Exp::4

#include <lpc214x.h> //Includes LPC2148 register definitions

#define LCD\_RS\_HIGH() IO0SET = (1<<16) //Function to select data

port on LCD

#define LCD\_RS\_LOW() IO0CLR = (1<<16) //Function to select

command port on LCD

#define LCD\_RW\_HIGH() IO0SET = (1<<17) //Function to select

read operation on LCD

#define LCD\_RW\_LOW() IO0CLR = (1<<17) //Function to select

write operation on LCD

#define LCD\_EN\_HIGH() IO0SET = (1<<18) //Function to Enable LCD

#define LCD\_EN\_LOW() IO0CLR = (1<<18) //Function to

disable LCD

// "1234567890123456"

unsigned char String1[]={" LCD Interface "};

unsigned char String2[]={" Test Program "};

void delay\_ms(unsigned char time) //This Function is used to cause

delay between LED ON and OFF events

{

unsigned int i, j;

for (j=0; j<time; j++)

for(i=0; i<8002; i++);

}

void LCD\_Command(unsigned char command)

{

unsigned char temp=0;

LCD\_RW\_LOW();

LCD\_RS\_LOW();

temp = (command & 0xF0) >> 4;

IO0CLR = 0xF <<19; // Clear LCD Data lines

IO0SET = temp << 19;

LCD\_EN\_HIGH();

delay\_ms(1);

LCD\_EN\_LOW();

temp = (command & 0x0F);

IO0CLR = 0xF <<19; // Clear LCD Data lines

IO0SET = temp << 19;

LCD\_EN\_HIGH();

delay\_ms(1);

LCD\_EN\_LOW();

}

void LCD\_Data(unsigned char data)

{

unsigned char temp=0;

LCD\_RW\_LOW();

LCD\_RS\_HIGH();

temp = (data & 0xF0) >> 4;

IO0CLR = 0xF <<19; // Clear LCD Data lines

IO0SET = temp << 19;

LCD\_EN\_HIGH();

delay\_ms(1);

LCD\_EN\_LOW();

temp = (data & 0x0F);

IO0CLR = 0xF <<19; // Clear LCD Data lines

IO0SET = temp << 19;

LCD\_EN\_HIGH();

delay\_ms(1);

LCD\_EN\_LOW();

}

void LCD\_Init()

{

LCD\_RW\_LOW();

LCD\_RS\_LOW();

IO0CLR = 0x0F <<19; // Clear LCD Data lines

IO0SET = 0x03 << 19;

LCD\_EN\_HIGH();

delay\_ms(1);

LCD\_EN\_LOW();

IO0CLR = 0x0F <<19; // Clear LCD Data lines

IO0SET = 0x03 << 19;

LCD\_EN\_HIGH();

delay\_ms(1);

LCD\_EN\_LOW();

IO0CLR = 0x0F <<19; // Clear LCD Data lines

IO0SET = 0x02 << 19;

LCD\_EN\_HIGH();

delay\_ms(1);

LCD\_EN\_LOW();

LCD\_Command(0x28);

delay\_ms(20);

LCD\_Command(0x28);

delay\_ms(20);

LCD\_Command(0x0C);

delay\_ms(20);

LCD\_Command(0x06);

delay\_ms(20);

LCD\_Command(0x01);

delay\_ms(20);

}

LCD\_DisplayString(unsigned char \*string)

{

while(\*string) //Check for End of String

LCD\_Data(\*string++); //sending data on LCD byte by byte

}

int main(void)

{

PINSEL0 = 0x00000000; // Enable GPIO on all pins

PINSEL1 = 0x00000000;

PINSEL2 = 0x00000000;

IO0DIR = 0x7F <<16; // Set P0.16, P0.17, P0.18, P0.19,

P0.20, P0.21, P0.22 as Output

LCD\_Init();

LCD\_DisplayString(String1);

LCD\_Command(0xC0);

LCD\_DisplayString(String2);

while(1);

}