

ILOC Reference
CS 432 - Spring 2018

Form	Op1	Op2	Op3	Comment	
Integer Arithmetic					
add	op1, op2 => op3	reg	reg	reg	addition
sub	op1, op2 => op3	reg	reg	reg	subtraction
mult	op1, op2 => op3	reg	reg	reg	multiplication
div	op1, op2 => op3	reg	reg	reg	division
addI	op1, op2 => op3	reg	imm	reg	addition w/ constant
multI	op1, op2 => op3	reg	imm	reg	multiplication w/ constant
neg	op1 => op2	reg	reg		arithmetic negation
Boolean Arithmetic					
and	op1, op2 => op3	reg	reg	reg	boolean AND
or	op1, op2 => op3	reg	reg	reg	boolean OR
not	op1 => op2	reg	reg		boolean NOT
Data Movement					
i2i	op1 => op2	reg	reg		register copy
loadI	op1 => op2	imm	reg		load integer constant
loadS	&op1 => op2	sym	reg		load symbol address
load	[op1] => op2	reg	reg		load from address
loadAI	[op1+op2] => op3	reg	imm	reg	load from base + immediate
loadAO	[op1+op2] => op3	reg	reg	reg	load from base + offset
store	op1 => [op2]	reg	reg		store to address
storeAI	op1 => [op2+op3]	reg	reg	imm	store to base + immediate
storeAO	op1 => [op2+op3]	reg	reg	reg	store to base + offset
Comparison					
cmp_LT	op1, op2 => op3	reg	reg	reg	less-than comparison
cmp_LE	op1, op2 => op3	reg	reg	reg	less-than-or-equal-to comparison
cmp_EQ	op1, op2 => op3	reg	reg	reg	equality comparison
cmp_GE	op1, op2 => op3	reg	reg	reg	greater-than-or-equal-to comparison
cmp_GT	op1, op2 => op3	reg	reg	reg	greater-than comparison
cmp_NE	op1, op2 => op3	reg	reg	reg	inequality comparison
Control Flow					
label	("op1:")	lbl			control flow label
jump	op1	lbl			unconditional branch
cbr	op1 => op2, op3	reg	lbl	lbl	conditional branch
param	op1	reg			pass parameter
call		fun			call function
return					return to caller
Miscellaneous					
print		reg			print integer to standard out
print		str			print string to standard out
nop					no-op (do nothing)
phi		reg	reg	reg	φ-function (for SSA only)

Op	Meaning
reg	register (int or bool)
imm	immediate (int constant)
sym	symbol
lbl	jump label
fun	call label
str	string