lab1.o: file format elf64-littleriscv

Disassembly of section .text:

0000000000000000 <cube>:

0: 7179 addi sp,sp,-48

7179=011 1 00010 11110 01

op=01 func3=011 rd/rs1=00010 imm=111110 c.addi16sp : sp = sp + (-3)\*16

2: f406 sd ra,40(sp)

f406=111 101000 00001 10

op=10 func3=111 uimm=000101 rs2=00001 c.sdsp: MEM(sp+(10)\*4) = ra

4: f022 sd s0,32(sp)

f022=111 100000 01000 10

op=10 func3=111 uimm=000100 rs2=01000 c.sdsp: MEM(sp+(8)\*4) = ra

6: 1800 addi s0,sp,48

1800=000 11000000 000 00

Op=00 func3=000 uzuimm=00001100 rd’=000 c.addi4spn:s0 = sp + 12\*4

8: 47fd li a5,31

47fd=010 0 01111 11111 01

Op=01 func3=010 imm=011111 rd=01111 c.li: a5 = 31

a: fef42623 sw a5,-20(s0)

fef42623=1111111 01111 01000 010 01100 0100011

Opcode=0100011 func3=010 imm=111111101100 rs2=01111 rs1=01000

sw: MEM(s0-20)=a5

e: 47fd li a5,31

47fd=010 0 01111 11111 01

Op=01 func3=010 imm=011111 rd=01111 c.li: a5 = 31

10: fef42423 sw a5,-24(s0)

fef42423=1111111 01111 01000 010 01000 0100011

Opcode=0100011 func3=010 imm=111111101000 rs2=01111 rs1=01000

sw: MEM(s0-24)=a5

14: 6789 lui a5,0x2

6787=011 0 01111 00010 01

Op=01 func3=011 nzimm=000010 rd=01111 c.lui: a5 = 0x2000

16: f0078793 addi a5,a5,-256 # 1f00 <main+0x1e0e>

f0078793=111100000000 01111 000 01111 0010011

Opcode=0010011 func3=000 func7=0000000 imm=111100000000 rs1=01111 rd=01111

addi: a5 = a5 + (-256)

1a: fcf42e23 sw a5,-36(s0)

fcf42e23=1111110 01111 01000 010 11100 0100011

Opcode=0100011 func3=010 imm=111111011100 rs2=01111 rs1=01000

sw: MEM(s0-36)=a5

1e: 479d li a5,7

479d=010 0 01111 00111 01

Op=01 func3=010 imm=000111 rd=01111 c.li: a5 = 7

20: fef42223 sw a5,-28(s0)

fef42223=1111111 01111 01000 010 00100 0100011

Opcode=0100011 func3=010 imm=111111100100 rs2=01111 rs1=01000

sw: MEM(s0-28)=a5

24: a091 j 68 <.L2>

a091=101 0 0 00 0 1 0 010 0 01

op=01 func3=101 imm=00000100010 c.j: PC=PC+34\*2

0000000000000026 <.L4>:

26: fe842703 lw a4,-24(s0)

fe842703=111111101000 01000 010 01110 0000011

opcode=0000011 func3=010 rs1=01000 rd=01110 imm=111111101000

lw: a4 = MEM(s0-24)

2a: 41f7579b sraiw a5,a4,0x1f

41f7579b=0100000 11111 01110 101 01111 0011011

opcode=0011011 rd=01111 func3=101 rs1=01110 shamt=11111

sraiw:a5 = a4 >> 0x1f

2e: 01f7d79b srliw a5,a5,0x1f

01f7d79b=0000000 11111 01111 101 01111 0011011

opcode=0011011 rd=01111 func3=101 rs1=01111 shamt=11111

srliw:a5 = a5 >> 0x1f

32: 9f3d addw a4,a4,a5

9f3d=100 1 11 110 01 111 01

op=01 rs2’=111 rs1’/rd’=110 func3=100 c.addw: a4 = a4 + a5

34: 8b05 andi a4,a4,1

8b05=100 0 10 110 00001 01

op=01 imm=000001 rs1’/rd’=110 func3=100 c.andi: a4 = a4 & 1

36: 40f707bb subw a5,a4,a5

40f707bb=0100000 01111 01110 000 01111 0111011

opcode=0111011 rd=01111 func3=000 rs1=01110 rs2=01111 func7=0100000

subw: a5 = a4 – a5

3a: 2781 sext.w a5,a5

2781=001 0 01111 00000 01

op=01 func3=001 rd/rs1=01111 c.sext.w: a5 = sext(a5)

3c: 873e mv a4,a5

873e=100 0 01110 01111 10

op=01 rs2=01111 rd=01110 func3=100 c.mv:a4 = a5

3e: 4785 li a5,1

4785=010 0 01111 00001 01

Op=01 func3=010 imm=000001 rd=01111 c.li: a5 = 1

40: 00f71963 bne a4,a5,52 <.L3>

00f71963=0000000 01111 01110 001 10010 1100011

opcode=1100011 imm=0000000010001 fun3=001 rs1=01110 rs2=01111

bne: a4!=a5? PC=PC+imm\*2:PC=PC+4

44: fe842703 lw a4,-24(s0)

fe842703=111111101000 01000 010 01110 0000011

opcode=0000011 func3=010 rs1=01000 rd=01110 imm=111111101000

lw: a4 = MEM(s0-24)

48: fdc42783 lw a5,-36(s0)

fdc42783=111111011100 01000 010 01111 0000011

opcode=0000011 func3=010 rs1=01000 rd=01111 imm=111111011100

lw: a5 = MEM(s0-36)

4c: 9fb9 addw a5,a5,a4

9fb9=100 1 11 111 01 110 01

op=01 rs2’=110 rs1’/rd’=111 func3=100 c.addw: a5 = a5 + a4

4e: fef42423 sw a5,-24(s0)

fef42423=1111111 01111 01000 010 01000 0100011

Opcode=0100011 func3=010 imm=111111101000 rs2=01111 rs1=01000

sw: MEM(s0-24)=a5

0000000000000052 <.L3>:

52: fe842783 lw a5,-24(s0)

fe842783=111111101000 01000 010 01111 0000011

opcode=0000011 func3=010 rs1=01000 rd=01111 imm=111111101000

lw: a5 = MEM(s0-24)

56: 4017d79b sraiw a5,a5,0x1

4017d79b=0100000 00001 01111 101 01111 0011011

opcode=0011011 rd=01111 func3=101 rs1=01111 shamt=00001

sraiw:a5 = a5 >> 0x1

5a: fef42423 sw a5,-24(s0)

fef42423=1111111 01111 01000 010 01000 0100011

Opcode=0100011 func3=010 imm=111111101000 rs2=01111 rs1=01000

sw: MEM(s0-24)=a5

5e: fe442783 lw a5,-28(s0)

fe442783=111111100100 01000 010 01111 0000011

opcode=0000011 rd=01111 func3=010 rs1=01000 imm=111111100100

lw: a5 = MEM(s0-28)

62: 37fd addiw a5,a5,-1

37fd=001 1 01111 11111 01

op=01 func3=001 rs1/rd=01111 imm=111111 c.addiw: a5 = a5 + (-1)

64: fef42223 sw a5,-28(s0)

fef42223=1111111 01111 01000 010 00100 0100011

Opcode=0100011 func3=010 imm=111111100100 rs2=01111 rs1=01000

sw: MEM(s0-28)=a5

0000000000000068 <.L2>:

68: fe442783 lw a5,-28(s0)

fe442783=111111100100 01000 010 01111 0000011

opcode=0000011 rd=01111 func3=010 rs1=01000 imm=111111100100

lw: a5 = MEM(s0-28)

6c: 2781 sext.w a5,a5

2781=001 0 01111 00000 01

op=01 func3=001 rd/rs1=01111 c.sext.w: a5 = sext(a5)

6e: fa07dce3 bgez a5,26 <.L4>

fa07dce3=1111101 00000 01111 101 11001 1100011

opcode=1100011 imm=1111111011100 func3=101 rs1=01111 rs2=00000

bne: a5>=0? PC=PC+imm\*2:PC=PC+4

72: fe842783 lw a5,-24(s0)

fe842783=111111101000 01000 010 01111 0000011

opcode=0000011 func3=010 rs1=01000 rd=01111 imm=111111101000

lw: a5 = MEM(s0-24)

76: 0087979b slliw a5,a5,0x8

0087979b=0000000 01000 01111 001 01111 0011011

opcode=0011011 rd=01111 func3=001 rs1=01111 shamt=01000

slliw:a5 = a5 << 0x8

7a: fef42423 sw a5,-24(s0)

fef42423=1111111 01111 01000 010 01000 0100011

Opcode=0100011 func3=010 imm=111111101000 rs2=01111 rs1=01000

sw: MEM(s0-24)=a5

7e: 479d li a5,7

479d=010 0 01111 00111 01

Op=01 func3=010 imm=000111 rd=01111 c.li: a5 = 7

80: fef42023 sw a5,-32(s0)

fef42023=1111111 01111 01000 010 00000 0100011

Opcode=0100011 func3=010 imm=111111100000 rs2=01111 rs1=01000

sw: MEM(s0-32)=a5

84: a091 j c8 <.L5>

a091=101 0 0 00 0 1 0 010 0 01

op=01 func3=101 imm=00000100010 c.j: PC=PC+34\*2

0000000000000086 <.L7>:

86: fec42703 lw a4,-20(s0)

fec42703=111111101100 01000 010 01110 0000011

opcode=0000011 rd=01110 func3=010 rs1=01000 imm=111111101100

lw: a4 = MEM(s0-20)

8a: 41f7579b sraiw a5,a4,0x1f

41f7579b=0100000 11111 01110 101 01111 0011011

opcode=0011011 rd=01111 func3=101 rs1=01110 shamt=11111

sraiw:a5 = a4 >> 0x1f

8e: 01f7d79b srliw a5,a5,0x1f

01f7d79b=0000000 11111 01111 101 01111 0011011

opcode=0011011 rd=01111 func3=101 rs1=01111 shamt=11111

srliw:a5 = a5 >> 0x1f

92: 9f3d addw a4,a4,a5

9f3d=100 1 11 110 01 111 01

op=01 rs2’=111 rs1’/rd’=110 func3=100 c.addw: a4 = a4 + a5

94: 8b05 andi a4,a4,1

8b05=100 0 10 110 00001 01

op=01 imm=000001 rs1’/rd’=110 func3=100 c.andi: a4 = a4 & 1

96: 40f707bb subw a5,a4,a5

40f707bb=0100000 01111 01110 000 01111 0111011

opcode=0111011 rd=01111 func3=000 rs1=01110 rs2=01111 func7=0100000

subw: a5 = a4 – a5

9a: 2781 sext.w a5,a5

2781=001 0 01111 00000 01

op=01 func3=001 rd/rs1=01111 c.sext.w: a5 = sext(a5)

9c: 873e mv a4,a5

873e=100 0 01110 01111 10

op=01 rs2=01111 rd=01110 func3=100 c.mv:a4 = a5

9e: 4785 li a5,1

4785=010 0 01111 00001 01

Op=01 func3=010 imm=000001 rd=01111 c.li: a5 = 1

a0: 00f71963 bne a4,a5,b2 <.L6>

00f71963=0000000 01111 01110 001 10010 1100011

opcode=1100011 imm=0000000010001 fun3=001 rs1=01110 rs2=01111

bne: a4!=a5? PC=PC+imm\*2:PC=PC+4

a4: fec42703 lw a4,-20(s0)

fec42703=111111101100 01000 010 01110 0000011

opcode=0000011 rd=01110 func3=010 rs1=01000 imm=111111101100

lw: a4 = MEM(s0-20)

a8: fe842783 lw a5,-24(s0)

fe842783=111111101000 01000 010 01111 0000011

opcode=0000011 func3=010 rs1=01000 rd=01111 imm=111111101000

lw: a5 = MEM(s0-24)

ac: 9fb9 addw a5,a5,a4

9fb9=100 1 11 111 01 110 01

op=01 rs2’=110 rs1’/rd’=111 func3=100 c.addw: a5 = a5 + a4

ae: fef42623 sw a5,-20(s0)

fef42623=1111111 01111 01000 010 01100 0100011

Opcode=0100011 func3=010 imm=111111101100 rs2=01111 rs1=01000

sw: MEM(s0-20)=a5

00000000000000b2 <.L6>:

b2: fec42783 lw a5,-20(s0)

fec42783=111111101100 01000 010 01111 0000011

opcode=0000011 rd=01111 func3=010 rs1=01000 imm=111111101100

lw: a5 = MEM(s0-20)

b6: 4017d79b sraiw a5,a5,0x1

4017d79b=0100000 00001 01111 101 01111 0011011

opcode=0011011 rd=01111 func3=101 rs1=01111 shamt=00001

sraiw:a5 = a5 >> 0x1

ba: fef42623 sw a5,-20(s0)

fef42623=1111111 01111 01000 010 01100 0100011

Opcode=0100011 func3=010 imm=111111101100 rs2=01111 rs1=01000

sw: MEM(s0-20)=a5

be: fe042783 lw a5,-32(s0)

fe042783=111111100000 01000 010 01111 0000011

opcode=0000011 rd=01111 func3=010 rs1=01000 imm=111111100000

lw: a5 = MEM(s0-32)

c2: 37fd addiw a5,a5,-1

37fd=001 1 01111 11111 01

op=01 func3=001 rs1/rd=01111 imm=111111 c.addiw: a5 = a5 + (-1)

c4: fef42023 sw a5,-32(s0)

fef42023=1111111 01111 01000 010 00000 0100011

Opcode=0100011 func3=010 imm=111111100000 rs2=01111 rs1=01000

sw: MEM(s0-32)=a5

00000000000000c8 <.L5>:

c8: fe042783 lw a5,-32(s0)

fe042783=111111100000 01000 010 01111 0000011

opcode=0000011 rd=01111 func3=010 rs1=01000 imm=111111100000

lw: a5 = MEM(s0-32)

cc: 2781 sext.w a5,a5

2781=001 0 01111 00000 01

op=01 func3=001 rd/rs1=01111 c.sext.w: a5 = sext(a5)

ce: fa07dce3 bgez a5,86 <.L7>

fa07dce3=1111101 00000 01111 101 11001 1100011

opcode=1100011 imm=1111111011100 func3=101 rs1=01111 rs2=00000

bne: a5>=0? PC=PC+imm\*2:PC=PC+4

d2: fec42783 lw a5,-20(s0)

fec42783=111111101100 01000 010 01111 0000011

opcode=0000011 rd=01111 func3=010 rs1=01000 imm=111111101100

lw: a5 = MEM(s0-20)

d6: 85be mv a1,a5

85be=100 0 01011 01111 10

op=01 rs2=01111 rd=01011 func3=100 c.mv: a1 = a5

d8: 000007b7 lui a5,0x0

000007b7=0000000000000000000 01111 0110111

opcode=0110111 rd=01111 imm=00000000000000000000

lui:a5 = 0x0

dc: 00078513 mv a0,a5

00078513=0000000 00000 01111 000 01010 0010011

opcode=0010011 rd=01010 func3=000 rs1=01111 rs2=00000 func7=0000000

mv: add a0 = a5 + 0

e0: 00000097 auipc ra,0x0

00000097=00000000000000000000 00001 0010111

opcode=0010111 rd=00001 imm=00000

auipc:ra = PC+0

e4: 000080e7 jalr ra # e0 <.L5+0x18>

000080e7=000000000000 00001 000 00001 1100111

Opcode=1100111 rd=00001 func3=000 rs1=00001 imm=000000000000

jalr: ra = PC+4;PC=ra+0

e8: 0001 nop

0001=000 0 00000 00000 01 c.nop:无操作

ea: 70a2 ld ra,40(sp)

70a2=011 1 00001 01000 10

op=10 func3=011 rd=00001 uimm=000101 c.ldsp: ra = MEM(sp+10\*4)

ec: 7402 ld s0,32(sp)

7402=011 1 01000 00000 10

op=10 func3=011 rd=01000 uimm=000100 c.ldsp: s0 = MEM(sp+8\*4)

ee: 6145 addi sp,sp,48

6145=011 0 00010 10001 01

op=01 func3=011 rd=00010 nzimm=000011 c.addi16sp : sp = sp + (+3)\*16

f0: 8082 ret

8082=100 0 00001 00000 10

op=10 func3=100 rs1=00001 imm=000000 c.jr: PC=ra+0

00000000000000f2 <main>:

f2: 1141 addi sp,sp,-16

1141=000 1 00010 10000 01

op=01 func3=000 rs1/rd=00010 nzimm=110000 c.addi: sp = sp + (-16)

f4: e406 sd ra,8(sp)

e406=111 001000 00001 10

op=10 func3=111 rs2=00001 uimm=000001 c.sdsp: MEM(sp+(2)\*4) = ra

f6: e022 sd s0,0(sp)

e022=111 000000 01000 10

op=10 fun3=111 rs2=01000 uimm=000000 c.sdsp: MEM(sp+(0)\*4) = s0

f8: 0800 addi s0,sp,16

0800=000 01000000 000 00

op=00 func3=000 rd’=000 nzuimm=00000100 c.addi4spn: s0 = sp + 16

fa: 000007b7 lui a5,0x0

000007b7=0000000000000000000 01111 0110111

opcode=0110111 rd=01111 imm=00000000000000000000

lui:a5 = 0x0

fe: 00078513 mv a0,a5

00078513=0000000 00000 01111 000 01010 0010011

opcode=0010011 rd=01010 func3=000 rs1=01111 rs2=00000 func7=0000000

mv: add a0 = a5 + 0

102: 00000097 auipc ra,0x0

00000097=00000000000000000000 00001 0010111

opcode=0010111 rd=00001 imm=00000

auipc:ra = PC+0

106: 000080e7 jalr ra # 102 <main+0x10>

000080e7=000000000000 00001 000 00001 1100111

Opcode=1100111 rd=00001 func3=000 rs1=00001 imm=000000000000

jalr: ra = PC+4;PC=ra+0

10a: 00000097 auipc ra,0x0

00000097=00000000000000000000 00001 0010111

opcode=0010111 rd=00001 imm=00000

auipc:ra = PC+0

10e: 000080e7 jalr ra # 10a <main+0x18>

000080e7=000000000000 00001 000 00001 1100111

Opcode=1100111 rd=00001 func3=000 rs1=00001 imm=000000000000

jalr: ra = PC+4;PC=ra+0

112: 4781 li a5,0

4781=010 0 01111 00000 01

Op=01 func3=010 imm=00000 rd=01111 c.li: a5 = 0

114: 853e mv a0,a5

853e=100 0 01010 01111 10

op=01 rs2=01111 rd=01010 func3=100 c.mv:a0 = a5

116: 60a2 ld ra,8(sp)

60a2=011 0 00001 01000 10

op=10 func3=011 rd=00001 uimm=000001 c.ldsp: ra = MEM(sp+2\*4)

118: 6402 ld s0,0(sp)

6402=011 0 01000 00000 10

op=10 func3=011 rd=01000 uimm=000000 c.ldsp: s0 = MEM(sp+0\*4)

11a: 0141 addi sp,sp,16

0141=000 0 00010 10000 01

op=01 func3=000 rs1/rd=00010 nzimm=010000 c.addi: sp = sp + (+6)

11c: 8082 ret

8082=100 0 00001 00000 10

op=10 func3=100 rs1=00001 imm=000000 c.jr: PC=ra+0