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April 1st, 2010
Renesas Electronics Corporation

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38D2 Group

Timer X Operation (Pulse Width Measurement Mode)

1. Abstract

The following article introduces and shows an example of Timer X Operation (Pulse Width Measurement Mode) on the 38D2 Group device.

2. Introduction

The application explained in this document applies to the following MCU and parameter(s):

Applicable MCU: 38D2 Group

Oscillation frequency: 8 MHz

This sample program may include operations of unused bit functions for the convenience of the SFR bit layout. Set the values according to the operational conditions of the user system.

3. Contents

3.1 Pulse Width Measurement

Outline: Timer X counts the “H” width of the pulses input to the P37/CNTR0 pin in the pulse width measurement mode.

Specifications:

- Timer X counts the “H” width of the pulses input to the P37/CNTR0 pin. The initial value of timer X is 65535.
- Measurable values of timer X range from 65535 to 0.
- Error processing is executed when timer X underflows and “H” width cannot be measured.
- The end of the input pulse “H” is detected by the CNTR0 interrupt.

Figure 3.1 shows the Connection Diagram and Division Ratio of Timer, Figure 3.2 shows the Relevant Register Settings, and Figure 3.3 shows the Control Procedure.

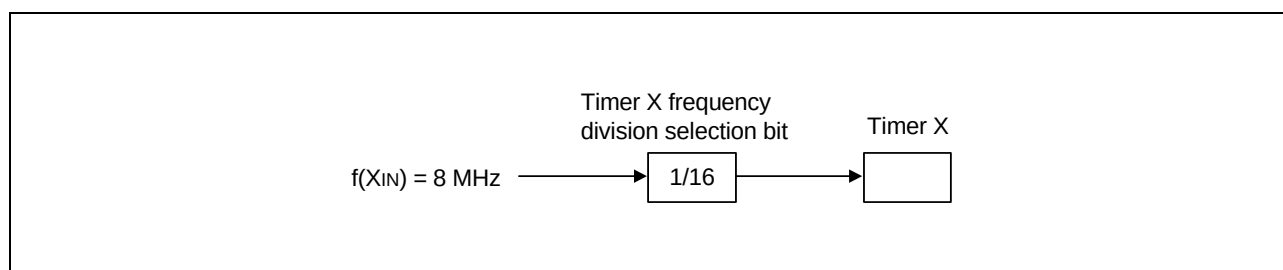


Figure 3.1 Connection Diagram and Division Ratio of Timer

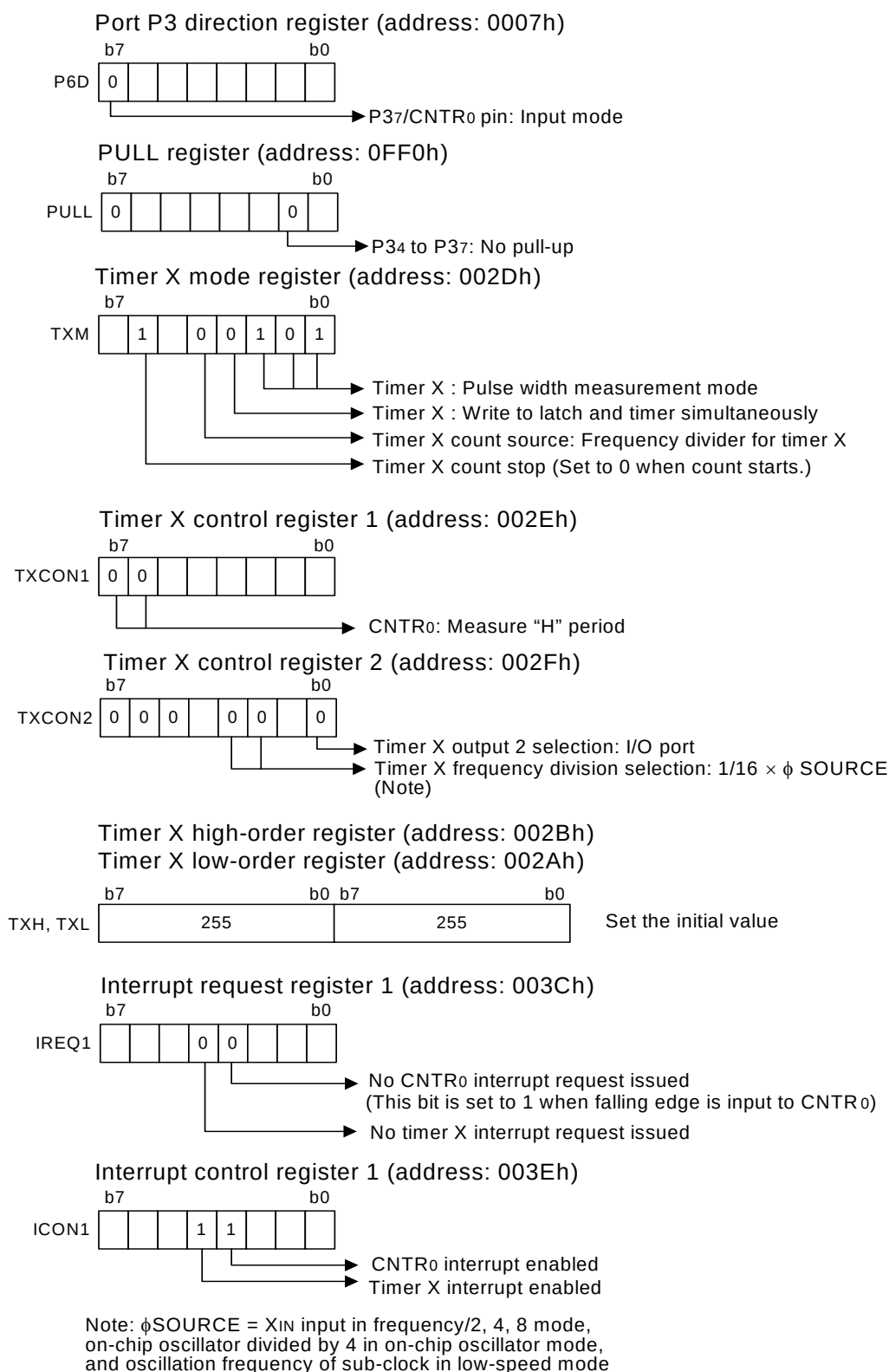


Figure 3.2 Relevant Register Settings

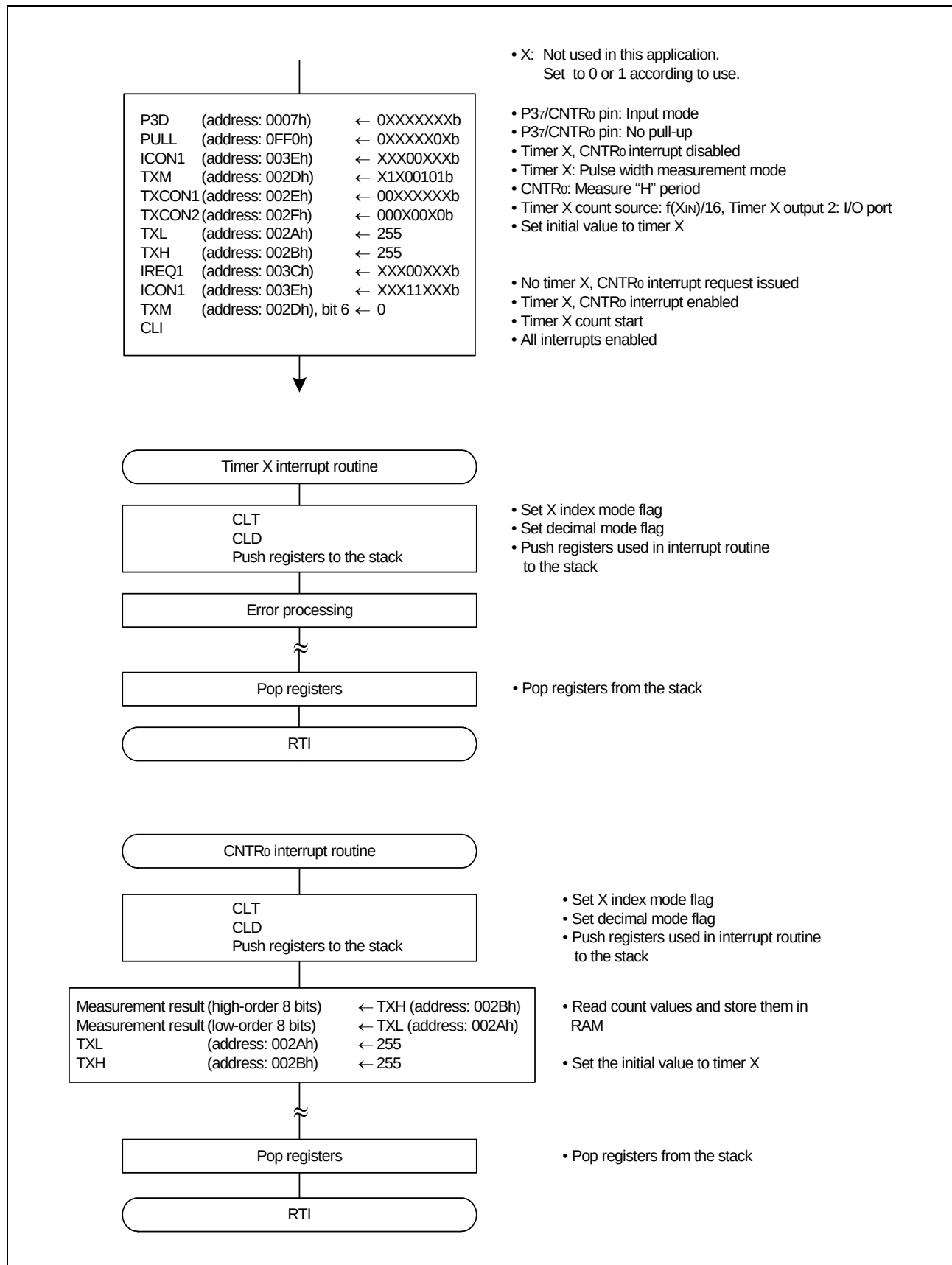


Figure 3.3 Control Procedure

4. Sample Programming Code

Download a sample program from the Renesas Technology website.

To download, click "Application Notes" in the left side menu on the page of the 38D2 Group.

5. Reference Document

Datasheet

38D2 Group Datasheet

Download the latest version from the Renesas Technology website.

Technical News/Technical Update

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REVISION HISTORY	38D2 Group Timer X Operation (Pulse Width Measurement Mode)
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Rev.	Date	Description	
		Page	Summary
1.00	Feb 9, 2007	–	First Edition issued

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