



HP Stream Notebook PC

Maintenance and Service Guide

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Product notice

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

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

Safety warning notice

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

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1 Product description

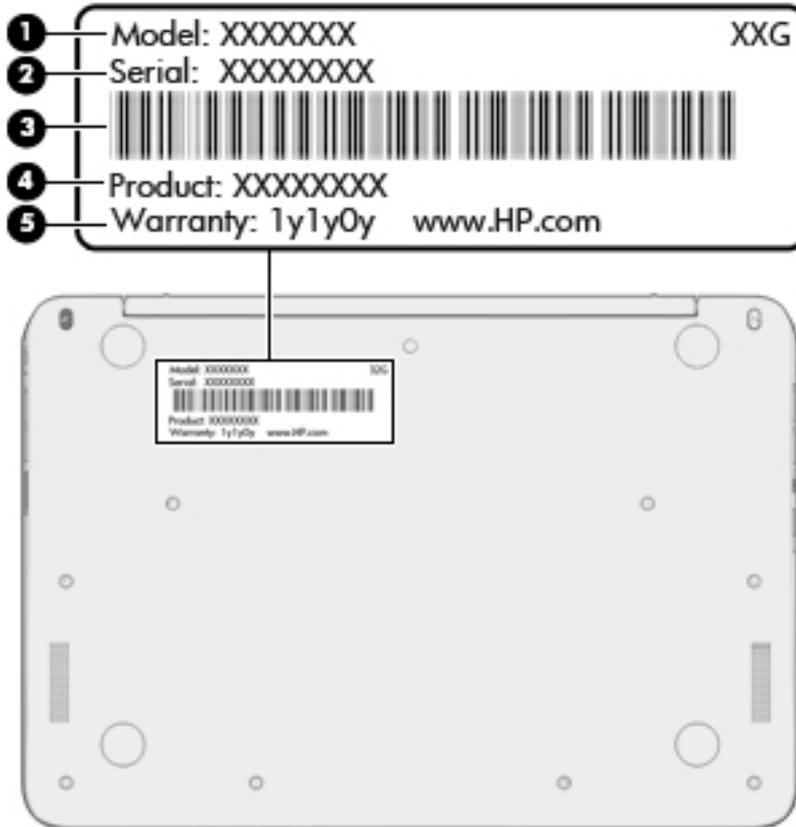
Category	Description
Product Name	HP Stream Notebook PC
Processor	AMD A4 Micro-6400T (1.6 GHz/1.0 GHz, DDR3L-1333MHz, 2MB L2 cache) quad core, TDP, 4.5W
Chipset	AMD Integrated SoC FCH
Graphics	Internal graphics AMD Radeon™ R3 graphics (A4 Micro-6400T) Supports HD Decode, DX11.1, and HDMI
Panel	14.0-in (1366×768), BrightView, high-definition (HD), SVA, white light-emitting diode (WLED); 16:9 ultra wide aspect ratio; typical brightness: 200 nits; flat (3.6-mm), non-touch Supports LVDS (co-layout with eDP1.3+PSR)
Memory	On-board, non-accessible, non-upgradeable DDR3L-1333MHz single channel support (DDR3L-1600 downgraded to DDR3L-1333) Supports up to 2 GB maximum on-board system memory
Storage	Supports embedded MultiMedia Controller (eMMC) NAND flash Supports the following eMMC configurations: <ul style="list-style-type: none">• 64GB eMMC• 32GB eMMC
Audio and video	HP TrueVision HD camera, fixed (no tilt) with activity light, 1280×720 by 24 frames per second Single digital microphone with appropriate echo-cancellation and noise-suppression software Beats Audio Four speakers
Wireless networking	Integrated wireless option (M.2): One built-in WLAN antenna Compatible with Miracast-certified devices Supports a Broadcom BCM43142 802.11bgn 1×1 Wi-Fi + BT 4.0 M.2 Combo Adapter Supports Realtek RTL8723BE 802.11b/g/n 1x1 Wi-Fi + BT4.0 Combo Adapter
External media cards	HP Multifunction Micro Digital Media Reader with push-push technology. Supports SD, SDHC, SDXC, UHS-1.
Internal cards	One M.2 slot for WLAN
Ports	HDMI v1.4b supporting up to 1920×1080 @ 60Hz Headphone/microphone combo jack USB 3.0 ports (1) USB 2.0 ports (2)

Category	Description
	AC Smart Pin adapter plug (4.5 mm barrel)
Keyboard/pointing devices	<p>Full size Dura Coat island-style keyboard</p> <p>Touchpad requirements:</p> <ul style="list-style-type: none"> • ClickPad with image sensor • Multitouch gestures enabled • Supports Windows 8 modern trackpad gestures • Taps enabled as default
Power requirements	<p>Supports the following AC adapters:</p> <ul style="list-style-type: none"> • 45-W HP Smart AC adapter (non-slim, 26.5 mm) • 65-W EM • 65-W slim travel adapter <p>1 meter power cord</p> <p>Supports a 3-cell, 32-Wh, 2.96-Ah, Li-ion battery</p>
Operating system	<p>Preinstalled</p> <p>Windows 8.1 with 2 years 100 GB OneDrive</p>
Serviceability	<p>End user replaceable parts</p> <p>AC adapter</p>

2 Illustrated parts catalog

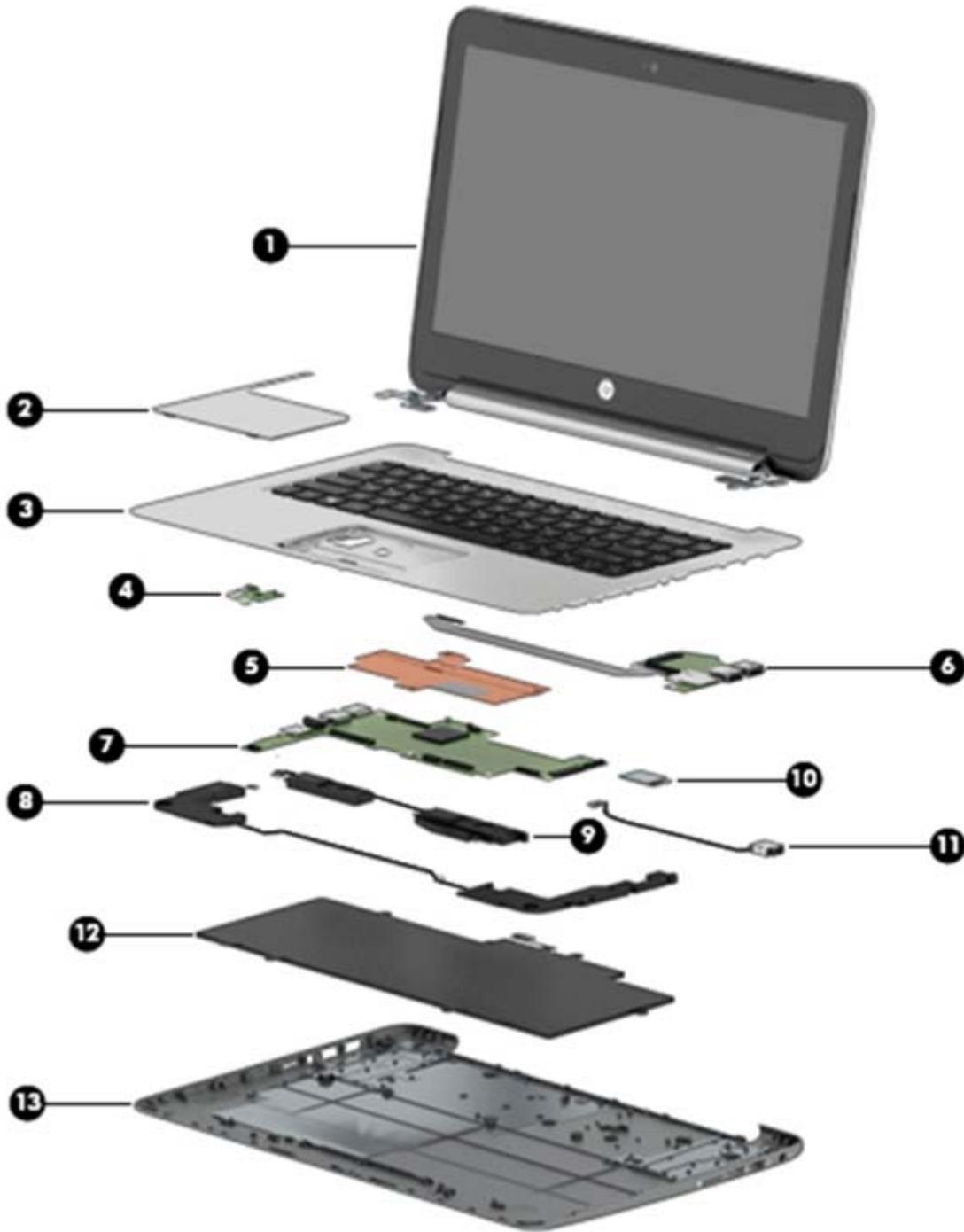
Locating the serial number, product number, and model number

The computer model number **(1)**, serial number **(2)**, bar code **(3)**, product number **(4)**, and warranty information **(5)** 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

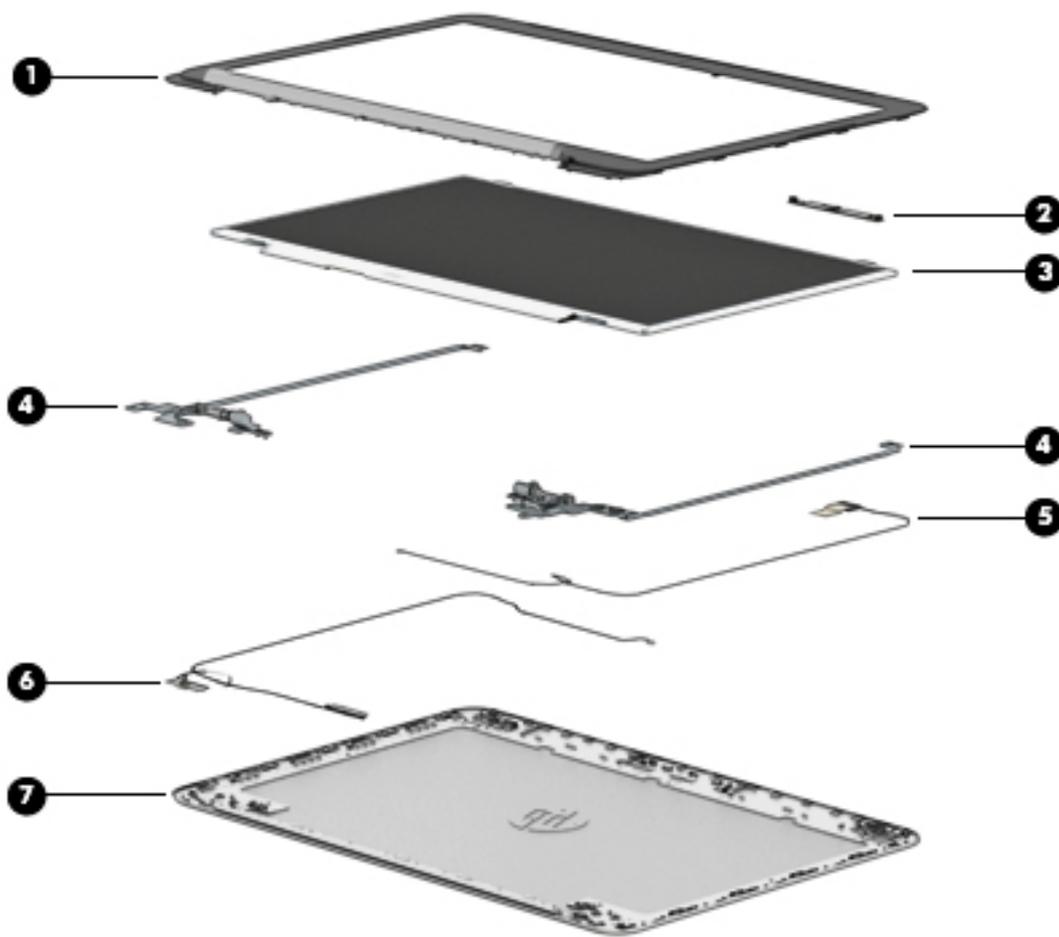
 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.



Item	Component	Spare part number
(1)	Display assembly: The display assembly is spared at the subcomponent level only. For more display assembly spare part information, see Display assembly subcomponents on page 7 .	
(2)	TouchPad (includes cable)	784531-001
(3)	Keyboard/top cover (includes keyboard cable):	
	In purple finish:	
	For use in Belgium	786043-A41
	For use in Canada	786043-DB1
	For use in Denmark, Finland, and Norway	786043-DH1
	For use in France	786043-051
	For use in Italy	786043-061
	For use in Latin America	786043-161
	For use in the Netherlands	786043-B31
	For use in Spain	786043-071
	For use in Switzerland	786043-BG1
	For use in the United Kingdom and Singapore	786043-031
	For use in the United States	786043-001
	In silver finish:	
	For use in Belgium	783051-A41
	For use in Canada	783051-DB1
	For use in Denmark, Finland, and Norway	783051-DH1
	For use in France	783051-051
	For use in Italy	783051-061
	For use in Latin America	783051-161
	For use in the Netherlands	783051-B31
	For use in Spain	783051-071
	For use in Switzerland	783051-BG1
	For use in the United Kingdom and Singapore	783051-031
	For use in the United States	783051-001
(4)	Power button board (includes cable)	761220-001
(5)	Heat sink	783045-001
(6)	USB board (includes cable, double-sided adhesive, double-sided adhesive, eSATA port, USB port, and SIM slot)	784532-001
(7)	System board equipped with a A4u-6400T processor, a graphics subsystem with UMA memory, 2.0-GB of system memory:	
	Includes 64-GB of eMMC for use in models without the Windows operating system	788084-001

Item	Component	Spare part number
	Includes 64-GB of eMMC for use in models with Windows 8.1 Standard	788084-501
	Includes 32-GB of eMMC for use in models without the Windows operating system	783049-001
	Includes 32-GB of eMMC for use in models with Windows 8.1 Standard	783049-501
(8)	Rear speakers (include left and right rear speakers and cables)	786042-001
(9)	Front speakers (include left and right front speakers and cables)	784534-001
(10)	Realtek RTL8723BE 802.11b/g/n 1×1 Wi-Fi + Bluetooth 4.0 Combo Adapter	753078-005
(11)	Power connector cable	759919-001
(12)	Battery , 3-cell, 32-Wh, 2.96-Ah, Li-ion (includes cable)	752235-005
(13)	Base enclosure:	
	In purple finish	783042-001
	In silver finish	783041-001
	In green finish	788086-001
	Rubber Kit (not illustrated, includes computer feet, rubber screw covers, and display bezel screw covers)	784533-001

Display assembly subcomponents



Item	Component	Spare part number
(1)	Display bezel:	
	In silver finish	783043-001
	In purple finish	786041-001
	In green finish	788087-001
(2)	Webcam/microphone module	784986-001
(3)	14-in., LED, FHD, BrightView, TouchScreen raw display panel	783052-001
(4)	Display Hinge Kit (includes left and right display hinges)	784530-001
(5)	Antenna Kit	783038-001
(6)	Display panel cable (includes webcam/microphone module cable)	783044-001
(7)	Display enclosure:	
	In silver finish	783039-001
	In purple finish	783040-001
	In green finish	788085-001

Miscellaneous parts

Component	Spare part number
45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm)	741727-001
65-W HP Smart AC adapter (non-PFC, RC, 4.5-mm)	714657-001
HP RJ45-to-USB adapter	539614-001
HP HDMI-to-VGA adapter	701943-001
Power cord (3-pin, black, 1.00-m):	
For use in Australia	755530-011
For use in Denmark	755530-081
For use in Europe	755530-021
For use in India	755530-D61
For use in Israel	755530-BB1
For use in Italy	755530-061
For use in Japan	755530-291
For use in North America	755530-001
For use in the People's Republic of China	755530-AA1
For use in South Africa	755530-AR1
For use in South Korea	755530-AD1
For use in Switzerland	755530-111
For use in Taiwan	755530-AB1
For use in Thailand	755530-201
For use in the United Kingdom and Singapore	755530-031
Rubber Kit (includes computer feet, rubber screw covers, and display bezel screw covers)	784533-001
Screw Kit	783046-001

Sequential part number listing

Spare part number	Description
539614-001	HP RJ45-to-USB adapter
701943-001	HP HDMI-to-VGA adapter
714657-001	65-W HP Smart AC adapter (non-PFC, RC, 4.5-mm)
741727-001	45-W HP Smart AC adapter (non-PFC, RC, 4.5-mm)
752235-005	3-cell, 32-Wh, 2.96-Ah, Li-ion battery (includes cable)
753078-005	Realtek RTL8723BE 802.11b/g/n 1×1 Wi-Fi + Bluetooth 4.0 Combo Adapter
755530-001	Power cord for use in North America (3-pin, black, 1.83-m)

Spare part number	Description
755530-011	Power cord for use in Australia (3-pin, black, 1.83-m)
755530-021	Power cord for use in Europe (3-pin, black, 1.83-m)
755530-031	Power cord for use in the United Kingdom and Singapore (3-pin, black, 1.83-m)
755530-061	Power cord for use in Italy (3-pin, black, 1.83-m)
755530-081	Power cord for use in Denmark (3-pin, black, 1.83-m)
755530-111	Power cord for use in Switzerland (3-pin, black, 1.83-m)
755530-201	Power cord for use in Thailand (3-pin, black, 1.83-m)
755530-291	Power cord for use in Japan (3-pin, black, 1.83-m)
755530-AA1	Power cord for use in the People's Republic of China (3-pin, black, 1.83-m)
755530-AB1	Power cord for use in Taiwan (3-pin, black, 1.83-m)
755530-AD1	Power cord for use in South Korea (3-pin, black, 1.83-m)
755530-AR1	Power cord for use in South Africa (3-pin, black, 1.83-m)
755530-BB1	Power cord for use in Israel (3-pin, black, 1.83-m)
755530-D61	Power cord for use in India (3-pin, black, 1.83-m)
759919-001	Power connector cable
761220-001	Power button board (includes cable)
783038-001	Antenna Kit (includes left and right wireless antenna cables and transceivers)
783039-001	Display enclosure in silver finish
783040-001	Display enclosure in purple finish
783041-001	Base enclosure in silver finish
783042-001	Base enclosure in purple finish
783043-001	Display bezel in silver finish
783044-001	Display panel cable (includes webcam/microphone module cable)
783045-001	Heat sink
783046-001	Screw Kit
783049-001	System board equipped with a A4u-6400T processor, a graphics subsystem with UMA memory, 2.0-GB of system memory, and 32-GB of eMMC, for use in models without the Windows operating system
783049-501	System board equipped with a A4u-6400T processor, a graphics subsystem with UMA memory, 2.0-GB of system memory, and 32-GB of eMMC, for use in models with Windows 8.1 Standard
783051-001	Keyboard/top cover in silver finish for use in the United States (includes keyboard cable)
783051-031	Keyboard/top cover in silver finish for use in the United Kingdom and Singapore (includes keyboard cable)
783051-041	Keyboard/top cover in silver finish for use in the Germany (includes keyboard cable)
783051-051	Keyboard/top cover in silver finish for use in France (includes keyboard cable)
783051-061	Keyboard/top cover in silver finish for use in Italy (includes keyboard cable)
783051-071	Keyboard/top cover in silver finish for use in Spain (includes keyboard cable)

Spare part number	Description
783051-131	Keyboard/top cover in silver finish for use in Portugal (includes keyboard cable)
783051-141	Keyboard/top cover in silver finish for use in Turkey (includes keyboard cable)
783051-151	Keyboard/top cover in silver finish for use in Greece (includes keyboard cable)
783051-161	Keyboard/top cover in silver finish for use in Latin America (includes keyboard cable)
783051-171	Keyboard/top cover in silver finish for use in Saudi Arabia (includes keyboard cable)
783051-211	Keyboard/top cover in silver finish for use in Hungary (includes keyboard cable)
783051-251	Keyboard/top cover in silver finish for use in Russia (includes keyboard cable)
783051-261	Keyboard/top cover in silver finish for use in Bulgaria (includes keyboard cable)
783051-271	Keyboard/top cover in silver finish for use in Romania (includes keyboard cable)
783051-281	Keyboard/top cover in silver finish for use in Thailand (includes keyboard cable)
783051-291	Keyboard/top cover in silver finish for use in Japan (includes keyboard cable)
783051-A41	Keyboard/top cover in silver finish for use in Belgium (includes keyboard cable)
783051-AB1	Keyboard/top cover in silver finish for use in Taiwan (includes keyboard cable)
783051-AD1	Keyboard/top cover in silver finish for use in South Korea (includes keyboard cable)
783051-B31	Keyboard/top cover in silver finish for use in the Netherlands (includes keyboard cable)
783051-BA1	Keyboard/top cover in silver finish for use in Slovenia (includes keyboard cable)
783051-BB1	Keyboard/top cover in silver finish for use in Israel (includes keyboard cable)
783051-BG1	Keyboard/top cover in silver finish for use in Switzerland (includes keyboard cable)
783051-DB1	Keyboard/top cover in silver finish for use in Canada (includes keyboard cable)
783051-DH1	Keyboard/top cover in silver finish for use in Denmark, Finland, and Norway (includes keyboard cable)
783051-FL1	Keyboard/top cover in silver finish for use in the Czech Republic and Slovakia (includes keyboard cable)
783052-001	Display panel (14.0-in., LED, FHD, BrightView, TouchScreen)
784530-001	Display Hinge Kit (includes left and right display hinges)
784531-001	TouchPad (includes cable)
784532-001	USB board (includes cable, eSATA port, USB port, and SIM slot)
784533-001	Rubber Kit (includes computer feet, rubber screw covers, and display bezel screw covers)
784534-001	Front speakers (includes left and right front speakers and cables)
784986-001	Webcam/microphone module
786041-001	Display bezel in purple finish
786042-001	Rear speakers (includes left and right rear speakers and cables)
786043-001	Keyboard/top cover in purple finish for use in the United States (includes keyboard cable)
786043-031	Keyboard/top cover in purple finish for use in the United Kingdom and Singapore (includes keyboard cable)
786043-041	Keyboard/top cover in purple finish for use in the Germany (includes keyboard cable)
786043-051	Keyboard/top cover in purple finish for use in France (includes keyboard cable)

Spare part number	Description
786043-061	Keyboard/top cover in purple finish for use in Italy (includes keyboard cable)
786043-071	Keyboard/top cover in purple finish for use in Spain (includes keyboard cable)
786043-131	Keyboard/top cover in purple finish for use in Portugal (includes keyboard cable)
786043-141	Keyboard/top cover in purple finish for use in Turkey (includes keyboard cable)
786043-151	Keyboard/top cover in purple finish for use in Greece (includes keyboard cable)
786043-161	Keyboard/top cover in purple finish for use in Latin America (includes keyboard cable)
786043-171	Keyboard/top cover in purple finish for use in Saudi Arabia (includes keyboard cable)
786043-211	Keyboard/top cover in purple finish for use in Hungary (includes keyboard cable)
786043-251	Keyboard/top cover in purple finish for use in Russia (includes keyboard cable)
786043-261	Keyboard/top cover in purple finish for use in Bulgaria (includes keyboard cable)
786043-271	Keyboard/top cover in purple finish for use in Romania (includes keyboard cable)
786043-281	Keyboard/top cover in purple finish for use in Thailand (includes keyboard cable)
786043-291	Keyboard/top cover in purple finish for use in Japan (includes keyboard cable)
786043-A41	Keyboard/top cover in purple finish for use in Belgium (includes keyboard cable)
786043-AB1	Keyboard/top cover in purple finish for use in Taiwan (includes keyboard cable)
786043-AD1	Keyboard/top cover in purple finish for use in South Korea (includes keyboard cable)
786043-B31	Keyboard/top cover in purple finish for use in the Netherlands (includes keyboard cable)
786043-BA1	Keyboard/top cover in purple finish for use in Slovenia (includes keyboard cable)
786043-BB1	Keyboard/top cover in purple finish for use in Israel (includes keyboard cable)
786043-BG1	Keyboard/top cover in purple finish for use in Switzerland (includes keyboard cable)
786043-DB1	Keyboard/top cover in purple finish for use in Canada (includes keyboard cable)
786043-DH1	Keyboard/top cover in purple finish for use in Denmark, Finland, and Norway (includes keyboard cable)
786043-FL1	Keyboard/top cover in purple finish for use in the Czech Republic and Slovakia (includes keyboard cable)
788084-001	System board equipped with a A4u-6400T processor, a graphics subsystem with UMA memory, 2.0-GB of system memory, and 64-GB of eMMC, for use in models without the Windows operating system
788084-501	System board equipped with a A4u-6400T processor, a graphics subsystem with UMA memory, 2.0-GB of system memory, and 64-GB of eMMC, for use in models with Windows 8.1 Standard
788085-001	Display enclosure in green finish
788086-001	Base enclosure in green finish
788087-001	Display bezel in green finish
788088-001	Keyboard/top cover in green finish for use in the United States (includes keyboard cable)
788088-031	Keyboard/top cover in green finish for use in the United Kingdom and Singapore (includes keyboard cable)
788088-041	Keyboard/top cover in green finish for use in the Germany (includes keyboard cable)
788088-051	Keyboard/top cover in green finish for use in France (includes keyboard cable)
788088-061	Keyboard/top cover in green finish for use in Italy (includes keyboard cable)

Spare part number	Description
788088-071	Keyboard/top cover in green finish for use in Spain (includes keyboard cable)
788088-131	Keyboard/top cover in green finish for use in Portugal (includes keyboard cable)
788088-141	Keyboard/top cover in green finish for use in Turkey (includes keyboard cable)
788088-151	Keyboard/top cover in green finish for use in Greece (includes keyboard cable)
788088-161	Keyboard/top cover in green finish for use in Latin America (includes keyboard cable)
788088-171	Keyboard/top cover in green finish for use in Saudi Arabia (includes keyboard cable)
788088-211	Keyboard/top cover in green finish for use in Hungary (includes keyboard cable)
788088-251	Keyboard/top cover in green finish for use in Russia (includes keyboard cable)
788088-261	Keyboard/top cover in green finish for use in Bulgaria (includes keyboard cable)
788088-271	Keyboard/top cover in green finish for use in Romania (includes keyboard cable)
788088-281	Keyboard/top cover in green finish for use in Thailand (includes keyboard cable)
788088-291	Keyboard/top cover in green finish for use in Japan (includes keyboard cable)
788088-A41	Keyboard/top cover in green finish for use in Belgium (includes keyboard cable)
788088-AB1	Keyboard/top cover in green finish for use in Taiwan (includes keyboard cable)
788088-AD1	Keyboard/top cover in green finish for use in South Korea (includes keyboard cable)
788088-B31	Keyboard/top cover in green finish for use in the Netherlands (includes keyboard cable)
788088-BA1	Keyboard/top cover in green finish for use in Slovenia (includes keyboard cable)
788088-BB1	Keyboard/top cover in green finish for use in Israel (includes keyboard cable)
788088-BG1	Keyboard/top cover in green finish for use in Switzerland (includes keyboard cable)
788088-DB1	Keyboard/top cover in green finish for use in Canada (includes keyboard cable)
788088-DH1	Keyboard/top cover in green finish for use in Denmark, Finland, and Norway (includes keyboard cable)
788088-FL1	Keyboard/top cover in green finish for use in the Czech Republic and Slovakia (includes keyboard cable)

3 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.

Grounding guidelines

Electrostatic discharge

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

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

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

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

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

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

Avoid touching pins, leads, and circuitry.

Handle electronic components as little as possible.

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

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

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

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

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.

- Store reusable ESD-sensitive parts from assemblies in protective packaging or non-conductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

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

Equipment guidelines

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

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

The following grounding equipment is recommended to prevent electrostatic damage:

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

- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

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

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

4 Removal and replacement procedures for Authorized Service Provider parts

Computer replacement procedures

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

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

 **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 3](#) for details.

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

There are as many as 42 screws that must be removed, replaced, and/or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Computer feet

 **NOTE:** The computer feet are included in the Rubber Kit, spare part number 784533-001.

Before replacing the computer feet, follow these steps:

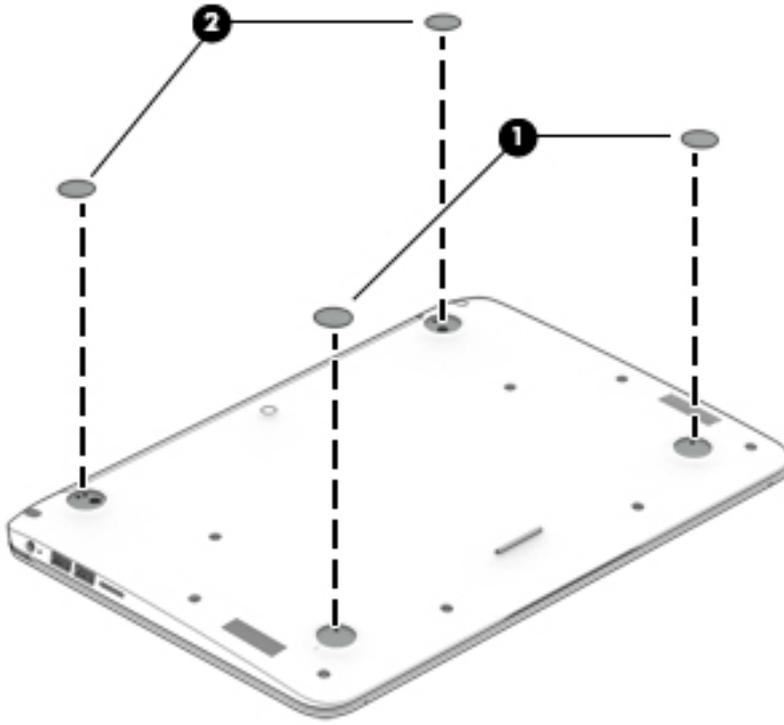
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.

Remove the computer feet:

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

3. Remove the 4 rubber feet.

 **NOTE:** The front feet (1) and the rear feet (2) are not interchangeable. Make sure to install the computer feet in their proper locations on the computer base enclosure.



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

Keyboard/top cover



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

For use in country or region	Spare part number	For use in country or region	Spare part number
In purple finish:			
For use in Belgium	786043-A41	For use in Portugal	786043-131
For use in Bulgaria	786043-261	For use in Romania	786043-271
For use in Canada	786043-DB1	For use in Russia	786043-251
For use in the Czech Republic and Slovakia	786043-FL1	For use in Saudi Arabia	786043-171
For use in Denmark, Finland, and Norway	786043-DH1	For use in Spain	786043-071
For use in France	786043-051	For use in Slovenia	786043-BA1
For use in Germany	786043-041	For use in South Korea	786043-AD1
For use in Greece	786043-151	For use in Switzerland	786043-BG1
For use in Hungary	786043-211	For use in Taiwan	786043-AB1
For use in Israel	786043-BB1	For use in Thailand	786043-281
For use in Italy	786043-061	For use in Turkey	786043-141
For use in Japan	786043-291	For use in the United Kingdom and Singapore	786043-031
For use in Latin America	786043-161	For use in the United States	786043-001
For use in the Netherlands	786043-B31		
In silver finish:			
For use in Belgium	783051-A41	For use in Portugal	783051-131
For use in Bulgaria	783051-261	For use in Romania	783051-271
For use in Canada	783051-DB1	For use in Russia	783051-251
For use in the Czech Republic and Slovakia	783051-FL1	For use in Saudi Arabia	783051-171
For use in Denmark, Finland, and Norway	783051-DH1	For use in Spain	783051-071
For use in France	783051-051	For use in Slovenia	783051-BA1
For use in Germany	783051-041	For use in South Korea	783051-AD1
For use in Greece	783051-151	For use in Switzerland	783051-BG1
For use in Hungary	783051-211	For use in Taiwan	783051-AB1
For use in Israel	783051-BB1	For use in Thailand	783051-281
For use in Italy	783051-061	For use in Turkey	783051-141
For use in Japan	783051-291	For use in the United Kingdom and Singapore	783051-031

For use in country or region	Spare part number	For use in country or region	Spare part number
For use in Latin America	783051-161	For use in the United States	783051-001
For use in the Netherlands	783051-B31		
In green finish:			
For use in Belgium	788088-A41	For use in Portugal	788088-131
For use in Bulgaria	788088-261	For use in Romania	788088-271
For use in Canada	788088-DB1	For use in Russia	788088-251
For use in the Czech Republic and Slovakia	788088-FL1	For use in Saudi Arabia	788088-171
For use in Denmark, Finland, and Norway	788088-DH1	For use in Spain	788088-071
For use in France	788088-051	For use in Slovenia	788088-BA1
For use in Germany	788088-041	For use in South Korea	788088-AD1
For use in Greece	788088-151	For use in Switzerland	788088-BG1
For use in Hungary	788088-211	For use in Taiwan	788088-AB1
For use in Israel	788088-BB1	For use in Thailand	788088-281
For use in Italy	788088-061	For use in Turkey	788088-141
For use in Japan	788088-291	For use in the United Kingdom and Singapore	788088-031
For use in Latin America	788088-161	For use in the United States	788088-001
For use in the Netherlands	788088-B31		

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

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



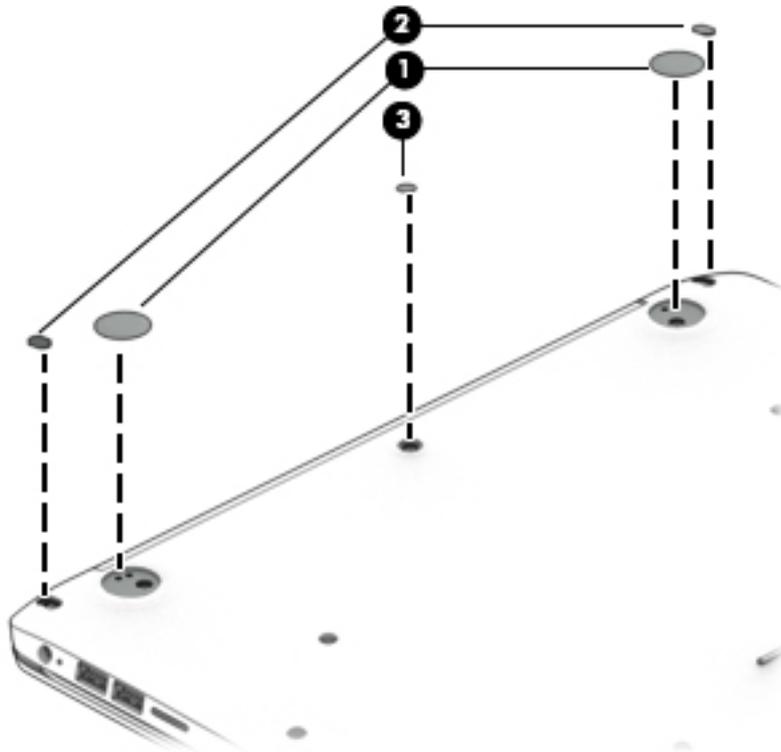
NOTE: When replacing the keyboard/top cover, be sure that the TouchPad (see [TouchPad on page 25](#)) and power button board (see [Power button board on page 26](#)) are removed from the defective keyboard/top cover and installed on the replacement keyboard/top cover.

Remove the keyboard/top cover:

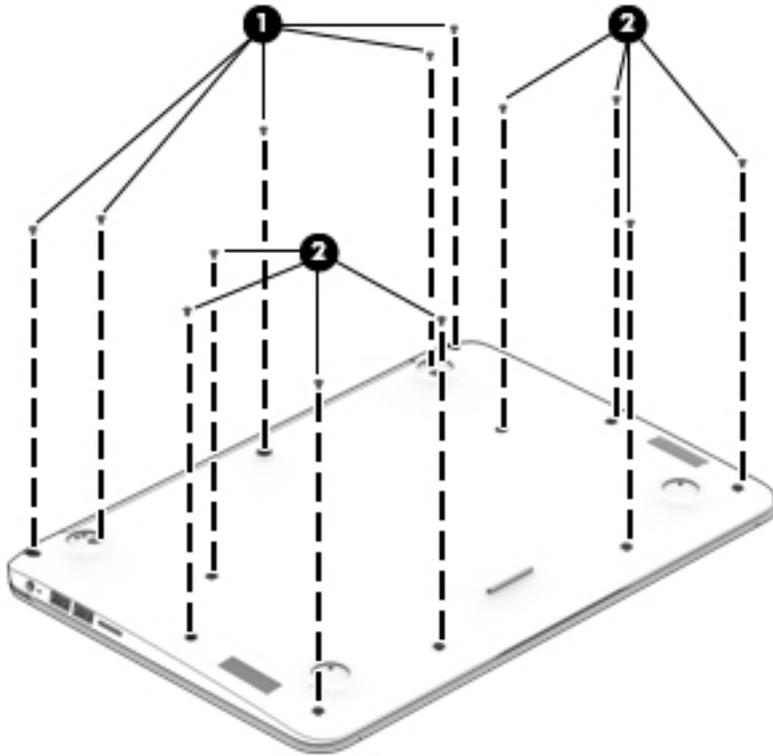
1. Close the computer.
2. Turn the computer upside down with the front toward you.
3. Remove the rear rubber feet **(1)**.
4. Remove the oblong rubber screw covers **(2)**.

5. Remove the round rubber screw cover (3).

 **NOTE:** The oblong rubber screw covers (2) and the round rubber screw cover (3) are not interchangeable. Make sure to install these screw covers in their proper locations on the computer base enclosure.



6. Remove the five Phillips PM1.9×5.7 screws **(1)** and eight Phillips PM1.9×4.3 screws **(2)** that secure the keyboard/top cover to the base enclosure.

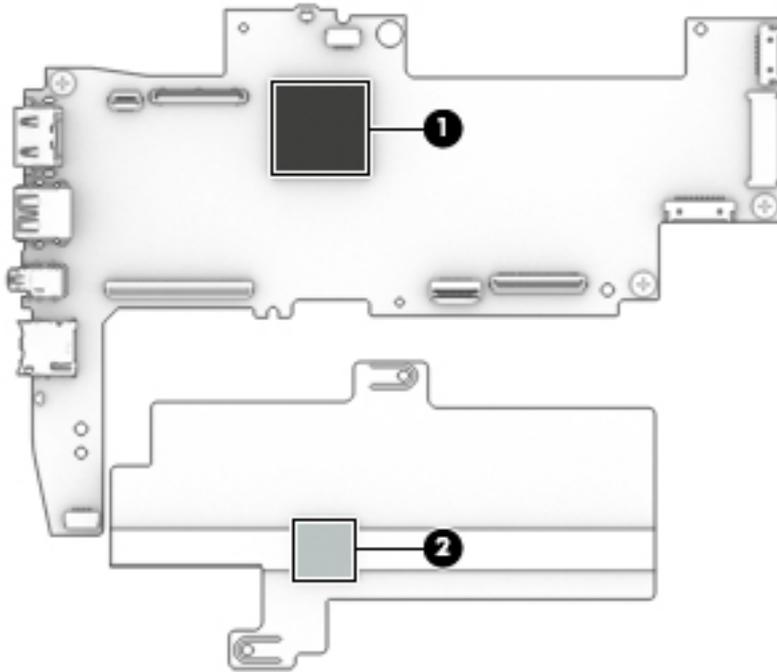


7. Turn the computer right side up.
8. Open the computer as far as it will open.
9. Detach the front edge of the keyboard/top cover **(1)** from the base enclosure.
10. Lift the keyboard/top cover **(2)** until it rests at an angle.
11. Disconnect the battery cable **(3)** from the system board.
12. Release the zero insertion force (ZIF) connector **(4)** to which the power button board cable is attached, and then disconnect the power button board cable from the system board.
13. Release the ZIF connector **(5)** to which the keyboard cable is attached, and then disconnect the keyboard cable from the system board.
14. Release the ZIF connector **(6)** to which the TouchPad board cable is attached, and then disconnect the TouchPad board cable from the system board.

15. Remove the keyboard/top cover (7) by sliding it away from the computer at an angle.



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



Reverse this procedure to install the keyboard/top cover.

TouchPad

Component	Spare part number
TouchPad (includes cable)	784531-001

Before replacing the TouchPad, follow these steps:

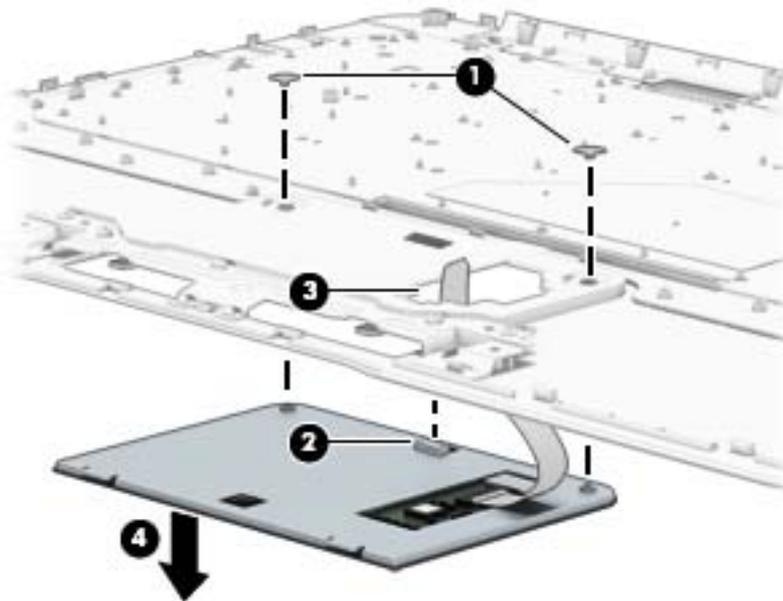
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 19](#)).

Remove the TouchPad:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Remove the two Phillips PM1.9×2.1 broad head screws **(1)** that secure the TouchPad to the keyboard/top cover.
3. Press on the tab **(2)** on the back of the TouchPad to release the TouchPad from the keyboard/top cover.

 **NOTE:** When releasing the TouchPad, make sure the TouchPad cable routes through the opening **(3)** in the keyboard/top cover.

4. Remove the TouchPad **(4)**.



Reverse this procedure to install the TouchPad.

Power button board

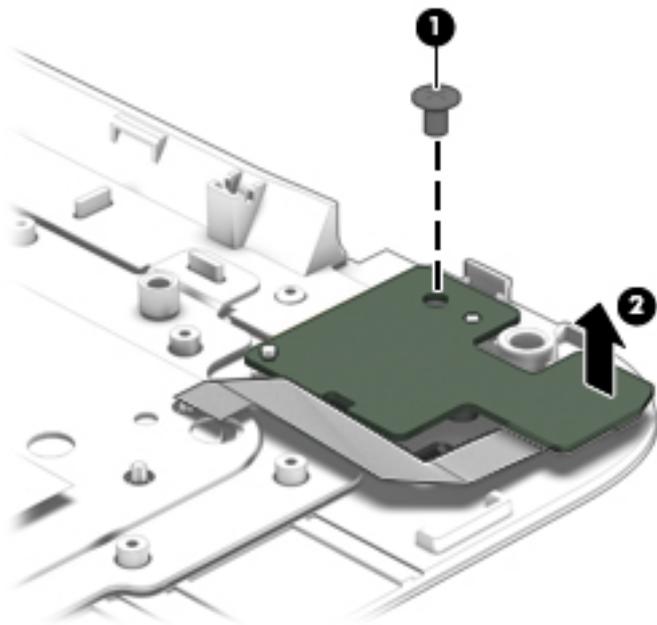
Component	Spare part number
Power button board (includes cable)	761220-001

Before replacing 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 keyboard/top cover (see [Keyboard/top cover on page 19](#)).

Remove the power button board:

1. Turn the keyboard/top cover upside down with the front toward you.
2. Remove the Phillips PM1.9×2.9 screw **(1)** that secures the power button board to the keyboard/top cover.
3. Remove the power button board **(2)**.



Reverse this procedure to install the power button board.

WLAN module

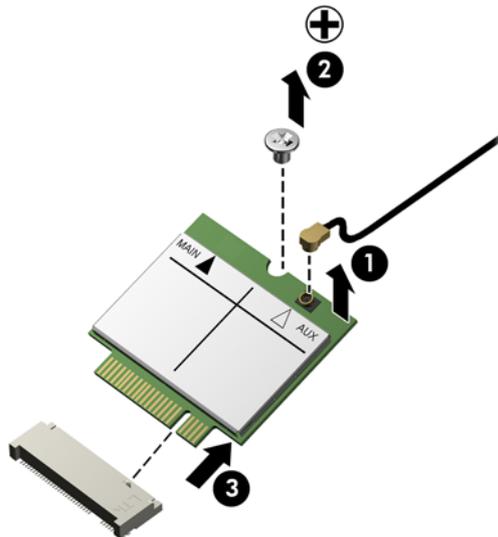
Component	Spare part number
Realtek RTL8723BE 802.11b/g/n 1×1 Wi-Fi + Bluetooth 4.0 Combo Adapter	753078-005

Before replacing 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 keyboard/top cover (see [Keyboard/top cover on page 19](#)).

Remove the WLAN module:

1. Disconnect the WLAN antenna cable (1) from the terminal on the WLAN module.
2. Remove the Phillips PM2.4×2.8 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 cable is not connected to the terminal on the WLAN module, a protective sleeve should be installed on the antenna connector, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

USB board

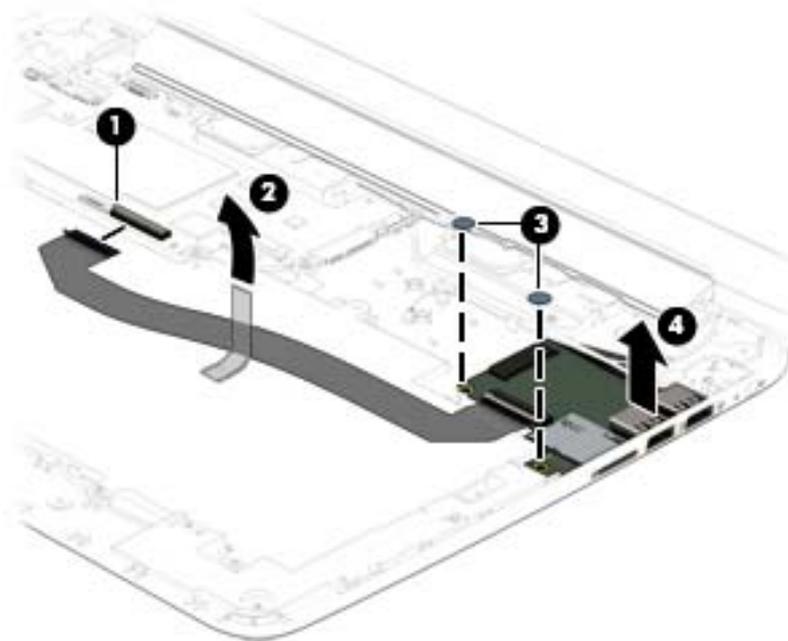
Component	Spare part number
USB board (includes cable, double-sided adhesive, eSATA port, USB port, and SIM slot)	784532-001

Before replacing the 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 keyboard/top cover (see [Keyboard/top cover on page 19](#)).

Remove the USB board:

1. Release the ZIF connector **(1)** to which the USB board cable is attached, and then disconnect the USB board cable from the system board.
2. Detach the USB board cable **(2)** from the battery. (The USB board cable battery is attached to the battery with double-sided adhesive.)
3. Remove the two Phillips PM1.9×2.1 broad head screws **(3)** that secure the USB board to the base enclosure.
4. Remove the USB board **(4)** and cable.



Reverse this procedure to install the USB board.

Rear speakers

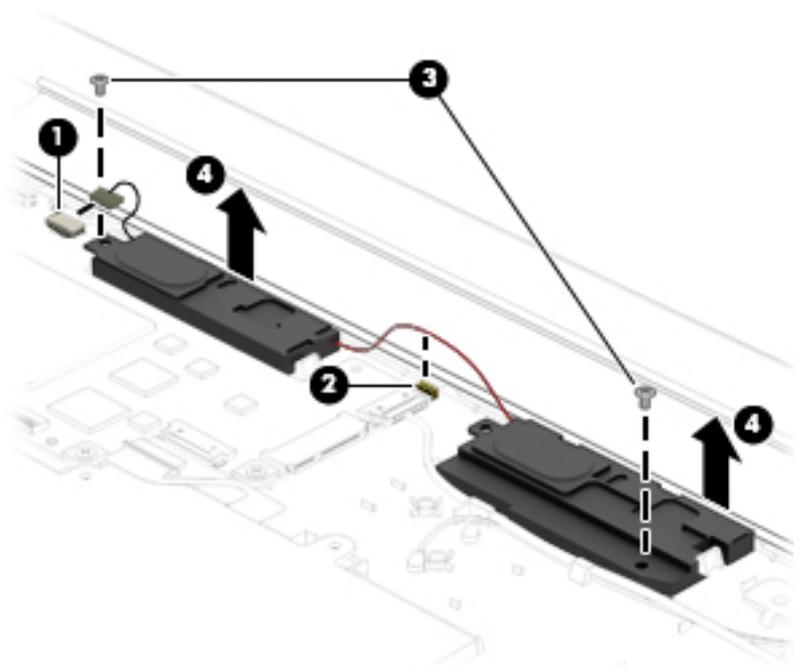
Component	Spare part number
Rear speakers (include left and right rear speakers and cables)	786042-001

Before replacing the rear speakers, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 19](#)).

Remove the rear speakers:

1. Disconnect the rear speaker cable (1) from the system board.
2. Release the rear speaker cable from the retention clip (2) built into the base enclosure.
3. Remove the two Phillips PM1.9×2.8 screws (3) that secure the rear speakers to the base enclosure.
4. Remove the rear speakers (4) and cables.



Reverse this procedure to install the rear speakers.

Power connector cable

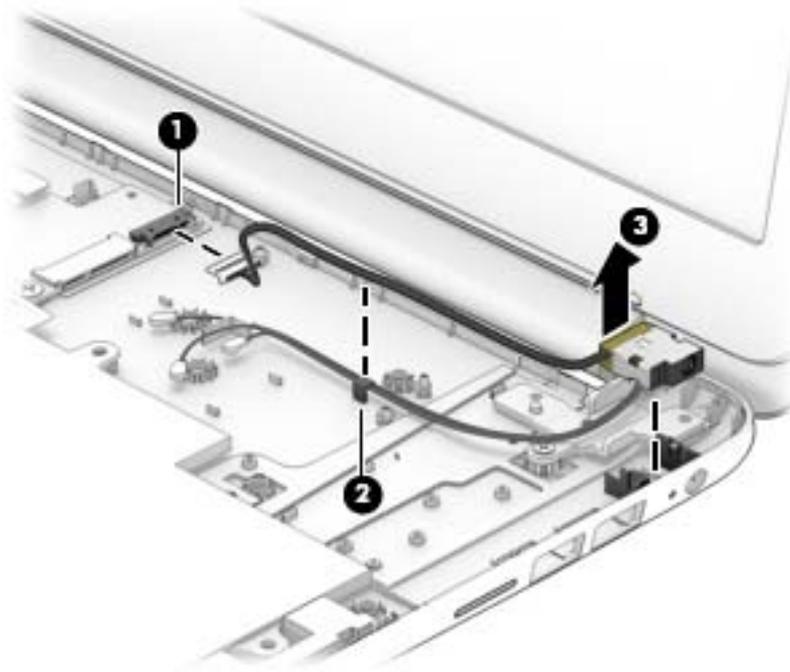
Component	Spare part number
Power connector cable	759919-001

Before replacing 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 keyboard/top cover (see [Keyboard/top cover on page 19](#)).

Remove the power connector cable:

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



4. Remove the power connector cable.

Reverse this procedure to install the power connector cable.

Battery

Component	Spare part number
Battery, 3-cell, 32-Wh, 2.96-Ah, Li-ion (includes cable)	752235-005

Before replacing the battery, follow these steps:

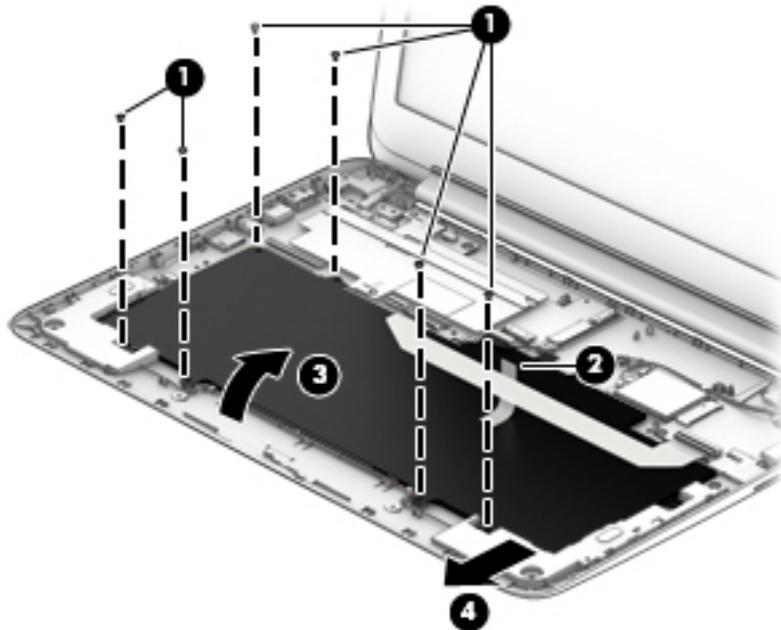
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 19](#)).

⚠ 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. Remove the six Phillips PM1.9×2.8 screws **(1)** that secure the battery to the base enclosure.
2. Detach the USB board cable **(2)** from the battery. (The USB board cable battery is attached to the battery with double-sided adhesive.)
3. Lift the front edge of the battery **(3)** until it rests at an angle.
4. Remove the battery **(4)** by sliding it up and forward at an angle.



5. Remove the battery.

Reverse this procedure to install the battery.

Front speakers

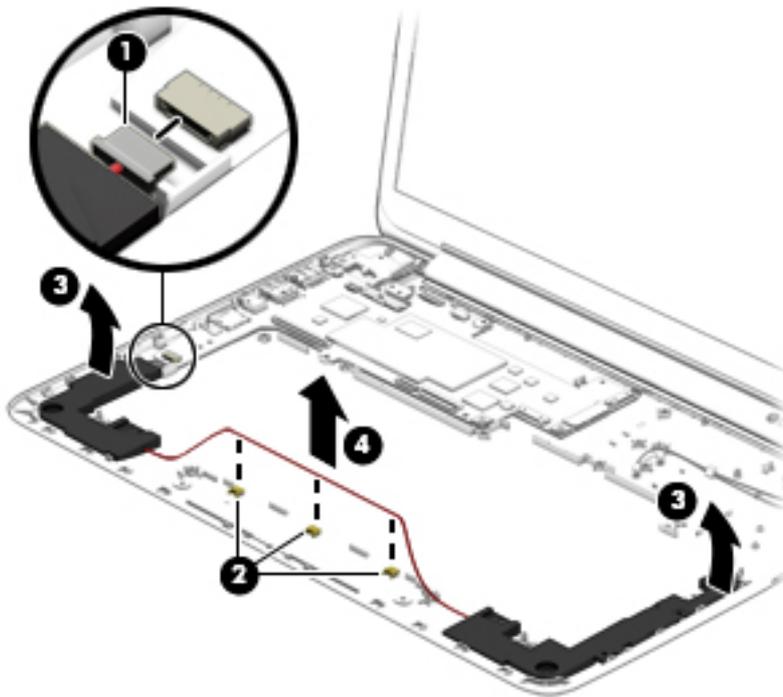
Component	Spare part number
Front speakers (include left and right front speakers and cables)	784534-001

Before replacing the front speakers, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 19](#)).
5. Remove the battery (see [Battery on page 31](#)).

Remove the front speakers:

1. Disconnect the front speaker cable **(1)** from the system board.
2. Release the front speaker cables from the retention clips **(2)** built into the base enclosure.
3. Tilt the rear edges of the front speakers **(3)** up and back to disengage the rear speakers from the clips built into the base enclosure.
4. Remove the front speakers **(4)** and cables.



Reverse this procedure to install the front speakers.

System board



NOTE: The system board spare part kit is equipped with a A4u-6400T processor, a graphics subsystem with UMA memory, and 2.0-GB of system memory.

Component	Spare part number
System board; includes 64-GB of eMMC for use in models without the Windows operating system	788084-001
System board; includes 64-GB of eMMC for use in models with Windows 8.1 Standard	788084-501
System board; includes 32-GB of eMMC for use in models without the Windows operating system	783049-001
System board; includes 32-GB of eMMC for use in models with Windows 8.1 Standard	783049-501

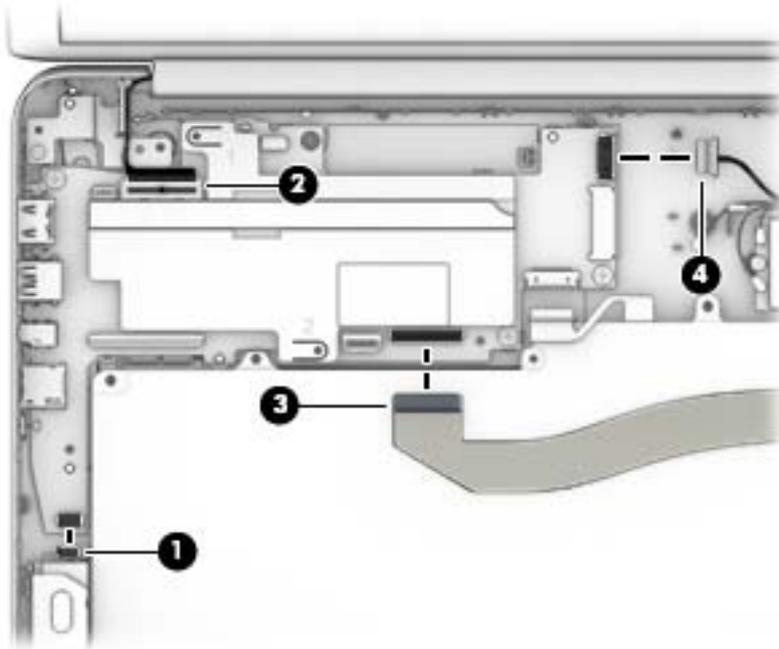
Before replacing the system board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 19](#)).
5. Remove the WLAN module (see [WLAN module on page 27](#)).
6. Remove the rear speakers (see [Rear speakers on page 29](#)).

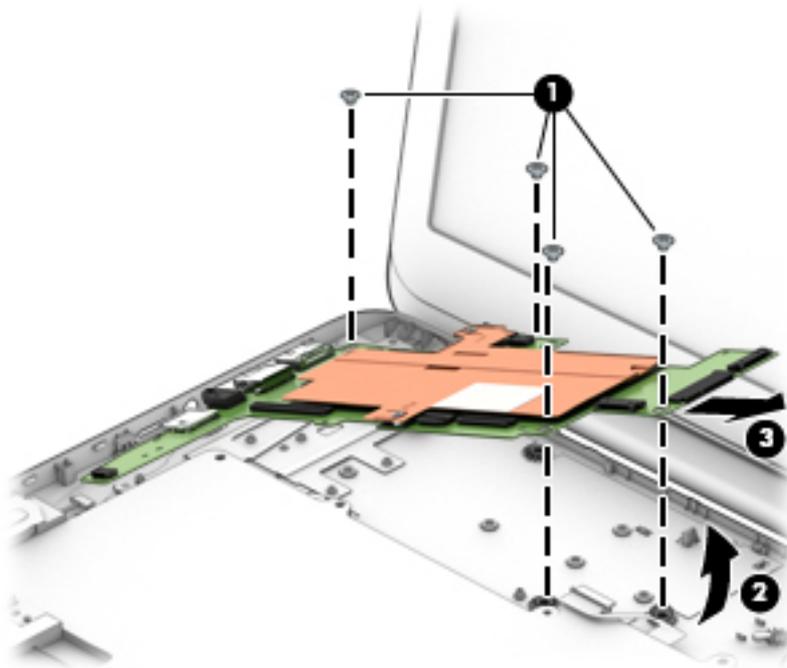
Remove the system board:

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

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



5. Remove the four Phillips PM1.9×2.8 screws **(1)** that secure the system board to the base enclosure.
6. Lift the right side of the system board **(2)** until it rests at an angle.
7. 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

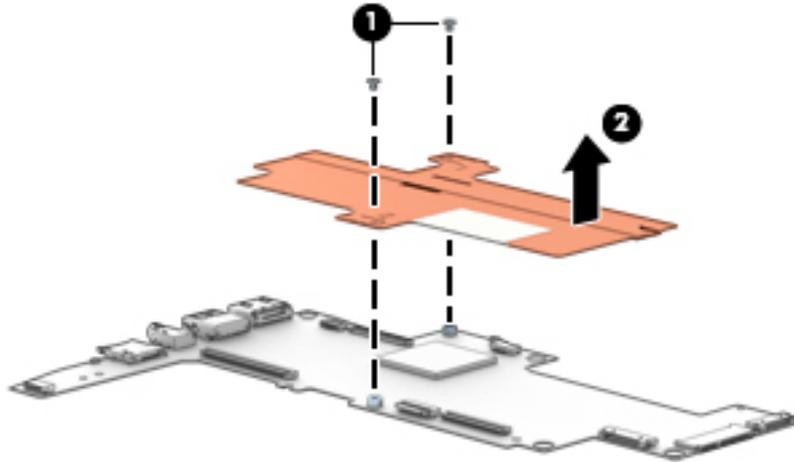
Component	Spare part number
Heat sink (includes replacement thermal material)	783045-001

Before replacing the heat sink, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 19](#)).
5. Remove the WLAN module (see [WLAN module on page 27](#)).
6. Remove the rear speakers (see [Rear speakers on page 29](#)).
7. Remove the system board (see [System board on page 33](#)).

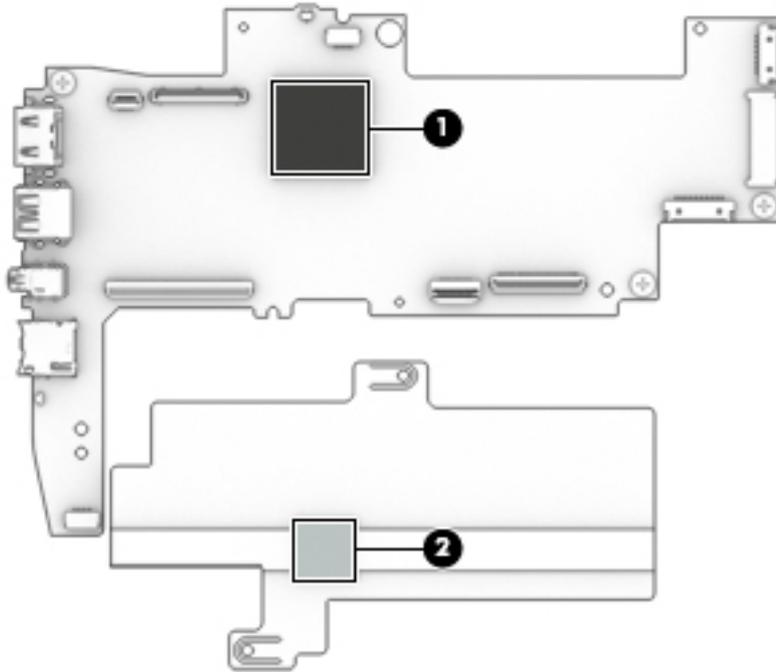
Remove the heat sink:

1. Position the system board upright.
2. Remove the two Phillips PM2.0×3.0 screws **(1)** that secure the heat sink to the system board.
3. Lift the heat sink straight up and off the system board **(2)**.



4. Install thermal paste on the following components:

Thermal paste is used on the processor **(1)** and the heat sink **(2)**.



Reverse this procedure to install the heat sink.

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.

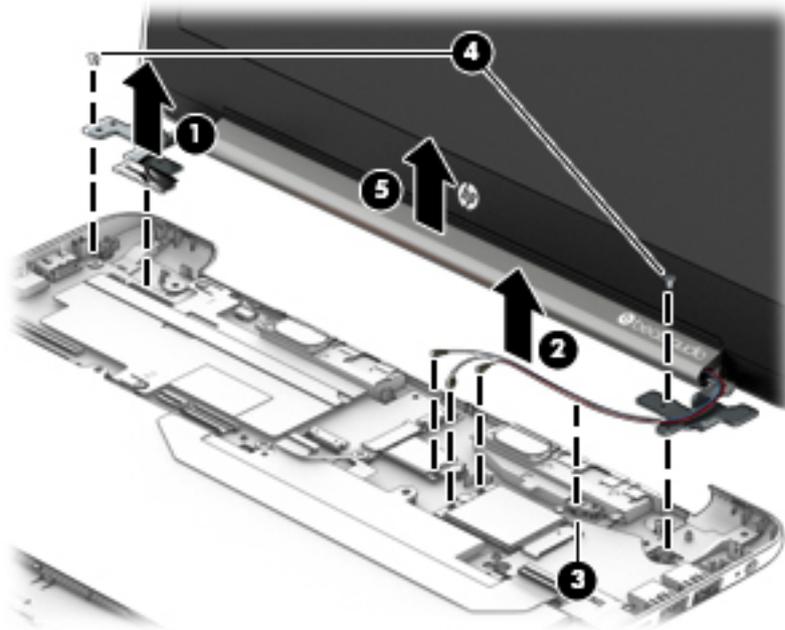
Before replacing the display assembly, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the keyboard/top cover (see [Keyboard/top cover on page 19](#)).

Remove the display assembly:

1. Disconnect the display panel cable **(1)** from the system board.
2. Disconnect the WLAN antenna cable **(2)** from the terminal on the WLAN module.
3. Release the WLAN antenna cable from the clip **(3)** built into the base enclosure.
4. Remove the two Phillips PM1.9×2.8 screws **(4)** that secure the display assembly system board to the base enclosure.

5. Remove the display assembly (5).



6. If it is necessary to replace the display bezel:

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

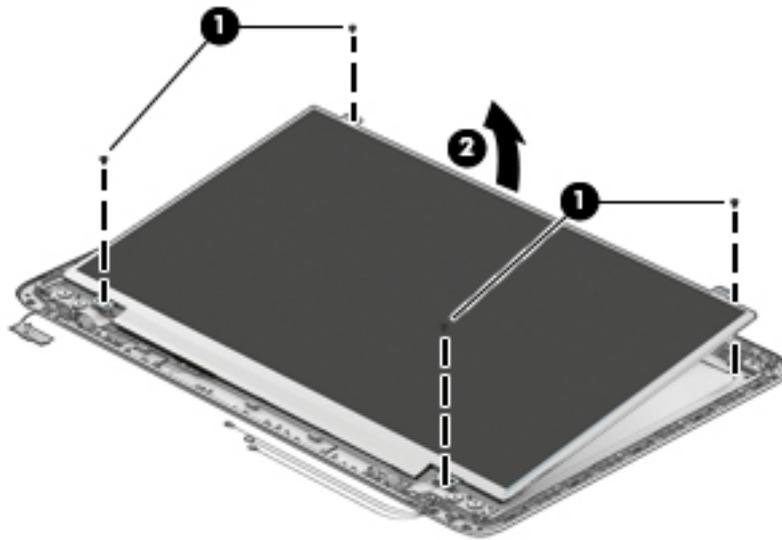
783043-001: Silver finish

786041-001: Purple finish

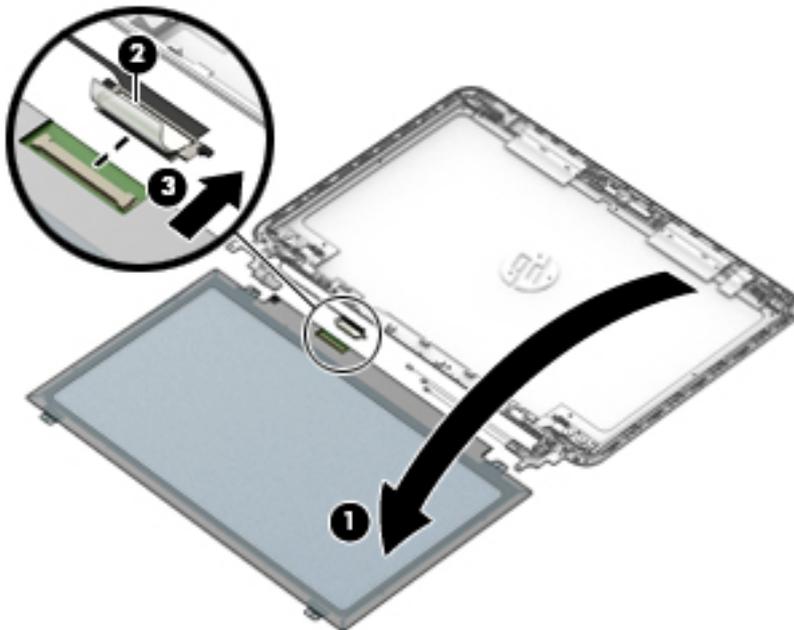
788087-001: Green finish

- a. Remove the display panel screw covers (1).
The display panel screw covers are included in the Rubber Kit, spare part number 784533-001.
 - b. Remove the two Phillips PM1.9×2.1 broad head screws (2) that secure the display panel to the display assembly.
 - c. Flex the inside edges of the bottom (3), left and right sides (4), and top (5) of the display bezel until it disengages from the display enclosure.
7. If it is necessary to replace the raw display panel:
 - a. Remove the four Phillips PM2.0×3.0 screws (1) that secure the display panel to the display assembly.

- b. Lift the top edge of the display panel (2).



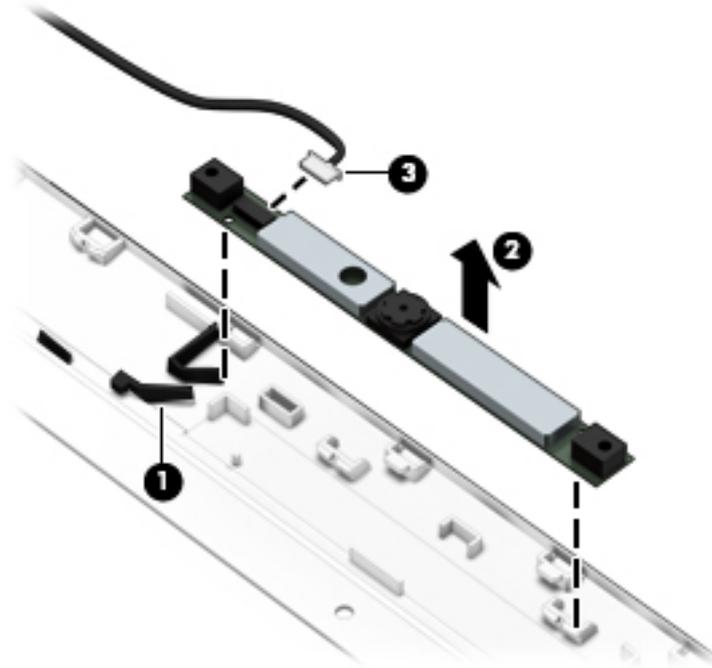
- c. Swing the display panel up and forward until it rests upside down in front of the display enclosure (1).
- d. Release the adhesive strip (2) that secures the display panel cable connector to the display panel.
- e. Disconnect the display panel cable (3) from the display panel.



The display panel is available using spare part number 783052-001.

8. If it is necessary to replace the webcam/microphone module:
- Release the webcam/microphone module cable from the clip (1) built into the display enclosure.
 - Detach the webcam/microphone module (2) from the display enclosure. (The webcam/microphone module is attached to the display enclosure with double-sided adhesive.)

- c. Disconnect the webcam/microphone module cable **(3)** from the webcam/microphone module.



- d. Remove the webcam/microphone module.

The webcam/microphone module is available using spare part number 784986-001.

- 9. If it is necessary to replace the display hinges:

- a. Remove the following screws that secure the display hinges to the display enclosure:

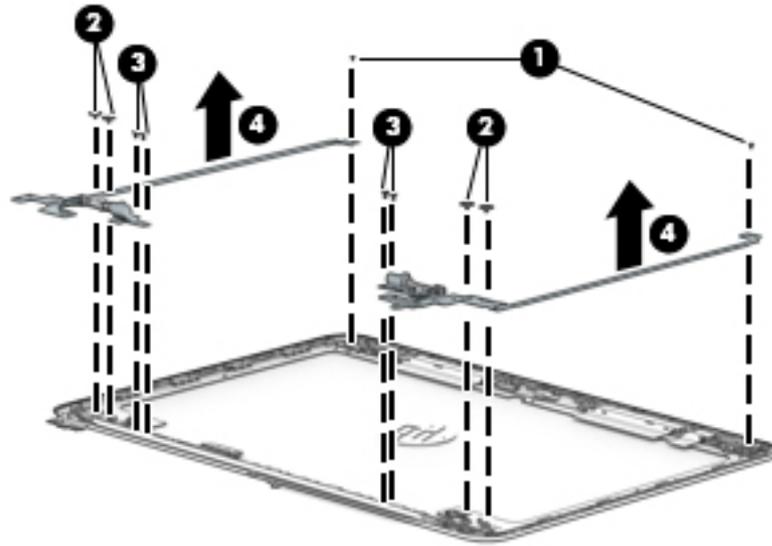
- (1) Two Phillips PM1.9×2.8 screws at the top of the display hinge bracket

- (2) Four Phillips PM2.4×3.2 broad head screws on the inside edge of each display hinge

- (3) Four Phillips PM2.4×3.7 screws on the outside edge of each display hinge

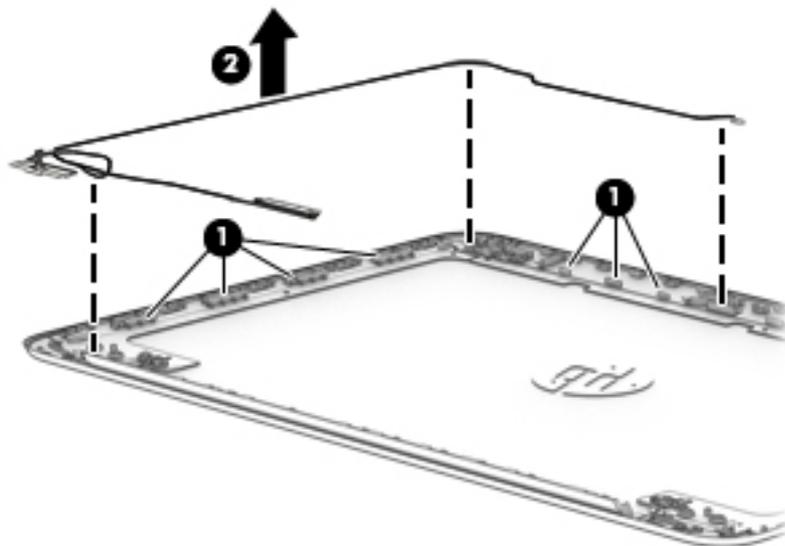
- b. Remove the display hinges and brackets (4).

The display hinges are included in the Display Hinge Kit, spare part number 784530-001.



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

- a. Release the display cable from the clips (1) built into the top and left side of the display enclosure.
- b. Lift the display cable straight up and off the display enclosure (2).

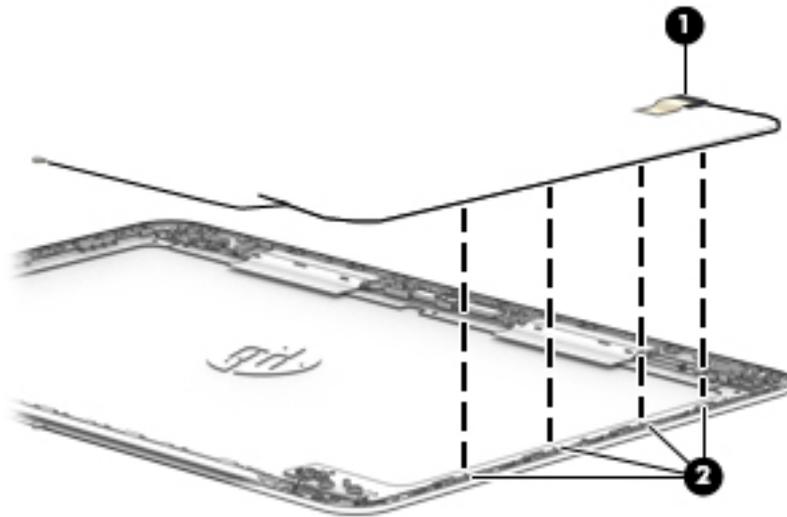


- c. The display cable is available using spare part number 783044-001.

- 11. If it is necessary to replace the WLAN antenna cable and transceiver:

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

- b.** Release the WLAN antenna cable from the clips **(2)** built into the right side of the display enclosure.



- c.** Remove the WLAN antenna cable and transceiver.

The WLAN antenna cable and transceiver is included in the Antenna Kit, spare part number 783038-001.

Reverse this procedure to reassemble and install the display assembly.

5 Specifications

	Metric	U.S.
Width	34.4 cm	13.5 in
Depth	24.0 cm	9.5 in
Height	1.79 cm	0.7 in
Weight	1.75 kg	3.86 lbs
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

6 Using Setup Utility (BIOS)

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

Starting Setup Utility (BIOS)

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

 **NOTE:** If you have tablet with a detachable keyboard or keyboard dock, attach it before beginning these steps.

- ▲ Turn on or restart the computer, quickly press **esc**, and then press **f10**.

Updating the BIOS

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

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

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

Determining the BIOS version

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

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

1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 43](#)).
2. Use the arrow keys to select **Main**, and then make note of your BIOS version.

To exit Setup Utility (BIOS):

1. Use the arrow keys to select **Exit**, select **Exit Discarding Changes**, and then press **enter**.
2. Select **Yes**.

Downloading a BIOS update

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

- Do not disconnect power from the computer by unplugging the power cord from the AC outlet.
- Do not shut down the computer or initiate Sleep.
- Do not insert, remove, connect, or disconnect any device, cable, or cord.

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

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

– or –

From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.

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

3. Follow the on-screen instructions.

4. At the download area, follow these steps:

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

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

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

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

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

– or –

From the Windows desktop, right-click the **Start** button, 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.

7 Using HP PC Hardware Diagnostics (UEFI)

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

To start HP PC Hardware Diagnostics (UEFI):

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

The BIOS searches 3 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 45](#).

- b. Hard drive
- c. BIOS

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



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

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



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

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

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

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

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

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

– or –

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

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

– or –

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

8 Backing up, restoring, and recovering

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

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

For additional information, refer to the HP Support Assistant.

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

- or -

From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.

Creating recovery media and backups (select models only)

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

For information on creating recovery media, see [Creating HP Recovery media \(select models only\) on page 46](#). For information on the recovery options that are available using the recovery media, see [Recovering using HP Recovery Manager \(select models only\) on page 48](#)

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

Creating HP Recovery media (select models only)

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

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

follow the on-screen instructions. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub.

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

To create HP Recovery media:

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

If you ever need to recover the system, see [Recovering using HP Recovery Manager \(select models only\) on page 48](#).

Using Windows tools

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

- ▲ From the Start screen, type *help*, and then select **Help and Support**.

– or –

From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.

For more information and steps, see Help and Support.

Restore and recover (select models only)

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

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information and steps, see Help and Support.
 - ▲ From the Start screen, type *help*, and then select **Help and Support**.
- or –
 - From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.
- On select models, if you need to correct a problem with a preinstalled application or driver, use the Drivers and Applications Reinstall option of HP Recovery Manager to reinstall the individual application or driver.
 - ▲ From the Start screen, type *recovery*, select **HP Recovery Manager**, select **Drivers and Applications Reinstall**, and then follow the on-screen instructions.
- On select models, if you want to reset your computer using a minimized image, you can choose the HP Minimized Image Recovery option from the HP Recovery partition or HP Recovery media. Minimized Image Recovery installs only drivers and hardware-enabling applications. Other applications included in the image continue to be available for installation through the Drivers and Applications Reinstall option in HP Recovery Manager.

For more information, see [Recovering using HP Recovery Manager \(select models only\) on page 48](#).

- On select models, if you want to recover the computer's original factory partitioning and content, you can choose the System Recovery option from the HP Recovery partition or use the HP Recovery media that you have created. For more information, see [Recovering using HP Recovery Manager \(select models only\) on page 48](#). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 46](#).
- On select models, if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media to restore the factory image to the replacement drive. For more information, see [Recovering using HP Recovery Manager \(select models only\) on page 48](#).

Recovering using HP Recovery Manager (select models only)

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you created or by using the HP Recovery partition (select models only). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 46](#).

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

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

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

What you need to know

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



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

- HP Recovery media (select models only) must be used if the computer hard drive fails. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 46](#).
- To use the Factory Reset option, you must use HP Recovery media (select models only). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 46](#).
- If the HP Recovery media (select models only) does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.



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

Using the HP Recovery partition (select models only)

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

To start HP Recovery Manager from the HP Recovery partition:

1. From the Start screen, type `recovery`, select **Recovery Manager**, and then select **HP Recovery Environment**.
2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, and then follow the on-screen instructions.

Using HP Recovery media to recover

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

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



NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See [Changing the computer boot order on page 49](#).

3. Follow the on-screen instructions.

Changing the computer boot order

If the computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices where the computer searches for startup information. You can specify that an optical drive or a USB flash drive should be checked first.

To change the boot order:

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

9 Power cord set requirements

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

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

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

Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least 1.0 m (3.3 ft) and no more than 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer. Requirements for all countries 113

Requirements for specific countries and regions

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

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

1. The flexible cord must be Type H05VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

10 Recycling

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

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

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