

# Types of Computers

Ravindra Singh  
Asst.Prof.  
Computer Department  
Durga College, Raipur (C.G)

**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. Computers are of various types and they can be categorized in two ways on the basis of size and on the basis of data handling capabilities.

The basis of Data Handling capability computers are three types:

- 1. Analogue Computer**
- 2. Digital Computer**
- 3. Hybrid Computer**

## 1. Analogue Computer

**Analogue Computers** are designed to process the analogue data. Analogue data is continuous data that changes continuously and cannot have discrete values such as speed, temperature, pressure and current. The analogue computers measure the continuous changes in physical quantity and generally render output as a reading on a dial or scale.

Analogue computers directly accept the data from the measuring device without first converting it into numbers and codes.

Speedometer and mercury thermometer are examples of analogue computers.

## 2. Digital Computer

**Digital Computer** is designed to perform calculations and logical operations at high speed. It accepts the raw data as digits or numbers and processes it with programs stored in its memory to produce output. All modern computers like laptops and desktops that we use at home or office are digital computers.

### 3. Hybrid Computer

**Hybrid Computer** has features of both analogue and digital computer. It is fast like analogue computer and has memory and accuracy like digital computers. It can process both continuous and discrete data. So it is widely used in specialized applications where both analogue and digital data is processed. For example, a processor is used in petrol pumps that converts the measurements of fuel flow into quantity and price.

### Types of Digital Computers

There are two bases on which we can define the types of computers. We will discuss the type of computers on the basis of size and data handling capabilities. We will discuss each type of computer in detail. Let's see first what are the types of computers.

- Super Computer
- Mainframe computer
- Mini Computer
- Workstation Computer
- Personal Computer (PC)
- Server Computer
- Analog Computer
- Digital Computer
- Hybrid Computer
- Tablets and Smartphone

#### Supercomputer

When we talk about speed, then the first name that comes to mind when thinking of computers is supercomputers. They are the biggest and fastest computers (in terms of speed of processing data). Supercomputers are designed such that they can process a huge amount of data, like processing trillions of instructions or data just in a second. This is because of the thousands of interconnected processors in supercomputers. It is basically used in scientific and engineering applications such as weather forecasting, scientific simulations, and nuclear energy research.

## Characteristics of Supercomputers

- Supercomputers are the computers that are the fastest and they are also very expensive.
- It can calculate up to ten trillion individual calculations per second, this is also the reason which makes it even faster.
- It is used in the stock market or big organizations for managing the online currency world such as Bitcoin etc.
- It is used in scientific research areas for analyzing data obtained from exploring the solar system, satellites, etc.

## Mainframe computer

Mainframe computers are designed in such a way that they can support hundreds or thousands of users at the same time. It also supports multiple programs simultaneously. So, they can execute different processes simultaneously. All these features make the mainframe computer ideal for big organizations like banking, telecom sectors, etc., which process a high volume of data in general.

### Characteristics of Mainframe Computers

- It is also an expensive or costly computer.
- It has high storage capacity and great performance.
- It can process a huge amount of data (like data involved in the banking sector) very quickly.
- It runs smoothly for a long time and has a long life.

## Minicomputer

Minicomputer is a medium size multiprocessing computer. In this type of computer, there are two or more processors, and it supports 4 to 200 users at one time. Minicomputer is similar to Microcontroller. Minicomputers are used in places like institutes or departments for different work like billing, accounting, inventory management, etc. It is smaller than a mainframe computer but larger in comparison to the microcomputer.

### Characteristics of Minicomputer

- Its weight is low.
- Because of its low weight, it is easy to carry anywhere.
- less expensive than a mainframe computer.
- It is fast.

## Workstation Computer

A workstation computer is designed for technical or scientific applications. It consists of a fast microprocessor, with a large amount of RAM and a high-speed graphic adapter. It is a single-user computer. It is generally used to perform a specific task with great accuracy.

### Characteristics of Workstation Computer

- It is expensive or high in cost.
- They are exclusively made for complex work purposes.
- It provides large storage capacity, better graphics, and a more powerful CPU when compared to a PC.
- It is also used to handle animation, data analysis, CAD, audio and video creation, and editing.

## Personal Computer (PC)

Personal Computers is also known as a microcomputer. It is basically a general-purpose computer designed for individual use. It consists of a microprocessor as a central processing unit(CPU), memory, input unit, and output unit. This kind of computer is suitable for personal work such as making an assignment, watching a movie, or at the office for office work, etc. For example, Laptops and desktop computers.

### Characteristics of Personal Computer (PC)

- In this limited number of software can be used.
- It is the smallest in size.
- It is designed for personal use.
- It is easy to use.

## Server Computer

Server Computers are computers that are combined data and programs. Electronic data and applications are stored and shared in the server computer. The working of a server computer is that it does not solve a bigger problem like a supercomputer but it solves many smaller similar ones. Examples of server computer are like Wikipedia, as when users put a request for any page, it finds what the user is looking for and sends it to the user.

## Analog Computer

Analog Computers are particularly designed to process analog data. Continuous data that changes continuously and cannot have discrete values are called analog data. So, an analog computer is used where we don't need exact values or need approximate values such as speed, temperature, pressure, etc. It can directly accept the data from the measuring device without first converting it into numbers and codes. It measures the continuous changes in physical quantity. It gives output as a reading on a dial or scale. For example speedometer, mercury thermometer, etc.

### Digital Computer

Digital computers are designed in such a way that they can easily perform calculations and logical operations at high speed. It takes raw data as input and processes it with programs stored in its memory to produce the final output. It only understands the binary input 0 and 1, so the raw input data is converted to 0 and 1 by the computer and then it is processed by the computer to produce the result or final output. All modern computers, like laptops, desktops including smart phones are digital computers.

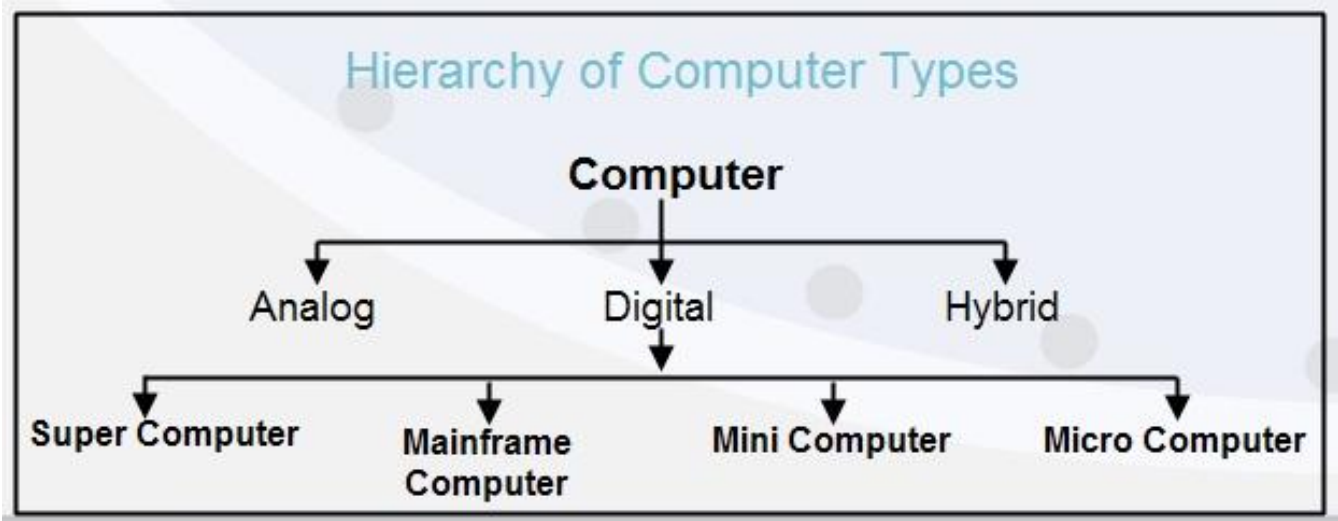
### Hybrid Computer

As the name suggests hybrid, which means made by combining two different things. Similarly, the hybrid computer is a combination of both analog and digital computers. Hybrid computers are fast like analog computers and have memory and accuracy like digital computers. So, it has the ability to process both continuous and discrete data. For working when it accepts analog signals as input then it converts them into digital form before processing the input data. So, it is widely used in specialized applications where both analog and digital data are required to be processed. A processor which is used in petrol pumps that converts the measurements of fuel flow into quantity and price is an example of a hybrid computer.

### Tablet and Smartphone's

Tablets and Smartphone's are the types of computers that are pocket friendly and easy to carry is these are handy. This is one of the best use of modern technology. These devices have better hardware capabilities, extensive operating systems, and better multimedia functionality. smartphones and tablets contain a number of sensors and are also able to provide wireless communication protocols.

We generally classify computers on the basis of size, functionality, and data handling capabilities. For more, you can refer to **Classification of Computers**



Reference

<https://www.freetimelearning.com/basics-of-computer-science/analog-digital-hybrid-computers.php>

<https://www.geeksforgeeks.org/types-of-computers/>

Types of