zw Instruction Set

from MIPS Instruction Set

implemented
implemented bad (redo)
not implemented yet
bad instruction (not used)
boh

Arithmetic Instructions

Instruction	Example	Meaning	Comments
add	add $1,$2,$3	$1=$2+$3	
add immediate	addi $1,$2,100	$1= $2+100	
subtract	sub $1,$2,$3	$1=$2-$3	
Multiply	mul $1,$2,$3	$1=$2*$3	
Divide	div $2,$3	$hi,$low=$2/$3	Remainder stored in special register hiQuotient stored in special register lo

Logical

Instruction	Example	Meaning	Comments
and	and $1,$2,$3	$1=$2&$3	
or	or $1,$2,$3	$1=$2|$3	
not	not $1	$1=!$1	

Comparison

Instruction	Example	Meaning	Comments
equal	eq $1,$2,$3	if($2==$3) $1 = 1 else $1 = 0	
greater than	gt $1,$2,$3	if($2>$3) $1 = 1 else $1 = 0	
greater equal	ge $1,$2,$3	if($2>=$3) $1 = 1 else $1 = 0	
lower than	lt $1,$2,$3	if($2<$3) $1 = 1 else $1 = 0	
lower equal	le $1,$2,$3	if($2<=$3) $1 = 1 else $1 = 0	

Jumps

jump	j 1000	go to address 1000	Jump to target address
jump register	jr $1	go to address stored in $1	For switch, procedure return
jump if	ji $1 1000	if $1==1 go to address 1000	
jump if register	jir $1 $2	if $1==1 go to address $2	

Data Transfer

set immediate	seti $1 100	set $1 to 100	
set	set $1 $2	set $1 to $2	
set pointer	setptr $1 $2	set $1 to memory[$2]	x = mem[mem[y]]

System

read	r $1	read input in $1	
write	w $1	print content $1	
memory alloc immediate	malloi 100	expand mem[x] to x + 100	
memory alloc	malloc $1	expand mem[x] to x + $1	
memory free immediate	mfreei 100	free mem[x] to x -100	

memory free	mfree $1	free mem[x] to x - $1	
end	end	terminate program	