R type – add, sub,slt

Rest I type

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Ins. | Ins. Op- code | ALUSrc | Binvert | RegDst | MemToReg | Reg  Write | Mem  Read | Disp | Acc | Mem  Write | Branch  Bne | ALUop | | |
| 1 | add | 000 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | sub | 001 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4 | slt | 010 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3 | bne | 011 | 1 | 1 | 0 | x | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 5 | lw | 100 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 6 | sw | 101 | 1 | 0 | 0 | X | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 7 | addi | 110 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | Disp | 111 | 0 | 0 | 1 | x | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |

|  |  |
| --- | --- |
| ALUsrc = A B’ + AC’ + A’BC | ALUop1 = 0 , aluop = abc |
| Regdst = A’B’ + A’C’ +ABC | ALUop2 = 0 ,aluop = abc |
| Binvert = A’C + A’B  Acc = AB’ + A’BC | ALuop3 = A’C +A’B , aluop3 = A’B + A’C + ABC |
| MemtoReg = AB’  RegWrite = A’B’ +C’ | Memwrite = AB’C |
| MemRead = AB’ C’ | BranchBne = A’BC |