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

The Memory Hierarchy

Latency (approximate)		Storage Type
~1 ns	L1 Cache	<-\
~10 ns	L2 Cache	<--- SRAM
~40 ns	L3 Cache (shared)	<-/
100-200 ns	Main memory	DRAM
10_000 ns	Local Secondary Storage	HDD/SSD
	Remote Secondary Storage	LAN