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Version: 1.2

Revision notes:

1.1 initial release

1.2 added disable interrupts around memory and I/O functions as the PIC18F8722 does not permit MOVFF instructions during interrupts.

Deleted delay that was in outportb

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*/

#include <p18f8722.h>

#include <delays.h>

#include "pc104.h"

void init_mc104p(void)

```
{
    MEMCON = 0x20;           // configure external memory port with 1
                             // wait state

    TRISGbits.TRISG4 = 0 ;   //make LED an output
    TRISGbits.TRISG3 = 0 ;   //make LED an output

    TRISF = 0x00;           // make port F outputs
    TRISC = 0xbf;           // make port C lower 4 bits inputs and leave
                             // other bits alone
    TRISB |= 0xff;          // make port B bits all inputs
    TRISA |= 0x3f;          // makes port A lower 6 bits inputs
    TRISH |= 0xf0;          // makes port H upper 4 bits inputs
    ADCON1 = 0x1a;          // sets external Vref + Avss, analog in 0
                             // through 4 as inputs
    ADCON2 = 0x3a;          // left justified, 20 Tad acquisition time,
                             // conversion time 40 Mhz divided by 32
    ADCON0 = 0x01;          // enables A/D converter module
}
```

void outportb(unsigned int io_add, unsigned char io_val)

```
{
    rom unsigned char *io_Ptr;
    unsigned char tempINTCON;

    io_Ptr = (rom unsigned char*)0x20000;
    tempINTCON=INTCON;
    INTCON &= 0x3F;         // disable interrupts
    io_Ptr[io_add] = io_val;
    INTCON=tempINTCON;     // restore interrupt
}
```

```

}

unsigned char inportb(unsigned int io_add)

{
    rom unsigned char *io_Ptr;
    unsigned char tempINTCON;
    unsigned char byte;

    io_Ptr = (rom unsigned char*)0x20000;
    tempINTCON=INTCON;
    INTCON &= 0x3F;           // disable interrupts
    byte = io_Ptr[io_add];
    INTCON=tempINTCON;       // restore interrupts

    return byte;
}

/* mem_add must be equal to or greater than 0x30000 to access PC/104 memory */

void outmemb(unsigned long mem_add, unsigned char mem_val)

{
    rom unsigned char *memPtr;
    unsigned char tempINTCON;

    memPtr = (rom unsigned char*)0;
    tempINTCON=INTCON;
    INTCON &= 0x3F;           // disable interrupts
    memPtr[mem_add] = mem_val;
    INTCON=tempINTCON;       // restore interrupt
}

/* mem_add must be equal to or greater than 0x30000 to access PC/104 memory */

unsigned char inmemb(unsigned long mem_add)

{
    unsigned char byte;
    unsigned char tempINTCON;
    rom unsigned char *memPtr;

    memPtr = (rom unsigned char*)0;
    tempINTCON=INTCON;
    INTCON &= 0x3F;           // disable interrupts
    byte = memPtr[mem_add];
    INTCON=tempINTCON;       // restore interrupts
    return byte;
}

```