

6. Concept of Circuit Integration:

Levels of Integration

- Integration levels
 - SSI (small scale integration)
 - Introduced in late 1960s
 - 1-10 gates (previous examples)
 - MSI (medium scale integration)
 - Introduced in late 1960s
 - 10-100 gates
 - LSI (large scale integration)
 - Introduced in early 1970s
 - 100-10,000 gates
 - VLSI (very large scale integration)
 - Introduced in late 1970s
 - More than 10,000 gates

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7. Classification of Computers:

- Analogue, Digital, Hybrid Computers
- Mainframe and Super Computer
- Mini, Micro, Laptop Computer

Based on the Principles of Operation we can classify the computers:

The classification is given below:

A. **Analog Computer**: It computes by measuring changes in a continuous physical phenomenon such as electronic voltage, current, temperature etc. it is faster because all the calculation take place in parallel but accuracy is poor. Example: Previous Petrol Pump Computer, Slide Rule.

B. **Digital Computer**: It uses digits for storing, retrieving and processing data. Examples: UNIAC, Modern Computers.

C. Hybrid Computer: The computer that uses both analog and digital components is known as Hybrid computer. These computers use digital memory for the storage and analog devices for computational purpose. Example: Computers used for Heart Research.

The various types of **computer with respect to their Configuration** are discussed below:

A. **Main Frame Computer:** Faster and more sufficient than minis. It also has larger storage capacity.

Example: IBM 4300.

B. **Super Computer:** Super computers are most powerful and most efficient. They are used to process scientific applications, weather research. Example: ETA 10.

C. **Mini Computer:** It is more advanced and many times faster than microcomputers. It has one CPU but has many terminals. Example: IBM 9375.

D. **Micro Computer:** It is small in size, low-cost. It uses microprocessor chip as its CPU .

Following are the

Classifications of Microcomputers:

- **Desktop Computers:** Today the Desktop computers are the most popular computer systems. These desktop computers are also known as personal computers or simply PCs. They are usually easier to use and more affordable. They are normally intended for individual users for their word processing and other small application requirements.
- **Laptop Computers:** laptop computers are portable computers. They are lightweight computers with a thin screen. They are also called as notebook computers because of their small size. They can operate on batteries and hence are very popular with travelers. The screen folds down onto the keyboard when not in use.
- **Handheld Computers (PDAs):** Handheld computers or Personal Digital Assistants (PDAs) are pen-based and also battery-powered. They are small and can be carried anywhere. They use a pen like stylus and accept handwritten input directly on the screen. They are not as powerful as desktops or laptops but they are used for scheduling appointments, storing addresses and playing games. They have touch screens which we use with a finger or a stylus.

8. Concept of Data and Information:

Data	Information
1. Derived from Latin word 'Datum'	1. Derived from word 'informare'
2. Data is raw fact.	2. Processed form of data.
3. May or may not be meaningful.	3. Always meaningful.
4. Input to any system may be treated as data.	4. Output after processing system is information.
5. Understanding is difficult	5. Understanding is easy.
6. Data may not be in order.	6. Information should be in order.
7. Example: survey data	7. Example: census report

Data processing is the collection and manipulation of items of data to produce meaningful information.

- ^ Data processing may involve various processes, including:
- ^ Validation – Ensuring that supplied data is "clean, correct and useful."
- ^ Sorting- arranging items in some sequence and/or in different sets.
- ^ Summarization– reducing detail data to its main points.
- ^ Aggregation– combining multiple pieces of data.
- ^ Analysis– the "collection, organization, analysis, interpretation and presentation of data."
- ^ Reporting – list detail or summary data or computed information.