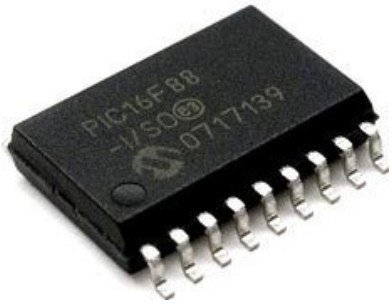

2. They use Small scale integration, SSI (less than 100 components) and Medium Scale Integration, MSI (less than 500 components)
3. They were more powerful than second generation computers were capable to perform million of instructions in one second.
4. They were more reliable and less prone to hardware failure in comparison to 2nd generation computers.
5. They consume less electricity and dissipate less heat. There was no need of air conditioning.
6. For manufacturing of IC's did not require human assembly, Therefore commercial production was easier and cheaper.
7. Primary memory less than 5MB and Secondary Memory was less than 50 MB
8. Data was input through keyboard and the output was obtained through monitor along with printer.
9. High level languages such as ANSI COBOL, ANSI FORTRAN, PASCAL, BASIC etc. made it easier to program the computers. Companies can now use software's to fulfill their specific needs.
10. Third generation computers started to use the concept of Time Sharing.

Examples

PDP 8

PDP8

IBM 370

4th Generation computers (1975-1989)

Characteristic features of 4th Generation Computers

1. IC's or Integrated circuits were used as electronic components.
2. They use Large scale integration, LSI (less than 300000 components chip) , Very Large Scale Integration VLSI (less than 1500000 components on one chip).
3. They were more reliable, consume less electricity and less prone to hardware failure in comparison to 3rd generation computers.
4. They were cheaper, general purpose machines, easier to produce commercially.
5. High Speed Computer Networks were developed during fourth Generation of computers. This gave rise to LAN (Local area Networks), WAN (Wide area Networks) and distributed systems.
6. Computer Mouse was invented during this generation and became a very popular input device.

7. Operating systems such as MS-DOS, MS-Window, Mac OS, Unix were launched
8. In this generation Portable Computers (PCs) were developed, also softwares were developed to suit the office and home usage.
9. High level languages such as C and object oriented programming language C++ was developed during this period.
10. Fourth generation computers started to use the concept of Multiprocessing.

Examples

IBM 4341

DEC 10

5th Generation of Computers (1989-Present)

Characteristic features of 4th Generation Computers

1. They use Very Very Large scale integration, VVLSI (more than 1500000 components on one chip).
2. They were more reliable, smaller and handy (user can carry laptops, notebooks, phones etc. with them)
3. They were cheaper, general purpose machines, easier to produce commercially.
4. The primary and secondary memory has become faster. and larger.
5. GUI based Operating systems (MS Windows XP, Windows 7, Windows 10) and applications made learning of Computer.
6. High Speed Computer Networks and Internet (www) opened new doors in the field of distributed system (cloud computing, Internet of Things etc.) ,business (Amazon, flipkart, online banking etc) , entertainment (facebook, youtube etc.) Communication (email, voice/video call over internet).
7. High level languages such as java, python, ruby etc. were developed which make use of parallel processing by using multi threading.
8. Artificial Intelligence, has started to develop intelligence in the computer systems.

Examples