| hex | OP   | Instruction |   | ALU<br>OP | Cin | Binv | Write<br>En | Ram<br>En | Mem<br>Write | Mem<br>Read | Mem<br>to<br>Reg | Reg<br>Dest | RT/IM | Branch | Jump |
|-----|------|-------------|---|-----------|-----|------|-------------|-----------|--------------|-------------|------------------|-------------|-------|--------|------|
| 0   | 0000 | nop         | 0 | 0         | 0   | 0    | 0           | 0         | 0            | 0           | 0                | 0           | 0     | 0      | 0    |
| 1   | 0001 | lw          | 1 | 1         | 0   | 0    | 1           | 1         | 0            | 1           | 1                | 1           | 1     | 0      | 0    |
| 2   | 0010 | addi        | 1 | 1         | 0   | 0    | 1           | 0         | 0            | 0           | 0                | 1           | 1     | 0      | 0    |
| 3   | 0011 | sw          | 1 | 1         | 0   | 0    | 0           | 1         | 1            | 0           | 0                | 0           | 1     | 0      | 0    |
| 4   | 0100 | beq         | 0 | 0         | 0   | 0    | 0           | 0         | 0            | 0           | 0                | 0           | 0     | 1      | 0    |
| 5   | 0101 | slt         | 1 | 0         | 0   | 0    | 1           | 0         | 0            | 0           | 0                | 0           | 0     | 0      | 0    |
| 6   | 0110 | and         | 0 | 1         | 0   | 0    | 1           | 0         | 0            | 0           | 0                | 0           | 0     | 0      | 0    |
| 7   | 0111 | sub         | 1 | 1         | 1   | 1    | 1           | 0         | 0            | 0           | 0                | 0           | 0     | 0      | 0    |
| 8   | 1000 | jmp         | 0 | 0         | 0   | 0    | 0           | 0         | 0            | 0           | 0                | 0           | 0     | 0      | 1    |
| 9   | 1001 | sll         | 0 | 0         | 0   | 0    | 1           | 0         | 0            | 0           | 0                | 0           | 0     | 0      | 0    |
| Α   | 1010 | add         | 1 | 1         | 0   | 0    | 1           | 0         | 0            | 0           | 0                | 0           | 0     | 0      | 0    |