



# Supporting all R-Type Instructions

funct7			funct3		opcode	
0000000	rs2	rs1	000	rd	0110011	add
0100000	rs2	rs1	000	rd	0110011	sub
0000000	rs2	rs1	001	rd	0110011	sll
0000000	rs2	rs1	010	rd	0110011	slt
0000000	rs2	rs1	011	rd	0110011	sltu
0000000	rs2	rs1	100	rd	0110011	xor
0000000	rs2	rs1	101	rd	0110011	srl
0100000	rs2	rs1	101	rd	0110011	sra
0000000	rs2	rs1	110	rd	0110011	or
0000000	rs2	rs1	111	rd	0110011	and



ALUSel  
add,sub,xor,and,or,  
slt,sltu,sll,sra,srl

The **Control Logic** decodes **funct3**, **funct7** instruction fields and selects appropriate **ALU** function by setting the control line **ALUSel**.

Check out Project 3  
for the full ALU!