



- PCWrite: Write the ALU output to the PC.
- PCWriteCond: Write the ALU output to the PC, only if the Zerocondition has been met.
- IorD: For memory access; short for “Instruction or Data”. Signals whether the memory address is being provided by the PC or an ALU operation.
- MemRead: The processor is reading from memory.
- MemWrite: The processor is writing to memory.
- MemToReg: The register file is receiving data from memory, not from the ALU output.
- IRWrite: The instruction register is being filled with a new instruction from memory.
- PCSource: Signals whether the value of the PC resulting from an jump, or an ALU operation.
- ALUOp (3 wires): Signals the execution of an ALU operation.
- ALUSrcA: Input A into the ALU is coming from the PC (value=0) or the register file (value=1).
- ALUSrcB (2 wires): Input B into the ALU is coming from the register file (value=0), a constant value of 4 (value=1), the program counter (value=2), or the shifted program counter (value=3).
- RegWrite: The processor is writing to the register file.
- RegDst: Which part of the instruction is providing the destination address for a register write (rt instead of rd).

Instruction	Type	Op/Func
add	R	100000
addu	R	100001
addi	I	001000
addiu	I	001001
div	R	011010
divu	R	011011
mult	R	011000
multu	R	011001
sub	R	100010
subu	R	100011
and	R	100100
andi	I	001100
nor	R	100111
or	R	100101
ori	I	001101
xor	R	100110
xori	I	001110
sll	R	000000
sllv	R	000100
sra	R	000011
srav	R	000111
srl	R	000010
srlv	R	000110
beq	I	000100
bgtz	I	000111
blez	I	000110
bne	I	000101
j	J	000010
jal	J	000011
jalr	R	001001
jr	R	001000
lb	I	100000
lbu	I	100100
lh	I	100001
lhu	I	100101
lw	I	100011
sb	I	101000
sh	I	101001
sw	I	101011
mflo	R	010010