

Tema 3

①

S ₀	S ₃	C ₄	B(msb)	C(msb)	S ₇	C ₈	D(msb)	E(msb)	S ₁₅	C ₁₆
1'5ms	4'5ms	4ms	4'5ms	4'5ms	7'5ms	7ms	8'5ms	8'5ms	11'5ms	11ms

$$\text{Productivitat} = \frac{1}{19'5} = 0'05128 \text{ OPS} =$$

$$= 51'28 \text{ MOPS}$$

F(msb)	G(msb)	S ₃₁
16'5ms	16'5ms	19'5ms

②

DNI(dec)	DNI(hex)	IND(dec)	IND(hex)
20238430	134D05E	03483202	352642

S _{3...0}	C ₄	B	C	S _{7...4}	C ₈	D	E	S _{15...8}	C ₁₆	F
0000 0x0	1	1001 0x9	1010 0xA	1010 0xA	0	11110110 0xF6	11110111 0xF7	11110110 0xF6	0	0...101101001 0x0169

G	S _{31...16}
0...101101010 0x016A	0...101101001 0x0169

③

$$20238430 \rightarrow K_1 = 430 \quad K_2 = -430$$

	Decimal	Binari	Booth
K ₁	430	000110101110	00-10-1-1-1-10-10
K ₂	-430	111001010010	00-10+1-1+1-1 0+1-10

b) .global_start
 .text 0x00400000
 _start: li \$a0, 10
 jal Mult
 move \$a0, \$v0
 li \$v0, 1
 syscall
 li \$v0, 10
 syscall

Mult: sll \$t0, \$a0, 8
 sll \$t1, \$a0, 7
 sll \$t2, \$a0, 5
 sll \$t3, \$a0, 3
 sll \$t4, \$a0, 2
 sll \$t5, \$a0, 1
 addv \$v0, \$v0, \$t0
 addv \$v0, \$v0, \$t1
 addv \$v0, \$v0, \$t2
 addv \$v0, \$v0, \$t3
 addv \$v0, \$v0, \$t4
 addv \$v0, \$v0, \$t5
 jr \$ra

c)

• global_start
• text 0x00400000

_start: li \$a0, 10

jal Mult

move \$a0, \$v0

li \$v0, 1

syscall

li \$v0, 10

syscall

Mult: sll \$t0, \$a0, 9

sll \$t1, \$a0, 7

sll \$t2, \$a0, 6

sll \$t3, \$a0, 5

sll \$t4, \$a0, 4

sll \$t5, \$a0, 2

sll \$t6, \$a0, 1

subu \$v0, \$v0, \$t0

addu \$v0, \$v0, \$t1

subu \$v0, \$v0, \$t2

addu \$v0, \$v0, \$t3

subu \$v0, \$v0, \$t4

addu \$v0, \$v0, \$t5

subu \$v0, \$v0, \$t6

jr \$ra