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April 1st, 2010
Renesas Electronics Corporation

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7542Group

Timer X Operation (Event Counter Mode)

1. Abstract

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

2. Introduction

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

Applicable MCU: 7542 Group

3. Event Counter Mode Setting Method

Figure 1 and Figure 2 shows the setting method for event counter mode of timer X.

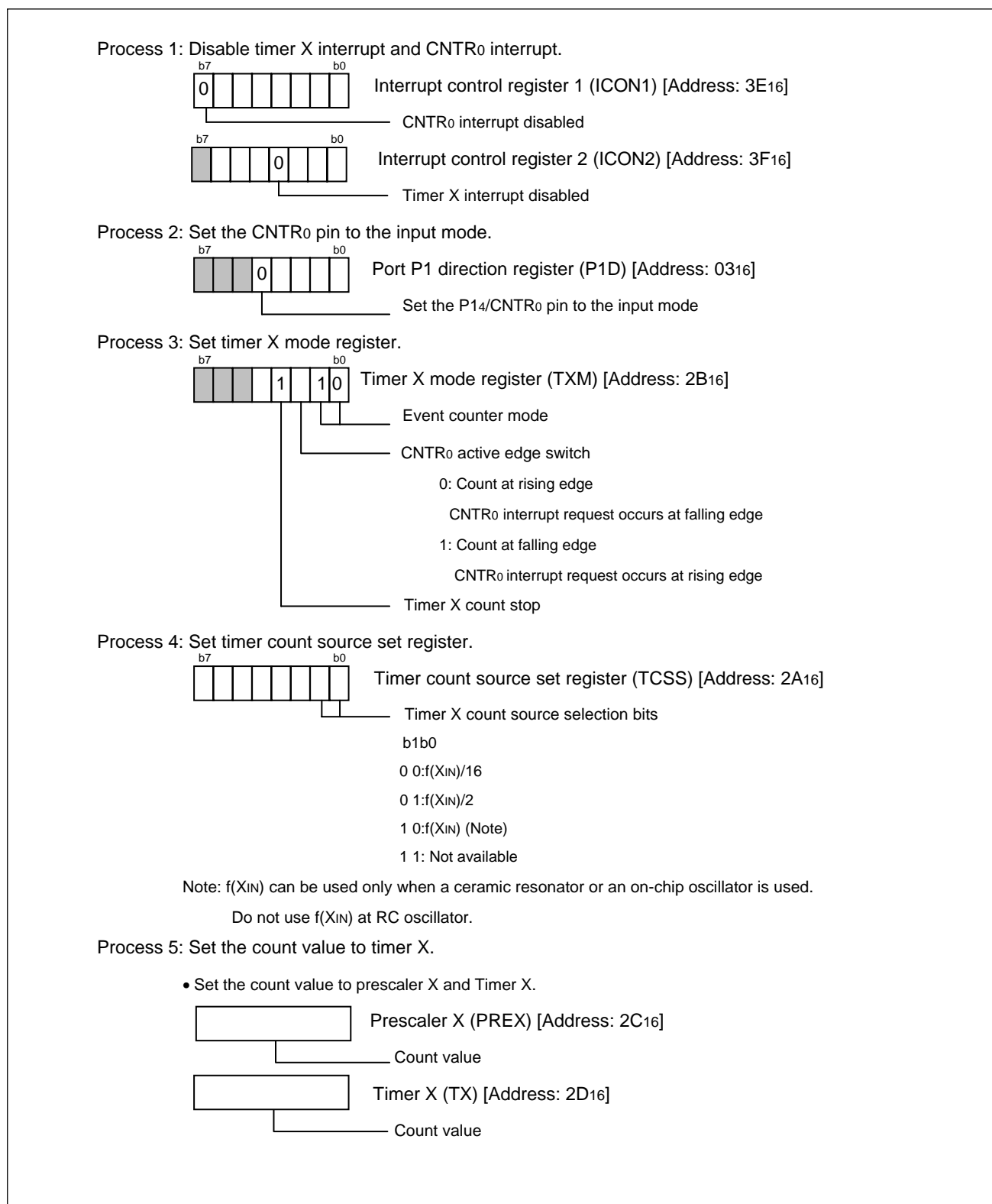
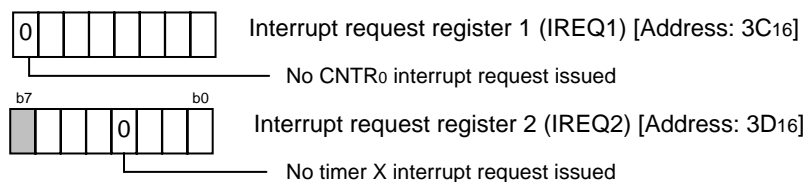


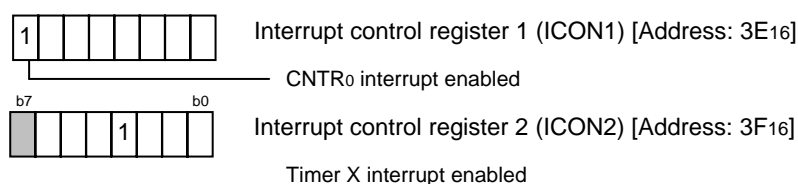
Figure 1 Setting method for event counter mode (1)

Process 6: In order not to execute the no requested interrupt processing,

set "0" (no requested) to the timer X interrupt request bit and CNTR0 interrupt request bit.



Process 7: When the interrupt is used, set "1" (interrupt enabled) to the interrupt enable bit.



Process 8: Start counting timer X.

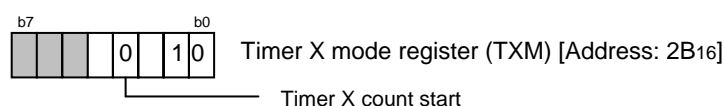


Figure 2 Setting method for event counter mode (2)

4. Application Example of Event Counter Mode

Outline: Pulses generated corresponding to the water flow rate are counted for a fixed period (100 ms), and the water flow rate during this period is calculated.

Specifications: Pulses generated corresponding to the water flow rate are input to the P14/CNTR0 pin and counted using timer X.

The contents of timer X are read in the timer A interrupt processing routine generated after 100 ms from the start of counting pulses, and the water flow rate during 100 ms is calculated.

Operation clock: $f(XIN) = 8 \text{ MHz}$, high-speed mode

4.1 Example of Peripheral Circuit

Figure 3 shows an example of a peripheral circuit.

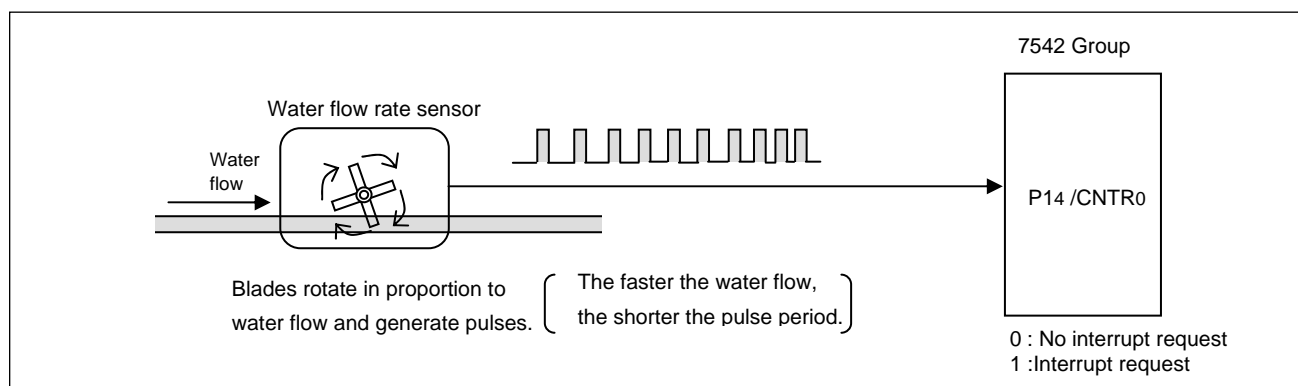


Figure 3 Example of peripheral circuit

4.2 Method of Measuring Water Flow Rate

Figure 4 shows the method of measuring water flow rate.

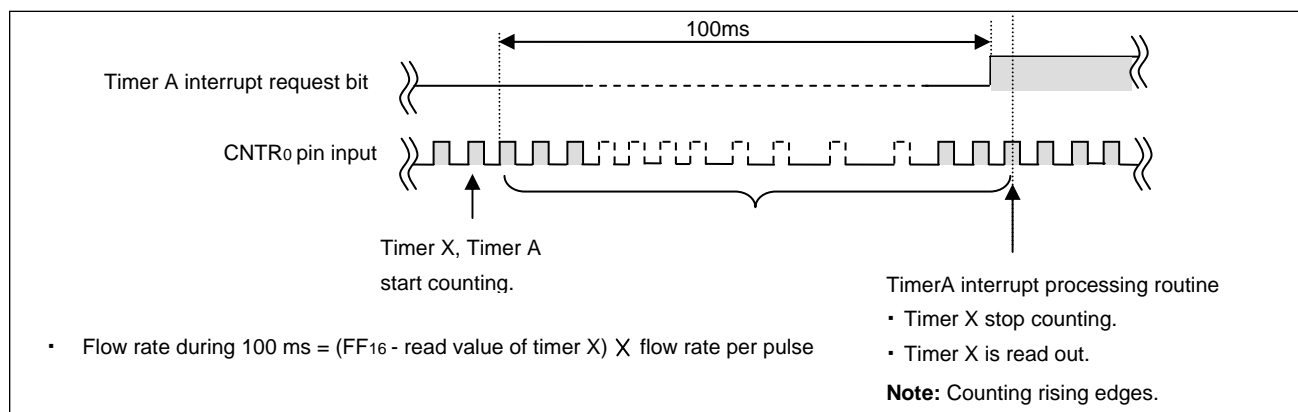


Figure 4 Method of measuring water flow rate

4.3 Example of Control Procedure

Figure 5 shows an example of control procedure.

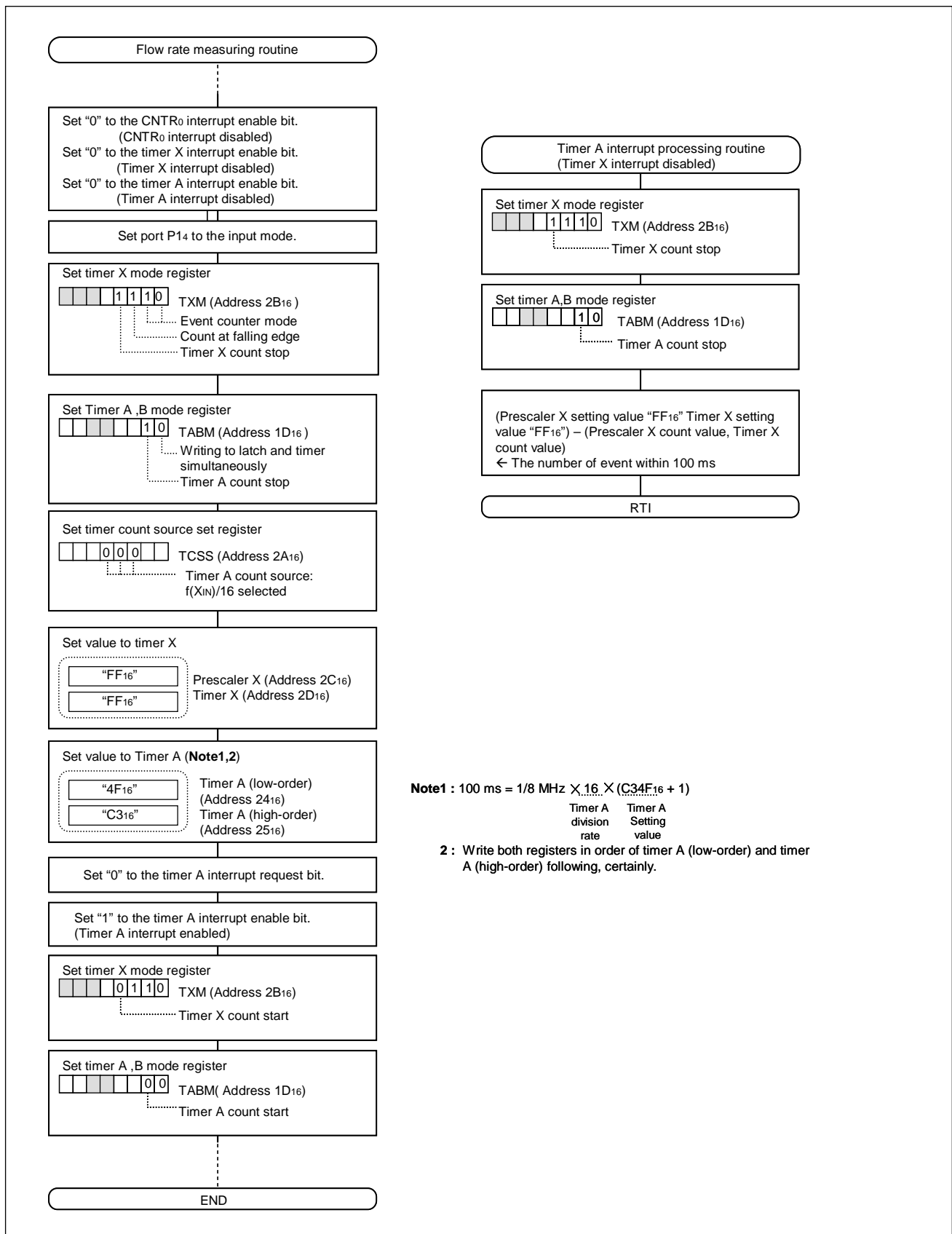


Figure 5 Example of control procedure

5. Reference

Renesas Technology Corporation Semiconductor Home Page
<http://www.renesas.com>

E-mail Support
E-mail: support_apl@renesas.com

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

Revision Record

Rev.	Date	Description	
		Page	Summary
1.00	Jun.05.03	—	First edition issued
2.00	Jul.01.04	All pages	Words standardized

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