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CIE 239 Final Project

MIPs Microprocessor

ALU Operations:

ALUControl	Function
000	A and B
001	A or B
010	A+B
011	B << A
100	A and ~B
101	A or ~B
110	A – B
111	SLT

ALU Decoder Truth Table:

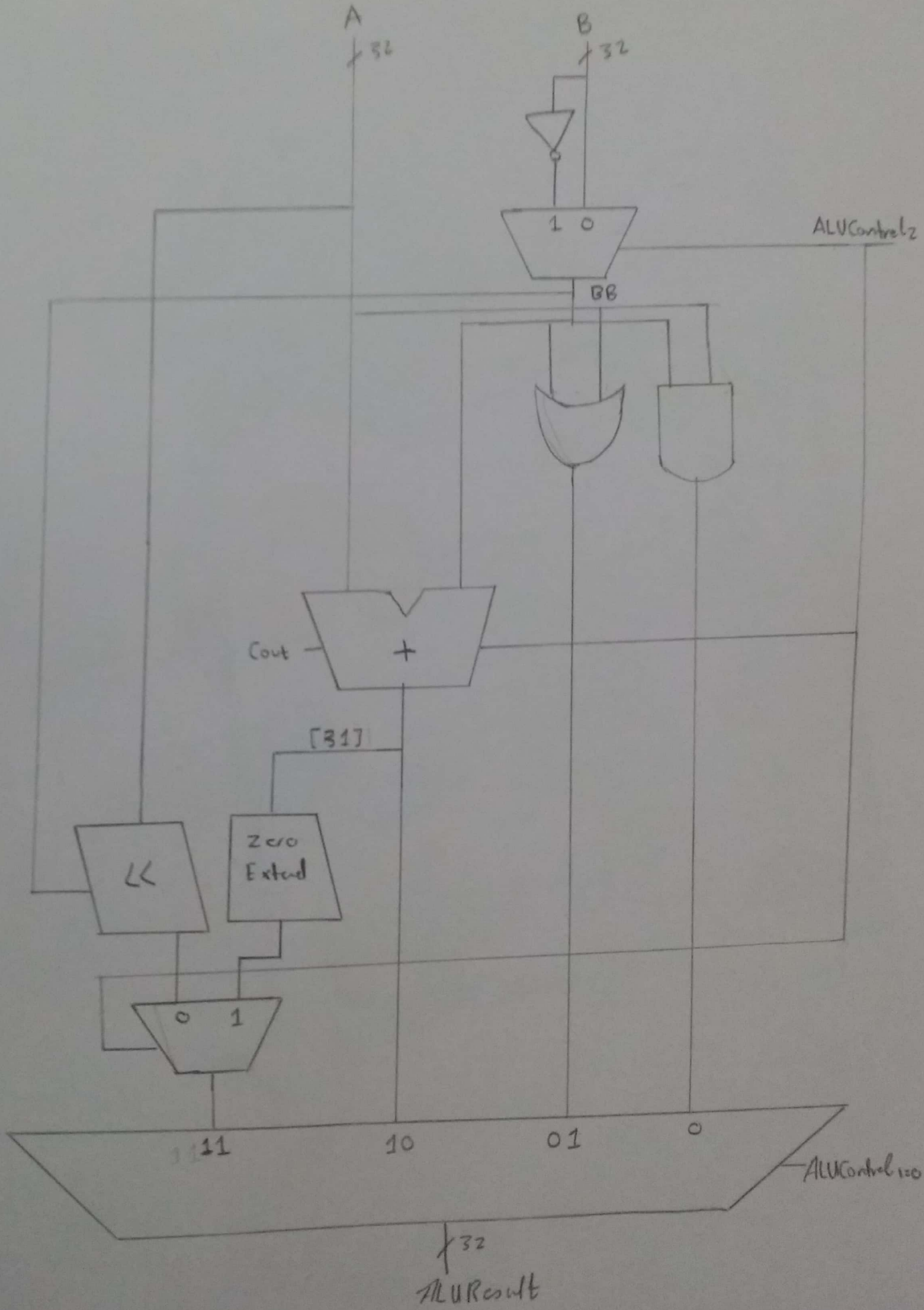
ALUOp	funct	ALUControl	Shift
00	X	010 (add)	0
10	X	110 (subtract)	0
1X	100000 (add)	010 (add)	0
1X	100010 (sub)	110 (subtract)	0

1X	100100 (and)	000 (and)	0
1X	100101 (or)	001 (or)	0
1X	101010 (slt)	111 (set less than)	0
1X	000000 (sll)	011 (shift left logical)	1

Main Decoder Truth Table:

	R-type 000000	**lw 100011**	**sw 101011**	**addi 001000**	**lh 100001**
RegWrite	1	1	0	1	1
RegDst	1	0	0	0	0
ALUSrc	0	1	1	1	1
MemWrite	0	0	1	0	0
MemtoReg	0	1	0	0	1
HalfWord	0	0	0	0	1
ALUOp	10	00	00	00	00

Arithmetic Logic Unit (ALU):



A MIPs Microprocessor !!! :