Watch Dog Timer Programming Guide

1. Register Explain

CRF5 Bit3: Select WDT Count Mode
   =0  second
   =1  minute
   Bit7: 4 reserved
   Bit2: 1 reserved

CRF6 (Default 0x00)
Watch Dog Timer Time-out value. Writing a non-zero value to this register causes the counter to load the value to Watch Dog Counter and start counting down. If the Bit 7 and Bit 6 are set, any Mouse Interrupt or Keyboard Interrupt event will also cause the reload of previously-loaded non-zero value to Watch Dog Counter and start counting down. Reading this register returns current value in Watch Dog Counter instead of Watch Dog Timer Time-out value.
   Bit 7 – 0
   = 0x00 Time-out Disable
   = 0x01 Time-out occurs after 1 second/minute
   = 0x02 Time-out occurs after 2 second/minutes
   = 0x03 Time-out occurs after 3 second/minutes
   ................................................
   = 0xFF Time-out occurs after 255 second/minutes

CRF7 (Default 0x00)
   Bit 7 : Mouse interrupt reset Enable or Disable
   = 1 Watch Dog Timer is reset upon a Mouse interrupt
   = 0 Watch Dog Timer is not affected by Mouse interrupt
   Bit 6 : Keyboard interrupt reset Enable or Disable
   = 1 Watch Dog Timer is reset upon a Keyboard interrupt
   = 0 Watch Dog Timer is not affected by Keyboard interrupt
   Bit5:0 reserved
2. Basic Process to Enter/Exit Watch Dog Timer Configuration Mode

2.1. Enter Watch Dog Timer Configuration Mode
; Write 87h to the location 4E twice.
mov dx, 4Eh
mov al, 087h
out dx, al
nop
nop
out dx, al
; Set Logical Device 8
mov dx, 4Eh
mov al, 07h    ;;Logical Device selector
out dx, al
mov dx, 4Fh
mov al, 08h    ;;Logical device 8
out dx, al

2.2. Exit Watch Dog Timer Configuration Mode
mov dx, 4Eh
mov al, 0AAh
out dx, al

3. Register Setting Example
Please follow the example procedure: Step 2.1 → Step 3.1 → Step 3.2 → Step 3.5 → Step 2.2

3.1. Set Watch Dog Timer Counter Mode by Second
mov dx, 4Eh
mov al, 0F5h    ;select CRF5
out dx, al
mov dx, 4Fh
in al, dx       ;get original value
and al, 0F4h    ;bit 3 = 0, WDT count mode = second.
                ;Note: Must keep other bits value.
out dx, al

3.2. Set Watch Dog Timer Counter Mode by Minute
mov dx, 4Eh
mov al, 0F5h    ;select CRF5
out dx, al
mov dx, 4Fh
in al, dx       ;get original value
or al, 08h      ;bit 3 = 1, WDT count mode = minute.
                ;Note: Must keep other bits value.
out dx, al
3.3. PS/2 Mouse Interrupt Reset Watch Dog Timer
mov dx, 4Eh  
mov al, 0F7h  ;select CRF7  
out dx, al  
mov dx,4Fh  
in al, dx  
or al,80h  ;Watch Dog Timer reset by mouse interrupt  
out dx,al

3.4. PS/2 Keyboard Interrupt Reset Watch Dog Timer
mov dx, 4Eh  
mov al, 0F7h  ;select CRF7  
out dx, al  
mov dx,4Fh  
in al, dx  
or al,40h  ;Watch Dog Timer reset by keyboard interrupt  
out dx,al

3.5. Set Watch Dog Timer Counter Value
mov dx, 4Eh  
mov al, 0F6h  ;select CRF6  
out dx, al  
mov dx,4Fh  
mov al,xxh  ;;set Time-out value here, xx=1~0FFh for Set Watch  
Dog Timer counter value  
out dx,al

3.6. Update Watch Dog Timer Counter Value
Repeat step 3.3 to re-setting Watch Dog Timer counter value for update the  
counter value.

3.7. Disable Watch Dog Timer
Repeat step 3.3 to re-setting Watch Dog Timer counter value for update the  
counter value.  
mov dx, 4Eh  
mov al, 0F6h  ;select CRF6  
out dx, al  
mov dx,4Fh  
mov al, 00h  ; set 0 to disable Watch Dog function.  
out dx,al