

CS126 Precept 6

Meeting 7: Returning NBody Assignment and TOY

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First Exam

- Wednesday, 3/24, 7:30 – 9:30pm
- Friend 101
- Extra review session TBA

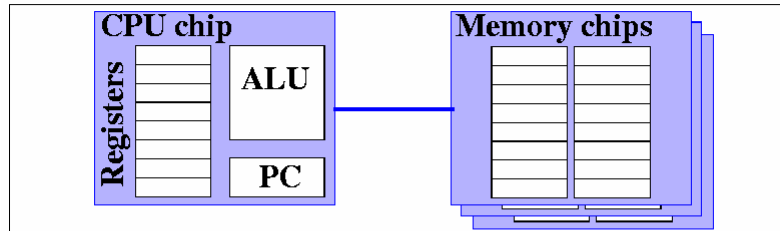
NBody

- Common mistake: mixing loops
- Common mistake: sign confusion
- Debugging tip
 - Make very simple input files
 - Work out first 1 or 2 iterations on paper
 - Modify code to print out values for just first couple iterations
- (Show off extra point efforts)

Number Conversions

- Binary \rightarrow decimal, hex \rightarrow decimal
- Decimal \rightarrow binary, decimal \rightarrow hex
- Binary \rightarrow hex, hex \rightarrow binary
- Negative decimal \rightarrow 2's complement
- 2's complement arithmetic
- Bit-wise operations:
 - \sim $\&$ $|$ \wedge \gg \ll
 - $\gg i$ is equivalent to division by 2^i
 - $\ll i$ is equivalent to multiplication by 2^i

TOY



- ALU (arithmetic logic unit) -- executes instructions to manipulate data
- 16 registers -- the fastest form of storage, on-chip in modern computers, used as scratch space during computation
- PC (program counter) -- a register with special meaning, keeps track of the next instruction to be executed
- 256 16-bit words of memory -- stores both code and data

TOY Instruction Set

- You should be able to trace a TOY program
- You should be able to write a TOY program
- The instruction set cheat sheet would always be provided to you---no need to memorize it