

lab1.o: file format elf64-littleriscv

Disassembly of section .text:

0000000000000000 <cube>:

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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
6789=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=00000000 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
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1e: 479d                                li a5,7
479d=010 0 01111 00111 01
Op=01 func3=010 imm=000111 rd=01111          c.li: a5 = 7
20: fe42223                            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
00000000000000026 <.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

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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

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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=00000000 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
00000000000000086 <.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

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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

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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=1111111 100000 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
000000000000000c8 <.L5>:
c8:    fe042783                lw    a5,-32(s0)
fe042783=1111111 100000 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                bgeza5,86 <.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=1111111 01100 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=000000000000000000 01111 0110111
opcode=0110111 rd=01111 imm=000000000000000000
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

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mv: add a0 = a5 + 0
    e0:  00000097          auipc  ra,0x0
00000097=000000000000000000000000 00001 0010111
opcode=0010111 rd=00001 imm=00000
auipc:ra = PC+0
    e4:  000080e7          jalr  ra # e0 <.L5+0x18>
000080e7=0000000000000 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
000000000000000f2 <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=00000000000000000000 01111 0110111
opcode=0110111 rd=01111 imm=00000000000000000000
lui:a5 = 0x0
    fe:  00078513          mv    a0,a5
00078513=00000000 00000 01111 000 01010 0010011
opcode=0010011 rd=01010 func3=000 rs1=01111 rs2=00000 func7=00000000
mv: add a0 = a5 + 0

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102: 00000097          auipc  ra,0x0
00000097=000000000000000000000000 00001 0010111
opcode=0010111 rd=00001 imm=00000
auipc:ra = PC+0

106: 000080e7          jalr  ra # 102 <main+0x10>
000080e7=0000000000000 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=000000000000000000000000 00001 0010111
opcode=0010111 rd=00001 imm=00000
auipc:ra = PC+0

10e: 000080e7          jalr  ra # 10a <main+0x18>
000080e7=0000000000000 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

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