

Ejercicio 3:

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3) JMP RO:
   PC := RO
    
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JEOxFF:
if Z = 1:
    ALU_IN1 := PC
    EXT_IN := IRO[7:0]
    SIGN_EXT_off
    ALU_add
    PC := ALU_OUT
endif
    
```

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JG OxFF:
if Z = 0:
    N := if N = 0:
        if V = 0:
            ALU_IN1 := PC
            EXT_IN := IRO[7:0]
            SIGN_EXT_off
            ALU_add
            PC := ALU_OUT
        else if V = 1:
            ALU_IN1 := PC
            EXT_IN := IRO[7:0]
            SIGN_EXT_off
            ALU_add
            PC := ALU_OUT
        endif
    endif
endif
    
```

```

CALL RO:
MAR := SP
MDR := PC
MEM_WRITE
ALU_IN1 := SP
ALU_IN2 := 0x0001
ALU_sub
SP := ALU_OUT
PC := RO
    
```

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RET:
ALU_IN1 := SP
ALU_IN2 := 0x0001
ALU_add
MAR := ALU_OUT
MEM_READ
PC := MDR
SP := ALU_OUT
    
```

Notar que se produce el salto JG OxFF si

$$\text{not}(Z \text{ or } (N \text{ xor } V)) \Rightarrow \overline{Z + (N \oplus V)} =$$

$$= \overline{Z + (N\bar{V} + \bar{N}V)} \text{ (definición de XOR) } =$$

$$= \overline{Z \cdot (N\bar{V} + \bar{N}V)} \text{ (ley de Morgan) } = \overline{Z \cdot (N\bar{V} + \bar{N}V)}$$

$$= \overline{Z \cdot (N\bar{V})} \cdot \overline{Z \cdot (\bar{N}V)} \text{ (ley de Morgan) } = \overline{Z} \cdot (\overline{N\bar{V}} + \overline{\bar{N}V}) \text{ (ley de Morgan) } = \overline{Z} \cdot (N\bar{V} + \bar{N}V)$$

$$= \overline{Z} \cdot (N\bar{V} + \bar{N}V + N\bar{V} + \bar{N}V) \text{ (distribución) } =$$

$$= \overline{Z} \cdot (N\bar{V} + \bar{N}V) \text{ (inverso)}$$