use a pointing device or the arrow keys to select one of the following options:

   ● **Advanced > Boot Options > UEFI Boot Order > UEFI Hybrid**

   ● **Advanced > Boot Options > UEFI Boot Order > UEFI Native Boot mode**

   ● **Advanced > Boot Options > Legacy Boot Order > Legacy Boot Mode**

   Press enter.

4. To move the device up in the boot order, use a pointing device to click the up arrow, or press the + key.

   – or –

   To move the device down in the boot order, use a pointing device to click the down arrow, or press the - key.

5. To save your changes and exit Computer Setup, click the **Save** icon in the lower-left corner of the screen, and then follow the on-screen instructions.

   – or –

   Use the arrow keys to select **Main > Save Changes and Exit**, and then press enter.

Dynamically choosing a boot device using the f9 prompt

To dynamically choose a boot device for the current startup sequence, follow these steps:

1. Open the Select Boot Device menu by turning on or restarting the computer, and then pressing esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f9.

3. Use a pointing device or the arrow keys to select a boot device, then press enter.

Setting a MultiBoot Express prompt

To start Computer Setup and set the computer to display the MultiBoot startup location menu each time the computer is started or restarted, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f10 to enter Computer Setup.

3. Use a pointing device or the arrow keys to select **Advanced > Boot Options > MultiBoot Express Boot Popup Delay (Sec)**, and then press enter.

4. In the **MultiBoot Express Popup Delay (Sec)** field, enter the length of time in seconds that you want the computer to display the startup location menu before it defaults to the current MultiBoot setting. (When 0 is selected, the Express Boot startup location menu is not displayed.)

5. To save your changes and exit Computer Setup, click the **Save** icon in the lower-left corner of the screen, and then follow the on-screen instructions.

   – or –

   Use the arrow keys to select **Main > Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Entering MultiBoot Express preferences

When the Express Boot menu is displayed during startup, you have the following choices:

- To specify a boot device from the Express Boot menu, select your preference within the allotted time, and then press enter.

- To prevent the computer from defaulting to the current MultiBoot setting, press any key before the allotted time expires. The computer will not start until you select a boot device and press enter.

- To allow the computer to start according to the current MultiBoot settings, wait for the allotted time to expire.

Using HP PC Hardware Diagnostics (UEFI)

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

To start HP PC Hardware Diagnostics UEFI:

1. Turn on or restart the computer, quickly press esc, and then press f2.

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

    a. Connected USB drive

    > NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see Downloading HP PC Hardware Diagnostics (UEFI) to a USB device on page 103.

    b. Hard drive

    c. BIOS

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

> NOTE: If you need to stop a diagnostic test, press esc.

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

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

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

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

1. Go to http://hp.com/go/techcenter/pcdiags.

2. Click the **UEFI Download** link, and then select **Run**.

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

1. Go to http://www.hp.com.

2. Point to **Support**, located at the top of the page, and then click **Download Drivers**.

3. In the text box, enter the product name, and then click **Go**.

    – or –

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

4. Select your computer model, and then select your operating system.

5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

    – or –

    Click **Download**, and then select **Run**.

Using HP Sure Start (select models only)

Select computer models are configured with HP Sure Start, a technology that continuously monitors the computer's BIOS for attacks or corruption. If the BIOS becomes corrupted or is attacked, HP Sure Start automatically restores the BIOS to its previously safe state, without user intervention.

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.

10 Computer Setup (BIOS), MultiBoot, and HP PC Hardware Diagnostics (UEFI) – Windows 7

Using Computer Setup

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

NOTE: Use extreme care when making changes in Computer Setup. Errors can prevent the computer from operating properly.

Starting Computer Setup

NOTE: An external keyboard or mouse connected to a USB port can be used with Computer Setup only if USB legacy support is enabled.

To start Computer Setup, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f10 to enter Computer Setup.

Navigating and selecting in Computer Setup

To navigate and select in Computer Setup, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

   NOTE: You can use either a pointing device (TouchPad, pointing stick, or USB mouse) or the keyboard to navigate and make selections in Computer Setup.

2. Press f10 to enter Computer Setup.

   - To select a menu or a menu item, use the tab key and the keyboard arrow keys and then press enter, or use a pointing device to click the item.

   - To scroll up and down, click the up arrow or the down arrow in the upper-right corner of the screen, or use the up arrow key or the down arrow key on the keyboard.

   - To close open dialog boxes and return to the main Computer Setup screen, press esc, and then follow the on-screen instructions.

To exit Computer Setup menus, choose one of the following methods:

- To exit Computer Setup menus without saving your changes:

   Click the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Use the arrow keys to select **Main > Ignore Changes and Exit**, and then press enter.

● To save your changes and exit Computer Setup menus:

Click the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Use the arrow keys to select **Main > Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Restoring factory settings in Computer Setup

NOTE: Restoring defaults will not change the hard drive mode.

To return all settings in Computer Setup to the values that were set at the factory, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f10 to enter Computer Setup.

3. Use a pointing device or the arrow keys to select **Main > Restore Defaults**.

4. Follow the on-screen instructions.

5. To save your changes and exit, click the **Save** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

– or –

Use the arrow keys to select **Main > Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

NOTE: Your password settings and security settings are not changed when you restore the factory settings.

Updating the BIOS

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

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

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

Determining the BIOS version

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

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

1. Start Computer Setup.

2. Use a pointing device or the arrow keys to select **Main > System Information**.

3. To exit Computer Setup without saving your changes, click the **Exit** icon in the lower-right corner of the screen, and then follow the on-screen instructions.

    – or –

    Use the arrow keys to select **Main > Ignore Changes and Exit**, and then press enter.

Downloading a BIOS update

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

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

Do not shut down the computer or initiate Sleep.

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

1. Access Help and Support by selecting **Start > Help and Support**.

2. Select **Updates and tune-ups**, and then select **Check for HP updates now**.

3. At the download area, follow these steps:

    a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. Make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.

    b. Follow the on-screen instructions to download your selection to the hard drive.

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

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

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

1. Select **Start > Computer**.

2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).

3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.

4. Double-click the file that has an .exe extension (for example, *filename*.exe).

   The BIOS installation begins.

5. Complete the installation by following the on-screen instructions.

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

Using MultiBoot

About the boot device order

As the computer starts, the system attempts to boot from enabled devices. The MultiBoot utility, which is enabled at the factory, controls the order in which the system selects a boot device. Boot devices can include optical drives, diskette drives, a network interface card (NIC), hard drives, and USB devices. Boot devices contain bootable media or files that the computer needs to start and operate properly.

NOTE: Some boot devices must be enabled in Computer Setup before they can be included in the boot order.

You can change the order in which the computer searches for a boot device by changing the boot order in Computer Setup. You can also press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen, and then press f9. Pressing f9 displays a menu that shows the current boot devices and allows you to select a boot device. Or, you can use MultiBoot Express to set the computer to prompt you for a boot location each time the computer turns on or restarts.

Choosing MultiBoot preferences

You can use MultiBoot in the following ways:

- To set a new boot order that the computer uses each time it is turned on, by changing the boot order in Computer Setup.

- To dynamically choose the boot device, by pressing esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen, and then pressing f9 to enter the Boot Device Options menu.

- To use MultiBoot Express to set variable boot orders. This feature prompts you for a boot device each time the computer is turned on or restarted.

Setting a new boot order in Computer Setup

To start Computer Setup and set a boot device order that the computer uses each time it is turned on or restarted, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f10 to enter Computer Setup.

3. Use a pointing device or the arrow keys to select the **Legacy Boot Order** list, and then press enter.

4. To move the device up in the boot order, use a pointing device to click the up arrow, or press the + key.

– or –

To move the device down in the boot order, use a pointing device to click the down arrow, or press the -
key.

5. To save your changes and exit Computer Setup, click the **Save** icon in the lower-left corner of
the screen, and then follow the on-screen instructions.

– or –

Use the arrow keys to select **Main > Save Changes and Exit**, and then press enter.

Dynamically choosing a boot device using the f9 prompt

To dynamically choose a boot device for the current startup sequence, follow these steps:

1. Open the Select Boot Device menu by turning on or restarting the computer, and then pressing esc while
the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

2. Press f9.

3. Use a pointing device or the arrow keys to select a boot device, then press enter.

Setting a MultiBoot Express prompt

To start Computer Setup and set the computer to display the MultiBoot startup location menu each time
the computer is started or restarted, follow these steps:

1. Turn on or restart the computer, and then press esc while the "Press the ESC key for Startup Menu"
message is displayed at the bottom of the screen.

2. Press f10 to enter Computer Setup.

3. Use a pointing device or the arrow keys to select **System Configuration > Boot Options**, and then press
enter.

4. In the **MultiBoot Express Popup Delay (Sec)** field, enter the length of time in seconds that you want
the computer to display the startup location menu before it defaults to the current MultiBoot setting.
(When 0 is selected, the Express Boot startup location menu is not displayed.)

5. To save your changes and exit Computer Setup, click the **Save** icon in the lower-left corner of
the screen, and then follow the on-screen instructions.

– or –

Use the arrow keys to select **Main > Save Changes and Exit**, and then press enter.

Your changes go into effect when the computer restarts.

Entering MultiBoot Express preferences

When the Express Boot menu is displayed during startup, you have the following choices:

- To specify a boot device from the Express Boot menu, select your preference within the allotted time, and then press enter.

- To prevent the computer from defaulting to the current MultiBoot setting, press any key before the allotted time expires. The computer will not start until you select a boot device and press enter.

- To allow the computer to start according to the current MultiBoot settings, wait for the allotted time to expire.

Using HP PC Hardware Diagnostics (UEFI) (select models only)

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

To start HP PC Hardware Diagnostics UEFI:

1. Turn on or restart the computer, quickly press esc, and then press f2.

   After pressing f2, the BIOS searches three places for the HP PC Hardware Diagnostics (UEFI) tools in the following order:

   a. Connected USB drive

   > NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see Downloading HP PC Hardware Diagnostics (UEFI) to a USB device on page 110.

   b. Hard drive

   c. BIOS

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

   > NOTE: If you need to stop a diagnostic test while it is running, press esc.

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

> NOTE: The HP PC Hardware Diagnostics (UEFI) download instructions are provided in English only.

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

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

1. Go to http://hp.com/go/techcenter/pcdiags.

2. Click the **UEFI Download** link, and then select **Run**.

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

1. Go to http://www.hp.com.

2. Point to **Support**, located at the top of the page, and then click **Download Drivers**.

3. In the text box, enter the product name, and then click **Go**.

   – or –

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

4. Select your computer model, and then select your operating system.

5. In the Diagnostic section, click **HP UEFI Support Environment**.

   – or –

   Click **Download**, and then select **Run**.

11 Specifications

	Metric	U.S.
Slate dimensions		
Width	**29.80 cm**	11.73 in
Depth	**19.27 cm**	7.59 in
Height	**1.07 cm**	0.42 in
Weight	**0.82 kg**	1.80 lbs
System (slate and keyboard base) dimensions		
Width	**29.80 cm**	11.73 in
Depth	**20.42 cm**	8.04 in
Height	**2.08 cm**	0.82 in
Weight	**1.54 kg**	3.40 lbs
Input power		
Operating voltage and current	19.5 V dc @ 2.31 A – 45 W	
	19.5 V dc @ 3.33 A – 65 W	
	19.5 V dc @ 4.62 A – 90 W	
	19.5 V dc @ 10.25 A – Slim 200 W	
	19.5 V dc @ 11.79 A – Slim 230 W	

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

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

	Metric	U.S.
Temperature		
Operating	**5℃ to 35℃**	41°F to 95°F
Nonoperating	**-20℃ to 60℃**	-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.

12 Backup and recovery – Windows 10

This chapter provides information about the following processes. The information in the chapter is standard procedure for most products.

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

For additional information, refer to the HP support assistant app.

▲ Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

– or –

Click the question mark icon in the taskbar.

IMPORTANT: If you will be performing recovery procedures on a tablet, the tablet battery must be at least 70% charged before you start the recovery process.

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning any recovery process.

Creating recovery media and backups

The following methods of creating recovery media and backups are available on select products only. Choose the available method according to your computer model.

- Use HP Recovery Manager to create HP Recovery media after you successfully set up the computer. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. For information on creating recovery media, see Creating HP Recovery media (select products only) on page 114. For information on the recovery options that are available using the recovery media, see Using Windows Tools on page 115.

- Use Windows tools to create system restore points and create backups of personal information.

  For more information, see Recovering using HP Recovery Manager on page 116.

NOTE: If storage is 32 GB or less, Microsoft System Restore is disabled by default.

Creating HP Recovery media (select products only)

If possible, check for the presence of the Recovery partition and the Windows partition. From the **Start** menu, select **File Explorer**, and then select **This PC**.

- If your computer does not list the Windows partition and the Recovery partition, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

  You can use Windows tools to create system restore points and create backups of personal information, see *Using Windows tools on page 61*.

- If your computer does list the Recovery partition and the Windows partition, you can use HP Recovery Manager to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and software programs that were installed at the factory and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.

  ◦ Only one set of recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.

  ◦ HP Recovery Manager examines the computer and determines the required storage capacity for the media that will be required.

  ◦ To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or, instead, you can use a high-quality blank USB flash drive.

  ◦ If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub. If you cannot create DVD media yourself, you can obtain recovery discs for your computer from HP. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

  ◦ Be sure that the computer is connected to AC power before you begin creating the recovery media.

  ◦ The creation process can take an hour or more. Do not interrupt the creation process.

  ◦ If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue.

To create HP Recovery media:

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.

2. Select **Create recovery media**, and then follow the on-screen instructions.

If you ever need to recover the system, see Recovering using HP Recovery Manager on page 116.

Using Windows Tools

You can create recovery media, system restore points, and backups of personal information using Windows tools.

📝 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.

For more information and steps, see the Get started app.

▲ Select the **Start** button, and then select the **Get started** app.

Restore and recovery

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

📝 **IMPORTANT:** Not all methods are available on all products.

● Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see the Get started app.

  ▲ Select the **Start** button, and then select the **Get started** app.

● If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/or applications option (select products only) of HP Recovery Manager to reinstall the individual application or driver.

  ▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.

● If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see Recovering using . If you have not already created recovery media, see .

● On select products, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see .

● On select products, if you want to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see Removing the .

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from HP, or by using the HP Recovery partition (select products only). If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 114.

What you need to know before you get started

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.

  📝 **IMPORTANT:** Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.

- To use the Factory Reset option (select products only), you must use HP Recovery media. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 114.

- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

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

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

📝 **NOTE:** Only the options available for your computer display when you start the recovery process.

- System Recovery—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.

- Factory Reset—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select products only) allows System Recovery only.

Using the HP Recovery partition (select products only)

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

To start HP Recovery Manager from the HP Recovery partition:

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select products only).

1. Type `recovery` in the taskbar search box, select **Recovery Manager**, and then select **HP Recovery Environment**.

   – or –

   For computers or tablets with keyboards attached, press f11 while the computer boots, or press and hold f11 as you press the power button.

   For tablets without keyboards:

   Turn on or restart the tablet, and then quickly hold down the volume down button; then select f11.

   – or –

   Turn on or restart the tablet, and then quickly hold down the Windows button; then select f11.

2. Select **Troubleshoot** from the boot options menu.

3. Select **Recovery Manager**, and then follow the on-screen instructions.

Using HP Recovery media to recover

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

1. If possible, back up all personal files.

2. Insert the HP Recovery media, and then restart the computer.

   NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See Changing the computer boot order on page 118.

3. Follow the on-screen instructions.

Changing the computer boot order

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

To change the boot order:

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1.   Insert the HP Recovery media.

2.   Access BIOS:

     For computers or tablets with keyboards attached:

     ▲   Turn on or restart the computer or tablet, quickly press esc, and then press f9 for boot options.

     For tablets without keyboards:

     ▲   Turn on or restart the tablet, and then quickly hold down the volume down button; then select f9.

          – or –

          Turn on or restart the tablet, and then quickly hold down the Windows button; then select f9.

3.   Select the optical drive or USB flash drive from which you want to boot.

4.   Follow the on-screen instructions.

Removing the HP Recovery partition (select products only)

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

IMPORTANT: After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP recovery media from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see Creating HP Recovery media (select products only) on page 114.

NOTE: The Remove Recovery Partition option is only available on products that support this function.

Follow these steps to remove the HP Recovery partition:

1.   Type recovery in the taskbar search box, and then select **HP Recovery Manager**.

2.   Select **Remove Recovery Partition**, and then follow the on-screen instructions.

13 Backup and recovery – Windows 8

To protect your information, use Windows backup and restore utilities to back up individual files and folders, back up your entire hard drive, create system repair media (select models only) by using the installed optical drive (select models only) or an optional external optical drive, or create system restore points. In case of system failure, you can use the backup files to restore the contents of your computer.

From the Start screen, type `restore`, click **Settings**, and then select from the list of displayed options.

IMPORTANT: If you will be using **f11 startup recovery** or USB media recovery to recover your system, the tablet battery must have at least 70% battery power remaining before starting the recovery process.

NOTE: For detailed instructions on various backup and restore options, perform a search for these topics in Windows Help and Support.

In case of system instability, HP recommends that you print the recovery procedures and save them for later use.

NOTE: Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. For more information, see Windows Help and Support.

Backing up your information

Recovery after a system failure is as good as your most recent backup. You should create system repair media and your initial backup immediately after initial system setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup.

For more information on the Windows backup features, see Windows Help and Support.

Performing a system recovery

In case of system failure or instability, the computer provides the following tools to recover your files:

- Windows recovery tools: You can use Windows Backup and Restore to recover information you have previously backed up. You can also use Windows Automatic Repair to fix problems that might prevent Windows from starting correctly.

- f11 recovery tools: You can use the f11 recovery tools to recover your original hard drive image. The image includes the Windows operating system and software programs installed at the factory.

NOTE: If you are unable to boot (start up) your computer and you cannot use the system repair media you previously created (select models only), you must purchase Windows operating system media to reboot the computer and repair the operating system. For additional information, see Using Windows operating system media (purchased separately) on page 121.

Using the Windows recovery tools

To recover information you previously backed up, see Windows Help and Support for steps on restoring files and folders.

To recover your information using Automatic Repair, follow these steps:

> **⚠ CAUTION:** Some Startup Repair options will completely erase and reformat the hard drive. All files you have created and any software installed on the computer are permanently removed. When reformatting is complete, the recovery process restores the operating system, as well as the drivers, software, and utilities from the backup used for recovery.

1. If possible, back up all personal files.

2. If possible, check for the presence of the Recovery Image partition and the Windows partition.

   From the Start screen, type `file`, and then click **File Explorer**.

   – or –

   From the Start screen, type `pc`, and then select **This PC**.

   > **📝 NOTE:** If the Windows partition and the Recovery Image partition are not listed, you must recover your operating system and programs using the Windows operating system DVD and the *Driver Recovery* media (both purchased separately). For additional information, see Using Windows operating system media (purchased separately) on page 121.

3. If the Windows partition and the Recovery Image partition are listed, restart the computer by pressing and holding the shift key while clicking **Restart**.

4. Select **Troubleshoot**, then select **Advanced Options**, and then select **Startup Repair**.

5. Follow the on-screen instructions.

> **📝 NOTE:** For additional information on recovering information using the Windows tools, perform a search for these topics in Windows Help and Support.

Using f11 recovery tools

> **⚠ CAUTION:** Using f11 completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the computer are permanently removed. The f11 recovery tool reinstalls the operating system and HP programs and drivers that were installed at the factory. Software not installed at the factory must be reinstalled.

To recover the original hard drive image using f11:

1. If possible, back up all personal files.

2. If possible, check for the presence of the Recovery Image partition: From the Start screen, type `pc`, and then select **This PC**.

   > **📝 NOTE:** If the Recovery Image partition is not listed, you must recover your operating system and programs using the Windows operating system media and the *Driver Recovery* media (both purchased separately). For additional information, see Using Windows operating system media (purchased separately) on page 121.

3. If the Recovery Image partition is listed, restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

4. Press f11 while the "Press <F11> for recovery" message is displayed on the screen.

5. Follow the on-screen instructions.

Using Windows operating system media (purchased separately)

To order a Windows operating system DVD, contact support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

⚠ **CAUTION:**   Using a Windows operating system media completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the computer are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as drivers, software, and utilities.

To initiate a full install of the operating system using a Windows operating system DVD:

📝 **NOTE:**   This process takes several minutes.

1. If possible, back up all personal files.

2. Insert the Windows operating system DVD into the optical drive, and then restart the computer.

3. When prompted, press any keyboard key.

4. Follow the on-screen instructions.

After the installation is completed:

1. Eject the Windows operating system media and then insert the *Driver Recovery* media.

2. Install the Hardware Enabling Drivers first, and then install Recommended Applications.

Using Windows Refresh or Windows Reset

When your computer is not working properly and you need to regain system stability, the Windows Refresh option allows you to start fresh and keep what is important to you.

The Windows Reset option allows you to perform detailed reformatting of your computer, or remove personal information before you give away or recycle your computer. For more information on these features, see Windows Help and Support.

Using HP Software Setup

HP Software Setup can be used to reinstall drivers or select software that has been corrupted or deleted from the system.

1. From the Start screen, type `HP Software Setup`.

2. Open HP Software Setup.

3. Follow the on-screen directions to reinstall drivers or select software.

14 Backup and recovery – Windows 7

Your computer includes HP and Windows tools to help you safeguard your information and retrieve it if you ever need to. These tools will help you return your computer to a proper working state, all with simple steps. This section provides information about the following processes:

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

Creating recovery media and backups

Recovery after a system failure is only as good as your most recent backup.

1. After you successfully set up the computer, create HP Recovery media. This step creates a Windows 7 operating system DVD and a *Driver Recovery* DVD. The Windows DVD can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. The *Driver Recovery* DVD installs specific drivers and applications. See Creating recovery media with HP Recovery Disc Creator on page 123.

2. Use Windows Backup and Recovery tools to perform the following:

   - Back up individual files and folders
   - Back up your entire hard drive (select models only)
   - Create system repair discs (select models only) with the installed optical drive (select models only) or an optional external optical drive
   - Create system restore points

NOTE: This guide describes an overview of backing up, restoring, and recovering options. For more details about the tools provided, see Help and Support. To access Help and Support, select **Start > Help and Support**.

NOTE: HP recommends that you print the recovery procedures and save them for later use, in case of system instability.

In case of system failure, you can use the backup files to restore the contents of your computer. See Backing up your information on page 124.

Guidelines

- When creating recovery media or backing up to discs, use any of the following types of discs (purchased separately): DVD+R, DVD+R DL, DVD-R, DVD-R DL, or DVD±RW. The discs you use will depend on the type of optical drive you are using.

- Be sure that the computer is connected to AC power before you start the recovery media creation process or the backup process.

Creating recovery media with HP Recovery Disc Creator

HP Recovery Disc Creator is a software program that offers an alternative way to create recovery media. After you successfully set up the computer, you can create recovery media using HP Recovery Disc Creator. This recovery media allows you to reinstall your original operating system as well as select drivers and

applications if the hard drive becomes corrupted. HP Recovery Disc Creator can create two kinds of recovery DVDs:

- Windows 7 operating system DVD—Installs the operating system without additional drivers or applications.

- *Driver Recovery* DVD—Installs specific drivers and applications only, in the same way that the HP Software Setup utility installs drivers and applications.

Creating recovery media

NOTE: The Windows 7 operating system DVD can be created only once. Thereafter, the option to create that media will not be available after you create a Windows DVD.

To create the Windows DVD:

1. Select **Start > All Programs > Productivity and Tools > HP Recovery Disc Creator**.

2. Select **Windows disk**.

3. From the drop-down menu, select the drive for burning the recovery media.

4. Click the **Create** button to start the burning process.

After the Windows 7 operating system DVD has been created, create the *Driver Recovery* DVD:

1. Select **Start > All Programs > Productivity and Tools > HP Recovery Disc Creator**.

2. Select **Driver disk**.

3. From the drop-down menu, select the drive for burning the recovery media.

4. Click the **Create** button to start the burning process.

Backing up your information

You should create system repair media and your initial backup immediately after initial system setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup. You should also create Windows system repair media (select models only) which can be used to start up (boot) the computer and repair the operating system in case of system instability or failure. Your initial and subsequent backups allow you to restore your data and settings if a failure occurs.

You can back up your information to an optional external hard drive, a network drive, or discs.

Note the following when backing up:

- Store personal files in the Documents library, and back it up regularly.

- Back up templates that are stored in their associated directories.

- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

- When backing up to discs, number each disc after removing it from the drive.

NOTE: For detailed instructions on various backup and restore options, perform a search for these topics in Help and Support. To access Help and Support, select **Start > Help and Support**.

NOTE: Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Help and Support. To access Help and Support, select **Start > Help and Support**.

To create a backup using Windows Backup and Restore:

📝 **NOTE:** The backup process may take over an hour, depending on file size and the speed of the computer.

1. Select **Start > All Programs > Maintenance > Backup and Restore**.

2. Follow the on-screen instructions to set up your backup, create a system image (select models only), or create system repair media (select models only).

Performing a system recovery

In case of system failure or instability, the computer provides the following tools to recover your files:

- Windows recovery tools: You can use Windows Backup and Restore to recover information you have previously backed up. You can also use Windows Startup Repair to fix problems that might prevent Windows from starting correctly.

- f11 recovery tools (select models only): You can use the f11 recovery tools to recover your original hard drive image. The image includes the Windows operating system and software programs installed at the factory.

📝 **NOTE:** If you are unable to boot (start up) your computer and you cannot use the system repair media you previously created (select models only), you must purchase Windows 7 operating system media to reboot the computer and repair the operating system. For additional information, see .

Using the Windows recovery tools

Using the Windows recovery tools, you can:

- Recover individual files

- Restore the computer to a previous system restore point

- Recover information using recovery tools

📝 **NOTE:** For detailed instructions on various recovery and restore options, perform a search for these topics in Help and Support. To access Help and Support, select **Start > Help and Support**.

📝 **NOTE:** Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Help and Support. To access Help and Support, select **Start > Help and Support**.

To recover information you previously backed up:

1. Select **Start > All Programs > Maintenance > Backup and Restore**.

2. Follow the on-screen instructions to recover your system settings, your computer (select models only), or your files.

To recover your information using Startup Repair, follow these steps:

⚠️ **CAUTION:** Some Startup Repair options will completely erase and reformat the hard drive. All files you have created and any software installed on the computer are permanently removed. When reformatting is complete, the recovery process restores the operating system, as well as the drivers, software, and utilities from the backup used for recovery.

1. If possible, back up all personal files.

2. If possible, check for the presence of the Windows partition.

   To check for the Windows partition, select **Start > Computer**.

   NOTE: If the Windows partition is not listed, you must recover your operating system and programs using the Windows 7 operating system DVD and the *Driver Recovery* media. For additional information, see Using Windows 7 operating system media on page 126.

3. If the Windows partition is listed, restart the computer, and then press f8 before the Windows operating system loads.

4. Select **Startup Repair**.

5. Follow the on-screen instructions.

NOTE: For additional information on recovering information using the Windows tools, select **Start > Help and Support**.

Using f11 recovery tools (select models only)

CAUTION: Using f11 completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the computer are permanently removed. The f11 recovery tool reinstalls the operating system and HP programs and drivers that were installed at the factory. Software not installed at the factory must be reinstalled.

To recover the original hard drive image using f11:

1. If possible, back up all personal files.

2. If possible, check for the presence of the HP Recovery partition: click **Start**, right-click **Computer**, click **Manage**, and then click **Disk Management**.

   NOTE: If the HP Recovery partition is not listed, you must recover your operating system and programs using the Windows 7 operating system media and the *Driver Recovery* media. For additional information, see Using Windows 7 operating system media on page 126.

3. If the HP Recovery partition is listed, restart the computer, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

4. Press f11 while the "Press <F11> for recovery" message is displayed on the screen.

5. Follow the on-screen instructions.

Using Windows 7 operating system media

If you cannot use the recovery media you previously created using the HP Recovery Disc Creator (select models only), you must purchase a Windows 7 operating system DVD to reboot the computer and repair the operating system.

To order a Windows 7 operating system DVD, go to the HP website. For U.S. support, go to http://www.hp.com/support. For worldwide support, go to http://welcome.hp.com/country/us/en/ wwcontact_us.html. You can also order the DVD by calling support. For contact information, see the *Worldwide Telephone Numbers* booklet included with the computer.

CAUTION: Using a Windows 7 operating system DVD completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the computer are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as drivers, software, and utilities.

To initiate recovery using a Windows 7 operating system DVD:

NOTE: This process takes several minutes.

1. If possible, back up all personal files.

2. Restart the computer, and then insert the Windows 7 operating system DVD into the optical drive before the Windows operating system loads.

3. When prompted, press any keyboard key.

4. Follow the on-screen instructions.

5. Click **Next**.

6. Select **Repair your computer**.

7. Follow the on-screen instructions.

After the repair is completed:

1. Eject the Windows 7 operating system DVD and then insert the *Driver Recovery* DVD.

2. Install the Hardware Enabling Drivers first, and then install Recommended Applications.

15 Statement of Volatility

The purpose of this document is to provide general information regarding non-volatile memory in industry-standards based HP Business Notebook PC systems and provide general instructions for restoring nonvolatile memory that can contain personal data after the system has been powered off and the hard drive has been removed.

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

Following system shutdown and removal of all power sources from an HP Business Notebook PC system, personal data can remain on volatile system memory (DIMMs) for a finite period of time and will also remain in nonvolatile memory. The steps below will remove personal data from the notebook PC, including the nonvolatile memory found in Intel-based and AMD-based system boards. Some of these steps are disclosed in the Maintenance and Service Guides available for HP PC products available on the product support pages at www.hp.com.

1. Follow steps (a) through (I) below to restore the nonvolatile memory that can contain personal data. Restoring or re-programming nonvolatile memory that does not store personal data is neither necessary nor recommended.

    a. Enter BIOS (F10) Setup by powering on the system and pressing F10 when prompted near the bottom of the display, or press the ESC key to display the start up menu, then press F10 . If the system has a BIOS administrator password, enter the password at the prompt.

    b. Select the **File** menu, then **Restore Defaults**.

    c. Select the **System Configuration** menu, then **Restore Security 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 the tag that has been set. Press the spacebar once to clear the tag, then press Enter to return to the prior menu.

    e. If a DriveLock password is set, select the **Security** menu, scroll down to **DriveLock**, then select **DriveLock password**. Select the desired hard drive. Click **Disable protection**, enter the existing master DriveLock password, then press Enter to confirm and return to the prior menu. Repeat this procedure if more than one hard drive has a DriveLock password.

    f. If an Automatic DriveLock password is set, select the **Security menu**, scroll down to **Automatic DriveLock**, then select the desired hard drive and disable protection. Repeat this procedure if more than one hard drive has an Automatic DriveLock password.

    g. Select the **File** menu, then **Reset BIOS Security** to factory default. Click **yes** at the warning message.

    h. Select the **File** menu, then **Save Changes and Exit**.

    i. Reboot the system. If the system has a Trusted Platform Module and/or fingerprint sensor, one or two prompts will appear: one to clear the TPM and the other to reset fingerprint sensor. Press F1 to accept or F2 to reject.

       If the HP notebook model number ends in a 'p' or 'w' and includes Intel Centrino with VProTM, reboot the PC and enter BIOS Setup by pressing F10 when prompted. Select **System**

Configuration, then **AMT Options**. Then select **Un-configure AMT on next boot**. Select **Save**, then **Yes**. Select the **File** menu, and then select **Save Changes and Exit**. Reboot the system and confirm that you want to un-configure AMT.

j. If the optional Intel Anti-Theft Technology (AT) was activated, contact the provider to deactivate it.

k. If the optional Absolute® Software Computrace® management and tracking service was activated on the notebook PC, contact the provider to deactivate it.

l. Remove all power and system batteries for at least 24 hours.

2. Remove and retain the storage drive or clear the contents of the drive.

a. **Hard Disk Drive (HDD)**

Clear the HDD contents by using the HP Disk Sanitizer® utility or a third party application that, ideally, is U.S. Department of Defense (DOD) 5220.22-M approved.

To run HP Disk Sanitizer, enter BIOS Setup by powering on the system and pressing F10 when prompted near the bottom of the display, or press ESC to display the start up menu, then press F10. Select the **Security** menu and scroll down to the **Utilities** menu. Select **Disk Sanitizer** and select the desired drive. For a higher level of protection, select **Optimum**.

NOTE: This process will take a long time, and the amount of time varies based on the hard drive capacity.

b. **Solid State Drive (SSD)**

Clear the SSD contents by using the BIOS Setup Secure Erase command option, or by using a third party utility designed to erase data from an SSD. To run Secure Erase, enter BIOS Setup by powering on the system and pressing F10 when prompted near the bottom of the display. Select the **Security** menu and scroll down to the **Utilities** menu. Select **Secure Erase** and select the desired hard drive.

Non-volatile memory usage

Non Volatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write protected?
Real Time Clock (RTC) battery backed-up CMOS configuration memory (CMOS)	256 Bytes	No	Yes	Stores system date and time and limited keyboard controller data.	Using the F10 Setup utility or changing the Microsoft Windows date and time.	This memory is not write-protected. HP recommends password protecting the F10 Setup utility.
Controller (NIC) EEPROM	64 KBytes (not customer accessible)	No	Yes	Store NIC configuration and NIC firmware.	Using a utility from the NIC vendor that can be run from DOS.	A utility is required to write data to this memory and is available from NIC vendor. Writing data to this ROM in an inappropriate manner will render the NIC nonfunctional.
Keyboard ROM	64 KBytes (not customer accessible)	No	Yes	Stores firmware code (keyboard, mouse, & battery management).	Programmed at the factory. Code is updated when the system BIOS is updated.	A utility is required for writing data to this memory and is available on the HP website. Writing data to this ROM in an inappropriate manner can render the PC nonfunctional.
DIMM Serial Presence Detect (SPD) configuration data	256 Bytes per memory module, 128 Bytes programmable (not customer accessible)	No	Yes	Stores memory module information.	Programmed by the memory vendor.	Data cannot be written to this memory when the module is installed in a PC. The specific write protection method varies by memory vendor.
System BIOS	4 to 5 MBytes	Yes	Yes	Store system BIOS code and PC configuration data.	System BIOS code is programmed at the factory. Code is updated when the system BIOS is updated. Configuration data and settings are	A utility is required for writing data to this memory and is available on the HP website. Writing data to this ROM in an inappropriate manner can

Non Volatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write protected?
					input using the F10 setup utility or a custom utility.	render the PC nonfunctional.
Intel Management Engine Firmware (present only in models ending in a 'p' or 'w' or with Intel Centrino Pro technology)	1.5 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 populated by a remote management console or local applications 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 MBits	No	Yes	Stores Bluetooth configuration and firmware.	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 if the flash requires an upgrade.
802.11 WLAN EEPROM	4 KBytes to 8 KBytes	No	Yes	Stores configuration and calibration data.	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.

Non Volatile Memory Type	Amount (Size)	Does this memory store customer data?	Does this memory retain data when power is removed?	What is the purpose of this memory?	How is data input into this memory?	How is this memory write protected?
Webcamera	64 KBits	No	Yes	Store webcamera configuration and firmware.	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 KBytes flash	Yes	Yes	Stores fingerprint templates.	By enrolling 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 default settings)?**

   a. Turn on or restart the slate and press F10 when prompted near the bottom of the display.

   b. Select **File**, then select **Restore defaults**.

   c. Follow the on-screen instructions.

   d. Select **File**, save changes and exit, then press Enter.

2. **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. There are various third party tools available to read SPD memory.

3. **Does the "Firmware Hub for System BIOS" contain the BIOS program? Is this chip writable, and if so how?**

   The Firmware Hub does contain the BIOS program and is writable. A utility is required to perform the write function.

4. **In some PC systems, the Firmware Hub for System BIOS is a flash memory chip so that updates can be written by the customer. Is this true for these BIOS chips?**

   Yes, they are flash memory chips.

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

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

6. **Does resetting the CMOS configuration memory return the PC back to factory defaults?**

The process of resetting the CMOS will return certain system settings to factory default but will not reset many of the system data and configuration defaults to their default settings. To return these system data and configuration defaults to default settings, refer to question and answer 1 and follow the instructions for returning the BIOS settings to factory defaults.

16 Backup and recovery – Windows 7

Your slate includes HP and Windows tools to help you safeguard your information and retrieve it if you ever need to. These tools will help you return your slate to a proper working state, all with simple steps. This section provides information about the following processes:

● Creating recovery media and backups

● Restoring and recovering your system

Creating recovery media and backups

Recovery after a system failure is only as good as your most recent backup.

1. After you successfully set up the slate, create HP Recovery media. This step creates a Windows 7 operating system DVD and a *Driver Recovery* DVD. The Windows DVD can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. The *Driver Recovery* DVD installs specific drivers and applications. See Creating recovery media with HP Recovery Disc Creator on page 123.

2. Use Windows Backup and Recovery tools to perform the following:

   ● Back up individual files and folders

   ● Back up your entire hard drive (select models only)

   ● Create system repair discs (select models only) with the installed optical drive (select models only) or an optional external optical drive

   ● Create system restore points

NOTE: This guide describes an overview of backing up, restoring, and recovering options. For more details about the tools provided, see Help and Support. To access Help and Support, select **Start > Help and Support**.

NOTE: HP recommends that you print the recovery procedures and save them for later use, in case of system instability.

In case of system failure, you can use the backup files to restore the contents of your slate. See Backing up your information on page 124.

Guidelines

● When creating recovery media or backing up to discs, use any of the following types of discs (purchased separately): DVD+R, DVD+R DL, DVD-R, DVD-R DL, or DVD±RW. The discs you use will depend on the type of optical drive you are using.

● Be sure that the slate is connected to AC power before you start the recovery media creation process or the backup process.

Creating recovery media with HP Recovery Disc Creator

HP Recovery Disc Creator is a software program that offers an alternative way to create recovery media. After you successfully set up the slate, you can create recovery media using HP Recovery Disc Creator. This recovery media allows you to reinstall your original operating system as well as select drivers and

applications if the hard drive becomes corrupted. HP Recovery Disc Creator can create two kinds of recovery DVDs:

- Windows 7 operating system DVD—Installs the operating system without additional drivers or applications.

- *Driver Recovery* DVD—Installs specific drivers and applications only, in the same way that the HP Software Setup utility installs drivers and applications.

Creating recovery media

NOTE: The Windows 7 operating system DVD can be created only once. Thereafter, the option to create that media will not be available after you create a Windows DVD.

To create the Windows DVD:

1. Select **Start > All Programs > Productivity and Tools > HP Recovery Disc Creator**.

2. Select **Windows disk**.

3. From the drop-down menu, select the drive for burning the recovery media.

4. Click the **Create** button to start the burning process.

After the Windows 7 operating system DVD has been created, create the *Driver Recovery* DVD:

1. Select **Start > All Programs > Productivity and Tools > HP Recovery Disc Creator**.

2. Select **Driver disk**.

3. From the drop-down menu, select the drive for burning the recovery media.

4. Click the **Create** button to start the burning process.

Backing up your information

You should create system repair media and your initial backup immediately after initial system setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup. You should also create Windows system repair media (select models only) which can be used to start up (boot) the slate and repair the operating system in case of system instability or failure. Your initial and subsequent backups allow you to restore your data and settings if a failure occurs.

You can back up your information to an optional external hard drive, a network drive, or discs.

Note the following when backing up:

- Store personal files in the Documents library, and back it up regularly.

- Back up templates that are stored in their associated directories.

- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

- When backing up to discs, number each disc after removing it from the drive.

NOTE: For detailed instructions on various backup and restore options, perform a search for these topics in Help and Support. To access Help and Support, select **Start > Help and Support**.

NOTE: Windows includes the User Account Control feature to improve the security of your slate. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Help and Support. To access Help and Support, select **Start > Help and Support**.

To create a backup using Windows Backup and Restore:

NOTE: The backup process may take over an hour, depending on file size and the speed of the slate.

1. Select **Start > All Programs > Maintenance > Backup and Restore**.

2. Follow the on-screen instructions to set up your backup, create a system image (select models only), or create system repair media (select models only).

Performing a system recovery

In case of system failure or instability, the slate provides the following tools to recover your files:

● Windows recovery tools: You can use Windows Backup and Restore to recover information you have previously backed up. You can also use Windows Startup Repair to fix problems that might prevent Windows from starting correctly.

● f11 recovery tools (select models only): You can use the f11 recovery tools to recover your original hard drive image. The image includes the Windows operating system and software programs installed at the factory.

NOTE: If you are unable to boot (start up) your slate and you cannot use the system repair media you previously created (select models only), you must purchase Windows 7 operating system media to reboot the slate and repair the operating system. For additional information, see Using Windows 7 operating system media on page 126.

Using the Windows recovery tools

Using the Windows recovery tools, you can:

● Recover individual files

● Restore the slate to a previous system restore point

● Recover information using recovery tools

NOTE: For detailed instructions on various recovery and restore options, perform a search for these topics in Help and Support. To access Help and Support, select **Start > Help and Support**.

NOTE: Windows includes the User Account Control feature to improve the security of your slate. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Help and Support. To access Help and Support, select **Start > Help and Support**.

To recover information you previously backed up:

1. Select **Start > All Programs > Maintenance > Backup and Restore**.

2. Follow the on-screen instructions to recover your system settings, your slate (select models only), or your files.

To recover your information using Startup Repair, follow these steps:

CAUTION: Some Startup Repair options will completely erase and reformat the hard drive. All files you have created and any software installed on the slate are permanently removed. When reformatting is complete, the recovery process restores the operating system, as well as the drivers, software, and utilities from the backup used for recovery.

1. If possible, back up all personal files.

2. If possible, check for the presence of the Windows partition.

   To check for the Windows partition, select **Start > Slate**.

   📝 **NOTE:** If the Windows partition is not listed, you must recover your operating system and programs using the Windows 7 operating system DVD and the *Driver Recovery* media. For additional information, see Using Windows 7 operating system media on page 126.

3. If the Windows partition is listed, restart the slate, and then press f8 before the Windows operating system loads.

4. Select **Startup Repair**.

5. Follow the on-screen instructions.

📝 **NOTE:** For additional information on recovering information using the Windows tools, select **Start > Help and Support**.

Using f11 recovery tools (select models only)

⚠ **CAUTION:** Using f11 completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the slate are permanently removed. The f11 recovery tool reinstalls the operating system and HP programs and drivers that were installed at the factory. Software not installed at the factory must be reinstalled.

To recover the original hard drive image using f11:

1. If possible, back up all personal files.

2. If possible, check for the presence of the HP Recovery partition: click **Start**, right-click **Slate**, click **Manage**, and then click **Disk Management**.

   📝 **NOTE:** If the HP Recovery partition is not listed, you must recover your operating system and programs using the Windows 7 operating system media and the *Driver Recovery* media. For additional information, see Using Windows 7 operating system media on page 126.

3. If the HP Recovery partition is listed, restart the slate, and then press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

4. Press f11 while the "Press <F11> for recovery" message is displayed on the screen.

5. Follow the on-screen instructions.

Using Windows 7 operating system media

If you cannot use the recovery media you previously created using the HP Recovery Disc Creator (select models only), you must purchase a Windows 7 operating system DVD to reboot the slate and repair the operating system.

To order a Windows 7 operating system DVD, go to the HP website. For U.S. support, go to http://www.hp.com/support. For worldwide support, go to http://welcome.hp.com/country/us/en/wwcontact_us.html. You can also order the DVD by calling support. For contact information, see the *Worldwide Telephone Numbers* booklet included with the slate.

⚠ **CAUTION:** Using a Windows 7 operating system DVD completely erases hard drive contents and reformats the hard drive. All files that you have created and any software that you have installed on the slate are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as drivers, software, and utilities.

To initiate recovery using a Windows 7 operating system DVD:

NOTE: This process takes several minutes.

1. If possible, back up all personal files.

2. Restart the slate, and then insert the Windows 7 operating system DVD into the optical drive before the Windows operating system loads.

3. When prompted, press any keyboard key.

4. Follow the on-screen instructions.

5. Click **Next**.

6. Select **Repair your slate**.

7. Follow the on-screen instructions.

After the repair is completed:

1. Eject the Windows 7 operating system DVD and then insert the *Driver Recovery* DVD.

2. Install the Hardware Enabling Drivers first, and then install Recommended Applications.

17 Power cord set requirements

The wide-range input feature of the slate 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 slate 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 slate 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 slate. 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.

18 Recycling

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

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

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