

IA32 Instructions

<code>movl Src, Dest</code>	<i>Dest = Src</i>
<code>addl Src, Dest</code>	<i>Dest = Dest + Src</i>
<code>subl Src, Dest</code>	<i>Dest = Dest - Src</i>
<code>imull Src, Dest</code>	<i>Dest = Dest * Src</i>
<code>sall Src, Dest</code>	<i>Dest = Dest << Src</i>
<code>sarl Src, Dest</code>	<i>Dest = Dest >> Src</i>
<code>shrl Src, Dest</code>	<i>Dest = Dest >> Src</i>
<code>xorl Src, Dest</code>	<i>Dest = Dest ^ Src</i>
<code>andl Src, Dest</code>	<i>Dest = Dest & Src</i>
<code>orl Src, Dest</code>	<i>Dest = Dest Src</i>
<code>incl Dest</code>	<i>Dest = Dest + 1</i>
<code>decl Dest</code>	<i>Dest = Dest - 1</i>
<code>negl Dest</code>	<i>Dest = - Dest</i>
<code>notl Dest</code>	<i>Dest = ~ Dest</i>
<code>leal Src, Dest</code>	<i>Dest = address of Src</i>
<code>cmpl Src2, Src1</code>	<i>Sets CCs Src1 - Src2</i>
<code>testl Src2, Src1</code>	<i>Sets CCs Src1 & Src2</i>
<code>jmp label</code>	<i>jump</i>
<code>je label</code>	<i>jump equal</i>
<code>jne label</code>	<i>jump not equal</i>
<code>js label</code>	<i>jump negative</i>
<code>jns label</code>	<i>jump non-negative</i>
<code>jg label</code>	<i>jump greater (signed)</i>
<code>jge label</code>	<i>jump greater or equal (signed)</i>
<code>jl label</code>	<i>jump less (signed)</i>
<code>jle label</code>	<i>jump less or equal (signed)</i>
<code>ja label</code>	<i>jump above (unsigned)</i>
<code>jb label</code>	<i>jump below (unsigned)</i>

Addressing Modes

Immediate	<i>\$val</i>	<i>Val</i>
Normal	(R)	Mem[Reg[R]]
•Register R specifies memory address		
<code>movl (%ecx), %eax</code>		
Displacement	D(R)	Mem[Reg[R]+D]
•Register R specifies start of memory region		
•Constant displacement D specifies offset		
<code>movl 8(%ebp), %edx</code>		
Indexed	D(Rb, Ri, S)	Mem[Reg[Rb]+S*Reg[Ri]+ D]
•D: Constant “displacement” 1, 2, or 4 bytes		
•Rb: Base register: Any of 8 integer registers		
•Ri: Index register:		
•S: Scale: 1, 2, 4, or 8		

Condition Codes

CF	Carry Flag
ZF	Zero Flag
SF	Sign Flag
OF	Overflow Flag

%eax

%edx

%ecx

%ebx

%esi

%edi

%esp

%ebp