

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

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## 3823 Group

### Timer 1 Operation (Timer Mode: 1 Second Timer)

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#### 1. Abstract

The following article introduces and shows an example of Timer 1 Operation (Timer Mode: 1 Second Timer) on the 3823 group device.

#### 2. Introduction

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

Applicable MCU: 3823 Group

Oscillation frequency: 32.768 kHz

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 1 second generation

Outline: The clock is divided by the timer so that the clock can count up at 1-second intervals.

Specifications:

- The clock  $f(XCIN) = 32.768$  kHz is divided by timer 1.
- The number of interrupts are counted in the timer 1 interrupt routine which occurs at 7.8125 ms intervals (1-second counter).
- The main routine examines the 1-second counter. If the counter reaches 1 second, the main routine updates the clock counter.

Figure 3.1 shows the Timers Connection and Division Ratios, Figure 3.2 shows the Relevant Register Settings, and Figure 3.3 shows the Control Procedure.

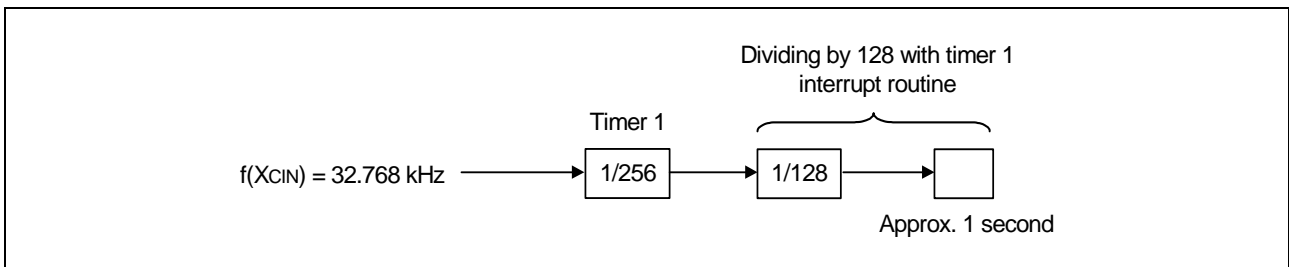


Figure 3.1 Timers Connection and Division Ratios

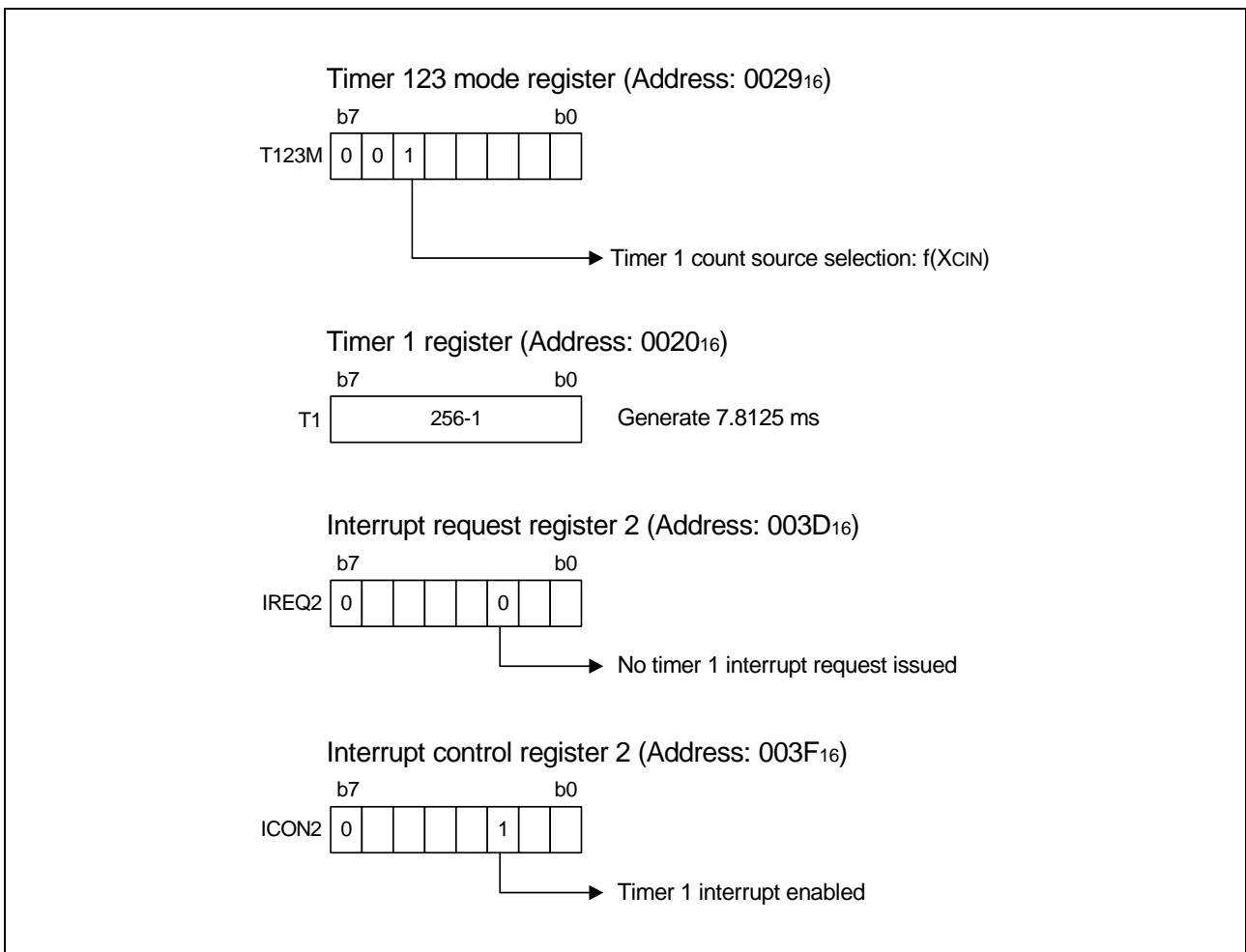


Figure 3.2 Relevant Register Settings

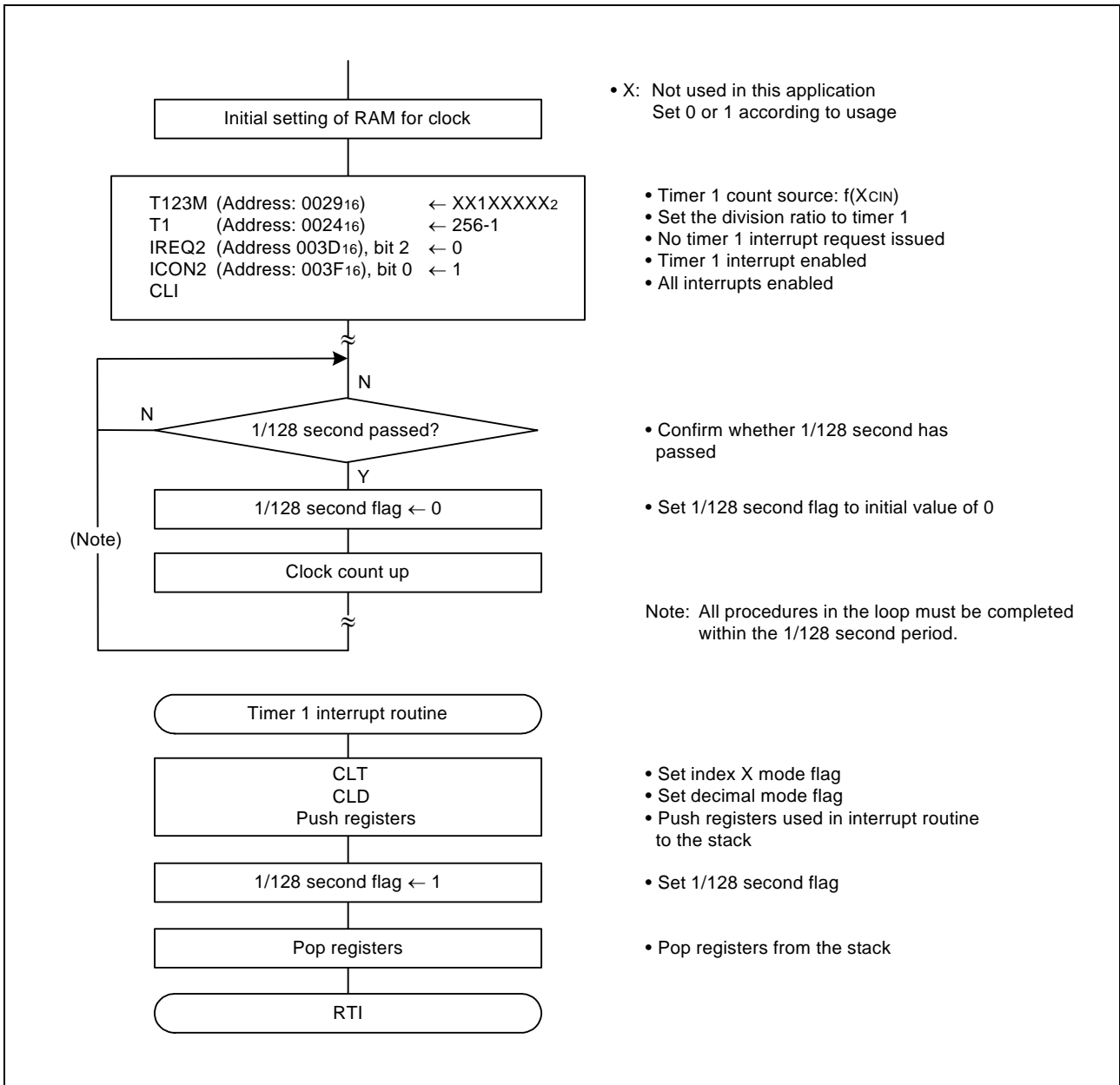


Figure 3.3 Control Procedure

#### 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 3823 Group.

#### 5. Reference Document

Datasheet  
3823 Group Data sheet  
Download the latest version from the Renesas Technology website.

Technical News/Technical Update  
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REVISION HISTORY	3823 Group Timer 1 Operation (Timer Mode: 1 Second Timer)
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Rev.	Date	Description	
		Page	Summary
1.00	Aug 10, 2006	-	First Edition issued

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