

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		011		imm[4:0]		0100011		SD	
000000			shamt		rs1		001		rd		0010011		SLLI
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		SLLIW
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

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

RV32A Standard Extension

00010	aq	rl	00000	rs1		010		rd		0101111		LR.W	
00011	aq	rl	rs2	rs1		010		rd		0101111		SC.W	
00001	aq	rl	rs2	rs1		010		rd		0101111		AMOSWAP.W	
00000	aq	rl	rs2	rs1		010		rd		0101111		AMOADD.W	
00100	aq	rl	rs2	rs1		010		rd		0101111		AMOXOR.W	
01100	aq	rl	rs2	rs1		010		rd		0101111		AMOAND.W	
01000	aq	rl	rs2	rs1		010		rd		0101111		AMOOR.W	
10000	aq	rl	rs2	rs1		010		rd		0101111		AMOMIN.W	
10100	aq	rl	rs2	rs1		010		rd		0101111		AMOMAX.W	
11000	aq	rl	rs2	rs1		010		rd		0101111		AMOMINU.W	
11100	aq	rl	rs2	rs1		010		rd		0101111		AMOMAXU.W	