```
/*
 * File:   main1509.c
 * Author: valky
 *
 * Created on 2020/02/03
 */


#include <xc.h>

#pragma config FOSC = INTOSC    // Oscillator Selection (INTOSC oscillator: I/O function on CLKIN pin)
#pragma config WDTE = OFF       // Watchdog Timer Enable (WDT disabled)
#pragma config PWRTE = OFF      // Power-up Timer Enable (PWRT disabled)
#pragma config MCLRE = ON      // MCLR Pin Function Select (MCLR/VPP pin function is digital input)
#pragma config CP = OFF         // Flash Program Memory Code Protection (Program memory code protection is disabled)
#pragma config BOREN = ON       // Brown-out Reset Enable (Brown-out Reset enabled)
#pragma config CLKOUTEN = OFF   // Clock Out Enable (CLKOUT function is disabled. I/O or oscillator function on the CLKOUT pin)
#pragma config IESO = OFF       // Internal/External Switchover (Internal/External Switchover mode is disabled)
#pragma config FCMEN = OFF      // Fail-Safe Clock Monitor Enable (Fail-Safe Clock Monitor is disabled)
// CONFIG2
#pragma config WRT = OFF        // Flash Memory Self-Write Protection (Write protection off)
#pragma config STVREN = OFF     // Stack Overflow/Underflow Reset Enable (Stack Overflow or Underflow will not cause a Reset)
#pragma config BORV = LO        // Brown-out Reset Voltage Selection (Brown-out Reset Voltage (Vbor), low trip point selected.)
#pragma config LVP = OFF        // Low-Voltage Programming Enable (High-voltage on MCLR/VPP must be used for programming)

void dash();
void dot();
void morsea();
void morseb();
void morsec();
void morsed();
void morsee();
void morsef();
void morseg();
void morseh();
void morsei();
void morsej();
void morsek();
```

```
void morsel();
void morsem();
void morsen();
void morseo();
void morsep();
void morseq();
void morser();
void morses();
void morset();
void morseu();
void morsev();
void morsew();
void morsex();
void morsey();
void morsez();
void morse1();
void morse2();
void morse3();
void morse4();
void morse5();
void morse6();
void morse7();
void morse8();
void morse9();
void morse0();
void morseque();
void morsear();
void morsekn();
void morsesr();
void wait(int n);
void tone(int n);

void jh1zvp();
void kamakura();

//
// __delay_ms()用　クロック　１MHｚ
#define _XTAL_FREQ 1000000
```

```
int n,n3,n4;
int tau=500;
int tau2=1000;

void main() {

    // PIC 設定
    OSCCON = 0b01011010;  // 内部発信器   1MHz
    TRISA  = 0x3E; //0x3E
    TRISB  = 0x30; //0x30
    TRISC  = 0xFF; //0xFF
    ANSELA = 0x2; //0x2
    ANSELB = 0x0; //0x0
    ANSELC = 0x0; //0x0
    WPUA   = 0x3F; //0x3F
    WPUB   = 0xF0; //0xF0
    ADCON0 = 0b00000101;
    ADCON1 = 0b10000000;

   // 初期設定
    LATA = 0b00000000;
    LATB = 0b00000000;
    LATC = 0b00000000;

    GO = 1;
    while(GO);

    n  = ADRES/8;
    n3 = n+n+n;
    n4 = n3+n;
    tau  = 500;
    tau2 = tau + tau;

    //
```

```
if(RA4==0){
    morsea(n,n3);
    morseb(n,n3);
    morsec(n,n3);
    morsed(n,n3);
    morsee(n,n3);
    morsef(n,n3);
    morseg(n,n3);
    morseh(n,n3);
    morsei(n,n3);
    morsej(n,n3);
    morsek(n,n3);
    morsel(n,n3);
    morsem(n,n3);
    morsen(n,n3);
    morseo(n,n3);
    morsep(n,n3);
    morseq(n,n3);
    morser(n,n3);
    morses(n,n3);
    morset(n,n3);
    morseu(n,n3);
    morsev(n,n3);
    morsew(n,n3);
    morsex(n,n3);
    morsey(n,n3);
    morsez(n,n3);
}

if(RA5==0){
    morse1(n,n3);
    morse2(n,n3);
    morse3(n,n3);
```

```
    morse4(n,n3);
    morse5(n,n3);
    morse6(n,n3);
    morse7(n,n3);
    morse8(n,n3);
    morse9(n,n3);
    morse0(n,n3);
    morseque(n,n3);
    morsear(n,n3);
}

if(RC3==0){
    morsec(n,n3);
    morseq(n,n3);
    wait(n4);
    morsec(n,n3);
    morseq(n,n3);
    wait(n4);
    morsed(n,n3);
    morsee(n,n3);
    wait(n4);
    morsej(n,n3);
    jh1zvp(n,n3);
    morsesr(n,n3);
    morse3(n,n3);
    wait(n4);
    jh1zvp(n,n3);
    morsesr(n,n3);
    morse3(n,n3);
    wait(n4);
    morsek(n,n3);
}
```

```
if(RC4==0){
    morseu(n,n3);
    morser(n,n3);
    wait(n4);
    morse5(n,n3);
    morsen(n,n3);
    morsen(n,n3);
    wait(n4);
    morse7(n,n3);
    morse3(n,n3);
    wait(n4);
    morset(n,n3);
    morseu(n,n3);
}

 if(RC5==0){
    morseq(n,n3);
    morset(n,n3);
    morseh(n,n3);
    wait(n4);
    morseh(n,n3);
    morser(n,n3);
    wait(n4);
    morsei(n,n3);
    morses(n,n3);
    wait(n4);
    kamakura(n,n3);
    wait(n4);
    kamakura(n,n3);
}

if(RC6==0){
    morseo(n,n3);
```

```
    morsep(n,n3);
    wait(n4);
    morseh(n,n3);
    morser(n,n3);
    wait(n4);
    morsei(n,n3);
    morses(n,n3);
    wait(n4);
    morsem(n,n3);
    morsea(n,n3);
    morset(n,n3);
    morses(n,n3);
    morseu(n,n3);
    morsed(n,n3);
    morsea(n,n3);
    wait(n4);
    morsem(n,n3);
    morsea(n,n3);
    morset(n,n3);
    morses(n,n3);
    morseu(n,n3);
    morsed(n,n3);
    morsea(n,n3);
}

 if(RC7==0){
    morseh(n,n3);
    morsew(n,n3);
    morseque(n,n3);
    wait(n4);
    morsed(n,n3);
    morsee(n,n3);
    wait(n4);
```

```
        jh1zvp(n,n3);
        morsesr(n,n3);
        morse3(n,n3);
        wait(n4);
        morsekn(n,n3);
    }

    if((RB4==0)&&(RA2==0))
            dot(n,n3);
    if((RB4==0)&&(RA2==1))
            dash(n,n3);
    if((RB5==0)&&(RA2==0))
            dash(n,n3);
    if((RB5==0)&&(RA2==1))
            dot(n,n3);

}


void dash(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
}

void dot(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
}

void morsea(n,n3){
        tone(n);
```

```
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morseb(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsec(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
```

```
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsed(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsee(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}
```

```
void morsef(n,n3){
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n3);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n3);
}

void morseg(n,n3){
	tone(n3);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n3);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n3);
}
```

```
void morseh(n,n3){
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n3);
}

void morsei(n,n3){
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n3);
}

void morsej(n,n3){
	tone(n);
	LATA=0b00000000;
```

```
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsek(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsel(n,n3){
        tone(n);
        LATA=0b00000000;
```

```
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsem(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsen(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
```

```
        LATB=0b00000000;
        wait(n3);
}

void morseo(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsep(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
```

```
        LATB=0b00000000;
        wait(n3);
}

void morseq(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morser(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
```

```
        LATB=0b00000000;
        wait(n3);
}

void morses(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morset(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morseu(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
```

```
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsev(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
       tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsew(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
```

```
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsex(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsey(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
```

```
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsez(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morse1(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
```

```
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morse2(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
```

```
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morse3(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morse4(n,n3){
        tone(n);
```

```
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morse5(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
```

```
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morse6(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}
```

```
void morse7(n,n3){
	tone(n3);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n3);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n3);
}

void morse8(n,n3){
	tone(n3);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n3);
	LATA=0b00000000;
	LATB=0b00000000;
	wait(n);
	tone(n3);
	LATA=0b00000000;
```

```
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morse9(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}
```

```
void morse0(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morseque(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
```

```
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsear(n,n3){
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
```

```
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsekn(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void morsesr(n,n3){
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
```

```
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n3);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n);
        tone(n);
        LATA=0b00000000;
        LATB=0b00000000;
        wait(n3);
}

void wait(n){
    int i;
    for(i=0; i<n; i++){
      __delay_us(1000);
    }
}

void tone(n){
    int i;
    for(i=0; i<n; i++){
    LATA = 0b00000001;
    LATB = 0b11000000;
        __delay_us(500);
    LATA = 0b00000000;
    LATB = 0b11000000;
```

```
        __delay_us(500);
    }
}

void jh1zvp(n,n3){
    morsej(n,n3);
    morseh(n,n3);
    morse1(n,n3);
    morsez(n,n3);
    morsev(n,n3);
    morsep(n,n3);
}

void kamakura(n,n3){
    morsek(n,n3);
    morsea(n,n3);
    morsem(n,n3);
    morsea(n,n3);
    morsek(n,n3);
    morseu(n,n3);
    morser(n,n3);
    morsea(n,n3);
}
```