

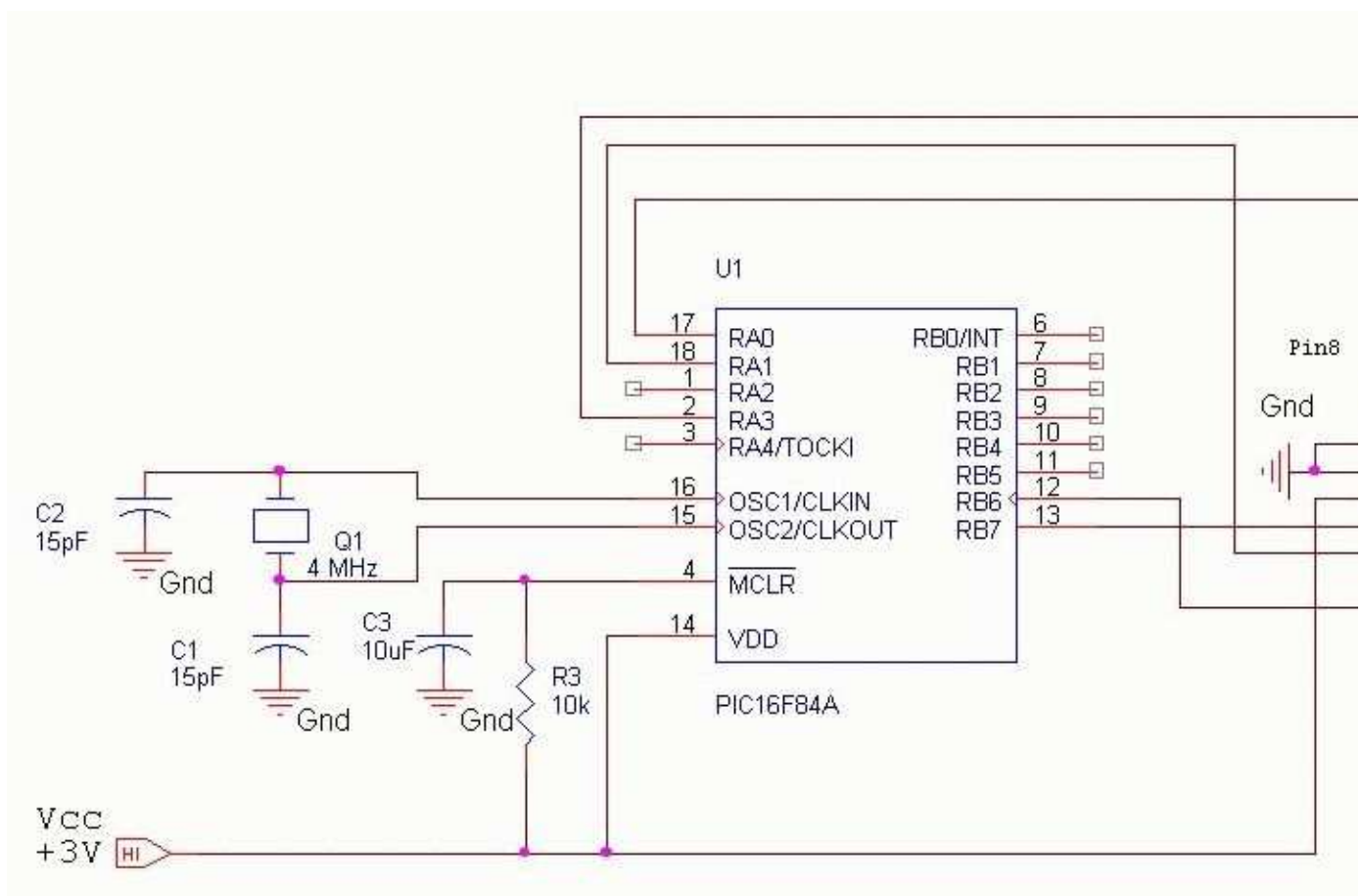
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How to interface a Nokia 7110 lcd with a PIC16F84A microcontroller



[Nokia 7110 lcd use a SED1565 driver](#)

Download the zip [code](#).

Nokia 7110 lcd library:

```
;sedlib.inc
;===== LCD_Nokia 7110 library =====27/11/03==
;    cod P313032901 / driver SED1565
;    rb6,rb7  sclock,sdata
;    ra0,ra1,ra2,ra3d/C,Reset,Vccmd,SCE
;    internal clock
```

```
;      standard crystal 4.000 MHz XT - 1us pe instructiune
;      Program realizat de Ing. Bergthaller Iulian
;      www.module.ro
```

```
-----
;
count1 equ    0x0C
count2 equ    0x0D
count3 equ    0x0E
count4 equ    0x0F
afisaj equ    0x10
linie      equ    0x11
#define sclk PORTB,6
#define sdta      PORTB,7
#define dorc      PORTA,0
#define rsetPORTA,1
#define enab      PORTA,3
```

```
-----
lcd_ini
```

```
    call    halte
    call    lgres    ; reset
    movlw  0xA6    ; lcd in normal mode (0xA7 pt. negativ)
    call    lccmd
    movlw  0xA3    ; bias
    call    lccmd
    movlw  0xA1    ; select DRAM for reverse display (0xA0 for normal)
    call    lccmd
    movlw  0xC0    ; direction
    call    lccmd
    movlw  0x22    ; V5 voltage set
    call    lccmd
    movlw  0x81    ; electric volume
    call    lccmd
    movlw  0x2E    ; booster mode
    call    lccmd
    movlw  0x2F    ; follow on
    call    lccmd
    movlw  0xE3    ; nop
    call    lccmd
    movlw  0x40    ; set start address
    call    lccmd
    movlw  0xAF    ; lcd on (0xAE pt. lcd off)
    call    lccmd
```

```

        movlw 0xA5 ; lcd all on
        call lccmd
        call halte
        call halte
        movlw 0xA4 ; lcd normal
        call lccmd
;-----
lcdta  bsf    dorc
        bcf    enab    ; chip is activ
        call  varsa
        bsf    enab
        retlw 00
;-----
lccmd  bcf    dorc
        bcf    enab
        call  varsa
        bsf    enab
        retlw 00
;-----
lcres  bsf    enab
        call  halte
        bsf    rset    ;reset
        call  halte
        retlw 00
;-----
varsa  movwf  afisaj
        movlw 0x08
        movwf count4
vbit   bcf    sclk
        bcf    sdta
        btfsc afisaj,7
        bsf    sdta
        bsf    sclk
        rlf    afisaj,F
        decfsz count4,F
        goto  vbit
        retlw 00
;-----
cbild  movlw  0xB0
        movwf  linie    ; adresa linie
        movlw 0x09    ; ultima linie face parte din pagina 9
        movwf  count3

```

```

cline  movf  linie,0
       call  lccmd
       movlw 0x11 ; doar 96 din 132 coloane conectate la driver 18+96+18= 132
       call  lccmd
       movlw 0x02 ; 18 coloane in stanga si dreapta ecranului nefolosite
       call  lccmd
       bcf   sdta
       movlw 0x60 ; 96 de coloane
       movwf count1
c1     movlw 0x08 ; 8 biti latime pagina
       movwf count2
       bsf   dorc
       bcf   enab
c2     bcf   sclk
       bsf   sclk
       decfsz count2,F
       goto  c2
       bsf   enab
       decfsz count1,F
       goto  c1
       incf  linie,F
       decfsz count3,F
       goto  cline
       retlw 00

```

```

;-----

```

```

halte  movlw 0x07
       movwf count3
d3     movlw 0x32
       movwf count1
d1     movlw 0xF0
       movwf count2
d2     decfsz count2,F
       goto  d2
       decfsz count1,F
       goto  d1
       decfsz count3,F
       goto  d3
       retlw 00

```

```

;.....:

```

```

usaex  bsf   STATUS,RP0 ;switch to bank 1
       movlw 0x00 ; PORTA set to out/inputs
       movwf TRISA

```

```

    bcf    STATUS,RP0 ;switch back to bank 0
    return

```

```

;.....

```

```

usbex bsf    STATUS,RP0 ;switch to bank 1
      movlw 0x00  ;PORTB set to out/inputs
      movwf TRISB
      bcf    STATUS,RP0 ;switch back to bank 0
      return

```

Nokia 7110 lcd [test programm](#):

```

;main.asm

```

```

;=====LCD_Nokia 7110 =====28/11/03==

```

```

;    driver SED1565
;    internal clock
;    standard crystal 4.000 MHz XT - 1us pe instructiune
;    www.module.ro
;-----
;    configure programmer
list   p=16f84:f=inhx8m
__CONFIG    _CP_OFF & _PWRTE_ON & _WDT_OFF & _XT_OSC

```

```

;-----
;-----

```

```

    org    0x00
    goto   init
    org    0x04

```

```

;-----
;    #INCLUDE P16F84.INC
;    #INCLUDE sedlib.INC
;-----

```

```

init   call    usaex
      call    usbex
      movlw  0x00
      movwf  PORTA
      movwf  PORTB

```

```

;-----
      call    lcd_ini
      call    cbild
      movlw  0xB0  ; scrie pe prima linie
      call    lccmd
      movlw  0x13  ; (18+33+30+33+18= 132)

```

```
call    lccmd
movlw  0x03 ; scribe icepand cu a 33-a coloana (33+18)
call    lccmd
movlw  0x7F ;E
call    lcdta
movlw  0x49
call    lcdta
movlw  0x49
call    lcdta
movlw  0x49
call    lcdta
movlw  0x49
call    lcdta
movlw  0x00
call    lcdta
movlw  0x7F ;P
call    lcdta
movlw  0x09
call    lcdta
movlw  0x09
call    lcdta
movlw  0x09
call    lcdta
movlw  0x06
call    lcdta
movlw  0x00
call    lcdta
movlw  0x26 ;S
call    lcdta
movlw  0x49
call    lcdta
movlw  0x49
call    lcdta
movlw  0x49
call    lcdta
movlw  0x32
call    lcdta
movlw  0x00
call    lcdta
movlw  0x3E ;O
call    lcdta
movlw  0x41
```

```
call    lcdta
movlw  0x41
call    lcdta
movlw  0x41
call    lcdta
movlw  0x3E
call    lcdta
movlw  0x00
call    lcdta
movlw  0x7F ;N
call    lcdta
movlw  0x06
call    lcdta
movlw  0x08
call    lcdta
movlw  0x30
call    lcdta
movlw  0x7F
call    lcdta
movlw  0x00
call    lcdta
sleep
```

```
;------
```

```
end
```

```
=====
```



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Last updated December, 2003

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