



INSTITUTO POLITÉCNICO NACIONAL  
ESCUELA SUPERIOR DE CÓMPUTO



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# INTRODUCCIÓN A LOS MICROCONTROLADORES

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“Display: barrido de palabra con desplazamiento”

GRUPO: 3CM10

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# 1 | DIAGRAMAS

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## 2 | CÓDIGO

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```
.include "m8535def.inc"
.def d = r16
.def aux = r20
ldi aux, 0
.def col = r17
.def aux2 = r18
.def aux3 = r19

.def aux00=r21
.def aux01=r22
.def aux02=r23
.def aux03=r24
.def aux04=r25
.def aux05=r26

rjmp main
.org $08
rjmp scroll
rjmp barre
main:
    ldi d, low(ramend)
    out spl,d
    ldi d, high(ramend)
    out sph,d
    ser d
    out ddrc,d
    out ddra,d
    out ddrb,d
    out portd,d
    ldi d,$40; -
    mov r0,d
    mov r5,d;
    ldi d,$77; - A
    mov r4,d
    ldi d,$38; - L
    mov r3,d
    ldi d,$3F; - O
    mov r2,d
    ldi d,$76; - H
    mov r1,d;..
```

```

ldi d, $00
mov aux00,d
mov aux01,d
mov aux02,d
mov aux03,d
mov aux04,d
mov aux05,d

ldi aux,3
out TCCR0, aux
ldi aux,2
out TCCR1B, aux
ldi aux,5
out TIMSK, aux
sei
clr zh
ldi z1,5
ldi col,$20

uno:
out portc,col
ld aux,z
out porta,aux
rjmp uno

barre:
ldi aux2,192
out TCNT0,aux2
out portc,zh
lsr col
brcs dos
dec z1
ldi aux3,0
reti

dos:
ldi col,$20
ldi z1, 5
reti

```

```

scroll:

mov aux3,r5

mov r5,r4
mov r4,r3
mov r3,r2
mov r2,r1
mov r1,r0

mov r0,aux05

mov aux05,aux04
mov aux04,aux03
mov aux03,aux02
mov aux02,aux01
mov aux01,aux00

mov aux00,aux3

reti

```