

```

/*This program is used to display figures on the 6432 bicolor
LED information board. After key is pressed,figure will be
changed in turn.The first 3 ones are butterfly and each has
its own color.The second 3 ones are stars and also have the
color of their own.And the code is written on basis of chip
PIC18F4520 .*/

```

```
#include<p18f4520.h>
```

```
#include<delays.h>
```

```
#pragma config OSC = HSPLL //configure oscillator 12*4MHZ
```

```
#pragma config PWRT = OFF //disable Power-up Timer
```

```
#pragma config BOREN = OFF //disable Brown-out Reset
```

```
#pragma config WDT = OFF //disable Watchdog Timer
```

```
#pragma config MCLRE = ON //enable MCLR Pin
```

```
#pragma config PBADEN = OFF //disable PORTB A/D
```

```
#pragma config LVP = OFF //disable Single-Supply ICSP
```

```
#define Line_SELA PORTDbits.RD0
```

```
#define Line_SELB PORTDbits.RD1
```

```
#define Line_SELC PORTDbits.RD2
```

```
#define Line_SELD PORTDbits.RD3
```

```
#define Line_EN PORTEbits.RE2
```

```
#define CLK PORTCbits.RC3
```

```
#define DAT_R1 PORTDbits.RD4
```

```
#define LAT PORTEbits.RE1
```

```
#define DAT_R2 PORTDbits.RD5
```

```
#define DAT_G1 PORTDbits.RD6
```

```
#define DAT_G2 PORTDbits.RD7
```

```
#define KEY PORTBbits.RB1 // sw2 port
```

```
unsigned char keydata,key_last,key_now;
```

```
/*the datum of butterfly*/
```

```
#pragma idata test1=0x100
```

```
ram unsigned char fig1[128]={ //upper part of butterfly
```

```

0x00,0x00,0x00,0x10,0x08,0x04,
0x02,0x01,0x7f,0x01,0x02,0x04,
0x08,0x10,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x02,0x01,
0x07,0x01,0x02,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x10,
0x08,0x04,0x02,0x01,0x7f,0x01,
0x02,0x04,0x08,0x10,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x02,0x01,0x07,0x01,
0x02,0x00,0x00,0x00,

```

```

0x00,0x80,0x80,0x84,0x88,0x90,
0xa0,0xc0,0xff,0xc0,0xa0,0x90,
0x88,0x84,0x80,0x80,0x00,0x00,
0x00,0x00,0x00,0x80,0xa0,0xc0,
0xf0,0xc0,0xa0,0x80,0x00,0x00,
0x00,0x00,0x00,0x80,0x80,0x84,
0x88,0x90,0xa0,0xc0,0xff,0xc0,
0xa0,0x90,0x88,0x84,0x80,0x80,
0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x80,0xa0,0xc0,0xf0,0xc0,
0xa0,0x80,0x00,0x00};

```

```

ram unsigned char fig2[128]={ //lower part of butterfly

```

```

0x00,0x00,0x01,0x05,0x03,0x0f,
0x03,0x05,0x01,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x01,0x01,
0x21,0x11,0x09,0x05,0x03,0xff,
0x03,0x05,0x09,0x11,0x21,0x01,
0x01,0x00,0x00,0x00,0x00,0x00,
0x01,0x05,0x03,0x0f,0x03,0x05,
0x01,0x00,0x00,0x00,0x00,0x00,
0x01,0x01,0x21,0x11,0x09,0x05,
0x03,0xff,0x03,0x05,0x09,0x11,
0x21,0x01,0x01,0x00,

```

```

0x00,0x00,0x00,0x40,0x80,0xe0,
0x80,0x40,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,

```

```

0x08,0x10,0x20,0x40,0x80,0xfe,
0x80,0x40,0x20,0x10,0x08,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x40,0x80,0xe0,0x80,0x40,
0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x08,0x10,0x20,0x40,
0x80,0xfe,0x80,0x40,0x20,0x10,
0x08,0x00,0x00,0x00};

```

```
#pragma idata
```

```
/*the datum of star*/
```

```
unsigned char fig3[128]={
```

```
//upper part of stars
```

```

0xe0,0xf8,0x7c,0x7f,0x7f,0x3f,
0x3f,0x1f,0x0f,0x0f,0x07,0x07,
0x03,0x81,0xc0,0xe0,0xf0,0xe8,
0xc4,0x82,0x01,0x10,0x38,0x38,
0x38,0x10,0x00,0x00,0x00,0x0f,
0x1f,0x3f,0x3f,0x1f,0x0f,0x00,
0x00,0x00,0x10,0x38,0x38,0x38,
0x10,0x01,0x82,0xc4,0xe8,0xf0,
0xe0,0xc0,0x81,0x03,0x07,0x07,
0x0f,0x0f,0x1f,0x3f,0x3f,0x7f,
0x7f,0x7c,0xf8,0xe0,

```

```

0x00,0x00,0x00,0x00,0x80,0xc0,
0xe0,0xe0,0xf0,0xf0,0xf8,0xf8,
0xfc,0xfc,0xfc,0xfc,0x7e,0x3e,
0x1e,0x0e,0x07,0x87,0x43,0x21,
0x11,0x08,0x14,0x0a,0x05,0xf2,
0xf9,0xff,0xff,0xf9,0xf2,0x05,
0x0a,0x14,0x08,0x11,0x23,0x43,
0x87,0x07,0x0e,0x1e,0x3e,0x7e,
0xfc,0xfc,0xfc,0xfc,0xf8,0xf8,
0xf0,0xf0,0xe0,0xe0,0xc0,0x80,
0x00,0x00,0x00,0x00};

```

```
unsigned char fig4[128]={
```

```
//lower part of stars
```

```

0x00,0x00,0x00,0x00,0x01,0x03,
0x07,0x07,0x0f,0x0f,0x1f,0x1f,
0x3f,0x3f,0x3f,0x3f,0x7e,0x7c,
0x78,0x70,0xe0,0xe1,0xc2,0x84,

```

```

0x88,0x10,0x28,0x50,0xa0,0x4f,
0x9f,0xff,0xff,0x9f,0x4f,0xa0,
0x50,0x28,0x10,0x88,0x84,0xc2,
0xe1,0xe0,0x70,0x78,0x7c,0x7e,
0x3f,0x3f,0x3f,0x3f,0x1f,0x1f,
0x0f,0x0f,0x07,0x07,0x03,0x01,
0x00,0x00,0x00,0x00,

```

```

0x07,0x1f,0x3e,0xfe,0xfc,0xfc,
0xf8,0xf8,0xf0,0xf0,0xe0,0xc0,
0xc0,0x81,0x03,0x07,0x0f,0x17,
0x23,0x41,0x80,0x08,0x1c,0x1c,
0x1c,0x08,0x00,0x00,0x00,0xf0,
0xf8,0xfc,0xfc,0xf8,0xf0,0x00,
0x00,0x00,0x08,0x1c,0x1c,0x1c,
0x08,0x80,0x41,0x23,0x17,0x0f,
0x07,0x03,0x81,0xc0,0xe0,0xe0,
0xf0,0xf0,0xf8,0xfc,0xfc,0xfe,
0xfe,0x3e,0x1f,0x07,

```

```
};
```

```

void init(void)
{
    CMCON=0b00000111;    // Close Comparator
    TRISA=0b00010000;
    TRISB=0b00001111;
    TRISC=0b00000000;    //RC3,RC2output
    TRISD=0b00000000;    //RD0,RD1,RD2,RD3,RD4output
    TRISE=0b00001000;    //RE1,RE2output
    ADCON1=0b00001111;    // Configure Digital Channle

    keydata=0;
}
void judgekey(void)
{
    key_now=KEY;
    if((key_last==1)&(key_now==0))
    {

```

```
    Delay100TCYx(1);          //Delay for according to buffeting
    if(key_now==0)
    {
        keydata++;
        keydata=keydata%6;
    }
}
key_last=key_now;
}
void delay_1ms(unsigned char delaytime)
{
    unsigned char i, j, k;
    for(i = 0; i < delaytime; i++)
    {
        for(j = 0; j < 100; j++)
            k--;}
}

void sendone(unsigned char *p1,unsigned char *p2,unsigned char line)
{
    unsigned char line_flag,t,k,temp,value1,value2;
    Line_EN=0;

    t=line%8;

    line_flag=0x80;    //line_flag tells which bit to choose
    line_flag=line_flag>>t;

    for(k=0;k<64;k++)
    {
        temp=(line>>3)<<6; // value=64*(line/8)
        value1=*(p1+k+temp); // choose the character
        value2=*(p2+k+temp);
        value1=~value1;
        value2=~value2;

        value1=(value1 & line_flag)>>(7-t);
        value2=(value2 & line_flag)>>(7-t);
        switch(keydata)
        {
            case 0:                //illuminated in red
```

```
case 3: {
    DAT_R1=value1;
    DAT_R2=value2;
    DAT_G1=1;
    DAT_G2=1;
    }break;
case 1: //illuminated in green
case 4:
    {
    DAT_R1=1;
    DAT_R2=1;
    DAT_G1=value1;
    DAT_G2=value2;
    }break;
case 2: //illuminated in yellow
case 5:
    {
    DAT_R1=value1;
    DAT_R2=value2;
    DAT_G1=value1;
    DAT_G2=value2;
    } break;
}
CLK=0;
CLK=1;
}

LAT=0;
LAT=1;
Line_EN=1;

delay_1ms(1);
Line_EN=0;

}
void rundisplay(void)
{unsigned char t,temp;
 for(t=0;t<16;t++)
```

```
{
    temp=t;
    Line_SELA=temp & 0x01;           //select line
    temp=temp>>1;
    Line_SELB=temp & 0x01;
    temp=temp>>1;
    Line_SELC=temp & 0x01;
    temp=temp>>1;
    Line_SELD=temp & 0x01;

    if (keydata<3)
        sendone(fig3,fig4,t);
    else
        sendone(fig1,fig2,t);
}
}
```



```
void main(void)
{
    init();

    while(1)
    {
        judgekey();
        rundisplay();
    }
}
```