```
;*****************************************
;**** Program title:  2 interrupt RB0 and TMR0
;*****************************************

        PROCESSOR PIC16F627A
        #include <P16F627A.INC>
        __CONFIG    _CP_OFF & _MCLRE_ON & _INTRC_OSC_NOCLKOUT & _LVP_OFF &
        _WDT_OFF

;***** Variable Declaration (general purpose registers)

bank0   macro
            bcf STATUS,RP0
            bcf STATUS,RP1
        endm
bank1   macro
            bsf STATUS,RP0
            bcf STATUS,RP1
        endm

PUSH    macro
            movwf   W_TEMP
            swapf   W_TEMP,f
            bank1
            swapf   OPTION_REG,w
            movwf   OPTION_TEMP
            bank0
            swapf   STATUS,w
            movwf   STATUS_TEMP
        endm

POP     macro
            swapf   STATUS_TEMP,w
            movwf   STATUS
            bank1
            swapf   OPTION_TEMP,w
            movwf   OPTION_REG
            bank0
            swapf   W_TEMP,w
        endm

        cblock  0x20
            STATUS_TEMP     ; temporary variables
            W_TEMP
            OPTION_TEMP
            temp
            temp1
            count
            count0
            count1
            count2
        endc

        ORG     0x00        ; Reset Vector
        goto    Mymain      ; vector to main program


        ORG     0x04        ; Interrupt Vector
        goto    ISR         ; vector to interrupt service routine

Mymain
        call    Init
Here
        movf    TMR0,w
        goto    Here


;***** Timer0 and RB0/INT Interrupt Service Routine ****************
```

```
68  ISR
69          ;*** context saving ******
70          PUSH
71
72          btfsc   INTCON,INTF
73          goto    RB0INT_ISR
74
75          btfsc   INTCON,T0IF
76          goto    TMR0_ISR
77
78          goto    ISR_EXIT
79
80  RB0INT_ISR
81          ;*** RB0/INT ISR begins here ***
82          bcf     INTCON,INTF
83          btfss   PORTB,1
84          goto    LED1_ON
85  LED1_OFF
86          bcf     PORTB,1
87          goto    DONE1
88  LED1_ON
89          bsf     PORTB,1
90  DONE1
91          goto    ISR_EXIT
92
93
94  TMR0_ISR
95          ;*** TMR0 ISR begins here ****
96          bcf     INTCON,T0IF
97          bcf     INTCON,GIE      ; disable global interrupt
98          incf    count,f     ; increment system tick every 65.536 ms
99
100
101         movlw   .15
102         subwf   count,w     ; check sys_tick = 15? (15x65.536ms = 1S)
103         btfss   STATUS,Z
104         goto    ISR_EXIT
105         ;comf   PORTB,f
106         btfss   PORTB,7
107         goto    LED_ON
108 LED_OFF
109         bcf     PORTB,7
110         goto    DONE
111 LED_ON
112         bsf     PORTB,7
113 DONE
114
115         clrw
116         movwf   count
117
118 ISR_EXIT
119         bsf     INTCON,GIE      ; re-enable global interrupt
120
121         ;*** context retrieving****
122         POP
123
124         retfie
125
126 ;***** Initialization subroutine ************************
127
128 Init    movlw   .7
129         banksel CMCON
130         movwf   CMCON       ; Disable analog comparator
131         banksel TRISB
132         movlw   B'00000001'
133         movwf   TRISB       ; PORTB are all output except RB0
134         banksel PORTB
135         ;******************** clear all related registers ********
```

```
136           clrf    PORTB
137           clrf    PORTA
138           movlw   0x20        ; the beginning of the general purpose register
              files
139           movwf   FSR
140           clrf    INDF
141           incf    FSR,f
142           movlw   0x80
143           subwf   FSR,w
144           btfss   STATUS,Z    ; are we at the end of bank0 RAM yet?
145           goto    $-5
146
147           ;****************** Timer 0 Initialization *************
148           movlw   b'10000111' ; no RBPU, internal clock, PSA to timer0,
              1:256, RB0INT falling edge
149           bank1
150           movwf   OPTION_REG  ; OPTION_REG is in the BANK1 *****
151           bank0
152           bcf     INTCON,T0IF
153           bsf     INTCON,T0IE ; enable Timer0 interrupt
154
155           bcf     INTCON,INTF
156           bsf     INTCON,INTE ; enable RB0/INT interrupt
157
158           bsf     INTCON,GIE  ; enable global interrupt
159           clrf    TMR0
160           return
161   ;******* Initialization subroutine **********************
162
163
164           END
```