

0分, 共0分

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Question 3 (2.12)

5分, 共5分

[2.2, 2.5] (RISC-V) The following binary value is converted from an assembly instruction:

1111 1110 0000 0001 0000 0001 0001 0011

opcode 對照表

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		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

✓ 1. Instruction type? *

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- R-type
- I-type
- S-type
- SB-type
- UJ-type
- U-type

✓ 2. Assembly language instruction? (For example, "add x5, x30, x6") *

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addi x2, x2, -32