

To our customers,

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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## 38D5 Group

### Timer Y Operation (Real Time Port Control: Stepping Motor Control)

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#### 1. Abstract

The following article introduces and shows an example of how to use the Timer Y Operation (Real Time Port Control: Stepping Motor Control) on the 38D5 Group device.

#### 2. Introduction

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

Applicable MCU: 38D5 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 Stepping Motor Control

Outline: The stepping motor rotation is controlled using the real time port.

Specifications:

- Motor is controlled using the real time ports RTP0 and RTP1.
- The count source is  $f(XIN) = 8 \text{ MHz}$  divided by 16.
- The timer Y set value (RTP output time) and the real time port output value are updated within the timer Y interrupt routine. Each value is set according to the following table.

Figure 3.1 shows the Connection Diagram, Timer Y Set Value Table and RTP Output Value Table Examples, Figure 3.2 shows the RTP Output Example, Figure 3.3 shows the Relevant Register Settings, and Figure 3.4 shows the Control Procedure.

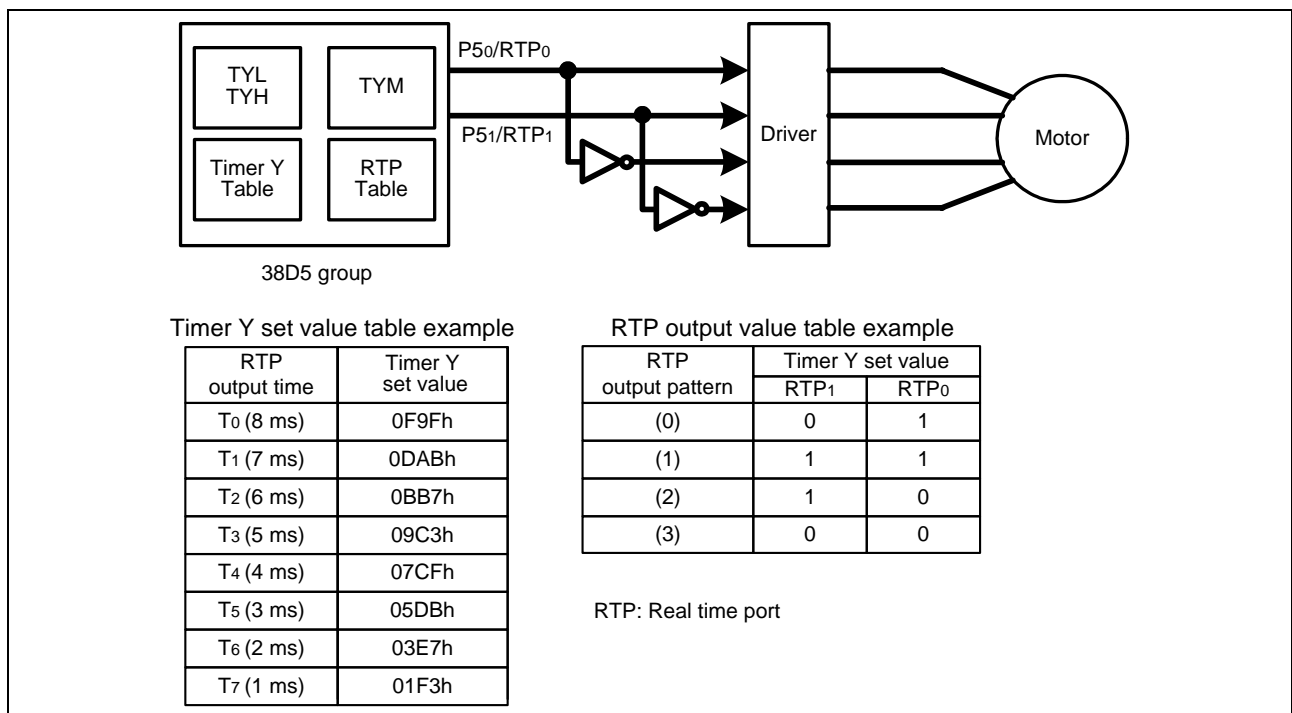


Figure 3.1 Connection Diagram, Timer Y Set Value Table and RTP Output Value Table Examples

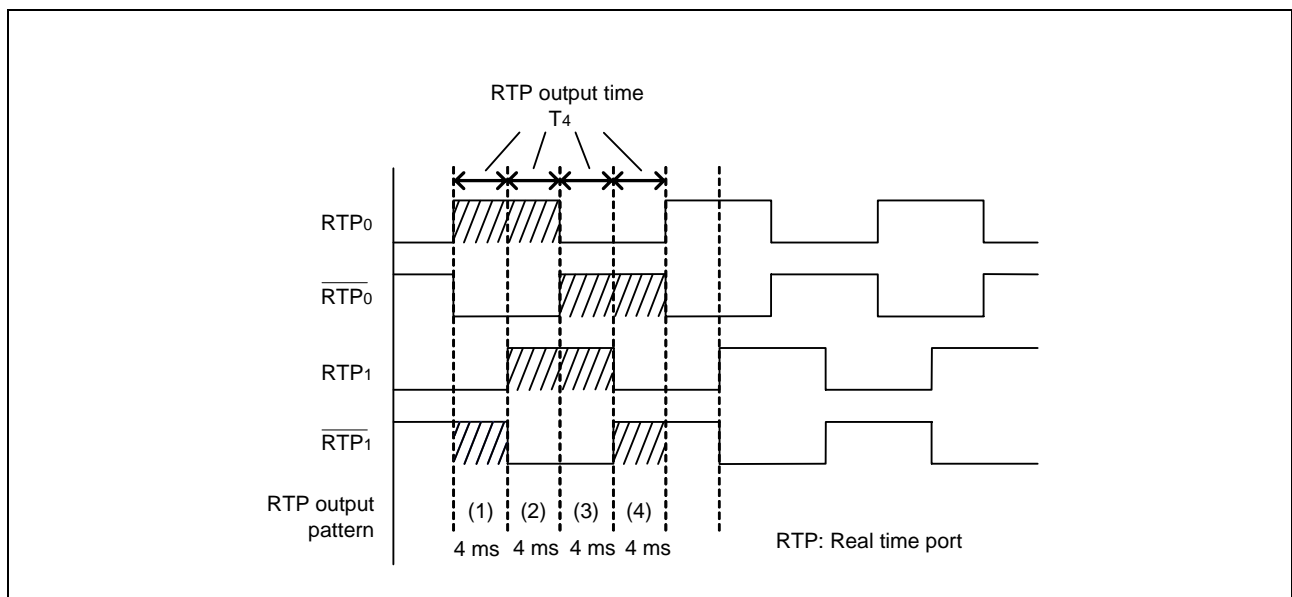


Figure 3.2 RTP Output Example

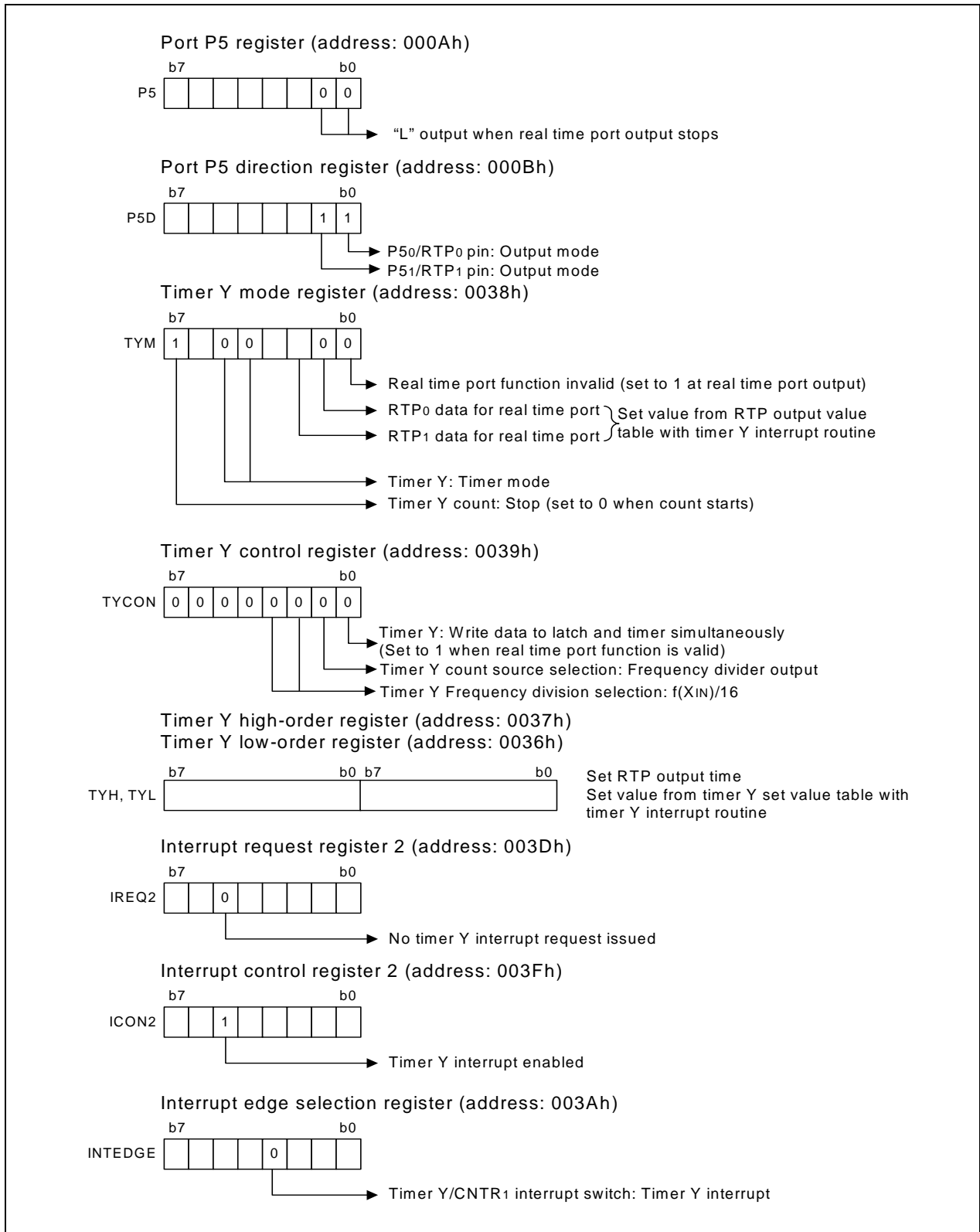


Figure 3.3 Relevant Register Settings

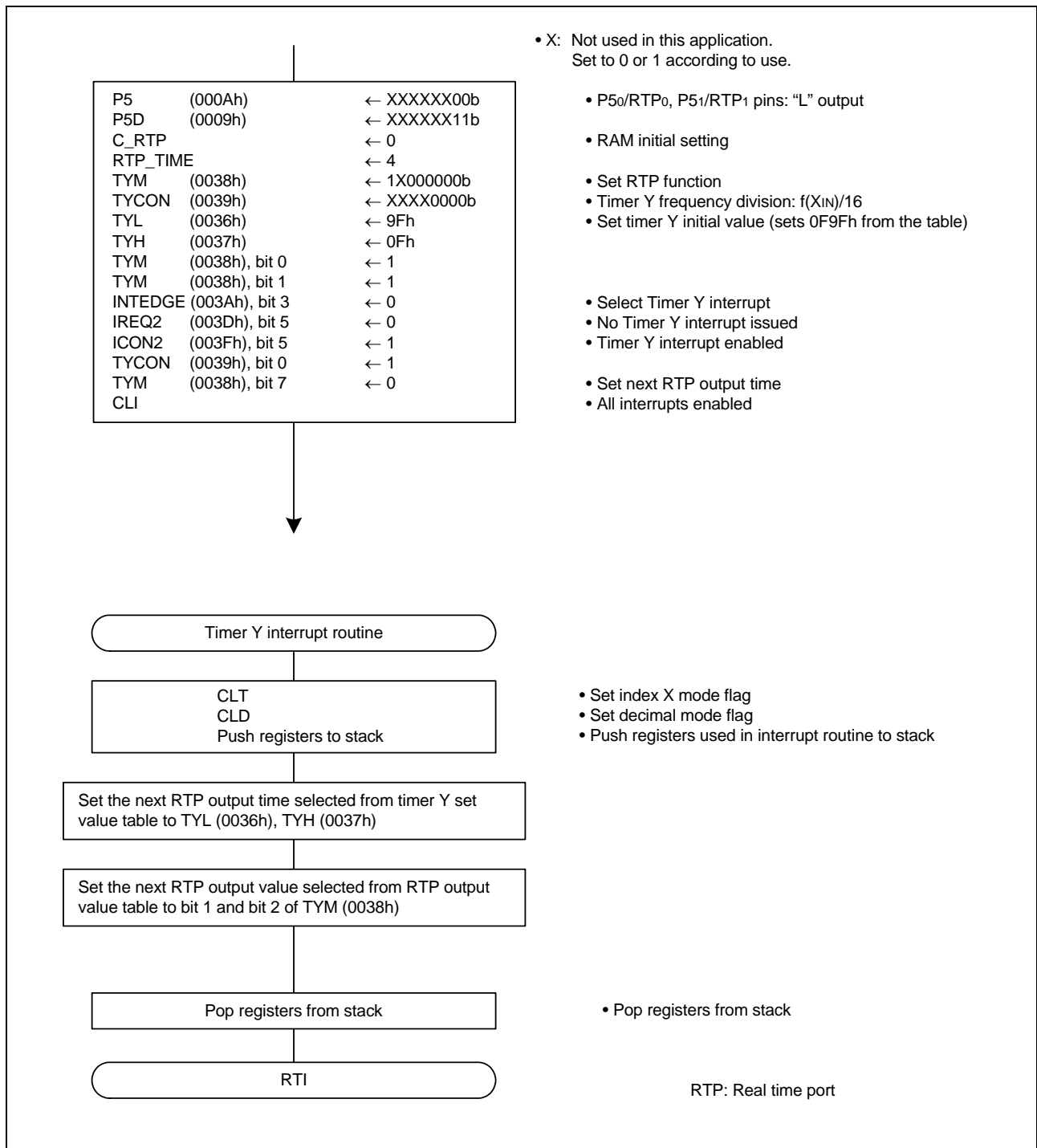


Figure 3.4 Control Procedure

#### 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 38D5 Group.

#### 5. Reference Document

Datasheet

38D5 Group Datasheet

Download the latest version from the Renesas Technology website.

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REVISION HISTORY	38D5 Group Timer Y Operation (Real Time Port Control: Stepping Motor Control)
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Rev.	Date	Description	
		Page	Summary
1.00	Sep 15, 2006	-	First Edition issued

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