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April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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38D5 Group

Timer 3 Operation (PWM Mode: Motor Control)

1. Abstract

The following article introduces and shows an example of how to use Timer 3 Operation (PWM Mode: 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: 4 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 Motor Control

Outline: Motor rotation speed is controlled using PWM output.

Specifications:

- The motor is controlled using the 8-bit resolution PWM output function.
- Clock $f(XIN) = 4 \text{ MHz}$
- PWM cycle “T”: $127.5 \mu\text{s}$
- “H” level width of output pulse “t”: $50 \mu\text{s}$. Motor speed can be changed by modifying the output pulse “H” level width.
- “L” level output from P74.
- PWM output from P73.

Figure 3.1 shows the Connection Diagram, Figure 3.2 shows the Output Waveform of PWM0 and PWM1, Figure 3.3 shows the Relevant Register Settings, and Figure 3.4 shows the Control Procedure.

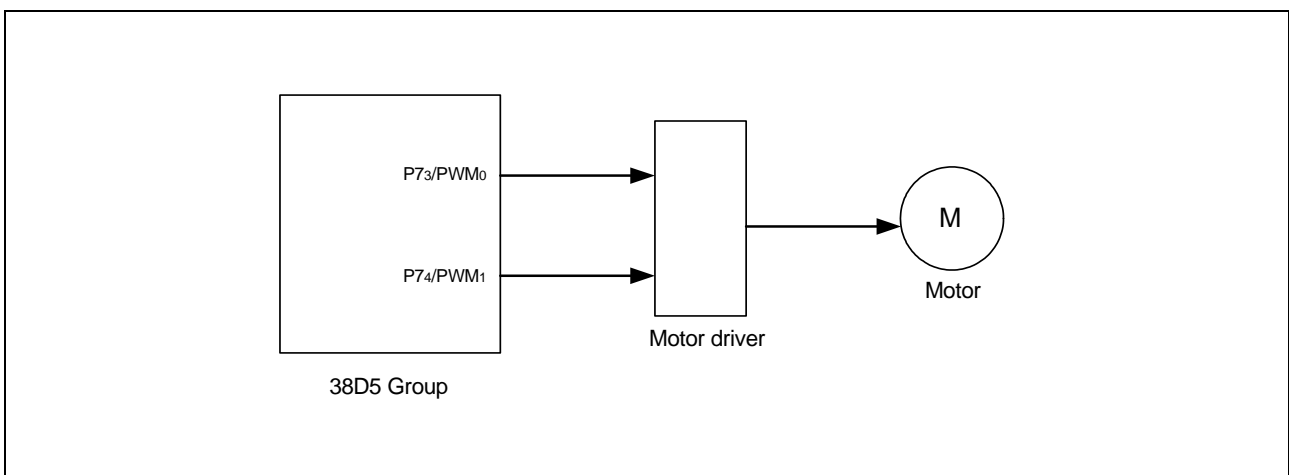


Figure 3.1 Connection Diagram

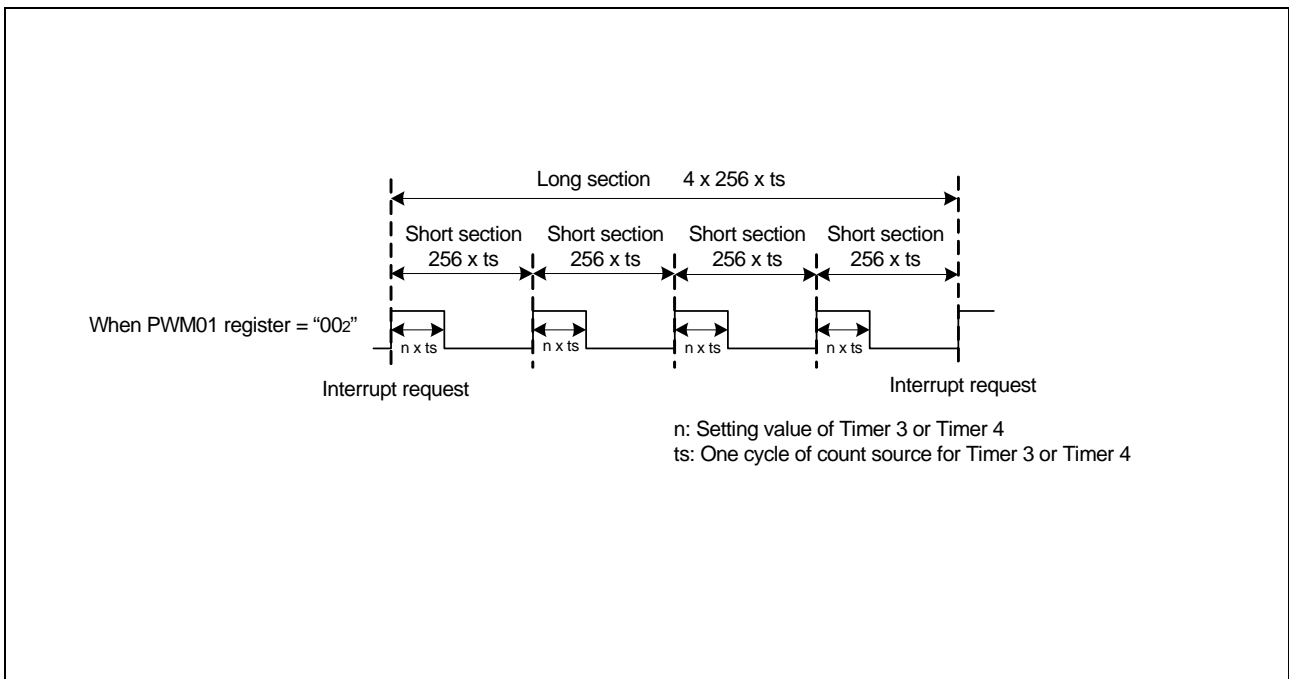


Figure 3.2 Output Waveform of PWM0 and PWM1

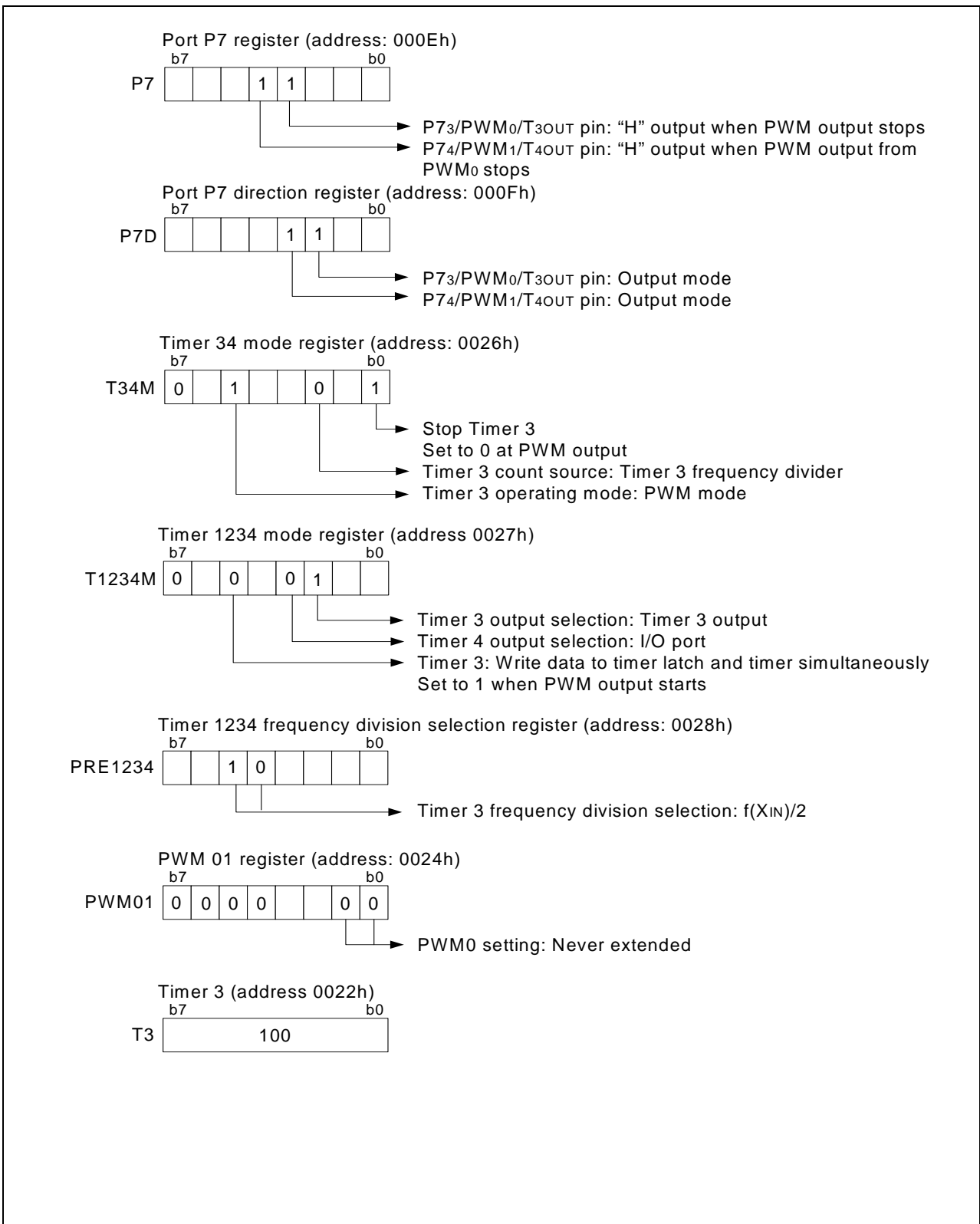


Figure 3.3 Relevant Register Settings

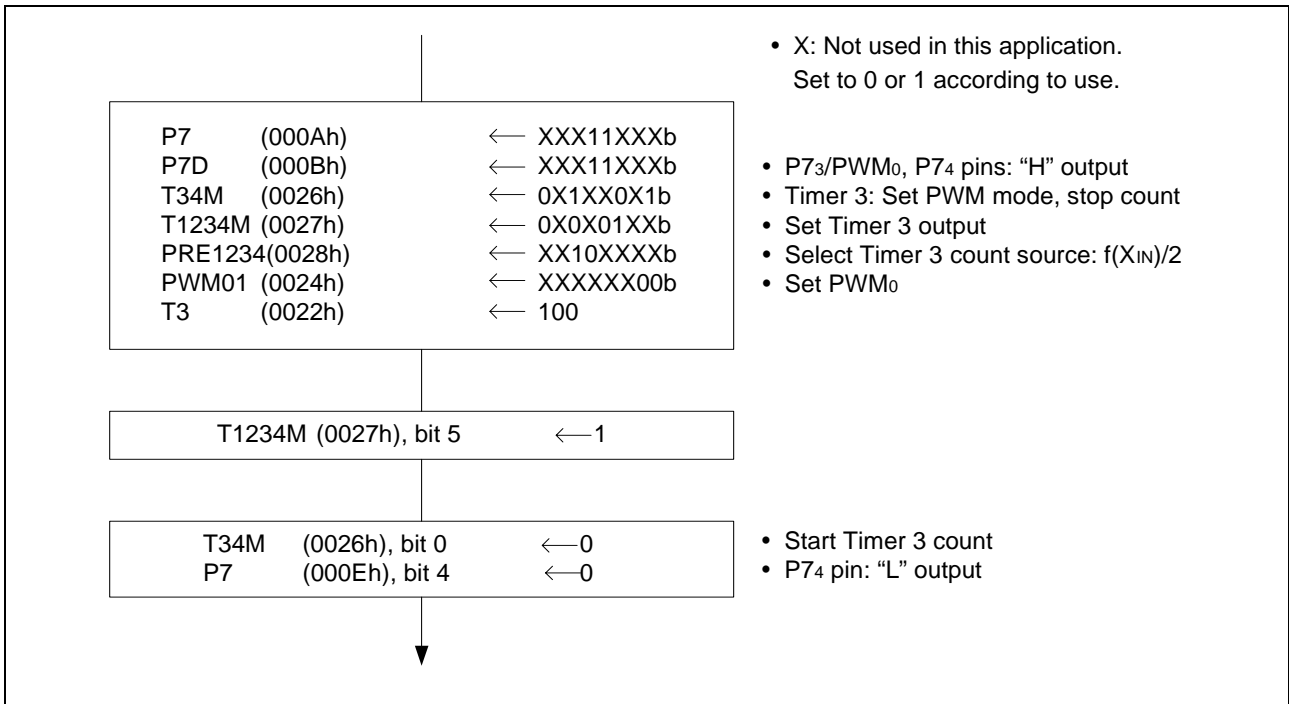


Figure 3.4 Control Procedure

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.

Technical News/Technical Update
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REVISION HISTORY	38D5 Group Timer 3 Operation (PWM Mode: Motor Control)
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Rev.	Date	Description	
		Page	Summary
1.00	Sep 15, 2006	–	First Edition issued
1.01	Mar 26, 2007	2	3.1 Section title corrected

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