|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Inst’n | I­30 | I14 | I13 | I12 | I6 | I5 | I4 | ALU\_Ctrl3 | ALU\_Ctrl2 | ALU\_Ctrl1 | ALU\_Ctrl0 | ALU\_Src |
| AND | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| OR | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| XOR | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| ADD | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| SUB | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| ANDI | X | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ORI | X | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| XORI | X | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| ADDI | X | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| LW | X | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| SW | X | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Inst’n | Format | Opcode | Funct3 | Funct7 | ALU\_Ctrl | ALU\_Src |
| AND | R | 0110011 | 111 | 0000000 | 0000 | 0 |
| OR | R | 0110011 | 110 | 0000000 | 0001 | 0 |
| XOR | R | 0110011 | 100 | 0000000 | 0010 | 0 |
| ADD | R | 0110011 | 000 | 0000000 | 0011 | 0 |
| SUB | R | 0110011 | 000 | 0100000 | 0111 | 0 |
| ANDI | I | 0010011 | 111 |  | 0000 | 1 |
| ORI | I | 0010011 | 110 |  | 0001 | 1 |
| XORI | I | 0010011 | 100 |  | 0010 | 1 |
| ADDI | I | 0010011 | 000 |  | 0011 | 1 |
| LW | I | 0000011 | 010 |  | 0011 | 1 |
| SW | S | 0100011 | 010 |  | 0011 | 1 |