

ALU OP			Funct			ALU Control			
A <sub>2</sub>	B	C	D	E	F	X	Y	Z	
0	0	0 ✓	0	1	0	0	0	0	AND
0	0	0 ✓	0	1	1	0	0	1	OR
0	0	0 ✓	1	0	0	0	1	0	NOR
0	0	0 ✓	1	0	1	1	0	0	XOR
0	0	0 x	1	1	0	0	1	1	SL
0	0	0 x	1	1	1	1	1	0	SRL
0	0	0 ✓	0	0	0	1	1	1	ADD
0	0	0 ✓	0	0	1	1	0	1	SUB
0	0	1 ✓	x	x	x	1	1	1	ADDi
0	0	1 ✓	x	x	x	1	1	1	LW
0	0	1 ✓	x	x	x	1	1	1	SW
0	1	0 ✓	x	x	x	1	0	1	BEQ
0	1	0 ✓	x	x	x	1	0	1	BNQ
0	1	1 ✓	x	x	x	0	0	0	ANDi
1	0	0 ✓	x	x	x	0	0	1	ORi

$$X = \overline{B}C + B\overline{C} + \overline{A}B\overline{D}\overline{E} + \overline{A}BDF$$

$$Y = \overline{B}C + \overline{A}\overline{B}\overline{E}\overline{F} + \overline{A}BDE$$

$$Z = A + \overline{B}C + B\overline{C} + \overline{B}\overline{D}\overline{E} + \overline{B}\overline{D}F + \overline{B}DE\overline{F}$$