

<u>Help</u>

selfpoised ~

Discussion <u>Course</u> <u>Progress</u> <u>Dates</u>

★ Course / 11. Compilers / Lecture Videos (34:57)





 \square Bookmark this page

■ Calculator

LE11.1.1 Expressions

O points possible (ungraded)

Hand-compile the following C fragments into Beta assembly language. You can also assume that all variables and arrays are C integers, i.e., 32-bit values, and that the necessary storage allocation for each variable or array has been done and that a UASM label has been defined that indicates the first storage location for that variable or array.

There's no automated checking for this problem. Just write your answer out on a piece of paper and then compare it with the solutions to see how you did!

- (A) x = 3;
- (B) d = b + 3*c; [Note: in C, multiplication has a higher precedence than addition, so C treats this expression as "b+(3*c)".]
- (C) d = (b*3 + 1)/(c b);
- (D) a[1] = a[0] + 1; [Note: in C, the first element of an array has index 0. Remember that each element of the "a" array occupies 4 bytes (i.e., bsize = 4).]
- (E) a[j-1] = a[j] + 1;

Submit

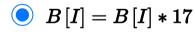
LE11.1.2 Array access

1.0/1.0 point (ungraded)

What C statement might have been compiled into the code fragment below?

```
I = 0x5678
B = 0x1234

LD(I,R0)
SHLC(R0,2,R0)
LD(R0,B,R1)
MULC(R1,17,R1)
ST(R1,B,R0)
```



 $\bigcirc B[I] = B[I*17]$

 $\bigcirc B[I] = B[4*I]*17$

 $\bigcirc B[I] = B[4*I*17]$



Submit

LE11.1.3 Array access

1.0/1.0 point (ungraded)

For each of the assembly language sequences below, click the associated box if it might have resulted from compiling the following C statement.

⊞ Calculator

```
INC ALZOI,
        int y;
        y = x[1] + 4;
       A: LD(R31, x+1, R0)
           ADDC(R0,4,R0)
           ST(R0,y,R31)
       B: CMOVE(4,R0)
           ADDC(R0,x+4,R0)
           ST(R0,y,R31)
       C: LD(R31, x+4, R0)
           ST(R0,y+4,R31)
       D: CMOVE(4,R0)
           LD(R0,x,R1)
           ST(R1,y,R0)
  ✓
       E: LD(R31, x+4, R0)
           ADDC(R0,4,R0)
           ST(R0,y,R31)
       F: ADDC(R31,x+1,R0)
           ADDC(R0,4,R0)
           ST(R0,y,R31)
  Submit
Discussion
                                                                                                Hide Discussion
Topic: 11. Compilers / LE11.1
                                                                                                       Add a Post
  Show all posts
                                                                                                by recent activity >

✓ MULC vs MUL

                                                                                                             3
     For Question 1 B&C, any reason why MULC is not used for 3*c and 3*b
                  Previous
                                                               Next >
```



edX

About

Affiliates

edX for Business

Open edX

Careers

<u>News</u>

Legal

Terms of Service & Honor Code

Privacy Policy

Accessibility Policy

Trademark Policy

<u>Sitemap</u>

Connect

<u>Blog</u>

Contact Us

Help Center

Media Kit

Donate















© 2021 edX Inc. All rights reserved.

深圳市恒宇博科技有限公司 <u>粤ICP备17044299号-2</u>