

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

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