LE10.1

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LE10.1.1: Branch Offset

1.0/1.0 point (ungraded)

1. A BR instruction at location 0×1000 branches to 0×2000. If the literal field of that instruction is incremented by 0×10, where will the modified instruction transfer to?

   Branch target for modified BR (HEX): 0x 2040 ✔

2. A BR instruction at location 0×1000 branches to 0×2000. If the binary representation for that BR were moved to location 0×1400 and executed there, where will the relocated instruction branch to?

   Branch target for relocated BR (in hex): 0x 2400 ✔

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LE10.1.2: Beta Assembly

1.0/1.0 point (ungraded)

A line in an assembly-language program containing “ADDC(R1,2,R3)” is changed to “ADDC(R1,R2,R3)”. Will the modified program behave differently when executed?

- ○ Yes
- ◉ No
- ○ Can't Tell

✔

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LE10.1.3: Symbol Table

1.0/1.0 point (ungraded)

When the assembler processes the program shown below, it builds a symbol table that gives the value of each symbol. Assume that the LD instruction is in location 0 of main memory.

```
        LD(R31,N,R0)
if:     BNE(R0,else,R31)
then:   SUBC(R0,1,R0)
        BEQ(R31,end,R31)
else:   ADDC(R0,1,R0)
end:    ST(R0,M,R31)

N:      LONG(10)
M:      LONG(0)
```

Please give the values found in the symbol table after the assembler has finished assembling the program. Enter your answers as a sequence of hex digits.

Value for symbol "if": 0x 4 ✔

Value for symbol "then": 0x 8 ✔

Value for symbol "else": 0x 10 ✔

Calculator

Value for symbol "end": 0x 14 ✔

Value for symbol "N": 0x 18 ✔

Value for symbol "M": 0x 1c ✔

Value for symbol "R31": 0x 1f ✔

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Discussion

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- LE10.1.3 Memory address — 2
  Would R4 have the same address with "if," and similarly for R8 and "then"?
- Help .... why is THIS wrong? — 3
  If BR instr is at 0×1000 and it branches to 0×2000 ⟶ the difference is 0×1000 ⟶ 0d4096/4 = 1024 minus 1 should give us the...
- [STAFF] LE10.1.1: Branch Offset — 4
  Hi Silvina, I found it rather confusing that the format of the answer should be hexadecimal *without* the leading 0x. The hint in bold ...
- [STAFF] LE10.1.3: Symbol Table — 2
  Minor typo... *Assume that the LD instruction **is** in location 0 of main memory.*

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