

RISC-V Test Program

Memory address	Machine code	Assembly code
0x00000000	8000fb7	lui x31, 0x80000 # Memory-mapped address
0x00000004	ffc8f93	addi x31, x31, 0xFFC # of CPUOut is 0x7FFFFFFC
0x00000008	80000093	addi x1, zero, 0x800 # Test ADDI
0x0000000c	001fa023	sw x1, 0x0(x31) # Output result
0x00000010	00100093	addi x1, zero, 1
0x00000014	00300113	addi x2, zero, 3
0x00000018	002081b3	add x3, x1, x2 # Test ADD
0x0000001c	003fa023	sw x3, 0x0(x31)
0x00000020	402081b3	sub x3, x1, x2 # Test SUB
0x00000024	003fa023	sw x3, 0x0(x31)
0x00000028	0020e1b3	or x3, x1, x2 # Test OR
0x0000002c	003fa023	sw x3, 0x0(x31)
0x00000030	002091b3	sll x3, x1, x2 # Test SLL
0x00000034	003fa023	sw x3, 0x0(x31)
0x00000038	0020a1b3	slt x3, x1, x2 # Test SLT
0x0000003c	003fa023	sw x3, 0x0(x31)
0x00000040	00717193	andi x3, x2, 0x007 # Test ANDI
0x00000044	003fa023	sw x3, 0x0(x31)
0x00000048	00115193	srli x3, x2, 1 # Test SRLI
0x0000004c	003fa023	sw x3, 0x0(x31)
0x00000050	fff0a193	slti x3, x1, 0xFFF # Test SLTI
0x00000054	003fa023	sw x3, 0x0(x31)
0x00000058	00202023	sw x2, 0x0(zero)
0x0000005c	00002183	lw x3, 0x0(zero) # Test LW
0x00000060	003fa023	sw x3, 0x0(x31)
		label1:
0x00000064	00208063	beq x1, x2, label1 # Test BEQ
0x00000068	00209663	bne x1, x2, label2 # Test BNE
0x0000006c	12300093	addi x1, zero, 0x123
0x00000070	003fa023	sw x3, 0x0(x31)
		label2:
0x00000074	00114063	blt x2, x1, label2 # Test BLT
0x00000078	00115663	bge x2, x1, label3 # Test BGE
0x0000007c	45600093	addi x1, zero, 0x456
0x00000080	003fa023	sw x3, 0x0(x31)
		label3:
0x00000084	0100026f	jal x4, 16 # Test JAL
0x00000088	78900193	addi x3, zero, 0x789
0x0000008c	003fa023	sw x3, 0x0(x31)
0x00000090	0100006f	jal zero, finish
0x00000094	11100193	addi x3, zero, 0x111
0x00000098	003fa023	sw x3, 0x0(x31)
0x0000009c	00020067	jalr zero, x4, 0 # Test JALR
		finish: