ALUs

Topics:
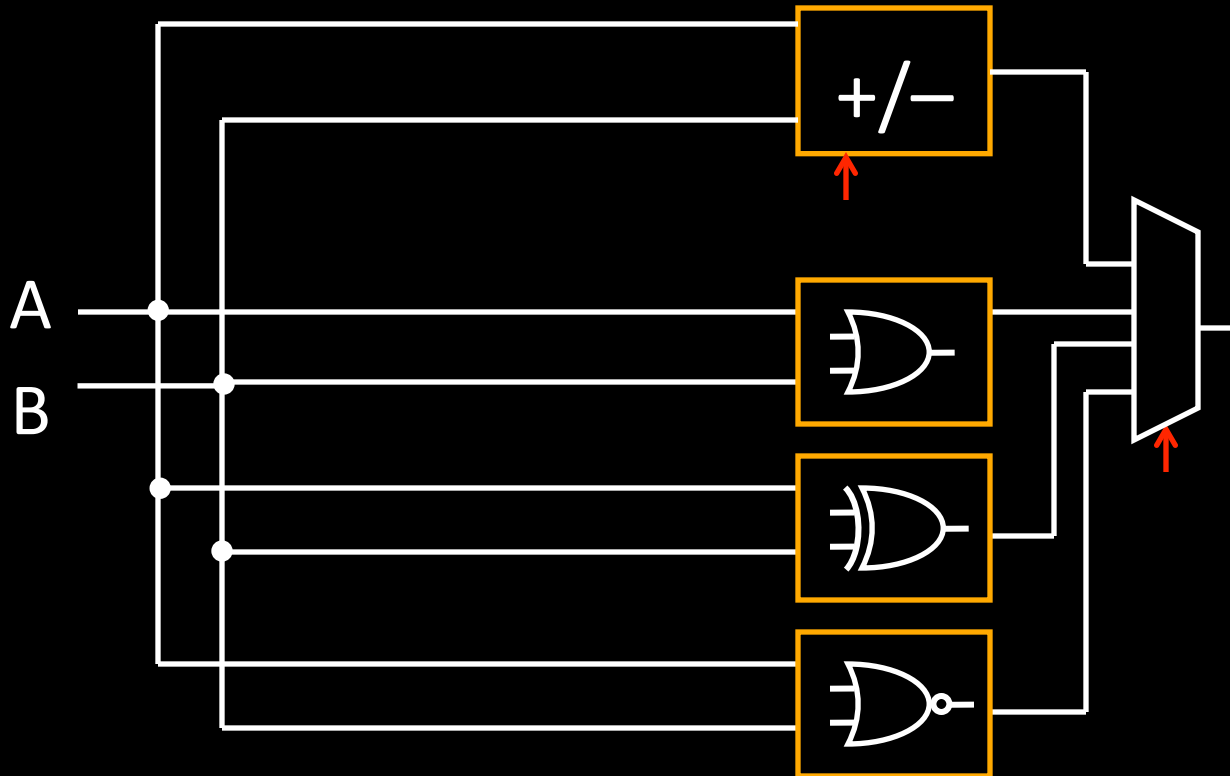
ALU Overview

   - core of the integer datapath

   - 2 operands, 32-bits wide, plus control signals

Exercise: A simple multiplier

Arithmetic Logic Unit (ALU)

- Implements add, sub, or, and, shift-left, right-shift …

- Computes many results in *parallel*

- Control mux selects desired output from among all potential results

add/sub : see lecture

and, or, xor, … : trivial

comparisons : left for students

putting it all together (e.g. mapping alu OP input to needed control signals): kmaps, etc.

→ book is helpful (Appendix C)

Binary Multiplication

   via shifting for powers of 2

   with an expensive simplistic circuit

see hint.doc