
Removal and replacement procedures

Preliminary replacement requirements

Tools required

You will need the following tools to complete the removal and replacement procedures:

- Flat-bladed screwdriver
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers

Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.



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

Plastic parts



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

Cables and connectors



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

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

Drive handling

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

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
- Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
- Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.
- Handle drives on surfaces covered with at least one inch of shock-proof foam.
- Avoid dropping drives from any height onto any surface.
- After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.
- Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.
- Avoid exposing a drive to temperature extremes or liquids.
- If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE."


Grounding guidelines

Electrostatic discharge damage

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

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

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

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

- Keep components in their electrostatic-safe containers until you are ready to install them.
- Use nonmagnetic tools.
- 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 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, screwdrivers, 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 strips 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 tabletop 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 plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

Unknown user password

If the computer you are servicing has an unknown user password, follow these steps to clear the password:



These steps also clear CMOS.

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 battery (see “Battery” on page 4-7).
5. Remove the real-time clock (RTC) battery (see “RTC battery” on page 4-12).
6. Wait approximately 5 minutes.

7. Replace the RTC battery and reassemble the computer.
 8. Connect AC power to the computer. Do not reinsert any batteries at this time.
 9. Turn on the computer.
- All passwords and all CMOS settings have been cleared.

Component replacement procedures

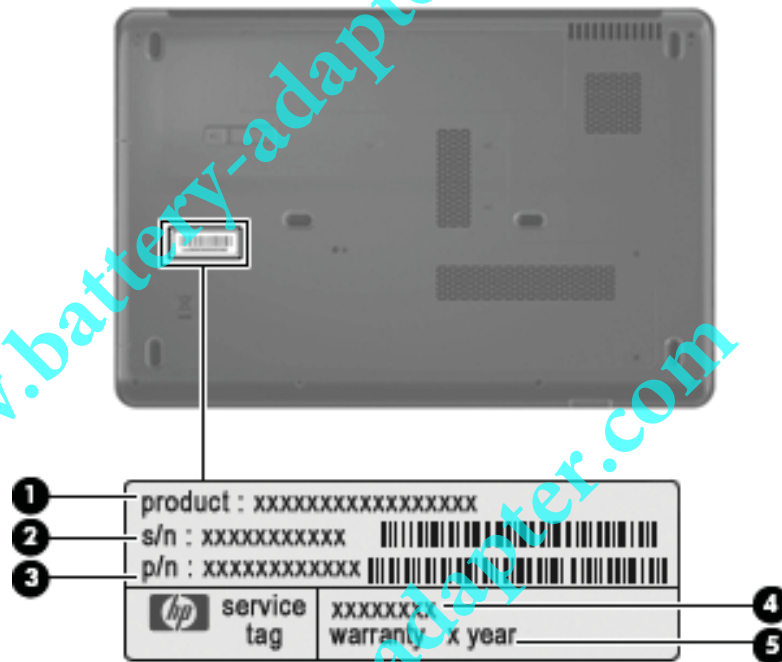
This chapter provides removal and replacement procedures.

There are as many as 72 screws, in 9 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw and standoff size and location during removal and replacement.

Serial number

The service tag, affixed to the bottom of the computer, provides information that may be needed when troubleshooting system problems. The service tag provides the following information:

When ordering parts or requesting information, provide the computer serial number and model number located on the bottom of the computer.

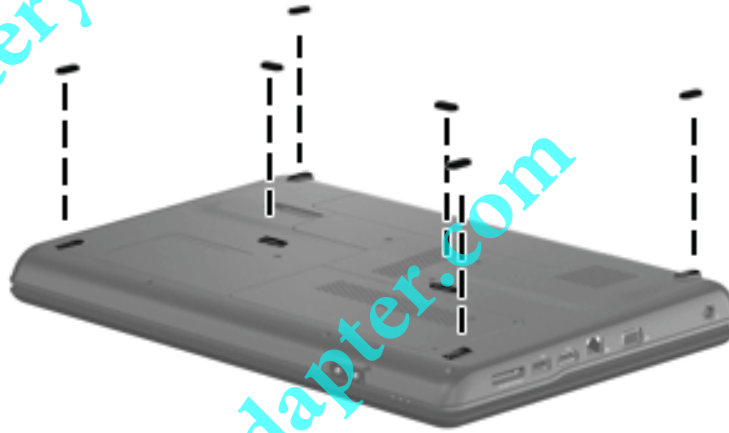


Item	Component	Description
①	Product name	This is the product name affixed to the front of the computer.
②	Serial number (s/n)	This is an alphanumeric identifier that is unique to each product.
③	Part number/Product number (p/n)	This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
④	Model description	This is the number used to locate documents, drivers, and support for the computer.
⑤	Warranty period	This number describes the duration of the warranty period for the computer.

Computer feet

Description	Serial Number
Rubber Feet Kit (includes 6 rubber feet)	486623-001

The computer feet are adhesive-backed rubber pads. The feet attach to the base enclosure in the locations illustrated below.



Battery

Description	Spare part number
6 cell, 2.20-Ah, 47-Wh	485041-001

Before disassembling the computer, 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 battery:

1. Turn the computer upside down on a flat surface, with the battery bay toward you.
2. Slide the battery release latch ❶ to release the battery.
3. Pivot the battery ❷ upward and remove it ❸ from the computer.



Install the battery by inserting it into the battery bay until you hear a click.

Optical drive



The optical drive spare part kit includes an optical drive bezel and optical drive bracket.

Description	Spare part number
DVD±RW and CD-RW SuperMulti Double Layer Combo Drive	498479-001
DVD±RW and CD-RW SuperMulti Double Layer Combo Drive with LightScribe	498480-001
Blu-ray ROM DVD±RW SuperMulti DL Drive	498481-001

Before removing the optical drive, follow these steps:

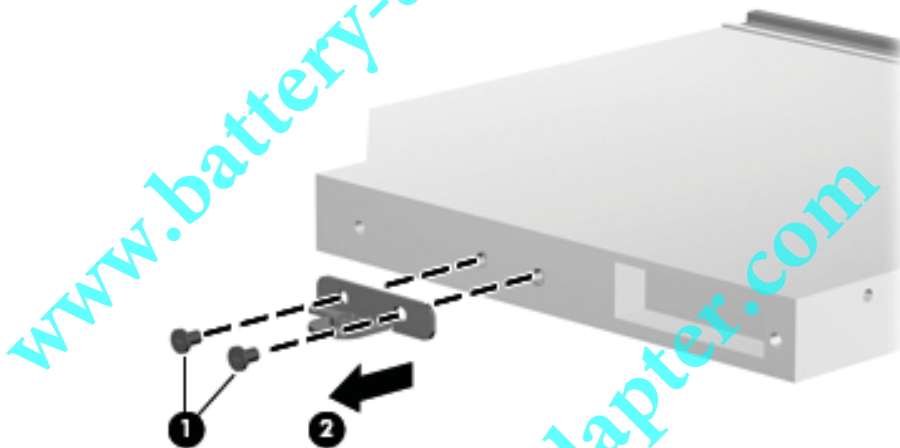
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see “Battery” on page 4-7).

Remove the optical drive:

1. Position the computer with the left side toward you.
2. Remove the Phillips PM2.5×9.0 screw ❶ that secures the optical drive to the computer.
3. Insert a thin tool, such as a paper clip ❷, into the release access. (The disc tray is partially ejected from the optical drive.)
4. Grasp the bezel and slide the optical drive ❸ out of the computer.



5. If it is necessary to replace the optical drive bracket, position the optical drive with the rear toward you.
6. Remove the 2 Phillips PM2.0×4.0 screws ❶ that secure the optical drive bracket to the optical drive.
7. Remove the optical drive bracket ❷.



Reverse this procedure to reassemble and install an optical drive.

Hard drive



The hard drive spare part kit includes a hard drive bracket and hard drive connector. The hard drive bracket and hard drive connector, as well as the hard drive bracket screws, are also available in the Hard Drive Hardware Kit.

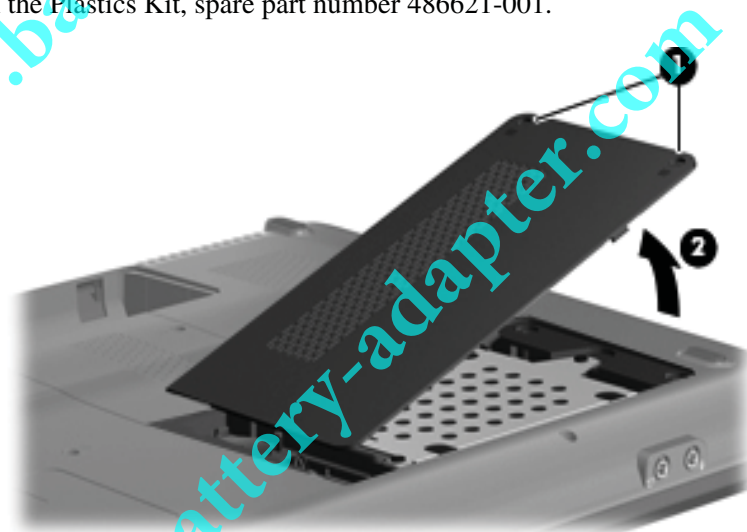
Description	Spare part number
120-GB, 5400-rpm	504072-001
160-GB, 5400-rpm	498478-001
200-GB, 5400-rpm	505971-001
250-GB, 5400-rpm	498477-001
320-GB, 5400-rpm	498476-001
Hard Drive Hardware Kit	504059-001

Before removing the hard drive, follow these steps:

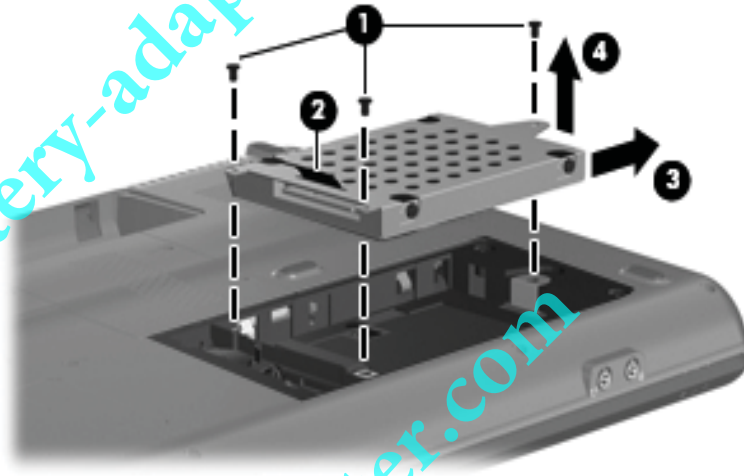
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see “Battery” on page 4-7).

Remove the hard drive:

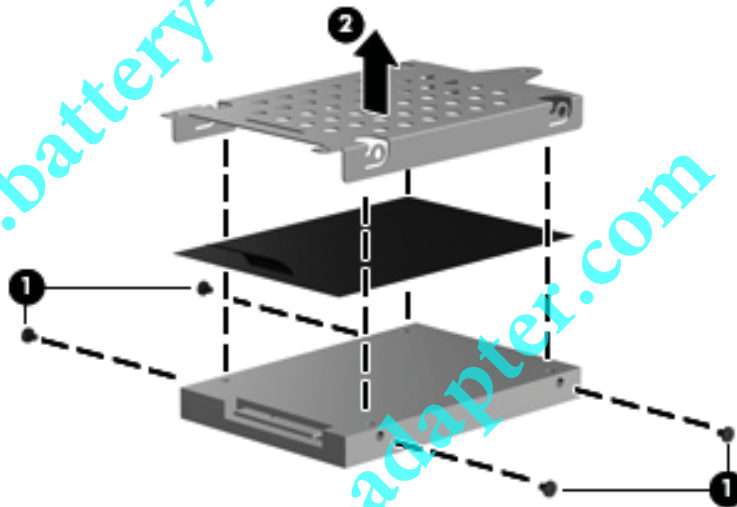
1. Loosen the two Phillips PM2.5×6.0 captive screws ❶ that secure the hard drive cover to the computer.
2. Lift the right side of the hard drive cover ❷, swing it up and to the left, and remove the cover. The hard drive cover is included in the Plastics Kit, spare part number 486621-001.



3. Remove the three Phillips PM2.5×5.0 screws ❶ that secure the hard drive to the computer.
4. Grasp the Mylar tab ❷ on the hard drive, and then slide the hard drive ❸ to the right to disconnect it from the system board.
5. Remove the hard drive ❹ from the hard drive bay.



6. If it is necessary to replace the hard drive bracket, remove the two Phillips PM3.0×4.0 hard drive bracket screws ❶ from each side of the hard drive.
7. Lift the bracket ❷ straight up to remove it from the hard drive.



Reverse this procedure to reassemble and install the hard drive.

RTC battery



Removing the RTC battery and leaving it uninstalled for 5 or more minutes causes all passwords and CMOS settings to be cleared.

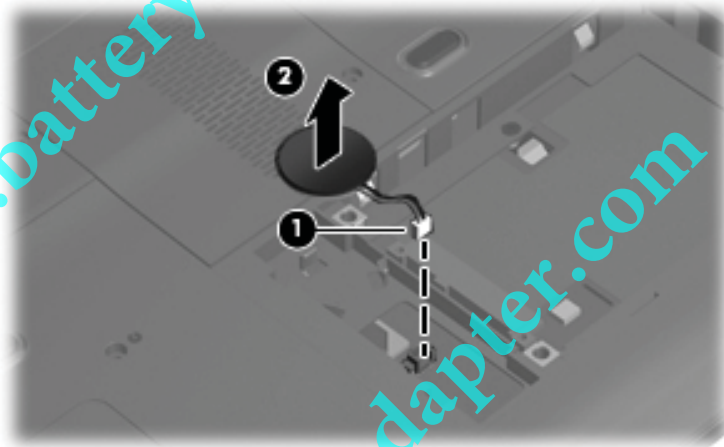
Description	Spare part number
RTC battery	501587-001

Before removing the RTC battery, 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 battery (see “Battery” on page 4-7).
5. Remove the hard drive cover (see “Hard drive” on page 4-10).

Remove the RTC battery:

1. Disconnect the RTC battery cable ❶ from the system board.
2. Remove the RTC battery ❷ from the clip built into the base enclosure. The RTC battery is attached to the system board with double-sided tape.



Reverse this procedure to install the RTC battery.

Memory module

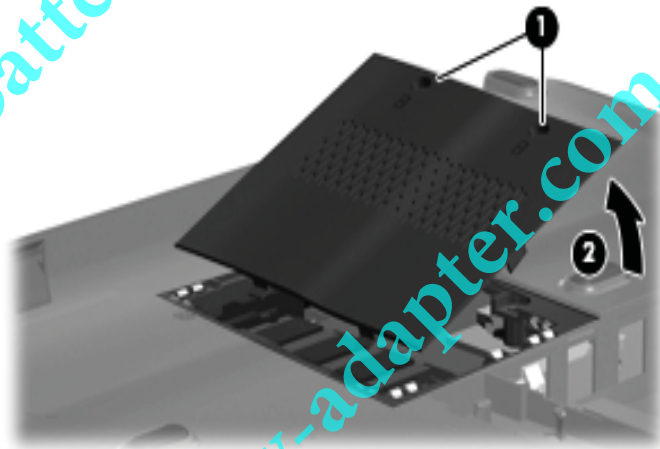
Description	Spare part number
512-MB, PC2-5300	498473-004
1-GB, PC2-5300	498474-004
2-GB, PC2-5300	498475-004
512-MB, PC2-6400	485031-005
1-GB, PC2-6400	485032-005
2-GB, PC2-6400	485033-005

Before removing the memory module, 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 battery (see “Battery” on page 4-7).

Remove the memory module:

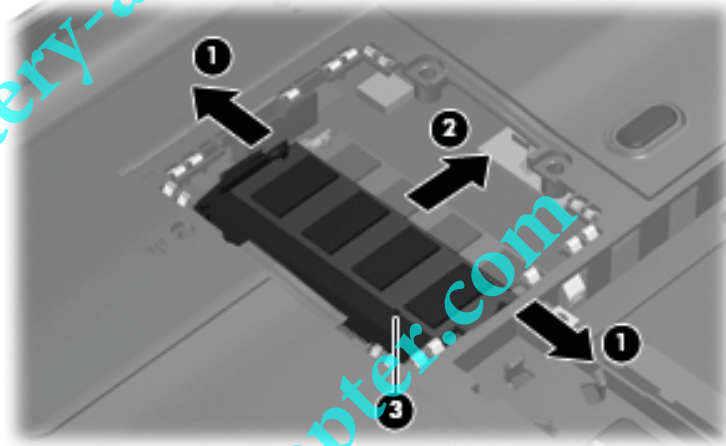
1. Loosen the two Phillips PM2.5×6.0 captive screws ❶ that secure the memory module compartment cover to the computer.
2. Lift the right side of the cover ❷, swing it up and to the left, and remove the cover. The memory module compartment cover is included in the Plastics Kit, spare part number 486621-001.



3. Spread the retaining tabs ❶ on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)
4. Remove the memory module ❷ by pulling the module away from the slot at an angle.



Memory modules are designed with a notch ❸ to prevent incorrect insertion into the memory module slot.



Reverse this procedure to install a memory module.

WLAN module

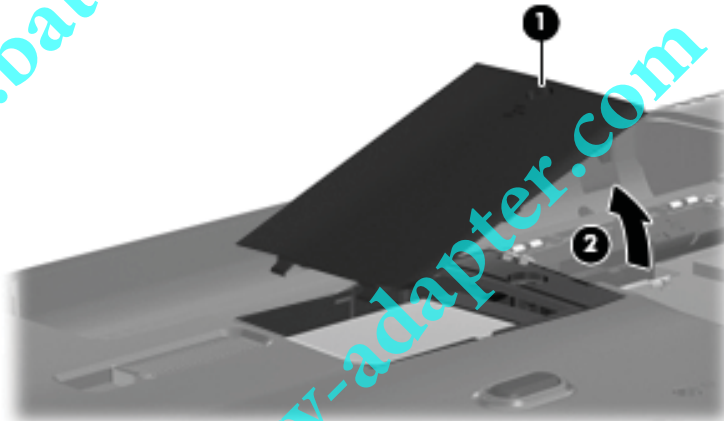
Description	Spare part number
Atheros AR2425 802.11b/g	459339-001
Atheros AR2425 802.11b/g	459339-002
Broadcom BCM4312 802.11b/g	459263-001
Broadcom BCM4312 802.11b/g	459263-002
Atheros AR9280 802.11a/b/g/n	482260-001
Atheros AR9280 802.11a/b/g/n	482260-002

Before removing the WLAN module, 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 battery (see “Battery” on page 4-7).

Remove the WLAN module:

1. Remove the WLAN module cover:
 - a. Loosen the Phillips PM2.5X6.0 captive screw ❶ that secures the WLAN module component cover to the computer.
 - b. Lift the right side of the WLAN module cover ❷, swing it to the left, and remove it. The WLAN module cover is included in the Plastics Kit, spare part number 486621-001.



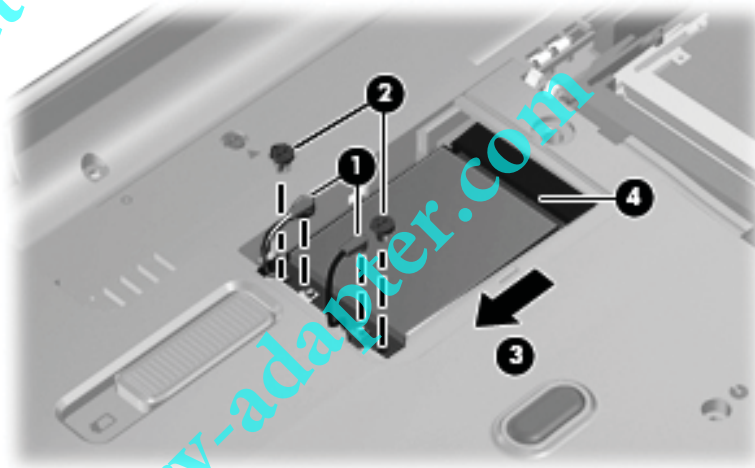
2. Disconnect the two antenna cables ❶ from the wireless module.

✎ The black WLAN antenna cable is connected to the WLAN module “Main” terminal. The white WLAN antenna cable is connected to the WLAN module “Aux” terminal.

3. Remove the two Phillips PM2.0×4.0 screws ❷ that secure the WLAN module to the computer. (The edge of the module opposite the slot rises away from the computer.)

4. Remove the WLAN module ❸ by pulling the module away from the slot at an angle.

✎ WLAN modules are designed with a notch ❹ to prevent incorrect insertion.



Reverse this procedure to install the WLAN module.

Keyboard

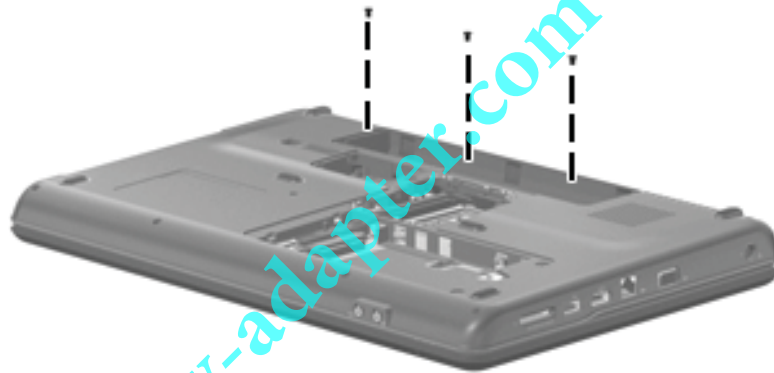
Description	Spare part number
For use in the Czech Republic	496771-221
For use in Canada	496771-121
(Silver) For use in Canada	502958-121
For use in France	496771-051
For use in Germany	496771-041
For use in Greece	496771-151
For international use	496771-B31
For use in Israel	496771-BB1
For use in Italy	496771-061
For use in Japan	496771-291
For use in Norway	496771-091
For use in South Korea	496771-AD1
For use in Latin America	496771-161
For use in Portugal	496771-131
For use in Russia	496771-251
For use in Saudi Arabia	496771-171
For use in Spain	496771-071
For use in Switzerland	496771-111
For use in Thailand	496771-281
For use in Taiwan	496771-AB1
For use in Turkey	496771-141
For use in the United Kingdom	496771-031
For use in the United States	496771-001
(Silver) For use in the United States	502958-001

Before removing the keyboard, 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 battery (see “Battery” on page 4-7).

Remove the keyboard:

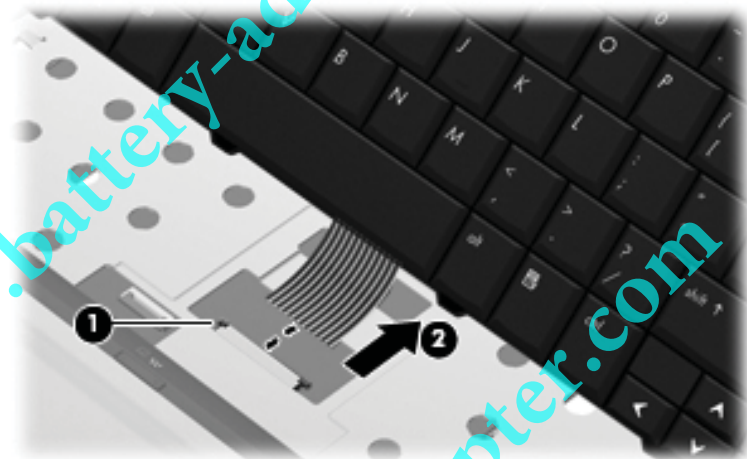
1. Turn the computer upside down, with the front toward you.
2. Remove the three Phillips PM2.5x5.0 screws that secure the keyboard to the computer.



3. Turn the computer display-side up, with the front toward you.
4. Open the computer as far as possible.
5. Release the tabs ❶ along the right and left edges of the keyboard.
6. Lift the rear edge of the keyboard ❷, and then slide it back until it rests on the display.



7. Release the zero insertion force (ZIF) connector ❶ to which the keyboard cable is attached, and then disconnect the keyboard cable ❷ from the system board.



8. Remove the keyboard.
- Reverse this procedure to install the keyboard.

Keyboard cover

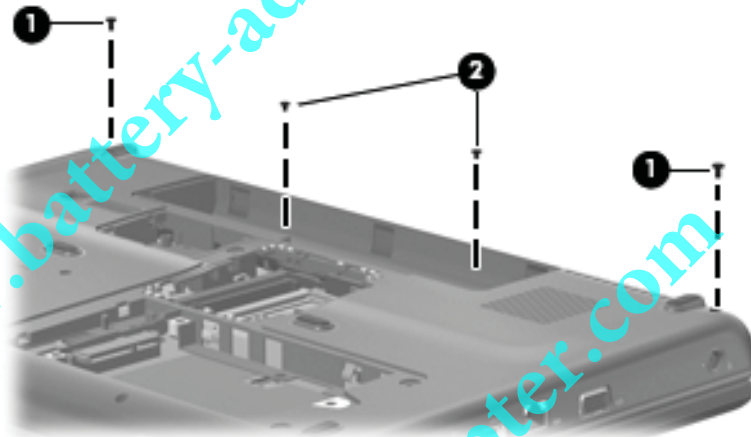
Description	Spare part number
Keyboard cover	496828-001
Silver keyboard cover	506848-001

Before removing the keyboard cover, follow these steps:

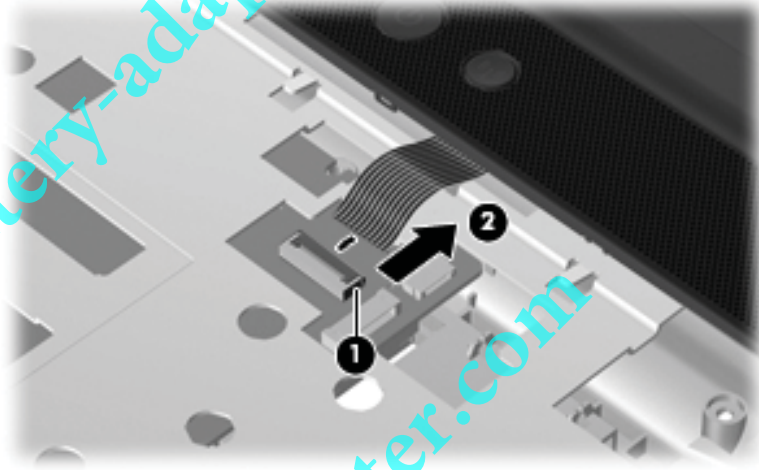
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see “Battery” on page 4-7).
5. Remove the keyboard (see “Keyboard” on page 4-17).

Remove the keyboard cover:

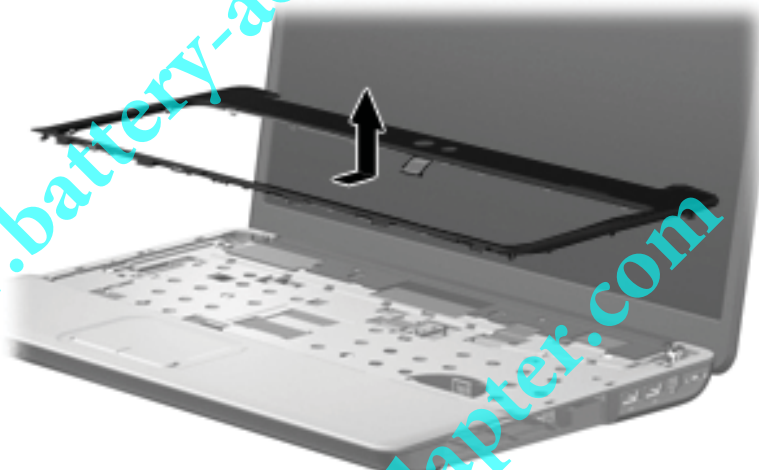
1. Remove the 2 Phillips PM2.5x9.0 screws ❶ at the corners and the 2 Phillips PM2.0x4.0 screws ❷ in the battery bay that secure the keyboard cover to the computer. The keyboard cover screws are identified by a triangle icon.



2. Turn the computer display-side up, with the front toward you.
3. Open the computer as far as possible.
4. Release the ZIF connector ❶ to which the power button board cable is attached, and disconnect the power button board cable ❷ from the system board.



5. Slide the keyboard cover toward the display panel until it disengages from the top cover, and then lift up to remove the keyboard cover.



Reverse this procedure to install the keyboard cover.

Power button board

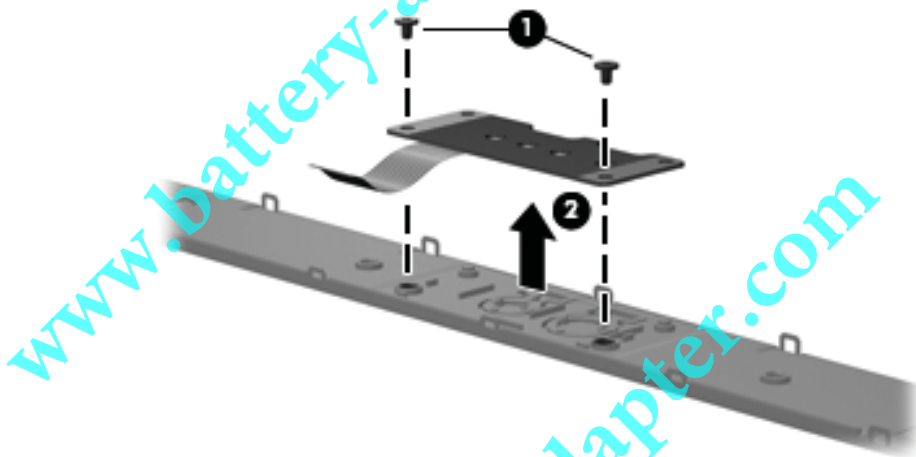
Description	Spare part number
Power button board	496830-001

Before removing the display assembly, 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 battery (see “Battery” on page 4-7).
5. Disconnect the wireless antenna cables from the WLAN module (see “WLAN module” on page 4-15).
6. Remove the keyboard (see “Keyboard” on page 4-17).
7. Remove the keyboard cover (see “Keyboard cover” on page 4-20).

Remove the power button board:

1. Remove the two Phillips PM2.0x4.0 screws ❶ that secure the power button board to the keyboard cover.
2. Remove the power button board ❷.



Reverse this procedure to install the power button board.

Display assembly

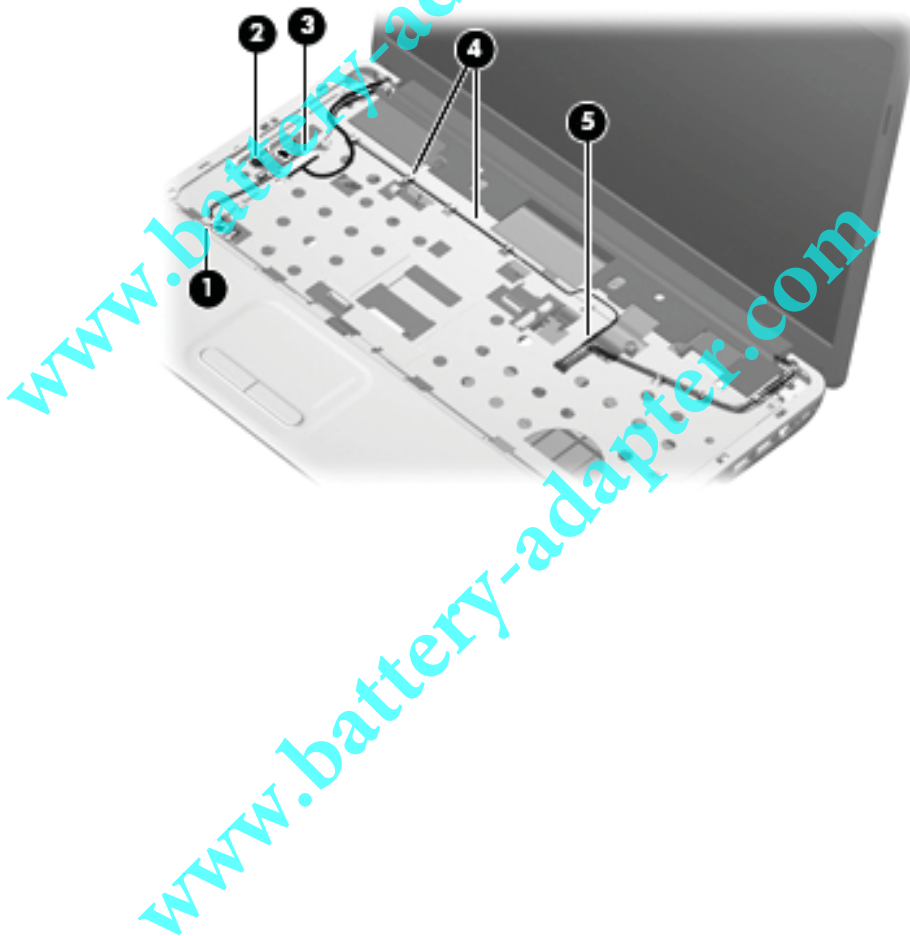
Description	Spare part number
16-inch WXGA BrightView display assembly for HP G60 computer models (includes microphone and cable and logo)	496761-001
16-inch WXGA BrightView display assembly for HP G60 computer models (includes webcam module and cable, 2 WLAN antenna transceivers and cables, microphone and cable, and logo)	496762-001
16-inch Silver WXGA BrightView display assembly for HP G60 computer models (includes microphone and cable and logo)	502949-001
16-inch Silver WXGA BrightView display assembly for HP G60 computer models (includes webcam module and cable, 2 WLAN antenna transceivers and cables, microphone and cable, and logo)	502950-001
15.6-inch WXGA BrightView display assembly for HP G60 computer models (includes microphone and cable, and logo)	496763-001
15.6-inch WXGA BrightView display assembly for HP G60 computer models (includes webcam module and cable, 2 WLAN antenna transceivers and cables, microphone and cable, and logo)	496764-001
15.6-inch Silver WXGA BrightView display assembly for HP G60 computer models (includes microphone and cable, and logo)	502951-001
15.6-inch Silver WXGA BrightView display assembly for HP G60 computer models (includes webcam module and cable, 2 WLAN antenna transceivers and cables, microphone and cable, and logo)	502952-001
16-inch WXGA BrightView display assembly for Presario CQ60 computer models (includes microphone and cable and logo)	496765-001
16-inch WXGA BrightView display assembly for Presario CQ60 computer models (includes webcam module and cable, 2 WLAN antenna transceivers and cables, microphone and cable, and logo)	496766-001
15.6-inch WXGA BrightView display assembly for Presario CQ60 computer models (includes microphone and cable, and logo)	496767-001
15.6-inch WXGA BrightView display assembly for Presario CQ60 computer models (includes webcam module and cable, 2 WLAN antenna transceivers and cables, microphone and cable, and logo)	496768-001

Before removing the display assembly, 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 battery (see “Battery” on page 4-7).
5. Disconnect the wireless antenna cables from the WLAN module (see “WLAN module” on page 4-15).
6. Remove the keyboard (see “Keyboard” on page 4-17).
7. Remove the keyboard cover (see “Keyboard cover” on page 4-20).

Remove the display assembly:

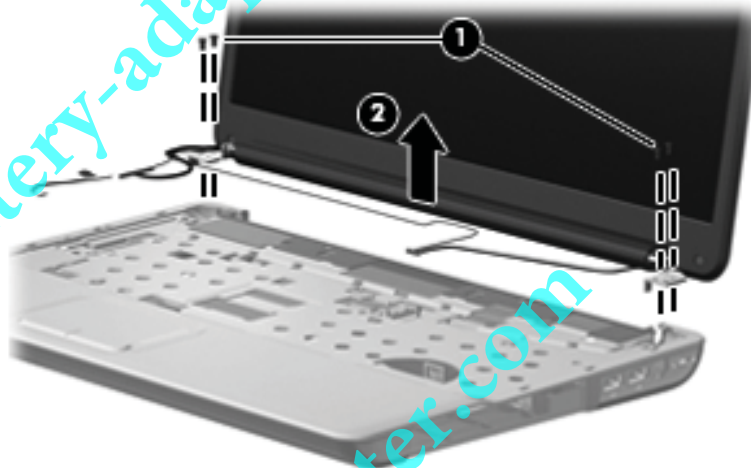
1. Pull the antenna cables through the opening in the top cover ❶ and disengage the cables from the clip ❷ in the routing channel leading to the display hinge.
2. Disconnect the display panel cable ❸ from the system board and make sure that the cable is out of its routing channel.
3. Disconnect the microphone cable ❹ from the system board and release it from the clips that attach it to the top cover.
4. Remove the caps lock LED ❺ from its mounting clips on the top cover.



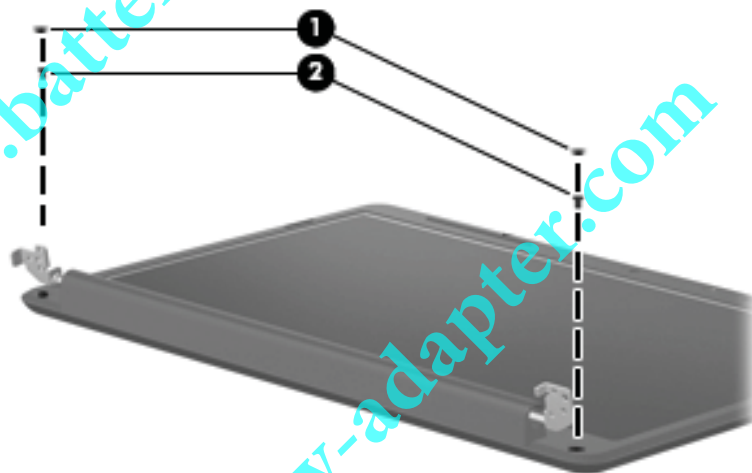


CAUTION: Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

5. Remove the four Phillips PM2.5x9.0 screws ❶ securing the display hinges to the computer.
6. Remove the display panel ❷.



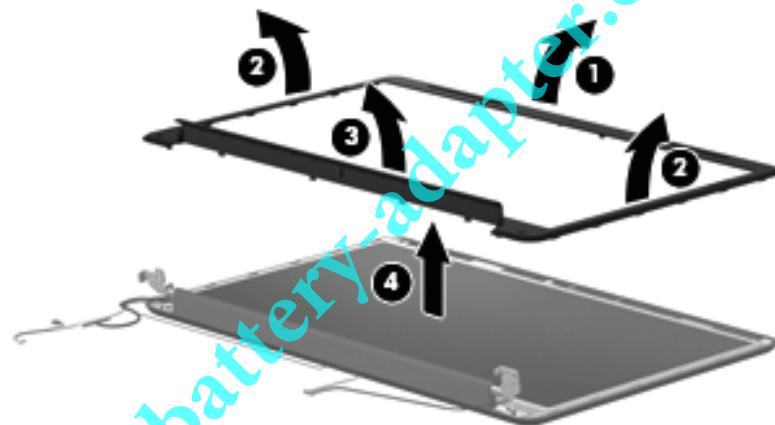
7. If it is necessary to replace the display bezel or any of the display assembly internal components, remove the following screw covers and screws:
 - ❶ Two rubber screw covers on the display bezel bottom edge. The display rubber screw covers are included in the Display Rubber Kit, spare part number 486584-001.
 - ❷ Two Phillips PM2.5x7.0 screws on the display bezel bottom edge.



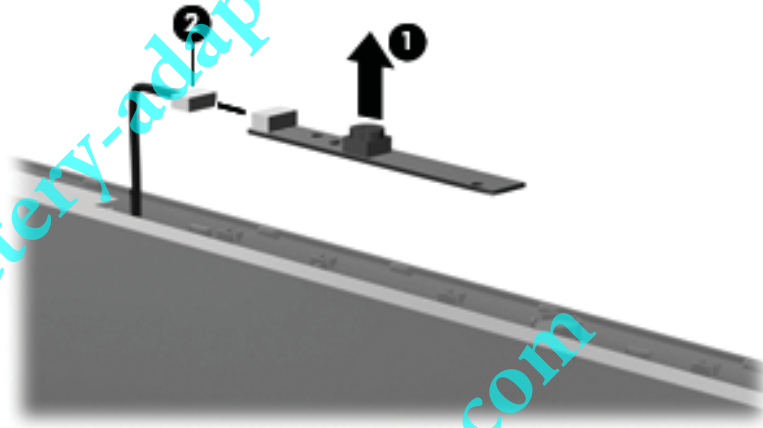
8. Flex the inside edges of the bezel at the top ❶, the left and right sides ❷, and the bottom ❸ until the bezel disengages from the display enclosure.
9. Remove the display bezel ❹.

The following display bezels are available:

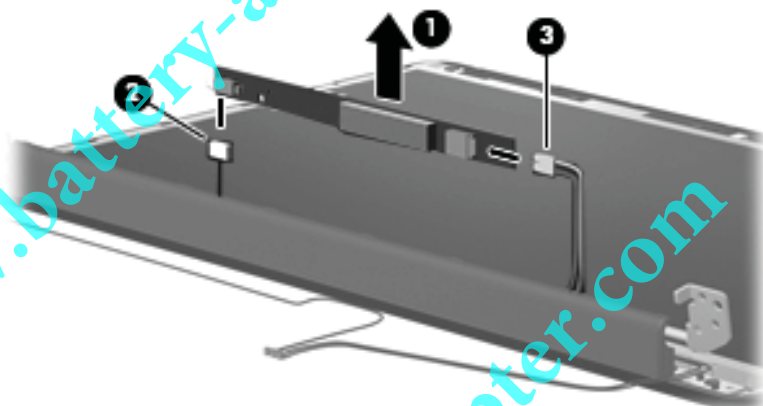
- ❑ For use only with 16-inch HP G60 computer models equipped with a webcam module and microphone, spare part number 497098-001.
- ❑ For use only with 16-inch HP G60 computer models equipped with a microphone, spare part number 497097-001.
- ❑ For use only with silver 16-inch HP G60 computer models equipped with a webcam module and microphone, spare part number 502955-001.
- ❑ For use only with silver 16-inch HP G60 computer models equipped with a microphone, spare part number 502954-001.
- ❑ For use only with 15.6-inch HP G60 computer models equipped with a webcam module and microphone, spare part number 497102-001.
- ❑ For use only with 15.6-inch HP G60 computer models equipped with a microphone, spare part number 497101-001.
- ❑ For use only with silver 15.6-inch HP G60 computer models equipped with a webcam module and microphone, spare part number 502957-001.
- ❑ For use only with silver 15.6-inch HP G60 computer models equipped with a microphone, spare part number 502956-001.
- ❑ For use only with 16-inch Presario CQ60 computer models equipped with a webcam module and microphone, spare part number 497096-001.
- ❑ For use only with 16-inch Presario CQ60 computer models equipped with a microphone, spare part number 497095-001.
- ❑ For use only with 15.6-inch Presario CQ60 computer models equipped with a webcam module and microphone, spare part number 497100-001.
- ❑ For use only with 15.6-inch Presario CQ60 computer models equipped with a microphone, spare part number 497099-001.



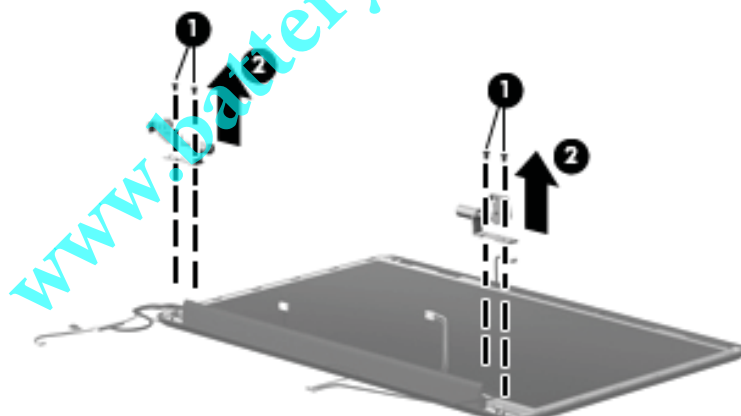
10. If it is necessary to replace the webcam module, release the webcam module ❶ as far from the display enclosure as the webcam module cable allows.
11. Disconnect the webcam module cable ❷ from the webcam module, and remove the webcam module. The webcam module is available using spare part number 488385-001.



12. If it is necessary to replace the display inverter, release the display inverter ❶, located at the bottom edge of the display assembly, from its mounting clips.
13. Disconnect the display panel cable ❷ and the back light cable ❸ from the display inverter, and remove the display inverter from the display enclosure. The display inverter is available using spare part number 486556-001.



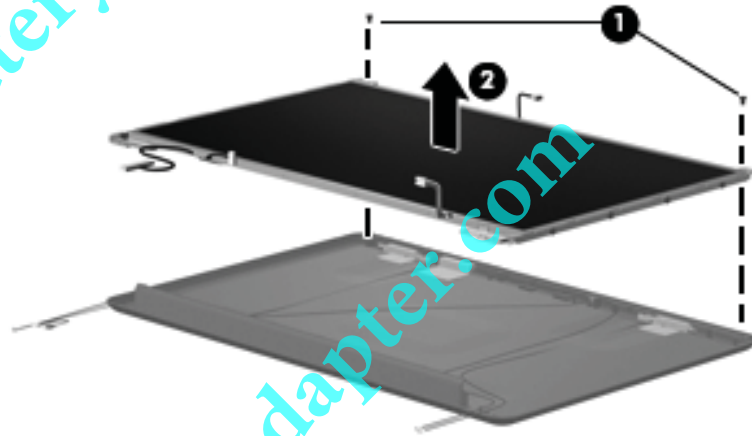
14. If it is necessary to replace the display hinges, remove the two Phillips PM2.5x6.0 screws ❶ that secure each hinge to the display enclosure.
15. Remove the display hinges ❷. The display hinges are available in the Display Hinge Kit, spare part number 486558-001.



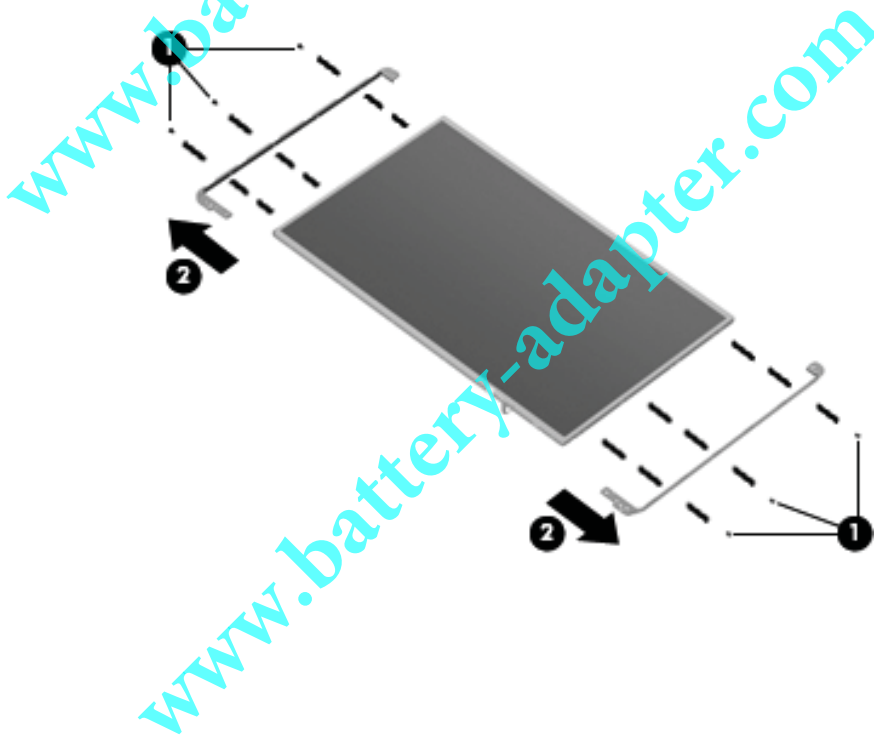
16. If it is necessary to replace the display panel, remove the two Phillips PM2.0x7.0 screws ❶ that secure the display panel to the display enclosure.
17. Remove the display panel ❷ from the display enclosure.

The following display panels are available:

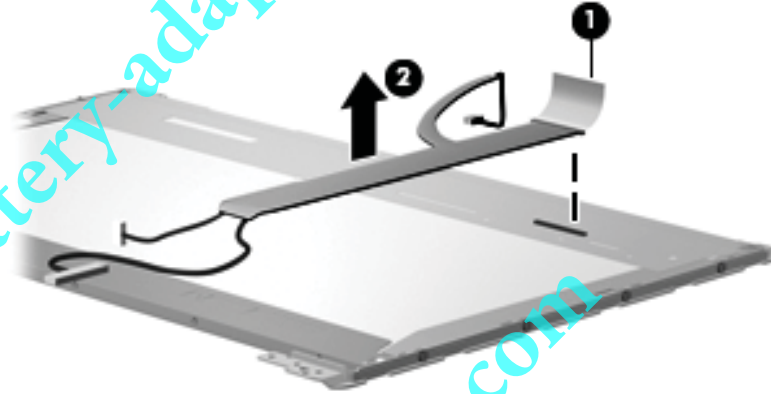
- ❑ For use only with 16-inch WXGA BrightView equipped with microphone, spare part number 496769-001
- ❑ For use only with 15.6-inch WXGA BrightView equipped with a webcam module, spare part number 496770-001.



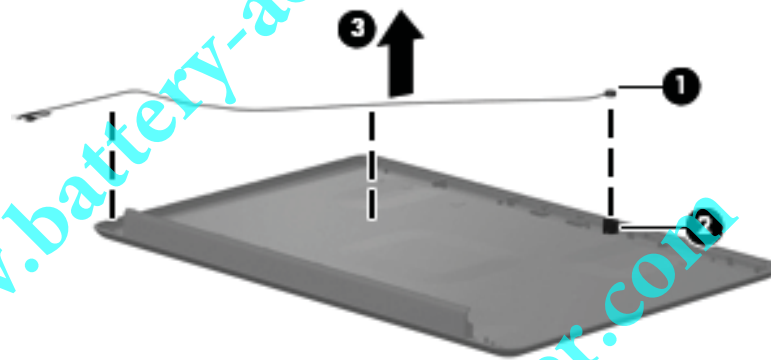
18. If it is necessary to replace the display panel brackets, remove the three Phillips PM2.0x3.0 screws ❶ that secure each bracket to the display panel.
19. Remove the display panel brackets ❷ from the display panel. The display panel brackets for the 16-inch vertical display bracket is available using spare part number 496843-001, and for the 15.6-inch display brackets available using spare part number 496844-001.



20. If it is necessary to replace the display panel cable, which is attached to the back of the display panel with clear adhesive tape ❶ to release the cable from its connector. The display panel cable includes the camera module cable. The display panel cable with webcam cable is available using spare part number 496841-001.
21. Remove display panel cable ❷.



22. If it is necessary to replace the microphone ❶, release the microphone from its mounting clip ❷ at the top of the display enclosure.
23. Pull the microphone cable through the left hinge opening, and release the microphone cable from the foil tab ❸. The microphone with cable is available using spare part number 496840-001.



Reverse this procedure to reassemble and install the display assembly.

Top cover

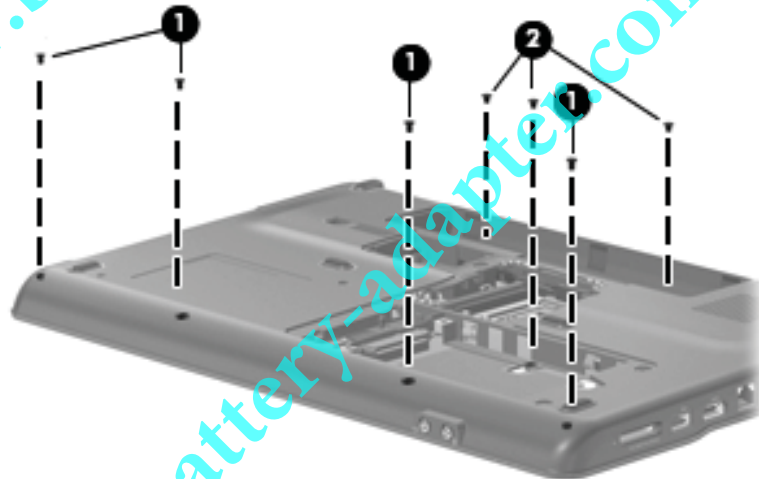
Description	Spare part number
Top cover (includes TouchPad)	506849-001

Before removing the top cover, follow these steps:

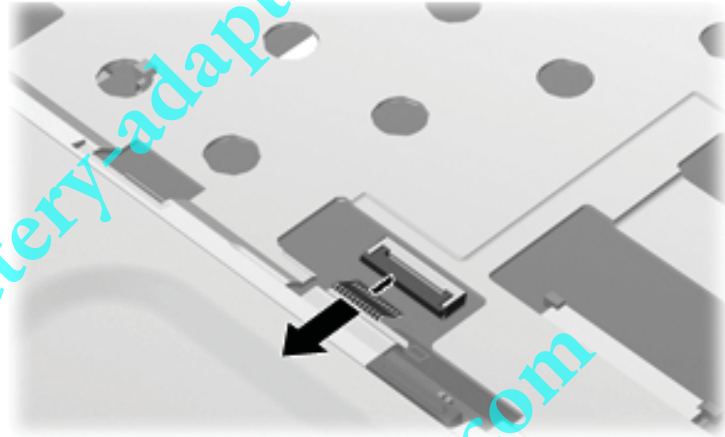
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see “Battery” on page 4-7).
5. Remove the following components:
 - a. Optical drive (see “Optical drive” on page 4-8)
 - b. Hard drive (see “Hard drive” on page 4-10)
 - c. Keyboard (see “Keyboard” on page 4-17)
 - d. Keyboard cover (see “Keyboard cover” on page 4-20)
 - e. Power button board (see “Power button board” on page 4-22)
 - f. Display assembly (see “Display assembly” on page 4-23)

Remove the top cover:

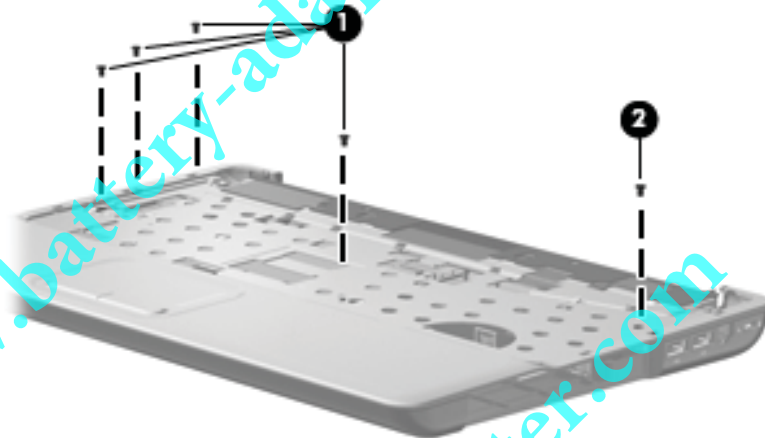
1. Turn the computer upside down, with the front toward you.
2. Remove the four Phillips PM2.5X9.0 screws ❶ that secure the top cover to the computer.
3. Remove the three Phillips PM2.0x4.0 screws ❷.



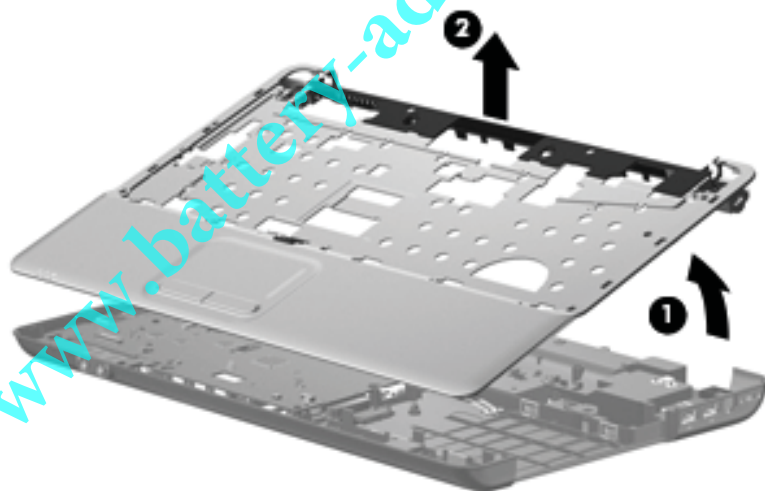
4. Turn the computer right-side up, with the front facing you.
5. Release the ZIF connector to which the TouchPad cable is attached, and disconnect the TouchPad cable from the system board.



6. Remove the following screws:
 - a. Four Phillips PM2.0x6.0 screws ❶
 - b. One Phillips PM2.0x4.0 screw ❷



7. Lift the rear edge of the top cover ❶ until the top cover disengages from the base enclosure.
8. Remove the top cover ❷.



Reverse this procedure to install the top cover.

TouchPad on/off button board and board bracket

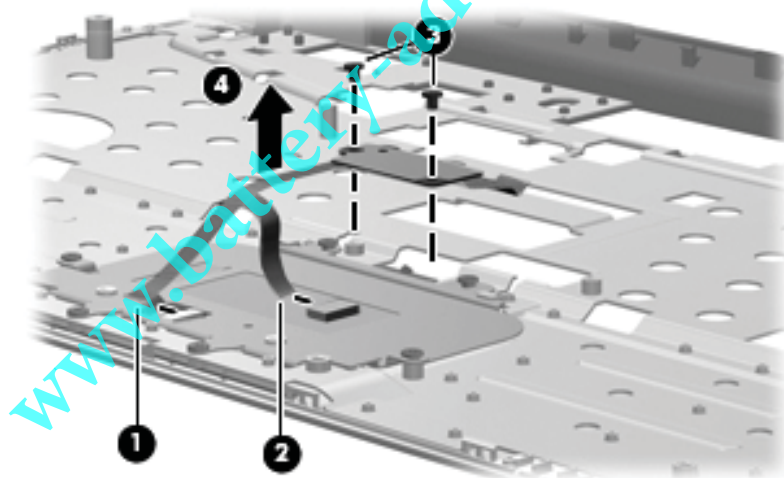
Description	Spare Parts Number
TouchPad board bracket	489119-001
TouchPad on/off button board (includes cables)	496832-001

Before removing the TouchPad on/off button board, follow these steps:

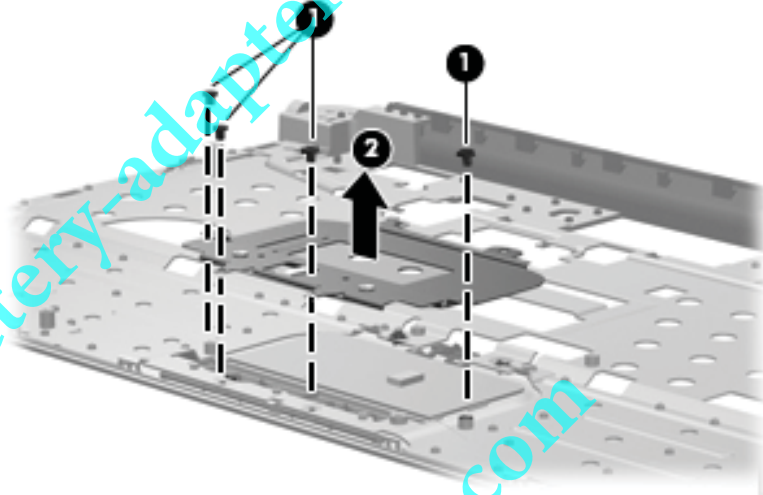
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see “Battery” on page 4-7).
5. Remove the following components:
 - a. Optical drive (see “Optical drive” on page 4-8)
 - b. Hard drive (see “Hard drive” on page 4-10)
 - c. Keyboard (see “Keyboard” on page 4-17)
 - d. Keyboard cover (see “Keyboard cover” on page 4-20)
 - e. Power button board (see “Power button board” on page 4-22)
 - f. Display assembly (see “Display assembly” on page 4-23)

Remove the TouchPad on/off button board and board bracket:

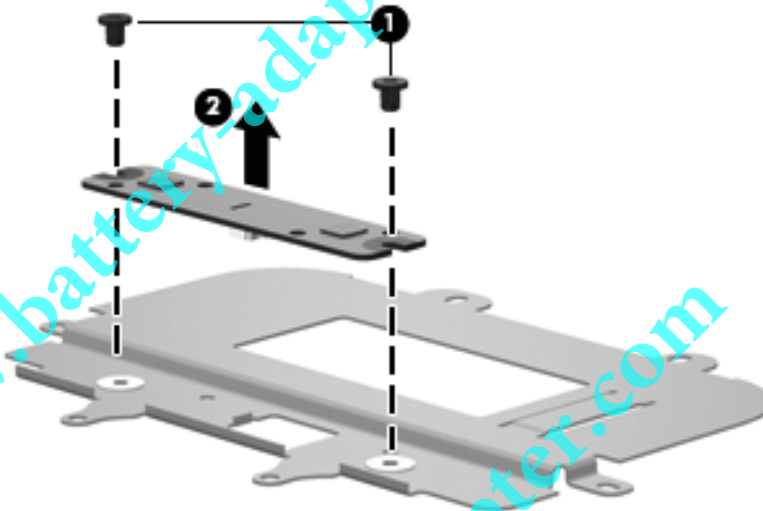
1. Turn the top cover upside down, with the front toward you.
2. Release the ZIF connector on the TouchPad on/off button board to which the TouchPad on/off board cable is attached, and then disconnect the TouchPad on/off board cable ❶ from the TouchPad button board.
3. Release the ZIF connector on the TouchPad button board to which the TouchPad on/off board cable is attached, and disconnect the TouchPad on/off board cable ❷ from the TouchPad board.
4. Remove the two Phillips PM2.0x4.0 screws ❸ securing the TouchPad on/off button board.
5. Single-sided and double-sided tape is used to help secure the TouchPad on/off button board to the TouchPad board bracket. Release the TouchPad on/off button board from the tape, and then remove the TouchPad on/off button board ❹.



6. Remove the four Phillips PM2.0x4.0 screws ❶ that secure the TouchPad board to the base enclosure. Then remove the TouchPad board and bracket ❷.



7. Remove the two Phillips PM2.0x4.0 screws ❶ that secure the switch actuator to the TouchPad board bracket, and then remove the actuator ❷.



The TouchPad is glued to the top cover and is included with the top cover spare part.

Reverse this procedure to install the TouchPad on/off button board and board bracket.

Audio board

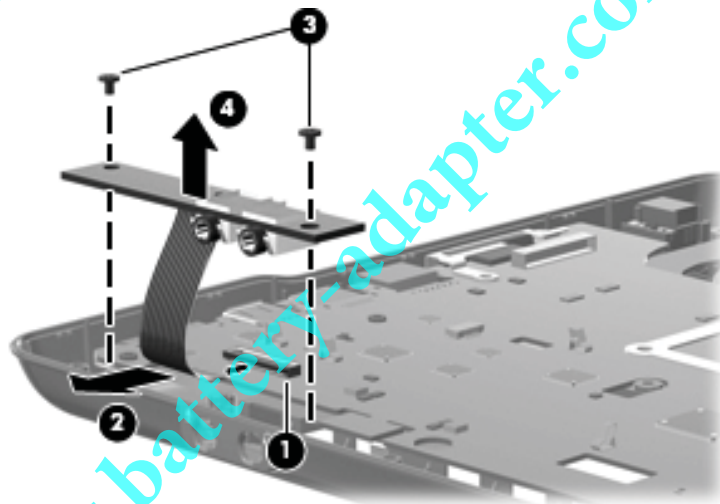
Description	Spare Part Number
Audio board (includes audio board cable)	486634-001

Before removing the audio 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 battery (see “Battery” on page 4-7).
5. Remove the following components:
 - a. Optical drive (see “Optical drive” on page 4-8)
 - b. Hard drive (see “Hard drive” on page 4-10)
 - c. Keyboard (see “Keyboard” on page 4-17)
 - d. Keyboard cover (see “Keyboard cover” on page 4-20)
 - e. Power button board (see “Power button board” on page 4-22)
 - f. Display assembly (see “Display assembly” on page 4-23)

Remove the audio board:

1. Release the ZIF connector ❶ to which the audio board cable is attached, and disconnect the audio board cable ❷ from the system board.
2. Remove the two Phillips PM2.0×4.0 screws ❸ that secure the audio board to the base enclosure.
3. Remove the audio board ❹.



Reverse this procedure to install the audio board.

Bluetooth module

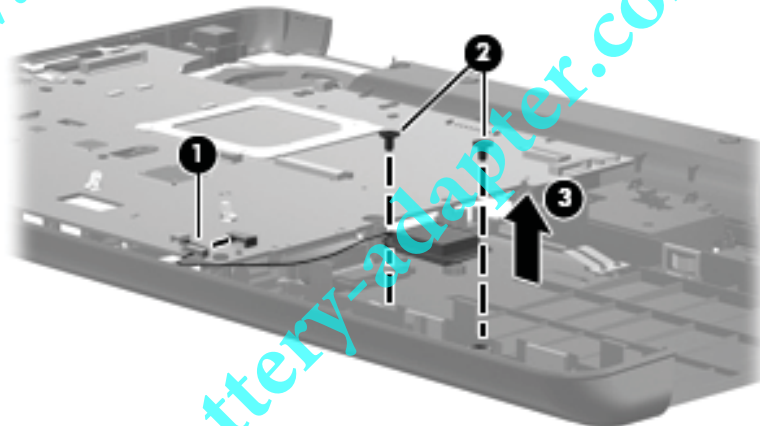
Description	Spare Part Number
Bluetooth module	483113-001
Bluetooth cable	496836-001

Before removing the Bluetooth module, 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 battery (see “Battery” on page 4-7).
5. Remove the following components:
 - a. Optical drive (see “Optical drive” on page 4-8)
 - b. Hard drive (see “Hard drive” on page 4-10)
 - c. Keyboard (see “Keyboard” on page 4-17)
 - d. Keyboard cover (see “Keyboard cover” on page 4-20)
 - e. Power button board (see “Power button board” on page 4-22)
 - f. Display assembly (see “Display assembly” on page 4-23)

Remove the Bluetooth module:

1. Disconnect the Bluetooth module cable ❶ from the system board. The Bluetooth cable is available using spare part number 496836-001.
2. Remove the two Phillips PM2.0×4.0 screws ❷ that secure the Bluetooth module to the base enclosure.
3. Remove the Bluetooth module ❸.



Reverse this procedure to install the Bluetooth module.

Speakers

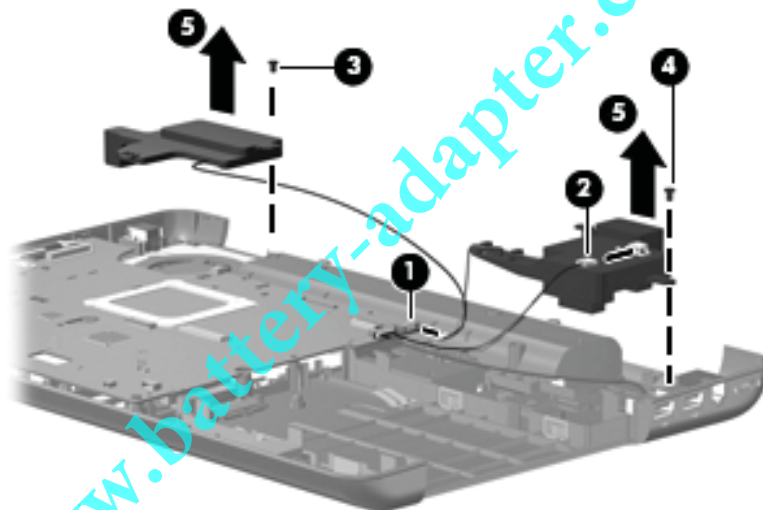
Description	Spare Part Number
Speakers	496829-001

Before removing the speakers, 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 battery (see “Battery” on page 4-7).
5. Remove the following components:
 - a. Optical drive (see “Optical drive” on page 4-8)
 - b. Hard drive (see “Hard drive” on page 4-10)
 - c. Keyboard (see “Keyboard” on page 4-17)
 - d. Keyboard cover (see “Keyboard cover” on page 4-20)
 - e. Power button board (see “Power button board” on page 4-22)
 - f. Display assembly (see “Display assembly” on page 4-23)

Remove the speakers:

1. Disconnect the speaker cable from the system board ❶.
2. Disconnect the LED cable from the right speaker ❷.
3. Remove one screw from each speaker. A Phillips PM2.0x6.0 screw is on the left ❸, and a Phillips PM2.0x4.0 screw is on the right ❹.
4. Remove the speakers ❺.



Reverse this procedure to install the speakers.

USB board

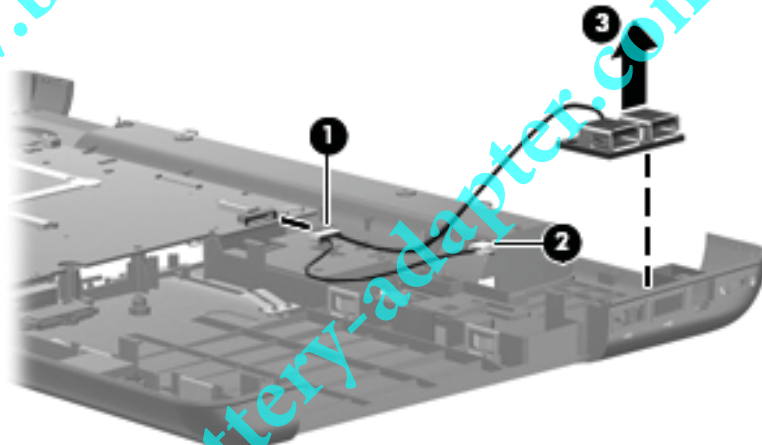
Description	Spare part number
USB board	486633-001
USB board cable (includes num lock LED)	496837-001

Before removing the USB 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 battery (see “Battery” on page 4-7).
5. Remove the following components:
 - a. Optical drive (see “Optical drive” on page 4-8)
 - b. Hard drive (see “Hard drive” on page 4-10)
 - c. Keyboard (see “Keyboard” on page 4-17)
 - d. Keyboard cover (see “Keyboard cover” on page 4-20)
 - e. Power button board (see “Power button board” on page 4-22)
 - f. Display assembly (see “Display assembly” on page 4-23)

Remove the USB board:

1. Disconnect the USB board cable ❶ from the system board.
2. Disconnect the num lock LED cable ❷ from the system board.
3. Lift the USB board ❸ straight up to remove it from the computer.



Reverse this procedure to install a USB board.

System board



The system board spare part kit includes UMA or discrete graphics subsystem memory, built-in modem, and replacement thermal material.

Description	Spare part number
UMA system board, GM45 (includes built-in modem, Digital Media Slot, HDMI port, and replacement thermal material)	485218-001
UMA system board, GM45 (includes built-in modem, Digital Media Slot, and replacement thermal material)	494281-001
UMA system board, GL40 (includes built-in modem, Digital Media Slot, and replacement thermal material)	494282-001
UMA system board, GL40 (includes built-in modem, Digital Media Slot, HDMI port, and replacement thermal material)	485219-001
UMA system board, GL40 (for Presario CQ60 only; includes built-in modem, and replacement thermal material)	501266-001
Discrete system board, PM45 (includes built-in modem, Digital Media Slot, HDMI port, and replacement thermal material)	488338-001
Discrete system board, PM45 (includes built-in modem, Digital Media Slot, and replacement thermal material)	494283-001
UMA system board, NVIDIA (includes built-in modem, Digital Media Slot, HDMI port, and replacement thermal material)	498460-001
UMA system board, NVIDIA (for Presario only; includes built-in modem, Digital Media Slot, and replacement thermal material)	498462-001
UMA system board, NVIDIA (for Presario only; includes built-in modem, Digital Media Slot, and replacement thermal material)	498463-001
UMA system board, NVIDIA (for Presario only; includes built-in modem, and replacement thermal material)	498464-001
Optical extension board (not illustrated)	506951-001

Before removing the system board, follow these steps:

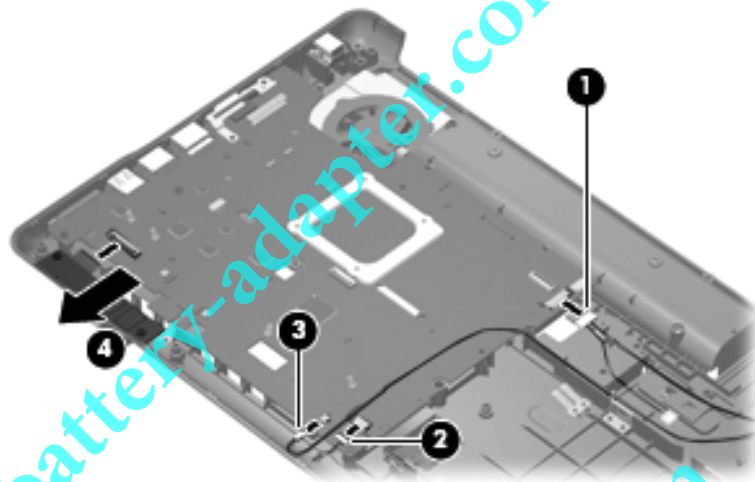
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see “Battery” on page 4-7).
5. Remove the following components:
 - a. Optical drive (see “Optical drive” on page 4-8)
 - b. Hard drive (see “Hard drive” on page 4-10)
 - c. Keyboard (see “Keyboard” on page 4-17)
 - d. Keyboard cover (see “Keyboard cover” on page 4-20)
 - e. Power button board (see “Power button board” on page 4-22)
 - f. Display assembly (see “Display assembly” on page 4-23)

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

- RTC battery (see “RTC battery” on page 4-12)
- Memory module (see “Memory module” on page 4-13)
- WLAN module (see “WLAN module” on page 4-15)
- Fan/heat sink assembly (see “Fan/heat sink assembly” on page 4-41)
- Processor (see “Processor” on page 4-44)

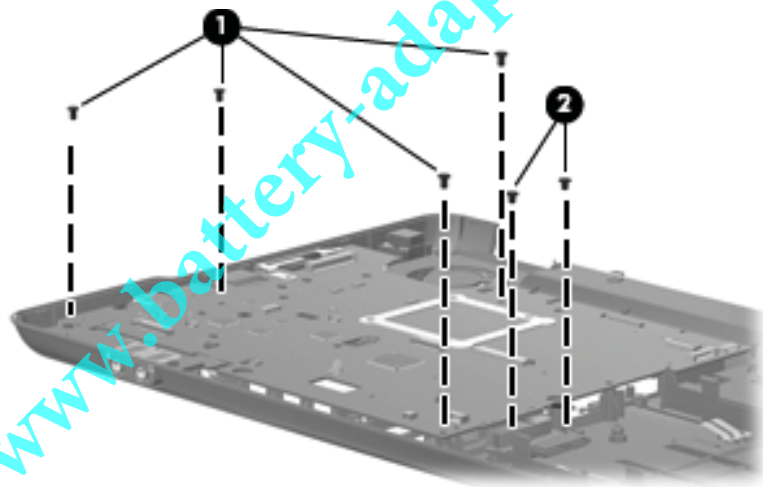
Remove the system board:

1. Disconnect the USB board cable ❶ from its mounting clip in the base enclosure.
2. Disconnect the Bluetooth cable ❷ from the system board.
3. Disconnect the RJ-11 cable ❸ from the system board.
4. Disconnect the audio cable ❹ from the system board.

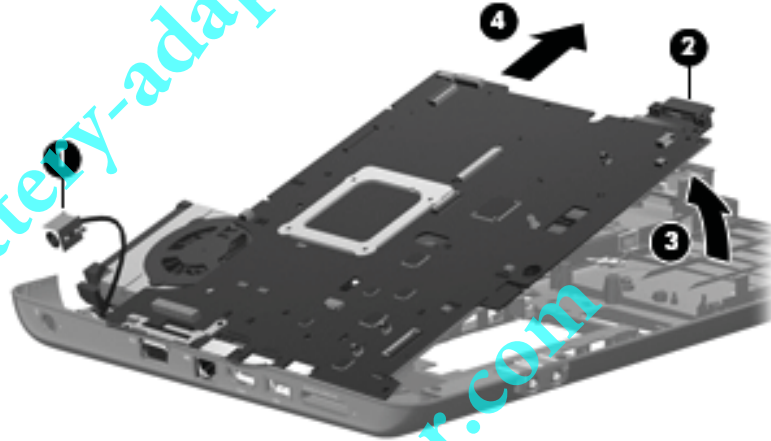


CAUTION: Do not attempt to disconnect the optical extension board before removing the system board. Otherwise, you will damage the locator pin on the optical extension board.

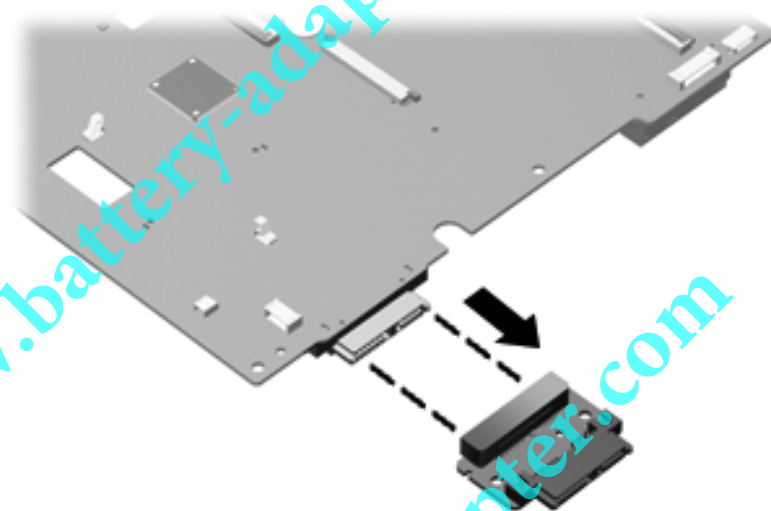
5. Remove the four Phillips PM2.5x6.0 screws ❶ that secure the system board
6. Remove the two Phillips PM2.5x5.0 screws ❷ that secure the optical extension board.



7. Release the power cable from the base enclosure ❶.
8. Use the optical drive connector ❷ to lift the right edge of the system board ❸ until it rests at an angle.
9. Remove the system board ❹ from the base enclosure by sliding it up and to the right at an angle.



10. Remove the optical extension board from the system board.



Reverse this procedure to install the system board.

Fan/heat sink assembly

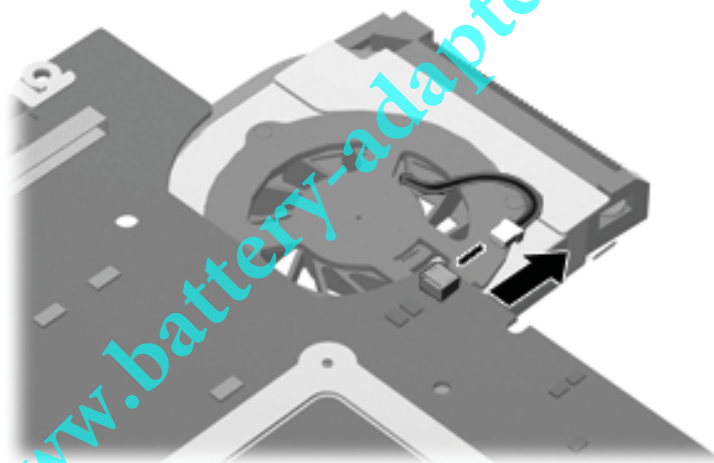
Description	Spare part number
Fan/heat sink assembly (includes replacement thermal material) for use only with computer models with UMA graphics subsystem memory	489126-001
Fan/heat sink assembly (includes replacement thermal material) for use only with computer models with discrete graphics subsystem memory	489154-001

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 battery (see “Battery” on page 4-7).
5. Remove the following components:
 - a. Optical drive (see “Optical drive” on page 4-8)
 - b. Hard drive (see “Hard drive” on page 4-10)
 - c. Keyboard (see “Keyboard” on page 4-17)
 - d. Keyboard cover (see “Keyboard cover” on page 4-20)
 - e. Power button board (see “Power button board” on page 4-22)
 - f. Display assembly (see “Display assembly” on page 4-23)
 - g. Top cover (see “Top cover” on page 4-30)
 - h. Bluetooth module (see “Bluetooth module” on page 4-35)
 - i. System board (see “System board” on page 4-38)

Remove the fan/heat sink assembly:


1. Turn the system board right-side up, with the front toward you.
2. Disconnect the fan cable from the system board.




To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the left side of the computer.

 Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, you may need to move the fan/heat sink assembly from side to side to detach the assembly.

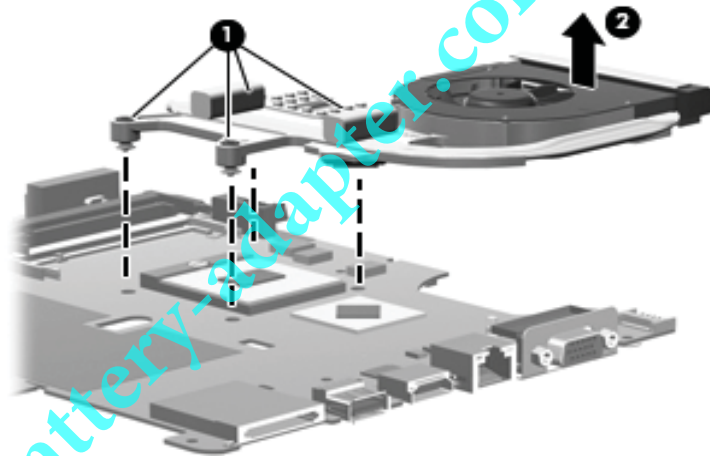
3. Turn the system board upside down with the fan assembly toward you.


 **WARNING:** To avoid damage to the processor, loosen the fan/heat sink screws in the 1-2-3-4 sequence indicated. Likewise, tighten the screws in the same sequence when installing the fan/heat sink assembly.

 Steps 4 through 5 apply only to computer models equipped with graphics subsystems with UMA memory.

4. Following the 1, 2, 3, 4 sequence stamped into the heat sink, loosen the four Phillips PM2.0x10.0 spring-loaded captive screws **1** that secure the fan/heat sink assembly.

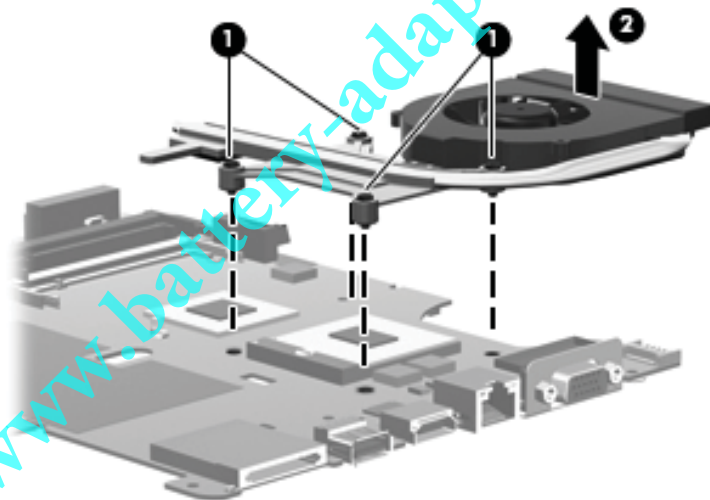
5. Remove the fan/heat sink assembly **2** by lifting it straight up.



 Steps 6 through 7 apply only to computer models equipped with graphics subsystems with discrete memory.

6. Loosen the 4 Phillips PM2.0x11.0 spring-loaded captive screws **1** that secure the fan/heatsink assembly.

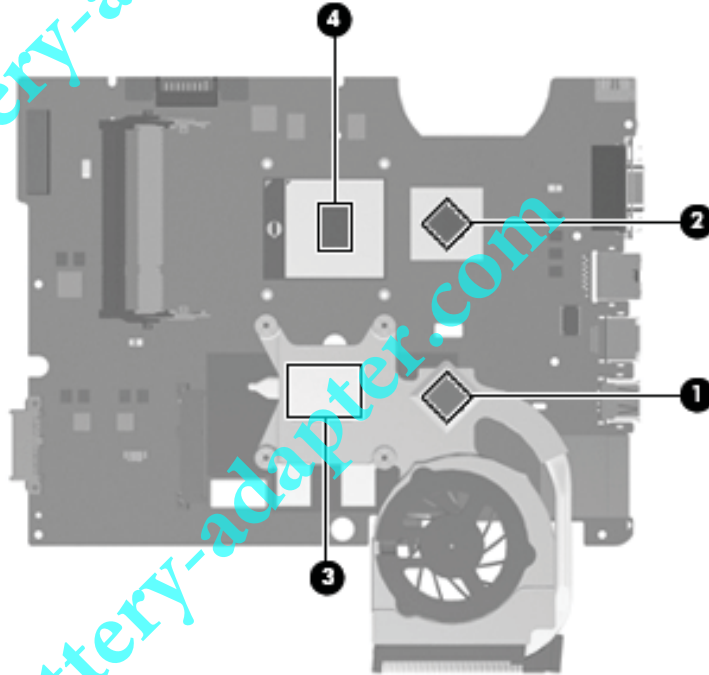
7. Remove the fan/heat sink assembly **2** by lifting it straight up.



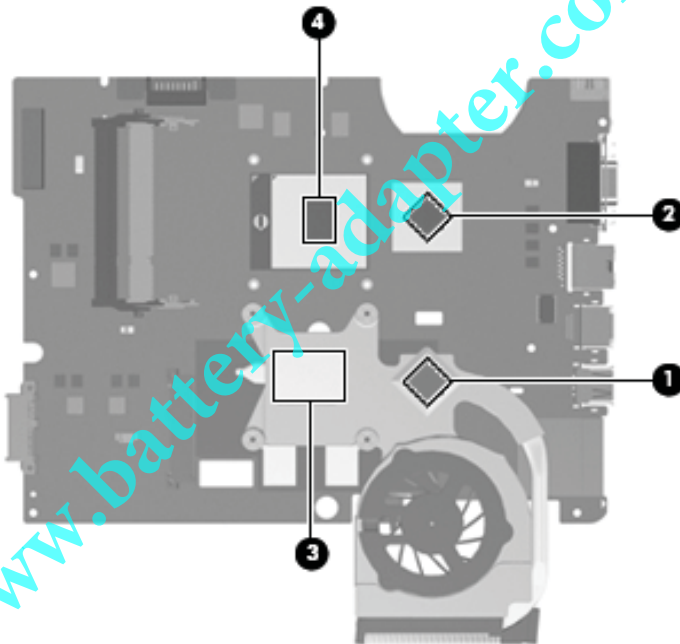


The thermal material must be thoroughly cleaned from the surfaces of the fan/heat sink and the system board components each time the fan/heat sink is removed. Thermal grease is located on the section of the fan/heat sink ❶ that services the processor ❷. Thermal pads are located on the section of the fan/heat sink ❸ that services the Northbridge chip ❹. Replacement thermal grease and pads are included with all system board, fan/heat sink assembly, and processor spare part kits.

The following illustration shows the replacement thermal material locations for computer models equipped with graphics subsystems with UMA memory.



The following illustration shows the replacement thermal material locations for computer models equipped with graphics subsystems with discrete memory.



Reverse this procedure to install the fan/heat sink assembly.

Processor



The processor spare part kit includes replacement thermal material.

Description	Spare part number
Intel Core2 Duo (3-MB L2 cache) P8400, 2.26-GHz processor	490111-001
Intel Core2 Duo (3-MB L2 cache) P8600, 2.4-GHz processor	490112-001
Intel Core2 Duo (3-MB L2 cache) P7350, 2.0-GHz processor	501520-001
Intel Core2 Duo (6-MB L2 cache) T9400, 2.53-GHz processor	490113-001
Intel Pentium (1-MB L2 cache) T3200, 2.0-GHz processor	490115-001
Intel Pentium (1-MB L2 cache) T3400, 2.16-GHz processor	501523-001
Intel Pentium (2-MB L2 cache) T5800, 2.0-GHz processor	501521-001
Intel Pentium (2-MB L2 cache) T5900, 2.2-GHz processor	501522-001
Intel Celeron-M (1-MB L2 cache) 575, 2.0-GHz processor	490116-001
Intel Celeron-M (1-MB L2 cache) 585, 2.16-GHz processor	490117-001
Intel Celeron (1-MB L2 cache) T1600, 1.66-GHz processor	501524-001
Intel Celeron (1-MB L2 cache) T1700, 1.86-GHz processor	501525-001
AMD Turion Ultra Dual-Core (2-MB L2 cache) ZM-30 2.1-GHz processor	498465-001
AMD Turion Ultra Dual-Core (2-MB L2 cache) ZM-82 2.2-GHz processor	498466-001
AMD Turion Dual-Core (1-MB L2 cache) RM-70 2.0-GHz processor	498467-001
AMD Turion Dual-Core (1-MB L2 cache) RM-72 2.1-GHz processor	498468-001
AMD Athlon X2 dual-Core (1-MB L2 cache) QL_60 1.9-GHz processor	498469-001
AMD Athlon X2 dual-Core (1-MB L2 cache) QL-62 2.0-GHz processor	498470-001
AMD Sempron Single Core (512-KB L2 cache) SI-42 2.1-GHz processor	498471-001
AMD Sempron Single Core (512-KB L2 cache) SI-40 2.0-GHz processor	498472-001

Before removing the processor, 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 following components:
 - a. Remove the battery (see “Battery” on page 4-7).
 - b. Optical drive (see “Optical drive” on page 4-8)
 - c. Hard drive (see “Hard drive” on page 4-10)
 - d. Keyboard (see “Keyboard” on page 4-17)
 - e. Keyboard cover (see “Keyboard cover” on page 4-20)
 - f. Power button board (see “Power button board” on page 4-22)

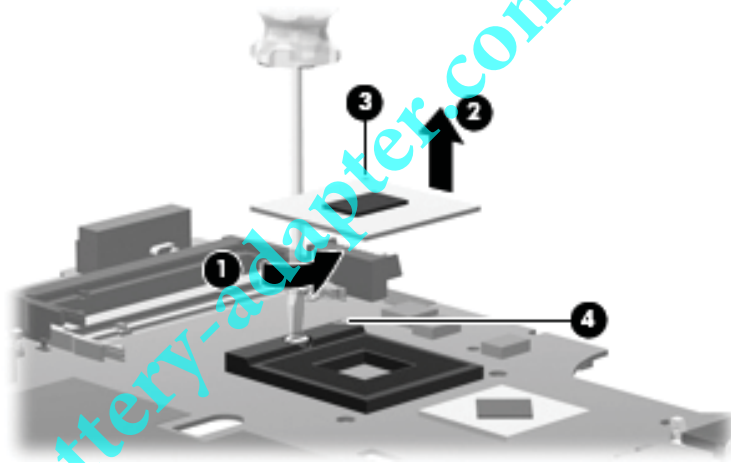
- g. Display assembly (see “Display assembly” on page 4-23)
- h. Top cover (see “Top cover” on page 4-30)
- i. Bluetooth module (see “Bluetooth module” on page 4-35)
- j. System board (see “System board” on page 4-38)
- k. Fan/heat sink assembly (see “Fan/heat sink assembly” on page 4-41)

Remove the processor:

1. Use a flat-bladed screwdriver to turn the processor locking screw ❶ one-half turn counterclockwise until you hear a click.
2. Lift the processor ❷ straight up and remove it.



When you install the processor, the gold triangle on the processor ❸ must be aligned with the triangle embossed on the processor slot ❹.



Reverse this procedure to install the processor.

Power connector cable

Description	Spare Part Number
Power connector cable	496835-001

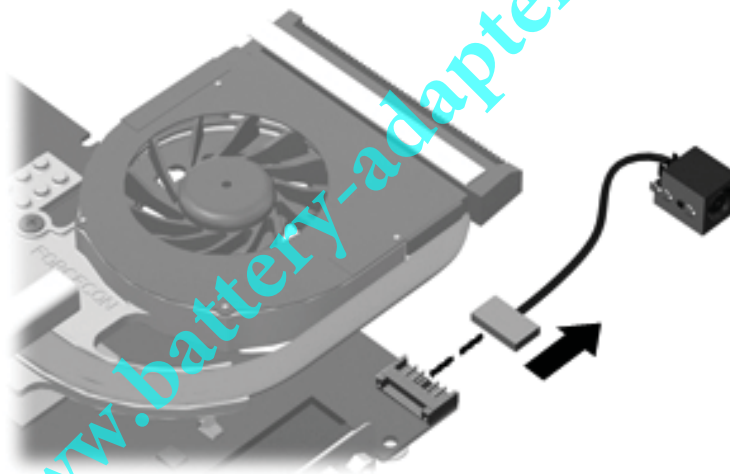
Before removing the power connector cable, follow these steps:

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 following components:
 - a. Remove the battery (see “Battery” on page 4-7).
 - b. Optical drive (see “Optical drive” on page 4-8)
 - c. Hard drive (see “Hard drive” on page 4-10)
 - d. Keyboard (see “Keyboard” on page 4-17)
 - e. Keyboard cover (see “Keyboard cover” on page 4-20)
 - f. Power button board (see “Power button board” on page 4-22)
 - g. Display assembly (see “Display assembly” on page 4-23)
 - h. Top cover (see “Top cover” on page 4-30)
 - i. Bluetooth module (see “Bluetooth module” on page 4-35)
 - j. System board (see “System board” on page 4-38)



The power cable connector was released from its mounting clip in the base assembly during system board removal.

To remove the power connector cable, disconnect the cable connector from the system board.



Reverse this procedure to install the power connector cable.