

Princeton University
 COS 217: Introduction to Programming Systems
 Examples of IA-32 Instruction Operands

Type of Operand	Syntax	Semantics
Immediate	\$5 \$i	5 i (that is, the address denoted by i)
Register	%eax	reg[EAX]
Memory: Direct/ Absolute Addressing	i	mem[i]
Memory: Indirect Addressing	(%eax)	mem[reg[EAX]]
Memory: Base + Displacement Addressing	5(%eax) i(%eax)	mem[5 + reg[EAX]] mem[i + reg[EAX]]
Memory: Indexed Addressing	(%eax,%ecx) 5(%eax,%ecx) i(%eax,%ecx)	mem[reg[EAX] + reg[ECX]] mem[5 + reg[EAX] + reg[ECX]] mem[i + reg[EAX] + reg[ECX]]
Memory: Scaled Indexed Addressing	(,%ecx,4) 5(,%ecx,4) i(,%ecx,4) (%eax,%ecx,4) 5(%eax,%ecx,4) i(%eax,%ecx,4)	mem[reg[ECX] * 4] mem[5 + (reg[ECX] * 4)] mem[i + (reg[ECX] * 4)] mem[reg[EAX] + (reg[ECX] * 4)] mem[5 + reg[EAX] + (reg[ECX] * 4)] mem[i + reg[EAX] + (reg[ECX] * 4)]