

Princeton University
 COS 217: Introduction to Programming Systems
 Examples of x86-64 Instruction Operands

Type of Operand	Syntax	Semantics
Immediate	\$4 \$i	4 i (that is, the address denoted by i)
Register	%rax	reg[RAX]
Memory: Direct/ Absolute Addressing	4 i	mem[4] mem[i]
Memory: Indirect Addressing	(%rax)	mem[reg[RAX]]
Memory: Base + Displacement Addressing	4(%rax) i(%rax)	mem[4 + reg[RAX]] mem[i + reg[RAX]]
Memory: Indexed Addressing	(%rax,%r10) 4(%rax,%r10) i(%rax,%r10)	mem[reg[RAX] + reg[R10]] mem[4 + reg[RAX] + reg[R10]] mem[i + reg[RAX] + reg[R10]]
Memory: Scaled Indexed Addressing	(,%r10,8) 4(%r10,8) i(%r10,8) (%rax,%r10,8) 4(%rax,%r10,8) i(%rax,%r10,8)	mem[reg[R10] * 8] mem[4 + (reg[R10] * 8)] mem[i + (reg[R10] * 8)] mem[reg[RAX] + (reg[R10] * 8)] mem[4 + reg[RAX] + (reg[R10] * 8)] mem[i + reg[RAX] + (reg[R10] * 8)]