

Different Generations of Computers

Particulars	First	Second	Third	Fourth	Fifth
Year	1949-55	1956-65	1966-75	1976-95	1996 onwards
Size	Room Size	Cupboard Size	Desk Size Minicomputer	Typewriter Sized Computers & Laptops	Credit Card Sized Computers & Palmtops
Density	One Component per Circuit	100 Components per Circuit	1000 Components per Circuit	Hundreds of Thousands of Components per Circuit	Millions of Components per Circuit
Technology	Vacuum Tubes	Transistors	Integrated Semiconductor Circuits	Large Scale Integrated Semiconductor Circuits	Very Large Scale Integrated Semiconductor Circuits
Main Memory	Magnetic Drum	Magnetic Core	Magnetic Core	LSI Semiconductor Circuits	VLSI Superconductor circuits
Secondary Storage	Magnetic Drum Magnetic Tape	Magnetic Tape, Magnetic Disk	Magnetic Disk, Magnetic Tape	Magnetic Disk, Floppy Disk, Magnetic, Bubble, Optical.	Optical Disks & Magnetic Disks
Memory	10K - 20K Characters	4K - 64K Characters	32K – 4000K Characters	51K – 32000K Characters	Billions of Characters
Operating Speed	Milli Seconds 10^{-3}	Micro Seconds 10^{-6}	Nano Seconds 10^{-9}	Pico Seconds 10^{-12}	Still less than Pico seconds. 10^{-15}
External Speed	Few thousand Instructions	Upto 10 Lakh Instructions	Upto 1 Crore Instructions	100 mps	Billion Instructions /sec.
Input/output devices	Punched card, paper tape	Paper tape, Magnetic tape, VDU	VDU, MICR, OCR	VDU, MICR, OCR, Voice Recognition	Speech Input, Tactile Input, Graphics, Voice Responses
Cost	Very High	Lower than	Lower than	Lower than	Very Low

		First Generation	Second Generation	Third Generation	
Other features	Generate heat, Relatively slow & rigid in operations.	Reliable & Accurate, fast	Faster, reliable, time sharing & Multi Processing Made possible	Sophistication & Complex usage, Improved storage	Sophistication & Complex usage, improved storage
Programming Language	Machine & Assembly Level Language	High Level Language FORTRAN, COBOL.	High level Languages: FORTRAN IV, COBOL 68, PL/1,	Fourth Generation Language: FORTRAN 77, PASCAL, C, C++, JAVA.	Fifth Generation Languages
Data Processing	Serial	Spooling	Multi- Programming	Multi- Processing	Multi- Processing