

88_seg_disp3

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/*****
7Segment LED 4040B driver by digit dynamic lighting
KATHODE COMMON LED 3 DIGIT used
by nobcha all right reserved 11/06/2010

PIC16F88(INT 8MHz) + 4040B + 3digit 7segment LED
PIN Assign #6 RBO:CLK output for TC4040B
#7 RB1:Display timing

4040B pin #10 clock in
#11 rst (70uS delayed #10 high state )
#9 seg-a
#7 seg-b
#6 seg-c
#5 seg-d
#3 seg-e
#2 seg-f
#4 seg-g
#13 seg-dp
#12 1st digit
#14 2nd digit
#15 3rd digit

Development Circumstance
MPLAB IDE V8.56 HiTECH C V9.80

call procedure
disp_seg ( binary_digit_data, digit, minus, dp);
*****/
#include <pic.h>
#include <stdio.h>

#define clk_pulse (RBO=1, RB0=0 )

#define seg_a 1
#define seg_b 2
#define seg_c 4
#define seg_d 8
#define seg_e 16
#define seg_f 32
#define seg_g 64
#define seg_dp 128
#define digit3 256
#define digit2 512
#define digit1 1024

#define code_0 ( seg_a + seg_b + seg_c + seg_d + seg_e + seg_f )
#define code_1 ( seg_b + seg_c )
#define code_2 ( seg_a + seg_b + seg_d + seg_e + seg_g )
#define code_3 ( seg_a + seg_b + seg_c + seg_d + seg_g )
#define code_4 ( seg_b + seg_c + seg_f + seg_g )
#define code_5 ( seg_a + seg_c + seg_d + seg_f + seg_g )
#define code_6 ( seg_a + seg_c + seg_d + seg_e + seg_f + seg_g )
#define code_7 ( seg_a + seg_b + seg_c )
#define code_8 ( seg_a + seg_b + seg_c + seg_d + seg_e + seg_f + seg_g )
#define code_9 ( seg_a + seg_b + seg_c + seg_f + seg_g )
#define code_off 0

#define seg_rst ( RBO = 1 , _delay(500) , RB0 = 0 , _delay(250) )
#define seg_on RB1=1
#define seg_off RB1=0

void disp_off () {
    seg_off;
}

void disp_seg (unsigned char code, char digit, char minus , char dp){
    unsigned char time=0 ;
    short pulse=0;
    seg_rst ;
    switch(code){
        case 0x0: pulse=code_0; // if 0 then seg a b c d e f
                 time = 6;
    }
}

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        if(digit==0){
            pulse = code_off;      // Digit:0 zero suppress
        }
        break;
    case 0x1: pulse=code_1;
            time = 2;
            break;
    case 2: pulse=code_2; // if 2 then seg a b d e f
            time = 5;
            break;
    case 3: pulse=code_3;
            time = 5;
            break;
    case 4: pulse=code_4; // if 4 then seg b c f g
            time = 4;
            break;
    case 5: pulse=code_5;
            time = 5;
            break;
    case 6: pulse=code_6; // if 6 then seg a c d e f g
            time = 6;
            break;
    case 7: pulse=code_7;
            time = 3;
            break;
    case 8: pulse=code_8; // if 8 then seg a b c d e f g
            time = 7;
            break;
    case 9: pulse=code_9;
            time = 5;
            break;
    default: pulse=seg_g;
}
if( minus ){
    pulse=seg_g; // segment g lighted means minus value
}
switch(digit){
    case 1: pulse=pulse+digit1;
            break;
    case 2: pulse=pulse+digit2;
            break;
    case 3: pulse=pulse+digit3;
            break;
    default: pulse=pulse+digit1+digit2+digit3;
}
if(dp){
    pulse=pulse+seg_dp;
}
pulse=pulse;
while(pulse>0){
    clk_pulse; // put pulse count to 4040B
    pulse--;
}
seg_on;
}

```