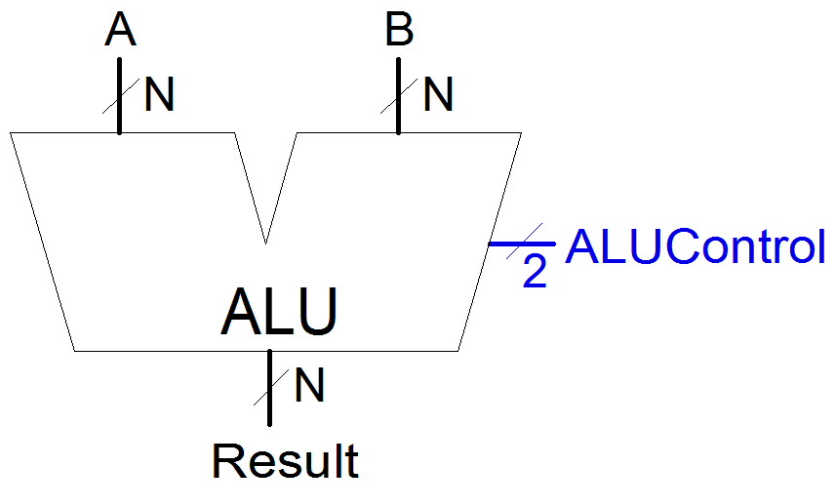


ALU Design

E85 Fall 2014

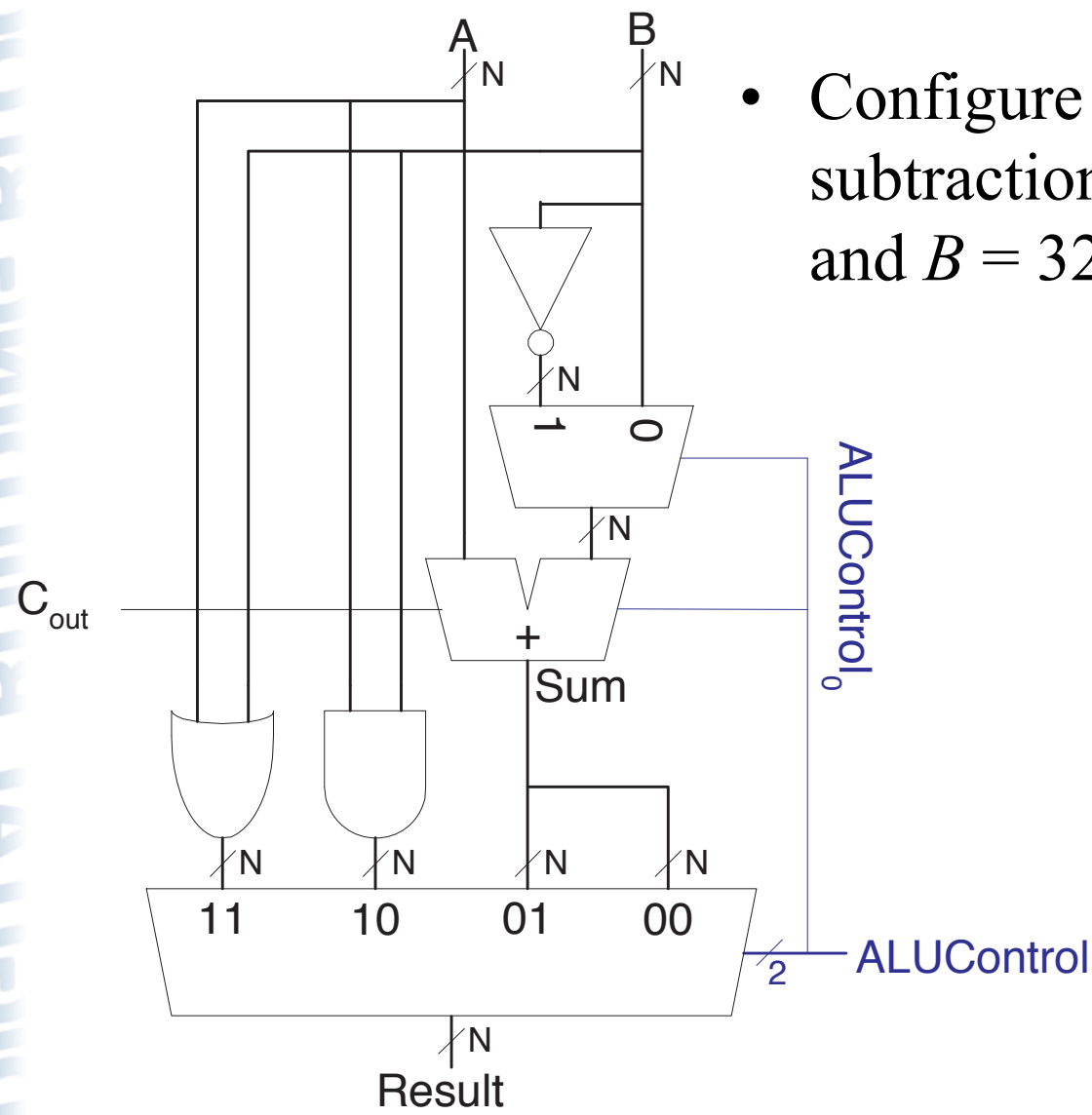
Arithmetic Logic Unit (ALU)



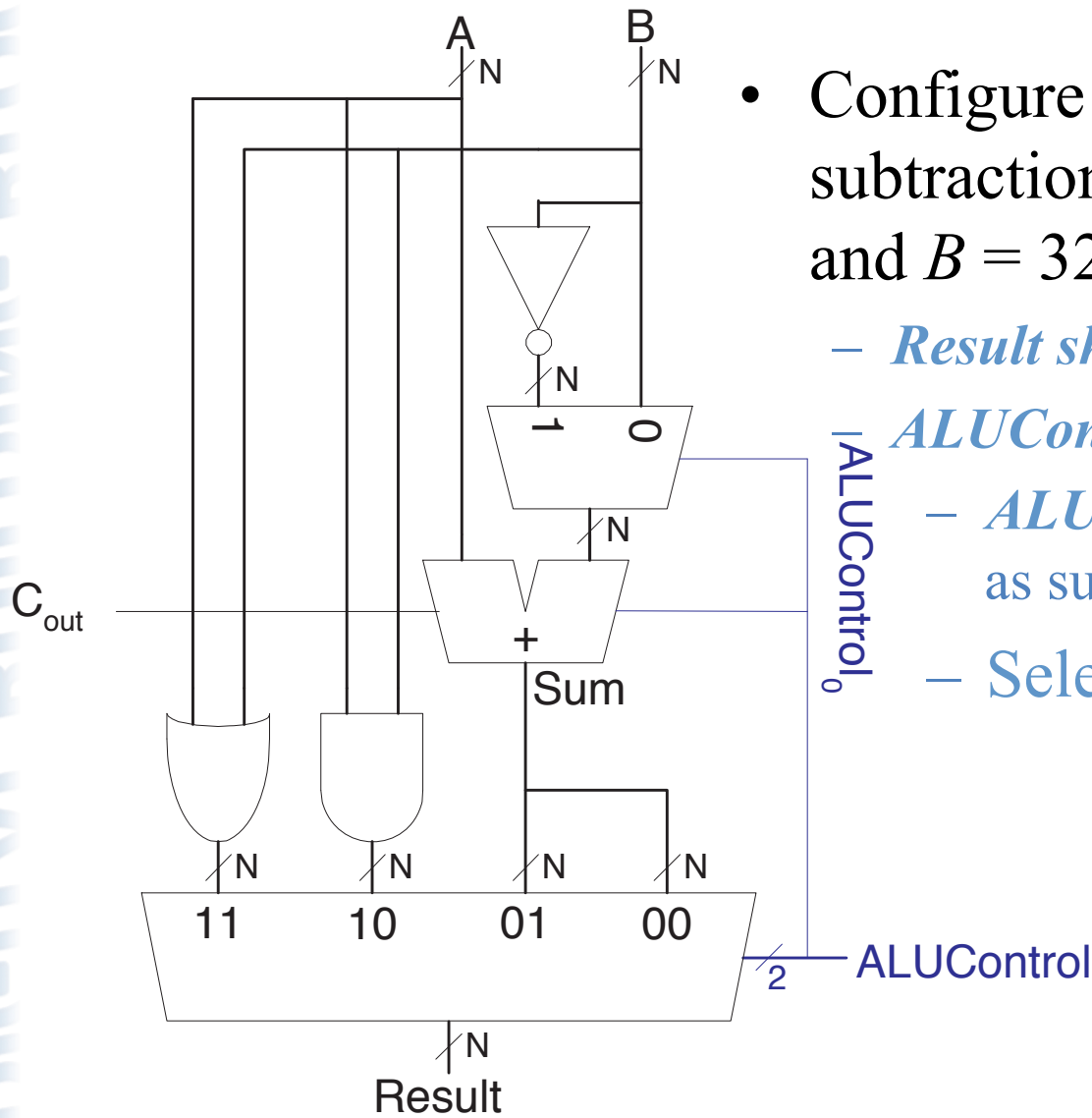
ALUControl _{2:0}	Function
00	A + B
01	A - B
10	A & B
11	A B

Subtraction Example

- Configure 32-bit ALU for subtraction operation: $A = 25$ and $B = 32$



Subtraction Example



- Configure 32-bit ALU for subtraction operation: $A = 25$ and $B = 32$
 - *Result should be -7 (25 - 32)*
 - $ALUControl_{1:0} = 01$*
 - *$ALUControl_0 = 1$ (adder acts as subtracter), so $25 - 32 = -7$*
 - *Select Sum for Result*