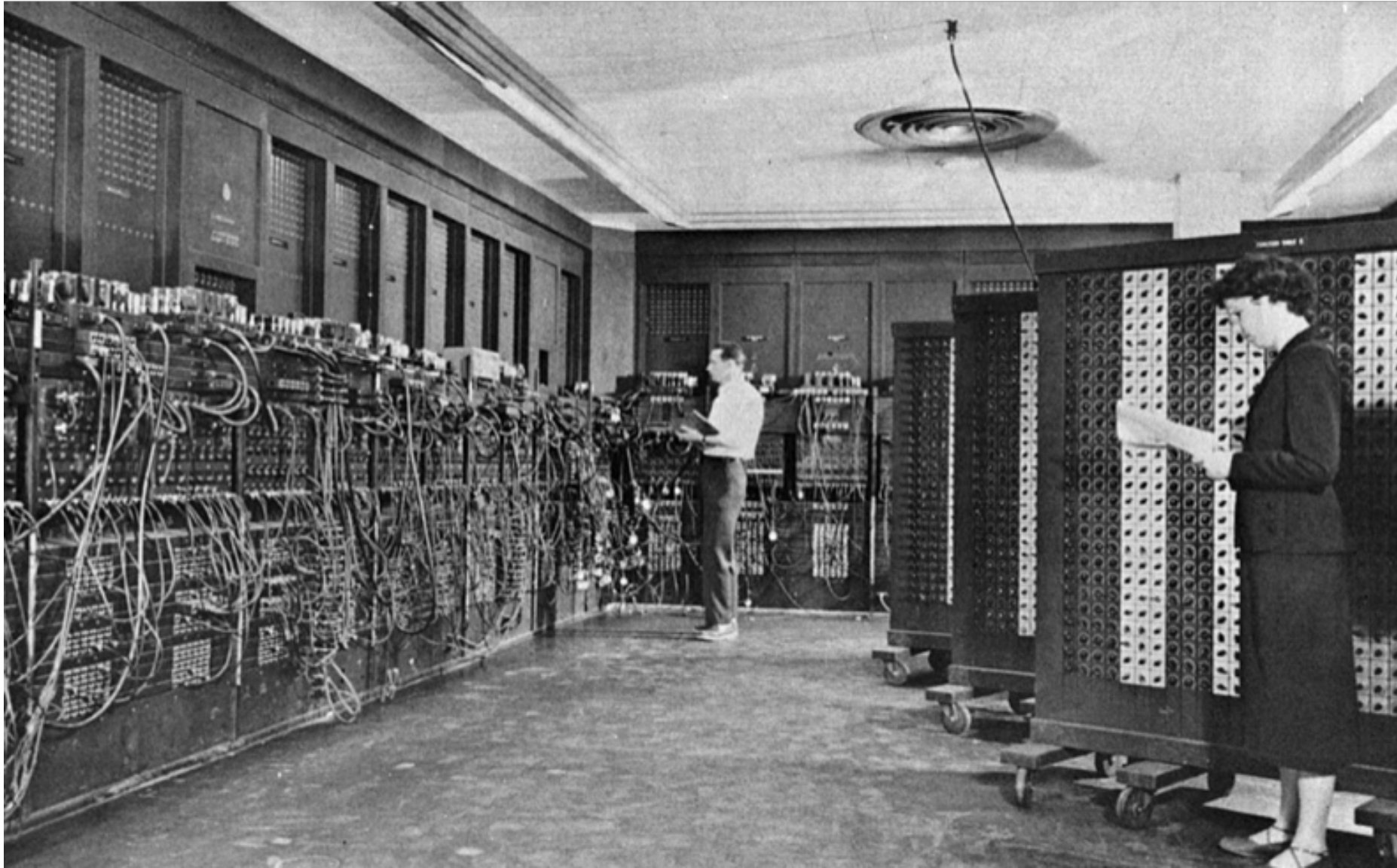


A Quick History of Computing

Most references and pictures from Wikipedia

ENIAC - 1947



ENIAC

- 18000 Vacuum tubes, 1500 relays, 5,000,000 hand-soldered joints
- 20 ten-digit accumulators
- Basic machine cycle – 200 usec, 5000 cycles/sec
- 365 multiplications/sec
- 35 divisions-square roots/sec
- Programmed via plugboards

Harvard vs von Neumann Architecture

- Harvard Architecture
 - Separate memories for Instructions and Data
 - Named from Harvard Mark I relay-based computer
 - Instructions stored on paper tape
- Von Neumann Architecture
 - Same memory used for Instructions and Data
 - Named for John von Neumann, who proposed stored program concept in 1945

IBM 1401 - 1959



IBM 360 - 1964



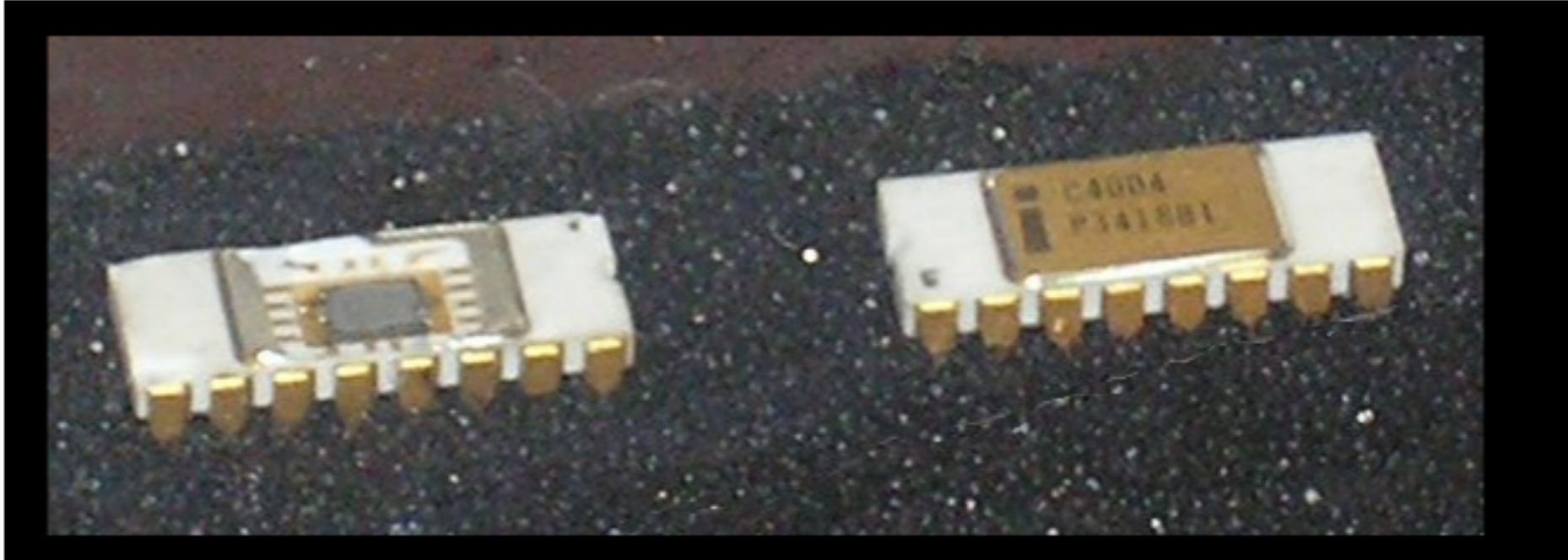
IBM 360

- First “family” architecture – different models with varying processing power
 - Model 30 – 34.5K Instructions/sec, up to 64KB memory
 - Model 91 – 16.6M Instructions/sec, up to 8MB memory
- 32 bit words, 8 bit bytes
- Most models were microcoded – allowed for adding new instruction types

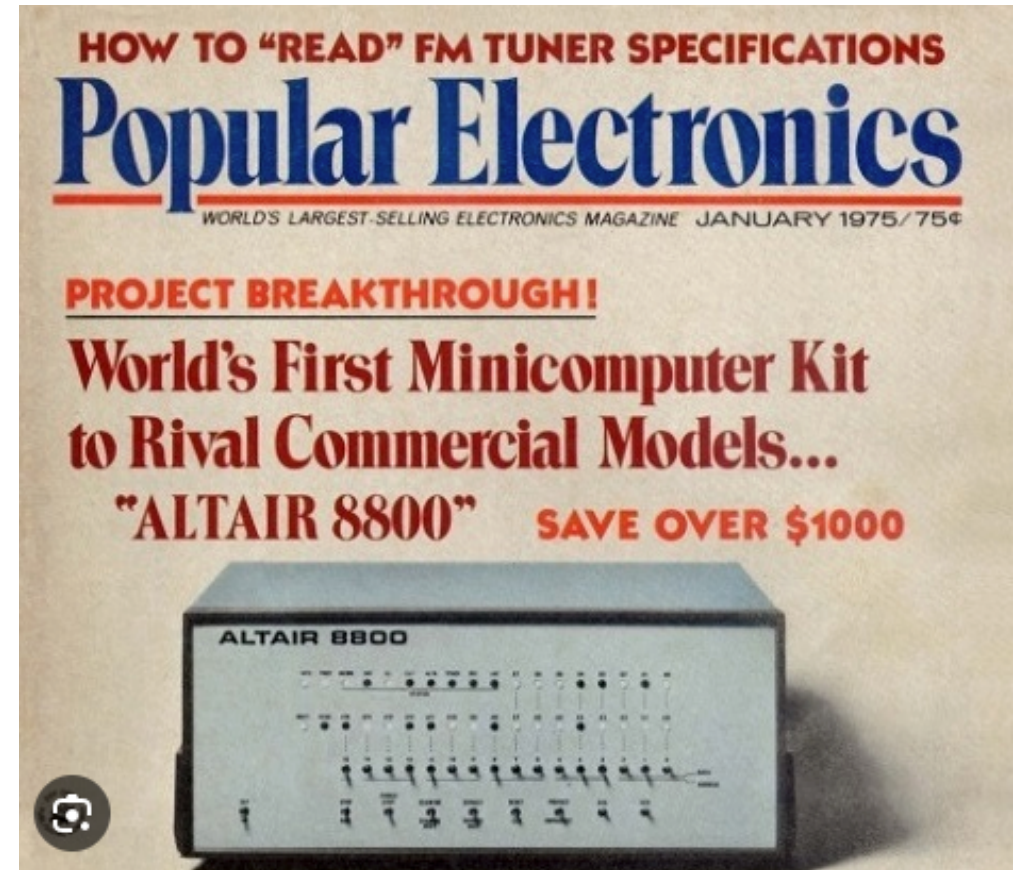
MINICOMPUTER – 1965



Microprocessor – Intel 4004 - 1971



Microcomputer – Altair 8800 - 1974



Superminicomputer - VAX 11/780 - 1977



Personal Computer – IBM 5150 -1981



Workstation – SUN SPARC –



RISC – Reduced Instruction Set Computer

- Three major projects
 - IBM – internal – led to PowerPC
 - Sun - Stanford
 - MIPS – Berkeley
- Previous designs – called CISC
- Revolutionized Computer Architecture
- Even x86 (Pentium II and beyond) translates code to RISC