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7542Group

Timer X Operation (Timer Mode)

1. Abstract

The following article introduces and shows an application example of timer mode of timer X.

2. Introduction

The explanation of this issue is applied to the following condition:

Applicable MCU: 7542 Group



3. Timer Mode Setting Method

Figure 1 shows the setting method for timer mode of timer X.

Process 1: Disable timer X interrupt.
Interrupt control register 2 (ICON2) [Address: 3F16]
Timer X interrupt disabled
Process 2: Set timer X mode register.
b7 b0 Timer X mode register (TXM) [Address: 2B16]
Timer X count stop
Process 3: Set timer count source set register.
^{b7} ^{b0} Timer count source set register (TCSS) [Address: 2A16]
Timer X count source selection bits
b1b0
0 0:f(XIN)/16
0 1:f(XIN)/2
1 0:f(XIN) (Note)
1 1: Not available
Note: f(XIN) can be used only when a ceramic resonator or an on-chip oscillator is used.
Process 4: Set the count value to timer X.
• Set the count value to prescaler X and timer X.
Prescaler X (PREX) [Address: 2C16]
Count value
Timer X (TX) [Address: 2D16]
Count value
Process 5: In order not to execute the no requested interrupt processing,
set "0" (no requested) to the timer X interrupt request bit.
Interrupt request register 2 (IREQ2) [Address: 3D16]
No timer X interrupt request issued
Process 6: When timer X interrupt is used, set "1" (interrupt enabled) to the interrupt enable bit.
Interrupt control register 2 (ICON2) [Address: 3F16]
Timer X interrupt enable
Process 7: Start counting timer X.
b7 b0
Timer X mode register (TXM) [Address: 2B16]
Timer X count start

Figure 1 Setting method for timer mode



4. Application Example of Timer Mode

Outline: The input clock is divided by the timer so that the clock is counted up every 250 ms intervals.

Specifications: •The $f(XIN) = 4.19 \text{ MHz} (2^{22} \text{ Hz})$ is divided by timer X.

- •The clock is counted up in the timer X interrupt processing routine (timer X interrupt occurs every 250 ms).
- Operation clock: f(XIN) = 4.19 MHz, high-speed mode

4.1 Connection of Timer and Setting of Division Ratio

Figure 2 shows the connection of timer and setting of division ratio.

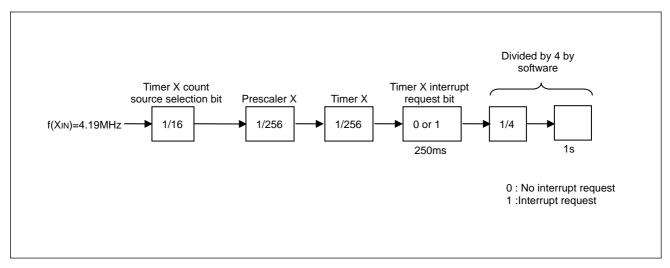


Figure 2 Connection of timer and setting of division ratio

4.2 Example of Control Procedure

Figure 3 shows an example of control procedure.



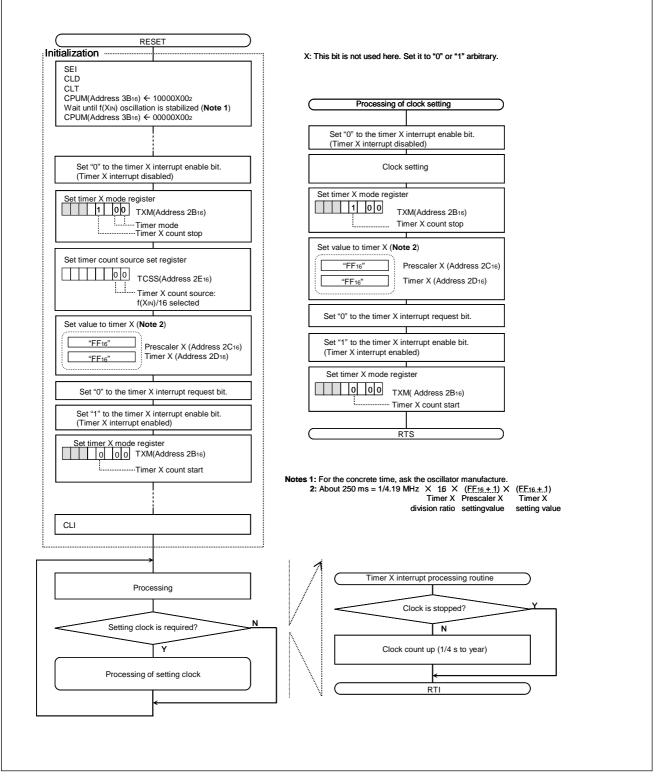


Figure3 Example of control procedure



5. Reference

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Data Sheet 7542 Group Data sheet (Use the latest version on the home page: http://www.renesas.com)



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