

Controller Instructions and their control signals:
I-type:

Instru ctions	Mem Read	Mem Write	Mem To Reg	ALUSrc	ALUOp	RegWrit e	RegDst	Branch	J	Jr	Write Link	R31	Flush	Opcode
addi	-	0	0	1	00	1	0	0	0	0	0	0	0	001000
slti	-	0	0	1	11	1	0	0	0	0	0	0	0	001010
lw	1	0	1	1	00	1	0	0	0	0	0	0	0	100011
sw	-	1	0	1	00	0	0	0	0	0	0	0	0	101011
beq	-	0	-	0	01	0	-	1	0	0	0	0	1	000100
jr	-	0	0	0	-	0	-	0	1	1	0	0	1	100000

R-type (Opcode = 000000):

Instru ctions	Mem Read	Mem Write	Mem To Reg	ALUSrc	ALUOp	Reg Write	RegDst	Branch	J	Jr	Write Link	R31	Flush	functio n
add	-	0	0	0	10	1	1	0	0	0	0	0	0	10000 0
sub	-	0	0	0	10	1	1	0	0	0	0	0	0	10001 0
and	-	0	0	0	10	1	1	0	0	0	0	0	0	10000 1
or	-	0	0	0	10	1	1	0	0	0	0	0	0	10010 1
slt	-	0	0	0	10	1	1	0	0	0	0	0	0	10101 0

J-type:

Instru ctions	Mem Read	Mem Write	MemTo Reg	ALUSrc	ALUOp	RegWrit e	RegDst	Branch	J	Jr	Write Link	R31	Flush	Opcod e
j	-	0	-	1	-	0	0	0	1	0	0	0	1	000010
jal	-	0	-	1	-	1	0	0	1	0	1	1	1	000011