



The main features of first generation are: (advantages)

- Vacuum tube technology
- Unreliable
- Supported machine language only
- Very costly
- Generated lot of heat
- Slow input and output devices
- Huge size
- Need of A.C.
- Non-portable
- Consumed lot of electricity

2. Second Generation 1959-1965 (Transistors)

The period of second generation was 1959-1965. In this generation **transistors** were used that were cheaper, consumed less power, more compact in size, more reliable and faster than the first generation machines made of vacuum tubes. In this generation, magnetic cores were used as primary memory and magnetic tape and

magnetic disks as secondary storage devices. In this generation **assembly language** and **high-level programming languages** like FORTRAN, COBOL were used.



Figure: **Transistors**

The **main features** of second generation are: (advantages)

- Use of transistors
- Reliable in comparison to first generation computers
- Smaller size as compared to first generation computers
- Generated less heat as compared to first generation computers
- Consumed less electricity as compared to first generation computers
- Faster than first generation computers
- Still very costly
- A.C. needed
- Supported assembly and high-level programming languages

3. Third Generation 1965-1971 integrated circuits

The period of third generation was 1965-1971. The computers of third generation used **integrated circuits (IC's)** in place of transistors. A single IC has many transistors, resistors and capacitors along with the associated circuitry. The IC

was invented by Jack Kilby. This development made computers smaller in size, reliable and efficient. **High-level languages** (FORTRAN-II TO IV, COBOL, PASCAL PL/1, BASIC, ALGOL-68 etc.) were used during this generation.



The main features of third generation are:

- IC used
- More reliable in comparison to previous two generations
- Smaller size
- Generated less heat
- Faster
- Still costly
- A.C needed
- Consumed lesser electricity
- Supported high-level language

4. Fourth Generation 1971-1980 VLSI

The period of fourth generation was 1971-1980. The computers of fourth generation used **Very Large Scale Integrated (VLSI) circuits**. VLSI circuits having about 5000 transistors and other circuit elements and their associated

circuits on a single chip made it possible to have **microprocessor** of fourth generation. Fourth generation computers became more powerful, compact, reliable, and affordable. As a result, it gave rise to personal computer (PC) revolution. In. All the high-level languages like C, C++, DBASE etc., were used in this generation.



The main features of fourth generation are:

- VLSI technology used
- Very cheap
- Portable and reliable
- Use of PC's
- Very small size
- No A.C. needed
- Concept of internet was introduced
- Great developments in the fields of networks
- Computers became easily available.

5. Fifth Generation (1980 onwards)

The period of fifth generation is 1980-till date. In the fifth generation, during this generation, Very Large Scale Integration (VLSI) technology gave way to **Ultra**

Large Scale Integration (ULSI) that led to the development of microprocessor chip with several million electronic components on each. Powerful laptops, notebook PCs and desktops were the other developments during this period. Advances in storage technologies such as micro floppies, CD-ROM, DVD, flash memory etc. increased data storage capability of computers in the fifth generation. This period also witnessed the huge growth in Internet usage particularly the popularity of WWW and e-mail. This generation is based on parallel processing hardware and AI (Artificial Intelligence) software. **AI** is an emerging branch in computer science, which interprets means and method of making computers think like human beings. All the high-level languages like C and C++, Java, .Net etc., are used in this generation.

AI includes:

- Robotics
- Neural Networks
- Game Playing



The main features of fifth generation are:

- ULSI technology
- Development of true artificial intelligence
- Advancement in Parallel Processing

- More user friendly interfaces with multimedia features
- Availability of very powerful and compact computers at cheaper rates

Some computer types of this generation are:

- Desktop
- Laptop
- NoteBook

1.6 How the computer Work?

1. **First:** the purpose of a computer is to process data into information. Data consists of raw of facts and figures that are processed into information.
2. **Second:** you should know the difference between hardware and software. Hardware consists of all the machinery and equipment in computer system. The hardware includes among other devices, the keyboard, the screen and the printer. Software or programs, consists of all the instructions that tell the computer how to perform a task.

3. **Third :**

All types of computers follow a same basic logical structure and perform the following five basic operations for converting raw input data into information useful to their users.

Sr. No.	Operation	Description
1	Take Input	The process of entering data and instructions into the computer System.
2	Store Data	Saving data and instructions so that they are available for processing as and when required.