

CS 432
ILOC Reference

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