|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Type | Format | Details | Op Code | Function |
| ADD | Arithmetic | Register | add $S0, $S1, $S2  $S0 = $S1 + $S2 | 0000 | 000 |
| SUB | Arithmetic | Register | sub $S0, $S1, $S2  $S0 = $S1 - $S2 | 0000 | 001 |
| AND | Logical | Register | and $S0,$S1,$S2  $S0 = $S1 & $S2 | 0000 | 010 |
| OR | Logical | Register | or $S0,$S1,$S2  $S0 = $S1 || $S2 | 0000 | 011 |
| NOR | Logical | Register | nor $S0,$S1, $S2  $S0 = ~ ($S1 || $S2) | 0000 | 100 |
| SLT | Conditional | Register | slt $S0, $S1,$S2  if ($S1 < $S2) $S0 = 1  else $S0 = 0 | 0000 | 101 |
| SLL | Logical | Immediate | sll $S0,$S1,2  $S0 = $S1 << 2 | 1000 | XXX |
| ADDi | Arithmetic | Immediate | addi $S0,$S1, 20  $S0 = $S1 + 20 | 0001 | XXXX |
| LW | Data Transfer | Immediate | lw $S0,20($S1)  $S0 = mem[$S1 + 20] | 0010 | XXXX |
| SW | Data Transfer | Immediate | sw $S0,20($S1)  mem[$S1 + 20]= $S0 | 0011 | XXXX |
| BEQ | Conditional | Immediate | beq $S0,$S1,25 if(S0 == S1)then goto 25th line  else proceed as usual | 0100 | XXXX |
| J | Unconditional | Target | j address  Go to address | 0101 | XXXX |
| Din | Data Transfer | Target | din $t0  $t0 = value from keypad | 0110 | XXXX |
| Dout | Data Transfer | Target | dout $t0  Display $t0 to seven segment | 0111 | XXXX |

|  |  |  |
| --- | --- | --- |
| Register Number | Conventional name | Value of register (3bit) |
| $1 | $s0 | 000 |
| $2 | $s1 | 001 |
| $3 | $s2 | 010 |
| $4 | $s3 | 011 |
| $ 5 | $t0 | 100 |
| $6 | $t1 | 101 |
| $7 | $t2 | 110 |
| $8 | $t3 | 111 |

(-32≤ addi ≤ 31) , ( 0≤ lw,sw ≤ 63), (0 ≤ sll ≤ 63), (-32 ≤ beq ≤ 31), (-2048 ≤ j ≤2047),

(-32768 ≤ din ≤32767)