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       ;bit3=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         ;bit3=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
```