```
;---------------------------------------------------------------------
; IR_REMOTE CONTROL_RECEIVER
;
; Microchip PIC12F629
; Version 1.00 2004.DEC.18
; YS Design Studio
;revised by T.Inoue 2012.11.13/sw3 LED3 on = 0x10/clr LED4 on =0x20
;---------------------------------------------------------------------


                list      p=12f629
                #include  <p12f629.inc>


                __CONFIG  _CP_OFF  &  _CPD_OFF  &  _WDT_OFF  &  _BODEN_OFF  &
_PWRTE_OFF & _INTRC_OSC_NOCLKOUT & _MCLRE_OFF


;---------------------------------------------------------------------
; Define
;---------------------------------------------------------------------
bit             EQU    0x20              ;
rec_code EQU    0x21              ;
rec_data EQU    0x22              ;


WAIT1           EQU    0x30              ;
WAIT2           EQU    0x31              ;
WAIT3           EQU    0x32              ;
T_OUT           EQU    0x35

#define         IO_PORT                  0X09    ; GPIO5-0 {HSB} 01001 [LSB] 0=OUT / 1=IN


;---------------------------------------------------------------------
; Power On vector
;---------------------------------------------------------------------


        ORG             0x00
        goto    main


;----------------------------------------
; Main
```

```
;------------------------------------------
;--------------------------
; Initialize PIC Microchip
;--------------------------
main

        clrf    GPIO                    ; Clear GPIO Port
        movlw   b'00000111'
        movwf   CMCON           ; CMCON = CM0/CM1/CM2 ON (COMPARATOR OFF)


        bsf             STATUS,RP0      ;


        movlw   IO_PORT
        movwf   TRISIO          ; Port I/O Set


        MOVLW           00110110b
        MOVWF           WPU


        MOVLW           11010111b
        MOVWF           OPTION_REG


        call    0x3FF           ; OSCCAL
        movwf   OSCCAL                  ;


        bcf     STATUS,RP0              ;


        movlw   0x00
        movwf   GPIO


        call    WAIT100MS

;---------------------------------
; Main Loop
;---------------------------------
main_loop
        btfsc   GPIO,0
        goto    main_loop
```

```
REC
                call    READER

                call    BYTE_REC            ;CHECK CODE1

                movlw   0x33
                subwf   rec_code,W
                btfss   STATUS,Z
                goto    main_loop

                call    BYTE_REC            ;CHECK CODE2

                movlw   0xCC
                subwf   rec_code,W
                btfss   STATUS,Z
                goto    main_loop

                call    BYTE_REC            ;DATA REC
                movf    rec_code,W
                movwf   rec_data

                call    BYTE_REC            ;REV DATA REC
                comf    rec_code,W
                subwf   rec_data,W
                btfss   STATUS,Z
                goto    main_loop       ;

;-------------
;switch check
;-------------

                movlw   0x03                ; 03h
                subwf   rec_data,W
                btfsc   STATUS,Z
                goto    sw3

                movlw   0x04                ; 04h
                subwf   rec_data,W
```

```
            btfsc   STATUS,Z
            goto    clr


;-------------------
; ACTION
;-------------------


sw3
            movlw   0x10
            movwf   GPIO            ;LED3 ON,GPIO4=1
            call    WAIT100MS
            goto    main_loop


clr
            movlw   0x20            ;LED4 ON,GPIO5=1
            movwf   GPIO
            call    WAIT100MS
            goto    main_loop


;-----------------------------------------
; Sub Routine
;-----------------------------------------
;-------------------
; READER CHECK
;-------------------
READER
;-------------------
; 9.0mS CHECK
;-------------------
            movlw   0X09            ;0X09=8.728ms
            movwf   WAIT2           ;

            movlw   0XC1            ;0XC1
            movwf   WAIT1           ;
wait9ms_loop
            btfsc   GPIO,0
            return                  ;9mS LOW NG
            decfsz  WAIT1,F         ;
```

```
                    goto    wait9ms_loop

                    movlw   0XC1            ;0XC1
                    movwf   WAIT1           ;
                    decfsz  WAIT2,F         ;
                    goto    wait9ms_loop    ;
;-------------------
; 9mS TO 4.5mS CHANGE
;-------------------
                    movlw   0X64            ;0X64
                    movwf   WAIT1           ;
change_loop
                    btfsc   GPIO,0
                    goto    WAIT4MS                    ;TR DETECT
                    decfsz  WAIT1,F         ;
                    goto    change_loop
                    return


;-------------------
; 4.5mS CHECK
;-------------------
WAIT4MS
                    movlw   0X04            ;0X04   4.253mS
                    movwf   WAIT2           ;

                    movlw   0XD3            ;0XD3
                    movwf   WAIT1           ;
wait4ms_loop
                    btfss   GPIO,0          ;btfss
                    return
                    decfsz  WAIT1,F         ;
                    goto    wait4ms_loop

                    movlw   0XD3            ;0XD3
                    movwf   WAIT1           ;
                    decfsz  WAIT2,F         ;
                    goto    wait4ms_loop    ;
```

```
;--------------------
; 4.5mS END CHECK
;--------------------
                movlw   0X64            ;0X64 500uS
                movwf   WAIT1           ;
end_loop
                btfss   GPIO,0
                return                  ;READER END
                decfsz  WAIT1,F         ;
                goto    end_loop
                return
;--------------------
; BYTE_REC
;--------------------
BYTE_REC
                movlw  8
                movwf  bit
                clrf   rec_code

byte_loop
                movlw   0XF0            ;
                movwf   T_OUT           ;
t_out_loop
                btfsc   GPIO,0          ;TR DETECT LOOP
                goto    tr_detect

                decfsz  T_OUT,F
                goto    t_out_loop
                return
tr_detect
                call    WAIT1MS         ;TR DETECT
                btfsc   GPIO,0          ;bit
                goto    bit1
                bcf     STATUS,C        ;bit 0
                rlf     rec_code,F
                goto    next_bit
bit1
                bsf     STATUS,C        ;bit 1
```

```
                rlf         rec_code,F


                movlw       0XF0            ;
                movwf       T_OUT           ;
t_out_loop1
                btfss       GPIO,0          ;TF
                goto        next_bit

                decfsz      T_OUT,F
                goto        t_out_loop1
                return

next_bit
                decfsz      bit,F           ; bit shift
                goto        byte_loop
                return

;-------------------
; WAIT1MS
;-------------------
WAIT1MS
                movlw       0X64            ;0X64
                movwf       WAIT1           ;
wait1ms_loop
                goto        $+1
                goto        $+1
                goto        $+1
                nop
                decfsz      WAIT1,F         ;
                goto        wait1ms_loop
                return
;-------------------
; WAIT100MS
;-------------------
WAIT100MS
                movlw       0X64            ;0XFF
                movwf       WAIT2           ;
```

```
wait_loop
            call    WAIT1MS
            decfsz  WAIT2,F         ;
            goto    wait_loop
            return

            END
```