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April 1st, 2010
Renesas Electronics Corporation

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7542Group

Timer X Operation (Pulse Output Mode)

1. Abstract

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

2. Introduction

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

Applicable MCU: 7542 Group

3. Pulse Output Mode Setting Method

Figure 1 and Figure 2 shows the setting method for pulse output mode of timer X.

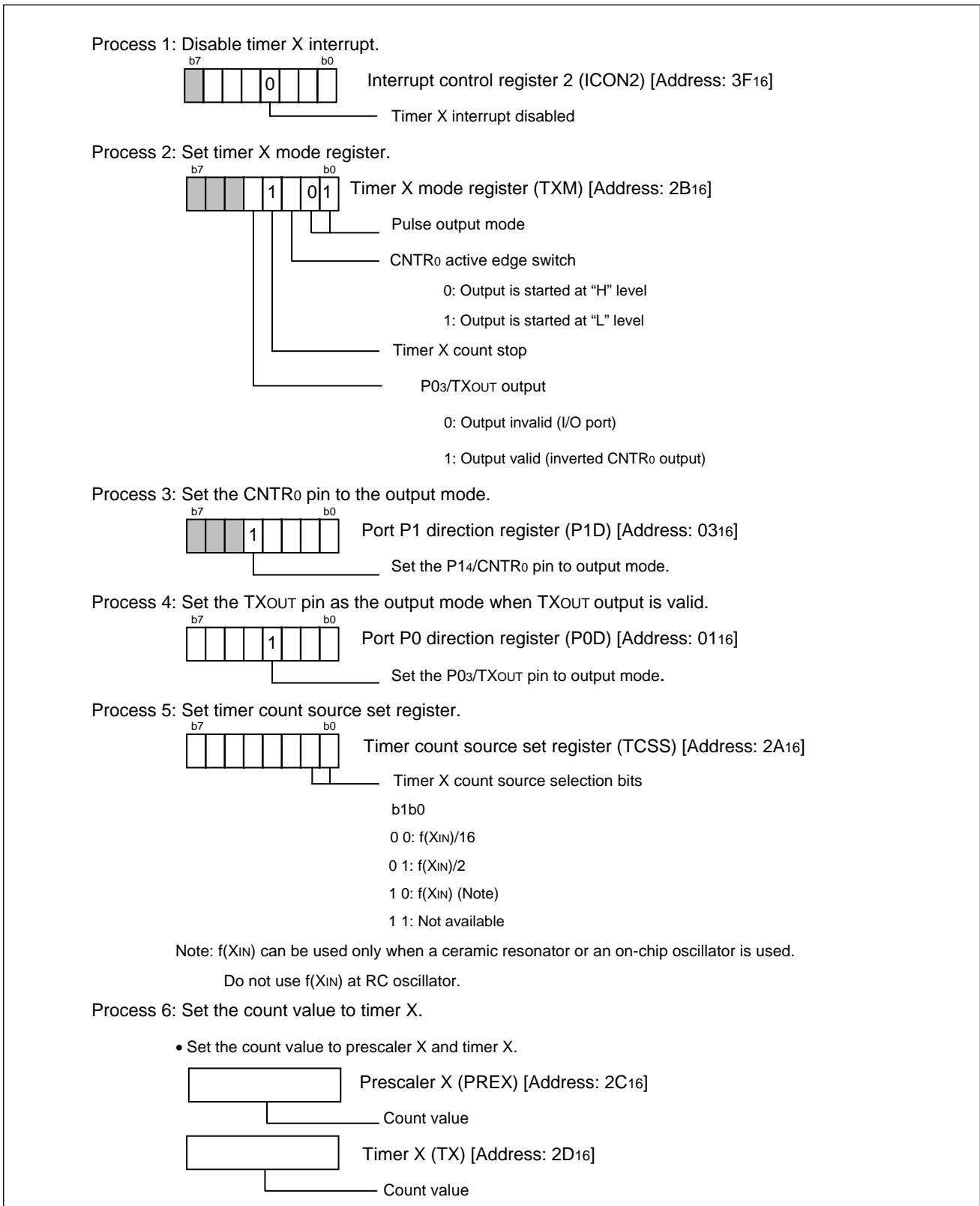
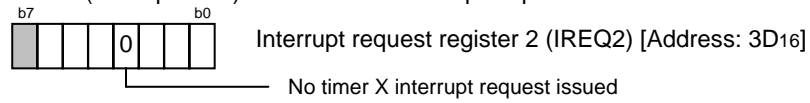


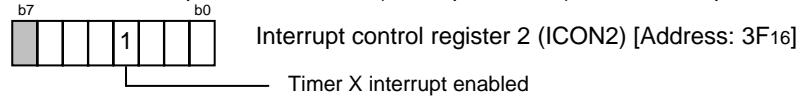
Figure 1 Setting method for pulse output mode (1)

Process 7: In order not to execute the no requested interrupt processing,

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



Process 8: When the interrupt is used, set "1" (interrupt enabled) to the interrupt enable bit.



Process 9: Start counting timer X.

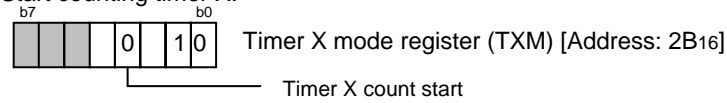


Figure 2 Setting method for pulse output mode (2)

4. Application Example of Pulse Output Mode

Outline: The pulse output mode of timer X is used for a piezoelectric buzzer output.

Specifications: The rectangular waveform which is clock $f(XIN) = 4\text{ MHz}$ divided up to 4 kHz is output from the P14/CNTR0 pin.

The level of the P14/CNTR0 pin is fixed to “H” while a piezoelectric buzzer output is stopped.

Operation clock: $f(XIN) = 4\text{ MHz}$, double-speed mode

4.1 Example of Peripheral Circuit

Figure 3 shows an example of a peripheral circuit.

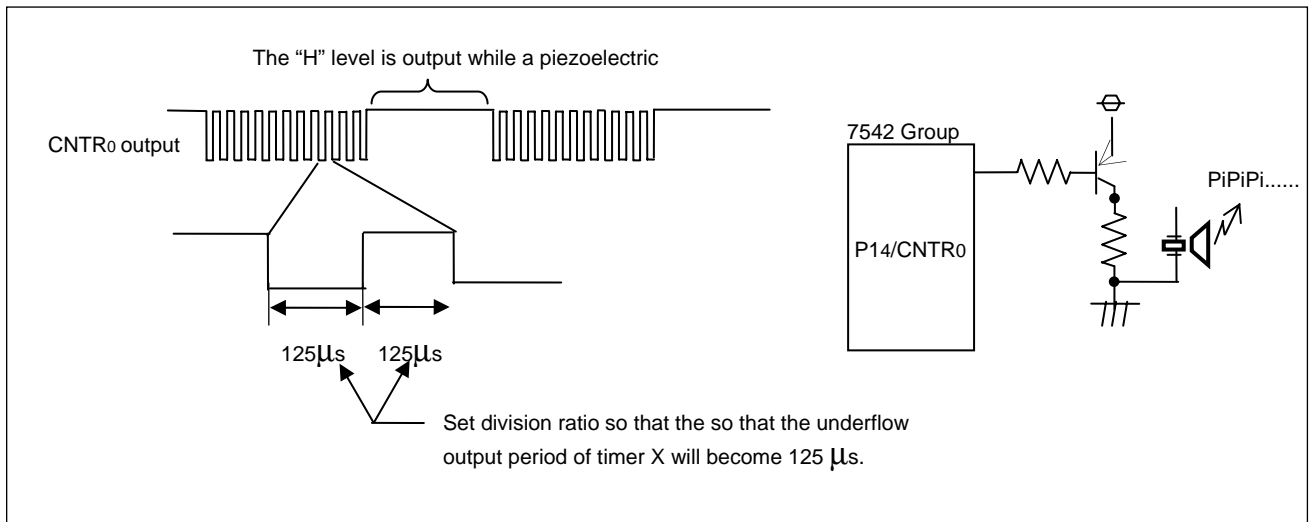


Figure 3 Example of peripheral circuit

4.2 Connection of Timer and Setting of Division Ratio

Figure 4 shows the connection of timer and setting of the division ratio.

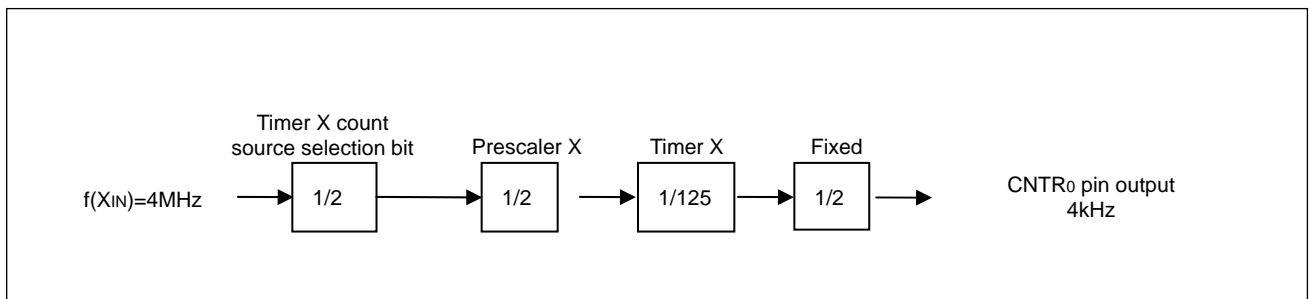
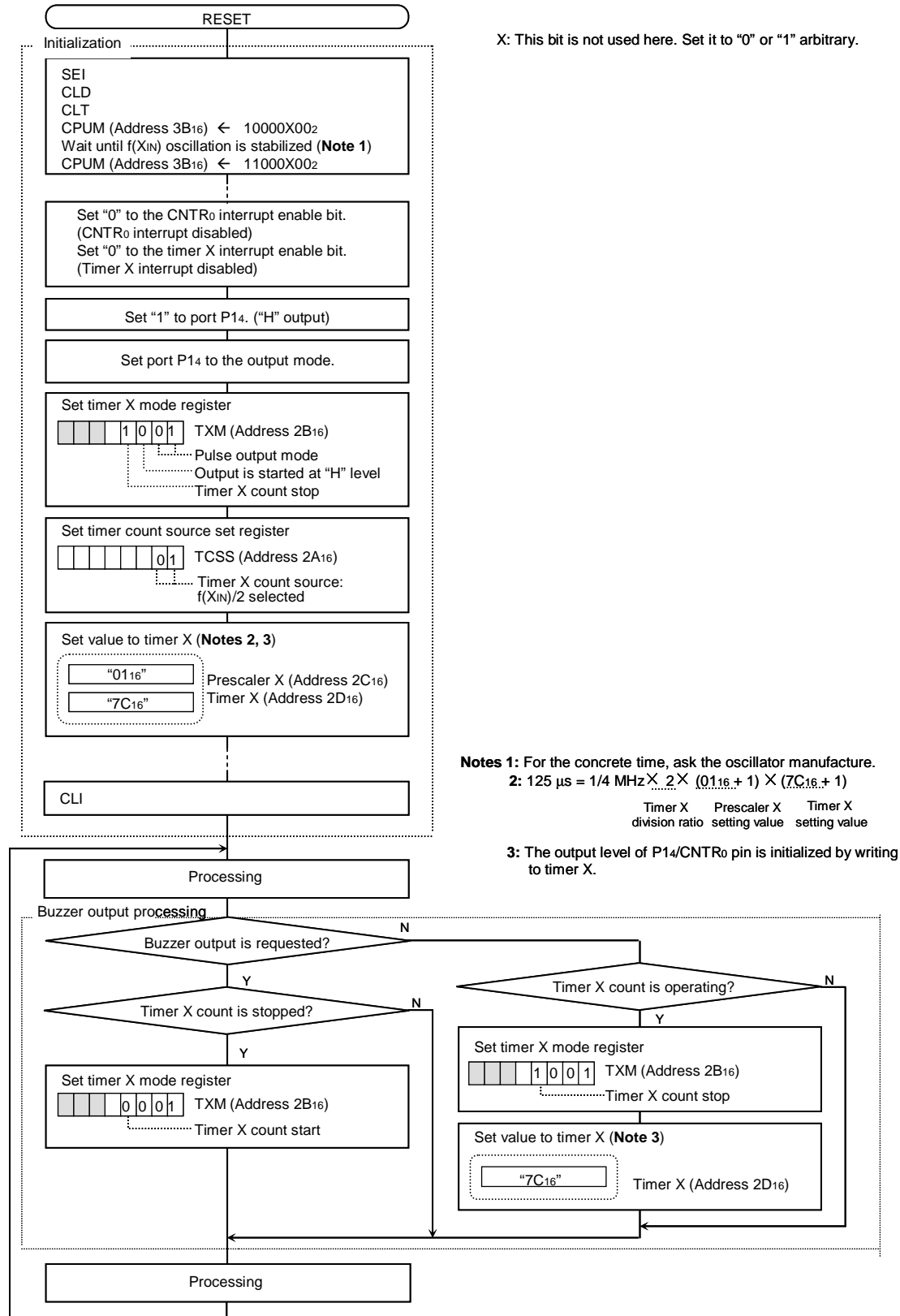


Figure 4 Connection of timer and setting of division ratio

4.3 Example of Control Procedure

Figure 5 shows an example of control procedure.



X: This bit is not used here. Set it to "0" or "1" arbitrary.

Notes 1: For the concrete time, ask the oscillator manufacture.

2: $125 \mu s = 1/4 \text{ MHz} \times 2 \times (01_{16} + 1) \times (7C_{16} + 1)$

Timer X division ratio Prescaler X setting value Timer X setting value

3: The output level of P14/CNTR₀ pin is initialized by writing to timer X.

Figure5 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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