

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 one memory module compartment, which 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.



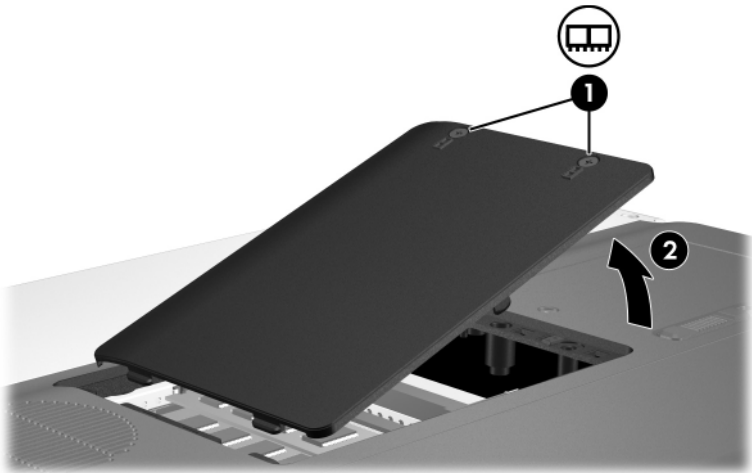
WARNING: To reduce the risk of electric shock and damage to the equipment, unplug the power cord and remove all battery packs before installing a memory module.



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. For more information, refer to the *Electrostatic Discharge* guide.

To add or replace a memory module:

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 memory module compartment cover screws **1**.
7. Lift the memory module compartment cover **2** away from the computer.



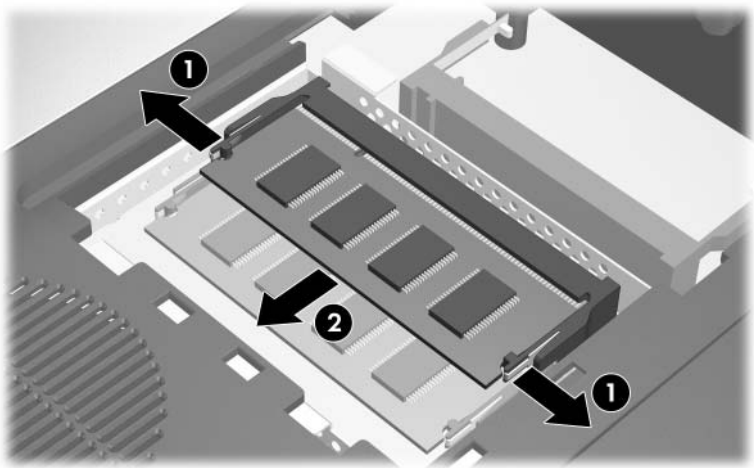
8. To remove a memory module:

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

The memory module tilts up.

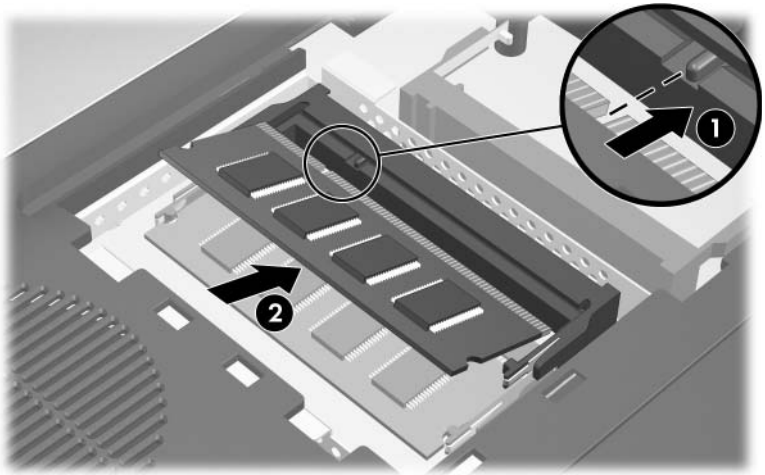
- b. Grasp the edge of the memory module ❷ and gently pull the module out of the memory slot.

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

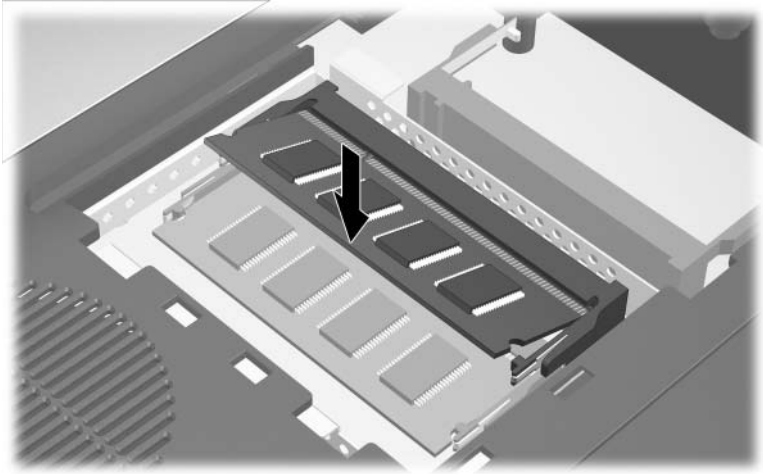


9. To insert a memory module:

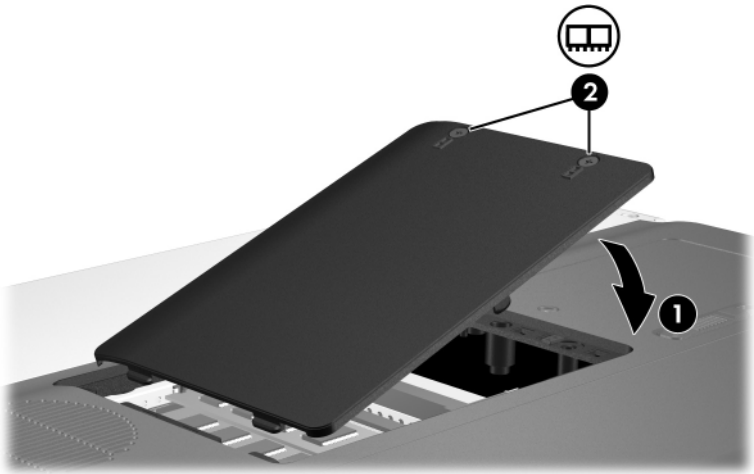
- a. Align the notched edge **1** of the memory module with the tab on the memory module slot.
- b. With the memory module at a 45-degree angle from the surface of the memory module compartment, press the module **2** into the memory module slot until it is seated.



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- c. Press the memory module down until the retention clips snap into place.



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



13. Replace the battery pack.
14. Reconnect external power and external devices.
15. 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 primary hard drive:

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

Video memory settings (select models only)



Video memory capacity and settings vary by model. Video memory settings can be changed on select models only and should only be changed by advanced users.

On select models, you can improve the video performance of the computer for graphics-intensive applications, such as 3-D games, by changing the default shared video memory setting. This setting affects the amount of memory reserved for graphics functions.

1. If you are not sure whether the computer is off or in hibernation, press the power button.

The computer starts up or is restored from hibernation.

2. Display the Setup message:
 - If the computer is on, restart it through the operating system.
 - If the computer is off, turn it on.
3. Press **f10** while the “Press <F10> to enter Setup” message is displayed in the lower-left corner of the screen.

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4. Use the arrow keys to select the **Advanced** menu.

Memory information and settings are displayed.

5. To change the shared video memory setting, use the navigation and selection information at the bottom of the screen to choose your **Shared Video Memory** preference.
6. To set your preference and exit the Setup Utility, press **f10** and then follow the instructions on the screen.

Your preferences go into effect when the computer restarts.

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