

# Άριθμος Κακοπιάδης

• ΑΣΚΗΣΗ 1

(A)  $\min_{i \in \{0, 1\}} jw$

loop:

bge	\$+1, \$q1, end
slt	\$+2, \$+1, 2
add	\$+3, \$q0, \$+2
lw	\$+4, 0(\$+3)
bit	\$+4, \$+0, update
j	next

update:

move \$+0, \$+4

next:

addi	\$+1, \$+1, 1
j	loop

end:

move	\$v0, \$+0
jr	\$ra

(B) for (int i=0; i<1000; i++) arr[i] \*= 8;

# • A2K+2H 2

.data

x: .word 74

.text

.global main

main:

lw \$q0, x  
jal BitCount  
move \$q0, \$v0  
li \$v0, 1  
sy call  
li \$v0, 10  
sy call

BitCount:

andi \$s0, \$q0, 1  
addi \$sp, \$sp, -12  
sw \$ra, 0(\$sp)  
sw \$q0, 4(\$sp)  
sw \$s0, 8(\$sp)  
beg \$q0, \$zero, return  
srl \$q0, \$q0, 1  
jal BitCount  
lw \$s0, 8(\$sp)  
lw \$q0, 4(\$sp)  
lw \$ra, 0(\$sp)  
addi \$sp, \$sp, 12  
add \$v0, \$v0, \$s0  
jr \$ra

return:

add \$v0, \$zero, \$zero, \$zero  
addi \$sp, \$sp, 12  
jr \$ra;

QtSpim

Memory and registers cleared

SPIM Version 9.1.23 of December 4, 2021  
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License version 3 and version 2.1.

code2.s

```
.data
x: .word 74 # el22674 -> last two digits = 74
.text
.globl main

main:
    lw $a0, x
    jal BitCount
    move $a0, $v0
    li $v0, 1
    syscall
    li $v0, 10
    syscall

BitCount:
    andi $s0, $a0, 1
    addi $sp, $sp, -12
    sw $ra, 0($sp)
    sw $a0, 4($sp)
    sw $s0, 8($sp)
    beq $a0, $zero, return
    srl $a0, $a0, 1
    jal BitCount
    lw $s0, 8($sp)
    lw $a0, 4($sp)
    lw $ra, 0($sp)
    addi $sp, $sp, 12
    add $v0, $v0, $s0
    jr $ra

return:
    add $v0, $zero, $zero
    addi $sp, $sp, 12
    jr $ra
```

Console

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