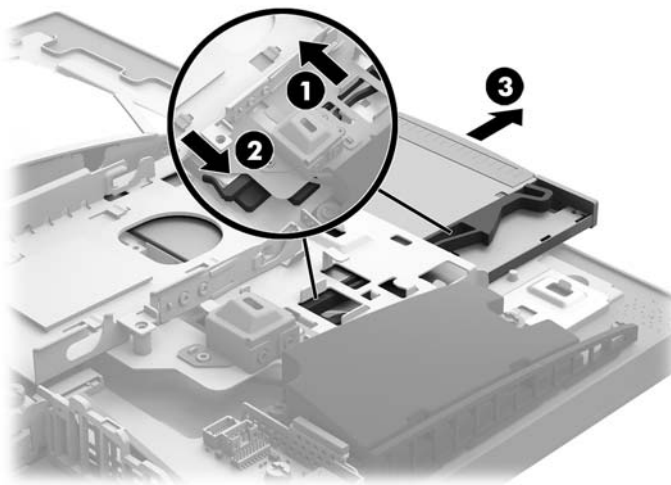


Optical drive

The optical drive is located beneath the lower hard drive on the left side of the computer. The green latch comes with the drive.

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the hard drive (see [Hard drive on page 23](#)).
6. Push and hold the green tab **(1)** while pushing in the green latch **(2)** at the back of the optical disc drive enclosure and slide the drive **(3)** out of the chassis.



7. Pull the green latch off the optical drive.
Keep this latch to install on the new optical drive.

8. Align the three pins on the latch with the holes in the new optical disc drive and press the latch firmly onto the new drive.

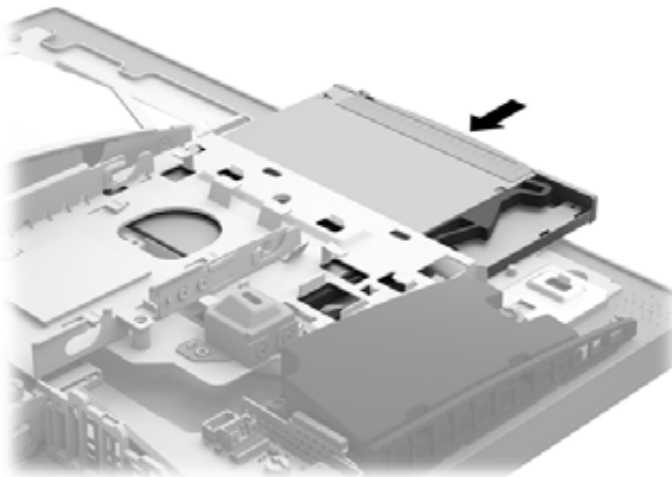


NOTE: You must reuse the latch removed from the old optical disc drive.

9. Align the new optical drive with the opening in the side of the computer. Push the drive in firmly until it snaps into place.



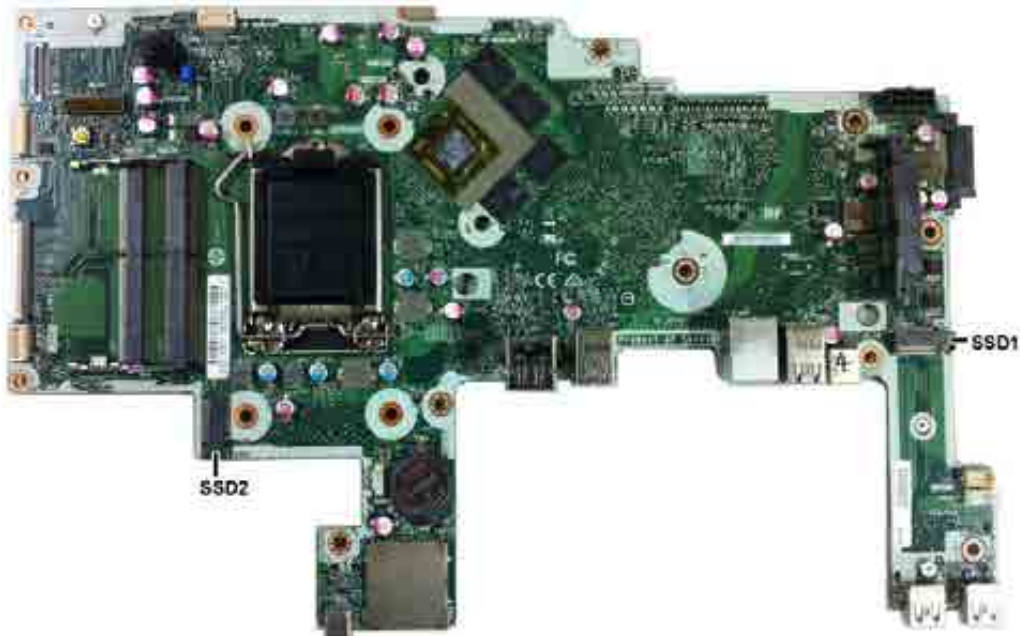
NOTE: The optical drive can be installed in only one way.



M.2 solid-state drive

Description
256-GB solid-state drive, 2280SS, NVMe
128-GB solid-state drive, 2280SS, NVMe

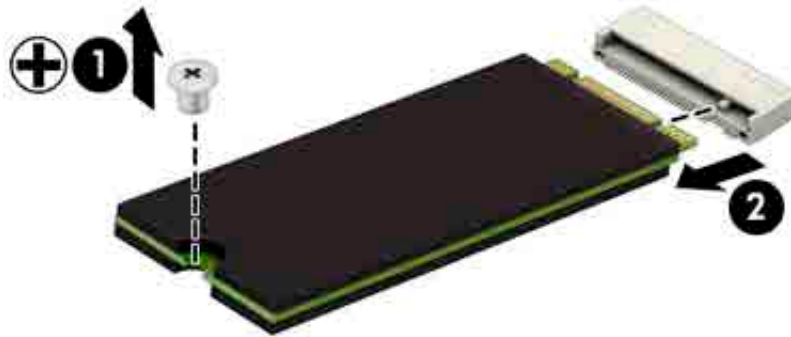
Two M.2 solid-state drive connectors are available on the system board. The connector labeled SSD2 (near the processor) fits only 22mm x 80mm M.2 solid-state drives. The connector labeled SSD1 (on the right side of the board) fits both 22mm x 80mm and 22mm x 30mm M.2 solid-state drives.



To remove the M.2 solid-state drive:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the Phillips screw **(1)** that secures the drive to the computer.

6. Pull the drive away to remove it from the socket **(2)**.



To install the solid-state drive, reverse the removal procedures.

Memory

Description
16-GB
8-GB
4-GB

For proper system operation, the memory modules must meet the following qualifications:

Component	Specification
Memory modules	1.2 volt DDR4-SDRAM memory modules
Compliance	Unbuffered non-ECC DDR4-2400 MHZ-compliant
Pins	Industry-standard 260 pins containing the mandatory Joint Electronic Device Engineering Council (JEDEC) specification
Support	Support CAS latency DDR4 2400 MHz (15-15-15 timing)
Slots	2
Maximum Memory	16 GB per memory slot, 32 GB total
Supported	4 Gbit and 8 Gbit non-ECC memory technologies single-sided and double-sided SODIMMs
Note	The system will not operate properly if you install unsupported SODIMM memory. SODIMMs constructed with x8 and x16 DDR devices are supported; memory modules constructed with x4 SDRAM are not supported.

HP offers upgrade memory for this computer and advises that the consumer purchase it to avoid compatibility issues with unsupported third-party memory.

The system will automatically operate in single channel mode, dual channel mode, or flex mode, depending on how the memory modules are installed. Refer to the following table to identify the memory module channel locations.

Location	System board label	Channel
Lower Socket	SODIMM1	Channel B
Upper Socket	SODIMM3	Channel A

The system will automatically operate in single channel mode, dual channel mode, or flex mode, depending on how the memory modules are installed.

- The system will operate in single channel mode if the memory module slots are populated in one channel only.
- The system will operate in a higher-performing dual channel mode if the memory capacity of the memory module in Channel A is equal to the memory capacity of the memory module in Channel B.
- The system will operate in flex mode if the memory capacity of the memory module in Channel A is not equal to the memory capacity of the memory module in Channel B. In flex mode, the channel populated

with the least amount of memory describes the total amount of memory assigned to dual channel and the remainder is assigned to single channel. If one channel will have more memory than the other, the larger amount should be assigned to channel A.

- In any mode, the maximum operational speed is determined by the slowest memory module in the system.

There are two memory slots on the system board. To remove or install memory modules:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. To remove a memory module, press outward on the two latches on each side of the memory module (1), then pull the memory module out of the slot (2).



6. Slide the new memory module into the slot at approximately a 30° angle (1), then press the memory module down (2) so that the latches lock it in place.



NOTE: A memory module can be installed in only one way. Match the notch on the module with the tab on the memory slot.

7. Reassemble the computer.

The computer automatically recognizes the additional memory when you turn on the computer.

Battery

The battery is located below the processor. The battery that comes with the computer provides power to the real-time clock. When replacing the battery, use a battery equivalent to the battery originally installed in the computer. The computer comes with a 3-volt lithium coin cell battery.

⚠ WARNING! The computer contains an internal lithium manganese dioxide battery. There is a risk of fire and burns if the battery is not handled properly. To reduce the risk of personal injury:

Do not attempt to recharge the battery.

Do not expose to temperatures higher than 60° C (140° F).

Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

Replace the battery only with the HP spare designated for this product.

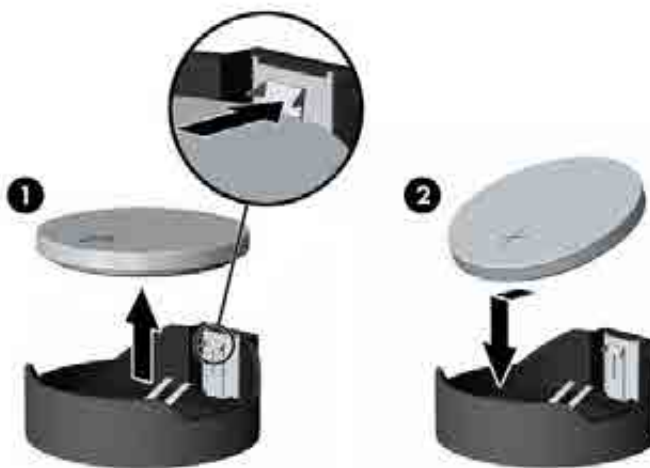
⚠ CAUTION: Before replacing the battery, it is important to back up the computer CMOS settings. When the battery is removed or replaced, the CMOS settings will be cleared.

Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object.

📝 NOTE: The lifetime of the lithium battery can be extended by plugging the computer into a live AC wall socket. The lithium battery is only used when the computer is NOT connected to AC power.

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

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. To insert the new battery, slide one edge of the replacement battery under the holder's lip with the positive side up **(1)**. Push the other edge down until the clamp snaps over the other edge of the battery **(2)**.



6. Reassemble the computer.

WLAN module

Description
Intel Dual Band Wireless-AC 7265 NV
Intel 3168 ac 1x1 +Bluetooth 4.2LE M.2 non-vPro PCI-e+USB WW with 2 antennas
Intel 8265 ac 2x2 +Bluetooth 4.2 M.2 non-vPro PCI-e+USB WW with 2 antennas
Intel 8265 ac 2x2 +Bluetooth 4.2 M.2 vPro PCI-e+USB WW with 2 antennas
Realtek RTL8723BE bgn 1x1 + Bluetooth 4 LE PCIe+USB NGFF 2230 M.2 WW

The WLAN module is located on the system board above the memory modules. The WLAN module is secured with one Phillips screw and has two connected antennas.



NOTE: The procedure to replace the WLAN module must be performed by an HP technician.

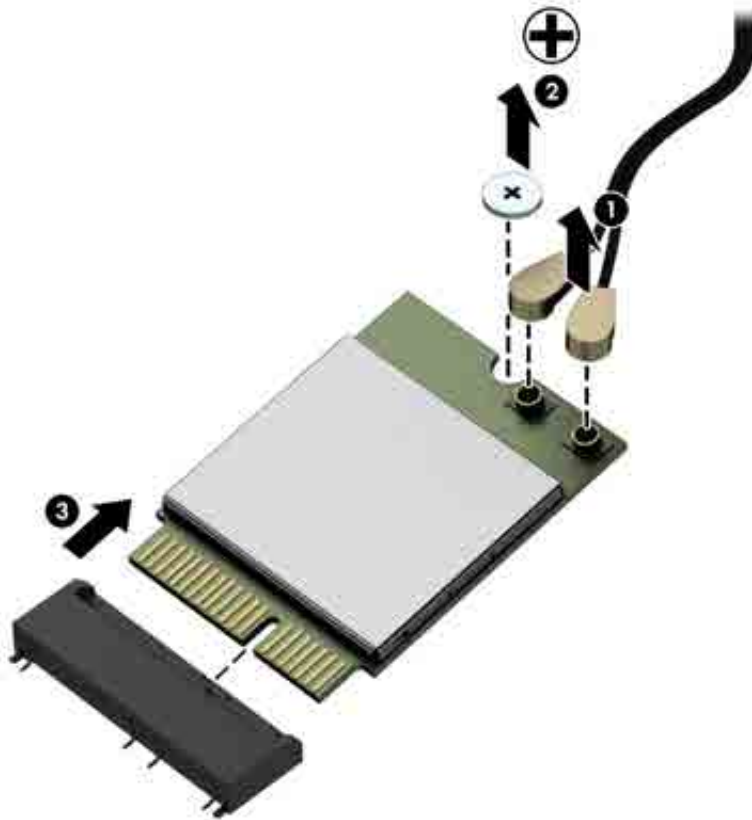


NOTE: WLAN module appearance may vary.

To remove the WLAN module:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Disconnect the antenna cables from the module **(1)**.
6. Remove the Phillips screw **(2)** that secures the module to the computer.

7. Lift the module to a 45-degree angle, and then pull it away to remove it from the socket **(3)**.



To install the WLAN module, reverse the removal procedures.

When connecting the antennas cables, connect the cable labeled “1” (black sticker) to the AUX “1” connector on the module and the cable labeled “2” (white sticker) to the MAIN “2” connector on the module.

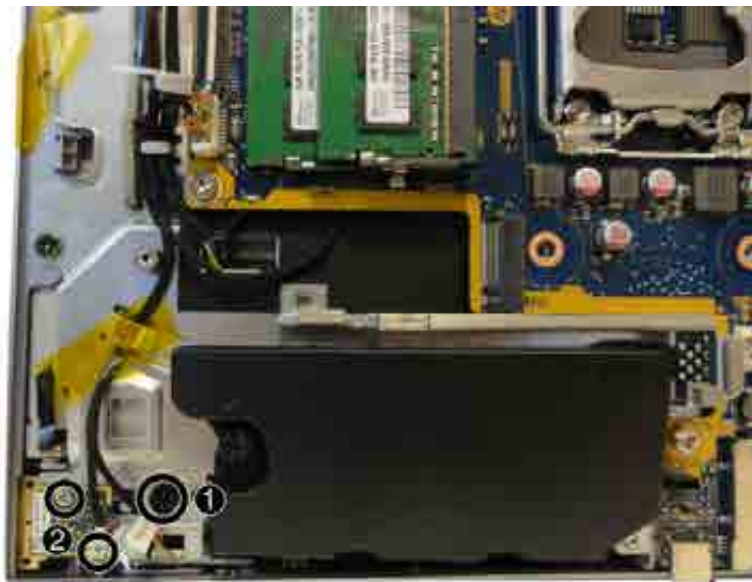
 **NOTE:** WLAN modules are designed with a notch to prevent incorrect insertion.

Power button and fingerprint reader boards

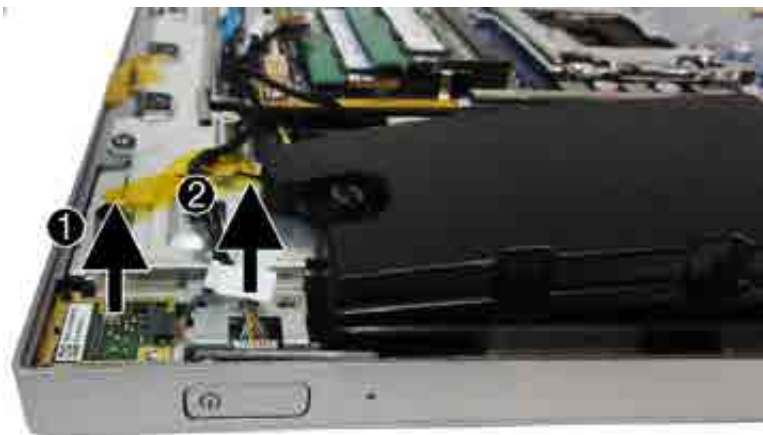
If a fingerprint reader is installed, the power button board and fingerprint reader board are wired together into one assembly, located at the bottom right of the computer. If the fingerprint reader is not installed, the power button board can be removed using the steps below.

To remove the power button and fingerprint reader boards:

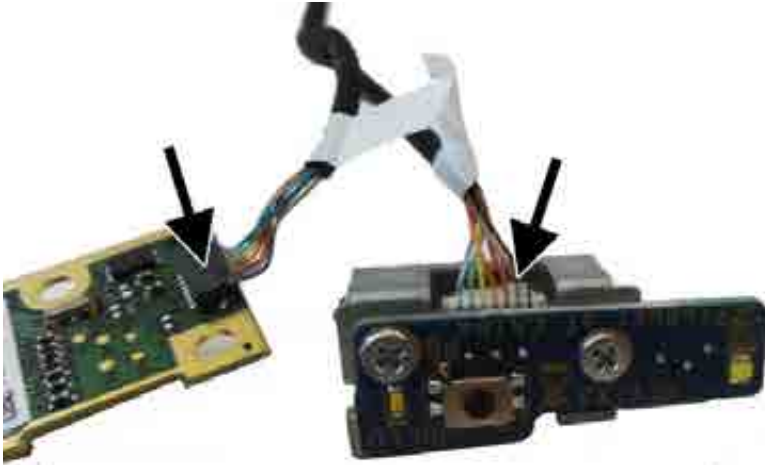
1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the Torx screw from the power button board bracket **(1)**, and two Phillips screws from the fingerprint reader board **(2)**.



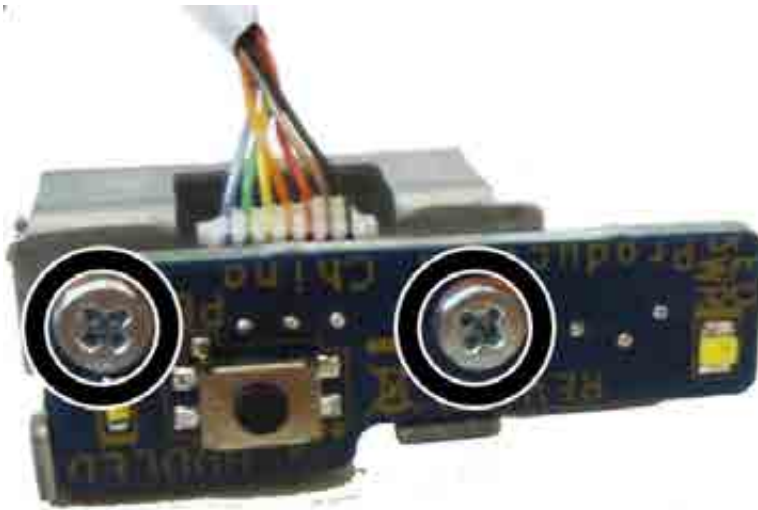
6. Lift the boards from the computer.



7. If necessary, disconnect the cables from each board.



8. If necessary, remove the two Phillips screws that secure the power button board to the bracket.



To install the right trim, reverse the removal procedures.

Heat sink

Heat sinks are available for models with integrated UMA graphics and with discrete graphics.

To remove the heat sink:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. **UMA models:**

In the order indicated on the heat sink, loosen the captive Torx screws **(1)** from the heat sink component that services the processor.

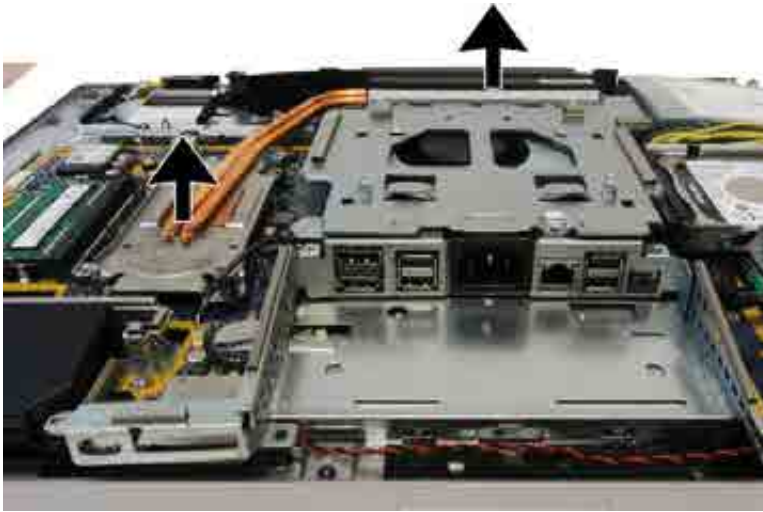
CAUTION: Remove heat sink retaining screws in diagonally opposite pairs (as in an X) to even the downward forces on the processor. This is especially important as the pins on the socket are very fragile and any damage to them may require replacing the system board.

6. Remove the non-captive Torx screws from the brackets at the top of the heat sink **(2)**.



7. Lift the heat sink out of the computer.

CAUTION: To reduce a degradation in thermal performance, be sure not to touch the thermal grease on the surface of the processor or the heat sink.



8. Discrete models:

Remove the VESA cover/fan assembly ([VESA mounting bracket/fan assembly on page 43](#)).

9. In the order indicated on the heat sink, loosen the captive Torx screws **(1)** from the heat sink component that services the main processor.

CAUTION: Remove heat sink retaining screws in diagonally opposite pairs (as in an X) to even the downward forces on the processor. This is especially important as the pins on the socket are very fragile and any damage to them may require replacing the system board.

10. Remove the non-captive Torx screws **(2)** from the heat sink component that services the graphics processor.
11. Remove the non-captive Torx screws from the brackets at the top of the heat sink **(3)**.



12. Lift the heat sink out of the computer.

 **CAUTION:** To reduce a degradation in thermal performance, be sure not to touch the thermal grease on the surface of the processor or the heat sink.



To replace the heat sink, reverse the removal procedures.

Processor

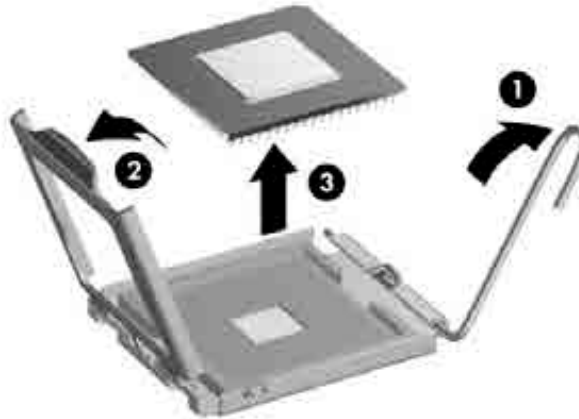
Description
Intel Core i7-7700 (3.6-GHz)
Intel Core i5-7600 (3.5-GHz)
Intel Core i5-7500 (3.4-GHz)
Intel Core i3-7320 (4.1-GHz)
Intel Core i3-7300 (4.0-GHz)
Intel Core i3-7100 (3.9-GHz)
Intel Core i7-6700 (3.4-GHz)
Intel Core i5-6600 (3.3-GHz)
Intel Core i5-6500 (3.2-GHz)
Intel Core i3-6100 (3.7-GHz)
Intel Pentium G4620 (3.7-GHz)
Intel Pentium G4600 (3.6-GHz)
Intel Pentium G4560 (3.5-GHz)
Intel Celeron G3950 (3.0-GHz)
Intel Celeron G3930 (2.9-GHz)

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the heat sink (see [Heat sink on page 35](#)).
6. Rotate the locking lever to its full open position **(1)**.

7. Raise and rotate the microprocessor retainer to its fully open position **(2)**, and then carefully lift the processor from the socket **(3)**.

⚠ CAUTION: Do NOT handle the pins in the processor socket. These pins are very fragile and handling them could cause irreparable damage. Once pins are damaged it may be necessary to replace the system board.

The heat sink must be installed within 24 hours of installing the processor to prevent damage to the processor's solder connections.



📝 NOTE: After installing a new processor onto the system board, always update the system ROM to ensure that the latest version of the BIOS is being used on the computer. The latest system BIOS can be found on the Web at: <http://www.hp.com>.

Webcam module

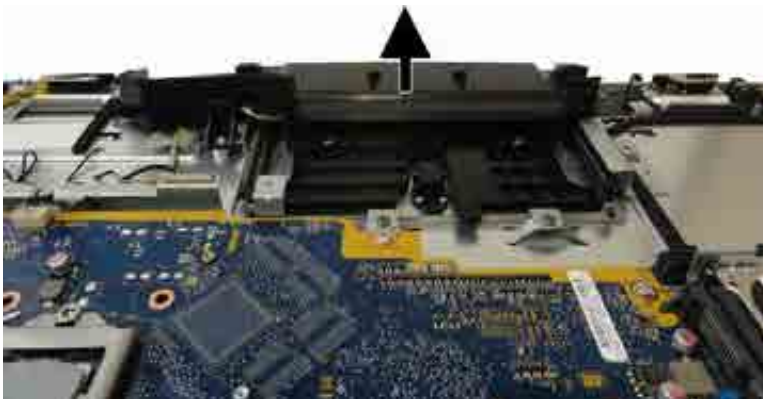
The webcam is located at the top of the computer, under a plastic shield. The top heat sink screws also secure the webcam plastic shield.

To remove the webcam module:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the heat sink (see [Heat sink on page 35](#)).
6. To remove the webcam plastic shield, remove the three Torx screws **(1)** that secure the shield to the computer, and then pry upward at the left screw boss to disengage the shield **(2)**.



7. Remove the webcam shield from the computer.



8. Remove the four Phillips screws **(1)** that secure the webcam assembly to the computer.
9. Disconnect the webcam cable from the system board **(2)**.

10. Remove the webcam cable from the clips built into the computer (3).



11. Remove the webcam assembly from the computer.



12. If you need to remove the webcam bracket, remove the VESA bracket/fan assembly ([VESA mounting bracket/fan assembly on page 43](#)), and then remove the four Torx screws that secure the webcam bracket to the computer.



13. Remove the webcam bracket from the computer.



To install the webcam assembly and associated parts, reverse the removal procedures.

VESA mounting bracket/fan assembly

The VESA mounting bracket/fan assembly is located under the stand.

To remove the VESA mounting bracket/fan assembly:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the five Torx screws that secure the assembly to the computer.
6. Disconnect the fan cable from the system board (2).



7. Lift the assembly off the computer.



8. If it is necessary to remove the fan from the bracket, remove the four Torx screws that secure the fan to the bracket.



9. Separate the fan from the bracket.



To replace the VESA mounting bracket/fan assembly, reverse the removal procedures.

Power supply

Description
Power supply, 180 W, for use in Intel models with UMA graphics
Power supply, 210 W, for use in AMD models with discrete AMD graphics

The power supply is located in the upper left side of the computer.

To remove the power supply:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the VESA mounting bracket/fan assembly (see [VESA mounting bracket/fan assembly on page 43](#)).
6. Remove the three Torx screws **(1)** that secure the power supply to the computer.
7. Disconnect the power supply cable from the system board connector **(2)**.
8. Lift the power connector from its housing in the I/O bracket **(3)**.
9. Remove the power cable from the clips built into the computer **(4)**.

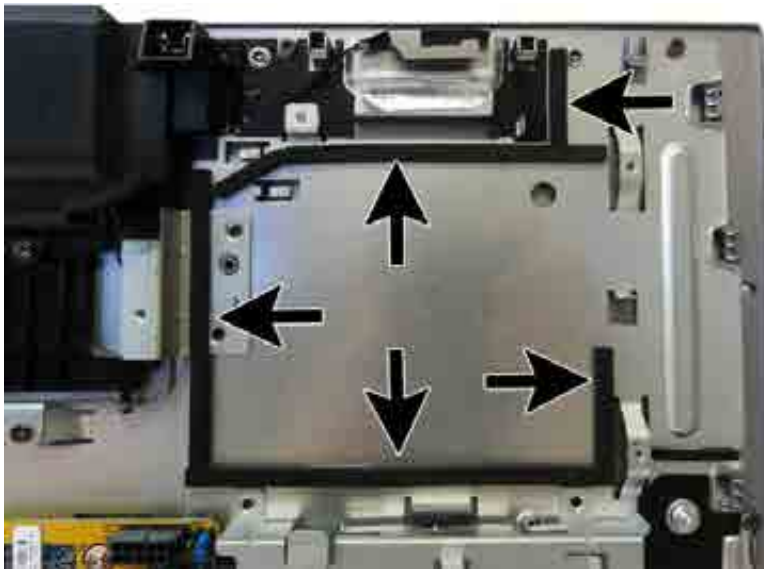


10. Remove the power supply from the computer.



To install the power supply, reverse the removal procedures.

Make note of the foam strips that must be installed under the power supply, as shown in the following image.

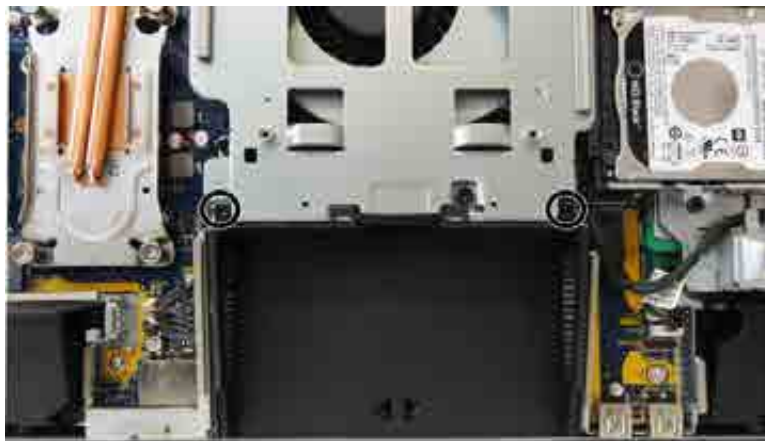


Rear I/O cover

The rear I/O cover is located at the bottom of the computer below the VESA bracket/fan assembly. It is secured with two screws.

To remove the rear I/O cover:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the I/O bracket secured to the system board (see callout 2 in [System board on page 50](#)).
6. Remove the two Torx screws that secure the cover to the computer.



7. Remove the rear I/O cover from the computer.



To install the bottom I/O cover, reverse the removal procedures.

I/O bracket

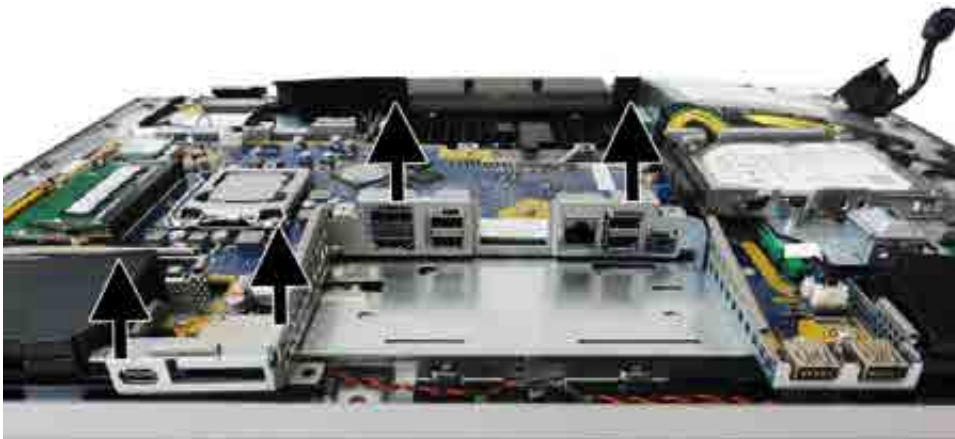
The I/O bracket is located under the plastic rear I/O cover. It is secured with five Torx screws, one of which is under the power connector.

To remove the I/O bracket:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the access panel (see [Access panel on page 21](#)).
3. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
4. Remove the stand (see [Stands on page 20](#)).
5. Remove the access panel (see [Access panel on page 21](#)).
6. Remove the rear I/O cover (see [Rear I/O cover on page 47](#)).
7. Remove the power connector from its mounting location on the I/O bracket (see step 3 in [Power supply on page 45](#)).
8. Remove the five Torx screws that secure the I/O bracket to the computer.



9. Lift the I/O bracket from the computer.



To replace the I/O bracket, reverse the removal procedures.

Hard drive cage

The hard drive cage is located under the hard drive. It is secured with one Torx screw.

To remove the hard drive cage:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the access panel (see [Access panel on page 21](#)).
3. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
4. Remove the stand (see [Stands on page 20](#)).
5. Remove the access panel (see [Access panel on page 21](#)).
6. Remove the Torx screw **(1)** that secures the hard drive cage to the computer.
7. Remove the power supply cable from the clips around the hard drive cage **(2)**.
8. Slide the hard drive cage away from the system board to disengage it from the clips, and then lift the hard drive cage from the chassis **(3)**.



To replace the hard drive cage, reverse the removal procedures.

System board

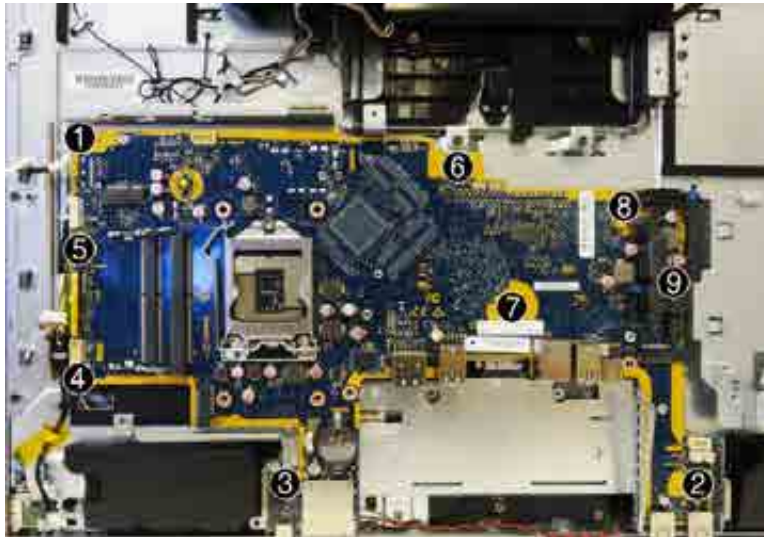
The system board is secured with nine Torx screws.

To remove the system board:

1. Prepare the computer for disassembly (see [Preparing to disassemble the computer on page 19](#)).
2. Remove the rear port cover (see [Removing the rear port cover on page 19](#)).
3. Remove the stand (see [Stands on page 20](#)).
4. Remove the access panel (see [Access panel on page 21](#)).
5. Remove the memory modules (see [Memory on page 28](#)).
6. Remove the M.2 solid-state drive (see [M.2 solid-state drive on page 26](#)).
7. Remove the WLAN module (see [WLAN module on page 31](#)).
8. Remove the VESA bracket/fan assembly (see [VESA mounting bracket/fan assembly on page 43](#)).
9. Remove the heat sink (see [Heat sink on page 35](#)).
10. Remove the processor (see [Processor on page 38](#)).
11. Remove the hard drive cage (see [Hard drive cage on page 49](#)).
12. Remove the I/O bracket (see [I/O bracket on page 48](#)).
13. Remove the rear I/O cover (see [Rear I/O cover on page 47](#)).
14. Disconnect all cables from the system board, noting their location for reinstallation:
 - (1): Camera cable
 - (2): Power supply cable
 - (3): Front audio cable
 - (4): Speaker cable
 - (5): Front panel cable
 - (6): Converter cable
 - (7): LVDS (display) cable



15. In the order printed on the system board, remove the nine Torx screws **(1)-(9)** that secure the system board to the computer.



 **NOTE:** System board appearance may vary.

16. Lift the system board up and out of the computer.

 **NOTE:** The thermal pad under the left side of the system board may stick.

To install the system board, reverse the removal procedures. Be sure to replace the screws in the order indicated on the system board.

Note the replacement locations of the thermal pads on the bottom of the system board..



Updating SMBIOS Information

When replacing the system board, you must reprogram the SMBIOS information on the affected computer. Failure to reprogram the board will result in eventual failure, such as an activation failure (need to reactivate the system) or a system recovery failure.