NETWORKING & SYSTEM ADMINISTRATION LAB

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Aim

Identify major components of computer system such as Motherboard, RAM Module, Daughter cards, Bus slot, SMPS, Internal Storage Device, Interfacing ports

Procedure

Motherboard

The motherboard serves as a single platform to connect all of the parts of a computer together. It connects the CPU, memory, hard drives, optical drives, video card, sound card, and other ports and expansion cards directly or via cables. It can be considered as the backbone of a computer.

Features of motherboard

A motherboard comes with following features:

- Motherboard varies greatly in supporting various types of components.
- Motherboard supports a single type of CPU and few types of memories.
- Video cards, Hard drives, Sound cards have to be compatible with the motherboard to function properly.
- Motherboard, Cases, and Power supplies must be compatible to work properly together.

Components

A motherboard is made of plastic and silicon as well. It is a hub of a computer system. A motherboard is a complex component with various kinds of ports, slots, cables connected to it.
Some of them are:

- **RAM slots(Random Access Memory):** Also called as main memory, it is a primary storage device for storage huge bytes of data
- **CPU Fan and HeatSink:** Its main function is to cool down the CPU by absorbing the heat while the system is running

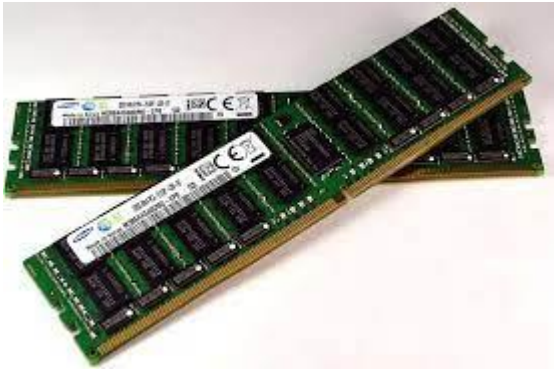
- **North bridge:** Due to its location, it is referred to as Northbridge.
- **South bridge:** Controls the Input and Output functions.
- **Capacitors:** Data storage
- **Resistors:** Data storage
- **CMOS battery(Complementary Metal Oxide Semiconductor):** A battery that provides backup power.
- **PCI Slots(Peripheral Component Interconnect):** Connects the peripherals.
- **SATA cables(Serial Advanced Technology Attachment):** Data transfer
- **BIOS(Basic Input Output System):** Controls the basic input-output functions.
- **Processor:** the main component for the data processing.
- **AGP(Accelerated Graphics Port):** For displaying graphics on the screen.
- **IDE(Integrated Drive Electronics):** Used for data transfer.
- **Processor socket:** To insert or remove the processor.
- **Integrated Circuits (IC):** for data processing and storage

RAM Modules

In computing, a memory module or RAM (random-access memory) stick is a printed circuit board on which memory integrated circuits are mounted. Memory modules permit easy installation and replacement in electronic systems, especially computers such as personal computers, workstations, and servers.

Types of memory module include:

- TransFlash Memory Module
- SIMM, a single in-line memory module
- DIMM, dual in-line memory module
    - Rambus memory modules are a subset of DIMMs, but are normally referred to as RIMMs
    - SO-DIMM, small outline DIMM, a smaller version of the DIMM, used in laptops



DaughterCards

A printed circuit board that plugs into another circuit board (usually the motherboard). A daughtercard is similar to an expansion board, but it accesses the motherboard components (memory and CPU) directly instead of sending data through the slower expansion bus. A daughtercard is also called a daughterboard.A daughtercard or daughterboard is a type of circuit board that gets added to an existing one. Its name is appropriate for its use, since it is connected to a "motherboard" or "main board." The motherboard is the primary circuit board for a device. It is usually in the device as it is shipped from the factory. A daughtercard may be added later.

Bus Slot

Alternatively known as a bus slot or expansion port, an expansion slot 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. For example, if you wanted to install a new video card in the computer, you'd purchase a video expansion card and install that card into the compatible expansion slot.

Computer bus slots

Below is a listing of expansion slots commonly found in a computer and the devices associated with those slots.

- **AGP** - Video card.
- **AMR** - Modem, sound card.
- **CNR** - Modem, network card, sound card.
- **EISA** - SCSI, network card, video card.
- **ISA** - Network card, sound card, video card

SMPS

A switched-mode power supply (SMPS) is an electronic circuit that converts power using switching devices that are turned on and off at high frequencies, and storage components such as inductors or capacitors to supply power when the switching device is in its non-conduction state.Switching power supplies have high efficiency and are widely used in a variety of electronic equipment, including computers and other sensitive equipment requiring stable and efficient power supply.A switched-mode power supply is also known as a switch-mode power supply or switching-mode power supply.

Internal Storage Devices

Some storage devices are classed as 'internal' which means they are inside the computer case.Most computers have some form of internal storage. The most common type of internal storage is the hard disk. hard disk.At the most basic level, internal storage is needed to hold the operating system so that the computer is able to access the input and output devices.It will also be used to store the applications software that you use and more than likely, the original copies of your data files.Internal storage allows the data and applications to be loaded very rapidly into memory, ready for use. The data can be accessed much faster than data which is stored on an external storage device. This is because internal storage devices are connected directly to the motherboard and its data bus whereas external devices are connected through a hardware interface such as USB, which means they are considerably slower to access.Internal storage also means that if the computer is moved around, it will still retain its most commonly used data.

Interfacing Ports

A port is a physical docking point using which an external device can be connected to the computer. It can also be programmatic docking point through which information flows from a program to the computer or over the Internet.

Characteristics of Ports

A port has the following characteristics −

- External devices are connected to a computer using cables and ports.
- Ports are slots on the motherboard into which a cable of external device is plugged in.
- Examples of external devices attached via ports are the mouse, keyboard, monitor, microphone, speakers, etc.

There are different types of ports available:

- Serial port
- Parallel port
- USB port
- PS/2 port
- VGA port
- Modem port
- FireWire Port
- Sockets