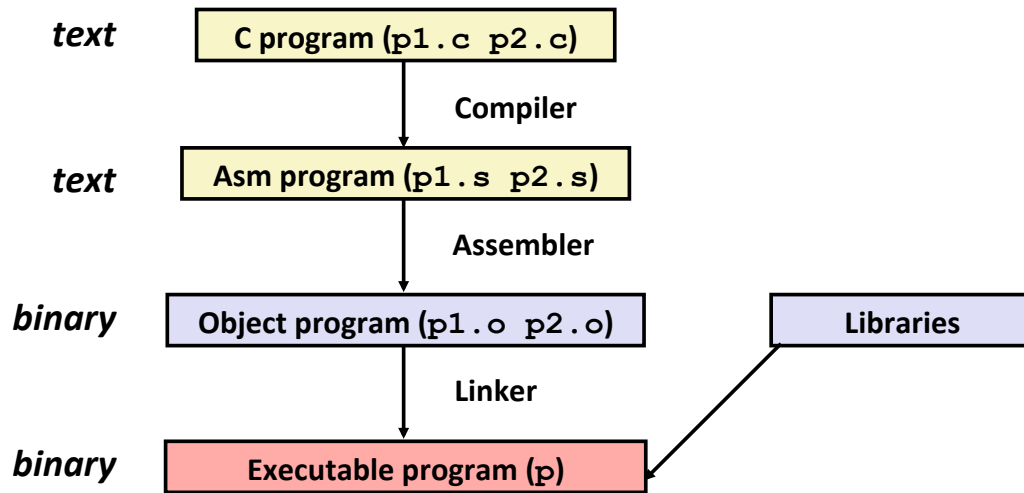
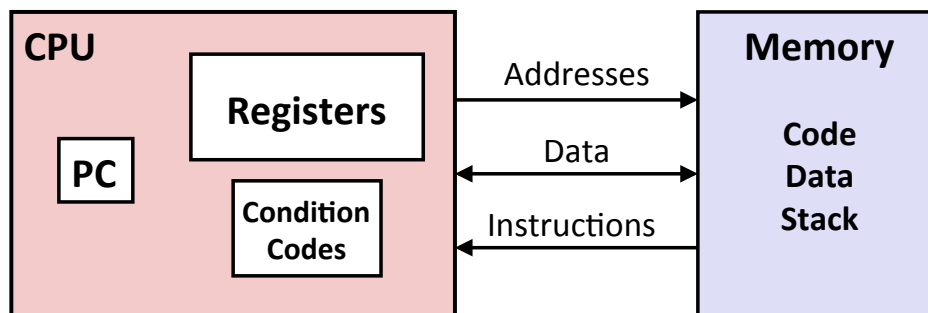


# From C to Executable Code



# Assembly View of the Machine



# x86-64 Integer Registers

<b>%rax</b>	<b>%eax</b>	<b>%r8</b>	<b>%r8d</b>
<b>%rbx</b>	<b>%ebx</b>	<b>%r9</b>	<b>%r9d</b>
<b>%rcx</b>	<b>%ecx</b>	<b>%r10</b>	<b>%r10d</b>
<b>%rdx</b>	<b>%edx</b>	<b>%r11</b>	<b>%r11d</b>
<b>%rsi</b>	<b>%esi</b>	<b>%r12</b>	<b>%r12d</b>
<b>%rdi</b>	<b>%edi</b>	<b>%r13</b>	<b>%r13d</b>
<b>%rsp</b>	<b>%esp</b>	<b>%r14</b>	<b>%r14d</b>
<b>%rbp</b>	<b>%ebp</b>	<b>%r15</b>	<b>%r15d</b>

(not pictured: **%rip** = PC)

# x86-64 Virtual Registers

64-Bit Register	Lower 32 Bits	Lower 16 Bits	Lower 8 Bits
<b>%rax</b>	<b>%eax</b>	<b>%ax</b>	<b>%al</b>
<b>%rbx</b>	<b>%ebx</b>	<b>%bx</b>	<b>%bl</b>
<b>%rcx</b>	<b>%ecx</b>	<b>%cx</b>	<b>%cl</b>
<b>%rdx</b>	<b>%edx</b>	<b>%dx</b>	<b>%dl</b>
<b>%rsi</b>	<b>%esi</b>	<b>%si</b>	<b>%sil</b>
<b>%rdi</b>	<b>%edi</b>	<b>%di</b>	<b>%dil</b>
<b>%rbp</b>	<b>%ebp</b>	<b>%bp</b>	<b>%bpl</b>
<b>%rsp</b>	<b>%esp</b>	<b>%sp</b>	<b>%spl</b>
<b>%r8</b>	<b>%r8d</b>	<b>%r8w</b>	<b>%r8b</b>
<b>%r9</b>	<b>%r9d</b>	<b>%r9w</b>	<b>%r9b</b>
<b>%r10</b>	<b>%r10d</b>	<b>%r10w</b>	<b>%r10b</b>
<b>%r11</b>	<b>%r11d</b>	<b>%r11w</b>	<b>%r11b</b>
<b>%r12</b>	<b>%r12d</b>	<b>%r12w</b>	<b>%r12b</b>
<b>%r13</b>	<b>%r13d</b>	<b>%r13w</b>	<b>%r13b</b>
<b>%r14</b>	<b>%r14d</b>	<b>%r14w</b>	<b>%r14b</b>
<b>%r15</b>	<b>%r15d</b>	<b>%r15w</b>	<b>%r15b</b>

# Data Size Suffixes

Suffix	Size	Description
<b>b</b>	8 bits	byte
<b>w</b>	16 bits	word (historical use)
<b>l</b>	32 bits	long word
<b>q</b>	64 bits	quad word

# Operand Combinations

	Source	Dest	Src, Dest	C Analog
movq	Imm	Reg	movq \$0x4,%rax	temp = 0x4;
		Mem	movq \$-147,(%rax)	*p = -147;
	Reg	Reg	movq %rax,%rdx	temp2 = temp1;
		Mem	movq %rax,(%rdx)	*p = temp;
	Mem	Reg	movq (%rax),%rdx	temp = *p;