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.

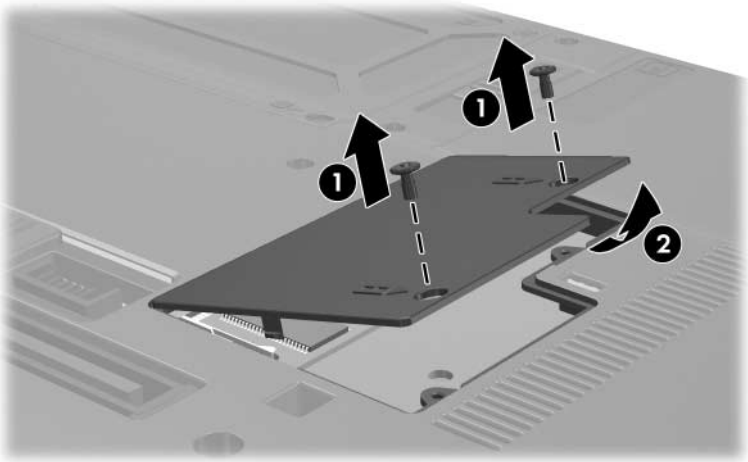
Your computer may look slightly different from the illustrations in this chapter.

Adding a memory module to the expansion memory module slot

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

1. Save your work.
2. Shut down the computer and close the display.

   If you are not sure whether the computer is off or in hibernation, turn the computer on by sliding the power switch toward the front of the computer. Then shut down the computer through the operating system.
3. Disconnect all external devices connected to the computer.
4. Unplug the power cord from the AC outlet.
5. Turn the computer upside down on a flat surface.
6. Remove the battery pack from the computer.
7. Loosen the 2 memory module compartment cover screws ❶.
8. Lift the memory module compartment cover ❷ away from the computer.



9. Remove a memory module:

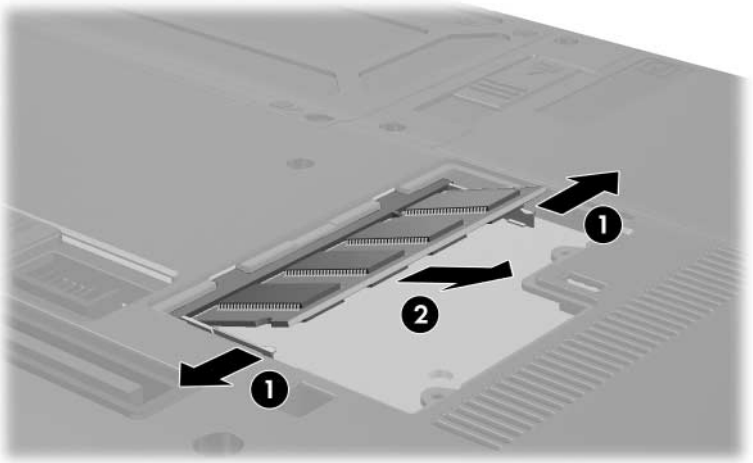
   a. Pull away the retention clips ❶ on each side of the memory module.

      The memory module tilts up.

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

   b. Grasp the edge of the memory module ❷ 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.

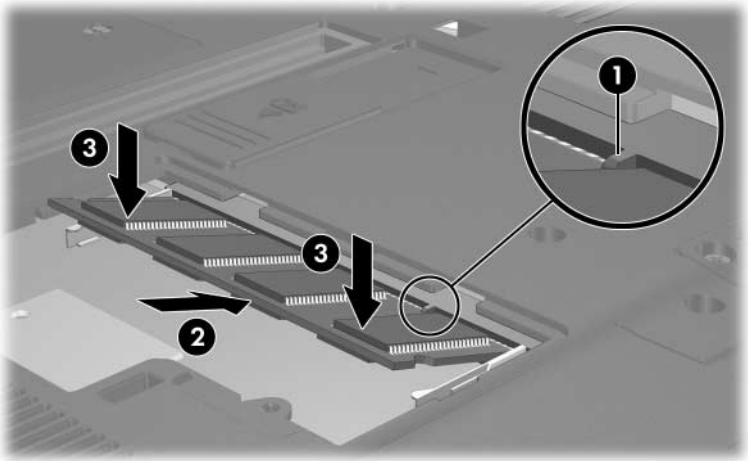


10. Insert a new memory module:
    a. Align the notched edge ❶ of the memory module with the tab in the memory module slot.

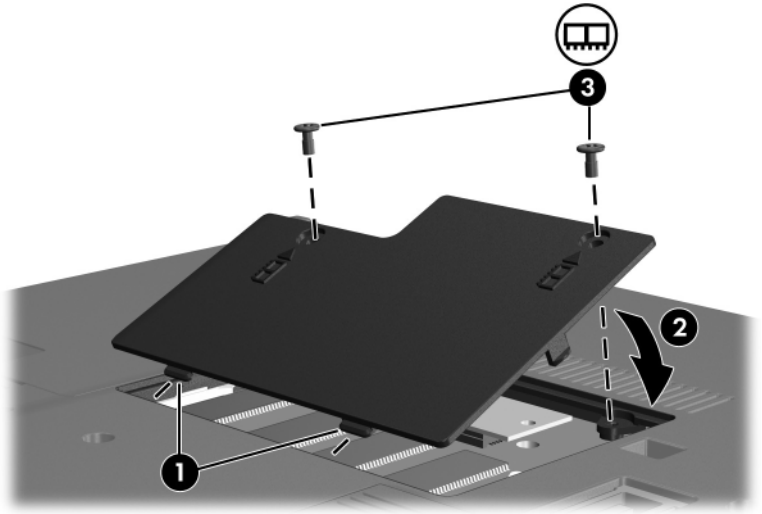
    △ To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module.

    b. With the memory module at a 45-degree angle from the surface of the memory module compartment, press the module ❷ into the memory module slot until it is seated.
    c. Gently press the memory module ❸ down, applying pressure to both the left and right edges of the memory module, until the retention clips snap into place.

    △ To prevent damage to the memory module, be sure that you do not bend the memory module.



11. Align the tabs ❶ on the memory module compartment cover with the notches on the computer.
12. Close the cover ❷.
13. Tighten the 2 memory module compartment cover screws ❸.



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

Upgrading the memory module in the primary memory module slot

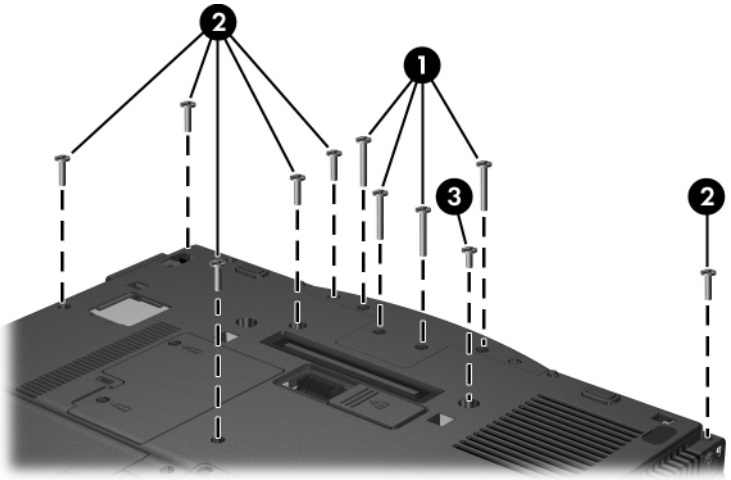
To upgrade a memory module in the primary memory module slot:

1. Save your work.
2. Shut down the computer and close the display.

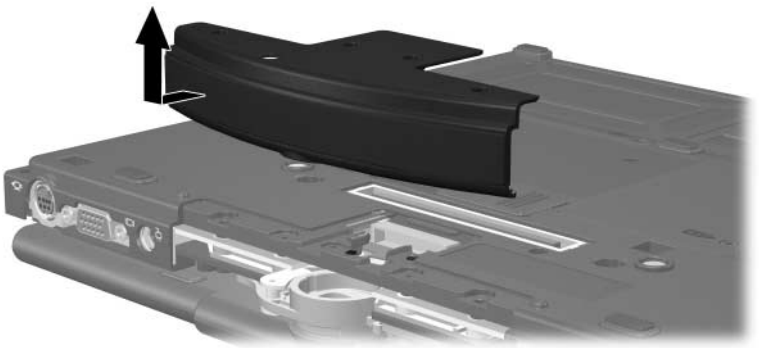
   If you are not sure whether the computer is off or in hibernation, turn the computer on by sliding the power switch toward the front of the computer. Then shut down the computer through the operating system.
3. Disconnect all external devices connected to the computer.
4. Unplug the power cord from the AC outlet.
5. Turn the computer upside down on a flat surface.
6. Remove the battery pack from the computer.

7. Remove 11 screws from the bottom of the computer: the four T8M2.0x18.0 screws ❶, the six T8M2.0x9.0 screws ❷, and one T8M2.0x5.0 screw ❸.

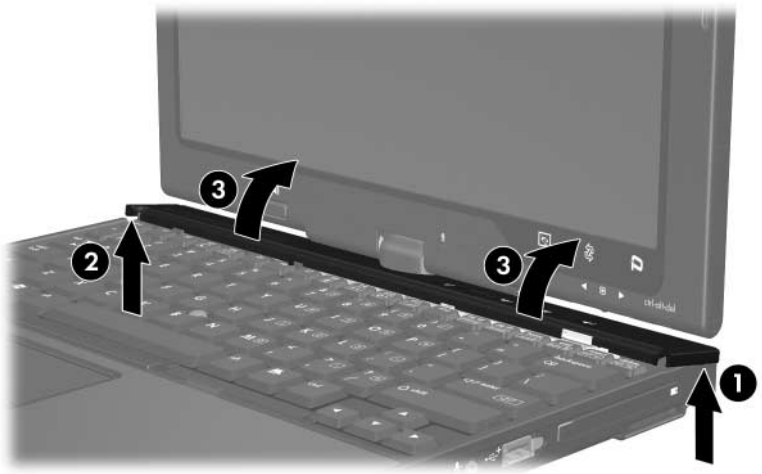
   △ The screws in the bottom of the computer are of different lengths. To protect the computer, be sure to keep track of the screws by size and location for safe replacement.



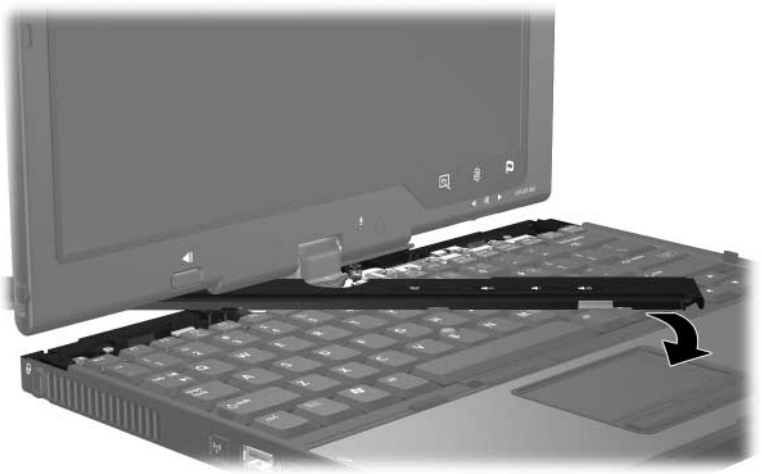
8. Remove the base enclosure cover.



9. Turn the computer display-side up, with the front toward you and open it.
10. Lift up the right rear corner edge ❶ and then the left rear corner edge ❷ of the keyboard cover to release the rear edge of the cover from the computer.
11. Tilt the keyboard cover up from the front edge ❸ to release the front edge of the cover from the computer.

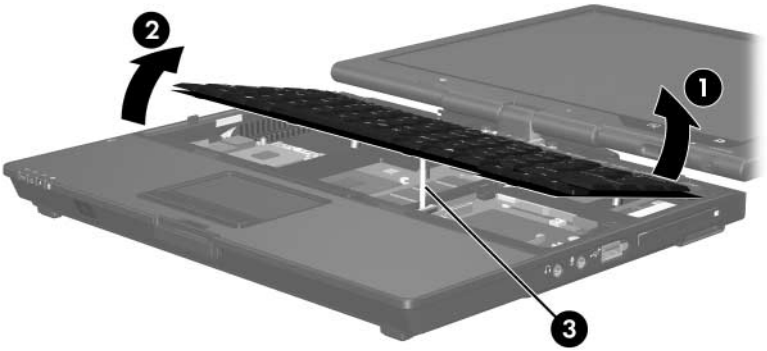


12. To remove the keyboard cover fully, swing the right edge of the cover toward the front of the computer.

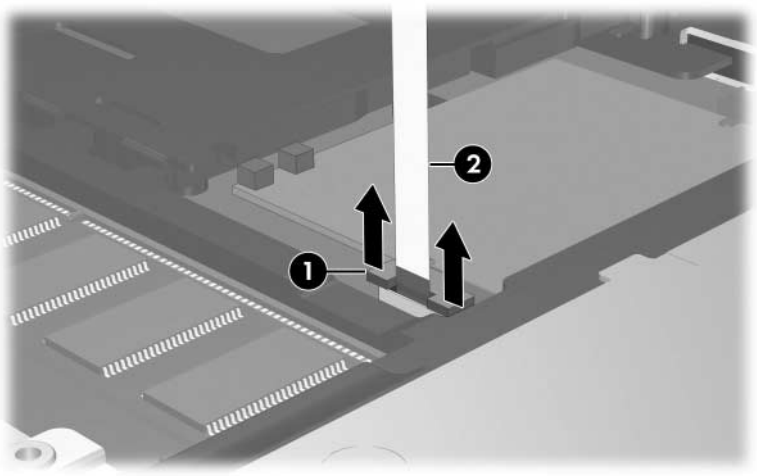


13. Turn the computer display-side up and open it completely.
14. Lift the top edge of the keyboard ❶ slightly to detach it from the computer.
15. Lift the bottom edge of the keyboard ❷ slightly until the pointing stick cable ❸ is accessible.

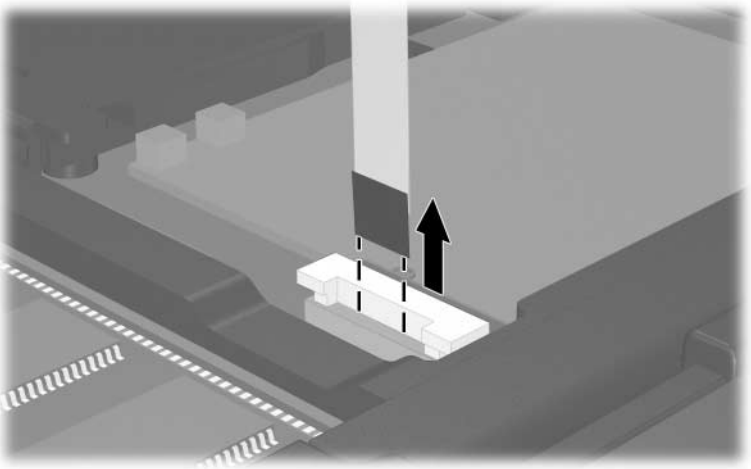
△ The pointing stick cable is still attached to its zero insertion force (ZIF) connector in the computer. To protect the computer, do not lift the keyboard more than about 2 inches (5.08 cm).



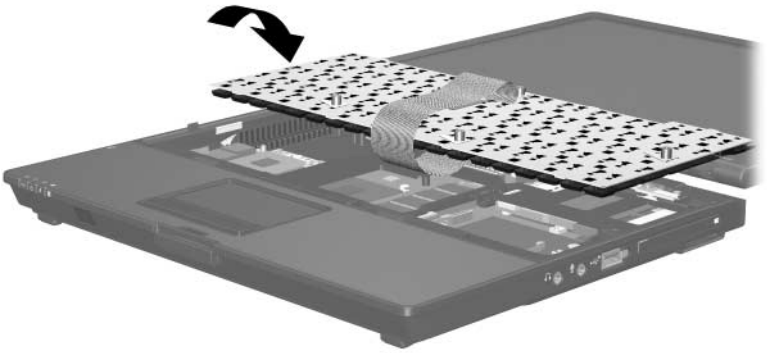
16. Pull up on each end of the pointing stick connector collar ❶ that holds the pointing stick cable ❷ in its connector.



17. Remove the pointing stick cable from the pointing stick connector.



18. Lift the bottom edge of the keyboard up until the keyboard is resting on the display of the computer.



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

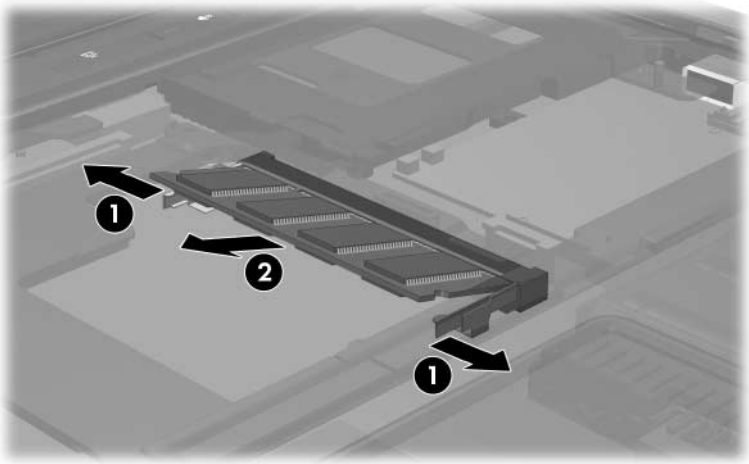
    a. Pull away the retention clips ❶ on each side of the memory module.

       The memory module tilts up.

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

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

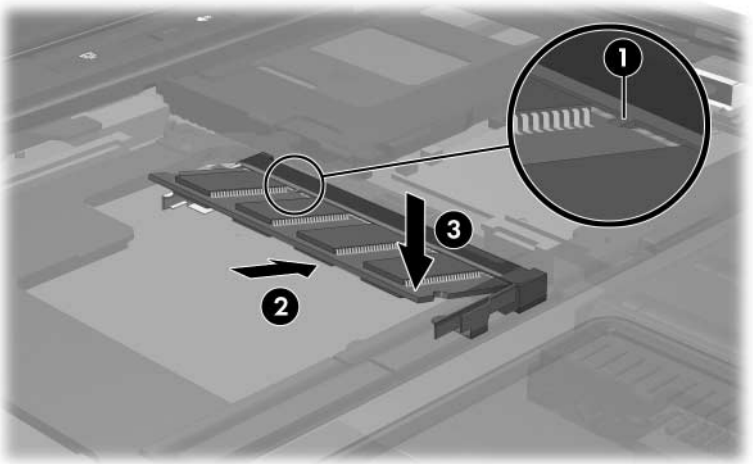
       To protect a memory module after removal, place it in an electrostatic-safe container.



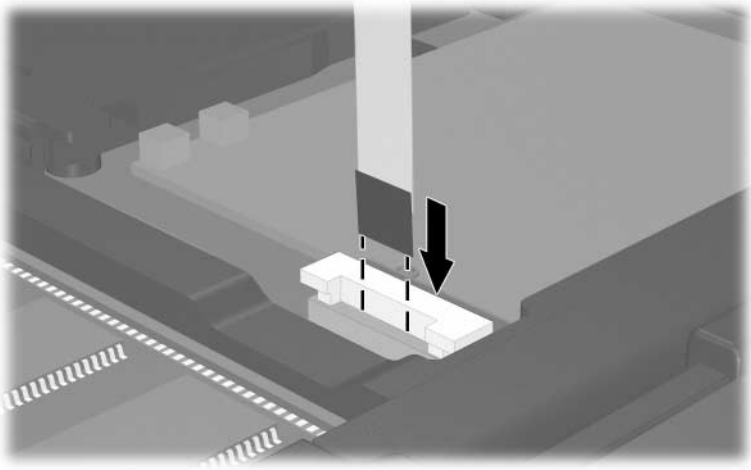
20. Insert the new memory module:
    a. Align the notched edge ❶ of the memory module with the tab in the memory module expansion slot.

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

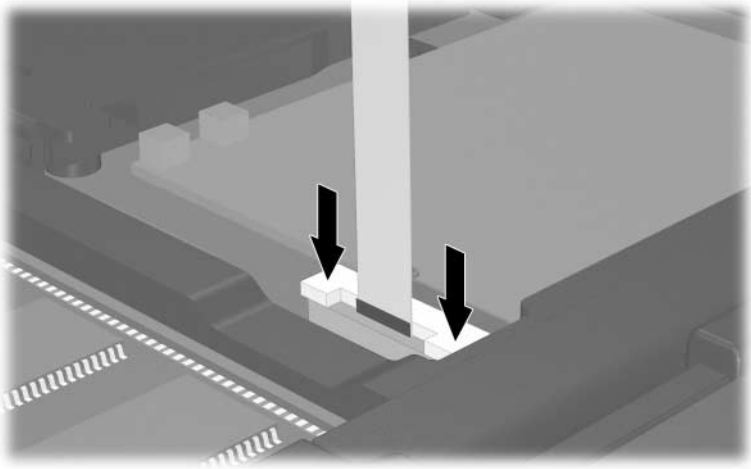
    b. With the memory module at a 45-degree angle from the surface of the memory module compartment, press the module ❷ into the memory module slot until it is seated.
    c. Gently press the memory module ❸ down, applying pressure to both the left and right edges of the memory module, until the retention clips snap into place.



21. Replace the pointing stick cable in the zero insertion force (ZIF) pointing stick connector.



22. Press down on the 2 ends of the pointing stick connector collar until the pointing stick cable is reseated.



23. Replace the keyboard.
24. Replace the keyboard cover on the computer by reversing the steps for removing the cover. (Reseat the left side of the cover first, and then reseat the right side. Press along the front edge of the keyboard cover to snap the cover into place.)
25. Turn the computer upside down on a flat surface.
26. Replace the base enclosure cover.
27. Replace the screws on the bottom of the computer.

    △ The screws on the bottom of the computer are of different lengths. To protect the computer, be sure to replace the screws in the locations noted during removal.

28. Replace the battery pack(s).
29. Reconnect external power and external devices.
30. Turn on the computer.

2

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 hard drive listing, and then click **Properties**.

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