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#include <p32xxxx.h>
#pragma config FPLLMUL = MUL_20, FPLLIDIV =DIV_2, FPLLODIV= DIV_1, FWDTEN=OFF
#pragma config POSCMOD = HS, FNOSC = PRIPLL, FPBDIV = DIV_8
#define MAX_DELAY 64000
void initPortB(void);
void print_led(char x);
void initPortD(void);
void initPortE(void);
void initPortF(void);
void initPortG(void);
void delay(int);
void enable_pulse(void);
int get_keycode(void);
int main(void)
{
    int key_code;
    initPortB();           // Initialize of PORTB
    initPortD();           // Initialize of PORTD
    initPortE();           // Initialize of PORTE
    initPortF();           // Initialize of PORTF
    initPortG();           // Initialize of PORTG
    PORTG =0x00;           // PORTG = 0X00, Decoder 2x4 Keypad Select
    PORTF =0x07;           // PORTF = 0x07, Decoder 3x8, Decoder 2x4 Select
    while(1)               // Running Zero Loop for Keypad Scanning
    {
        key_code=get_keycode();
        print_led(key_code);
    }
    return 1;
}

int get_keycode(void)
{
    int active_row[4]= {0b00001110,0b00001101,0b00001011,0b00000111};
    int keycode,row=3,column=0x0F;
    while(column==0x0F)
    {
        row=(row+1)%4;
        PORTE =active_row[row];
        delay(MAX_DELAY/4);
        column = PORTB & 0x0F;
    }
    return keycode=((active_row[row]<<4) |column);
}

void print_led(char x)
{
    PORTF=0x04;           // Decoder 3x8 LED Select
    PORTE=x;              // KeyCode value
    enable_pulse();
    PORTF =0x07;
}

void initPortB(void)           // Initialize of PORTB
{
    TRISB &= 0xFFFF7FFF; //bit 16 = 0
}

```

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AD1PCFG = 0xf;           //Select PORTB to be digital port input
CNCONbits.ON = 0;       //Change Notice Module On bit CN module is disabled
CNEN = 0x3C;           // Port Pin Input Change Enable
CNPUE = 0x3C;          //Set RB0 - RB3 as inputs with weak pull-up
CNCONbits.ON = 1;      //1 = CN module is enabled
}

void delay(int delay_value)
{
    unsigned int i;
    for(i=0;i<delay_value;i++);
}

void initPortD(void)      // Initialize of PORTD
{
    TRISD &= 0xFFFFF0CF; // portMap bits 4,5 = 0
}

void initPortE(void)     // Initialize of PORTE
{
    TRISE &= 0xFFFFF00; // bits 0-7 =0
    PORTE = 0x00;
}

void initPortF(void)     // Initialize of PORTF
{
    TRISF &= 0xFFFFFEF8; //bits 16,4 = 0
    PORTFbits.RF8 = 1;   // Decoder 3x8 Enable
}

void initPortG(void)     // Initialize of PORTG
{
    TRISG &= 0xFFFFF0FC; // portMap bits 4,5 = 0
    PORTG = 0x00;        // Decoder 2x4 Select KeyPad
}

void enable_pulse(void)
{
    _RD4 = 1; //enable=1
    _RD4 = 0; //enable=0
}
```