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|-----------------------|----|----|----|-----|----|-----|----|--------|----|-------------|---|--------|---|--------|
| 31 | 27 | 26 | 25 | 24 | 20 | 19 | 15 | 14 | 12 | 11 | 7 | 6 | 0 | |
| funct7 | | | | rs2 | | rs1 | | funct3 | | rd | | opcode | | R-type |
| imm[11:0] | | | | | | rs1 | | funct3 | | rd | | opcode | | I-type |
| imm[11:5] | | | | rs2 | | rs1 | | funct3 | | imm[4:0] | | opcode | | S-type |
| imm[12 10:5] | | | | rs2 | | rs1 | | funct3 | | imm[4:1 11] | | opcode | | B-type |
| imm[31:12] | | | | | | | | | | rd | | opcode | | U-type |
| imm[20 10:1 11 19:12] | | | | | | | | | | rd | | opcode | | J-type |

RV32I Base Instruction Set

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|-----------------------|------|-------|-------|-----|-------------|---------|---------|
| imm[31:12] | | | | | rd | 0110111 | LUI |
| imm[31:12] | | | | | rd | 0010111 | AUIPC |
| imm[20 10:1 11 19:12] | | | | | rd | 1101111 | JAL |
| imm[11:0] | | | rs1 | 000 | rd | 1100111 | JALR |
| imm[12 10:5] | | rs2 | rs1 | 000 | imm[4:1 11] | 1100011 | BEQ |
| imm[12 10:5] | | rs2 | rs1 | 001 | imm[4:1 11] | 1100011 | BNE |
| imm[12 10:5] | | rs2 | rs1 | 100 | imm[4:1 11] | 1100011 | BLT |
| imm[12 10:5] | | rs2 | rs1 | 101 | imm[4:1 11] | 1100011 | BGE |
| imm[12 10:5] | | rs2 | rs1 | 110 | imm[4:1 11] | 1100011 | BLTU |
| imm[12 10:5] | | rs2 | rs1 | 111 | imm[4:1 11] | 1100011 | BGEU |
| imm[11:0] | | | rs1 | 000 | rd | 0000011 | LB |
| imm[11:0] | | | rs1 | 001 | rd | 0000011 | LH |
| imm[11:0] | | | rs1 | 010 | rd | 0000011 | LW |
| imm[11:0] | | | rs1 | 100 | rd | 0000011 | LBU |
| imm[11:0] | | | rs1 | 101 | rd | 0000011 | LHU |
| imm[11:5] | | rs2 | rs1 | 000 | imm[4:0] | 0100011 | SB |
| imm[11:5] | | rs2 | rs1 | 001 | imm[4:0] | 0100011 | SH |
| imm[11:5] | | rs2 | rs1 | 010 | imm[4:0] | 0100011 | SW |
| imm[11:0] | | | rs1 | 000 | rd | 0010011 | ADDI |
| imm[11:0] | | | rs1 | 010 | rd | 0010011 | SLTI |
| imm[11:0] | | | rs1 | 011 | rd | 0010011 | SLTIU |
| imm[11:0] | | | rs1 | 100 | rd | 0010011 | XORI |
| imm[11:0] | | | rs1 | 110 | rd | 0010011 | ORI |
| imm[11:0] | | | rs1 | 111 | rd | 0010011 | ANDI |
| 0000000 | | shamt | rs1 | 001 | rd | 0010011 | SLLI |
| 0000000 | | shamt | rs1 | 101 | rd | 0010011 | SRLI |
| 0100000 | | shamt | rs1 | 101 | rd | 0010011 | SRAI |
| 0000000 | | rs2 | rs1 | 000 | rd | 0110011 | ADD |
| 0100000 | | rs2 | rs1 | 000 | rd | 0110011 | SUB |
| 0000000 | | rs2 | rs1 | 001 | rd | 0110011 | SLL |
| 0000000 | | rs2 | rs1 | 010 | rd | 0110011 | SLT |
| 0000000 | | rs2 | rs1 | 011 | rd | 0110011 | SLTU |
| 0000000 | | rs2 | rs1 | 100 | rd | 0110011 | XOR |
| 0000000 | | rs2 | rs1 | 101 | rd | 0110011 | SRL |
| 0100000 | | rs2 | rs1 | 101 | rd | 0110011 | SRA |
| 0000000 | | rs2 | rs1 | 110 | rd | 0110011 | OR |
| 0000000 | | rs2 | rs1 | 111 | rd | 0110011 | AND |
| 0000 | pred | succ | 00000 | 000 | 00000 | 0001111 | FENCE |
| 0000 | 0000 | 0000 | 00000 | 001 | 00000 | 0001111 | FENCE.I |
| 0000000000000 | | | 00000 | 000 | 00000 | 1110011 | ECALL |
| 0000000000001 | | | 00000 | 000 | 00000 | 1110011 | EBREAK |
| csr | | | rs1 | 001 | rd | 1110011 | CSR.RW |
| csr | | | rs1 | 010 | rd | 1110011 | CSR.RS |
| csr | | | rs1 | 011 | rd | 1110011 | CSR.RC |
| csr | | | zimm | 101 | rd | 1110011 | CSR.RWI |
| csr | | | zimm | 110 | rd | 1110011 | CSR.RSI |
| csr | | | zimm | 111 | rd | 1110011 | CSR.RCI |