

NETWORKING & SYSTEM ADMINISTRATION LAB

Experiment No.: 1

Aim

Identify the major components of a computer system such as Motherboard, RAM modules, Daughter cards, Bus slots, SMPS, Internal Storage Devices and Interfacing ports.

Procedure

The main components of a computer system that where been described and identified are been described below:

1.MOTHERBOARD

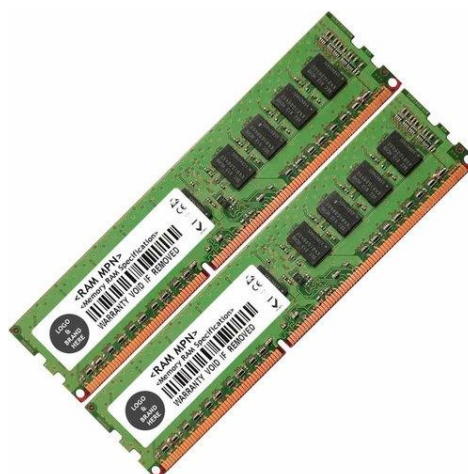
The motherboard is considered as the backbone of a computer system. It serves as a single platform to connect all of the parts of a computer together such as the CPU, memory, hard drives, optical drives, video card, sound card, and other ports and expansion cards directly or via cables. Motherboard carries fans and a special port designed for power supply.



2.RAM MODULES

RAM (Random Access Memory) is the internal memory of the CPU for storing data, program, and program result. It is a read/write volatile memory which stores data until the machine is working. As soon as the machine is switched off, data is erased.

Access time in RAM is independent of the address and data. It is randomly accessed and very expensive. RAM is small in terms of its physical size and in the amount of data it can hold.



RAM is of two types –

- Static RAM (SRAM): - They are volatile in nature and developed using flipflops.
- Dynamic RAM (DRAM): - They are mostly used cheap ram model and developed using transistors and capacitors.

3.DAUGHTER CARDS

A daughtercard or daughterboard is type of circuit board that plugs in or is attached to the motherboard or similar expansion card to extend its features and services. A daughterboard complements the existing functionality of a motherboard or an expansion card. A daughterboard is connected directly to the motherboard. Unlike expansion cards, which connect with the motherboard using bus and other serial interfaces, daughterboards are usually directly embedded through soldering.

4.BUS SLOTS

Bus slot or expansion port is a connection or port inside a computer on the motherboard or riser card. It provides an installation point for a hardware expansion card to be connected. Computers have expansion slots to give the user the ability to add new devices to their computer. The most commonly used expansion slot used on motherboards is the PCI Express expansion slot. A computer system generally can have one to seven expansion slots for video, sound, advanced graphics, Ethernet or memory devices.

5.SMBS

SMPS stands for Switched-Mode Power Supply. It is an electronic power supply that uses a switching regulator to convert electrical power efficiently and known as Switching Mode Power Supply. It is power supply unit (PSU) generally used in computers to convert the voltage into the computer acceptable range.

SMPS has the power handling electronic components that converts electrical power efficiently. It uses a great power conversion technique to reduce overall power loss.



6.INTERNAL STORAGE DEVICES

CACHE MEMORY

It is also called **cache**, supplementary memory system that temporarily stores frequently used instructions and data for quicker processing by the central processing unit (CPU) of a computer. Cache is internal random-access memories (RAMs) that use semiconductor-based transistor circuits. Cache holds a copy of only the most frequently used information or program codes stored in the main memory. The smaller capacity of the cache reduces the time required to locate data within it and provide it to the CPU for processing.

HARD DISK MEMORY

A hard disk is also known as a hard drive or fixed disk. It is said to be rigid magnetic disc that stores data located within a drive unit. Hard disk is a non-volatile storage device that contains platters and magnetic disks rotating at high speeds. It is installed internally in our computer systems. Hard disk is located within a drive unit on the computer's motherboard and comprises one or more platters packed in an air-sealed casing. Currently, Hard drives into five types and are Parallel Advanced Technology Attachment (PATA), Serial ATA (SATA), Small Computer System Interface (SCSI), Solid State Drives (SSD), NVMe Express.



SOLID STATE DRIVES

Solid-state drive, an SSD is a storage medium that uses non-volatile memory to hold and access data. Unlike a hard drive, an SSD has no moving parts, which gives it advantages, such as faster access time, noiseless operation, higher reliability, and lower power consumption.



7.INTRFACING PORTS

Serial Port

It is used for external modems and older computer mouse. Two versions of serial ports are 9 pin, 25 pin model. Data travels at 115 kilobits per second.

Parallel Port

It is used for scanners and printers and also called printer port which is a 25 pin model.

PS/2 Port

It is used for old computer keyboard and mouse and is also called mouse port. Most of the old computers provide two PS/2 port, each for the mouse and keyboard.

Universal Serial Bus (or USB) Port

It can connect all kinds of external USB devices such as external hard disk, printer, scanner, mouse, keyboard, etc. It was introduced in 1997. Most of the computers provide two USB ports as minimum. Data travels at 12 megabits per seconds. USB compliant devices can get power from a USB port.

VGA Port

Connects monitor to a computer's video card. It has 15 holes. Similar to the serial port connector. However, serial port connector has pins, VGA port has holes.

Power Connector

Three-pronged plug. Connects to the computer's power cable that plugs into a power bar or wall socket.

Firewire Port

It transfers large amount of data at very fast speed and connects camcorders and video equipment to the computer. Data travels at 400 to 800 mbps which was invented by Apple. It has three variants: 4-Pin FireWire 400 connector, 6-Pin FireWire 400 connector, and 9-Pin FireWire 800 connector.

Modem Port

It connects a PC's modem to the telephone network.

Ethernet Port

It connects to a network and high-speed Internet via network cable to a computer. This port resides on an Ethernet Card. Data travel at 10 mbps to 1000 mbps depending upon the network bandwidth.

Game Port

It connects a joystick to a PC which is now replaced by USB.

Digital Video Interface, DVI port

It connects Flat panel LCD monitor to the computer's high-end video graphic cards and is very popular among video card manufacturers.

Sockets

Sockets connect the microphone and speakers to the sound card of the computer.

