

CS315-01 Components

Midterm High 96

Mean 66

"C" for passing is 55 ←

Final → if you do better than your

Score on midterm

$$\text{Midterm} = \frac{\text{Final} + \text{midterm}}{2}$$

For
example

Midterm	60	70
Final	80	

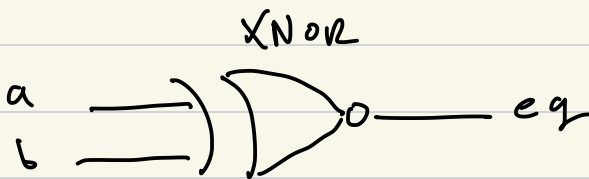
Project 05 Static Program Analysis

Combinational Logic

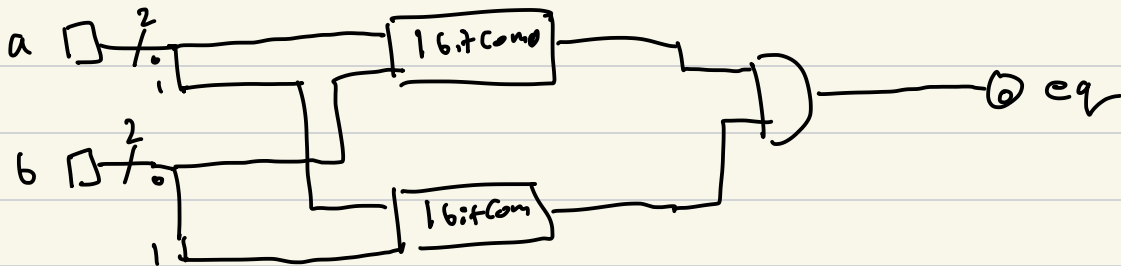
Comparator is $a == b$?

a	b	eq?	XOR	XNOR
0	0	1	0	1
0	1	0	1	0
→ 1	0	0	1	0
1	1	1	0	1

1 bit comparator

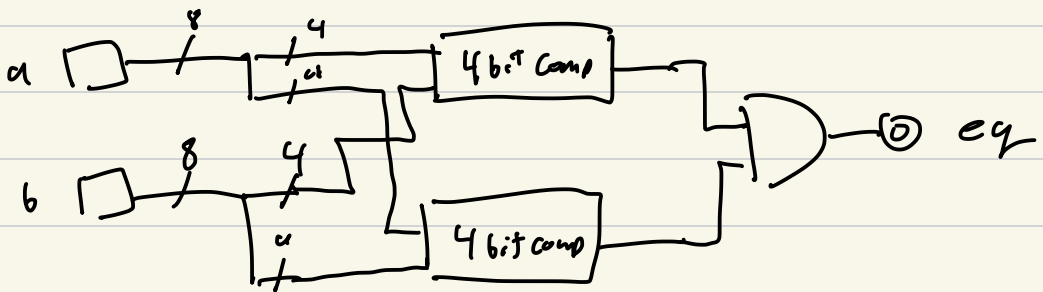


2-bit Comparator



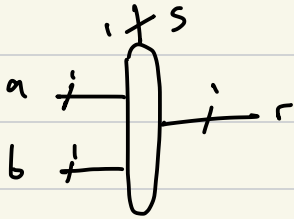
N-bit Comparators

8-bit Comparator

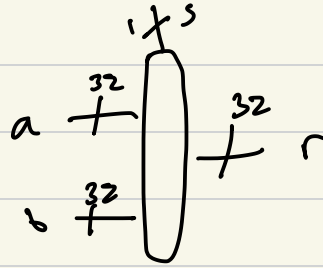


Multiplexer (MUX)

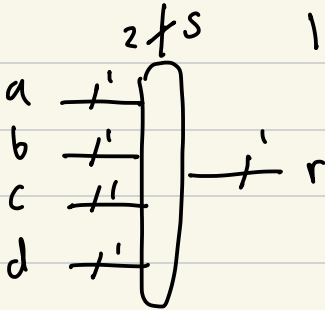
1 bit 2 input MUX



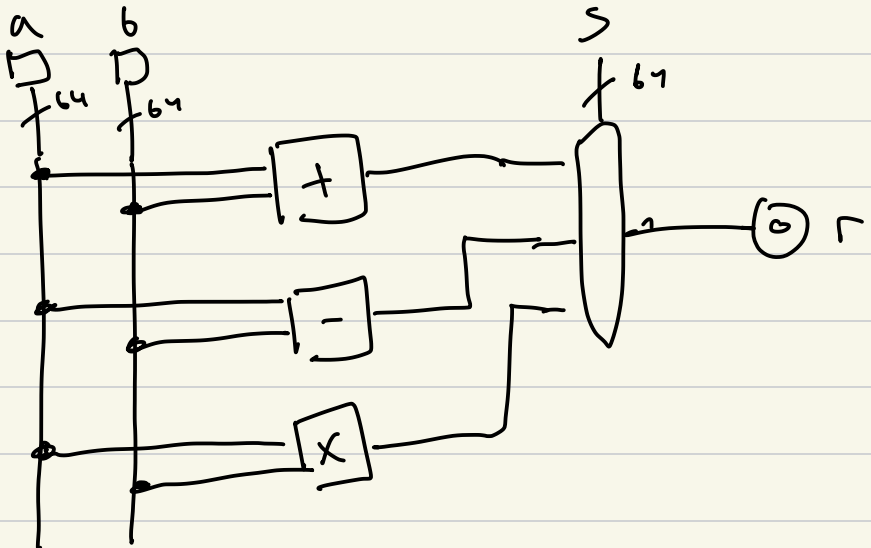
32 bit 2-input MUX



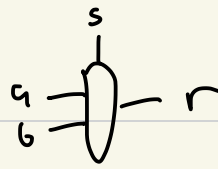
1 bit 4 input MUX



ALU Arithmetic Logic Unit



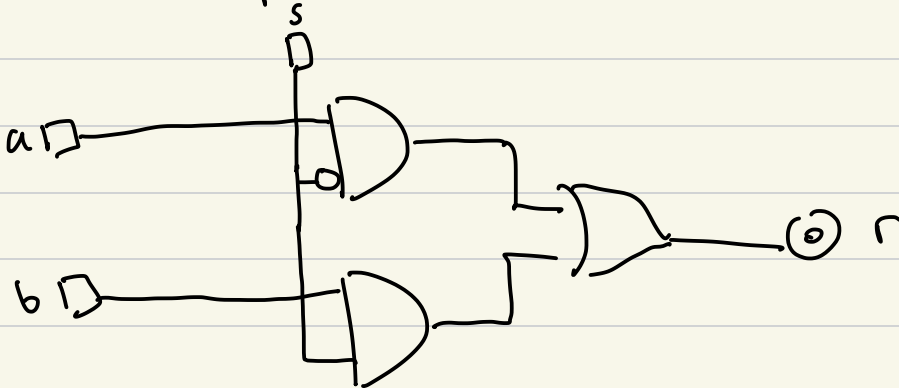
1 bit 2 input MUX



a	b	s	r
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

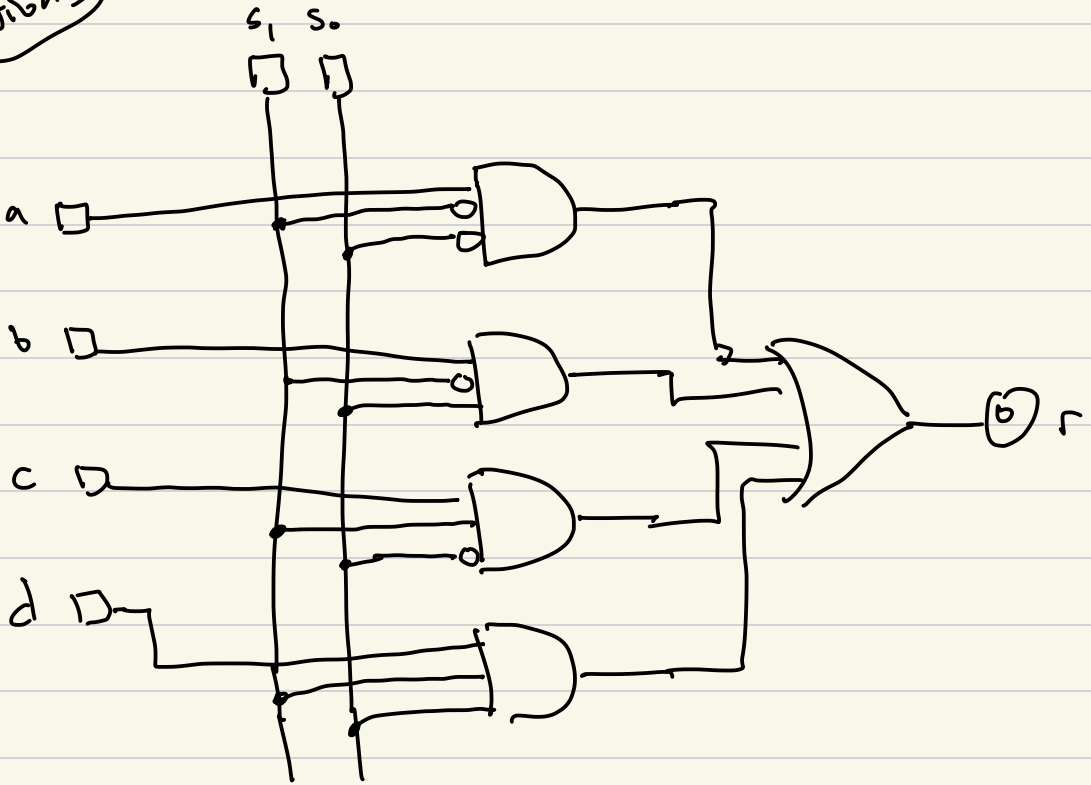
sum-of-products

Direct implementation

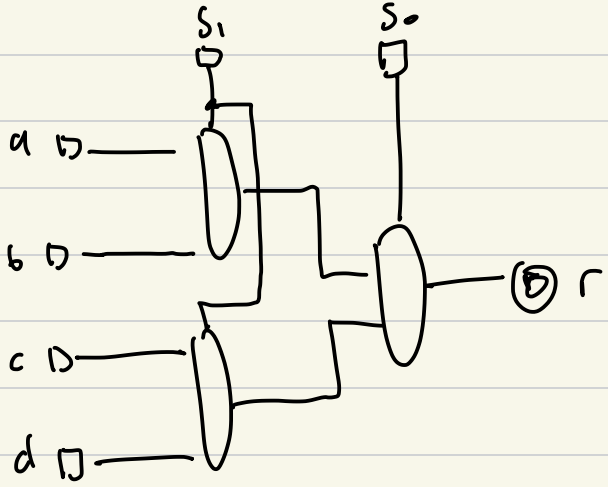


1 bit 4 input MUX

option 1



option 2



2 bit Zinput MUX

