History

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Confession

- Most of the materials have been collected from Internet.
- Images are taken from Internet.
- Various books are used to make these slides.
- Various slides are also used.
- References & credit:
  - Atanu Shome, Assistant Professor, CSE, KU.
  - Computer Organization and Design: the Hardware/Software Interface - Textbook by David A Patterson and John L. Hennessy.
  - Computer Organization and Architecture - Book by William Stallings

ENIAC (Electronic Numerical Integrator And Computer)

Built between 1943 and 1945

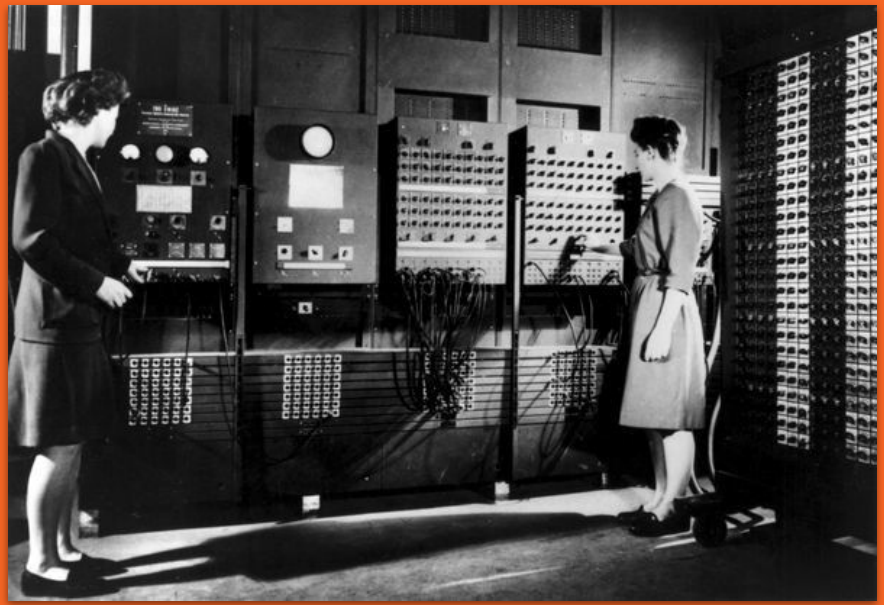
1,000 times faster than anything else in existence at the time,

Capable of performing **5,000 additions per second**

Its memory consisted of 20 accumulators

Each capable of holding a 10-digit decimal number

A ring of 10 vacuum tubes represented each digit



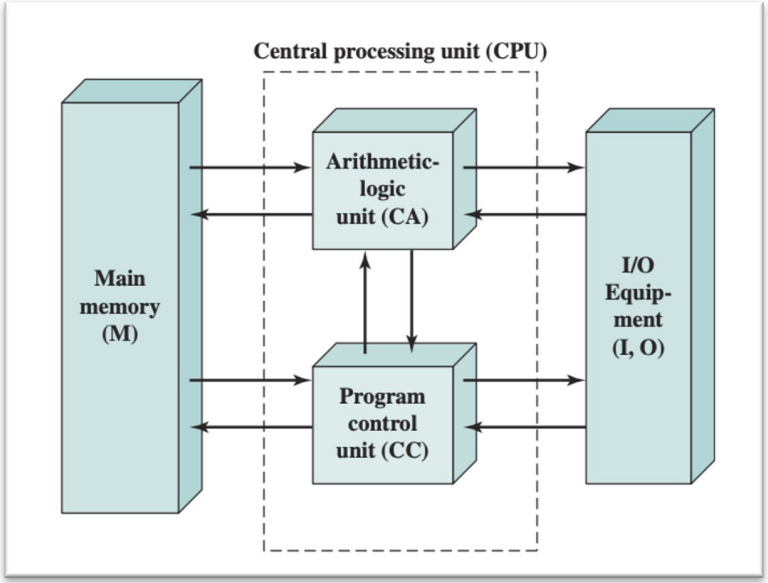
Vacuum Tubes

Electron tube or valve

Sir John Ambrose Fleming, in 1904

Gas removed, creating a vacuum

Electrodes

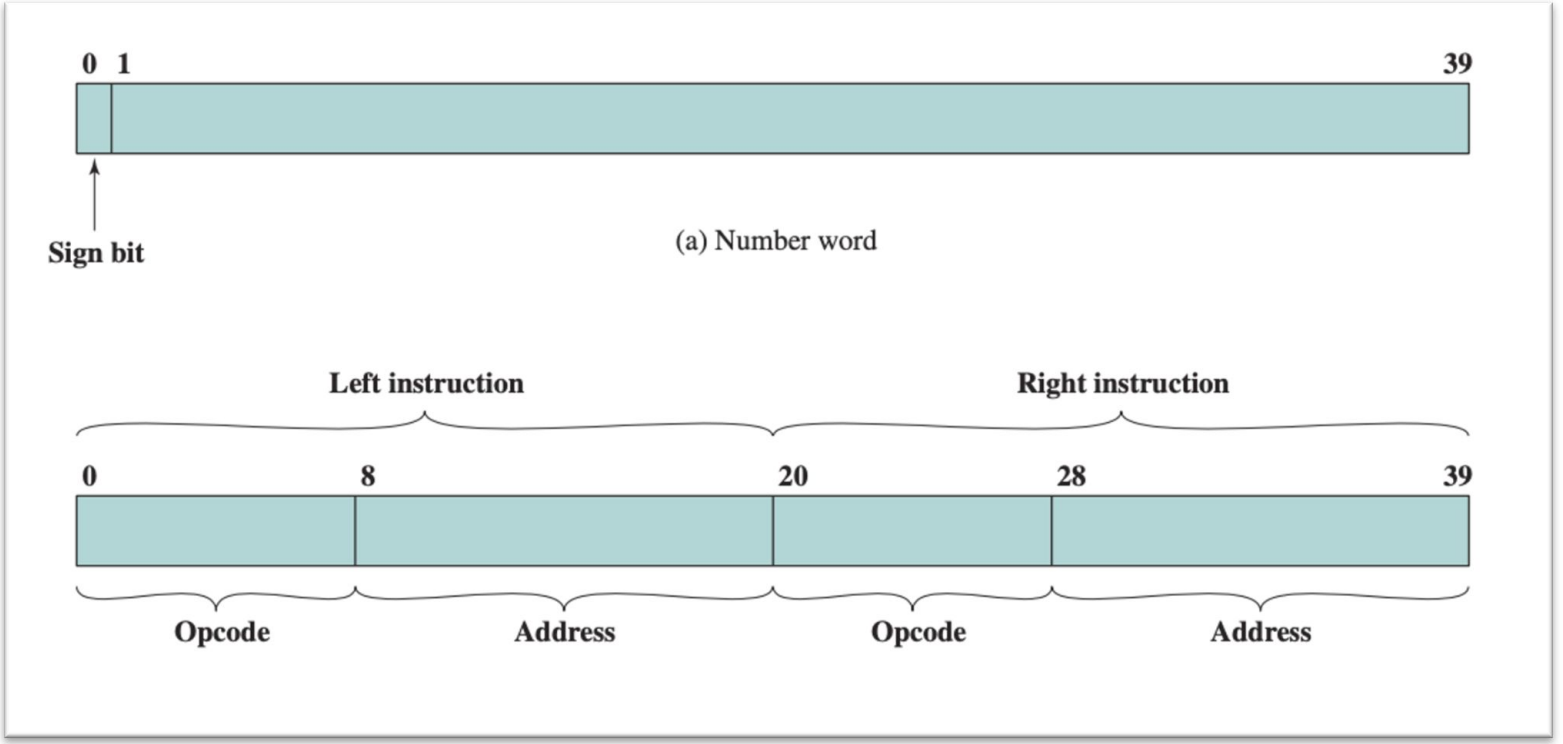


THE VON NEUMANN MACHINE

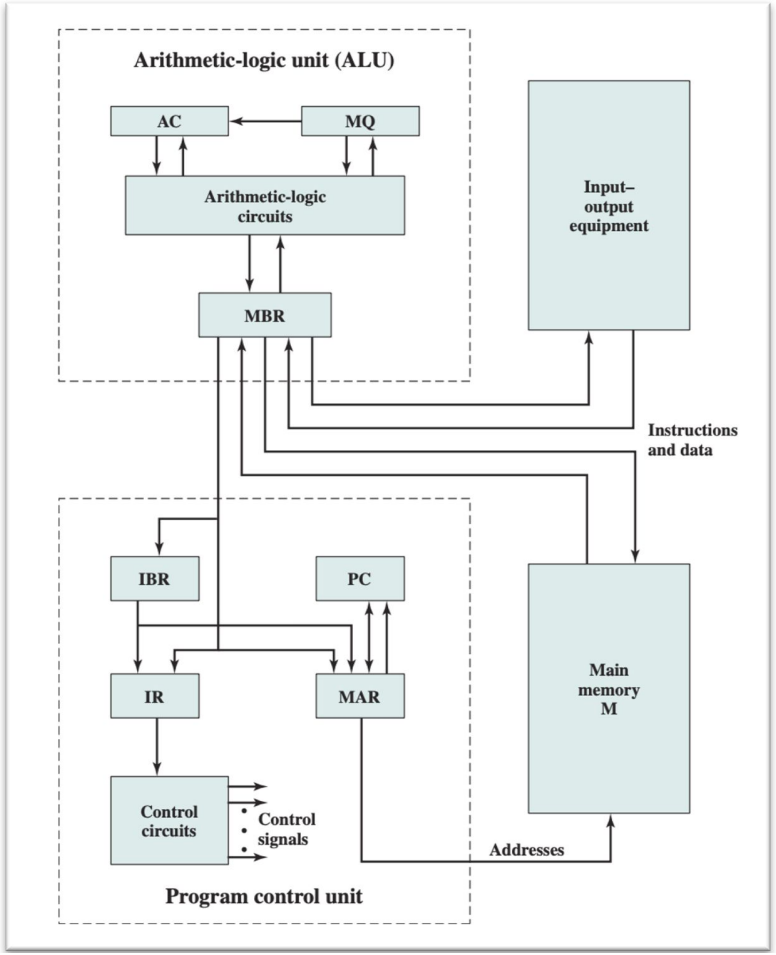
Stored-program concept
IAS computer

- A main memory, which stores both data and instructions
- An arithmetic and logic unit (ALU) capable of operating on binary data
- A control unit, which interprets the
- instructions in memory and causes them to be executed
- Input/output (I/O) equipment operated by the control unit

IAS Memory Formats



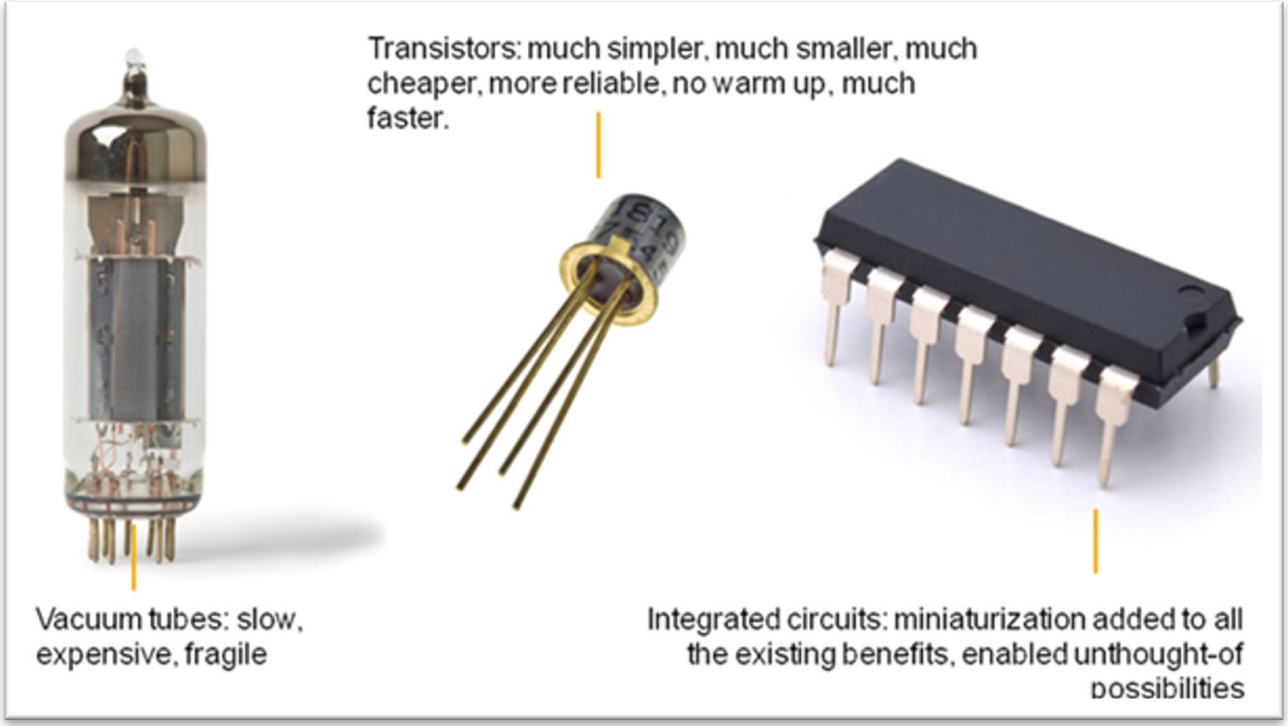
IAS Structure



Computer Generations

Generation	Approximate Dates	Technology	Typical Speed (operations per second)
1	1946–1957	Vacuum tube	40,000
2	1958–1964	Transistor	200,000
3	1965–1971	Small- and medium-scale integration	1,000,000
4	1972–1977	Large-scale integration	10,000,000
5	1978–1991	Very-large-scale integration	100,000,000
6	1991–	Ultra-large-scale integration	1,000,000,000

Transistors



Thank You