**Experiment 1**

**AIM: 1**Familiarization with computer hardware components

1. **MOTHER BOARD :**

A motherboard (sometimes alternatively known as the mainboard, system board, baseboard, planar board or logic board, or colloquially, a mobo) is the main printed circuit board (PCB) found in general purpose microcomputers and other expandable systems. It holds and allows communication between many of the crucial electronic components of a system, such as the central processing unit (CPU) and memory, and provides connectors for other peripherals. Unlike a backplane, a motherboard usually contains significant sub-systems such as the central processor, the chipset's input/output and memory controllers, interface connectors, and other components integrated for general purpose use.

1. **MEMORY UNIT :**

Primary storage, or memory, means the space on your hard drive that is briefly used for working space. This usually occurs in a chip. Memory consists of four types of memory chips RAM, ROM, CMOS and flash. RAM stand for random access memory and ROM stand for read only memory.these are also called primary memory of a computer.

* 1. **RAM:**

Random access memory or RAM is a form of data storage used in computers. Taken in the form of integrated circuits which represents primary or temporary storage, it allows data which is stored to be accessed in any order, which is why it's called random. Making it random instead of sequential greatly increases the speed the computer can operate since time is not wasted going to the place where needed data is stored (Volatile is a descriptive word for RAM which is short term memory; when the computer loses power the temporary storage will be lost . In order to prevent data from being lost, it must be saved to a hard disk or permanent storage area called ROM (Read Only Memory)

* 1. **ROM:**

ROM (Read Only Memory)refers to a read only memory chip that cannot be written on or erased by the computer user without special equipment. While using ROM contents are not lost when power to the computer is no longer available.Since it does not need power, and cannot be rewritten the only things put on ROM are starting (booting) instructions.

1. **HARD DISK:**

A hard disk drive (HDD), hard disk, hard drive or fixed disk[[b]](https://en.wikipedia.org/wiki/Hard_disk_drive#cite_note-3) is a [data storage device](https://en.wikipedia.org/wiki/Data_storage_device) that uses [magnetic storage](https://en.wikipedia.org/wiki/Magnetic_media) to store and retrieve [digital](https://en.wikipedia.org/wiki/Digital_data) information using one or more rigid rapidly rotating disks ([platters](https://en.wikipedia.org/wiki/Hard_disk_platter)) coated with magnetic material. The platters are paired with [magnetic heads](https://en.wikipedia.org/wiki/Disk_read-and-write_head), usually arranged on a moving [actuator](https://en.wikipedia.org/wiki/Actuator) arm, which read and write data to the platter surfaces.[[2]](https://en.wikipedia.org/wiki/Hard_disk_drive#cite_note-ostep-4) Data is accessed in a [random-access](https://en.wikipedia.org/wiki/Random-access)manner, meaning that individual [blocks](https://en.wikipedia.org/wiki/Block_%28data_storage%29) of data can be stored or retrieved in any order and not only [sequentially](https://en.wikipedia.org/wiki/Sequential_access). HDDs are a type of [non-volatile storage](https://en.wikipedia.org/wiki/Non-volatile_storage), retaining stored data even when powered off.

1. **OPTICAL DISK**

In [computing](https://en.wikipedia.org/wiki/Computing) and [optical disc recording technologies](https://en.wikipedia.org/wiki/Optical_disc_recording_technologies), an optical disc (OD) is a flat, usually circular disc which encodes binary data ([bits](https://en.wikipedia.org/wiki/Bit)) in the form of [pits](https://en.wikipedia.org/wiki/Compact_disk#Physical_details) (binary value of 0 or off, due to lack of reflection when read) and lands (binary value of 1 or on, due to a reflection when read) on a special material (often [aluminium](https://en.wikipedia.org/wiki/Aluminium)[[1]](https://en.wikipedia.org/wiki/Optical_disc#cite_note-1) ) on one of its flat surfaces. The encoding material sits atop a thicker substrate (usually [polycarbonate](https://en.wikipedia.org/wiki/Polycarbonate)) which makes up the bulk of the disc and forms a dust defocusing layer. The encoding pattern follows a continuous, spiral path covering the entire disc surface and extending from the innermost track to the outermost track.

1. **SMPU**

A switch-mode power supply (switching-mode power supply or SMPS) is an electronic power supply that uses a switching regulator in order to control the conversion of electrical power in a highly efficient manner. This higher efficiency (thus lower heat dissipation) is the chief advantage of a switched-mode power supply.

1. **PCI SLOT:**

It is a parallel bus, synchronous to a single bus clock. Attached devices can take either the form of an integrated circuit fitted onto the motherboard itself (called a planar device in the PCI specification) or an expansion card that fits into a slot.

1. **NORTH BRIDGE :**

Northbridge is an Intel chipset that communicates with the computer processor and controls interaction with memory, the Peripheral Component Interconnect (PCI) bus, Level 2 cache, and all Accelerated Graphics Port (AGP) activities. Northbridge communicates with the processor using the frontside bus (FSB).

1. **SOUTH BRIDGE:**

The southbridge is one of the two chips in the core logic chipset on a personal computer (PC) motherboard, the other being the northbridge. The southbridge typically implements the slower capabilities of the motherboard in a northbridge/southbridge chipset computer architecture.

1. **CMOS BATTERY:**

Alternatively referred to as a Real-Time Clock (RTC), Non-Volatile RAM (NVRAM) or CMOS RAM, CMOS is short for Complementary Metal-Oxide Semiconductor. CMOS is an on-board, battery powered semiconductor chip inside computers that stores information

1. **NETWORK INTERFACE:**

A network interface is the point of interconnection between a computer and a private or public network. A network interface is generally a network interface card (NIC), but does not have to have a physical form. Instead, the network interface can be implemented in software.

2. NETWORK HARDWARE COMPONENT

1. **HUB:**

A [hub](https://en.wikipedia.org/wiki/Wheel#Hub) is the central part of a wheel that connects the axle to the wheel itself. Many expressions use the term for a literal or figurative central structure connecting to a periphery.

1. **SWITCH:**

A network switch (also called switching hub, bridging hub, officially MAC bridge[[1]](https://en.wikipedia.org/wiki/Network_switch#cite_note-1)) is a [computer networking device](https://en.wikipedia.org/wiki/Computer_networking_device) that connects devices together on a [computer network](https://en.wikipedia.org/wiki/Computer_network) by using [packet switching](https://en.wikipedia.org/wiki/Packet_switching) to receive, process, and forward data to the destination device. Unlike less advanced [network hubs](https://en.wikipedia.org/wiki/Network_hub), a network switch forwards data only to the devices that need to receive it, rather than broadcasting the same data out of each of its ports.

1. **ROUTER:**

A router[[a]](https://en.wikipedia.org/wiki/Router_%28computing%29#cite_note-2) is a [networking device](https://en.wikipedia.org/wiki/Networking_device) that forwards [data packets](https://en.wikipedia.org/wiki/Data_packet) between [computer networks](https://en.wikipedia.org/wiki/Computer_network). Routers perform the traffic directing functions on the [Internet](https://en.wikipedia.org/wiki/Internet). A data packet is typically [forwarded](https://en.wikipedia.org/wiki/Packet_forwarding) from one router to another router through the networks that constitute the [internetwork](https://en.wikipedia.org/wiki/Internetworking) until it reaches its destination [node](https://en.wikipedia.org/wiki/Node_%28networking%29).

1. **MODEM:**

A modem (modulator-demodulator) is a [network hardware](https://en.wikipedia.org/wiki/Network_hardware) device that [modulates](https://en.wikipedia.org/wiki/Modulation#Digital_modulation_methods) one or more [carrier wave](https://en.wikipedia.org/wiki/Carrier_wave) signals to encode [digital information](https://en.wikipedia.org/wiki/Digital_information) for transmission and [demodulates](https://en.wikipedia.org/wiki/Demodulation) signals to decode the transmitted information. The goal is to produce a [signal](https://en.wikipedia.org/wiki/Signal_%28electronics%29) that can be transmitted easily and decoded to reproduce the original digital data. Modems can be used with any means of transmitting analog signals, from [light emitting diodes](https://en.wikipedia.org/wiki/Light_emitting_diode) to [radio](https://en.wikipedia.org/wiki/Radio). A common type of modem is one that turns the [digital data](https://en.wikipedia.org/wiki/Digital_data) of a [computer](https://en.wikipedia.org/wiki/Computer) into modulated [electrical signal](https://en.wikipedia.org/wiki/Electrical_signal) for transmission over [telephone lines](https://en.wikipedia.org/wiki/Telephone_line) and demodulated by another modem at the receiver side to recover the digital data.

1. **REPEATER :**

A repeater is an electronic device that receives a [signal](https://en.wikipedia.org/wiki/Signal_%28information_theory%29) and retransmits it. Repeaters are used to extend transmissions so that the signal can cover longer distances or be received on the other side of an obstruction.Some types of repeaters broadcast an identical signal, but alter its method of transmission, for example, on another frequency or [baud rate](https://en.wikipedia.org/wiki/Baud_rate).

1. **BRIDGE:**

A network bridge is a computer networking device that creates a single aggregate network from multiple communication networks or network segments. This function is called network bridging. ... In the OSI model, bridging is performed in the first two layers, below the network layer .

1. **GATEWAY :**

A gateway is a node (router) in a computer network, a key stopping point for data on its way to or from other networks. ... In a workplace, the gateway is the computer that routes traffic from a workstation to the outside network that is serving up the Web pages.

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