

# Andes Instruction Set for HW3

Spring 2017

# Registers for Reduced Register

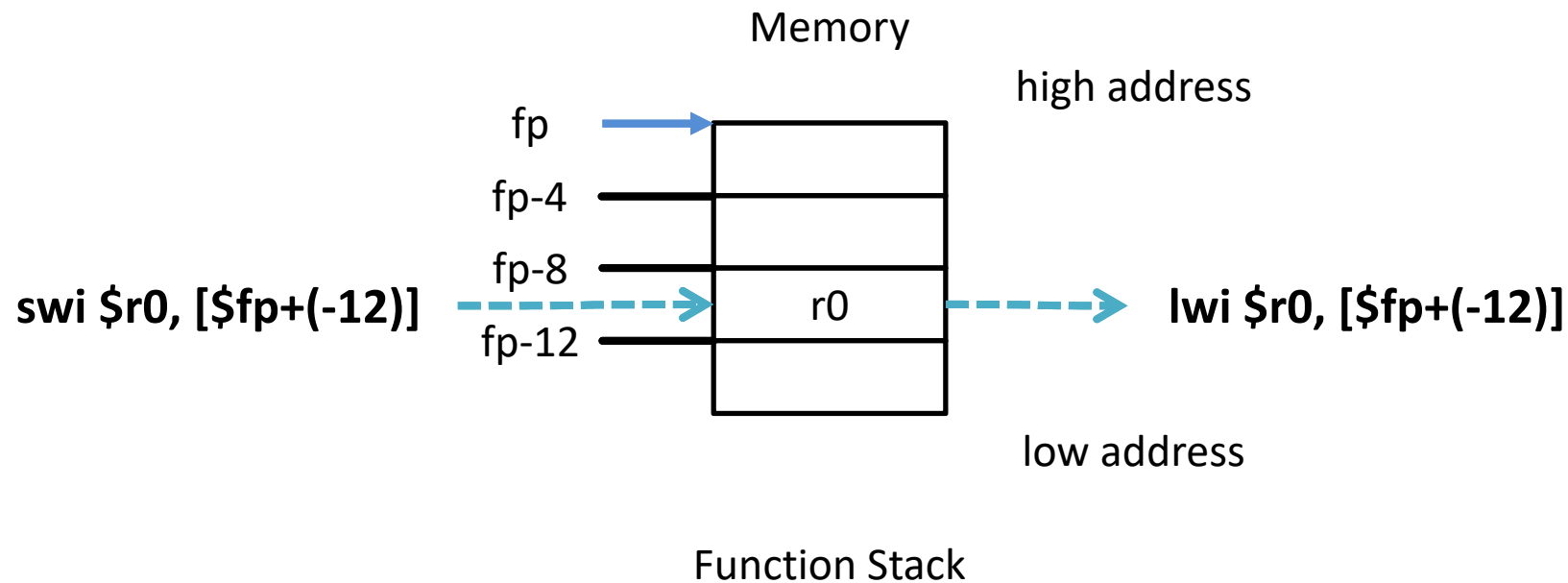
Register	32/16-bit (5)	16-bit (4)	16-bit (3)	Comments
r0	a0	h0	o0	
r1	a1	h1	o1	
r2	a2	h2	o2	
r3	a3	h3	o3	
r4	a4	h4	o4	
r5	a5	h5	o5	Implied register for beqs38 and bnes38
r6	s0	h6	o6	Saved by callee
r7	s1	h7	o7	Saved by callee
r8	s2	h8		Saved by callee
r9	s3	h9		Saved by callee
r10	s4	h10		Saved by callee
r15	ta			Temporary register for assembler
				Implied register for slt(s i)45, b[eq ne]zs8
r28	fp			Frame pointer / Saved by callee
r29	gp			Global pointer
r30	lp			Link pointer
r31	sp			Stack pointer

## 算術指令

指令	寫法	說明
add	add \$r0, \$r1, \$r2	$r0 = r1 + r2$
addi	addi \$r0, \$r1, 3	$r0 = r1 + 3$
sub	sub \$r0, \$r1, \$r2	$r0 = r1 - r2$
mul	mul \$r0, \$r1, \$r2	$r0 = r1 * r2$
divsr	divsr \$r0, \$r1, \$r2, \$r3	$r0 = r2 / r3$ $r1 = r2 \% r3$

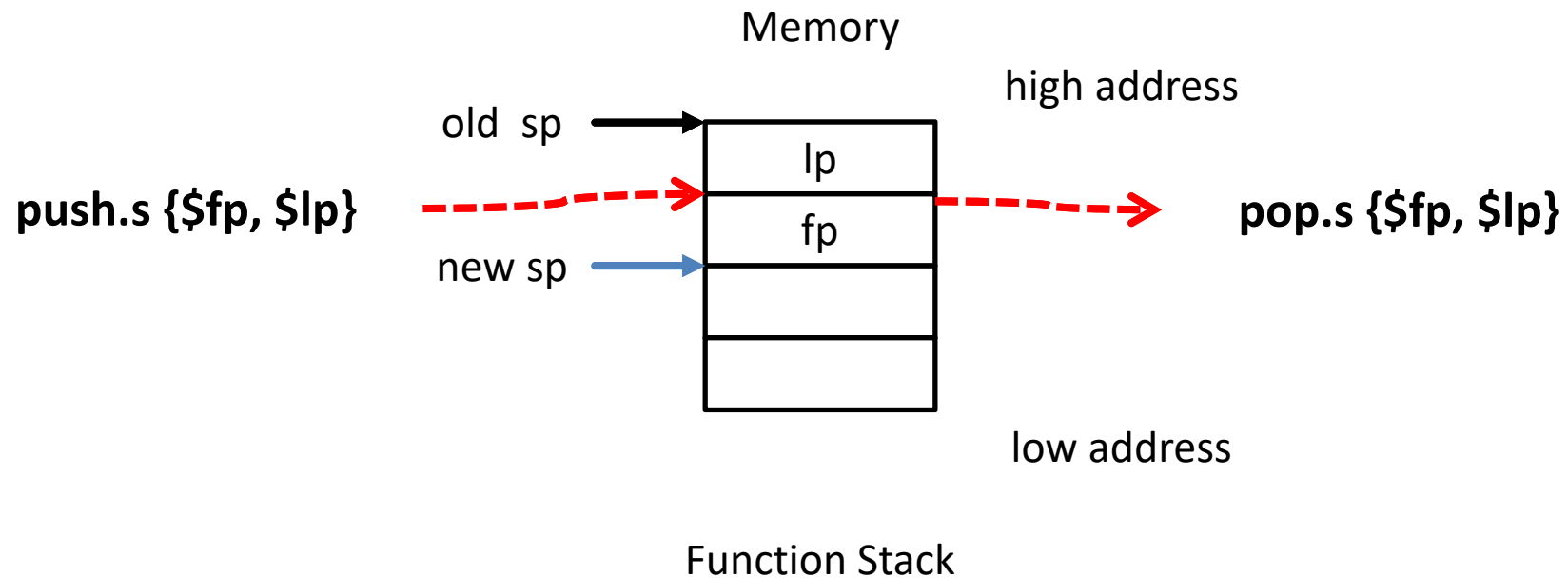
## 存讀指令

指令	寫法	說明
movi	movi \$r0, 2	r0 = 2
lwi	lwi \$r0, [\$fp+(-12)]	Load data from address fp-12 and store it into r0.
swi	swi \$r0, [\$fp+(-12)]	Store r0 into address fp-12.



## 存讀指令

指令	寫法	說明
push.s	push.s {\$fp, \$lp}	Push fp and lp into stack.
pop.s	pop.s {\$fp, \$lp}	Pop fp and lp out of stack.



## 跳轉指令

指令	寫法	說明
jal	jal add	Jump to 'add' function.
ret	ret	Return from function.

