

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	

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	

RV64I Base Instruction Set (in addition to RV32I)

imm[11:0]					rs1	110	rd		0000011			LWU
imm[11:0]					rs1	011	rd		0000011			LD
imm[11:5]			rs2		rs1	011	imm[4:0]		0100011			SD
000000		shamt			rs1	001	rd		0010011			LLI
000000		shamt			rs1	101	rd		0010011			SRLI
010000		shamt			rs1	101	rd		0010011			SRAI
imm[11:0]					rs1	000	rd		0011011			ADDIW
0000000		shamt			rs1	001	rd		0011011			LLIW
0000000		shamt			rs1	101	rd		0011011			SRLIW
0100000		shamt			rs1	101	rd		0011011			SRAIW
0000000		rs2			rs1	000	rd		0111011			ADDW
0100000		rs2			rs1	000	rd		0111011			SUBW
0000000		rs2			rs1	001	rd		0111011			SLLW
0000000		rs2			rs1	101	rd		0111011			SRLW
0100000		rs2			rs1	101	rd		0111011			SRAW

RV32/RV64 Zifencei Standard Extension

imm[11:0]					rs1	001	rd		0001111			FENCE.I
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RV32/RV64 Zicsr Standard Extension

csr		rs1			001	rd		1110011			CSRW
csr		rs1			010	rd		1110011			CSRRS
csr		rs1			011	rd		1110011			CSRRC
csr		uimm			101	rd		1110011			CSRWU
csr		uimm			110	rd		1110011			CSRRSI
csr		uimm			111	rd		1110011			CSRRCI

RV32M Standard Extension

0000001		rs2			rs1	000	rd		0110011			MUL
0000001		rs2			rs1	001	rd		0110011			MULH
0000001		rs2			rs1	010	rd		0110011			MULHSU
0000001		rs2			rs1	011	rd		0110011			MULHU
0000001		rs2			rs1	100	rd		0110011			DIV
0000001		rs2			rs1	101	rd		0110011			DIVU
0000001		rs2			rs1	110	rd		0110011			REM
0000001		rs2			rs1	111	rd		0110011			REMU

RV64M Standard Extension (in addition to RV32M)

0000001		rs2			rs1	000	rd		0111011			MULW
0000001		rs2			rs1	100	rd		0111011			DIVW
0000001		rs2			rs1	101	rd		0111011			DIVUW
0000001		rs2			rs1	110	rd		0111011			REMW
0000001		rs2			rs1	111	rd		0111011			REMUW