

Practical: 3

Aim: Detail study of Motherboard components and its devices.

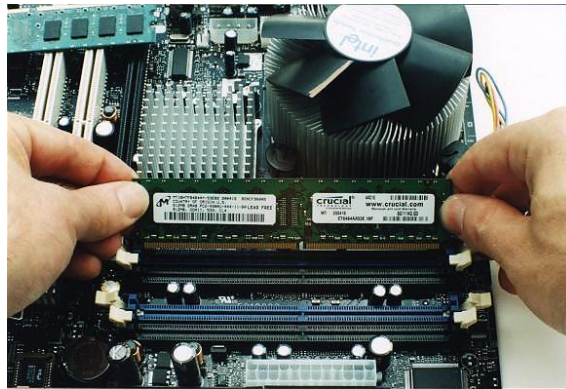
→ What is Motherboard?

- A motherboard is one of the most essential parts of a computer system.
- It holds together many of the crucial components of a computer, including the central processing unit (CPU), memory and connectors for input and output devices.
- The base of a motherboard consists of a very firm sheet of non-conductive material, typically some sort of rigid plastic.
- Thin layers of copper or aluminium foil, referred to as *traces*, are printed onto this sheet. These traces are very narrow and form the circuits between the various components. In addition to circuits, a motherboard contains a number of sockets and slots to connect the other components.



1) Memory & their Slots:

- The computer memory (RAM) is one of the most parts of the system board. The number of memory chips of a motherboard depends on the type of computer and its capacity.
- There slots are usually black and white and very close to each other.



2) CPU Slots:

- A CPU socket or slot is an electrical component that attaches to a Printed Circuit Board (PCB) and is designed to house a CPU (also called a microprocessor).
- It is a special type of integrated circuit socket designed for very high pin counts.



3) Expansion Cards:

- In computing, an expansion card, expansion board, adapter card or accessory card is a printed circuit board that can be inserted into an electrical connector, or expansion slot, on a computer motherboard, backplane or riser card to add functionality to a computer system via the expansion bus.

Internal computer Modem expansion card



4) CMOS Battery:

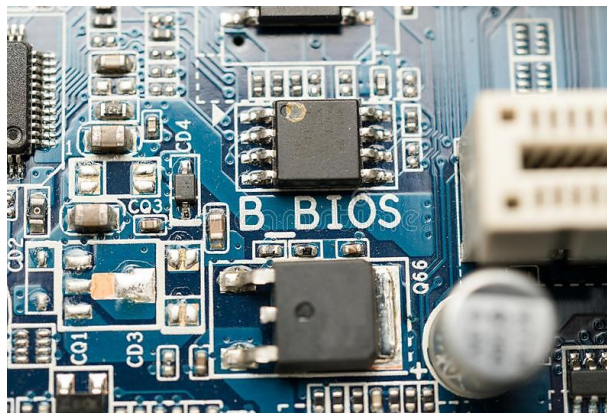
- CMOS battery is a small battery used in PC and Laptops to save some memory of Bios while the PC is in shut down position.

- CMOS is an on-board, battery powered semiconductor chip inside computers that stores information.
- This information ranges from the system time and date to system hardware settings for your computer.



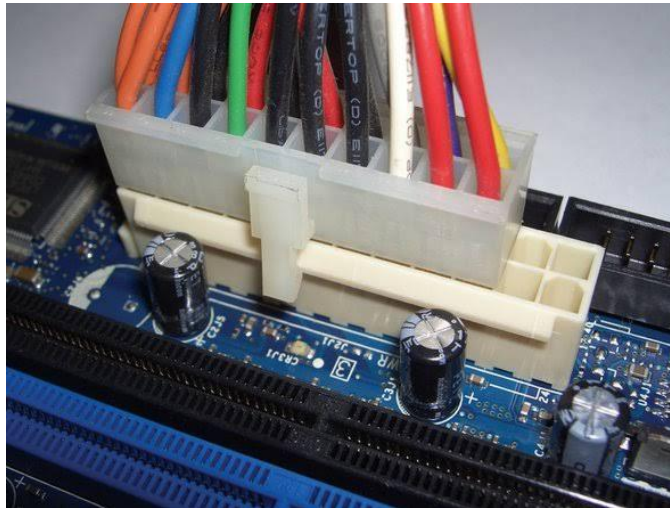
5) BIOS Chip:

- Short for Basic Input/output System, the BIOS (pronounced bye-oss) is a ROM chip found on motherboards that allows you to access and set up your computer system at the most basic level.
- The picture below is an example of what a BIOS chip may look like on a computer motherboard.



6) Power Supply & Connectors:

- This is the electrical unit of the system.
- It is the unit that supplies power as required for the smooth running of the computer.
- If it is bad the system will not power on.



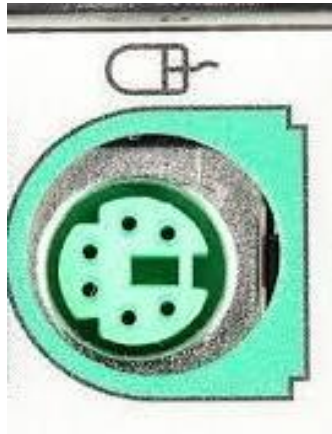
7) **Keyboard Connector:**

- Keyboard Connectors are two types basically.
- All PCs have a Key board port connected directly to the motherboard.
- The oldest, but still quite common type, is a special DIN, and most PCs until recently retained this style connector.



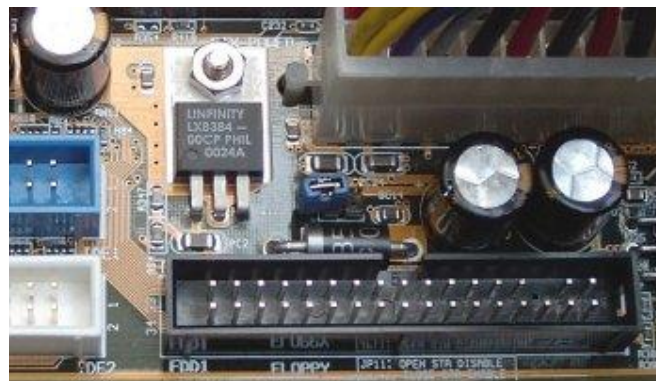
8) **Mouse Connector:**

- The mouse is also a very important input device on the computer.
- Its connecting port is located on the motherboard.
- The connecting interface is usually round.



9) Floppy & Hard Disk Connectors:

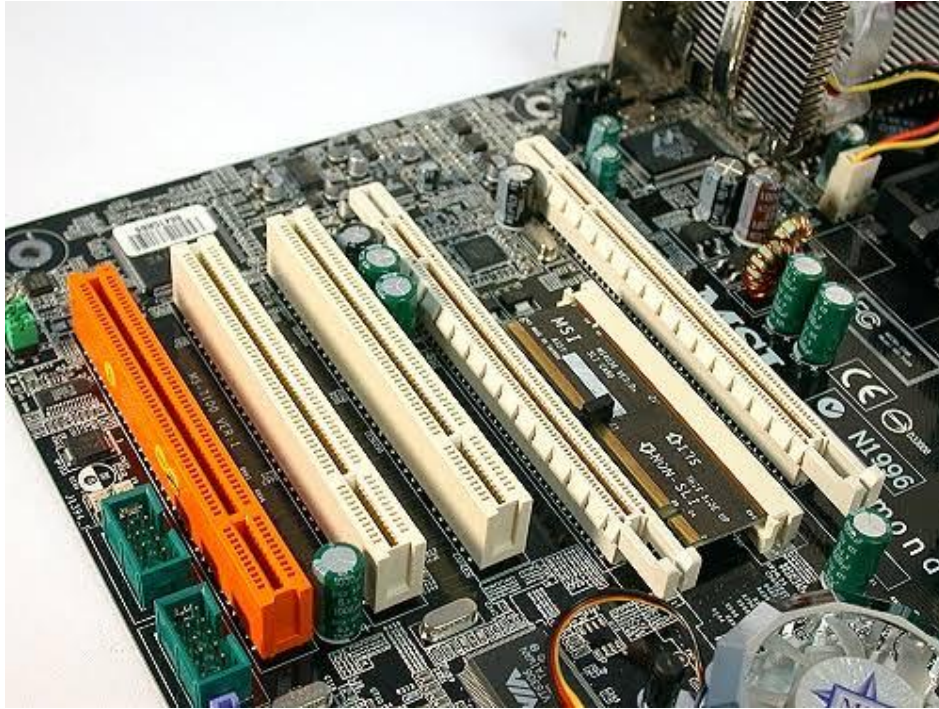
- In old motherboard the floppy drive connects to the computer via a 34-pin ribbon cable, one end of ribbon cable is connecting to floppy drive and other is connected to the motherboard.
- The hard drive is the mass storage device of the computer system.
- They are on board connecting interfaces that enable the computer communicates with both drives.



10) Expansion Slots:

- An expansion bus is an input/output pathway from the CPU to peripheral devices and it is typically made up of a series of slots on the motherboard.
- Expansion boards (cards) plug into the bus. PCI is the most common expansion bus in a PC and other hardware platforms.

- Buses carry signals such as data, memory addresses, power, and control signals from component to component. Other types of buses include ISA and EISA.
- Expansion buses enhance the PCs capabilities by allowing users to add missing features in their computers by slotting adapter cards into expansion slots.



11) Peripheral Ports & Slots:

- The function performed by the computer require in most cases as external device connection either for uploading or to download data or as the case may be.
- There are various peripheral ports and slots met for this purpose.
- The most important peripheral ports are the USB, Serial, Ethernet, Parallel, Video, Sound, Game ports.



12) Jumpers & DIP Switches:

- Jumpers and DIP switches used to configure the system board system board serving as a regulator for the amount of voltage supply as required by the various components on the motherboard especially the processor.
- This is automatic in some recent motherboards form factors.

