COMP110: Principles of Computing

1: Computing Foundations

Learning outcomes

By the end of today's session, you will be able to:

- **Describe** the overall structure of the module and its assessments
- **Recall** the historical context of computing and gaming technology
- **Explain** the basic architecture of a computer

Today's agenda

- COMP110 course outline
- History of computing

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Module introduction

Aim

To enable you to apply basic computing and mathematical theory to practical programming activities.

Description

On this module, you will learn the basic principles of computing, discrete mathematics, and technical notation (e.g. pseudocode, UML, etc.). You start the process of learning to use basic methods and core concepts to solve practical problems and leverage algorithms in your solutions. You will become acquainted in a practical way with the techniques and methods that help you to work effectively and efficiently to build and annotate computing solutions with reference to relevant scholarly sources. You acquire experience of working on basic computing problems and solving them.

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Learning Outcomes

ID	NAME	DESCRIPTION	ASSESSMENT CRITERIA CATEGORY
1	Code	Translate technical notation into executable code.	PROCESS
3	Solve	Demonstrate computational thinking and numeracy skills.	PROCESS
3	Contextualise	Locate the broader development context of relevant industries.	COMMUNICATE
5	Research	Report on an issue using appropriate sources and academic conventions.	RESEARCH

Module choice

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- If you are on BA Game Development: Programming, this module is **optional** and can be switched with GAM120: Reading Experiences
- Undecided? The induction session for GAM120 is Tuesday 12:00 in DM Lecture A

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- If you are on BA Game Development: Programming, this module is **optional** and can be switched with GAM120: Reading Experiences
- Undecided? The induction session for GAM120 is Tuesday 12:00 in DM Lecture A
- Want to switch? See me or Michael

Topic schedule

On LearningSpace

Timetable

http://mytimetable.falmouth.ac.uk

Assignments

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- Assignment 1: worksheet tasks

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  - **Nine** worksheets — programming, annotation, problem solving, mathematics

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- See MyFalmouth for deadlines

Worksheet A

- SpaceChem
- Due **next Friday (4th October)**

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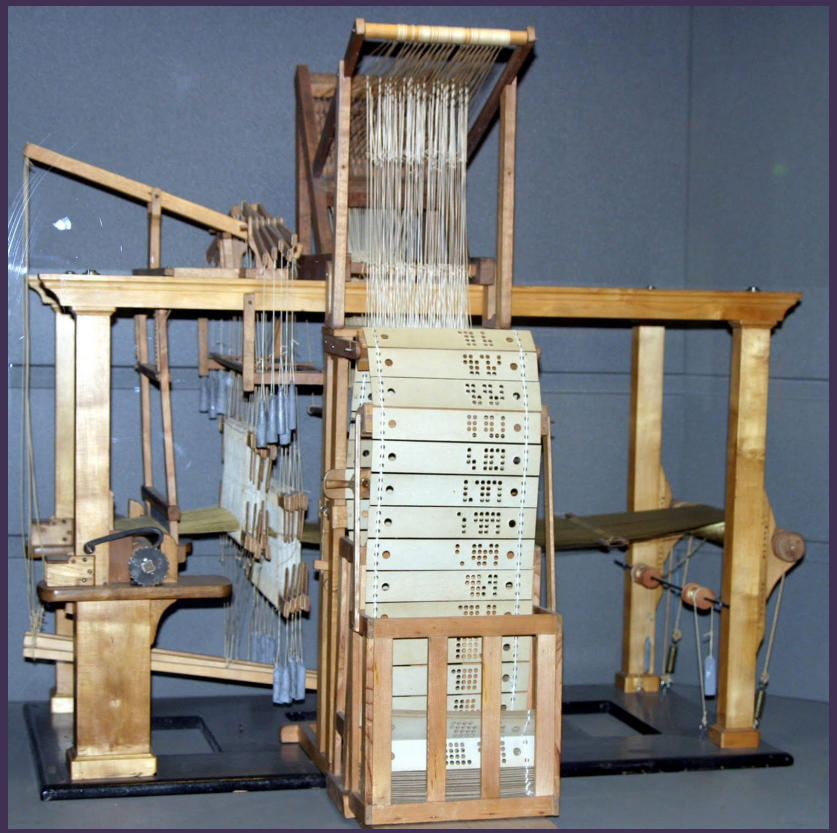
What was the first computer?

Antikythera Mechanism ($\sim$150 BC)

First mechanical computer?

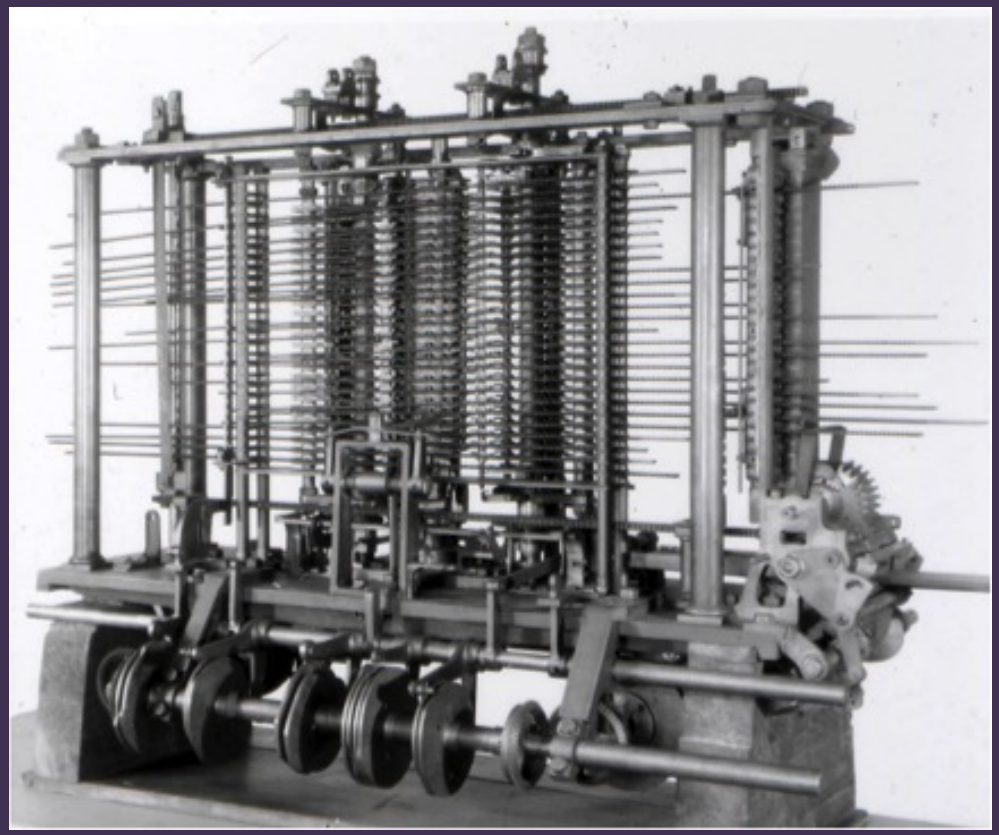
Jacquard Loom (1804)

First programmable machine in modern age



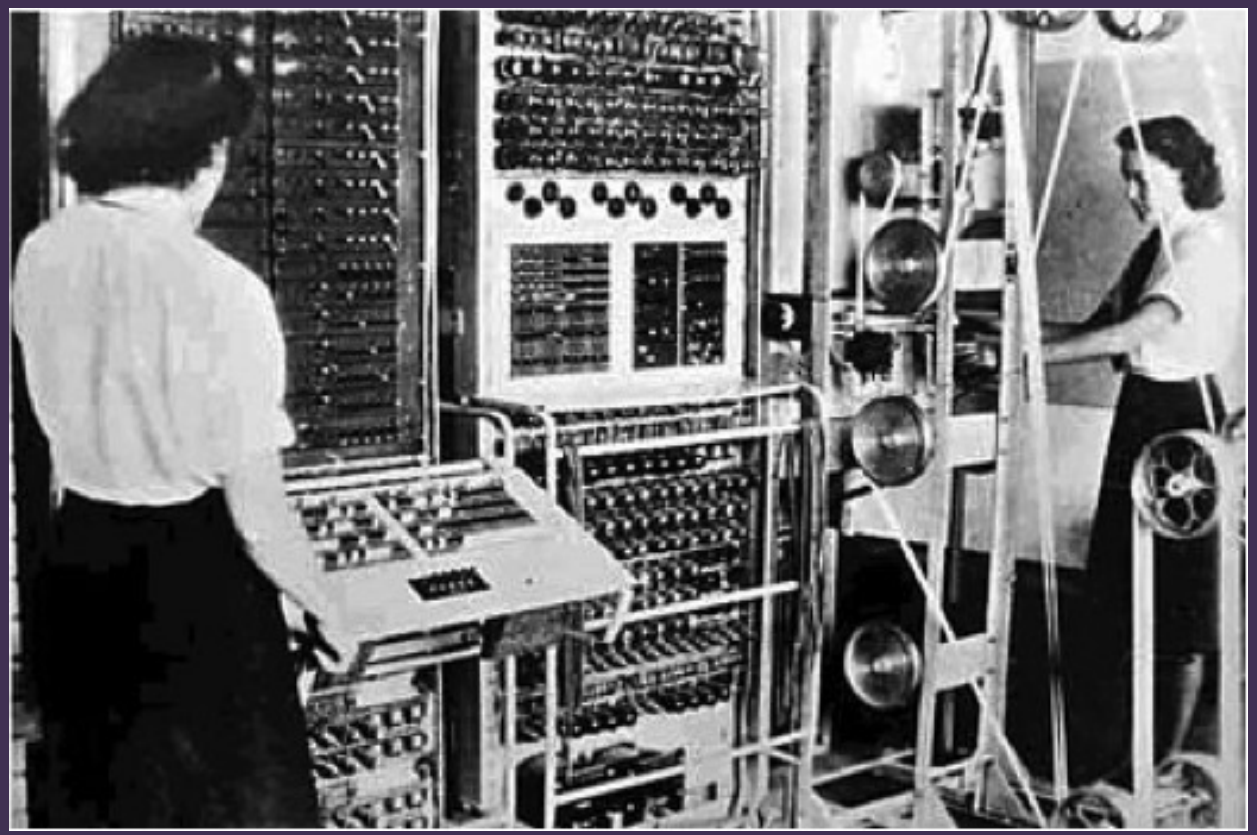
Babbage's Difference and Analytical Engines (1837)

First mechanical computer in modern age



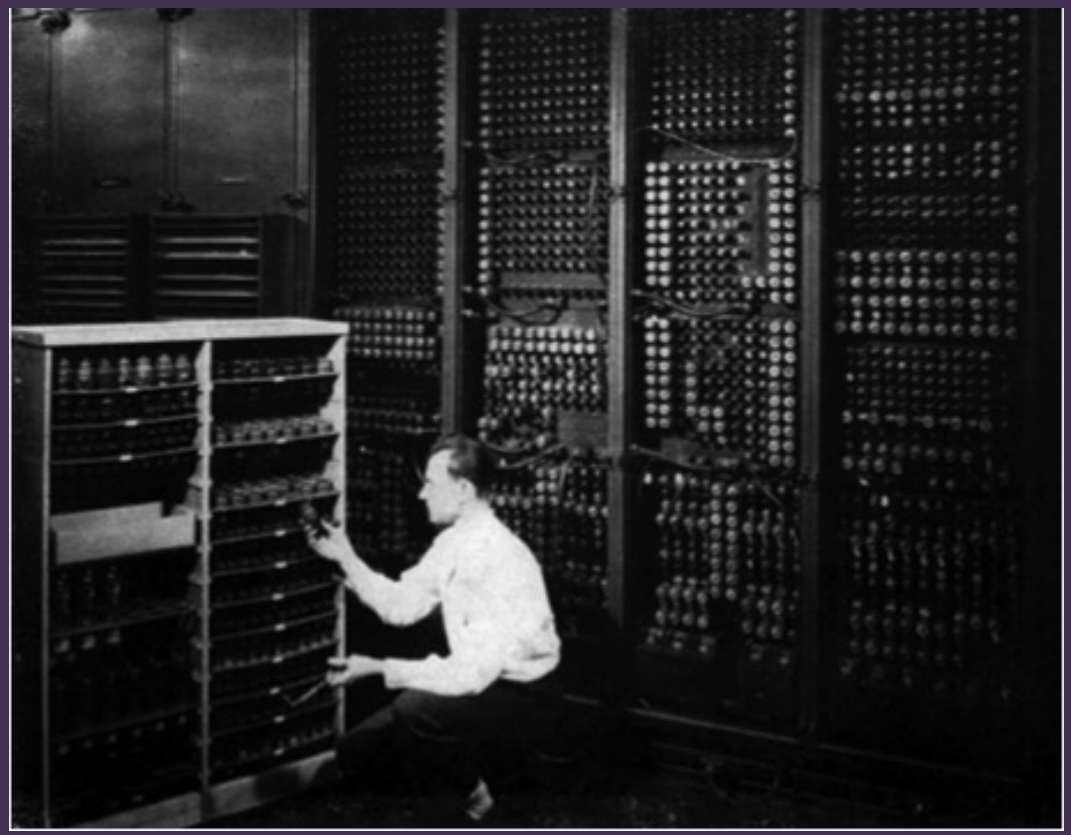
Colossus (1943)

First programmable electronic computer



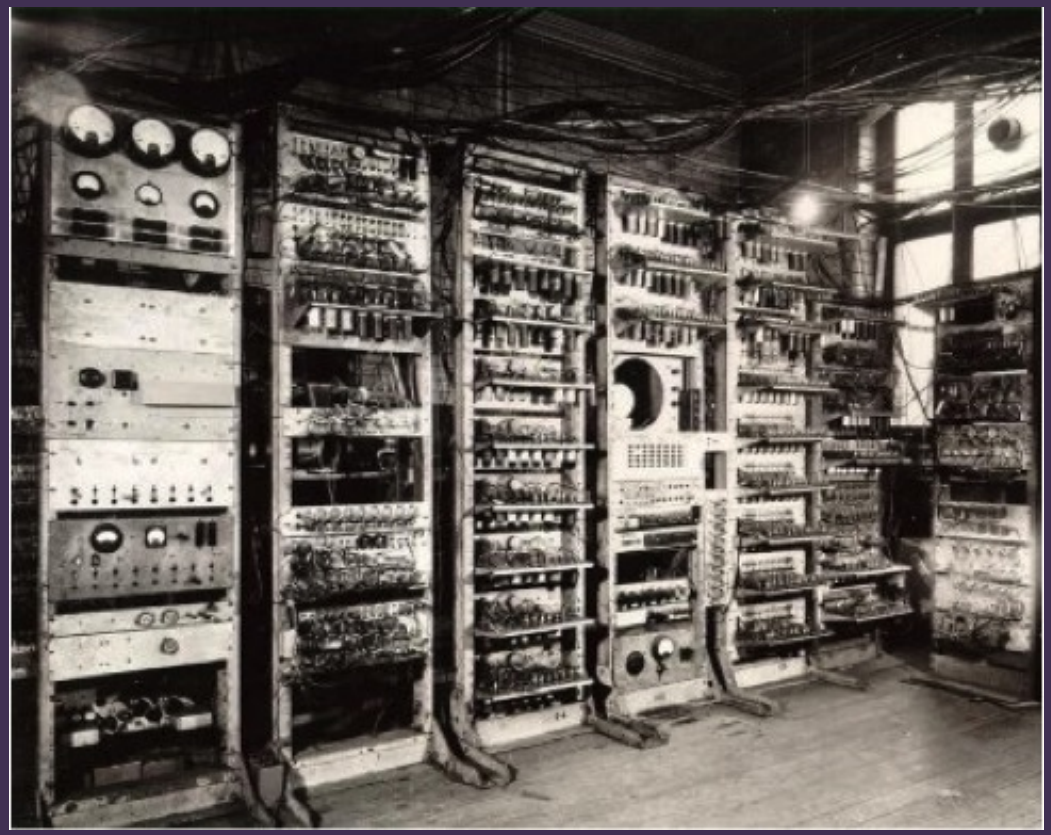
ENIAC (1946)

First general-purpose computer



Manchester Small-Scale Experimental Machine (1948)

First stored program computer

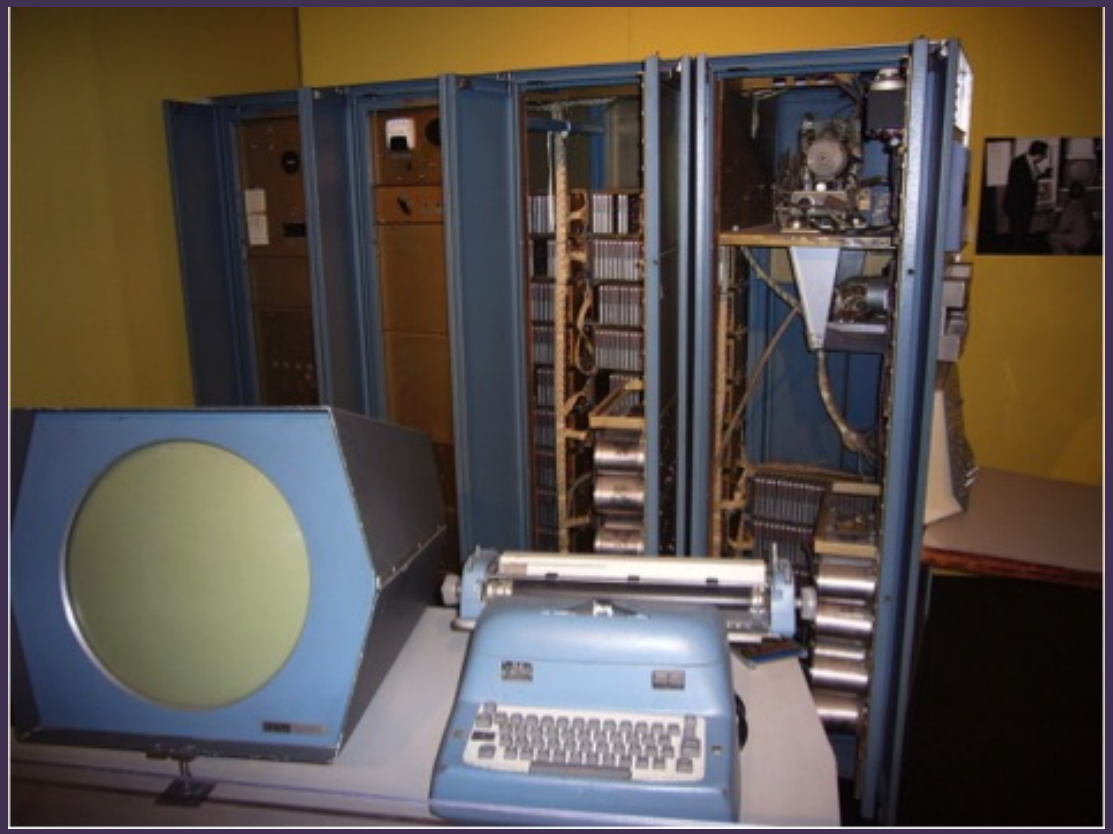


TRADIC (1949)

First transistor computer

PDP-1 (1959)

Influenced “hacker culture”



Datapoint 2200 (1970)

First microcomputer

Commodore VIC 20 (1980)

First computer to sell 1 million units

IBM Personal Computer Model 5150 (1981)

Precursor to the modern PC

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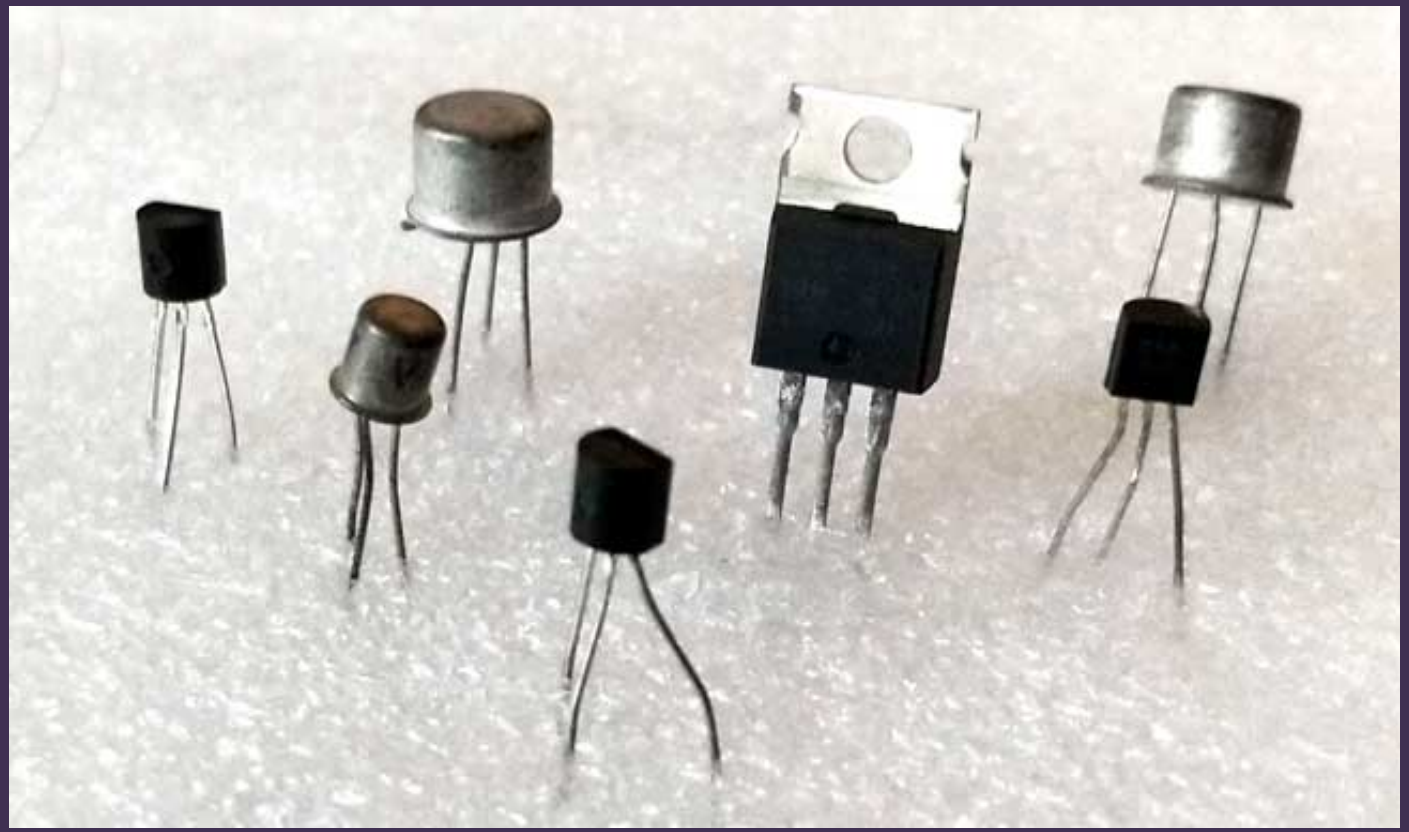
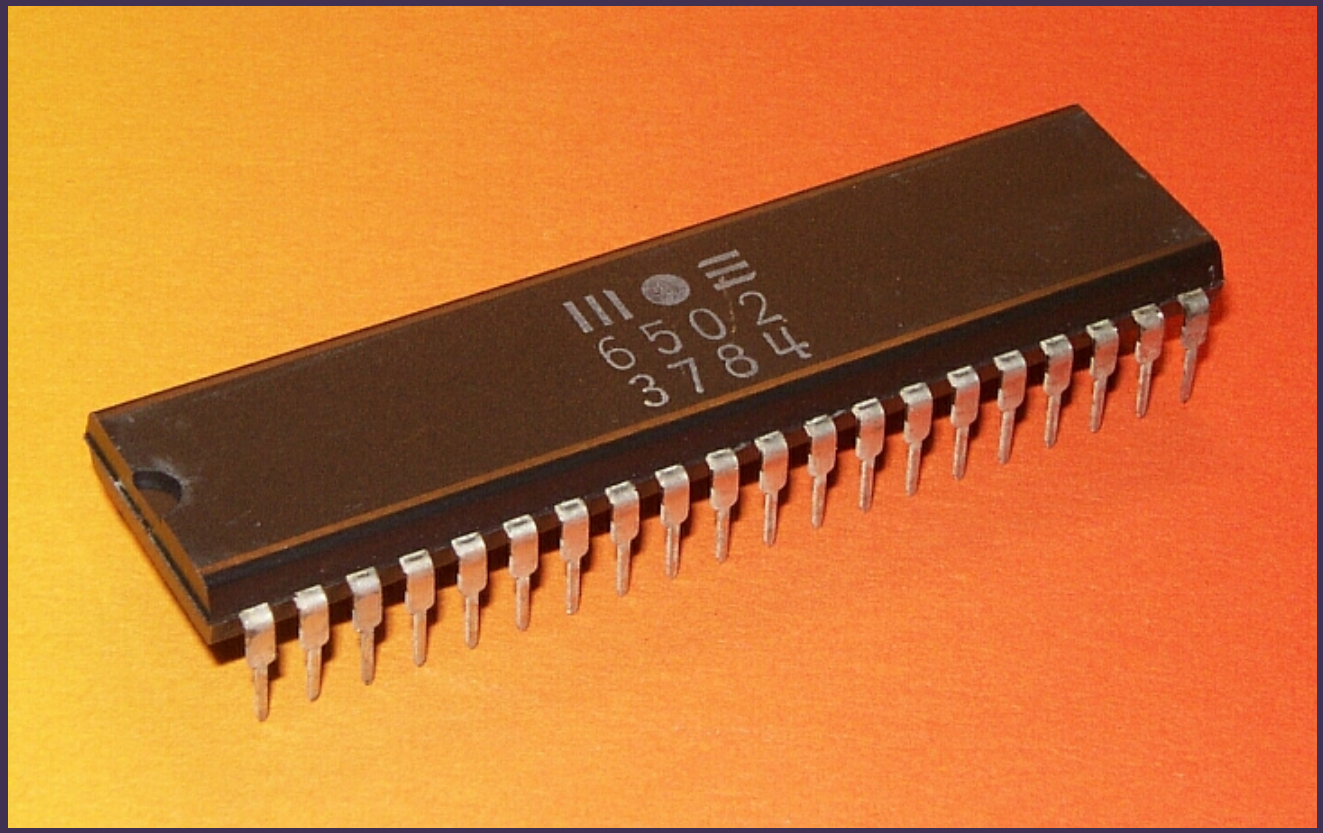
Electronic computer technologies

Vacuum tubes (valves)

Transistors



Integrated circuits (ICs)



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2016	Intel Core i7 Broadwell-E	3.2 billion transistors

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2018	Apple A12	6.9 billion transistors

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What was the first computer game?

Cathode Ray Tube Amusement Device (1948)

First interactive electronic game

Chess AI on the Ferranti Mark I (1951)

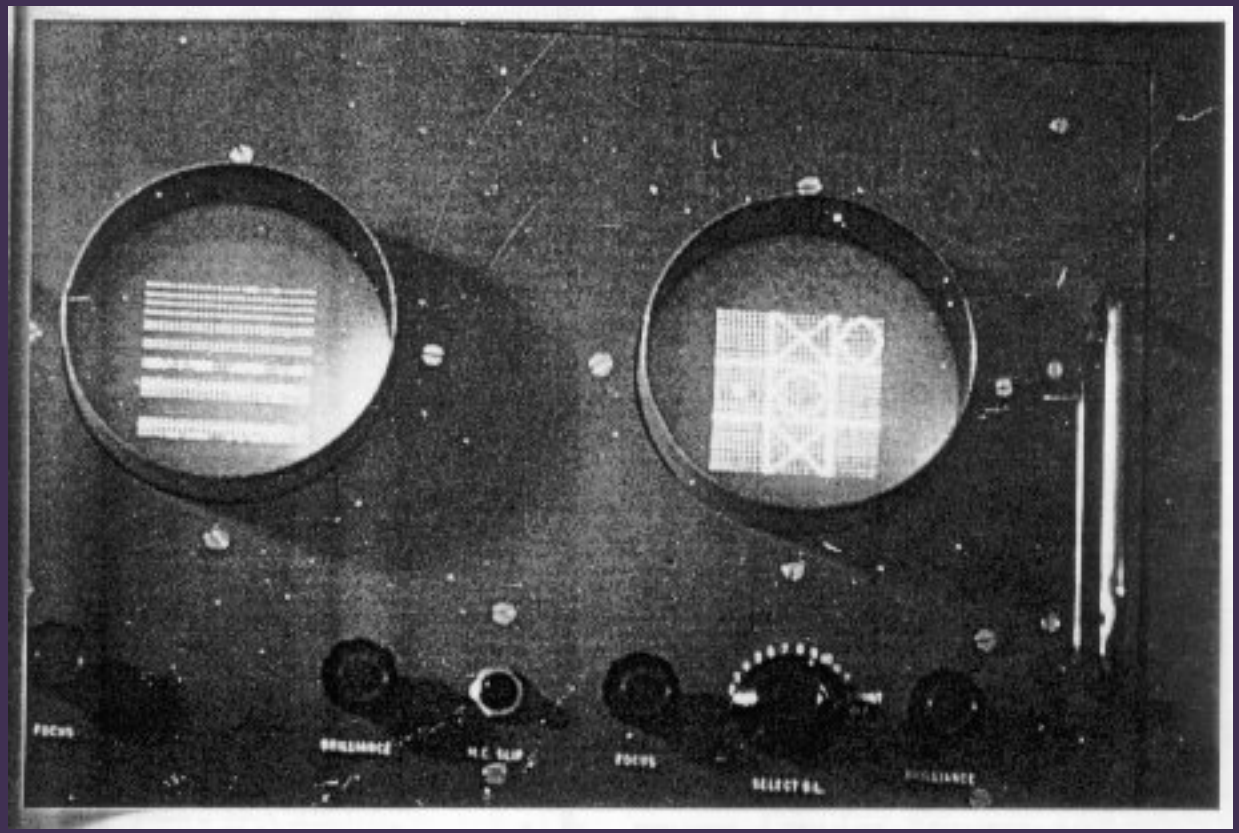
First chess program

Bertie the Brain (1950)

First computer game with a visual display

OXO (1951)

First game with visuals on a general-purpose computer



Tennis for Two (1959)

First to be created purely for entertainment

SpaceWar! (1962)

First widely available game, inspired first arcade games

Pong (1972)

First commercially successful game

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What was the first games console?

The Brown Box (1967)

First prototype console

Magnavox Odyssey (1972)

First commercial console

Game console timeline

http://www.onlineeducation.net/videogame_timeline/video-game-timeline.jpg

(A little out of date!)

Debrief

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