MOS Technology 6502

- 1975. Much less expensive than competitors. — $25. (in today's $150).
  6x cheaper than competitors.

→ home computing revolution.
(Atari 2600, Apple II, NES, Commodore 64, BBC Micro)

Registers

A (accumulator — like our D register) (8 bits)

X, Y } index registers (8 bits)

P — processor status bits. (8 bits)

S — stack pointer. (? bits)

PC — (16 bits). 65,536 bytes — ~32K instructions.

Instructions.

8-bit instruction codes ("opcodes"):

AAA BBB CC

AAA: operation. BBB: addressing mode.

Operations:

- Logic
- ADD, SUB (carry — could chain to add 16-bit values)
- CMP — Compare 2 values + set status bits
- JMP — unconditional jump.
- Branch — conditional relative jump.
- shift, rotate

Addressing modes:

- Immediate — next byte (or 2?) is a constant.

- Absolute — specifies a memory address (2 bytes)
- Zero-page: 1 byte specifies address in first 256 bytes of RAM.

- Indirect: 2 bytes specify mem location + next which stores an address which we then look up.

- Indirect indexed: looks up address in memory, then adds Y register to resulting address + looks that up