PC Hardware
Chapter 7 LAB
Installing Ram And Understanding The Config.sys File

Objective

The objective of this lab is to teach you how to properly install RAM and to understand the differences between the kinds of RAM currently sold on the market. After completing this lab exercise, you will be able to:

- Install and remove RAM.
- Write and modify a CONFIG.SYS file.
- Compare different types of RAM.

Lab Setup & Safety Tips

- Always unplug the power cord and properly ground yourself before touching any component inside a computer.
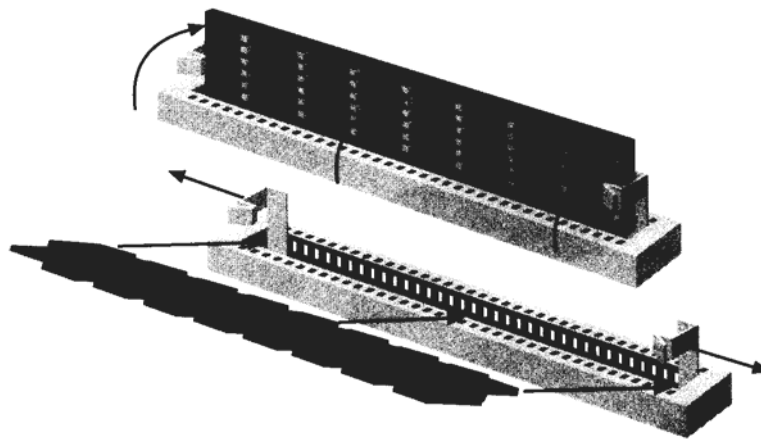
ACTIVITY
Removing RAM (SIMMS)

1. Power off the lab workstation.

2. Unplug the power cord.

3. Remove the case from the lab workstation.

4. Locate the SIMM banks on your system board.

5. On either end of the SIMM, gently pull the metal latches open.

6. Gently and evenly, lean the SIMM forward.

7. Slide the SIMM chip out of the SIMM bank at a 45-degree angle.

Installing RAM (SIMMS)

1. Power off the lab workstation.

2. Unplug the power cord.

3. Remove the case from the lab workstation.

4. Locate the SIMM banks on your system board.

5. Place the SIMM at a 45º angle and then gently snap it into place, as shown in Figure 4-1.

6. Plug in the power cord.

7. Power on your lab workstation.

8. Enter the CMOS Setup program.

9. Verify that the Setup program recognizes the correct amount of memory.

10. Save the changes and reboot the workstation.

11. Allow your lab workstation to boot into Windows 9x.

12. Right-click the My Computer icon.

13. Select Properties from the shortcut menu.

14. On the General tab, locate the Computer heading.

15. Verify that Windows 9x is using all of the installed memory.

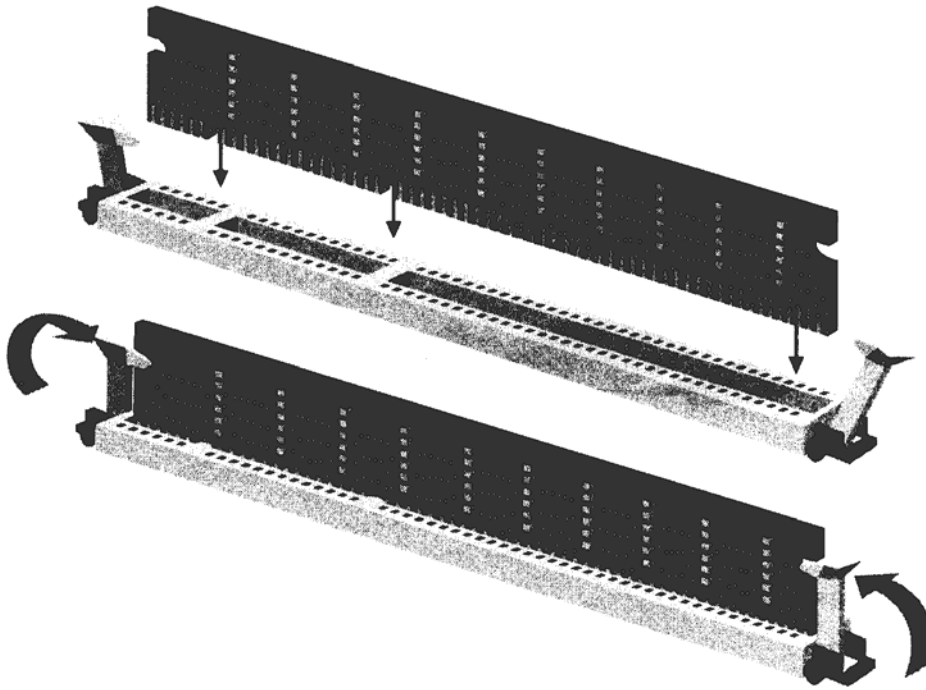**Figure 4-1** Installing a SIMM module

Removing RAM (DIMMS)

1. Power off the lab workstation.
2. Unplug the power cord.
3. Remove the case from the lab workstation.
4. Locate the DIMM banks on your system board.
5. On either end of the DIMM, gently pull the latches open and press down on them until you see the DIMM chip begin to move.
6. Gently and evenly, pull the DIMM chip straight up and free from the system board.
7. Repeat these steps until you have completely emptied the system board.

Installing RAM (DIMMS)

1. Power off the lab workstation.
2. Unplug the power cord.
3. Remove the case from the lab workstation.
4. Locate the DIMM banks on your system board.
5. Gently and evenly slide the DIMM into the bank.
6. Firmly and evenly press on the top edge of the DIMM until it slides into place. (The latches should close when the DIMM is properly installed, as shown in Figure 4-2.)
7. Plug in the power cord.
8. Power on your lab workstation.
9. Enter the CMOS Setup program.

10. Verify that the Setup program recognizes the correct amount of memory.
11. Save the changes and reboot the workstation.
12. Allow your lab workstation to boot into Windows 9x.
13. Right-click the My Computer icon.
14. Select Properties from the shortcut menu.
15. On the General tab, locate the Computer heading.
16. Verify that Windows 9x is using all of the installed memory.

Figure 4-2   Installing a DIMM module

Recording the characteristics of RAM

In the following section, write the fill description of each type of RAM; be sure to include the ii lost common usages for each type of memory, typical memory speed, and a brief description of the physical characteristics. Finding and copying the information will help you memorize it; once you are out in the field, you will be expected to know this information from memory.

SRAM

DRAM

DIMMS

_____
_____

Parity RAM

_____
_____

ECC RAM

_____
_____

DDR RAM

_____
_____

RAMBUS

_____
_____

Flash Memory

_____
_____

SDRAM

_____
_____

COAST

_____
_____
_____

Examining the CONFIG.SYS

1. Start your lab workstation in MS-DOS mode.

2. At the command prompt in the root directory, type **EDIT CONFIG.SYS** and press **Enter.** Your lab workstation should respond by launching the EDIT program and opening the CONFIG.SYS file.

On the following lines copy the contents of your CONFIG.SYS; then next to each command, write how your lab workstation should respond. Every CONFIG.SYS can be different; the purpose of this exercise is to teach you how to interpret the commands that you find in the CONFIG.SYS file on your workstation. See page 14-17 in your Textbook

> **Example:**
>
> **BUFFERS=4O -** This command tells DOS how many buffers to maintain when transferring data to and from secondary storage.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Lab Note:
What is conventional memory? - The first 640K of RAM sometimes known as base memory.
What is Upper Memory? – Memory addresses starting with 641K to 1024K.
What is expanded memory? – Memory above 1024K used with later version of DOS.
What is extended memory? – Memory above 1024K used by Windows to manage multiple applications.
What is virtual memory? – Virtual memory is an area of secondary memory (hard drive) storage that is set aside to be used as an area of RAM. Note that because it si secondary storage the access time is considerably slower than that of RAM.
What is ECC? – (Error Checking and correction) is a chip set feature on the system board that checks the integrity of data stored on DIMMs and can correct single-bit errors in a byte. More advanced ECC schemas can detect, but not correct, double-bit errors in a byte.

Review Questions
   Circle True or False.
   1. When you install memory into a Pentium-class system board that uses 72-pin SIMMs, the memory must always be installed in pairs. True *I* False

   2. Conventional memory includes the first 128K of RAM. True / False

3. EDO stands for extended data output. True / False

4. EDO RAM is faster than FPM RAM. True *I* False

5. Flash memory is commonly used as a cache for desktop PCs. True *I* False

6. If the following line were added to your CONFIG.SYS file, what would it tell your computer to do? see page 14-17 in your Textbook

   DEVICEC:\DOS\HIMEM.SYS

   _____

   _____

   _____

   _____

7. What would the following command tell your PC to do? See page 14-18 in Text

   EDIT AUTOEXEC.BAT

   _____

   _____

   _____

   _____

8. If the following line were added to your CONFIG.SYS file, what would it tell you.

   DOS=UMB

   _____

   _____

   _____

   _____