

CS 208

F, 14 Nov 2025

LEA (%rax, %rbx, 4), %rcx

compute this

copy it to _____



"load effective address"

Typical e.g.

Suppose $\%rsp + 0x8$ is the
address of "char str[16]"

Suppose index k is in $\%rcx$ (int k)

you want to copy str[k] to rax

compute addr of str[k]

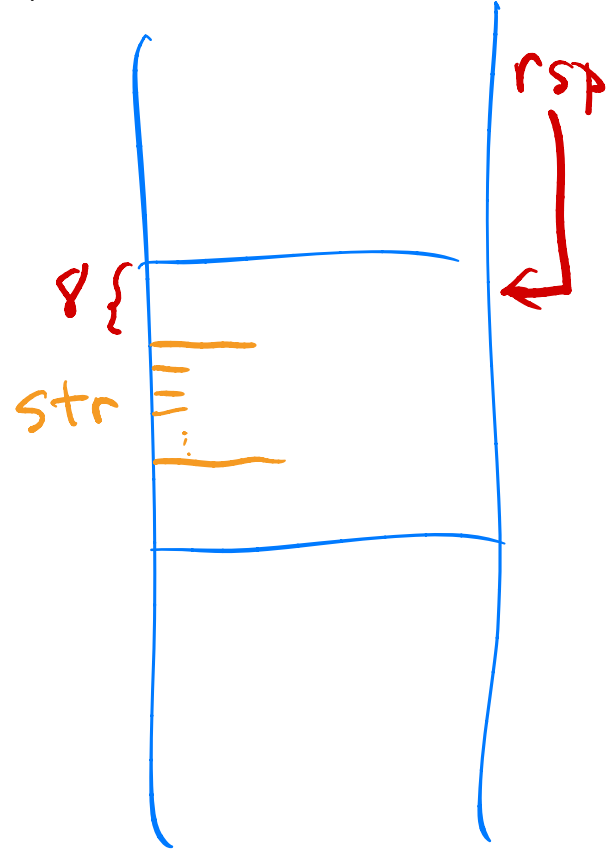
LEA $0x8(\%rsp, \%rcx, 1), \%rbx$

move str[k] to rax

MOVB $(\%rbx), \%al$

$0x8(\%rsp, \%rcx, 1)$

$$\frac{0x8 + \%rsp + 1 * \%rcx}{\text{start of array} \quad \uparrow \quad \text{Size of objects in the array} \quad \uparrow \quad \text{index}}$$

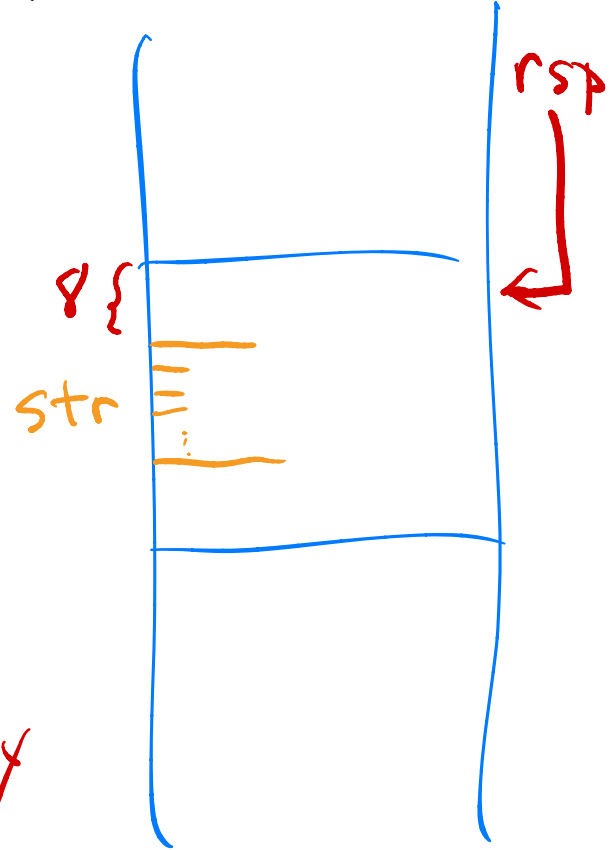


$0x8 (\%rsp, \%rcx, \text{~~1~~})$
4

$$\frac{0x8 + \%rsp + \text{~~1~~ * \%rcx}{\text{start of array}}$$

↑ 4
Size of objects in the array

↑
index



[Switch from char array to int array]

$a(b, c, d)$

↑
default
①

↑

↑

↑ default 1

$$a(b, c) = a + b + c * 1$$

$$(b) = 0 + b + 0 * 1 = b$$

$$(b, c) = 0 + b + c * 1 = b + c$$

etc.

LEA is often used to just do arithmetic

