HP 350 G2 Notebook PC

Maintenance and Service Guide

Product notice

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

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

Software terms

By installing, copying, downloading, or otherwise using any software product preinstalled on this computer, you agree to be bound by the terms of the HP End User License Agreement (EULA). If you do not accept these license terms, your sole remedy is to return the entire unused product (hardware and software) within 14 days for a refund subject to the refund policy of your place of purchase.

For any further information or to request a full refund of the computer, please contact your local point of sale (the seller).

Safety warning notice

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

Table of contents

1 Product description

Category	Description
Product Name	HP 350 G2 Notebook PC
Processor	• Intel® Core® i7-4500U 1.80-GHz processor (dual core, 15 W) • Intel Core i5-4200U 1.60-GHz processor (dual core, 15 W) • Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W) • Intel Pentium® 3558U 1.70-GHz processor (1600-MHz FSB, 2.0-MB L3 cache, 15 W) • Intel Celeron® 2957U 1.40-GHz processor (1600-MHz FSB, 2.0-MB L3 cache, 15 W)
Chipset	Intel processor controller hub (PCH), soldered on circuit (SoC)
Panel	15.6-in, AntiGlare (AG), high-definition HD, light-emitting diode (LED), low-voltage differential signalling (LVDS), 1366×768, SVA, display panel with and without webcamera
Graphics	**Switchable discrete graphics:** AMD Radeon™ HD 8670M (Sun XT); 2-GB DDR3 with up to 2-GB of dedicated video memory (256 × 16 DDR3 @ 1-GHz, 4PCs) or 1-GB DDR3 with up to 1-GB of dedicated video memory (128 × 16 DDR3 @ 1-GHz, 4PCs) **Internal graphics** – Integrated universal memory architecture (UMA) graphics: • Intel HD Graphics 4400 on computer models equipped with an Intel Core processor • Intel HD Graphics on computer models equipped with an Intel Pentium or Intel Celeron processor
Memory	Two customer-accessible/upgradable memory module slots Support for DDR3L 1600-MHz PCL3-12800 dual channel memory Support for 16384-MB of system memory in the following configurations: • 16384-MB total system memory (8192 MB × 2; not available with 32-bit operating system) • 8192-MB total system memory (4096 MB × 2; not available with 32-bit operating system) • 4096-MB total system memory (4096 MB × 1; only memory configuration supported in Brazil) • 2048-MB total system memory (2048 MB × 1)
Primary storage	Support for **6.35-cm** (2.5-in) hard drives in **7.0-mm** (.28-in) and **9.5-mm** (.37-in) thickness Support for mSATA Support for Intel Smart Response Technology Accelerometer Support for hard drive protection Support for the following hard drives: • 1-GB, 5400-rpm, SATA, 7.0-mm hard drive • 750-GB, 5400-rpm, SATA, 7.0-mm hard drive • 500-GB, 7200-rpm, SATA, 7.0-mm hard drive
Optical drive	DVD±RW Double Layer with SuperMulti Drive 9.5-mm tray load

Category	Description
Optical drive *(continued)*	SATA
	Fixed (not modular)
	Support for zero-power optical drive
	Support for no optical drive option
Audio and video	HP TrueVision HD webcamera (fixed/no tilt with activity light), 1280×720 by 30 frames per second
	Support for non-webcamera option
	Dual digital microphones
	Stereo speakers (2)
	DTS Sound
Ethernet	Integrated 10/100/1000 network interface card (NIC)
Wireless networking	Integrated wireless local area network (WLAN) options by way of wireless module
	Two WLAN antennas built into display assembly
	Support for the following WLAN formats:
	● Atheros AR9485 802.11b g n WiFi Adapter
	● Broadcom BCM943228HMB 802.11abgn 2×2 Wi-Fi Adapter, Broadcom Bluetooth® 4.0 Adapter
	● Ralink RT3290LE 802.11b g n 1×1 WiFi and Bluetooth 4.0 Combo Adapter
External expansion	HP 2-in-1 multiformat Digital Media Reader Slot with push-push technology. Reads data from and writes data to digital memory cards such as Secure Digital (SD).
Ports	● AC adapter, HP Smart (4.5-mm barrel)
	● Audio-in (mono microphone)/audio-out (stereo headphone) combo jack
	● HDMI v1.4 supporting up to 1920×1080 @ 60-Hz
	● RJ45 (Ethernet)
	● USB 3.0 (2)
	● USB 2.0 (1)
	● VGA (Dsub 15 pin) supporting: 1080p external resolution @ 60-Hz, hot plug and unplug and autodetection for correct output to wide-aspect vs. standard aspect video
Keyboard/pointing devices	Full-size, island-style, spill-resistant keyboard
	Touchpad Requirements:
	● Default on for 2-finger scroll and pinch
	● Multitouch gestures enabled
	● Taps enabled as default
Power requirements	Support for removable 4-cell, 48-WHr, 3.20-AHr, Li-ion battery and 4-cell, 41-WHr, 2.80-AHr, Li-ion battery
	Support for the following AC adapters:
	● 65-W AC adapter (non-PFC S-3P, 4.5-mm; not supported in India and the People's Republic of China)

Category	Description
Power requirements *(continued)*	● 65-W HP Smart adapter (non-PFC, EM, 4.5-mm; for use only in India and the People's Republic of China)
	● 45-W AC adapter (non-PFC, RC, 4.5-mm)
Security	Support for the following:
	● Fingerprint reader (support for non fingerprint reader option also)
	● Security cable lock
	● Trusted platform module (TPM) 1.2
Operating system	**Preinstalled:**
	● Microsoft Windows 8.1 Chinese Market 64-bit (only available with the People's Republic of China Country Loc)
	● Microsoft Windows 8.1 Emerging Market 64-bit
	● Microsoft Windows 8.1 Emerging Market 64-bit MSNA (for use only in Latin America)
	● Microsoft Windows 8.1 ML 64-bit
	● Microsoft Windows 8.1 Professional 64-bit
	● Microsoft Windows 8.1 Professional 64-bit DPK with Microsoft Windows 7 Professional 64-bit image (not available with the People's Republic of China Country Loc)
	● Microsoft Windows 8.1 Professional 64-bit DPK with Microsoft Windows 7 Professional 64-bit image – MSNA (for use only in Latin America and the United States)
	● Microsoft Windows 8.1 Professional 64-bit – MSNA (for use only in Latin America and the United States)
	● FreeDOS 2.0
	● Ubuntu Linux Enterprise
	Restore Media–DRDVD:
	● DRDVD Microsoft Windows 8.1 (available with any Windows 8.1 operating system; required with any Windows 8.1 downgrade operating system)
	● DRDVD Microsoft Windows 8 (available with any Windows 8 operating system; required with any Windows 8 downgrade operating system)
	● Microsoft Windows 7 (available with any Windows 7 or Windows 8 downgrade operating system)
	● SRDVD SuSE Linux Enterprise (SLED, service pack 2, 64-bit; available only with FreeDOS 2.0 and SuSE)
	Restore Media–OSDVD: System Recovery Disc (SSRD)
	OSDVD: Microsoft Windows 8.1 Professional 64-bit (include in Windows 8.1 downgrade operating system AV only, do not include for Asia Pacific countries/regions or the People's Republic of China)
	Web-only support:
	● Microsoft Windows 8.1 Chinese Market 64-bit
	● Microsoft Windows 8.1 Emerging Market 64-bit
	● Microsoft Windows 8.1 ML 64-bit
	● Microsoft Windows 8.1 Professional 64-bit

Category	Description
Operating system	● Microsoft Windows 7 Professional 32-bit
Serviceability	**End user replaceable part**:
	● AC adapter
	● Battery (system)
	● Hard drive
	● Keyboard
	● Memory module
	● Optical drive
	● WLAN module

2 External component identification

Display

Item	Component	Description
(1)	WLAN antennas (2)*	Send and receive wireless signals to communicate with WLANs.
(2)	Internal microphones (2)	Record sound.
(3)	Webcam light	On: The webcam is in use.
(4)	Webcam (select models only)	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video. For information on using the webcam, access HP Support Assistant. To access HP Support Assistant, from the Start screen, select the **HP Support Assistant** app.

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

Buttons, speakers, and fingerprint reader (select models only)

Item	Component	Description
(1)	Power button	- When the computer is off, press the button to turn on the computer. - When the computer is on, press the button briefly to initiate Sleep. - When the computer is in the Sleep state, press the button briefly to exit Sleep. - When the computer is in Hibernation, press the button briefly to exit Hibernation. **CAUTION:** CAUTION: Pressing and holding down the power button will result in the loss of unsaved information. If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer. **NOTE:** For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity. To learn more about your power settings, see your power options. From the Start screen, type power, select **Power and sleep settings**, and then select **Power and sleep** from the list of applications.
(2)	Speakers	Produce sound.
(3)	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)	fn key	Executes frequently used system functions when pressed in combination with a function key, the num lk key, the esc key, or other keys.
(3)	Windows button	Displays the Windows Start menu.
(4)	Function keys	Execute frequently used system functions when pressed in combination with the fn key.
(5)	Function keys	Execute frequently used system functions when pressed in combination with the fn key.

Lights

Item	Component	Description
(1)	Power light	• On: The computer is on.
		• Blinking: The computer is in the Sleep state, a powersaving state. The computer shuts off power to the display and other unneeded components.
		• Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
		NOTE: For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.
(2)	Mute light	• Amber: Computer sound is off.
		• Off: Computer sound is on.
(3)	Wireless light	On: An integrated wireless device, such as a WLAN device and/or a Bluetooth device, is on.
		NOTE: On some models, the wireless light is amber when all wireless devices are off.
(4)	Fingerprint reader (select models only)	Allows a fingerprint logon to Windows, instead of a password logon.
(5)	TouchPad light	• On: The TouchPad is off.
		• Off: The TouchPad is on.
(6)	Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.

TouchPad

Item	Component	Description
(1)	TouchPad on/off button and light	Turns the TouchPad on and off. • Amber: The TouchPad is off. • Off: The TouchPad is on.
(2)	TouchPad zone	Moves the pointer and selects or activates items on the screen.
(3)	Left TouchPad button	Functions like the left button on an external mouse.
(4)	Right TouchPad button	Functions like the right button on an external mouse.

Front

Item	Component	Description
(1)	Memory card reader	Reads optional memory cards that store, manage, share, or access information.

Left side
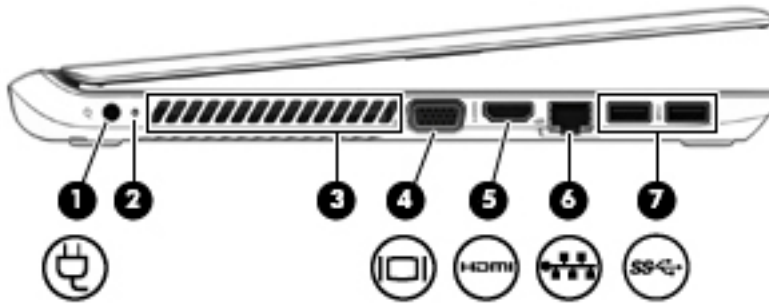
Item	Component	Description
(1)	Power connector	Connects an AC adapter.
(2)	AC adapter/Battery light	● White: The AC adapter is connected to external power and the battery is fully charged.
		● Amber: The AC adapter is connected to external power and the battery is charging.
		● Off: The AC adapter is not connected to external power.
(3)	Vent	Enables airflow to cool internal components.
		NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(4)	External monitor port	Connects an external VGA monitor or projector.
(5)	HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI device.
(6)	RJ-45 (network) jack	Connects a network cable.
		● Green (left): The network is connected.
		● Amber (right): The network is showing activity.
(7)	USB 3.0 ports	Each USB 3.0 port connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.

Right side

Item	Component	Description
(1)	Power light	● On: The computer is on.
		● Blinking: The computer is in the Sleep state, a powersaving state. The computer shuts off power to the display and other unneeded components.
		● Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
		NOTE: For select models, the Intel Rapid Start Technology feature is enabled at the factory. Rapid Start Technology allows your computer to resume quickly from inactivity.
(2)	Hard drive light	● Blinking white: The hard drive is being accessed.
		● Amber: HP 3D DriveGuard has temporarily parked the hard drive. (select models only)
(3)	Audio-out (headphone) jack/Audio-in (microphone) combo jack	Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio. Also connects an optional headset 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.*
		NOTE: When a device is connected to the jack, the computer 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).
(4)	USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)	Optical drive (select models only)	Depending on your computer model, reads an optical disc or reads and writes to an optical disc.
(6)	Optical drive eject button (select models only)	Releases the optical drive disc tray.
(7)	Security cable slot	Attaches an optional security cable to the computer.
		NOTE: The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.

Bottom

Item	Component	Description
(1)	Battery cover release latch and lock	Releases the battery cover over the battery bay.
(2)	Battery bay	Holds the battery.
(3)	Memory module compartment cover	Provides access to the keyboard screw, memory module slots, and optical drive screw.
(4)	Vents (2)	Enable airflow to cool internal components.
		NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5)	Service cover	Provides access to the hard drive bay and the WLAN module slot.
		CAUTION: To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact support through Help and Support.

3   Illustrated parts catalog

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

Locating the serial number, product number, and model number

The serial number, product number, and model number of your computer are located on the bottom of the computer. You may need the information when you travel internationally or when you contact support.
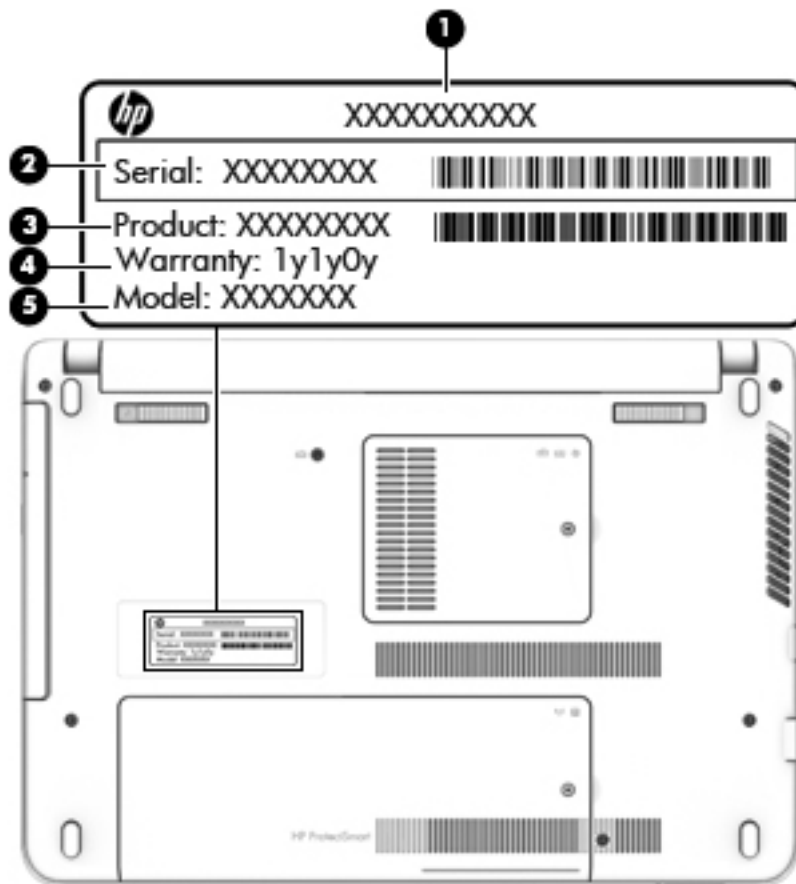
Computer major components
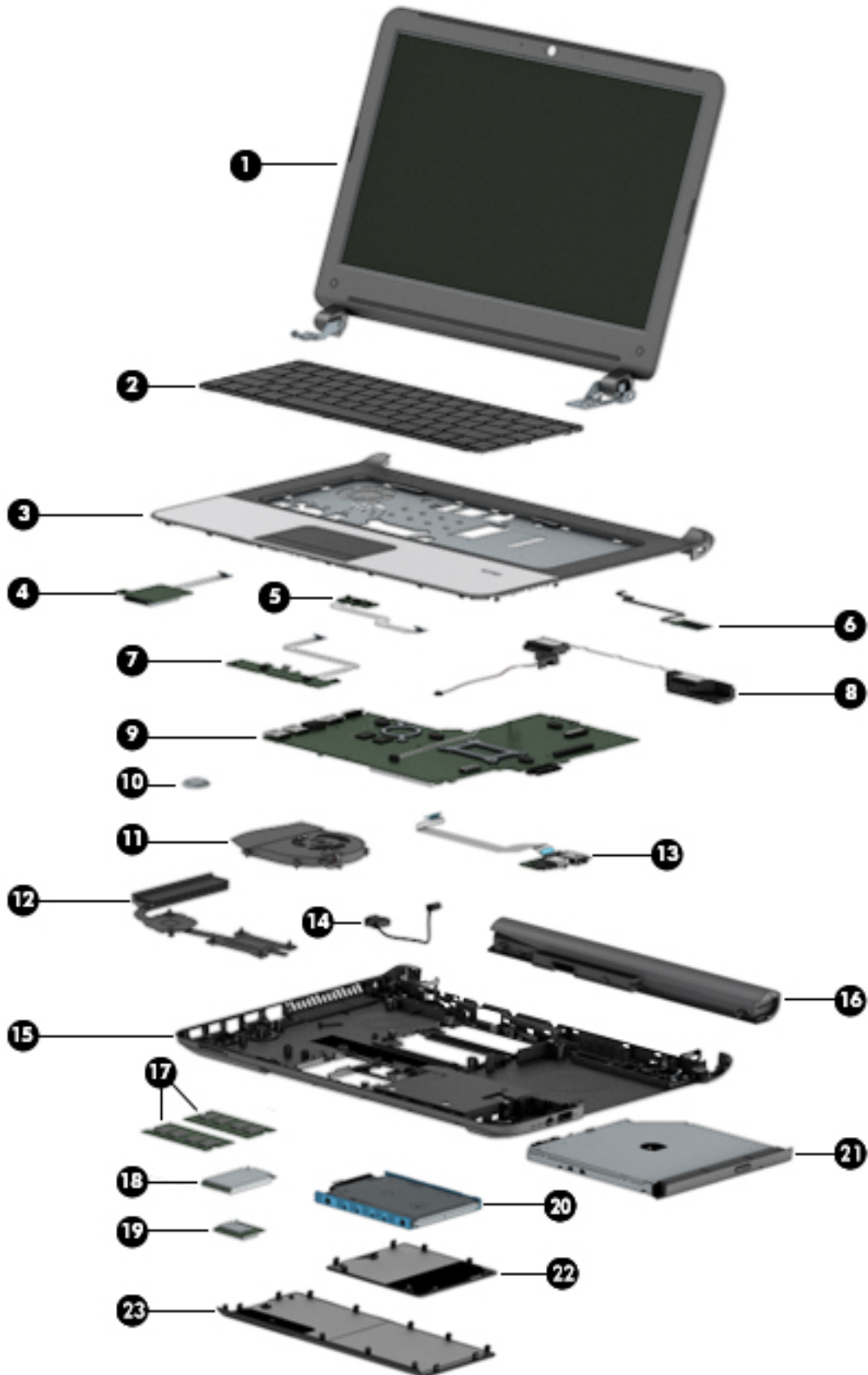
Item	Component	Spare part number
(1)	**Display assembly**: The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see Display assembly components on page 21.	
(2)	**Keyboard** (includes keyboard cable):	
	For use only in Belgium	758027-A41
	For use only in Bulgaria	758027-261
	For use only in Canada	758027-DB1
	For use only in the Czech Republic and Slovakia	758027-FL1
	For use only in Denmark, Finland, and Norway	758027-DH1
	For use only in France	758027-051
	For use only in Germany	758027-041
	For use only in Greece	758027-151
	For use only in Hungary	758027-211
	For use only in Israel	758027-BB1
	For use only in Italy	758027-061
	For use only in the Netherlands	758027-B31
	For use only in Northwest Africa	758027-FP1
	For use only in Portugal	758027-131
	For use only in Romania	758027-271
	For use only in Russia	758027-251
	For use only in Saudi Arabia	758027-171
	For use only in Slovenia	758027-BA1
	For use only in Spain	758027-071
	For use only in Switzerland	758027-BG1
	For use only in Taiwan	758027-AB1
	For use only in Turkey	758027-141
	For use only in the United Kingdom and Singapore	758027-031
	For use only in the United States	758027-001
(3)	**Top cover** (includes TouchPad and TouchPad cable):	
	For use only on computer models equipped with a fingerprint reader	758051-001
	For use only on computer models not equipped with a fingerprint reader	758050-001
(4)	**Card reader board** (includes cable and double-sided adhesive)	758043-001
(5)	**Power button board** (includes cable and double-sided adhesive)	758044-001
(6)	**Fingerprint reader module** (includes cable and double-sided adhesive)	758062-001
(7)	**TouchPad button board** (includes TouchPad cable, TouchPad button board cable, and double-sided adhesive)	758045-001

Item	Component	Spare part number
(8)	**Speaker Kit** (includes left and right speakers and cables)	758053-001
(9)	**System board** (includes replacement thermal material):	
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796399-601
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796399-501
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796399-001
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, TPM, and the Windows 8 Professional operating system	799573-601
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, TPM, and the Windows 8 Standard operating system	799573-501
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, TPM, and a non-Windows 8 operating system	799573-001
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796397-601
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796397-501
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796397-001
	Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796385-601
	Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796385-501
	Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796385-001
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796396-601
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796396-501
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796396-001

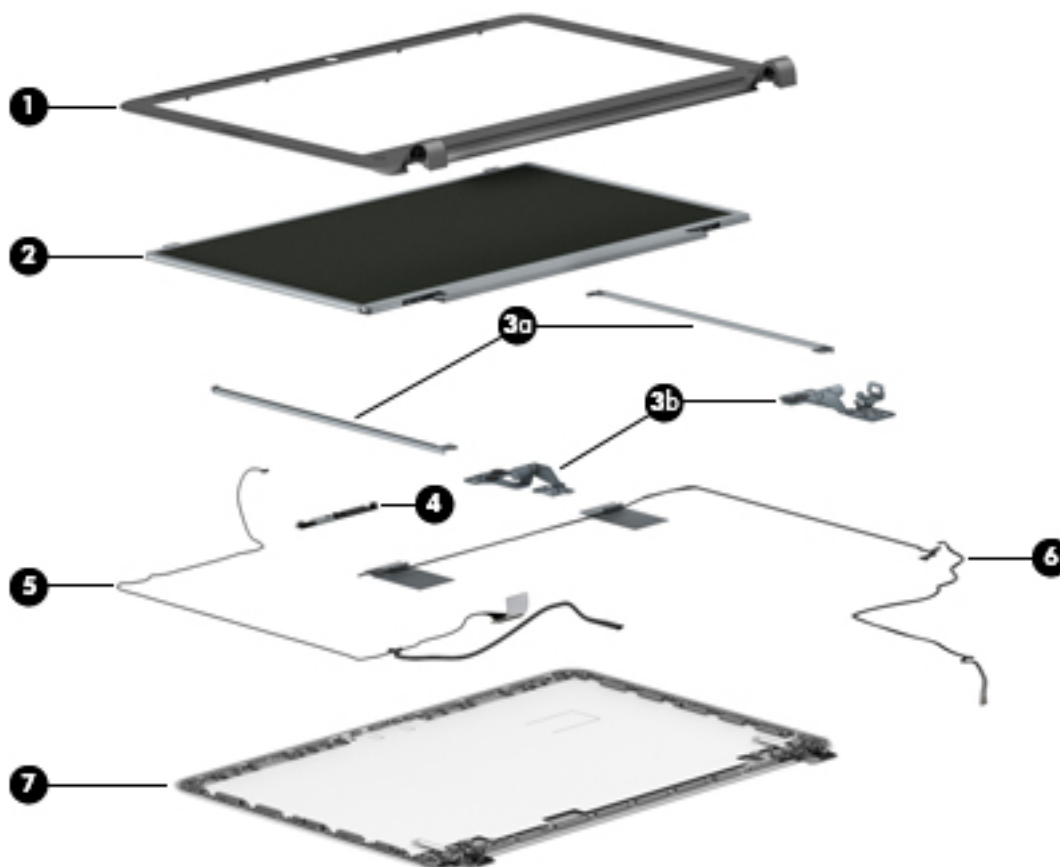| Item	Component	Spare part number
	Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796384-601
	Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796384-501
	Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796384-001
	Equipped with an Intel Pentium 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796400-601
	Equipped with an Intel Pentium 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796400-501
	Equipped with an Intel Pentium 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796400-001
	Equipped with an Intel Pentium 3558U 1.70-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796386-601
	Equipped with an Intel Pentium 3558U 1.70-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796386-501
	Equipped with an Intel Pentium 3558U 1.70-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796386-001
	Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796394-601
	Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796394-501
	Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796394-001
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), TPM, a UMA graphics subsystem, and the Windows 8 Professional operating system	799572-601
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), TPM, a UMA graphics subsystem, and the Windows 8 Standard operating system	799572-501
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), TPM, a UMA graphics subsystem, and a non-Windows 8 operating system	799572-001
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796392-601

Item	Component	Spare part number
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796392-501
	Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796392-001
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, TPM, and the Windows 8 Professional operating system	799571-601
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, TPM, and the Windows 8 Standard operating system	799571-501
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, TPM, and a non-Windows 8 operating system	799571-001
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796390-601
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796390-501
	Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796390-001
	Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796383-601
	Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796383-501
	Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796383-001
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, TPM, and the Windows 8 Professional operating system	799570-601
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, TPM, and the Windows 8 Standard operating system	799570-501
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, TPM, and a non-Windows 8 operating system	799570-001
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796389-601
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796389-501
	Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796389-001
	Equipped with an Intel Core i3-4030U 1.90-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	801977-601
	Equipped with an Intel Core i3-4030U 1.90-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	801977-501

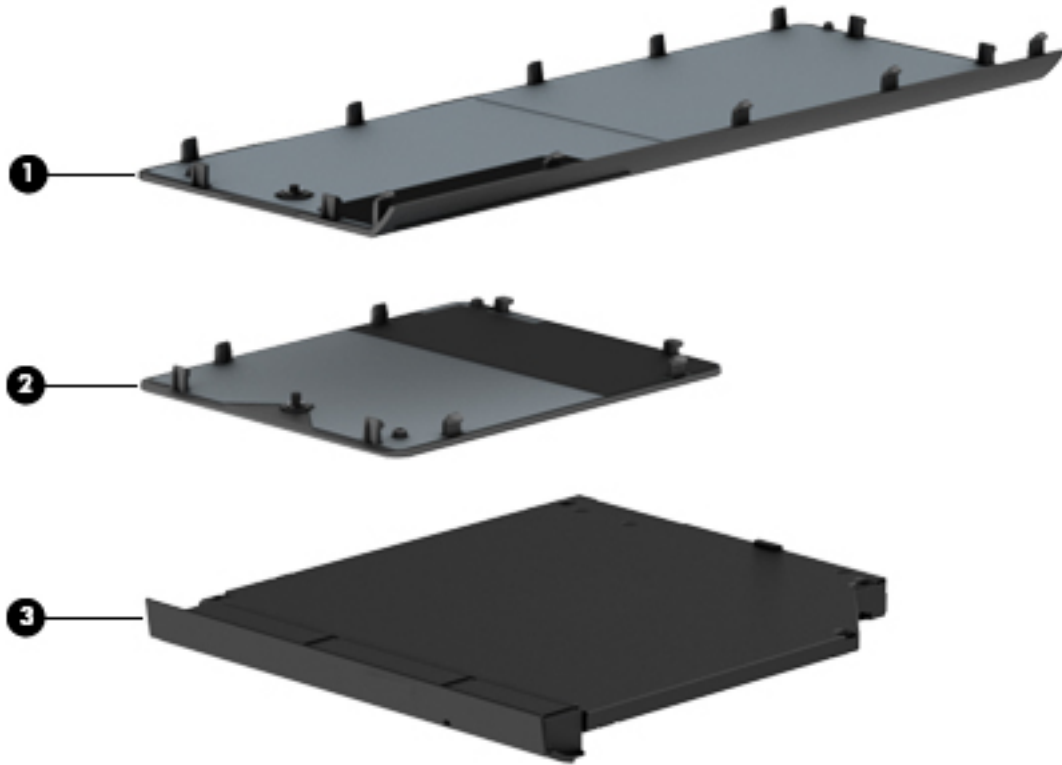| Item	Component	Spare part number
	Equipped with an Intel Core i3-4030U 1.90-GHz processor (dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	801977-001
	Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796382-601
	Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796382-501
	Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796382-001
	Equipped with an Intel Celeron 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796393-601
	Equipped with an Intel Celeron 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796393-501
	Equipped with an Intel Celeron 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796393-001
	Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796387-601
	Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796387-501
	Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796387-001
(10)	**Optical drive cable**	758064-001
(11)	**RTC battery**	718440-001
(12)	**Fan** (includes cable)	746657-001
(13)	**Heat sink** (includes replacement thermal material)	
	For use only on computer models equipped with a graphics subsystem with discrete memory	746658-001
	For use only on computer models equipped with a graphics subsystem with UMA memory	746659-001
(14)	**Audio/USB board** (includes audio jack, USB port, and cable)	758046-001
(15)	**Power connector cable**	758054-001
(16)	**Base enclosure**	758047-001
	Rubber Kit (not illustrated, includes base enclosure rubber feet)	758063-001
(17)	**Battery**, 4-cell, 41-Whr, 2.80-AHr, Li-ion	752237-001
(18)	**Memory module** (PCL3, 12800, 1600-MHz):	
	8 GB	693374-001
	4 GB	691740-001
	2 GB	691739-001
(20)	**WLAN module:**	
	Atheros AR9485 802.11b g n WiFi Adapter	675794-001
	Broadcom BCM943228HMB 802.11abgn 2×2 Wi-Fi Adapter, Broadcom Bluetooth 4.0 Adapter	730668-001

Item	Component	Spare part number
	Realtek RT8723BE 802.11bgn 1×1 WiFi + Bluetooth 4.0 Combo Adapter	753077-001
(21)	**Hard drive** (does not include hard drive bracket or hard drive connector adapter):	
	NOTE: The hard drive bracket and hard drive connector adapter are included in the Hard Drive Hardware Kit, spare part number 758048-001.	
	1-TB, 5400-rpm, SATA, 7.0-mm hard drive	778192-001
	750-GB, 5400-rpm, SATA, 7.0-mm hard drive	778190-001
	500-GB, 7200-rpm, SATA, 7.0-mm hard drive	703267-001
	500-GB, 5400-rpm, SATA, 7.0-mm hard drive	778186-001
(22)	**DVD±RW Double Layer with SuperMulti Drive**	763275-001
	Optical Drive Hardware Kit (includes optical drive bezel, optical drive bracket, and optical drive bracket screws)	758049-001
	Plastics Kit, includes:	758052-001
	NOTE: See Plastics Kit on page 22 for more Plastics Kit information.	
(23)	Memory module compartment cover (includes one captive screw, secured by an O-ring)	
(24)	Service cover (includes one captive screw, secured by an O-ring)	
	Optical drive bay space saver (not illustrated)	

Display assembly components

Item	Component	Spare part number
(1)	**Display bezel**	
	For use only on computer models equipped with a webcamera	758055-001
	For use only on computer models not equipped with a webcamera	758056-001
(2)	**15.6-in, HD, SVA display panel**	761784-001
	Display Hinge Kit, includesL	758061-001
(3a)	Left and right display hinge brackets	
(3b)	Left and right display hinges	
(4)	**Webcamera/microphone module** (includes double-sided adhesive)	746667-001
(5)	**Display panel cable:**	
	For use only on computer models equipped with a webcamera	758059-001
	For use only on computer models not equipped with a webcamera	758058-001
(6)	**Antenna Kit**,.includes:	758060-001
(7)	**Display enclosure**	758057-001

Plastics Kit

Item	Component	Spare part number
	Plastics Kit, includes:	758052-001
(1)	Service cover (includes one captive screw, secured by an O-ring)	
(2)	Memory module compartment cover (includes one captive screw, secured by an O-ring)	
(3)	Optical drive bay space saver	

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 adapter (non-PFC S-3P, 4.5-mm)	710412-001
45-W HP Smart adapter (non-PFC, RC, 4.5-mm)	741727-001
Carrying case:	
HP top load business carrying case	718550-001
HP top load essential carrying case	679921-001
HP ultraslim keyed cable lock	703372-001
Mouse:	
HP comfort grip wireless mouse	691922-001
HP USB laser mouse	674318-001
HP USB optical travel mouse	757770-001
Power cord (3-pin, black, 1.83-m):	
For use in Australia	490371-011
For use in Denmark	490371-081
For use in Europe	490371-021
For use in Israel	490371-BB1
For use in Italy	490371-061
For use in North America	490371-001
For use in the People's Republic of China	490371-AA1
For use in the South Africa	490371-AR1
For use in Switzerland	490371-111
For use in Taiwan	490371-AB1
For use in the United Kingdom and Singapore	490371-031
Screw Kit	760284-001

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 computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic parts

CAUTION: Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and connectors

CAUTION: When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Drive handling

⚠ CAUTION: Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

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

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

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

Avoid dropping drives from any height onto any surface.

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

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

Avoid exposing a drive to temperature extremes or liquids.

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

Grounding guidelines

Electrostatic discharge damage

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

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

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

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

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

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

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

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

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

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

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

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.

- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.

- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.

- Place items on a grounded surface before removing items from their containers.

- Always be properly grounded when touching a component or assembly.

- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.

- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.

- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.

- Use conductive field service tools, such as cutters, screw drivers, and vacuums.

- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.

- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.

- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.

- Avoid contact with pins, leads, or circuitry.

- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

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

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.

- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

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

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

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

5 Removal and replacement procedures for Customer Self-Repair parts

> **NOTE:** The Customer Self-Repair program is not available in all locations. Installing a part not supported by the Customer Self-Repair program may void your warranty. Check your warranty to determine if Customer Self-Repair is supported in your location.

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

Component replacement procedures

> **NOTE:** Please read and follow the procedures described here to access and replace Customer Self- Repair parts successfully.

> **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See Locating the serial number, product number, and model number on page 13 for details.

This chapter provides removal and replacement procedures for Customer Self-Repair parts.

There are as many as 7 screws that must be removed, replaced, and/or loosened when servicing Customer Self-Repair parts. Make special note of each screw size and location during removal and replacement.

Battery

Description	Spare part number
4-cell, 41-Whr, 2.80-AHr, Li-ion battery	752237-001

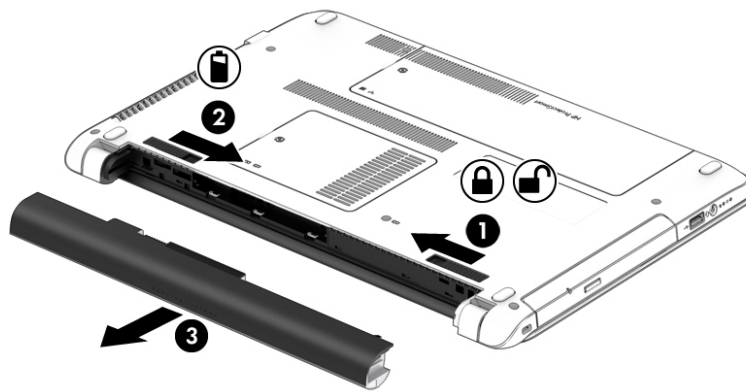Before removing the disassembling the computer, follow these steps:

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

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

3. Disconnect all external devices from the computer.

⚠ **WARNING!** To reduce potential safety issues, use only the battery provided with the computer, 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 computer can cause loss of information. To prevent loss of information, save your work or shut down the computer through Windows before removing the battery.

Remove the battery:

1. Turn the computer upside down on a flat surface, with the battery bay toward you.

2. Slide the battery release latch **(1)** and battery lock **(2)** inwards to release the battery.

3. Remove the battery from the computer **(3)**.

Reverse this procedure to install the battery.
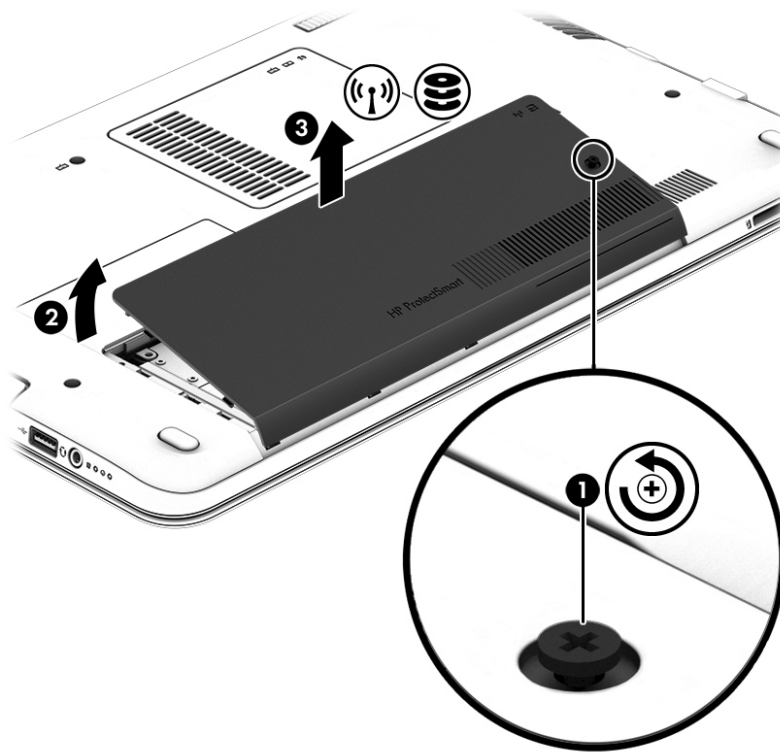
Service cover

NOTE: The service cover is included in the Plastics Kit, spare part number 758052-001.

Before removing the service cover, follow these steps:

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

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

3.   Disconnect all external devices from the computer.

4.   Remove the battery (See Battery on page 30).

Remove the service cover:

1.   Loosen the Phillips PM2.5×4.5 captive screw **(1)** that secures the service cover to the computer.

2.   Lift the rear edge of the service cover **(2)** until it rests at an angle.

3.   Remove the service cover **(3)**.

Reverse this procedure to install the service cover.

Hard drive

📝 **NOTE:** The hard drive spare part kit does not include the hard drive bracket or hard drive connector adapter. The hard drive bracket and hard drive connector adapter are included in the Hard Drive Hardware Kit, spare part number 758048-001.

Description	Spare part number
1-TB, 5400-rpm, SATA, 7.0-mm hard drive	778192-001
750-GB, 5400-rpm, SATA, 7.0-mm hard drive	778190-001
500-GB, 7200-rpm, SATA, 7.0-mm hard drive	703267-001

Before removing the battery, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the battery (see Battery on page 30).

5. Remove the service cover (see Service cover on page 31).

Remove the hard drive:

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

2. Remove the hard drive **(3)** from the hard drive bay.
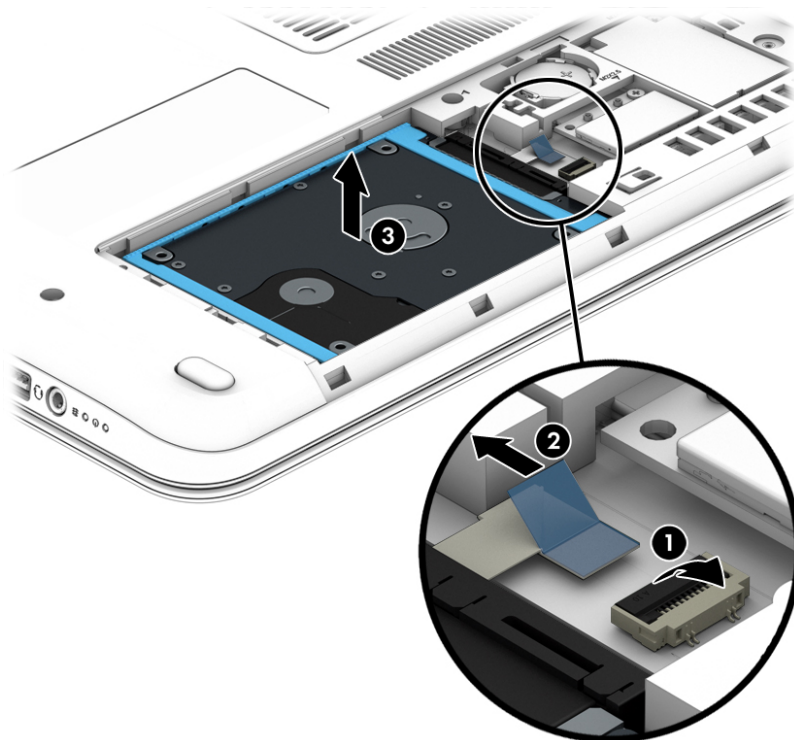
3. If it is necessary to disassemble the hard drive, perform the following steps:

a. Position the hard drive with the hard drive connector adapter toward you.

b. Release the left and right sides of the hard drive bracket **(1)** from the hard drive.

c. Remove the hard drive bracket **(2)** from the hard drive.

d. Remove the hard drive connector adapter **(3)** from the hard drive.

The hard drive bracket and hard drive connector adapter are available in the Hard Drive Hardware Kit, spare part number 746650-001.
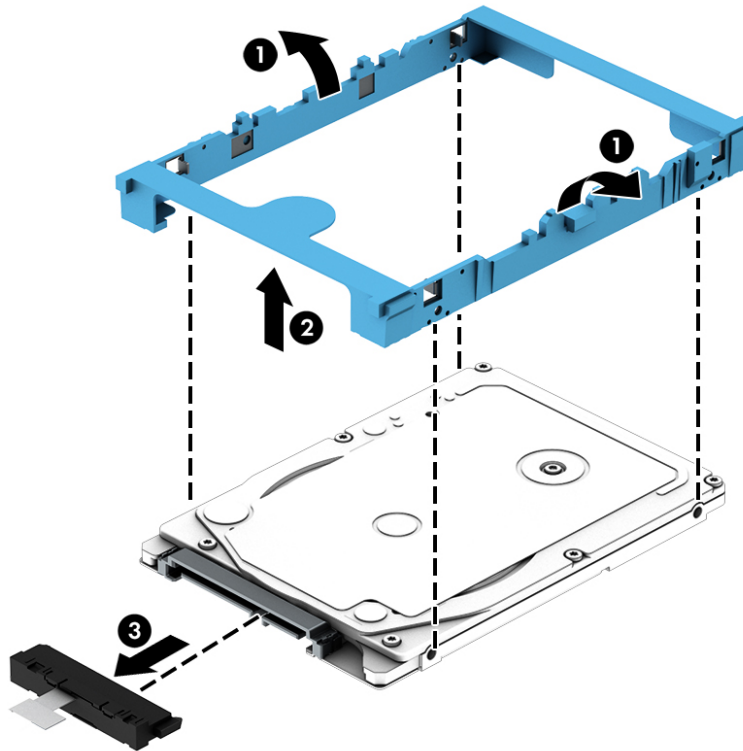
Reverse this procedure to reassemble and install the hard drive.

WLAN module

Description	Spare part number
Atheros AR9485 802.11b g n WiFi Adapter	675794-001
Broadcom BCM943228HMB 802.11abgn 2×2 Wi-Fi Adapter, Broadcom Bluetooth 4.0 Adapter	730668-001
Realtek RT8723BE 802.11bgn 1×1 WiFi + Bluetooth 4.0 Combo Adapter	753077-001

Before removing the WLAN module, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the battery (see).

5. Remove the service cover (see).

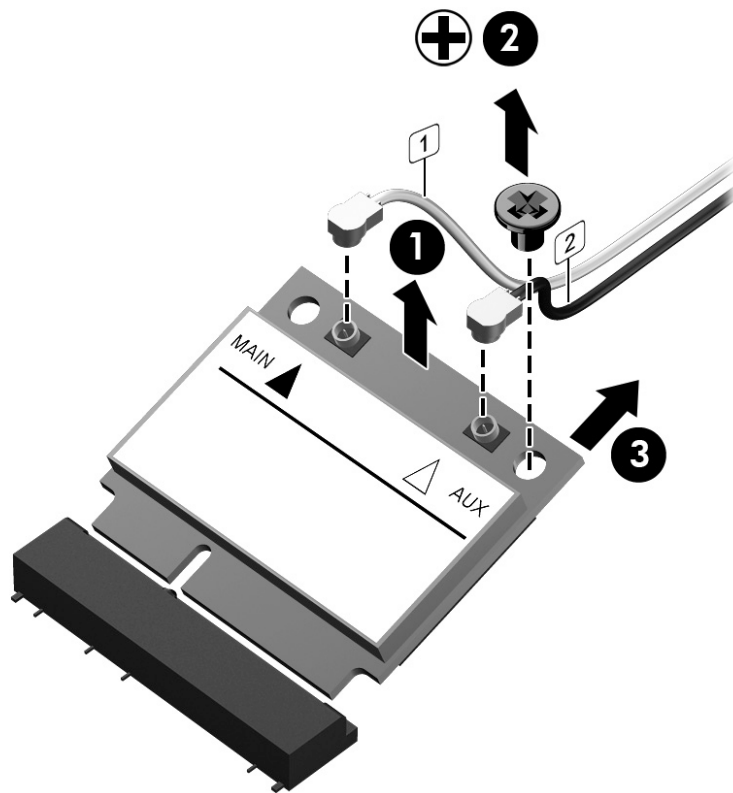Remove the WLAN module:

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

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

2. Remove the Phillips PM2.0×3.0 screw **(2)** that secures the WLAN module to the system board. (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 terminals on the WLAN module, protective sleeves should be installed on the antenna connectors, as shown in the following illustration.
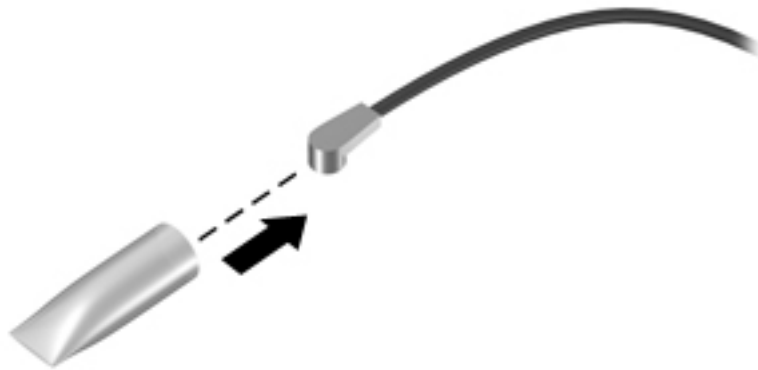
Reverse this procedure to install the WLAN module.

Memory module

| Description	Spare part number
8 GB	693374-001
4 GB	691740-001
2 GB	691739-001

Before removing the memory module, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the battery (see Battery on page 30).

Remove the memory module:

1. Loosen the Phillips PM2.5×4.5 captive screw **(1)** that secures the memory module compartment cover to the computer.

2. Lift the right edge of the memory module compartment cover **(2)** until it rests at an angle.

3. Remove the memory module compartment cover **(3)**.

   The memory module compartment cover is included in the Plastics Kit, spare part number 746655-001.
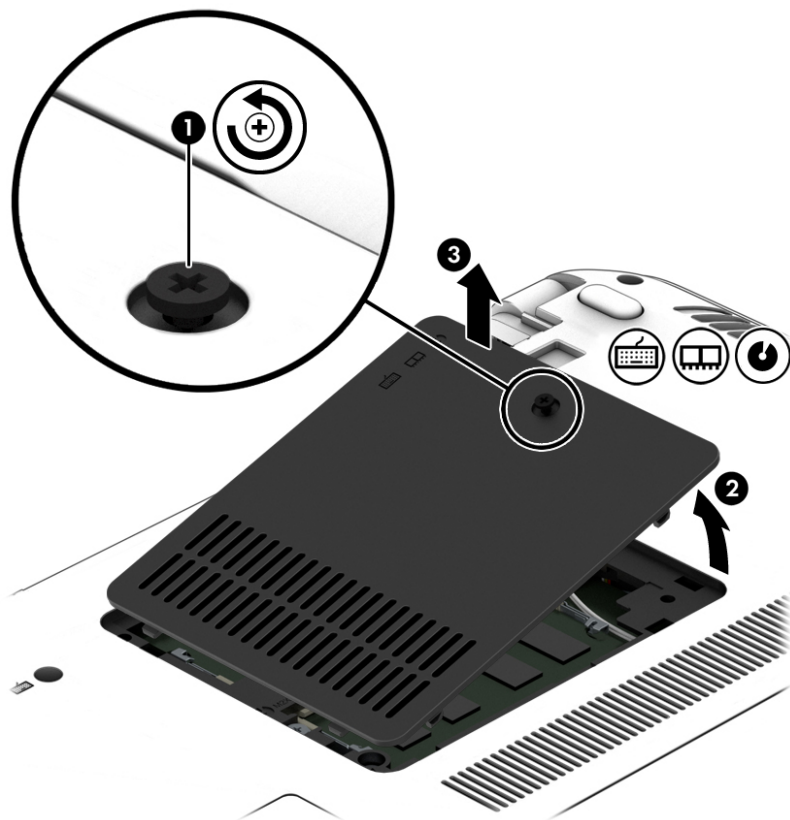
4. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The memory module tilts up.)

5. Remove the memory module **(2)** by pulling the module away from the slot at an angle.
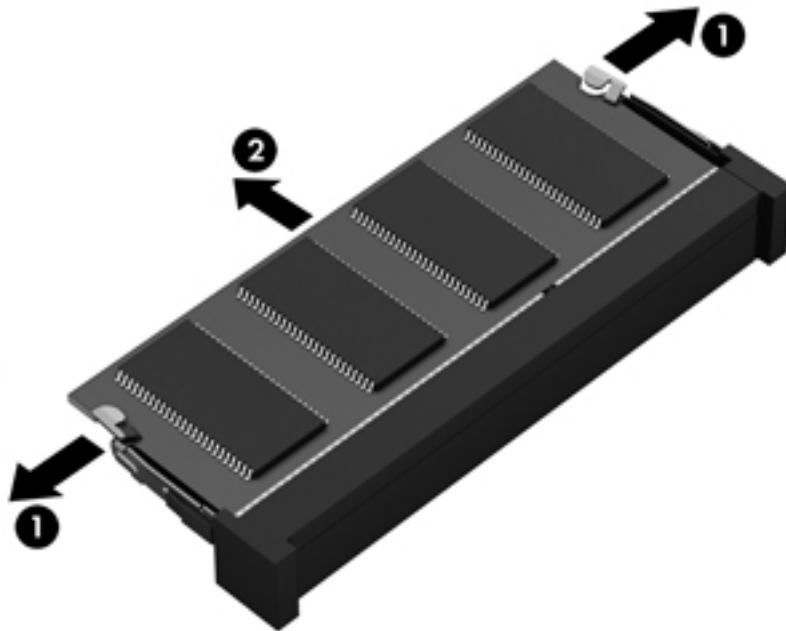
Reverse this procedure to install a memory module.

Optical drive

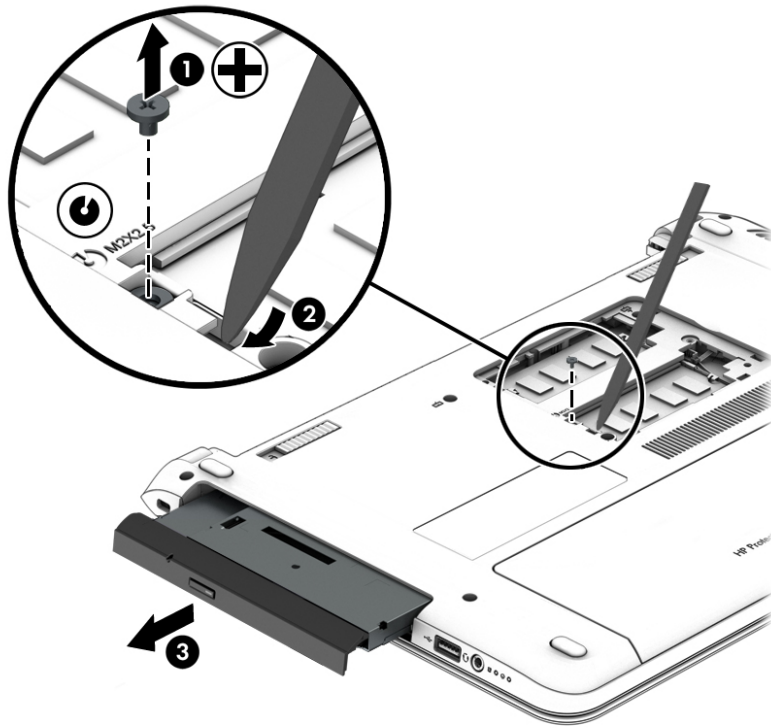| Description	Spare part number
DVD±RW Double Layer with SuperMulti Drive	763275-001
Optical Drive Hardware Kit (includes optical drive bezel, optical drive bracket, and optical drive bracket screws)	758049-001

Before removing the optical drive, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the battery (see Battery on page 30).

5. Remove the memory module compartment cover (see Memory module on page 36).

Remove the optical drive:

1. Position the computer with the left side toward you.

2. Remove the Phillips PM2.0×3.0 screw **(1)** that secures the optical drive to the computer.

3. Use a thin plastic tool to press on the optical drive tab **(2)** and release the optical drive from the computer.

4. Remove the optical drive **(3)**.

Reverse this procedure to install the optical drive.

Keyboard

Description	Spare part number	Description	Spare part number
For use only in Belgium	758027-A41	For use only in Northwest Africa	758027-FP1
For use only in Bulgaria	758027-261	For use only in Portugal	758027-131
For use only in Canada	758027-DB1	For use only in Romania	758027-271
For use only in the Czech Republic and Slovakia	758027-FL1	For use only in Russia	758027-251
For use only in Denmark, Finland, and Norway	758027-DH1	For use only in Saudi Arabia	758027-171
For use only in France	758027-051	For use only in Slovenia	758027-BA1
For use only in Germany	758027-041	For use only in Spain	758027-071
For use only in Greece	758027-151	For use only in Switzerland	758027-BG1
For use only in Hungary	758027-211	For use only in Taiwan	758027-AB1
For use only in Israel	758027-BB1	For use only in Turkey	758027-141
For use only in Italy	758027-061	For use only in the United Kingdom and Singapore	758027-031
For use only in the Netherlands	758027-B31	For use only in the United States	758027-001

Before removing the keyboard, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the battery (see Battery on page 30).

5. Remove the memory module compartment cover (see Memory module on page 36).

Remove the keyboard:

1. Remove the two Phillips PM2.5×6.5 screws that secure the keyboard to the computer.
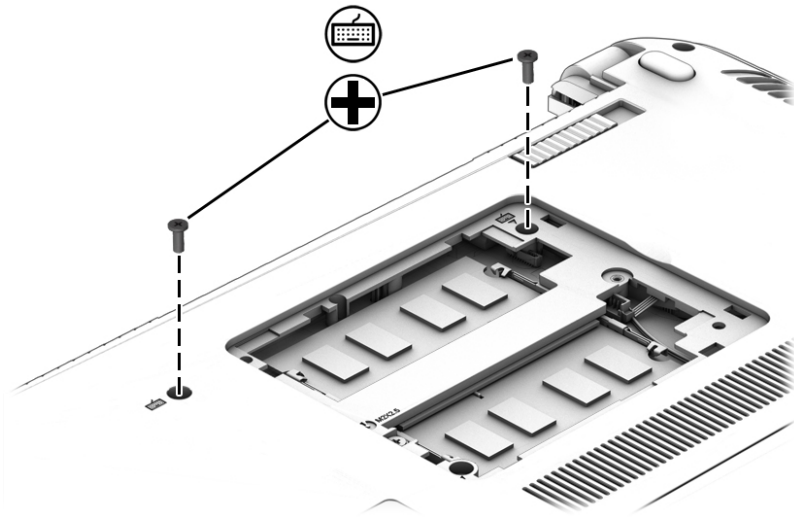
2. Partially open the computer.

3. Rest and secure the computer on its left side.

4. Insert a thin, plastic tool into the keyboard retention screw hole, and then press on the back of the keyboard until the keyboard disengages from the computer.
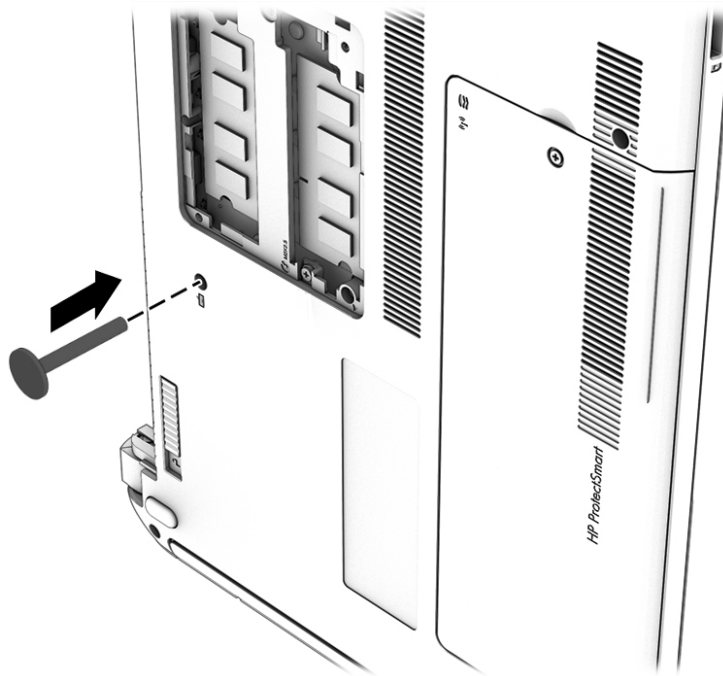
5. Open the computer as far as it will open.

6. Slide the keyboard **(1)** toward the TouchPad as far as it will slide.

7. Lift the rear edge of the keyboard **(2)** until it rests at an angle.
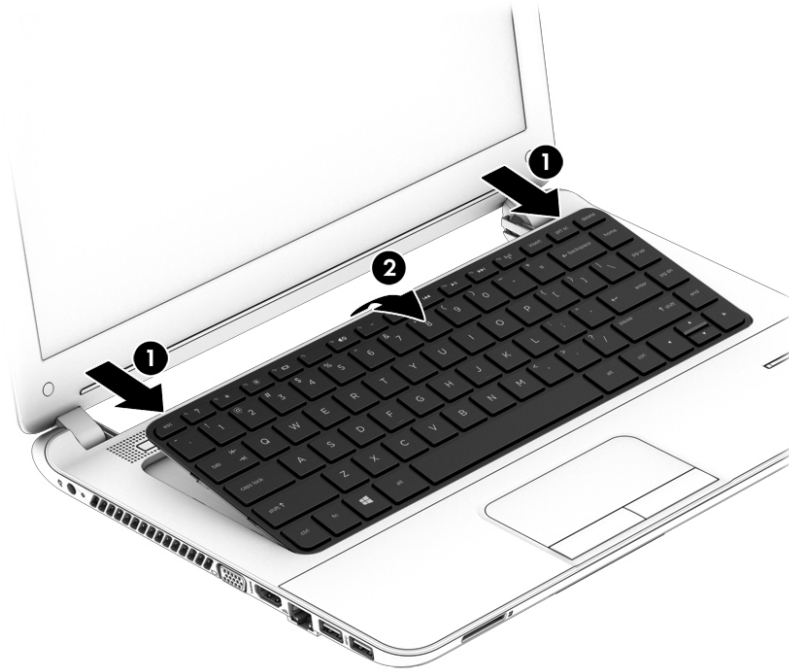
8. Swing the keyboard **(1)** up and forward until it rests upside down on the palm rest.

9. Release the ZIF connector **(2)** to which the keyboard cable is attached, and then disconnect the keyboard cable **(3)** from the system board.

10. Remove the keyboard **(4)**.
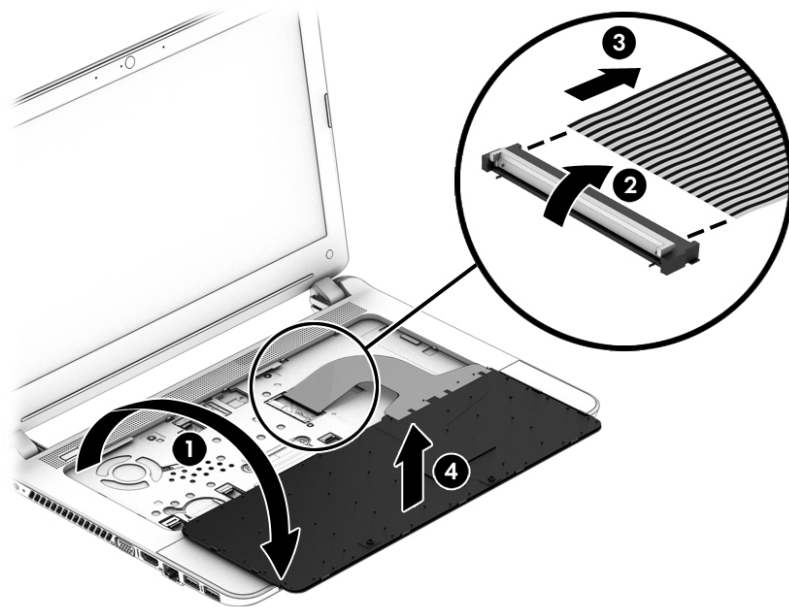
Reverse this procedure to install the keyboard.

6 Removal and replacement procedures for Authorized Service Provider parts

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

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

Component replacement procedures

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

There are as many as 50 screws that must be removed, replaced, and/or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Top cover

Description	Spare part number
For use only on computer models equipped with a fingerprint reader	758051-001
For use only on computer models not equipped with a fingerprint reader	758050-001

Before removing the top cover, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

   a. Service cover (see Service cover on page 31)

   b. Hard drive (see Hard drive on page 32)

   c. Optical drive (see Optical drive on page 37)

   d. Keyboard (see Keyboard on page 39)

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

- Fingerprint reader module (See Fingerprint reader module on page 46)

- TouchPad button board (See TouchPad button board on page 47)

- Card reader board (See Card reader board on page 48)
- Power button board (See Power button board on page 49)

Remove the top cover:

1. Close the computer.
2. Turn the computer upside down with the front toward you.
3. Remove the two rubber feet **(1).**

   📝 **NOTE:** The rubber feet are included in the Rubber Kit, spare part number 746669-001.

4. Remove the ten Phillips PM2.5×6.5 screws **(2)** that secure the top cover to the base enclosure.
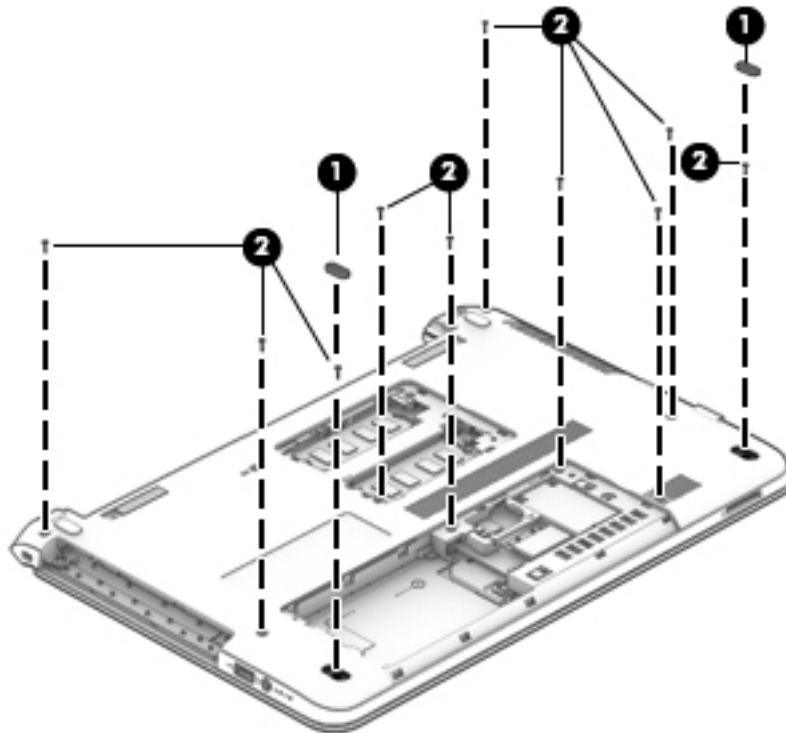
5. Remove the two Phillips PM2.0×2.0 broad head screws **(1)** in the optical drive bay that secure the top cover to the base enclosure.

6. Remove the four Phillips PM2.0×2.0 broad head screws **(2)** in the hard drive bay that secure the top cover to the base enclosure.

7. Turn the computer right side up with the front toward you.

8. Open the computer as far as it will open.
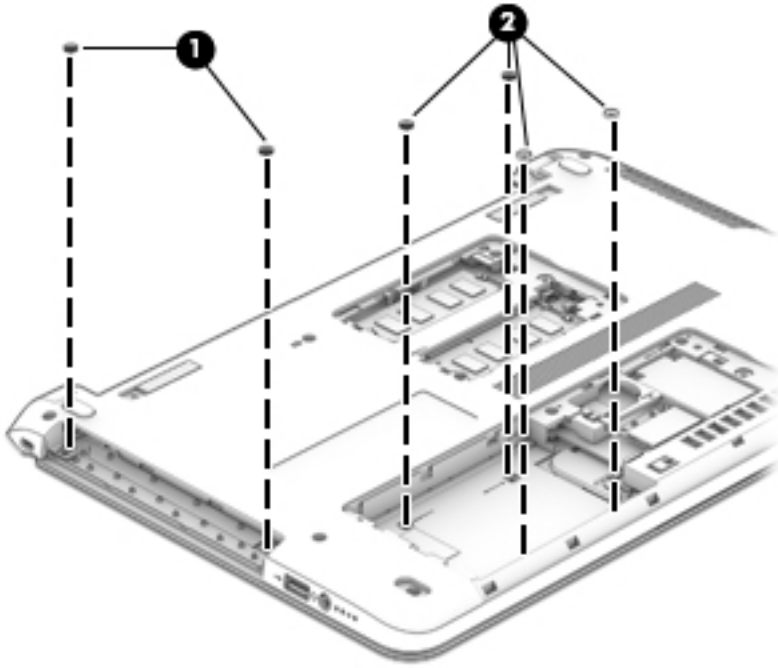
9. Disconnect the following cables from the system board:

   (1) Power button board ZIF connector and ribbon cable

   (2) Card reader board ZIF connector and ribbon cable

   (3) TouchPad button board ZIF connector and ribbon cable

   (4) Fingerprint reader module ZIF connector and ribbon cable
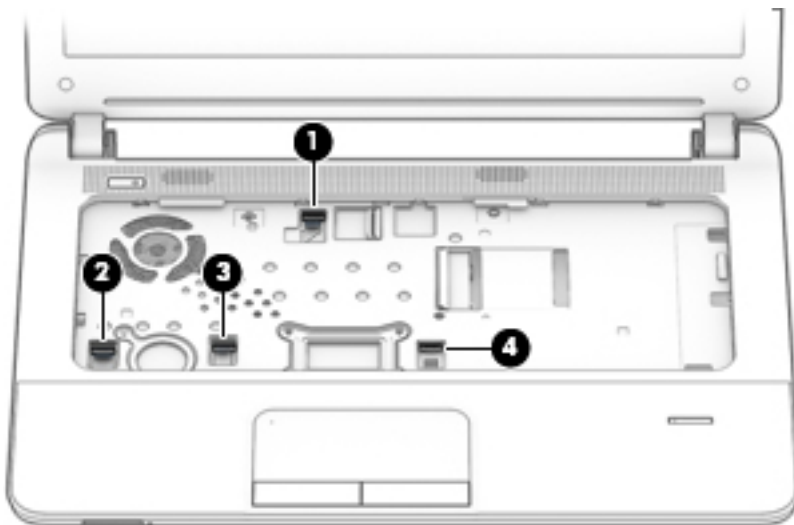
10. Separate the rear edge of the top cover **(1)** from the base enclosure.

11. Remove the top cover **(2)**.
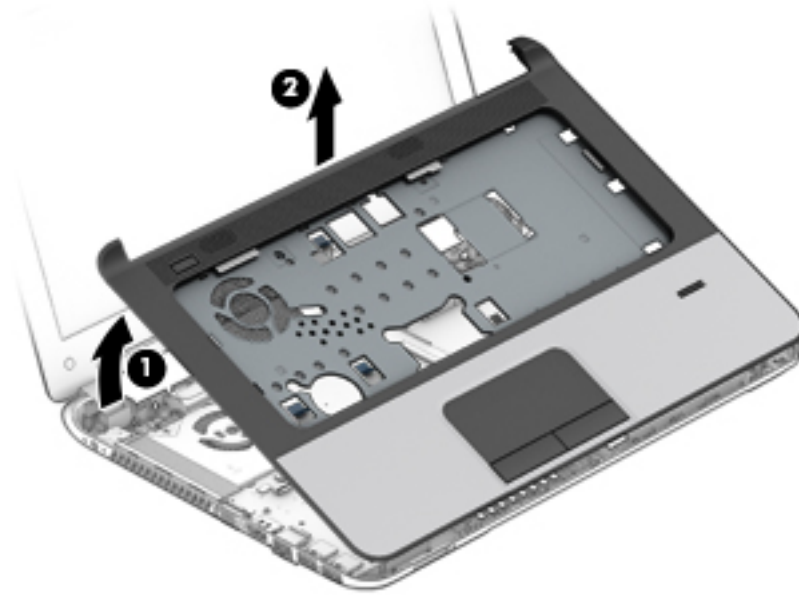
Reverse this procedure to install the top cover.

Fingerprint reader module

Description	Spare part number
Fingerprint reader module (includes cable and double-sided adhesive)	758062-001

Before removing the fingerprint reader module, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

   a. Service cover (see Service cover on page 31)

   b. Hard drive (see Hard drive on page 32)

   c. Optical drive (see Optical drive on page 37)

   d. Keyboard (see Keyboard on page 39)

   e. Top cover (see Top cover on page 42)

Remove the fingerprint reader module:

1. Turn the top cover upside down with the front toward you.

2. Release the ground tape **(1)** that secures the fingerprint reader module to the top cover.

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

4. Remove the fingerprint reader module **(3)** and cable.
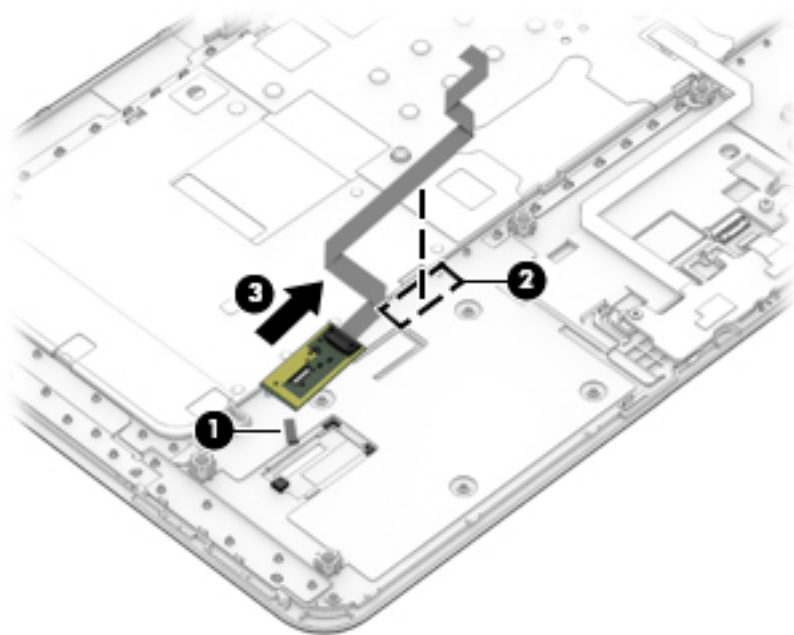
Reverse this procedure to install the fingerprint reader module.
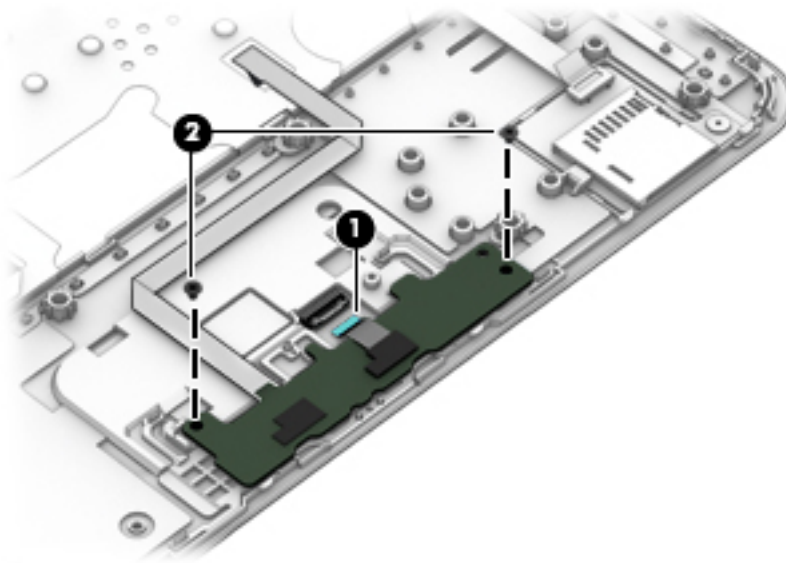
TouchPad button board

Description	Spare part number
TouchPad button board (includes TouchPad cable, TouchPad button board cable, and double-sided adhesive)	758045-001

Before removing the TouchPad button board, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

    a. Service cover (see Service cover on page 31)

    b. Hard drive (see Hard drive on page 32)

    c. Optical drive (see Optical drive on page 37)

    d. Keyboard (see Keyboard on page 39)

    e. Top cover (see Top cover on page 42)

Remove the TouchPad button board:

1. Turn the top cover upside down with the front toward you.

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

3. Remove the two Phillips PM2.0×3.0 screws **(2)** that secure the TouchPad button board to the top cover.

4. Detach the TouchPad button board cable **(1)** from the top cover. (The TouchPad button board cable is attached to the top cover with double-sided adhesive.)

5. Remove the TouchPad button board **(2)** and cable.

Reverse this procedure to install the TouchPad button board.

Card reader board

Description	Spare part number
Card reader board (includes cable and double-sided adhesive)	758043-001

Before removing the card reader board, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

 a. Service cover (see Service cover on page 31)

 b. Hard drive (see Hard drive on page 32)

 c. Optical drive (see Optical drive on page 37)

 d. Keyboard (see Keyboard on page 39)

 e. Top cover (see Top cover on page 42)

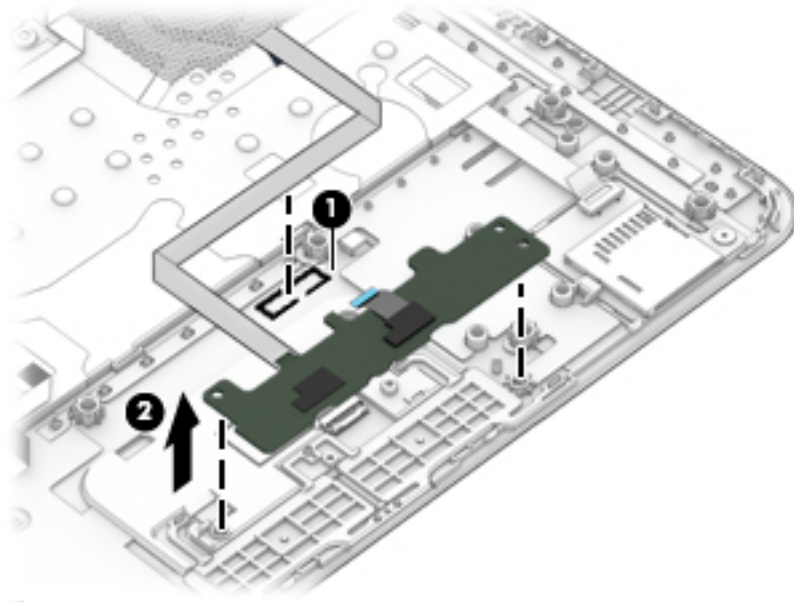Remove the card reader board:

1. Turn the top cover upside down with the front toward you.

2. Detach the card reader board cable **(1)** from the top cover. (The card reader board cable is attached to the top cover with double-sided adhesive.)

3. Remove the Philllips PM2.0×2.0 broad head screw **(2)** that secures the card reader board to the top cover.

4. Remove the card reader board **(3)** and cable.

Reverse this procedure to install the card reader board.

Power button board

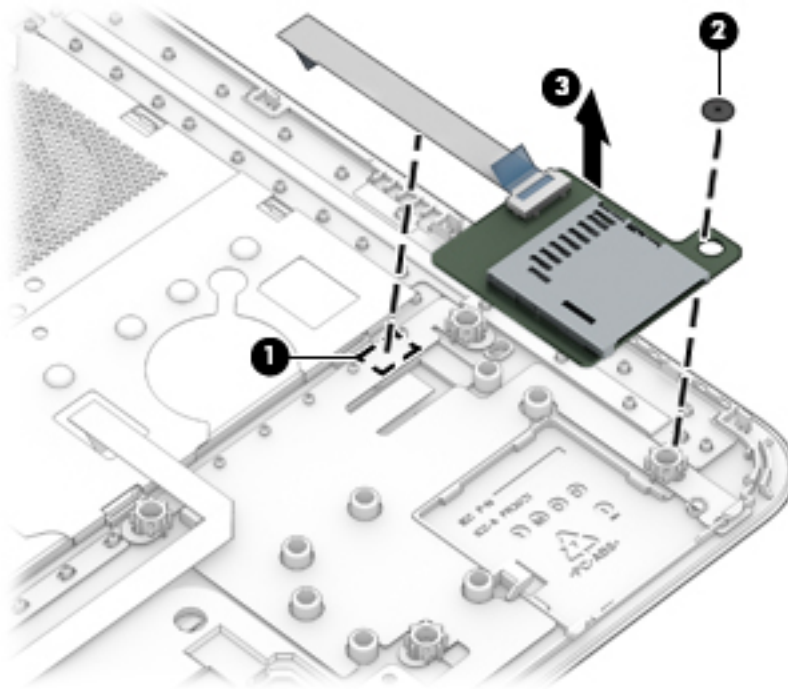| Description	Spare part number
Power button board (includes cable and double-sided adhesive)	758044-001

Before removing the power button board, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

    a. Service cover (see Service cover on page 31)

    b. Hard drive (see Hard drive on page 32)

    c. Optical drive (see Optical drive on page 37)

    d. Keyboard (see Keyboard on page 39)

    e. Top cover (see Top cover on page 42)

Remove the power button board:

1. Turn the top cover upside down with the front toward you.
2. Detach the power button board cable **(1)** from the top cover. (The power button board cable is attached to the top cover with double-sided adhesive.)
3. Remove the Phillips PM2.0×3.0 screw **(2)** that secures the power button board to the top cover.
4. Remove the power button board **(3)** and cable.

Reverse this procedure to install the power button board.

Speakers
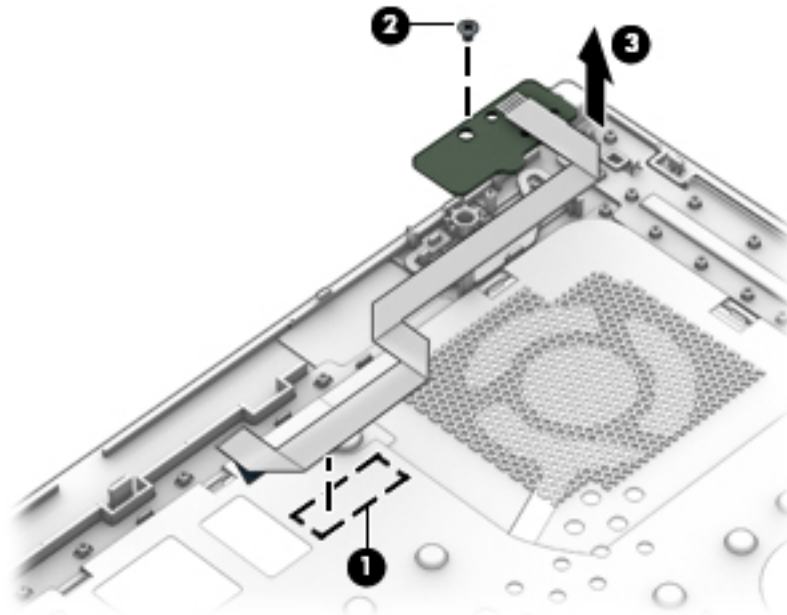
Description	Spare part number
Speaker Kit (includes left and right speakers and cables)	758053-001

Before removing the speakers, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the Battery (see Battery on page 30), and then remove the following components:

    a. Service cover (see Service cover on page 31)

    b. Hard drive (see Hard drive on page 32)

    c. Optical drive (see Optical drive on page 37)

    d. Keyboard (see Keyboard on page 39)

    e. Top cover (see Top cover on page 42)

Remove the speakers:

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

2. Detach the speaker cable **(2)** from the system board. (The speaker cable is attached to the system board with tape.)

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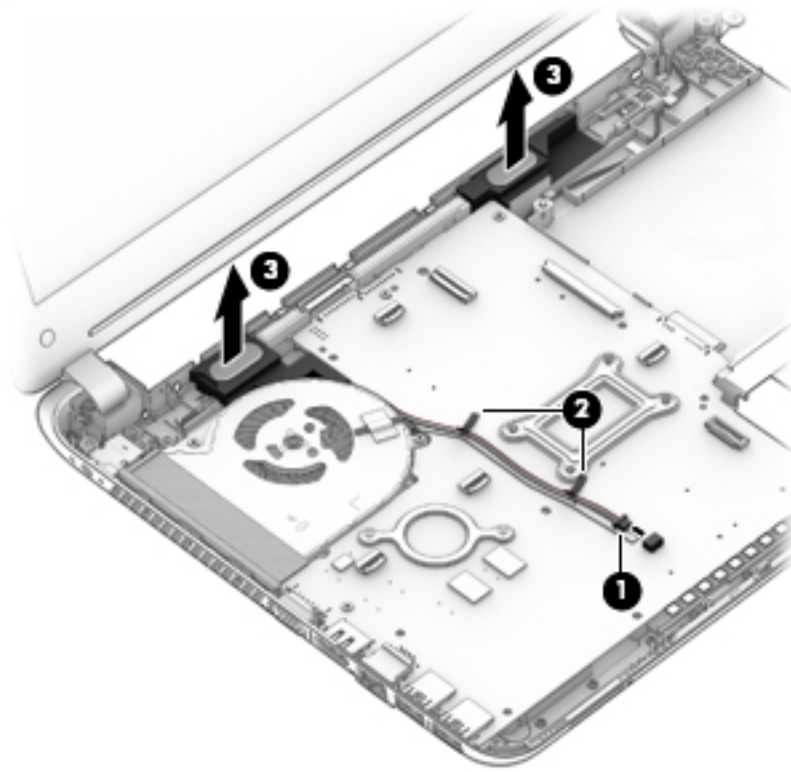
Reverse this procedure to install the speakers.

Audio/USB board
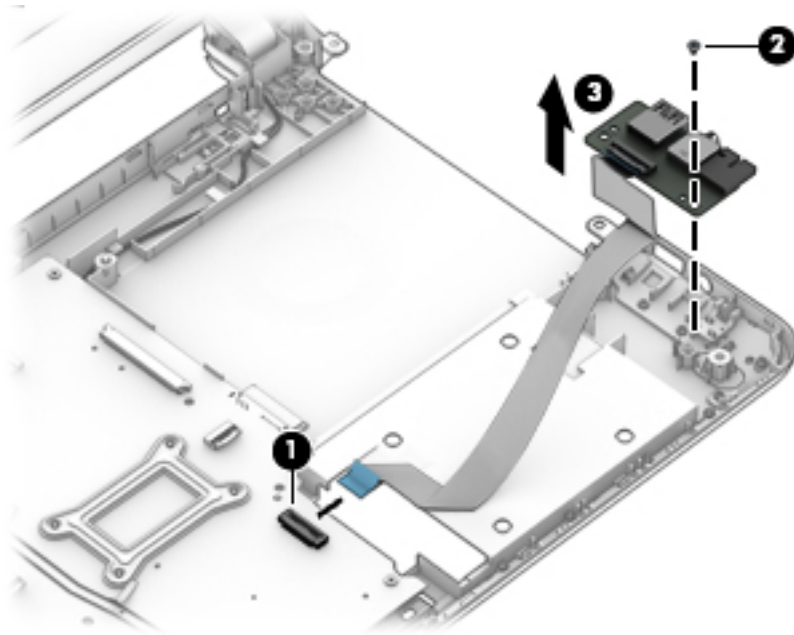
Description	Spare part number
Audio/USB board (includes audio jack, USB port, and cable)	758046-001

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

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

   a. Service cover (see Service cover on page 31)

   b. Hard drive (see Hard drive on page 32)

   c. Optical drive (see Optical drive on page 37)

   d. Keyboard (see Keyboard on page 39)

   e. Top cover (see Top cover on page 42)

Remove the audio/USB board:

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

2. Remove the Philllips PM2.5×4.5 screw **(2)** that secures the audio/USB board to the base enclosure.

3. Remove the audio/USB board **(3)** and cable.

Reverse this procedure to install the audio/USB board.

System board

NOTE: The system board spare part kit includes replacement thermal material.

Description	Spare part number
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796399-601
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796399-501
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796399-001
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, TPM, and the Windows 8 Professional operating system	799573-601
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, TPM, and the Windows 8 Standard operating system	799573-501
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, TPM, and a non-Windows 8 operating system	799573-001
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796397-601
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796397-501
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796397-001
Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796385-601
Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796385-501
Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796385-001
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796396-601
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796396-501
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796396-001

Description	Spare part number
Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796384-601
Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796384-501
Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796384-001
Equipped with an Intel Pentium 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796400-601
Equipped with an Intel Pentium 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796400-501
Equipped with an Intel Pentium 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796400-001
Equipped with an Intel Pentium 3558U 1.70-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796386-601
Equipped with an Intel Pentium 3558U 1.70-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796386-501
Equipped with an Intel Pentium 3558U 1.70-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796386-001
Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Professional operating system	796394-601
Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and the Windows 8 Standard operating system	796394-501
Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), an AMD Radeon R5 M240 (Jet S3 XT) graphics subsystem with 2.0-GB of discrete memory, and a non-Windows 8 operating system	796394-001
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), TPM, a UMA graphics subsystem, and the Windows 8 Professional operating system	799572-601
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), TPM, a UMA graphics subsystem, and the Windows 8 Standard operating system	799572-501
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), TPM, a UMA graphics subsystem, and a non-Windows 8 operating system	799572-001
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796392-601
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796392-501
Equipped with an Intel Core i7-5500U 2.40-GHz (SC Turbo up to 3.00-GHz) processor (4.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796392-001

Description	Spare part number
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, TPM, and the Windows 8 Professional operating system	799571-601
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, TPM, and the Windows 8 Standard operating system	799571-501
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, TPM, and a non-Windows 8 operating system	799571-001
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796390-601
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796390-501
Equipped with an Intel Core i5-5200U 2.20-GHz (SC Turbo up to 2.70-GHz) processor (3.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796390-001
Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796383-601
Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796383-501
Equipped with an Intel Core i5-4210U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796383-001
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, TPM, and the Windows 8 Professional operating system	799570-601
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, TPM, and the Windows 8 Standard operating system	799570-501
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, TPM, and a non-Windows 8 operating system	799570-001
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796389-601
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796389-501
Equipped with an Intel Core i3-5010U 2.10-GHz processor (dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796389-001
Equipped with an Intel Core i3-4030U 1.90-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	801977-601
Equipped with an Intel Core i3-4030U 1.90-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	801977-501
Equipped with an Intel Core i3-4030U 1.90-GHz processor (dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	801977-001
Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796382-601
Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796382-501
Equipped with an Intel Core i3-4005U 1.70-GHz processor (dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796382-001
Equipped with an Intel Celeron 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796393-601

Description	Spare part number
Equipped with an Intel Celeron 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796393-501
Equipped with an Intel Celeron 3805U 1.90-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796393-001
Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Professional operating system	796387-601
Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and the Windows 8 Standard operating system	796387-501
Equipped with an Intel Celeron 3205U 1.50-GHz processor (2.0-MB L3 cache, dual core, 15 W), a UMA graphics subsystem, and a non-Windows 8 operating system	796387-001

Before removing the system board, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

   a. Service cover (see Service cover on page 31)

   b. Hard drive (see Hard drive on page 32)

   c. Optical drive (see Optical drive on page 37)

   d. Keyboard (see Keyboard on page 39)

   e. Top cover (see Top cover on page 42)

   f. Speakers (see Speakers on page 50)

NOTE: 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:

● WLAN module (see WLAN module on page 34)

● Memory modules (see Memory module on page 36)

● RTC battery (see RTC battery on page 62)

● Heat sink (see Heat sink on page 58)

● Fan (see Fan on page 61)

Remove the system board:

1. Release the ground tape **(1)** that secures the display panel cable to the system board.

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

3. Release the ZIF connector **(3)** to which the audio/USB board cable is attached, and then disconnect the audio/USB board cable from the system board.
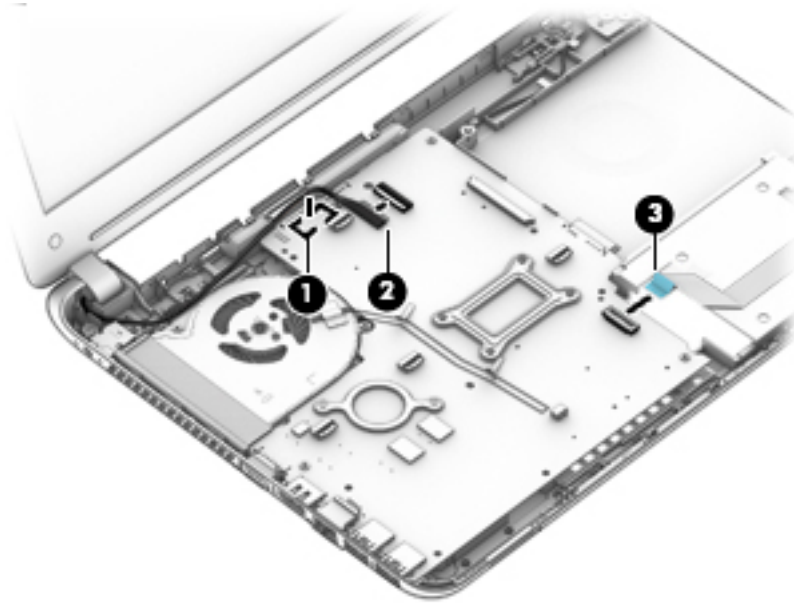

4. Remove the fan cowling material **(1)** that forms a seal between the base enclosure and the fan.

5. Remove the two Philllips PM2.0×5.5 screws **(2)** that secure the system board to the base enclosure.

6. Remove the four Philllips PM2.5×4.5 screws **(3)** that secure the system board to the base enclosure.
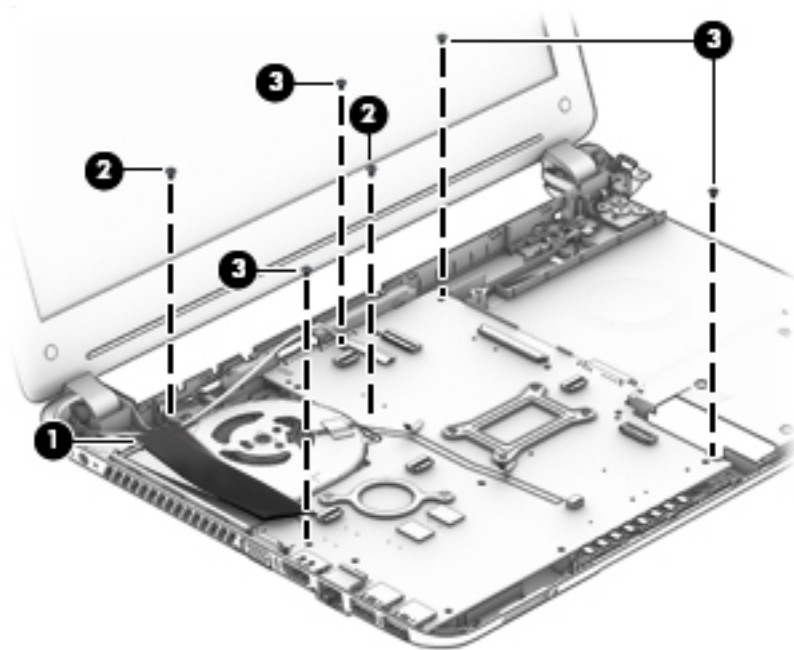
7. Lift up on the right side of the system board **(1)** until it rests at an angle.

8. Disconnect the power connector cable **(2)** from the system board.

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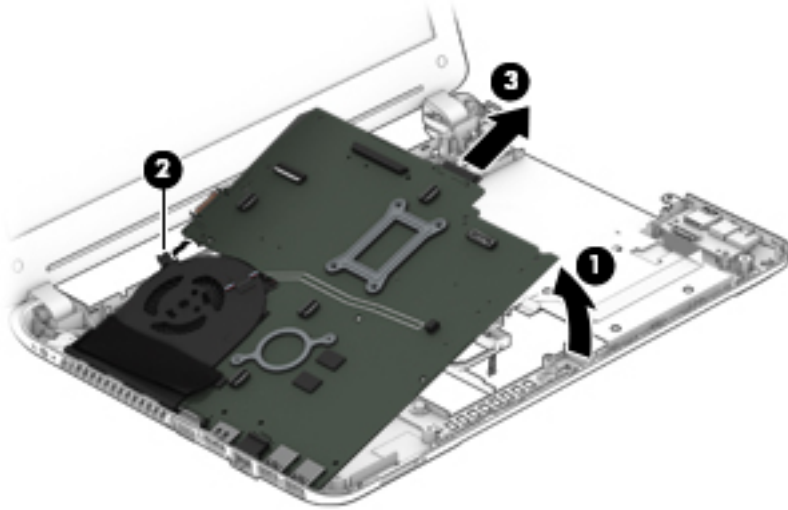
Reverse this procedure to install the system board.

Heat sink

📝 **NOTE:** The system board spare part kit includes replacement thermal material.

Description	Spare part number
For use only on computer models equipped with a graphics subsystem with discrete memory	746658-001
For use only on computer models equipped with a graphics subsystem with UMA memory	746659-001

Before removing the heat sink, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

    a. Service cover (see Service cover on page 31)

    b. Hard drive (see Hard drive on page 32)

    c. Optical drive (see Optical drive on page 37)

    d. Keyboard (see Keyboard on page 39)

    e. Top cover (see Top cover on page 42)

    f. Speakers (see Speakers on page 50)

   g. System board (see System board on page 53)

Remove the heat sink:

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

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

3. Following the 1 through 6 sequence stamped into the heat sink, loosen the six Phillips captive screws **(2)** and **(3)** that secure the heat sink to the system board.

   📝 **NOTE:** The heat sink used on computer models equipped with a graphics subsystem with UMA memory will only have the screws in location **(2)**.
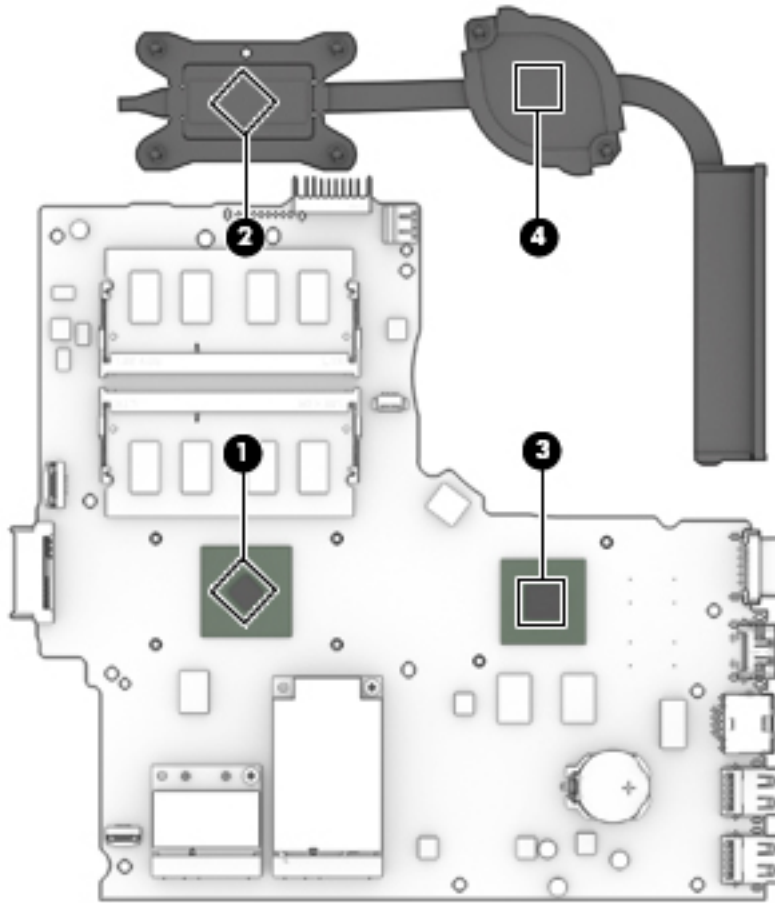
4. Remove the heat sink **(4)**.

   📝 **NOTE:** Due to the adhesive quality of the thermal material located between the heat sink and the system board components, it may be necessary to move the heat sink from side to side to detach it.
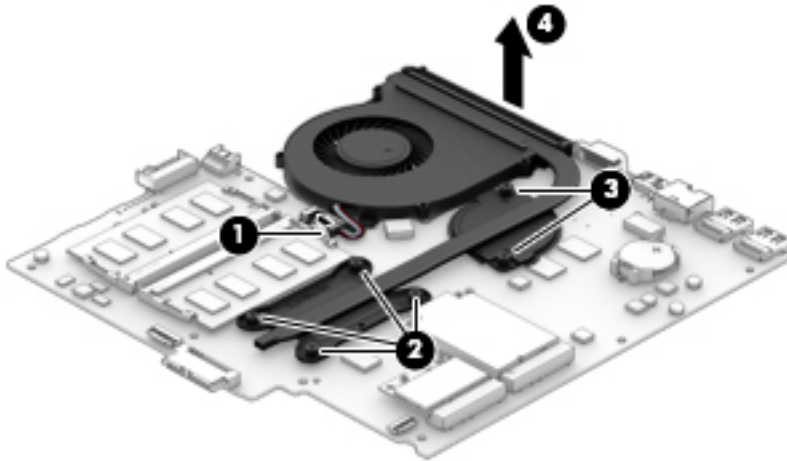
📝 **NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board components each time the heat sink is removed. Replacement thermal material is included with the heat sink and system board spare part kits. thermal material is used in the following locations:

- Thermal paste is used on the processor **(1)** and the heat sink section **(2)** that services it.

- A thermal pad is used on the graphics subsystem component **(3)** and the heat sink section **(4)** that services it. The heat sink and system board used on computer models equipped with a graphics subsystem with UMA memory will not have this component.

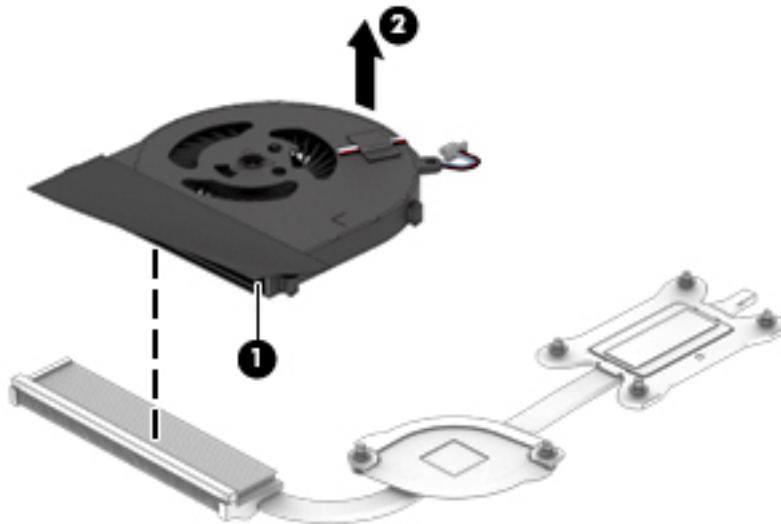Reverse this procedure to install the heat sink.

Fan

Description	Spare part number
Fan (includes cable)	746657-001

Before removing the fan, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

   a. Service cover (see Service cover on page 31)

   b. Hard drive (see Hard drive on page 32)

   c. Optical drive (see Optical drive on page 37)

   d. Keyboard (see Keyboard on page 39)

   e. Top cover (see Top cover on page 42)

   f. Speakers (see Speakers on page 50)

   g. System board (see System board on page 53)

   h. Heat sink (see Heat sink on page 58)

Remove the fan:

1. Remove the cowling material **(1)** that secures the fan to the heat sink.

2. Remove the fan **(2)**.

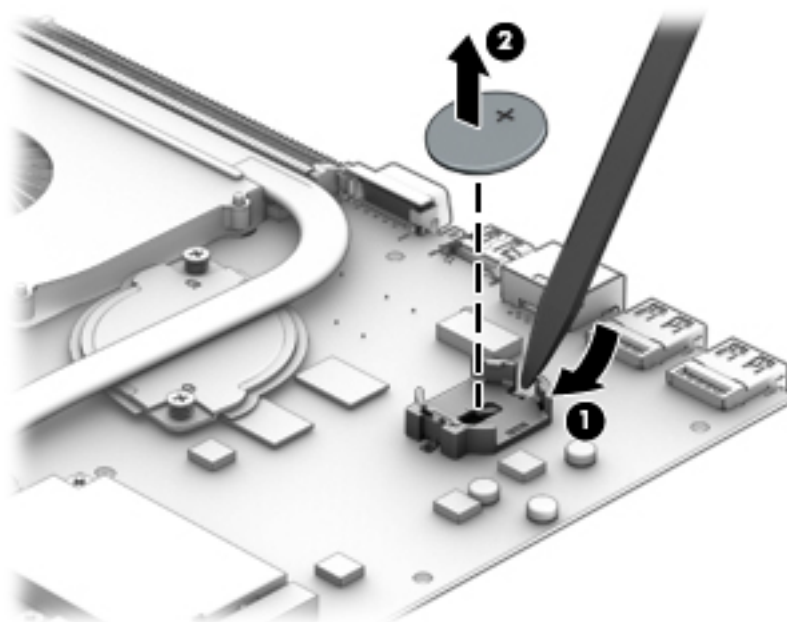Reverse this procedure to install the fan.

RTC battery

Description	Spare part number
RTC battery (includes cable and double-sided adhesive)	718440-001

Before removing the RTC battery, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

    a. Service cover (see Service cover on page 31)

    b. Hard drive (see Hard drive on page 32)

    c. Optical drive (see Optical drive on page 37)

    d. Keyboard (see Keyboard on page 39)

    e. Top cover (see Top cover on page 42)

    f. Speakers (see Speakers on page 50)

    g. System board (see System board on page 53)

Remove the RTC battery:

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

2. Use a plastic flat-bladed tool **(1)** to release the RTC battery **(2)** from the socket on the system board.

Reverse this procedure to install the RTC battery. When installing the RTC battery in the system board socket, make sure the "+" is facing up.
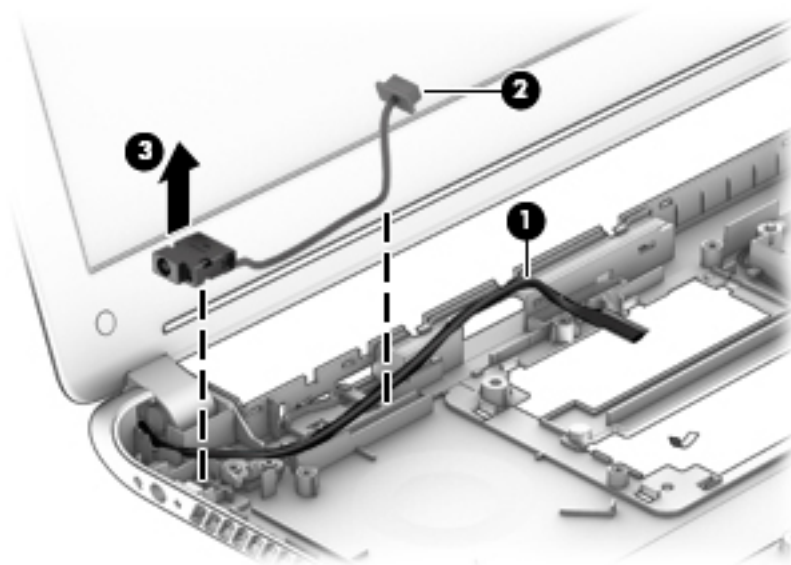
Power connector cable

Description	Spare part number
Power connector cable	758054-001

Before removing the power connector cable, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

   a. Service cover (see Service cover on page 31)

   b. Hard drive (see Hard drive on page 32)

   c. Optical drive (see Optical drive on page 37)

   d. Keyboard (see Keyboard on page 39)

   e. Top cover (see Top cover on page 42)

   f. Speakers (see Speakers on page 50)

   g. System board (see System board on page 53)

Remove the power connector cable:

1. Release the display panel cable **(1)** from the routing channel built into the base enclosure.

2. Release the power connector cable **(2)** from the routing channel built into the base enclosure.

3. Release the power connector **(3)** from the molding built into the base enclosure.

4. Remove the power connector cable.

Reverse this procedure to install the power connector cable.
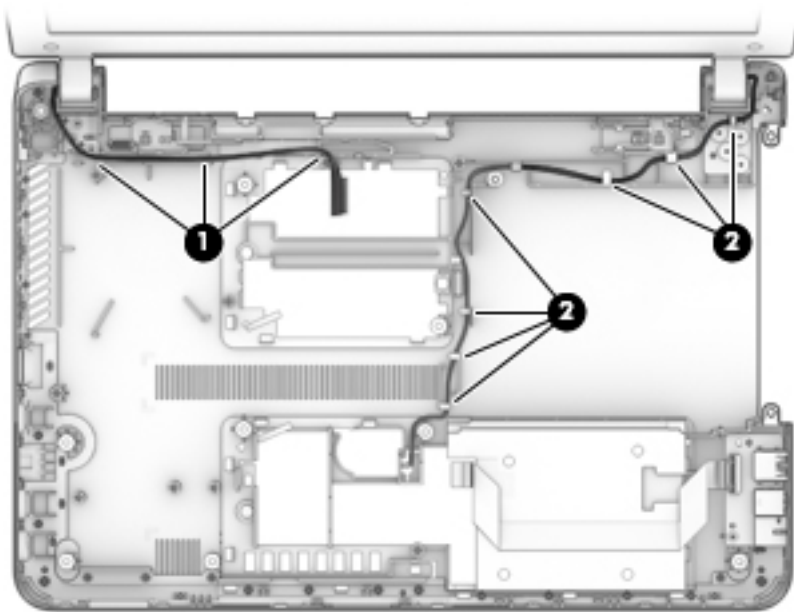
Display assembly

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

Before removing the display assembly, follow these steps:

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

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

3. Disconnect all external devices from the computer.

4. Remove the Battery (see Battery on page 30), and then remove the following components:

   a. Service cover (see Service cover on page 31)

   b. Hard drive (see Hard drive on page 32)

   c. Optical drive (see Optical drive on page 37)

   d. Keyboard (see Keyboard on page 39)

   e. Top cover (see Top cover on page 42)

   f. Speakers (see Speakers on page 50)

   g. System board (see System board on page 53)

Remove the display assembly:

1. Release the display panel cable from the routing clips **(1)** and channel built into the base enclosure.

2. Release the wireless antenna cables from the routing clips **(2)** and channel built into the base enclosure.


3. Remove the three Phillips PM2.5×4.5 screws **(1)** that secure the display assembly left hinge to the base enclosure.

4. Remove the four Phillips PM2.5×3.25 broad head screws **(2)** that secure the display assembly right hinge to the base enclosure.

**5.** Remove the display assembly **(3)**.
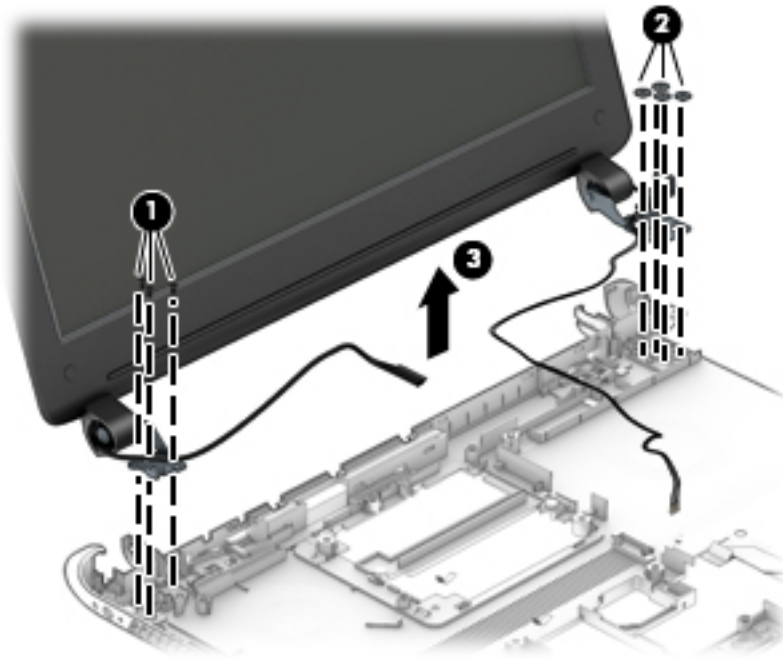
6. If it is necessary to replace the display bezel or any of the display assembly subcomponents:

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

    b. Remove the two Phillips PM2.0×3.75 screws **(2)** that secure the display bezel to the display assembly.
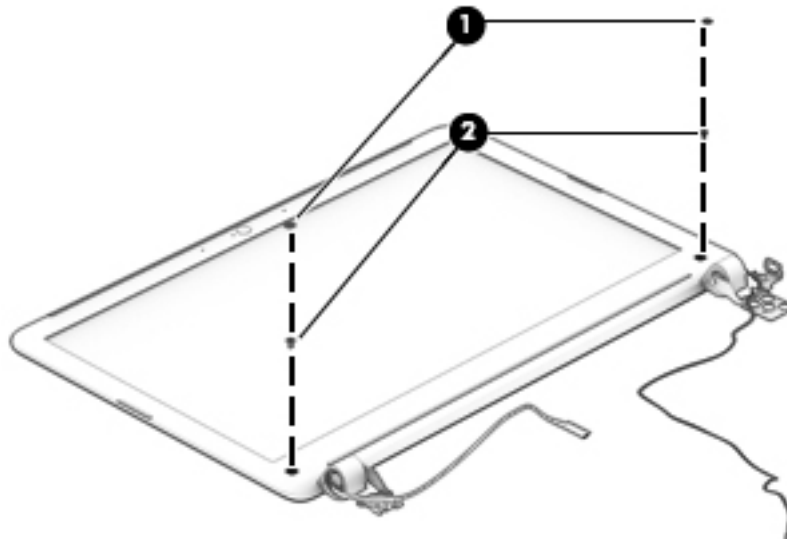
c. Flex the inside edges of the top edge **(1)**, the left and right sides **(2)**, and the bottom edge **(3)** of the display bezel until the bezel disengages from the display enclosure.

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

The display bezel is available using spare part numbers 758055-001 (for use only on computer models equipped with a webcamera) and 758056-001 (for use only on computer models not equipped with a webcamera).
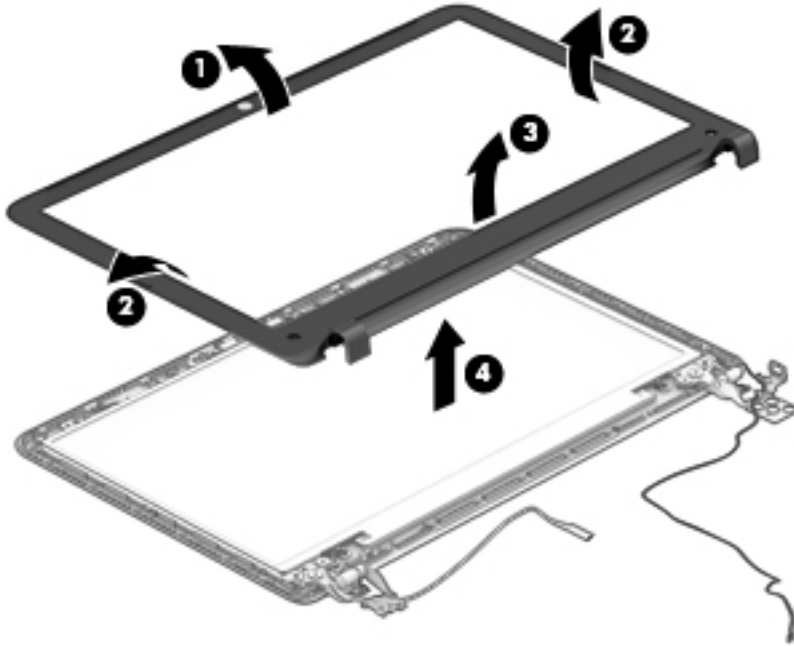
7. If it is necessary to replace the webcamera/microphone module:

a. Detach the webcamera/microphone module **(1)** from the display enclosure. (The webcamera/microphone module is attached to the display enclosure with double-sided adhesive.)
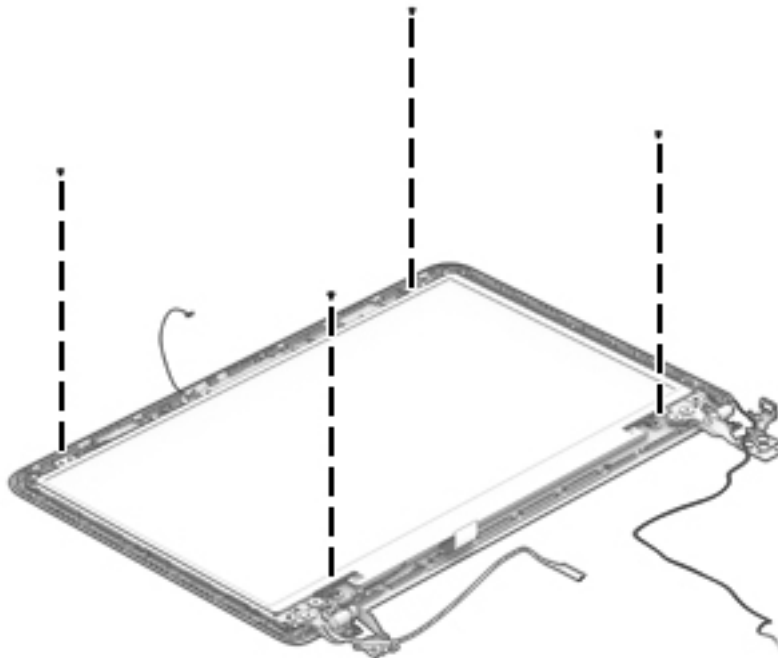
b. Disconnect the webcamera/microphone module cable **(2)** from the webcamera/microphone module.
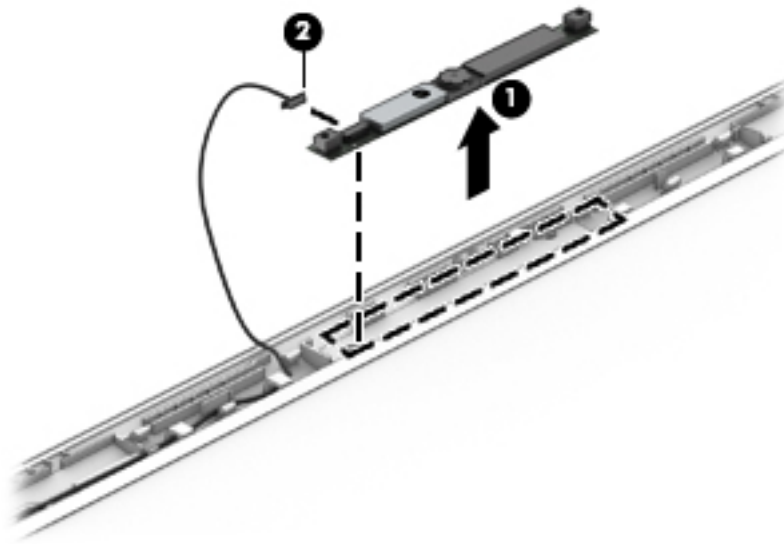
c. Remove the webcamera/microphone module.

The webcamera/microphone module is available using spare part number 746667-001.
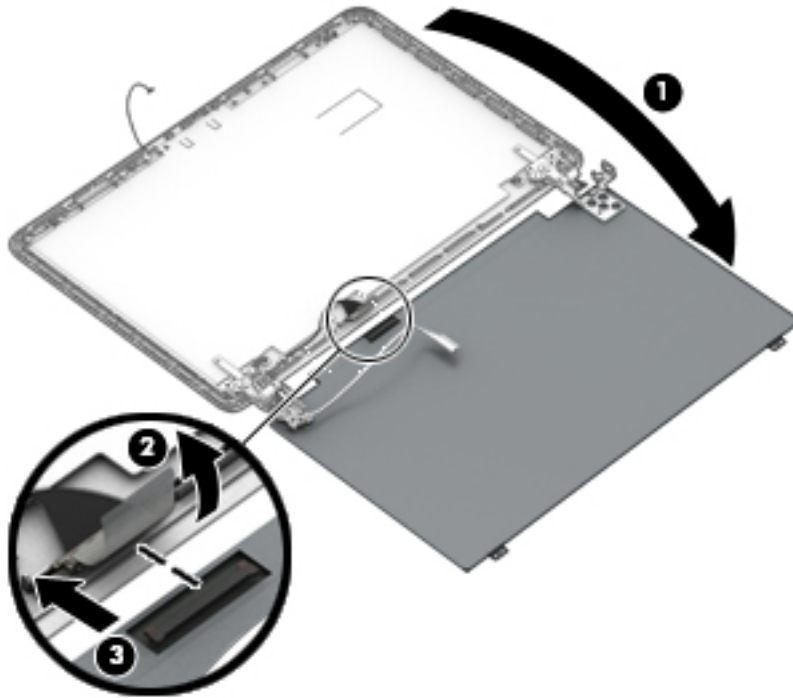
8. If it is necessary to replace the display panel:

a. Remove the four Phillips PM2.0×3.0 screws that secure the display panel to the display enclosure.

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

b. Lift the top edge of the display panel **(1)** and swing it up and forward until it rests upside down in front of the display enclosure.

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

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

e. Remove the display panel.

The display panel is available using spare part number 761784-001.

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

a. Release the display panel cable from the clips **(1)** and routing channel built into the the display enclosure.

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

The display panel cable is available using spare part numbers 758059-001 (for use only on computer models equipped with a webcamera) and 758058-001 (for use only on computer models not equipped with a webcamera).
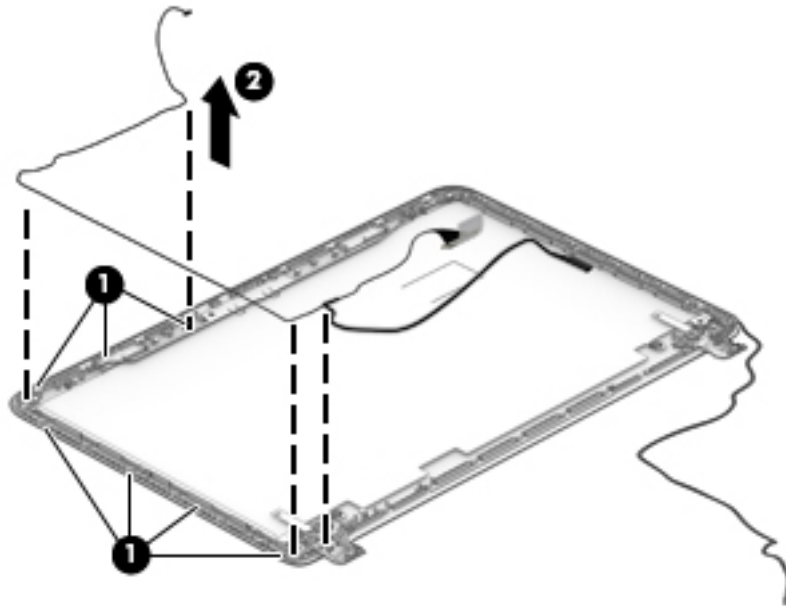
10. If it is necessary to replace the display hinges:

a. Remove the four Phillips PM2.5×3.25 broad head screws **(1)** that secure the display hinges to the display enclosure.

**b.** Remove the display hinges **(2)**.

The display hinges are included in the Display Hinge Kit, spare part number 758061-001.
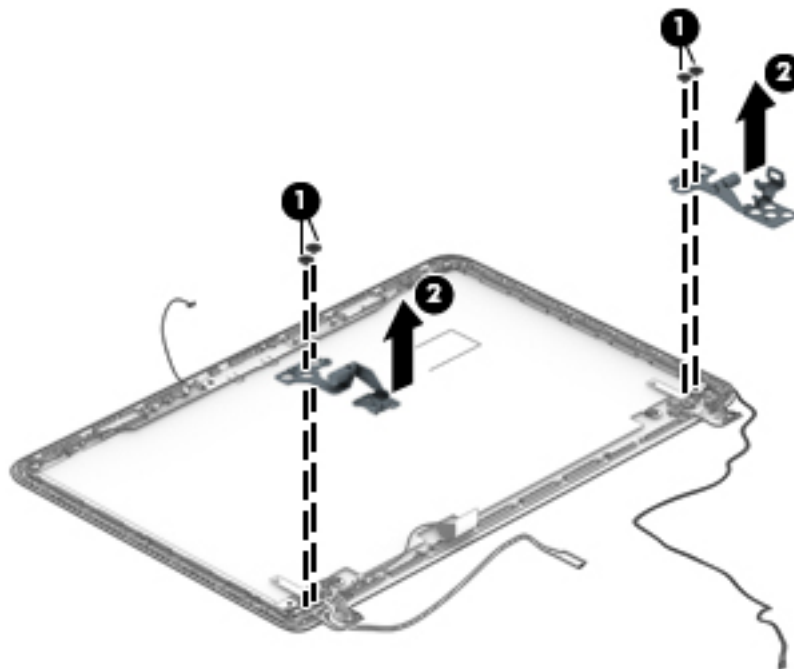
11. If it is necessary to replace the WLAN antenna cables and transceivers:

   a. Detach the WLAN antenna transceivers **(1)** from the display enclosure. (The WLAN antenna transceivers are attached to the display enclosure with double-sided adhesive.)

   b. Release the WLAN antenna cables from the clips **(2)** and routing channel built into the top edge and right side of the display enclosure.

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

   The WLAN antenna cables and transceivers are included in the Antenna Kit, spare part number 758060-001.
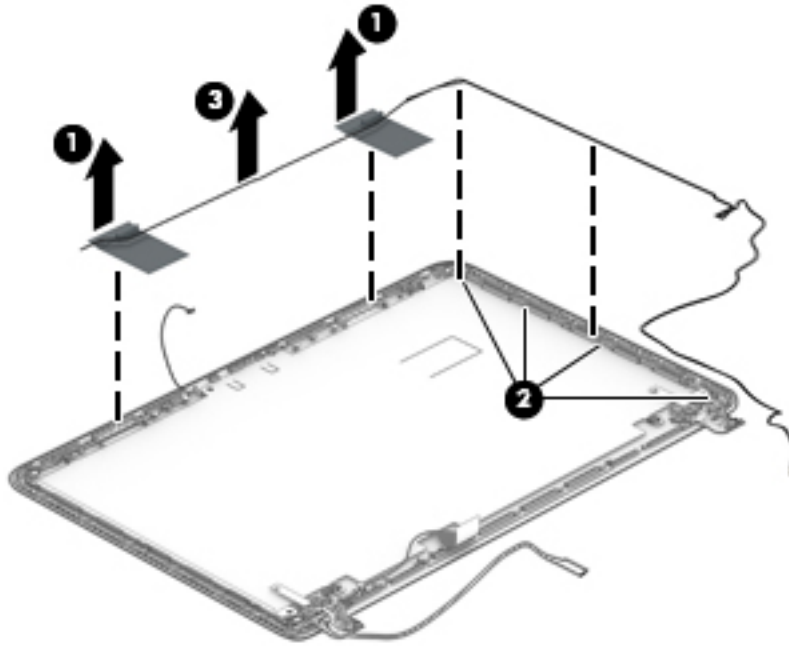
Reverse this procedure to reassemble install the display assembly.

7 Computer Setup (BIOS)

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

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 or USB mouse) or the keyboard to navigate and make selections in Computer Setup.

   NOTE: Your pointing device may not function within the BIOS. If it does not, please use the arrow keys to navigate.

2. Press f10 to enter Computer Setup.

   ● To select a menu or a menu item, use 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 esc key to exit. A prompt will appear, reading **Exit Saving Changes?** Select **no** to exit without saving changes.

● 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 **Exit > Exit Saving Changes**, 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** and then press f9 for Setup Defaults. When prompted to "Load Setup Defaults," select **Yes** with the arrow keys, and then press enter.

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 a 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 displayed 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 > Exit Saving Changes**, 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 assistant`, and then select the HP Support Assistant app.

2. Select **Updates and tune-ups**, and then select **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 displayed on the screen after the download is complete. If no instructions are displayed, 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 **Advanced > Boot Options > UEFI Boot Order for UEFI Hybrid** or **UEFI Native Boot mode**, or select **Advanced > Boot Options > Legacy Boot Order for Legacy Boot Mode**, 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 **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) (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.

    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 76.

    b. Hard drive

    c. BIOS

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

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

2. Click **Support & Drivers**, and then click the **Drivers & Dowloads** tab.

3. Enter the product name in the text box, and then click **Go**.

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**.

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

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 tab key and the arrow keys to select **File > 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 tab key and the arrow keys to select **File > Ignore 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 **File > 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 **File > 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 a 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 displayed 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 **File > 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 tab key and the arrow keys to select **File > Ignore Changes and Exit**, and then press enter.

> **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 displayed on the screen after the download is complete. If no instructions are displayed, 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 **File > 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 **File > 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 82.

    b. Hard drive

    c. BIOS

2. Click 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.

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

2. Click **Support & Drivers**, and then click the **Drivers & Software** tab.

3. Enter the product name in the text box, and then click **Search**.

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**.

Linux – Computer Setup (BIOS) and Advanced System Diagnostics

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 peripherals 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.

Using 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.

    ●   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.

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

    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 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-left corner of the screen, and then follow the on-screen instructions.

    – or –

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

    – or –

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

– or –

Use the tab key and the arrow keys to select **File > 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 **File > Restore Defaults**.

4. Follow the on-screen instructions.

5. To save your changes and exit, 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 **File > 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 Web site.

Most BIOS updates on the HP Web site 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 displayed as follows:

1. Start Computer Setup.

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

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

   – or –

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

NOTE: You can also determine the BIOS version by turning on or restarting the computer, pressing the esc key while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen, and then pressing the f1 key. Follow the on-screen instructions to exit this screen.

Downloading a BIOS update

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

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

Do not shut down the computer or initiate Suspend or Hibernation.

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

1. Open your web browser. For U.S. support, go to http://www.hp.com/go/contactHP. For worldwide support, go to http://welcome.hp.com/country/us/en/wwcontact_us.html.

2. Follow the on-screen instructions to identify your computer and access the BIOS update you want to download.

3. Click the option for software and driver downloads, type your computer model number in the product box, and then press enter. Follow the on-screen instructions to identify your computer and access the BIOS update you want to download.

4. Click your specific product from the models listed.

5. Click the appropriate operating system.

6. Go to the BIOS section and download the BIOS software package.

7. Follow the installation instructions as provided with the downloaded BIOS software package.

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

Using Advanced System Diagnostics

Advanced System Diagnostics allows you to run diagnostic tests to determine if the computer hardware is functioning properly. The following diagnostic tests are available in Advanced System Diagnostics:

- Start-up test—This test analyzes the main computer components that are required to start the computer.

- Run-in test—This test repeats the start-up test and checks for intermittent problems that the startup test does not detect.

- Hard disk test—This test analyzes the physical condition of the hard drive, and then checks all data in every sector of the hard drive. If the test detects a damaged sector, it attempts to move the data to a good sector.

- Memory test—This test analyzes the physical condition of the memory modules. If it reports an error, replace the memory modules immediately.

- Battery test—This test analyzes the condition of the battery and calibrates the battery if necessary. If the battery fails the test, contact support to report the issue and purchase a replacement battery.

- System Tune-Up—This group of additional tests checks your computer to make sure that the main components are functioning correctly. System Tune-Up runs longer and more comprehensive tests on memory modules, hard drive SMART attributes, the hard drive surface, the battery (and battery calibration), video memory, and the WLAN module status.

You can view system information and error logs in the Advanced System Diagnostics window.

To start Advanced System Diagnostics:

1. Turn on or restart the computer. While the "Press the ESC key for Startup Menu" message is displayed in the lower-left corner of the screen, press esc. When the Startup Menu is displayed, press f2.

2. Click the diagnostic test you want to run, and then follow the on-screen instructions.

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

8 Specifications

	Metric	U.S.
Dimensions		
Width	**38.40 cm**	15.12 in
Depth	**26.10 cm**	10.28 in
Height	**2.31 cm**	0.91 in
Weight	**2.30 kg**	5.07 lb
Operating voltage and current	19.5 V dc @ 4.62 A– 90W	
	19.5 V dc @ 3.33 A – 65 W	
	NOTE: This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 V rms.	
	NOTE: The computer operating voltage and current can be found on the system regulatory label.	
Temperature		
Operating	**5°C to 35°C**	41°F to 95°F
Nonoperating	**-20°C to 60°C**	-4°F to 140°F
Relative humidity (non-condensing)		
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.

9   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.

NOTE: For detailed instructions on various backup and restore options, perform a search for these topics in HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.

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. Refer to HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.

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 HP Support Assistant. To access HP Support Assistant, from the Start screen, select the **HP Support Assistant** app.

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 8 operating system media to reboot the computer and repair the operating system. For additional information, see Using Using Windows operating system media (purchased separately) on page 90.

Using the Windows recovery tools

To recover information you previously backed up:

1. Access HP Support Assistant.

   ▲ To access HP Support Assistant, from the Start screen, select the **HP Support Assistant** app.

2. Click Storage.

3. Click **Backup and Recovery**.

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

⚠ **CAUTION:** Some Automatic 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 8 operating system DVD and the Driver Recovery media (both purchased separately). For additional information, see Using Windows operating system media (purchased separately) on page 90.

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 HP Support Assistant. To access HP Support Assistant on the Start screen, select the **HP Support Assistant** app.

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 HP Recovery 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 8 operating system media and the Driver Recovery media (both purchased separately). For additional information, see Using Windows operating system media (purchased separately) on page 90.

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 recovery 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 HP Support Assistant. To access HP Support Assistant, from the Start screen, select the **HP Support Assistant** app.

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.

Windows 7

To protect your information, use Windows Backup and Restore to 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, or create system restore points. In case of system failure, you can use the backup files to restore the contents of your computer.

Windows Backup and Restore provides the following options:

- Creating a system repair disc (select models only) by using the installed optical drive (select models only) or an optional external optical drive

- Backing up your information

- Creating a system image (select models only)

- Scheduling automatic backups (select models only)

- Creating system restore points

- Recovering individual files

- Restoring the computer to a previous state

- information using recovery tools

NOTE: For detailed instructions, perform a search for these topics in 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. See Help and Support for more information.

Creating recovery media with HP Recovery Disc Creator

NOTE: Your computer may not come equipped with an internal optical drive. In order to create the recovery DVD, you may need to plug in an external optical drive.

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 performs a system recovery if the hard drive becomes corrupted. A system recovery reinstalls the original operating system and the software programs installed at the factory, and then configures the settings for the programs.

HP Recovery Disc Creator can create two kinds of recovery DVDs as follows:

- Windows DVD—Installs the operating system without additional drivers or applications. Choosing this selection creates a DVD that restores the original operating system and the software programs installed at the factory.

- Driver 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: Operating system recovery media can be created only once. Thereafter, the option to create that media will not be available.

1. Select **Start > All Programs > Security and Protection > HP Recovery Disc Creator**.

2. Select **Driver DVD or Windows DVD**.

3. From the drop-down menu, select the drive for burning the recovery media.

4. Click the **Burn** button to start the burning process.

Backing up your information

Recovery after a system failure is as good as your most recent backup. Immediately after software setup, you should create system repair discs (select models only) using HP Recovery Disc Creator using the installed optical drive (select models only) or an optional external optical drive and back up your system. 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. The system repair discs (select models only) are 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 programs.

- 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, use any of the following types of discs (purchased separately): CD-R, CD-RW, 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.

NOTE: Your computer may not come equipped with an internal optical drive. In order to create back up discs, you may need to plug in an external optical drive.

NOTE: DVDs and DVDs with double-layer (DL) support store more information than CDs, so using them for backup reduces the number of recovery discs required.

● When backing up to discs, number each disc before inserting it into the external drive.

To create a backup using Backup and Restore:

NOTE: Be sure that the computer is connected to AC power before you start the backup process.

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 a system repair disc (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: 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 discs you previously created (select models only), you must purchase a Windows 7 operating system DVD to reboot the computer and repair the operating system. For additional information, see Using a Windows 7 operating system DVD (purchased separately) on page 95.

NOTE: Your computer may not come equipped with an internal optical drive. In order to use the operating system DVD, you may need to plug in an external optical drive.

Using the Windows recovery tools

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: Using Startup Repair completely erases hard drive contents and reformats 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 and the HP Recovery partition.

   To check for the Windows partition, select **Start > Computer**.

   To check for the HP Recovery partition, click **Start**, right-click **Computer**, click **Manage**, and then click **Disk Management**.

   NOTE: If the HP Recovery partition has been deleted, the f11 restore option will not function. You must recover your operating system and programs using the Windows 7 operating system DVD and the Driver Recovery disc (both purchased separately) if the Windows partition and the HP Recovery partition are not listed. For additional information, see Using a Windows 7 operating system DVD (purchased separately) on page 95.

3. If the Windows partition and the HP Recovery partition are 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, perform a search for these topics in Help and Support.

Using f11 recovery tools

CAUTION: Using f11 recovery tools completely erases hard drive contents and reformats the hard drive. All files you have created and any software 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 DVD and the Driver Recovery disc (both purchased separately). For additional information, see Using a Windows 7 operating system DVD (purchased separately) on page 95.

   NOTE: Your computer may not come equipped with an internal optical drive. In order to use the operating system DVD, you may need to plug in an external optical drive.

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 a Windows 7 operating system DVD (purchased separately)

To order a Windows 7 operating system DVD, go to the HP website. For U.S. support, go to
http:// www.hp.com/go/contactHP. 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 you have created and any software 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.

📝 **NOTE:**   Your computer may not come equipped with an internal optical drive. In order to use the operating
system DVD, you may need to plug in an external optical drive.

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* disc.

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

Linux

Recovery after a system failure is as good as your most recent backup. 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.needed.

Your computer includes tools provided by HP to help you safeguard your information and retrieve it if ever needed.

Creating backups

1. Create restore media immediately after you set up the computer. For more information, see .

2. As you add files, routinely create a backup of your system and personal information.

Backing up your information

You should back up your computer files on a regular schedule to maintain a current backup. You can manually back up your information to an optional external drive, a network drive, or discs. Back up your system at the following times:

- At regularly scheduled times

- Before the computer is repaired or restored

- Before you add or modify hardware or software

To back up your home directory files using **Backup Manager Settings**:

1. Select **Computer > More Applications > Tools > Backup Manager Settings**, and click **Backup my home directory**.

2. Click **Storage Destination Location**, and then select a location to back up your information.

3. Click **Schedule**, and then select a time schedule to perform backups at a regularly scheduled time.

   To immediately back up your information, click the **Backup Now** check box.

   📝 **NOTE:** Before you back up your information, be sure you have designated a location to save the backup files.

4. Click **Save and Backup** to start the backup and to save the backup settings.

To restore backup files:

1. Select **Computer > More Applications > Tools > Backup Manager Restore**.

2. Click **Backup Source**, and then select the location of the backup files.

3. Click **Restore Destination**, and then select the destination to restore the files.

4. To restore all files from the selected location, click **Restore all files**. To restore select files only, click **Restore selected files**, click **Select Files** and then select the files to be restored.

5. Under **Restore Point**, click the time and date of the backup.

   📝 **NOTE:** If multiple backups have been performed, click Use the latest version to restore the latest version.

6. Click **Restore** to start restoring the files, or click **Cancel** to cancel the operation.

Performing a system recovery

Recovery allows you to repair or restore the computer to its original factory state. You can create an HP Factory Image, using an installed or an external DVD±RW optical drive.

NOTE: Your computer may not come equipped with an internal optical drive. In order to create the HP Factory Image, you may need to plug in an external optical drive.

CAUTION: Using Recovery completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. The recovery tool reinstalls the original operating system and HP programs and drivers that were installed at the factory. Software, drivers, and updates not installed by HP must be manually reinstalled. Personal files must be restored from a backup.

To restore the computer using the HP Factory Image, you must first create the recovery ISO file and then burn it to an optical disc.

NOTE: HP recommends that you create the HP Factory Image in the event of a system failure.

1. Select **Computer > More Applications**.

2. In the left pane, click **Tools**, and then click **Create HP Factory Image** in the right pane.

3. Enter the root password when prompted.

4. Right-click on the HP_Recovery.iso file and select **Open with Brasero**.

5. Insert a blank DVD disc and select **Burn**. This creates the HP Factory Image Restore DVD.

To restore the computer from the recovery disc, follow these steps:

1. If possible, back up all personal files.

2. Insert the HP Factory Image Restore DVD into the optical drive and restart the computer.

3. As the computer is restarting, press f9 to open the Computer Setup boot option menu.

4. Select **Optical Disk Drive** from the Boot Options menu and press enter.

5. Press enter to select **Restore System from Media**.

6. At both of the System Recovery prompts, select **Yes**.

Remove everything and reinstall SLED

Sometimes you want to perform detailed reformatting of your computer, or you want to remove personal information before you give away or recycle your computer. The process described in this section provides a speedy, simple way to return the computer to its original state. This option removes all personal data, applications, and settings from your computer, and reinstalls the Linux operating system.

IMPORTANT: This option does not provide backups of your information. Before using this option, back up any personal information you wish to retain.

You can initiate this option by using the f11 key.

To use the f11 key:

Press f11 while the computer boots.

– or –

Press and hold f11 as you press the power button.

To reinstall SLED, follow the steps below.

1. Select **System Recovery** from the boot menu after pressing f11.

2. A prompt will appear, reading, "This utility will wipe out your hard drive contents and restore your PC to factory state. Are you sure you want to continue?" Select **Yes**.

3. A prompt will appear, reading, "Please confirm you want to restore your system to factory state and lose all your current data." Select **Yes**.

10 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 computer 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.

11 Power cord set requirements

The wide-range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC, or from 220 to 240 volts AC.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries and regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least 1.0 m (3.3 ft) and no more than 2.0 m (6.5 ft).

- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.

- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by the power system of each country or region.

- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer. Requirements for all countries 113

Requirements for specific countries and regions

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

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

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

12 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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