

ILOC Reference
CS 432 - Fall 2020

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
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
push	op1		reg	push onto stack
pop	op1		reg	pop from stack
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
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)
lbl	jump label
fun	call label
str	string