

Memory Modules

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This guide explains how to replace and upgrade memory in the computer.

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Adding or replacing memory modules

The computer has 2 memory module compartments. The primary memory module compartment is located under the keyboard. The expansion memory module compartment is located on the bottom of the computer.

The memory capacity of the computer can be upgraded by adding a memory module to the vacant expansion memory module slot or by upgrading the existing memory module in the primary memory module slot.



WARNING: To reduce the risk of electric shock and damage to the equipment, unplug the power cord and remove all battery packs before installing a memory module.



CAUTION: Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, ensure that you are discharged of static electricity by touching a grounded metal object.



Your computer may look slightly different from the illustrations in this section.

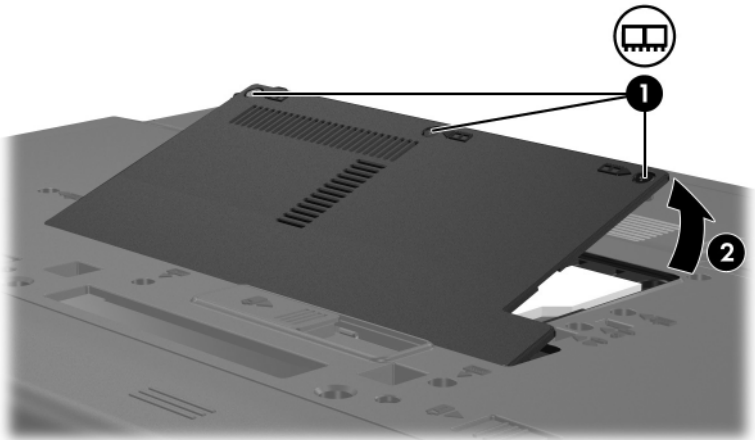
Adding a memory module to the expansion memory module slot

To add or replace a memory module in the expansion memory module slot:

1. Shut down the computer.

If you are not sure whether the computer is off or in hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

2. Disconnect all external devices connected to the computer.
3. Disconnect the power cord.
4. Turn the computer upside down.
5. Remove the battery pack from the computer.
6. Loosen the 3 memory module compartment cover screws ❶.
7. Lift the memory module compartment cover ❷ away from the computer.



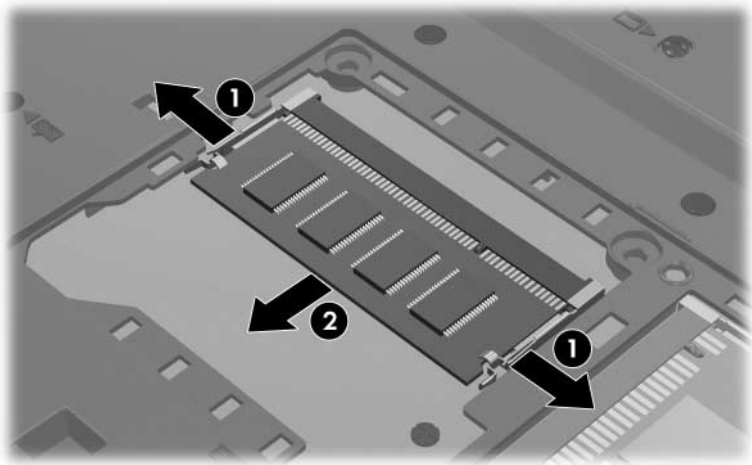
8. To remove a memory module:

- a. Pull away the retention clips **1** on each side of the memory module.

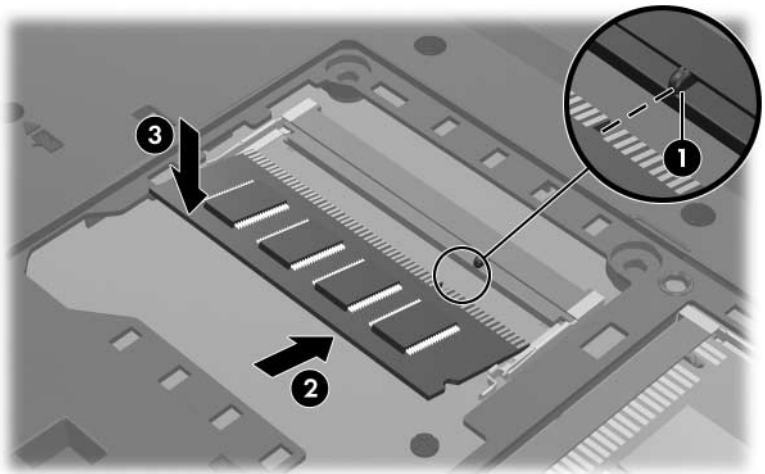
The memory module tilts up.

- b. Grasp the edges of the memory module **2** and gently pull the module out of the memory module slot.

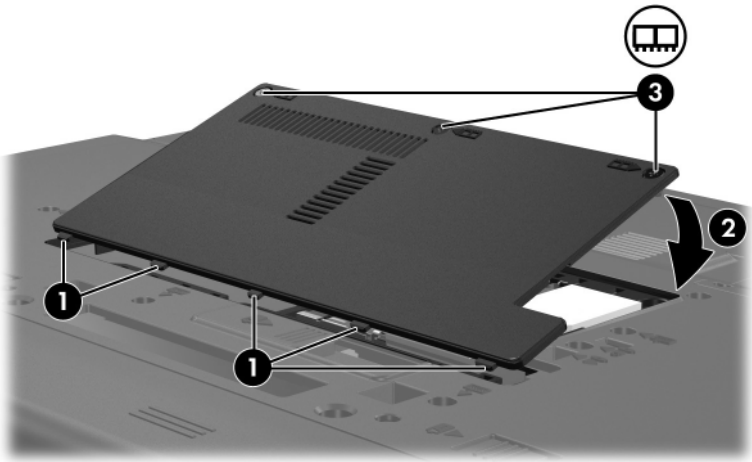
To protect a memory module after removal, place it in an electrostatic-safe container.



9. To insert a memory module:
 - a. Align the notched edge **1** of the memory module with the tab in the memory module slot.
 - b. With the memory module at a 45-degree angle from the surface of the memory module compartment, press the module **2** into the memory module slot until it is seated.
 - c. Press the memory module down **3** until the retention clips snap into place.



10. Align the tabs **1** on the memory module compartment cover with the notches on the computer.
11. Close the memory module compartment cover **2**.
12. Tighten the 3 memory module compartment cover screws **3**.



13. Replace the battery pack.
14. Reconnect external power and external devices.
15. Turn on the computer.

Upgrading the memory module in the primary memory module slot

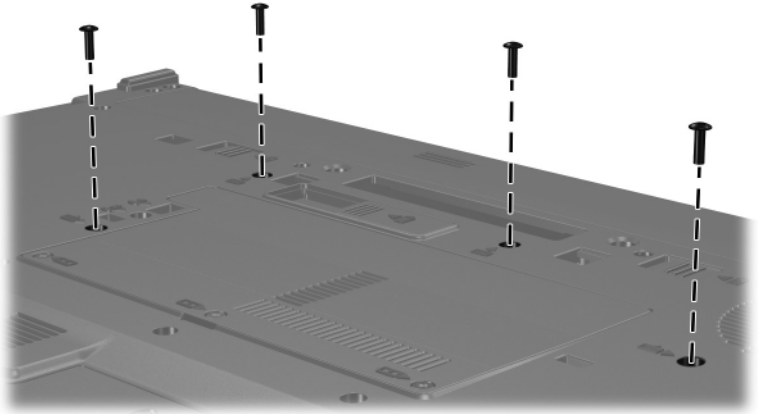
To upgrade a memory module in the primary memory module slot:

1. Shut down the computer.

If you are not sure whether the computer is off or in hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

2. Disconnect all external devices connected to the computer.
3. Disconnect the power cord.
4. Turn the computer upside down on a flat surface.
5. Remove the battery pack from the computer.

6. Remove the 4 keyboard screws.



7. Turn the computer over and open it.
8. Gently lift the top edge of the keyboard and tilt the keyboard over until it rests on the palm rest of the computer.



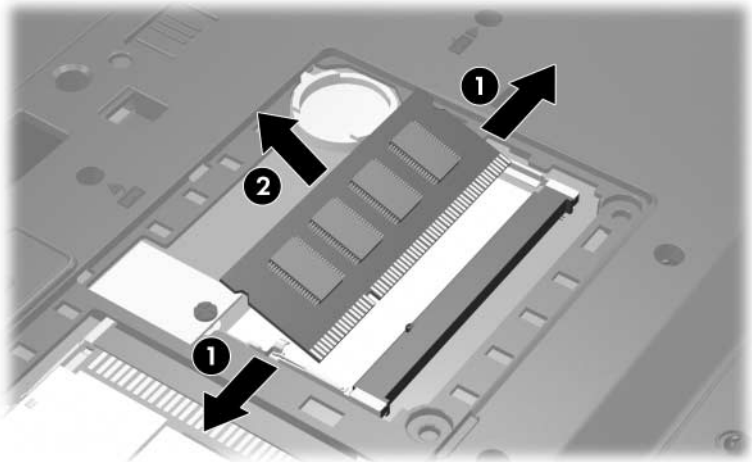
9. Remove the memory module from the memory module slot:

- a. Pull away the retention clips **1** on each side of the memory module.

The memory module tilts up.

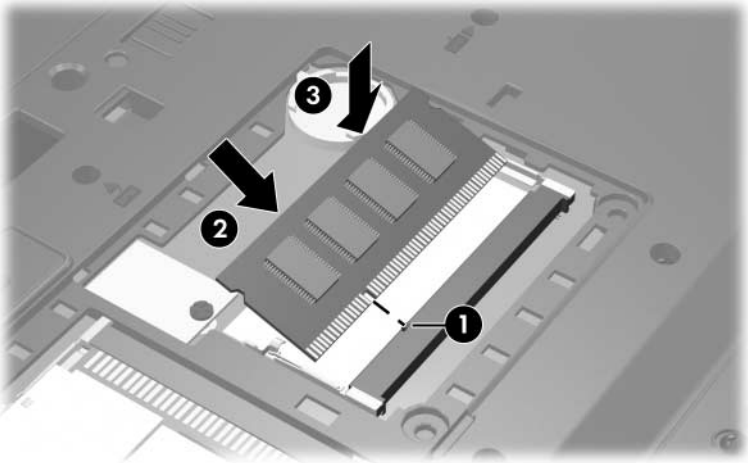
- b. Grasp the edge of the memory module **2** and gently pull the module out of the memory module slot.

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



10. To insert a memory module:

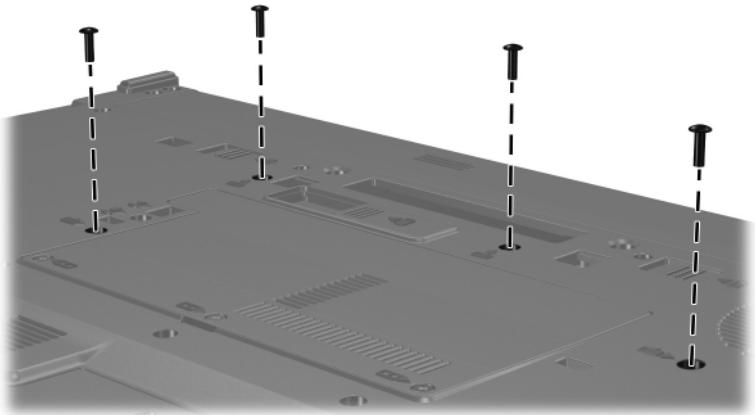
- a. Align the notched edge **1** of the memory module with the tab in the memory module slot.
- b. With the memory module at a 45-degree angle from the surface of the memory module compartment, press the module **2** into the memory module slot until it is seated.
- c. Press the memory module down until the retention clips **3** snap into place.



11. Return the keyboard to its previous position and close it.



12. Turn the computer upside down.
13. Replace the 4 keyboard access screws.



14. Replace the battery pack.
15. Reconnect external power and external devices.
16. Turn on the computer.

Effects of increasing memory

When random access memory (RAM) increases, the operating system increases the hard drive space reserved for the hibernation file.

If you experience problems with hibernation after increasing memory, verify that the hard drive has enough free space to accommodate a larger hibernation file.

To display the amount of space required by the hibernation file:

- » Select **Start > Control Panel > Performance and Maintenance > Power Options > Hibernate** tab.

To display the amount of memory in the system:

- Select **Start > Control Panel > Performance and Maintenance > System > General** tab.

– or –

- Press **fn+esc**.

To display the amount of free space on the hard drive:

1. Select **Start > My Computer**.
2. Right-click the primary hard drive listing, and then click **Properties**.

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