Aim :- Assembling and Deassembling of PC

1.Motherboard

A **motherboard** (also called **mainboard**, main **circuit board**, **system board**, **baseboard**, **planar board**, **logic board**, and **mobo**) is the main [printed circuit board](https://en.wikipedia.org/wiki/Printed_circuit_board) (PCB) in general-purpose computers 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](https://en.wikipedia.org/wiki/Central_processing_unit) (CPU) and [memory](https://en.wikipedia.org/wiki/Computer_memory), and provides connectors for other [peripherals](https://en.wikipedia.org/wiki/Peripherals). Unlike a [backplane](https://en.wikipedia.org/wiki/Backplane), a motherboard usually contains significant sub-systems, such as the central processor, the chipset's [input/output](https://en.wikipedia.org/wiki/Input/output) and memory controllers, [interface](https://en.wikipedia.org/wiki/Interface_(computing)) connectors, and other components integrated for general use.

# Features of Motherboard

A motherboard comes with following features

1.Motherboard varies greately in supporting various types of components

2.Motherboard supports a single type of CPU and few types of memories.

3.Video cards ,hard disks and sound cards have to be compatible with the motherboards to be function properly.

4.Motherboards , cases and power supplies must be compatible to work properly together .

2.Video graphics card ports

A **video card** (also called a **graphics card**, **display card**, **graphics adapter**, or **display adapter**) is an [expansion card](https://en.wikipedia.org/wiki/Expansion_card) which generates a feed of output images to a [display device](https://en.wikipedia.org/wiki/Display_device) (such as a [computer monitor](https://en.wikipedia.org/wiki/Computer_monitor)). Frequently, these are advertised as discrete or dedicated graphics cards, emphasizing the distinction between these and [integrated graphics](https://en.wikipedia.org/wiki/Graphics_processing_unit#Integrated_graphics). At the core of both is the [graphics processing unit](https://en.wikipedia.org/wiki/Graphics_processing_unit) (GPU), which is the main part that does the actual computations, but should not be confused with the video card as a whole, although "GPU" is often used as a [metonymic](https://en.wikipedia.org/wiki/Metonymy) shorthand to refer to video cards.

Features of a VGA Port

connects monitor to a computer’s video card.

1.It has 15 holes.

2.Similar to the serial port connector , however , serial port 3.connectors has pins , VGA port has holes.

3.Universal serial bus (USB)

**Universal Serial Bus** (**USB**) is an [industry standard](https://en.wikipedia.org/wiki/Technical_standard) that establishes specifications for cables and connectors and [protocols](https://en.wikipedia.org/wiki/Communication_protocol) for connection, communication and power supply ([interfacing](https://en.wikipedia.org/wiki/Interface_(computing))) between computers, [peripherals](https://en.wikipedia.org/wiki/Peripheral) and other computers. A broad variety of [USB hardware](https://en.wikipedia.org/wiki/USB_hardware) exists, including eleven different [connectors](https://en.wikipedia.org/wiki/USB_hardware#Connector_types), of which [USB-C](https://en.wikipedia.org/wiki/USB-C) is the most recent.

Released in 1996, the USB standard is currently maintained by the [USB Implementers Forum](https://en.wikipedia.org/wiki/USB_Implementers_Forum) (USB-IF). There have been four generations of USB specifications: [USB 1.*x*](https://en.wikipedia.org/wiki/USB#USB_1.x), [USB 2.0](https://en.wikipedia.org/wiki/USB#USB_2.0), [USB 3.*x*](https://en.wikipedia.org/wiki/USB_3.0)

# Features of USB

1.It can connect all kind of external USB devices such as external hard disk, printer, scanner, mouse, keyboard etc.

2.It was introduced in 1997

3.Most of the computers provide two USB portd as minimum.

4.Data travels at 12 megabits per seconds.

5.Usb compliant devices can get power for USB port .

4.RAM Memory

RAM (Random Access Memory) is the internal memory of the CPU for storing data, program, and program result. It is a read/write 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, that is, each storage location inside the memory is as easy to reach as other locations and takes the same amount of time. Data in the RAM can be accessed randomly but it is very expensive.RAM is volatile, i.e. data stored in it is lost when we switch off the computer or if there is a power failure. Hence, a backup Uninterruptible Power System (UPS) is often used with computers. RAM is small, both in terms of its physical size and in the amount of data it can hold.

RAM is of two types

1.Static RAM (SRAM)

2.Dynamic RAM (DRAM)

## **Static RAM (SRAM)**

The word **static** indicates that the memory retains its contents as long as power is being supplied. However, data is lost when the power gets down due to volatile nature. SRAM chips use a matrix of 6-transistors and no capacitors. Transistors do not require power to prevent leakage, so SRAM need not be refreshed on a regular basis.

There is extra space in the matrix, hence SRAM uses more chips than DRAM for the same amount of storage space, making the manufacturing costs higher. SRAM is thus used as cache memory and has very fast access.

**Characteristic of Static RAM**

1.Long life

2.No need to refresh

3.Faster

4.Used as cache memory

5.Large size

6.Expensive

7.High power consumption

## **Dynamic RAM (DRAM)**

DRAM, unlike SRAM, must be continually **refreshed** in order to maintain the data. This is done by placing the memory on a refresh circuit that rewrites the data several hundred times per second. DRAM is used for most system memory as it is cheap and small. All DRAMs are made up of memory cells, which are composed of one capacitor and one transistor.

### **Characteristics of Dynamic RAM**

1.Short data lifetime

2.Needs to be refreshed continuously

3.Slower as compared to SRAM

4.Used as RAM

5.Smaller in size

6.Less expensive

7.Less power consumption

5.CD ROM

Short for **Compact Disc Read-Only Memory**, a **CD-ROM** is an [optical disc](https://www.computerhope.com/jargon/c/compactd.htm) that contains audio or software data whose memory is [read-only](https://www.computerhope.com/jargon/r/readonly.htm). A **CD-ROM Drive** or **optical drive** is the device used to read them. a ROM stores such instructions that required to start a computer. The operation is reffered to a bootstrap . ROM chips are not only used in the computers but also in another electronic iteams like washing machines

6.Sound Cards

A sound card is an expansion component used in computers to receive and send audio. Sound cards are configured and utilized with the help of a software application and a device driver. The input device attached to receive audio data is usually a microphone, while the device used to output audio data is generally speakers or headphones.

The sound card converts incoming digital audio data into analog audio so that the speakers can play it. In the reverse case, the sound card can convert analog audio data from the microphone into digital data that can be stored on the computer and altered using audio software.

Sound cards are also known as audio adapters.

7.Optical Scanners

An optical scanner is an input device using light beams to scan and digitally convert images, codes, text or objects as two-dimensional (2D) digital files and sends them to computers and fax machines. Flatbed scanning devices are the most popular optical scanners. Optical scanners are used for many purposes, including reading customized response forms, creating automated data fields and recording fingerprints.  
  
Willard Boyle and George Smith developed the optical scanner technology in 1969.

8.Modems

Modem is short for “Modulator –Demodulator.”

It is a hardware component that allows a computer and another device , such as a router or switch to connect to the internet. It converts or “modulates” an analog signal from telephone or a cable wire to digital data that a computer can recognize . similarly, it converts a digital data from a computer or other device into an analog signal that can be sent over standard telephone lines.

The firsts modems were ”dial-up”, meaning they had to dial a phone number to connect to an ISP.

Modern modems are typically ”DSL” or “cable modems” , which are considered “broadband devices”. DSL modems operate over standard telephone lines ,but use a wider frequency range than dial up modems and enable them to not interfere with phone calls. Cable modems send and receive data over standard cable television lines , which are typically “ coaxial cables”.