

add
<pre> newPC = PC+4 PC = newPC inst = Mem[PC] a = Reg[inst[19:15]] b = Reg[inst[24:20]] result = a + b Reg[inst[11:7]] = result </pre>

addi
<pre> newPC = PC+4 PC = newPC inst = Mem[PC] a = Reg[inst[19:15]] imm = SE(inst[31:20]) result = a + imm Reg[inst[11:7]] = result </pre>

lw
<pre> newPC = PC+4 PC = newPC inst = Mem[PC] a = Reg[inst[19:15]] imm = SE(inst[31:20]) result = a + imm memOut = Mem[result] Reg[inst[11:7]] = memOut </pre>

sw
<pre> newPC = PC+4 PC = newPC inst = Mem[PC] a = Reg[inst[19:15]] b = Reg[inst[24:20]] imm = SE({inst[31:25], inst[11:7]}) result = a + imm Mem[result] = b </pre>

beq
<pre> newPC = PC+4 PC = newPC inst = Mem[PC] a = Reg[inst[19:15]] b = Reg[inst[24:20]] imm = SE({inst[31], inst[7], inst[30:25], inst[11:8]}) << 1 target = PC + imm if(a == b) PC = target </pre>