

ALUs

# Topics:

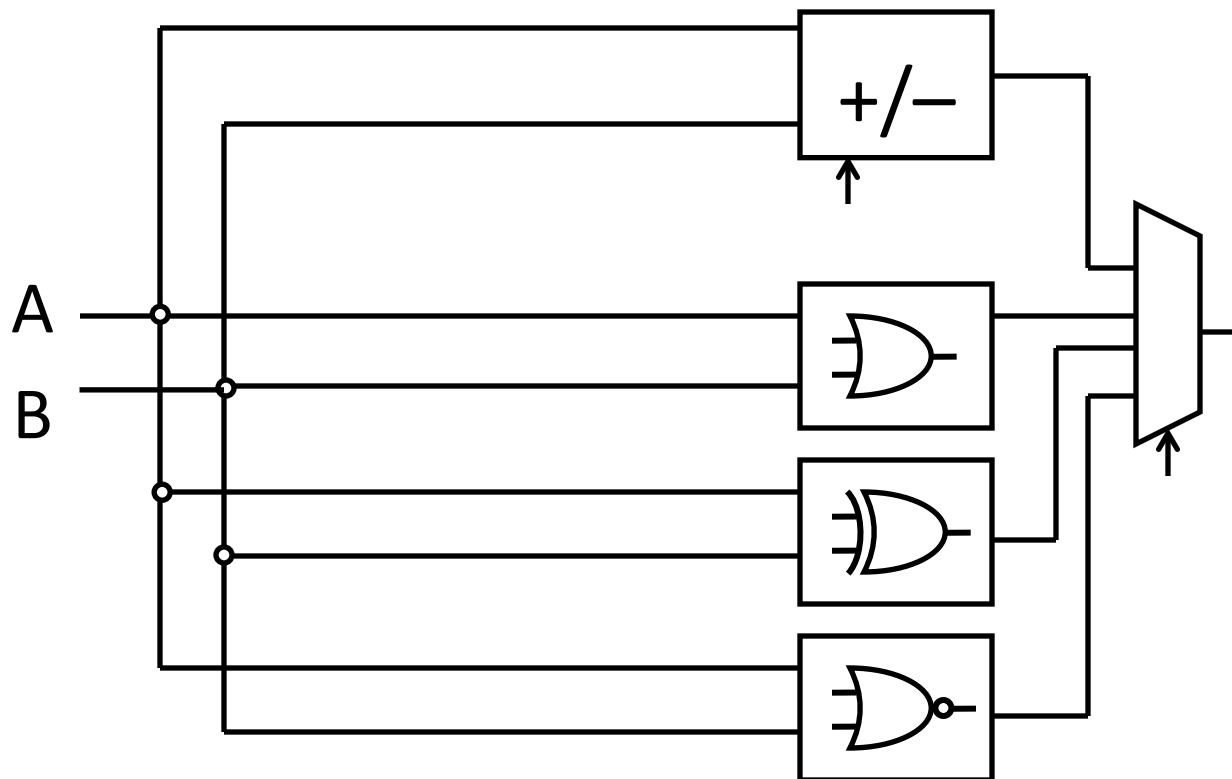
## ALU Overview

- 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