

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