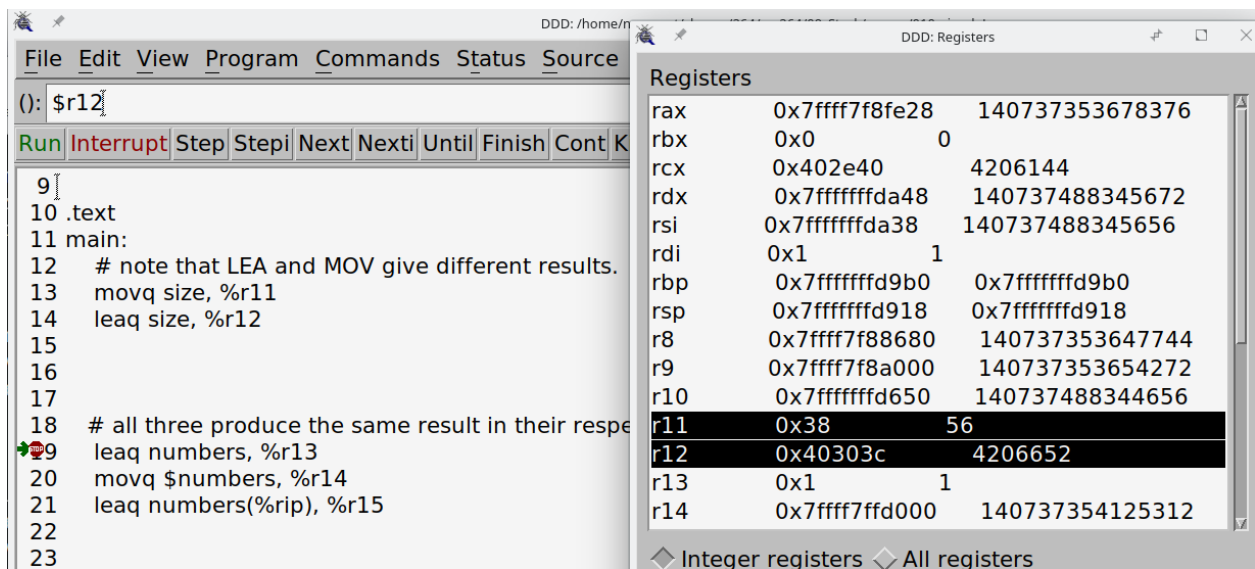


Unit 09_010 – LEA (Part 1)

1. What does LEA stand for?
2. How does the SYNTAX of the LEA instruction compare to the SYNTAX of the MOV instruction?
3. How does the MEANING of the LEA instruction compare to the MEANING of the MOV instruction?
4. The following image is from the ddd debugger. It shows the memory contents after lines 13 and 14 of the code were executed. Why are the contents of r11 and r12 different?



Unit 09_010 – LEA (Part 2)

5. Explain why using the "\$" in the statement `movq $size, %r11` reduces the need for the `leaq` instruction.

6. In the GAS assembler in 64-bit mode, which of the following statements is different than the others in their results? Explain your answer.
- `textttmovq size, %r11`
 - `textttmovq $size, %r11`
 - `textttleaq size, %r11`
7. In the GAS assembler in 64-bit mode, which of the following statements is different than the others in their results? Explain your answer.
- `textttmovq size, %r11`
 - `textttmovq $size, %r11`
 - `textttmovq size(%rip), %r11`
-

Unit 09_030 – Looping with Lea

8. What are three ways to implement loops in assembly language? State them briefly, don't just copy what is in the notes.
- 1.
 - 2.
 - 3.
9. The following call to `printf` is a potential problem. What problem could result if the value in the `rcx` register is needed later in the program? How could the problem be avoided?

```
# printf call for element of the array
xor  \rax, \rax
movq  \format, \rdi
movq  \rcx, \rsi
movq  (\r13), \rdx
call  printf
```

Unit 09_030 – Stashing on the Stack

10. What is the purpose of "stashing" registers on the stack?
 11. How do you determine whether a certain register is vulnerable to being changed during a function call?
 12. What is one technique for keeping the stack aligned to 16 byte boundaries?
-

Unit 09_040 – Program Cleanup

Note: There are no video notes for this section. It just cleans up a detail in the program.

13. Does the rbx register need to be preserved before the function call? Explain your answer.
-

If you have any lingering questions or problems, please write them here or see me.

