```
/************************************************
 MSSP i2c LCD TEST of PIC12F1822
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  Ver 1. 09/29/2011 for i2c LCD TEST

   PIC12F1822
   PIN Assign   #7 RA0:monitor LED
                #6 RA1:SCL
                #5 RA2:SDA

    OSC INT 8MHz
   Development Circumstance
   MPLAB IDE V8.73   HiTECH C V9.82
************************************************ */

#define _XTAL_FREQ 8000000

#include <htc.h>
#include "delay.h"
#include "lcd_i2c_mssp.h"

__CONFIG(
    FOSC_INTOSC & WDTE_OFF & PWRTE_ON & MCLRE_ON & CP_OFF
    & CPD_OFF & BOREN_OFF & CLKOUTEN_ON & IESO_OFF & FCMEN_OFF
        );

__CONFIG(
        WRT_OFF & PLLEN_OFF & STVREN_ON &  LVP_OFF
        );

void itostring(char digit, unsigned int data, char *buffer);
void mssp_init(void);
unsigned char Msg1[17] = "i2c LCD test    ";
unsigned char Msg2[17] = "Counter = xxxxx ";

void main(void)
{
        unsigned int Count;
        unsigned char i;

        /* INITIALIZE REGISTER      */
        OSCCON = 0b01110000;                    // Set  8MHz
        GPIO = 0b00000000;                      // Clear
        TRISA = 0b00000110;                     // RA1,RA2 INPUT
        ANSEL = 0b00000000;                     // All digital
        CMCON0 = 0b00000111;                    // No using compalator

        mssp_init();                            // MSSP initialize

        lcd_init();                             // LCD initialize

        Count = 0;
        LA0 = 0;

        while(1)
        {
                LA0 ^= 1;                       // Heart beat
                lcd_cmd(0x80);                  // Move cursor 1st line
                lcd_str(Msg1);                  // Display test message
                itostring(5, Count++, Msg2+10);
                lcd_cmd(0xC0);                  // Move cursor to 2nd line
                lcd_str(Msg2);                  // Display count message
                for(i=5;i>0;i--){               // 500ms waiting
                        __delay_ms(100);
                }
        }
}
/************************************
* Converting binary to ASCII
************************************/
void itostring(char digit, unsigned int data, char *buffer)
{
        char i;
        buffer += digit;                        // last data
```

```
        for(i=digit; i>0; i--) {                //
                buffer--;                       //
                *buffer = (data % 10) + '0';    // ASCII code
                data = data / 10;               // next digit
        }
}

/**************************************
* MSSP initialize
**************************************/
void mssp_init(void){
       /* SSP1CON1 REGISTERS */
       SSPEN      = 1;   //Enables Serial Port Mode
       SSPM3      = 1;   ////////
       SSPM2      = 0;   //I2C Master Mode
       SSPM1      = 0;   // clock= Fosc/(4*(SSP1ADD+1))
       SSPM0      = 0;   ////////

       /* SSPCON2 REGISTERS */
       SSP1CON2   = 0x00;
       /* SSPCON3 REGISTERS */
       SSP1CON3   = 0x00;


       /* SSP1STAT REGISTERS */
       SMP        = 1;   //SPI MASTER MODE
       CKE        = 1;   //SMBus Specific Inputs Enabled

       //SSP1ADD    = 0x19;      //~75kHz
       //SSP1ADD    = 0x13;      //~100kHz
       //SSP1ADD    = 0x07;      //~400kHz
       SSP1ADD    = 0x50;
}
```