NETWORKING & SYSTEM ADMINISTRATION LAB

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Aim:

Identify the major components of computer system such as Motherboard, RAM Modules, DaughterCards, Bus slot, SMPS, Internal Storage Device and Interfacing ports

Procedure:

The motherboard (often referred as mainboard or mobo for short) is the most important part of a computer and is the main circuit board. Everything connects directly or indirectly to it.

- The **motherboard** is the most important part of a computer and is the main circuit board of the system unit that:
  - Often referred as main board (or mobo in short)
  - controls all the components of the computer system and establishes a link between all components
  - Contains sockets for the CPU, RAM, power, and external devices such as mice, printers, and keyboards
  - Has Expansion slots that allow the addition of new components

Some main motherboard manufacturers are:

- ASUS
- Biostar
- EVGA
- Gigabyte
- MSI (Micro-Star International)

RAM Modules

A memory module is another name for a RAM chip. It is often used as a general term used to describe SIMM, DIMM, and SO-DIMM memory. While there are several different types of memory modules available, they all serve the same purpose, which is to store temporary data while the computer is running.

What are the types of RAM?

There are two main types of RAM: Dynamic RAM (DRAM) and Static RAM (SRAM).

- **DRAM** (pronounced DEE-RAM), is widely used as a computer's main memory. Each DRAM memory cell is made up of a transistor and a capacitor within an integrated circuit, and a data bit is stored in the capacitor. Since transistors always leak a small amount, the capacitors will slowly discharge, causing information stored in it to drain; hence, DRAM has to be refreshed (given a new electronic charge) every few milliseconds to retain data.
- **SRAM** (pronounced ES-RAM) is made up of four to six transistors. It keeps data in the memory as long as power is supplied to the system unlike DRAM, which has to be refreshed periodically. As such, SRAM is faster but also more expensive, making DRAM the more prevalent memory in computer systems.

What are the common types of DRAM?

- **Synchronous DRAM (SDRAM)** "synchronizes" the memory speed with CPU clock speed so that the memory controller knows the exact clock cycle when the requested data will be ready. This allows the CPU to perform more instructions at a given time. Typical SDRAM transfers data at speeds up to 133 MHz.
- **Rambus DRAM (RDRAM)** takes its name after the company that made it, Rambus. It was popular in the early 2000s and was mainly used for video game devices and graphics cards, with transfer speeds up to 1 GHz.
- **Double Data Rate SDRAM (DDR SDRAM)** is a type of synchronous memory that nearly doubles the bandwidth of a single data rate (SDR) SDRAM running at the same clock frequency by employing a method called "double pumping," which allows transfer of data on both the rising and falling edges of the clock signal without any increase in clock frequency.

DaughterCard

A daughterboard (or daughter board, daughter card , or daughtercard) is a circuit board that plugs into and extends the circuitry of another circuit board. The other circuit board may be the computer's main board (its motherboard) or it may be another board or card that is already in the computer, often a sound card. The term is commonly used by manufacturers of wavetable daughterboards that attach to existing sound cards.

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.

SMPS

The full form of SMPS is **Switched Mode Power Supply** also known as **Switching Mode Power Supply**. SMPS is an electronic power supply system that makes use of a switching regulator to transfer electrical power effectively. It is a PSU (power supply unit) and is usually used in computers to change the voltage to the appropriate range for the computer.

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.

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.

Interfacing Ports

A computer is a device that transforms data into meaningful information. It processes the input according to the set of instructions provided to it by the user and gives the desired

output. As we know that we can connect multiple external devices with the computer system. Now, these devices are connected with the computer using Ports. The ports are the physical docking points present in the computer through which the external devices are connected using cables. Or in other words, a port is an interface between the motherboard and an external device of the computer. There are different types of ports available:

- Serial port
- Parallel port
- USB port
- PS/2 port
- VGA port
- Modem port
- FireWire Port
- Sockets
- Infrared Port
- Game Port
- Digital Video Interface(DVI) Port
- Ethernet Port