Generations of Computers

There are five computer generations known till date. Each generation has been discussed in detail along with their time period and characteristics.

Following are the main five generations of computers.

Generation & Description
First Generation **The period of first generation: 1946-1959.** **Vacuum tube based.**
Second Generation **The period of second generation: 1959-1965.** **Transistor based.**
Third Generation **The period of third generation: 1965-1971.** **Integrated Circuit based.**
Fourth Generation **The period of fourth generation: 1971-1980.** **VLSI microprocessor based.**
Fifth Generation **The period of fifth generation: 1980-onwards.** **ULSI microprocessor based.**

First Generation Computers

The period of first generation was from 1946-1959. The computers of first generation used vacuum tubes as the basic components for memory and circuitry for CPU (Central Processing Unit).

The main features of the first generation are:

- Vacuum tube technology
- Supported machine language only
- Very costly
- Generates lot of heat
- Slow input and output devices
- Huge size
- Need of AC
- Non-portable
- Consumes lot of electricity

Some computers of First generation were:

- ENIAC

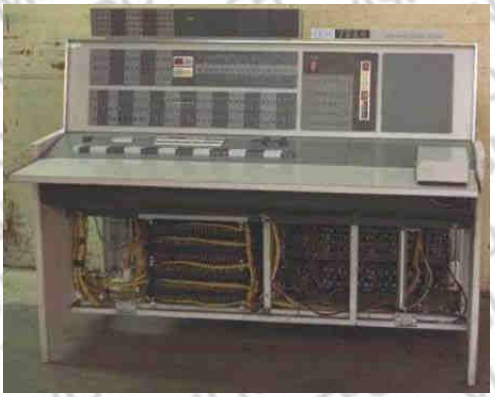
- EDVAC
- UNIVAC
- IBM-701
- IBM-750

Second Generation Computers

The period of second generation was from 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.

The main features of second generation are:

- Use of transistors
- Smaller size as compared to first generation computers
- Generates 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
- AC required
- Supported machine and assembly languages



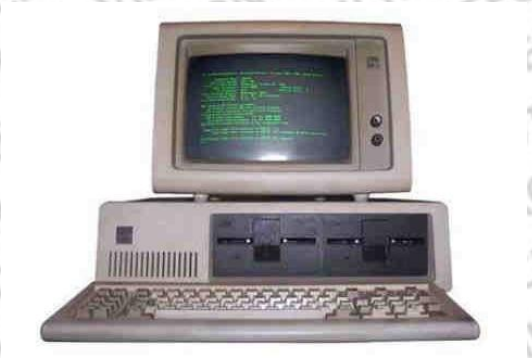
Some computers of Second generation were:

- IBM 1620
- IBM 7094
- CDC 1604
- CDC 3600
- UNIVAC 1108

Third Generation Computers

The period of third generation was from 1965-1971. The computers of third generation used Integrated Circuits (ICs) in place of transistors. A single IC has many transistors, resistors, and capacitors along with the associated circuitry.

The main features of third generation are:



- IC used
- More reliable in comparison to previous two generations
- Smaller size
- Generated less heat
- Faster
- Lesser maintenance
- Costly
- AC required
- Consumed lesser electricity
- Supported high-level language

Some computers of third generation were:

- IBM-360 series

- Honeywell-6000 series
- PDP (Personal Data Processor)
- IBM-370/168

Fourth Generation Computers

The period of fourth generation was from 1971-1980. Computers of fourth generation used Very Large Scale Integrated (VLSI) circuits. VLSI circuits having about 5000 transistors and other circuit elements with their associated circuits on a single chip made it possible to have microcomputers of fourth generation.

The main features of fourth generation are:

- VLSI technology used
- Very cheap
- Portable and reliable
- Use of PCs
- Very small size
- Pipeline processing
- No AC required
- Concept of internet was introduced
- Great developments in the fields of networks
- Computers became easily available

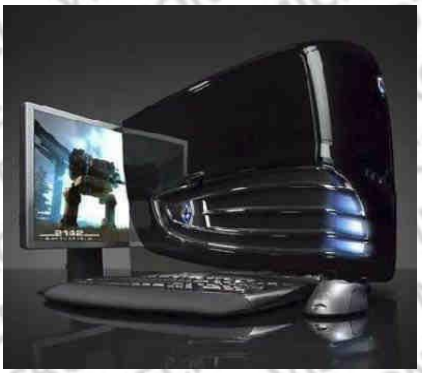
Some computers of fourth generation were:

- DEC 10
- STAR 1000
- CRAY-1(Super Computer)
- CRAY-X-MP(Super Computer)

Fifth Generation Computers

The period of fifth generation is 1980-till date. In the fifth generation, VLSI technology became ULSI (Ultra Large Scale Integration) technology, resulting in the production of microprocessor chips having ten million electronic components.

The main features of fifth generation are:



- Development of true artificial intelligence
- Development of Natural language processing
- Advancement in Parallel Processing
- Advancement in Superconductor technology
- More user-friendly interfaces with multimedia features

Some computer types of fifth generation are:

- Desktop
- Laptop
- Notebook
- Ultrabook