# Assembly

## Sizes of C Data Types in x86-64

| C decleration | Size (bytes) | Intel data type | Assembly suffix |
| --- | --- | --- | --- |
| char | 1 | Byte | b |
| char | 2 | Word | w |
| int | 4 | Double word | l |
| long | 8 | Quad word | q |
| char * | 8 | Quad word | q |
| float | 4 | Single precision | s |
| double | 8 | Double precision | l |

## Instruction Data Types

| MOV source, dest | Move data source -> dest |
| --- | --- |
| movb | Move 1 byte |
| movw | Move 2 bytes |
| movl | Move 4 bytes |
| movq | Move 8 bytes |

# x86-64 Integer Registers

| %rax | %eax %ax %al | (function result) | %r8 | %r8d | (fifth argument) |
|------|--------------|-------------------|------|-------|------------------|
| %rbx | $ebx %bx %bl | | %r9 | %r9d | (sixth argument) |
| %rcx | $ecx %xc %cl | (fourth argument) | %r10 | %r10d | |
| %rdx | %edx %dx %dl | (third argument) | %r11 | %r11d | |
| %rsi | %esi %si %sil | (second argument) | %r12 | %r12d | |
| %rdi | %edi %di %dil | (first argument) | %r13 | %r13d | |
| %rsp | %esp %sp % bsl | (stack pointer) | %r14 | %r14d | |
| %rbp | %ebp %bp %bpl | | %r15 | %r15d | |

# Arguments

- 1. %rdi

- 2. %rsi

- 3. %rdx

- 4. %rcx

- 5. %rax

- 6. %rbx