

COL 2015

Digital System Design

E Slot, Tue-Wed-Fri 10-10:50 am

Assessment

25% Minor Exam

35% Major Exam

40% Lab assignments

DHD lab, Bharti Building 4th floor.

IBM System/370-165 Mainframe Computer

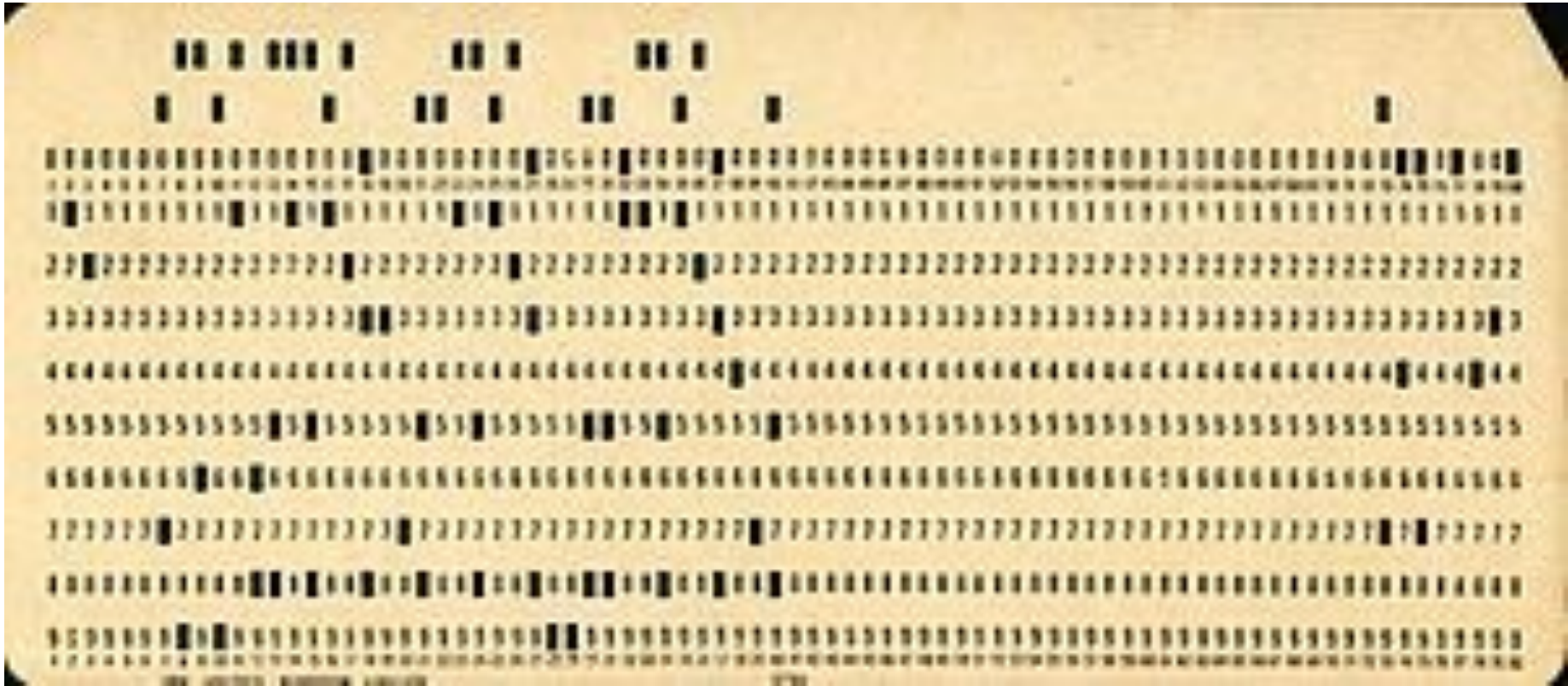


Source: https://www.ibm.com/ibm/history/exhibits/1130/1130_photo.html

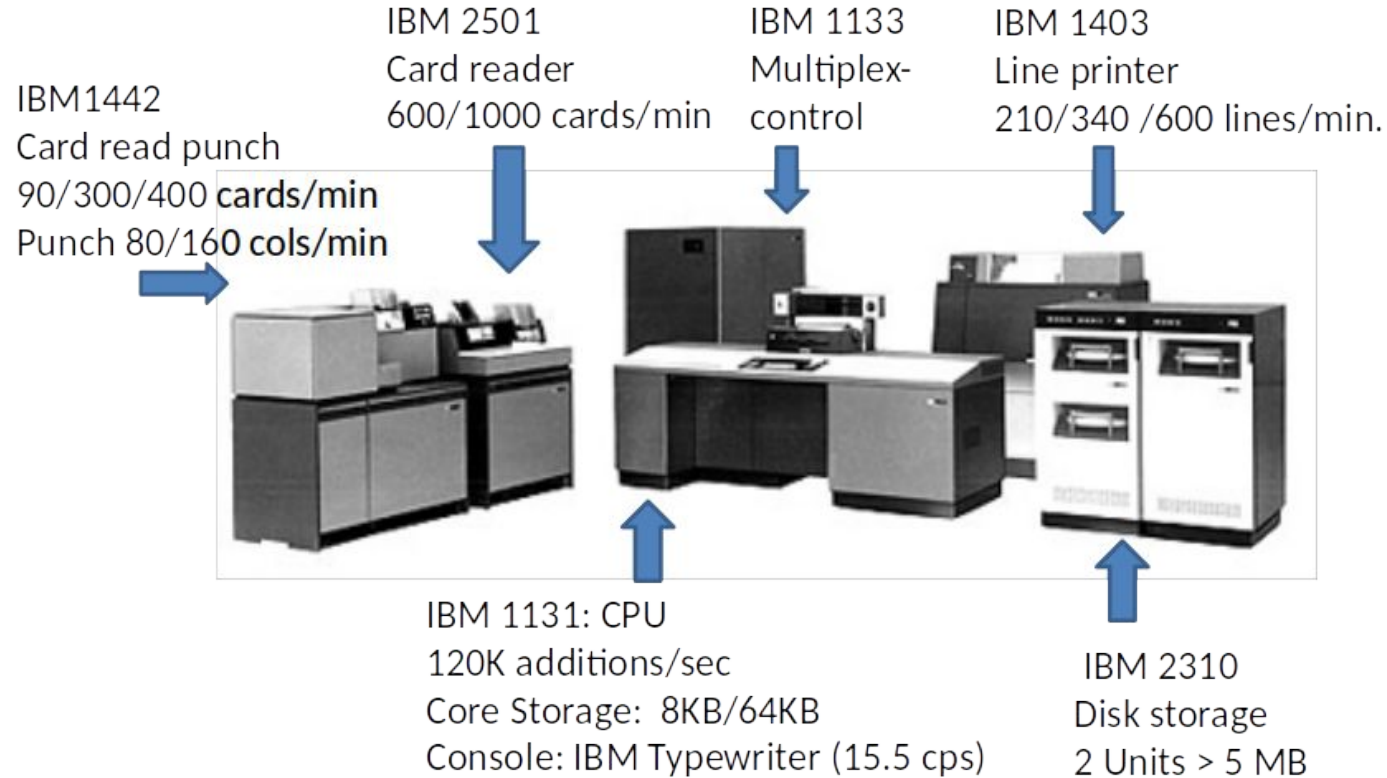
Vintage storage devices



Computer punch card



IBM 1130 installation



Source: https://www.ibm.com/ibm/history/exhibits/1130/1130_photo.html

Cray 1, Computer Museum of America



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<https://commons.wikimedia.org/w/index.php?curid=14619982>



CRAY1

@
EPFL



Fill this with your smartphone specs

Manufacturer	Cray Research
Release date	1975
Units sold	Over 80
Price	US\$7.9 M - 1977
Dimensions	Height: 196 cm Dia. (base): 263 cm Dia. (columns): 145 cm
Weight	5.5 tons (Cray-1A)
Power	115 kW @ 208 V 400 Hz
OS	COS & UNICOS
CPU	64-bit processor @ 80 MHz
Memory	8.39 MB
Storage	303 MB
FLOPS	160 MFLOPS

Phone functionality growth



1975-2025 (50 years)

- Transistor size reduction
 - 100s of microns (10^{-6}) to few nanometers (10^{-9})
- Speed
 - 10s of KHz to GHz
- Integration (transistor density)
 - 10s of transistors to millions per sqcm
- Power reduction

Both computation as well as memory has seen this dramatic growth.

Modern data centers



<https://rmonnetworks.com/cabling-services/data-center-installations/>

Computational power vs. environmental sustainability

