

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

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		
fm		pred		succ		rs1	000	rd	0001111	FENCE	
000000000000					00000		000	00000	1110011	ECALL	
000000000001					00000		000	00000	1110011	EBREAK	

x63
branch

x03
load

x23
store

reg-imm
ALU ops

x13

reg-reg
ALU ops

x33