**Types of Computers**

The computers have been classified into three categories.

1. Analog computers
2. Digital computers
3. Hybrid computers

**Analog Computers**

An analog computer is one that operates on data that is in the form of continuously varying physical quantities such as voltage, current, length, temperature etc. The devices that measure such quantities are analog devices. Analog computers operate by measuring rather than counting. The main advantage of analog computers is that all calculations take place in parallel and hence these are faster. But their accuracy is poor compared to digital computers. They are mostly used in Engineering & Scientific applications. An electronic weighing scale is an example of an analog computer.

**Digital Computers**

A digital computer works on discontinuous data. The word digital implies that the information in the computer is represented by variables that take a limited number of discrete values. They convert the data in to digits (binary digits 0 and 1) and all operations are carried out on these digits at extremely fast rates. It basically knows how to count the digits and add the digits. Computers used for business and scientific applications are digital computers.

Digital computers can be classified into two.

i. purpose wise

ii. Size and performance wise

Purpose wise digital computers are further classified into special purpose and general purpose computers.

Special purpose computer is the one that is designed to perform a specific task. The programs to carry out a task are permanently stored in the machine. For the scientific tasks, this type of computer works efficiently but such computers are not versatile.

General purpose computer is the one that can work on different types of programs and thus be used in many applications. The programs are not permanently stored but are input at the time of execution. These computers are very versatile. Size and performance wise digital computers can be classified into four types, microcomputers, minicomputers, mainframe computers and supercomputers.

**Microcomputers:** A microcomputer is a computer whose CPU is a microprocessor. It is the smallest category of computer having a microprocessor as its CPU. A microprocessor is a processor whose main components are on a single integrated circuit chip. Those are normally single processor, single-user systems designed for performing basic operations like educational, small business applications, playing games etc. IBM PCs, Apple Mac, IBM PS/2 are some popular micro computers.

**Minicomputers:** Minicomputers are more powerful computers than microcomputers in terms of processing power and capabilities. They are relatively-fast but small and inexpensive computer with somewhat limited input/output capabilities. They are mainly multiuser systems and possess greater storage capacity and larger memories as compared to microcomputers. Examples for minicomputers are PDP-11, VAX 7500, MAGNUM etc.

**Mainframe computers:** Mainframe computers are designed to handle huge volumes of data and information. They can support more than hundred users at same time and are very large and expensive computers having great processing speeds and very large storage capacity as compared to minicomputers. They even possess and work with more than one processor at the same time. So they are multiuser, multiprocessor systems. Very sophisticated operating systems are needed to control and supervise the operation of these mainframe computers. Examples of mainframe computers are ICL 39, CDE 6600, VAX 8842, IBM 3090/600, IBM 4381.

**Super Computers:** Super computers are the most powerful computers among digital computers. They consists of several processors running together so that they are capable of handling huge amounts of calculations at higher speeds that are beyond human capabilities. Super computers can perform billions of instructions per second. Some of today's supercomputers have the computing capability equal to that of 40,000 microcomputers. These are mainly used in applications like weather forecasting, nuclear science research, aerodynamic modelling, seismology, metrology etc. Examples of super computers are CRAY X-MP/14, CDC - 205, ETA GF-10, FUJITSU VP-400, NEC SX-2, PARAM, ANURAG. PARAM and ANURAG are super computers produced by India.

**Hybrid Computers**

Hybrid computers utilize the best qualities of both the digital and analog computers. In these computers some calculations take place in analog manner and rest of them take place in digital manner. Hybrid computers are best used in hospital where analog part is responsible for measurement of patient's heart beat, blood pressure, temperature and other vital signs and then the operation is carried out in digital fashion. They are also used in weather forecasting.

Analog and hybrid computers perform specialized task but the digital computers are used almost everywhere in business and scientific applications.