HP Chromebox G2

Maintenance and Service Guide
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Product notice

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

Software terms

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For any further information or to request a full refund of the price of the computer, please contact your 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 60950-1).

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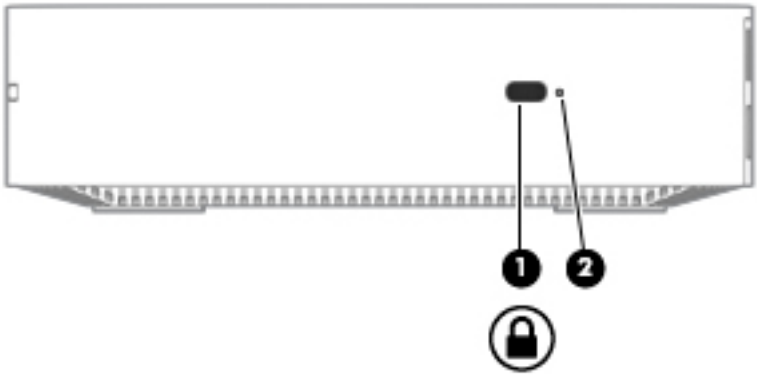
1 Product description

Category	Description
Product Name	HP Chromebox G2
Processors	Intel® Core™ i7-8650U 1.90-GHz (turbo up to 4.1 GHz), quad-core processor (8.0-MB L3 cache, 2400-MHz, 15-W), Intel UHD graphics 620
	Intel Core i5-7300 2.60-GHz (turbo up to 3.5 GHz), dual-core processor (3.0-MB L3 cache, 2133-MHz, 15-W), Intel HD graphics 620
	Intel Celeron® 3865U 1.80-GHz, dual-core processor (2.0-MB L3 cache, 2133-MHz, 15-W), Intel HD graphics 610
Graphics	**Internal graphics**: see processor category
Memory	Two SODIMM memory module slots
	DDR4-2400 dual channel support
	Supports for up to 16 GB of system memory in the following configurations:
	• 16384 MB (8192 MB × 2) (only for Core i7 processor)
	• 8192 MB (4096 MB × 2)
	• 4096 MB (4096 MB × 1) (only for Celeron processor)
Storage	**Solid-state hard drive** (2242, M.2, SATA-3)
	64 GB
	32 GB
Audio	Realtek ALC5662 HD Audio Audio Codec
Wireless	Integrated wireless options with dual antennas (M.2/PCIe)
	Intel Dual Band Wireless-AC 7265 802.11 AC 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro)
External media cards	**HP Multi-Format Digital Media Card Reader**
	Supports SD/SDHC/SDXC
	Push-pull insertion/removal
Ports	**Front**
	Audio-out (headphone)/audio-in (microphone) combo jack
	(2) USB Type-A 3.0 ports (USB battery charging 1.2 support)
	MicroSD card slot (push-pull type)
	Back
	(2) USB Type-A 2.0 ports
	USB Type-A 3.0 port
	USB Type-C port; USB 3.1 Gen 1; supports charging, power delivery, DisplayPort, data

Category	Description
	HDMI v1.4 supporting up to 1920×1080 @ 60Hz
	RJ-45 connector
	AC Smart Pin adapter plug, 4.5 mm barrel connector
Docking station	HP Elite USB-C Dock G3
Keyboard	USB Chrome stand-alone wired keyboard and mouse combo
Security	Kensington Security Lock
Power requirements	**Smart AC adapter** (standard barrel, 4.5 mm)
	90-W, PFC, right angle (not for Celeron processor)
	65-W, non-PFC, right angle (only for Celeron processor)
	65-W, non-PFC, EM (only for Celeron processor)
	Power cord
	1 meter power cord with a C5 connector
Operating system	**Preinstalled:** Google Chrome 64 operating system
Serviceability	**End user replaceable part:**
	AC adapter

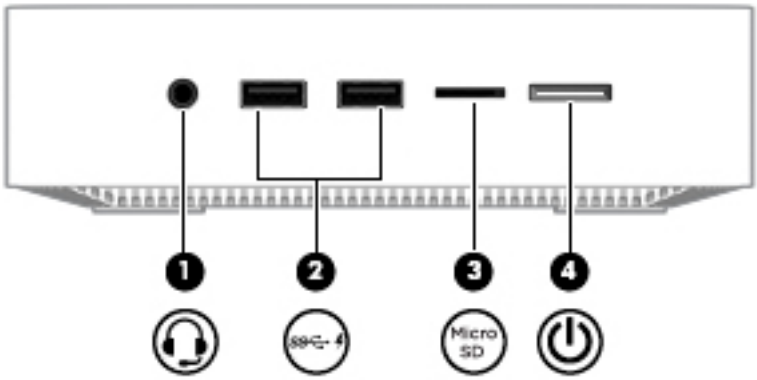
2 Getting to know your Chromebox

Right side



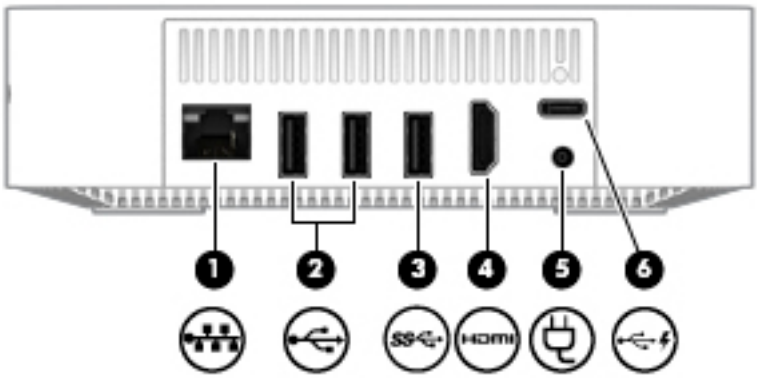
Component			Description
(1)		Security cable slot	Attaches an optional security cable to the computer. **NOTE:** The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(2)		Reset/recovery button	To to reset or recover the device, insert a paperclip (or pushpin) into the reset/recovery button hole, and then press the button. **NOTE:** Using this button in conjunction with the Power button will result in all account information and data stored on your Chromebox, such as photos, downloaded files, and saved networks, being deleted. Saving files to a external hard drive, USB flash drive, or cloud storage is recommended for this reason. You may save your files to the cloud at any time by selecting the Google Drive as your file save location.

Front



Component		Description
(1)	Audio-out (headphone)/Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices. **WARNING!** To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the *Regulatory, Safety, and Environmental Notices*. This guide is provided in the box. **NOTE:** When a device is connected to the jack, the computer speakers are disabled.
(2)	USB SuperSpeed ports with HP Sleep and Charge (2)	Connects a USB device, provides high-speed data transfer, and even when the computer is off, charges most products such as a cell phone, camera, activity tracker, or smartwatch.
(3)	MicroSD memory card reader	Reads optional memory cards that store, manage, share, or access information. To insert a card: 1. Hold the card label-side up, with connectors facing the computer. 2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated. To remove a card: ▲ Pull out the card.
(4)	Power button/Power light	• When the Chromebox is off, press the button to turn on the device. A white light indicates that the unit is on. The light will be off if the unit is off or in standby mode. • When the device is in the Sleep state, press the button briefly to exit Sleep. • When the device is on and you want to lock the screen, press the power button until you see the sign-in screen appear. Pressing the power button during screen-lock mode turns off the device. • When the device is on and you want to turn it off, press and hold the power button.

Rear



Component			Description
(1)		RJ-45 (network) jack	Connects a network cable.
(2)		USB port	Connects a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provides data transfer.
(3)		USB SuperSpeed ports (2)	Connect a USB device, such as a cell phone, camera, activity tracker, or smartwatch, and provides high-speed data transfer.
(4)		HDMI port	Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio device.
(5)		Power connector	Connects an AC adapter. **NOTE:** Your device will attempt to preserve your work in the event of a power event. If you experience a power outage, or accidentally unplug your device, your Chromebox will automatically restart when power is restored.
(6)		USB Type-C port with HP Sleep and Charge	Connects a USB device that has a Type-C connector, provides data transfer, and even when the computer is off, charges most products such as a cell phone, camera, activity tracker, or smartwatch. – and – Connects a display device that has a USB Type-C connector, providing DisplayPort output. **NOTE:** Cables and/or adapters (purchased separately) may be required.

Bottom

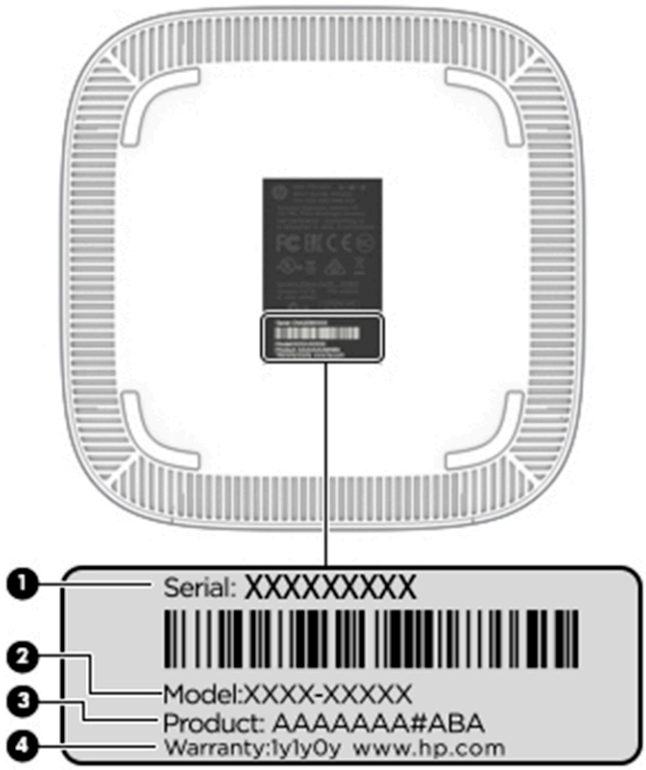
Component	Description
Vent	Enables airflow to cool internal components. **NOTE:** The device fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.

Labels

The labels affixed to the computer provide information you may need when you troubleshoot system problems or travel internationally with the computer.

IMPORTANT: All labels described in this section will be affixed to the bottom of the computer.

- Service label—Provides important information to identify your computer. When contacting support, you will probably be asked for the serial number, and possibly for the product number or the model number. Locate these numbers before you contact support.



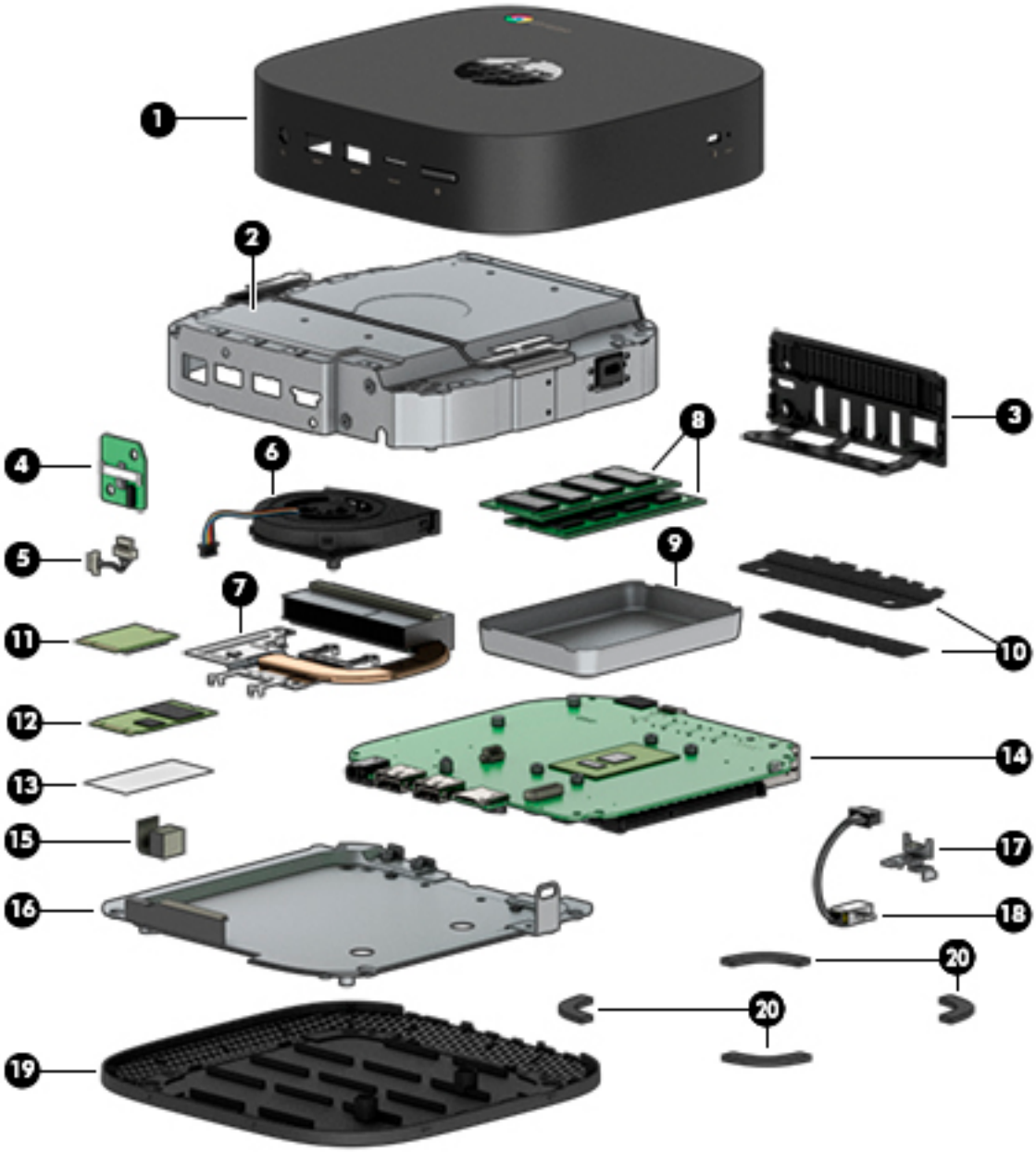
Component	
(1)	Serial number
(2)	Model number (select products only)
(3)	Product number
(4)	Warranty period

- Regulatory label(s)—Provide(s) regulatory information about the computer.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

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.

Computer major components



Item	Component	Spare part number
(1)	**Top cover**	L17257-001
(2)	**Metal top shield (includes antenna)**	L17268-001
(3)	**Rear I/O bracket**	L17262-001
(4)	**Power button board**	L17270-001
(5)	**Power button board cable**	L17260-001
(6)	**Fan**	767360-001
(7)	**Heat sink** (includes replacement thermal material)	L17261-001
(8)	**Memory modules** (SODIMM, DDR4-2400 MHz)	
	8 GB	862398-850
	4 GB	862397-850
(9)	**Memory cover**	L17264-001
(10)	**Mylar Kit** (for use when replacing bottom cover)	L20217-001
(11)	**Intel Dual Band Wireless-AC 7265 802.11 AC 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro) WLAN module**	860883-001
(12)	**Solid-state drive** (M.2, SATA-3)	
	64 GB	L17274-001
	32 GB	L17273-001
(13)	**Solid-state drive absorber**	L17263-001
(14)	**System board** (includes processor and replacement thermal material):	
	Equipped with an Intel Core i7-8650U processor	L17277-001
	Equipped with an Intel Core i5-7300 processor	L17276-001
	Equipped with an Intel Celeron 3865U processor	L17275-001
(15)	**HDMI gasket**	L17846-001
(16)	**Bottom shield**	L17267-001
(17)	**Power connector bracket** **NOTE:** Power connector conductive tape is available using spare part number L17265-001.	L17266-001
(18)	**Power connector cable**	L17259-001
(19)	**Bottom cover**	L17258-001
(20)	**Rubber feet**	L17271-001

Miscellaneous parts

Component	Spare part number
AC adapter:	
65-W AC adapter (non-PFC, S-3P, 4.5-mm)	710412-001
65-W AC adapter, EM (non-PFC, 4.5-mm)	913691-850
90-W AC adapter (PFC, 4.5-mm)	710413-001
Power cord (C5 connector, 1.0-m):	
For use in Argentina	L19357-001
For use in Australia	L19358-001
For use in Denmark	L19360-001
For use in Europe	L19361-001
For use in India	L19363-001
For use in Israel	L19362-001
For use in Italy	L19364-001
For use in Japan	L19365-001
For use in North America	L19367-001
For use in the People's Republic of China	L19368-001
For use in South Africa	L19369-001
For use in South Korea	L19366-001
For use in Switzerland	L19370-001
For use in Taiwan	L19372-001
For use in Thailand	L19371-001
For use in the United Kingdom and Singapore	L19373-001
Screw Kit	L17272-001

Whole unit spares

Component	Spare part number
Whole unit, 3SX33AA ABA	L26674-001
Whole unit, 3SX34AA ABA	L26675-001
Whole unit, 3SX35AA ABA	L26676-001
Whole unit, 3SX33AA ABU	L29219-001
Whole unit, 3SX34AA ABU	L29220-001
Whole unit, 3SX35AA ABU	L29221-001
Whole unit, 3SX33AA UUF	L29222-001
Whole unit, 3SX34AA UUF	L29223-001
Whole unit, 3SX35AA UUF	L29224-001

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

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

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

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

Avoid dropping drives from any height onto any surface.

After removing drive, place it in a static-proof bag.

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

Avoid exposing a drive to temperature extremes or liquids.

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

Grounding guidelines

Electrostatic discharge damage

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

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

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

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

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

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

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

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

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

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

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

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

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

Workstation guidelines

Follow these grounding workstation guidelines:

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

Equipment guidelines

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

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

The following grounding equipment is recommended to prevent electrostatic damage:

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

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

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

5 Removal and replacement procedures

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

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.

Component replacement procedures

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 Labels on page 7 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 31 screws that must be removed, replaced, and/or loosened when servicing Authorized Service Provider only parts. Make special note of each screw size and location during removal and replacement.

Bottom cover

Description	Spare part number
Bottom cover	L17258-001
Rubber feet	L17271-001
Mylar kit	L20217-001

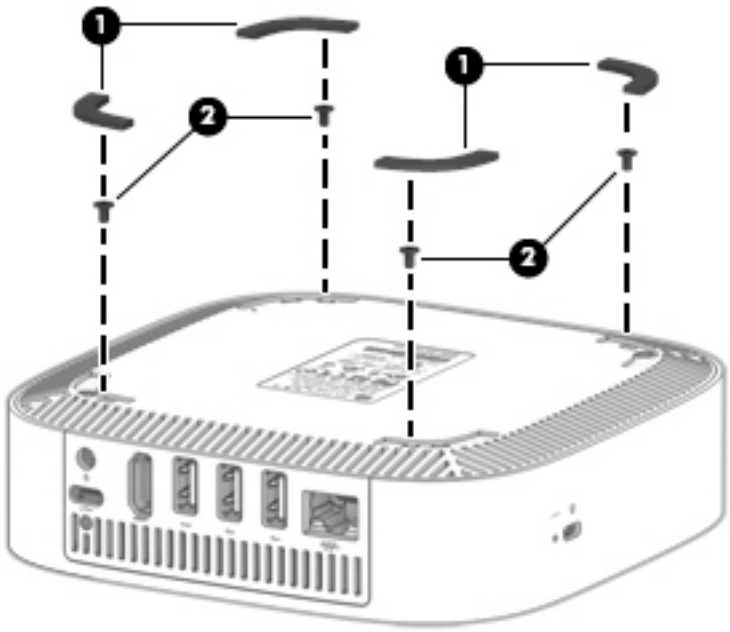
Before removing the bottom cover, follow these steps:

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

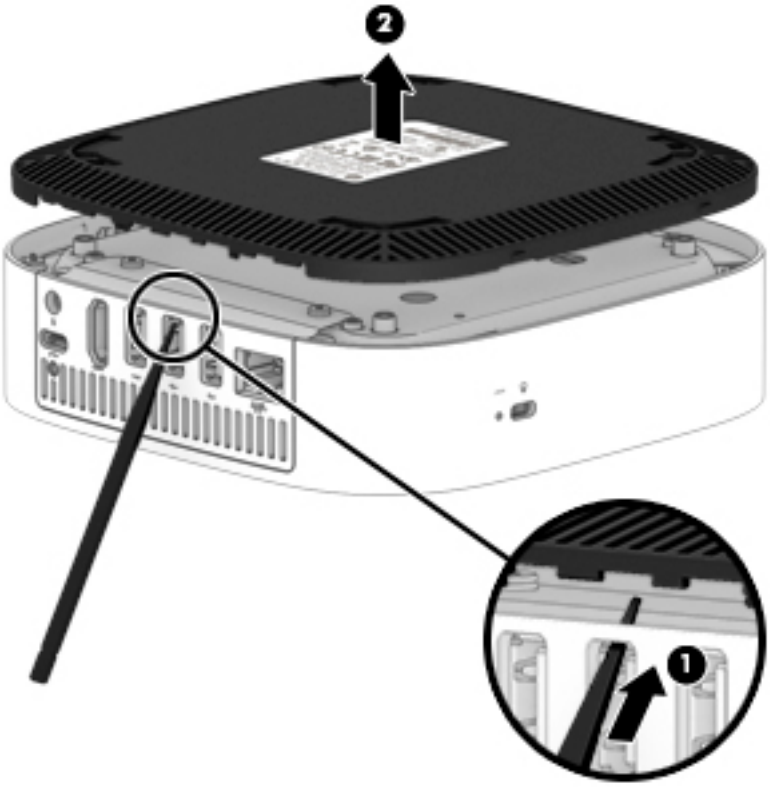
Remove the bottom cover:

1. Position the computer upside down on a flat surface.
2. Peel the four rubber feet off the bottom cover **(1)**.

3. Remove the four Phillips M2.5×4.0 screws **(2)** that secure the bottom cover to the computer.

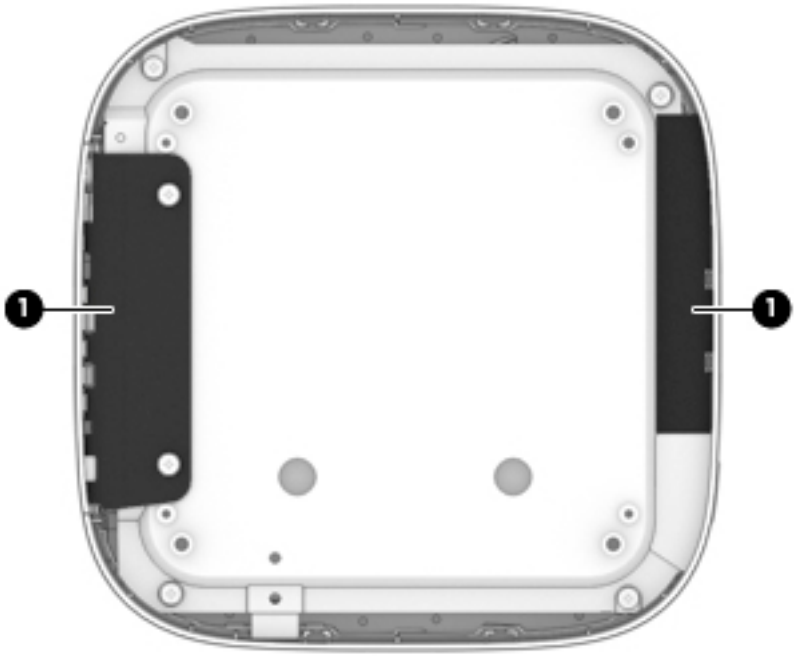


4. Insert a flat, non-marking tool into the gap under the bottom cover near the USB ports on the rear of the computer **(1)**, and then pry the bottom cover off the computer **(2)**.



Reverse this procedure to install the bottom cover.

When replacing the bottom cover, be sure to install two pieces of Mylar onto the chassis as shown in the following image. A Mylar Kit is available using spare part number L20217-001.



Rear I/O bracket

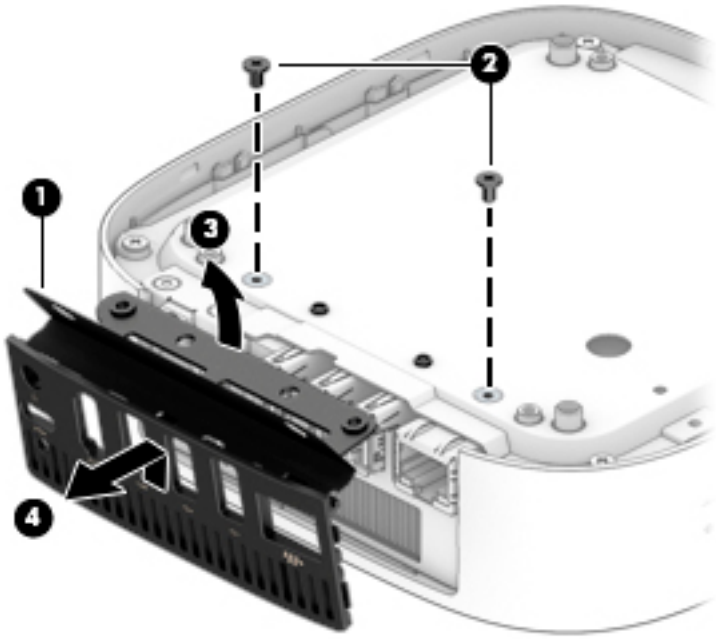
Description	Spare part number
Rear I/O bracket	L17262-001

Before removing the rear I/O bracket, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).

Remove the rear I/O bracket:

1. Lift the Mylar tape from on top of the bracket **(1)**.
2. Remove the two Phillips M2.5×4.0 screws **(2)** that secure the bracket to the computer.
3. Rotate the top of the bracket off the chassis **(3)**, and then remove the bracket **(4)**.



Reverse this procedure to install the rear I/O bracket.

Bottom shield

Description	Spare part number
Bottom shield	L17267-001

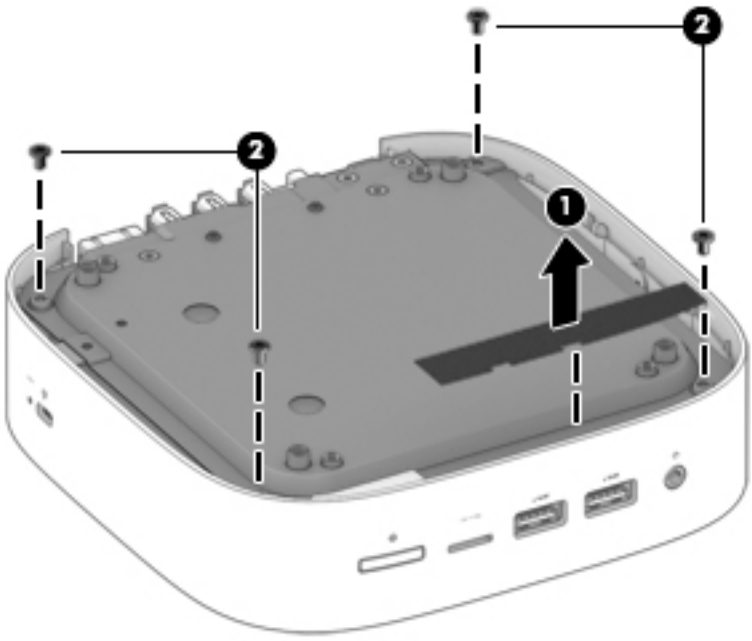
Before removing the bottom shield, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).

Remove the bottom shield:

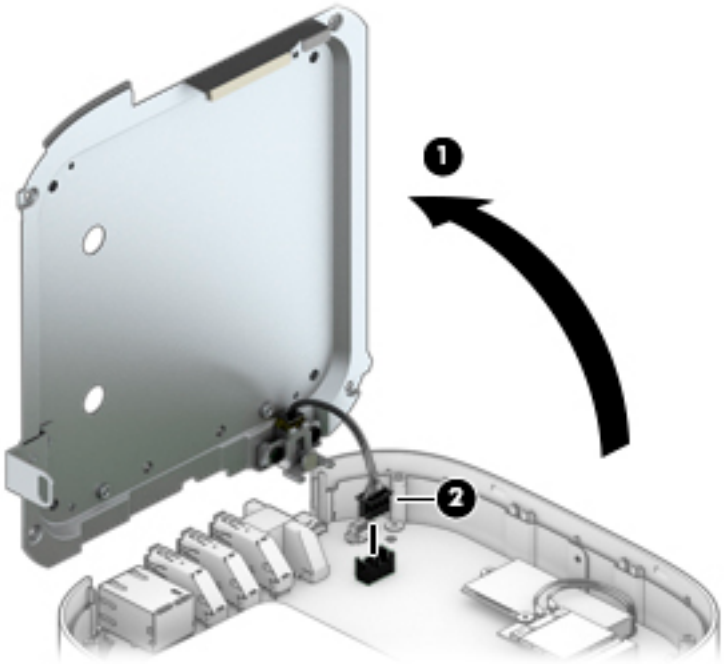
1. Lift the tape from on top of the bottom shield **(1)**.
2. Remove the four Phillips M2.5×4.0 screws **(2)** that secure the shield to the computer.

IMPORTANT: A cable connects from the system board to the bottom shield. Be sure not to accidentally disconnect this cable when removing the bottom shield.



3. Lift and rotate the bottom shield to gain access to the cable underneath **(1)**.

4. Disconnect the cable from the system board **(2)**.



Reverse this procedure to install the bottom shield.

Power connector cable

The power connector cable is installed on the bottom shield.

Description	Spare part number
Power connector cable	L17259-001
Power connector bracket	L17266-001
Power connector conductive tape	L17265-001

Before removing the power connector cable, follow these steps:

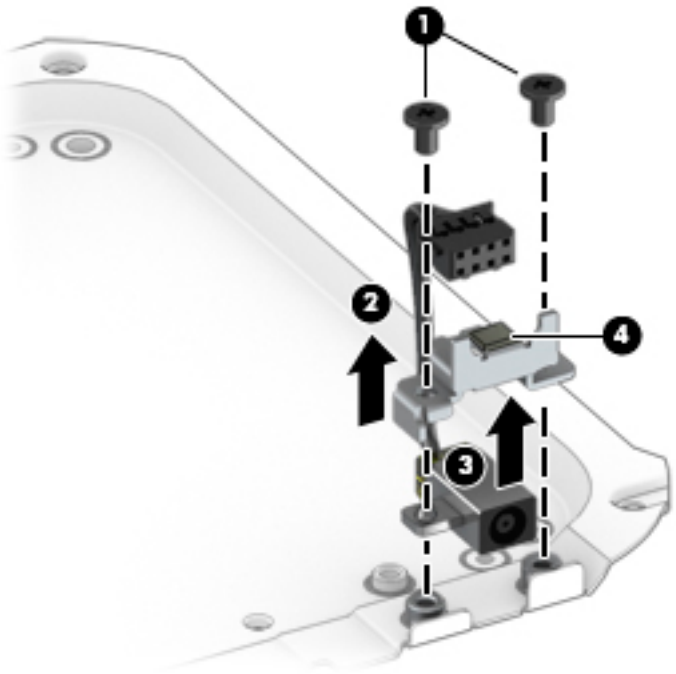
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).

Remove the power connector cable:

1. Position the bottom shield upside-down.
2. Remove the two Phillips M2.5×4.0 screws **(1)** that secure the power connector cable to the bottom shield.
3. Remove the bracket **(2)**.

4. Remove the power connector cable **(3)** from the bottom shield.

NOTE: When replacing the power connector cable, be sure to install conductive tape **(4)** on top of the bracket. Conductive tape is available using spare part number L17265-001.



Reverse this procedure to install the power connector cable.

WLAN module

Description	Spare part number
Intel Dual Band Wireless-AC 7265 802.11 AC 2×2 WiFi + Bluetooth 4.2 Combo Adapter (non-vPro)	860883-001

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

Before removing the 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 first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).

Remove the WLAN module:

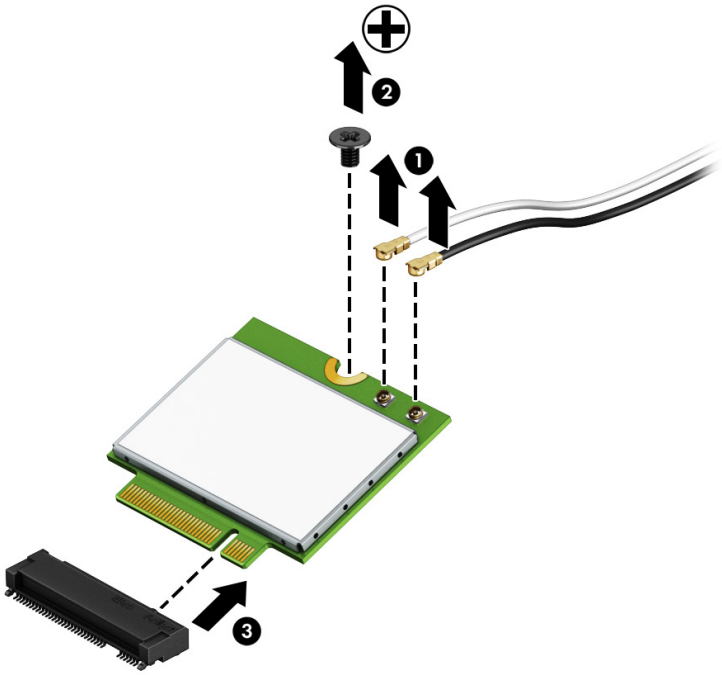
1. Disconnect the WLAN antenna cables **(1)** from the terminals on the WLAN module.

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

2. Remove the Phillips M2.0×3.0 screw **(2)** that secures the WLAN module to the computer. (The WLAN module tilts up.)

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

NOTE: WLAN modules are designed with a notch to prevent incorrect insertion.



Reverse this procedure to install the WLAN module.

Memory module

NOTE: The memory module spare part kit does not include the memory cover. The memory cover is available using spare part number L17264-001.

NOTE: Primary and expansion memory is installed in a stacked configuration. If only one memory module is installed, it must be installed in the bottom socket.

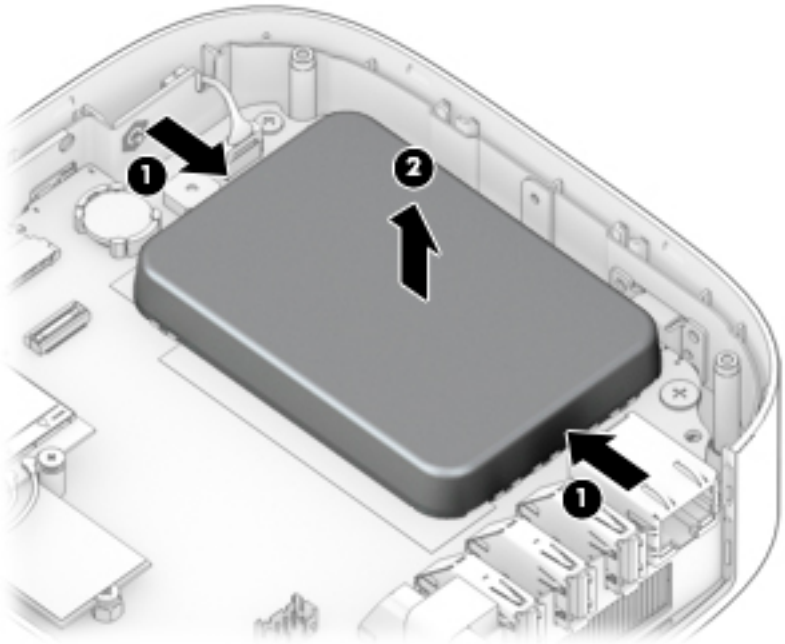
Description	Spare part number
8-MB, DDR4-2400, 1.2-V	862398-850
4-MB, DDR4-2400, 1.2-V	862397-850
Memory cover	L17264-001

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 first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).

Remove the memory module cover and memory modules:

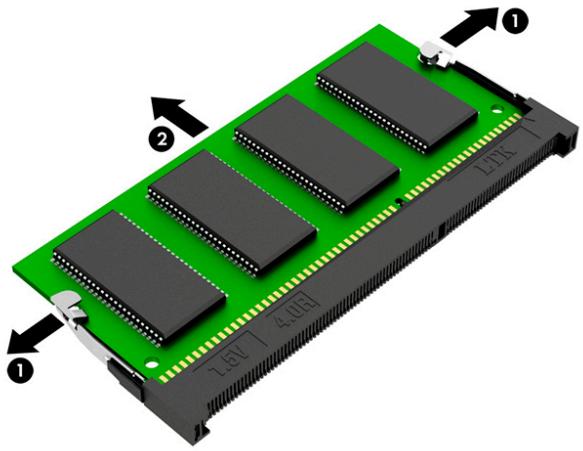
1. Squeeze the sides of the memory cover **(1)**, and then lift the cover off the system board **(2)**.



2. Spread the two retention clips outward **(1)** until the memory module tilts up at a 45-degree angle.
3. Grasp the edge of the memory module **(2)**, and then gently pull the module out of the slot. Use the same procedure to remove both memory modules.

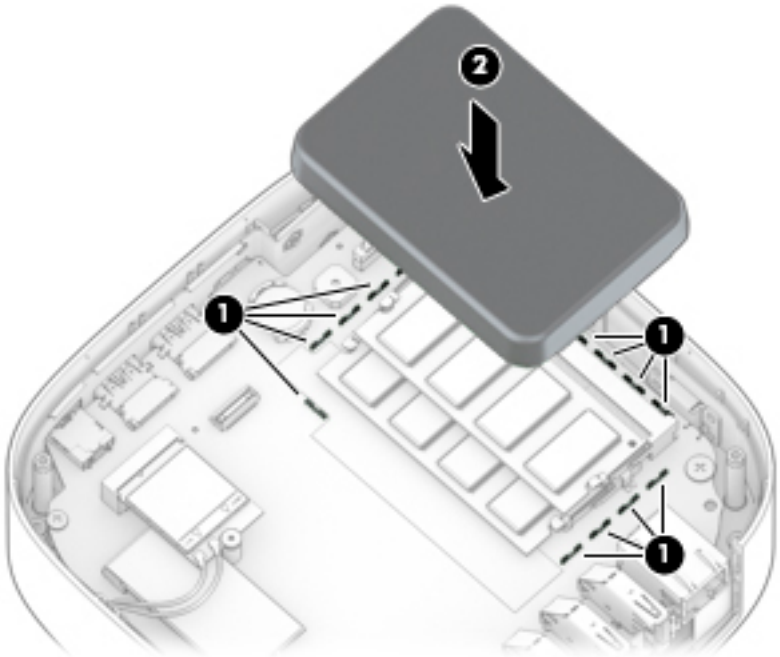
NOTE: To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module.

To protect a memory module after removal, place it in an electrostatic-safe container.



Reverse this procedure to install the memory modules and memory cover.

To replace the memory cover, align the bottom edges of the cover with the small clips on the system board **(1)**, and then insert the cover into the clips **(2)**.


2
1
1
1

Solid-state drive

Description	Spare part number
Solid-state drive, 64 GB	L17274-001
Solid-state drive, 32 GB	L17273-001
Solid-state drive absorber	L17263-001

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

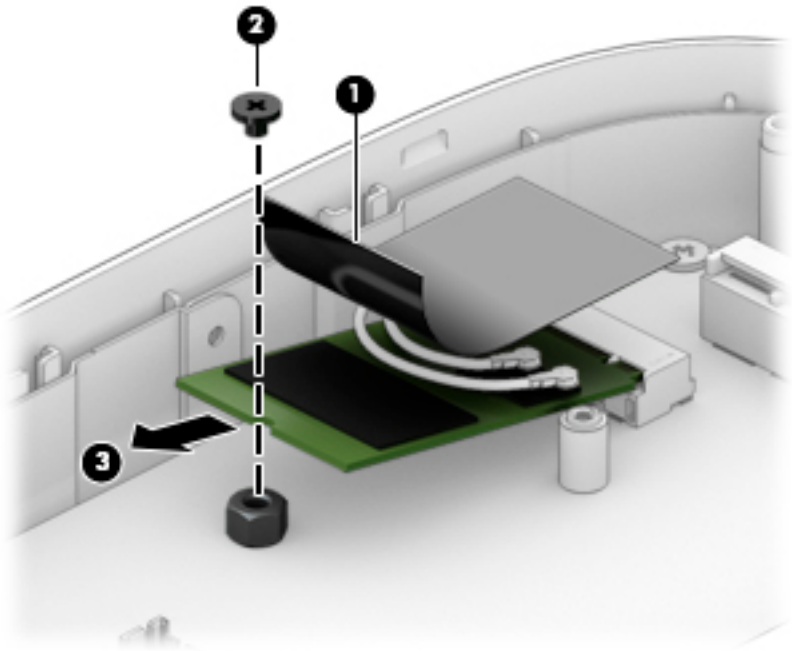
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).
7. Remove the WLAN module (see WLAN module on page 25).

Remove the solid-state drive:

1. Lift the solid-state drive absorber off the connector and drive module **(1)**.

NOTE: The solid-state drive absorber is available using spare part number L17263-001.

2. Remove the Phillips M2.0×3.0 screw **(2)**, and then pull the solid-state drive module from the socket **(3)**.



Reverse this procedure to install a solid-state drive.

System board

NOTE: All system board spare part kits include a processor and replacement thermal material.

Description	Spare part number
System board with integrated Intel Core i7-8650U processor	L17277-001
System board with integrated Intel Core i5-7300 processor	L17276-001
System board with integrated Intel Celeron 3865U processor	L17275-001
HDMI gasket	L17846-001

Before removing the system board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).

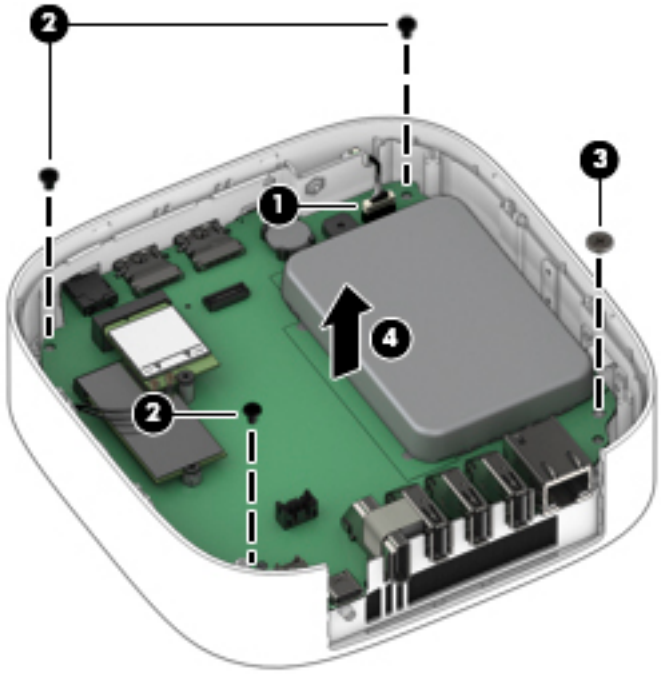
When replacing the system board, be sure to remove the following components (as applicable) from the defective system board and install them on the replacement system board:

- WLAN module (see WLAN module on page 25)
- Memory modules (see Memory module on page 27)
- Fan (see Fan on page 33)
- Heat sink (see Heat sink on page 34)

Remove the system board:

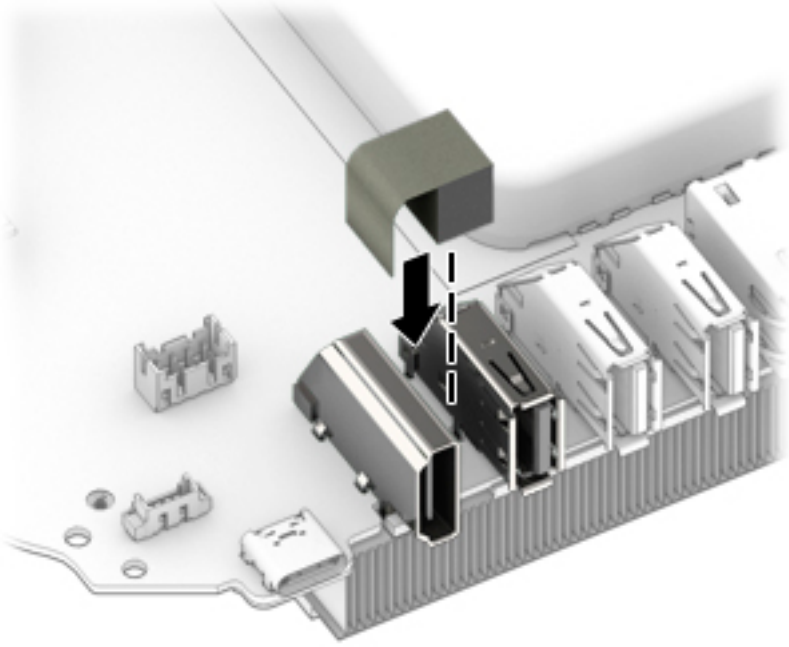
1. Disconnect the power button board cable from the system board **(1)**.
2. Remove the three larger Phillips M2.5×4.0 screws **(2)** and the smaller Phillips M2.0×2.0 screw **(3)** that secures the system board to the computer.

3. Lift the system board out of the computer **(4)**.



Reverse this procedure to install the system board.

When installing the system board, be sure the HDMI gasket is installed over the HDMI port as shown in the following illustration. The HDMI gasket is available using spare part number L17846-001.



Fan

The fan is installed on the bottom of the system board.

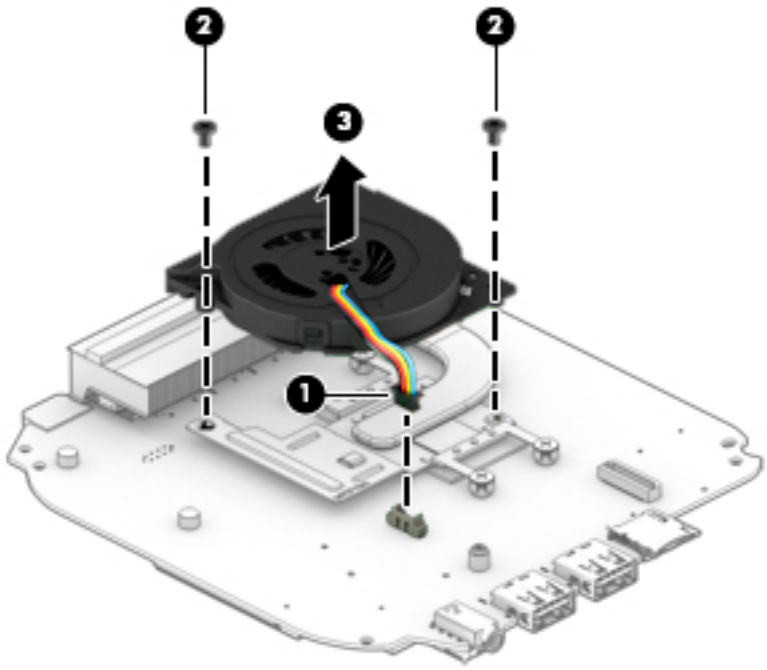
Description	Spare part number
Fan	767360-001

Before removing the fan, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).
7. Remove the system board (see System board on page 31).

Remove the fan:

1. Position the system board upside-down.
2. Disconnect the fan cable from the system board **(1)**.
3. Remove the two Phillips M2.5×4.0 screws **(2)** that secure the fan to the system board.
4. Remove the fan from the system board **(3)**.



Reverse this procedure to install the fan.

Heat sink

The heat sink is installed on the bottom of the system board.

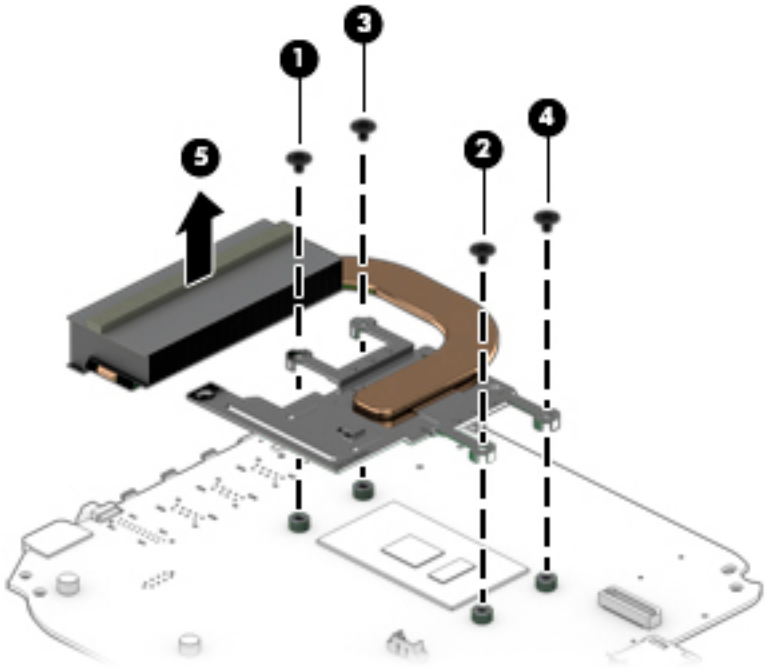
Description	Spare part number
Heat sink (includes replacement thermal material)	L17261-001

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 first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).
7. Remove the system board (see System board on page 31).
8. Remove the fan (see Fan on page 33).

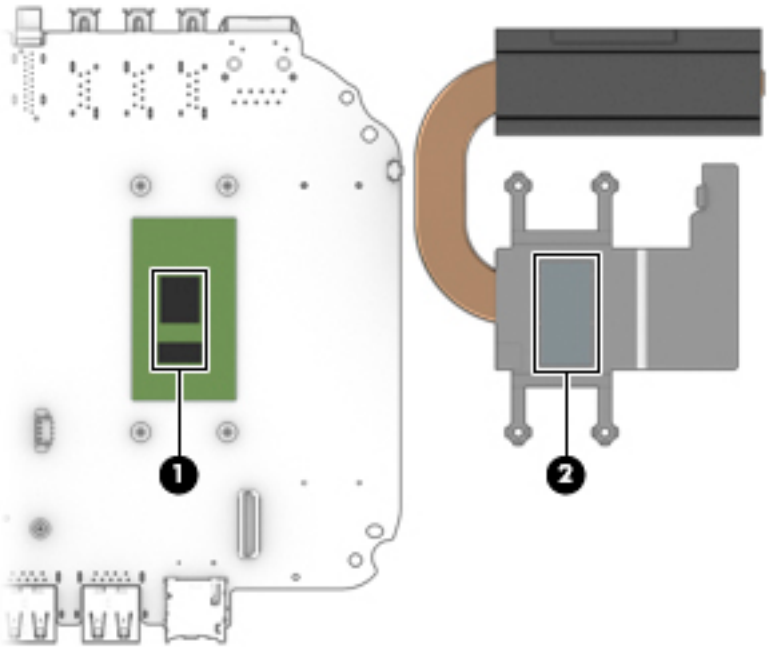
Remove the heat sink:

1. Position the system board upside-down.
2. In the order shown, remove the four Phillips M2.0×3.0 screws **(1)-(4)** that secure the heat sink to the system board.
3. Remove the heat sink from the system board **(5)**.



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



Reverse this procedure to install the heat sink.

Top cover (plastic) and metal top shield

Description	Spare part number
Top cover (plastic)	L17257-001
Metal top shield (includes antenna)	L17268-001

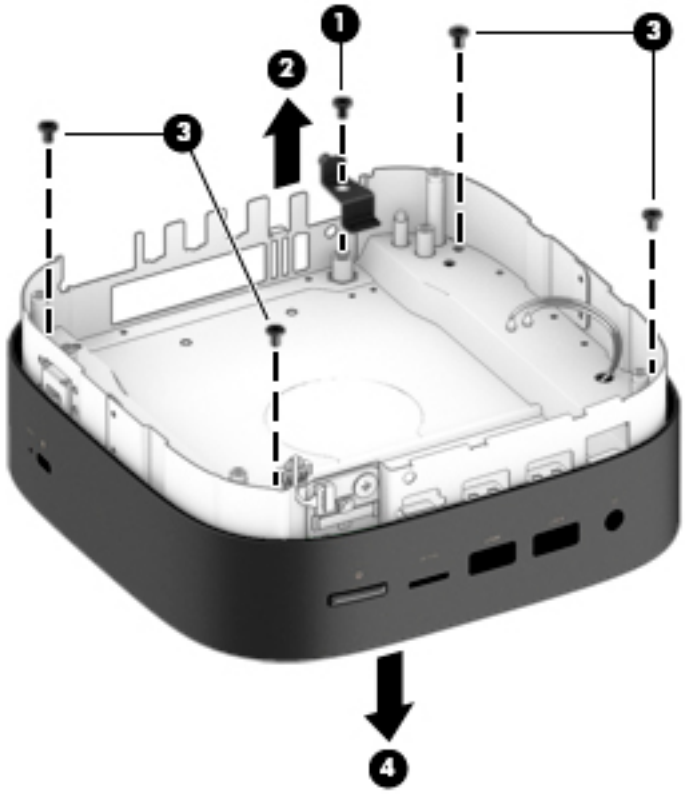
Before removing the top cover, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).
7. Remove the system board (see System board on page 31).

Remove the top cover:

1. Remove the Phillips M2.5×4.0 screw **(1)** from the small metal bracket, and the remove the bracket from the metal top shield **(2)**.
2. Remove the four Phillips M2.5×4.0 screws **(3)** that secure the plastic top cover to the metal top shield.

3. Separate the metal top shield from the plastic top cover **(4)**.



Reverse this procedure to reassembly the top cover and top shield.

Power button board

The power button board is installed onto the metal top shield.

Description	Spare part number
Power button board (does not include cable)	L17270-001
Power button board cable	L17260-001

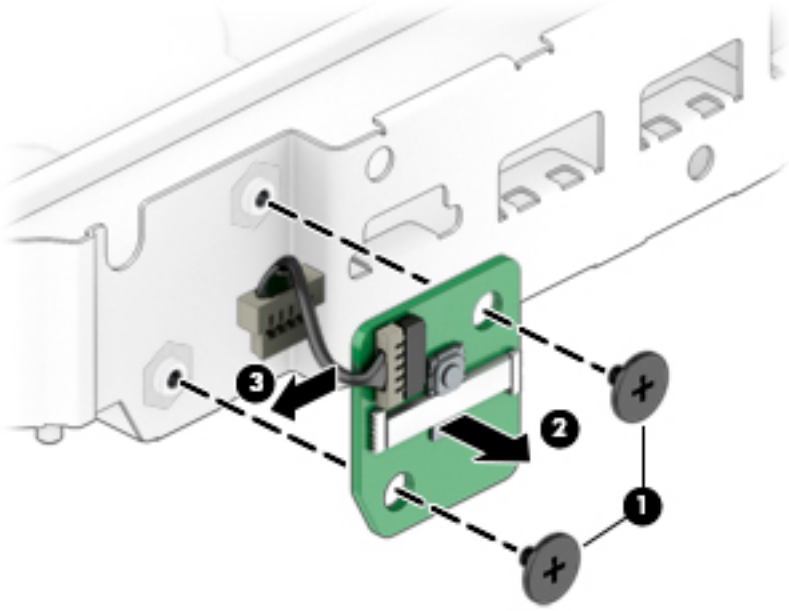
Before removing the power button board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Remove the bottom cover (see Bottom cover on page 17).
5. Remove the rear I/O bracket (see Rear I/O bracket on page 20).
6. Remove the bottom shield (see Bottom shield on page 21).
7. Remove the system board (see System board on page 31).
8. Separate the plastic top cover from the metal top shield (see Top cover (plastic) and metal top shield on page 36).

Remove the power button board:

1. Position the metal top shield with the power button board facing you.
2. Remove the two Phillips M2.0×3.0 screws **(1)** that secure the board to the metal top shield.

3. Lift the board from the metal top shield **(2)**, and then disconnect the cable from the power button board **(3)**.



Reverse this procedure to install the power button board.

6 Specifications

	Metric	U.S.
Computer dimensions		
Width	**149.3 mm**	5.87 in
Depth	**149.3 mm**	5.87 in
Height	**40 mm**	1.57 in
Weight	**0.57 kg**	1.26 lbs
Temperature		
Operating	**5°C to 35°C**	41°F to 95°F
Nonoperating	**-20°C to 60°C**	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	**-15 m to 3,048 m**	-50 ft to 10,000 ft
Nonoperating	**-15 m to 12,192 m**	-50 ft to 40,000 ft

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.

7 Power cord set requirements

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

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

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

Requirements for all countries

The following requirements are applicable to all countries and regions:

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

Requirements for specific countries and regions

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

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

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

8 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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