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April 1st, 2010
Renesas Electronics Corporation

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

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3858 Group

Serial I/O 1 (Clock Synchronous Serial I/O Mode: Example 1)

1. Abstract

This document describes how to set up and use serial I/O 1 (clock synchronous mode: example 1) on the 3858 Group device.

2. Introduction

The application example described in this document is applied to the following:

MCU: 3858 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 operating conditions of the user system.

3. Contents

3.1 Communication Using Clock Synchronous Serial I/O (Transmission/Reception)

Outline: 2-byte data is transmitted and received using the clock synchronous serial I/O.
The SRDY signal is used for communication control.

Specifications:

- Serial I/O 1 (clock synchronous serial I/O mode) is used.
- Synchronous clock frequency: 125 kHz ($f(XIN) = 4 \text{ MHz}$ divided by 32)
- SRDY (receivable signal) signal is used.
- The receiving side outputs the SRDY signal and receives 2-byte data at 2 ms intervals (generated by timer).
- The transmitting side confirms the SRDY signal by INT0 interrupt request and transmits 2-byte data.

Figure 3.1 shows the Connection Diagram; Figure 3.2 shows the Timing Chart, Figure 3.3 shows the Register Settings Relevant to Transmitting Side, Figure 3.4 shows the Register Settings Relevant to Receiving Side; Figure 3.5 shows the Control Procedure of Transmitting Side, and Figure 3.6 shows the Control Procedure of Receiving Side.

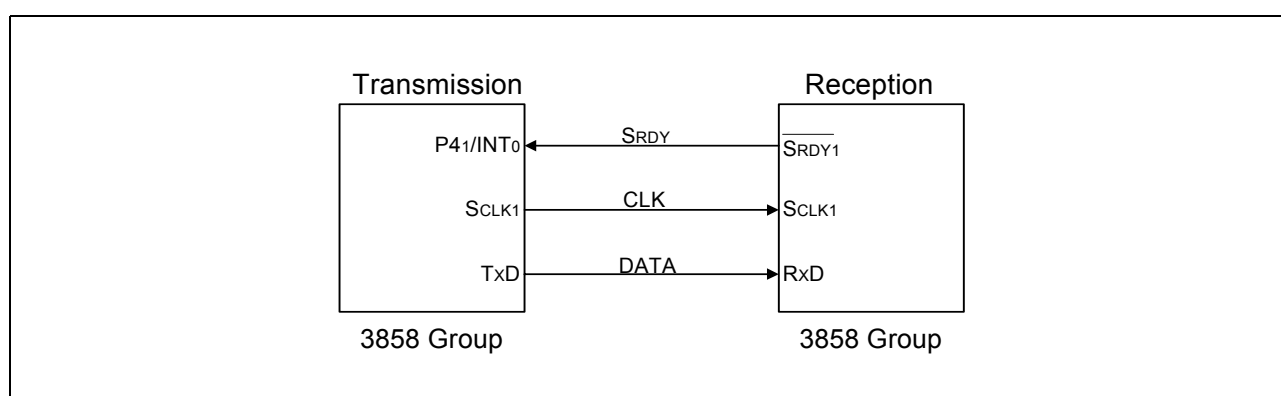


Figure 3.1 Connection Diagram

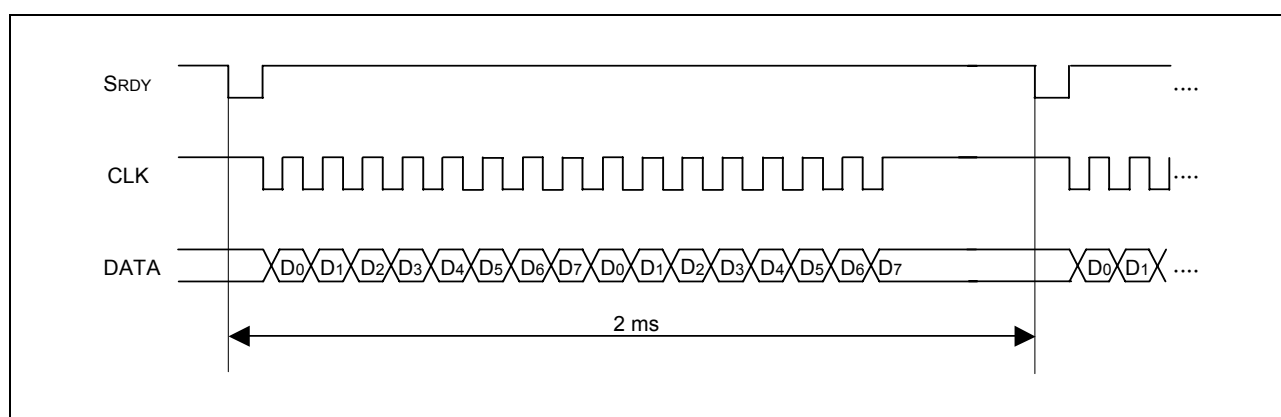
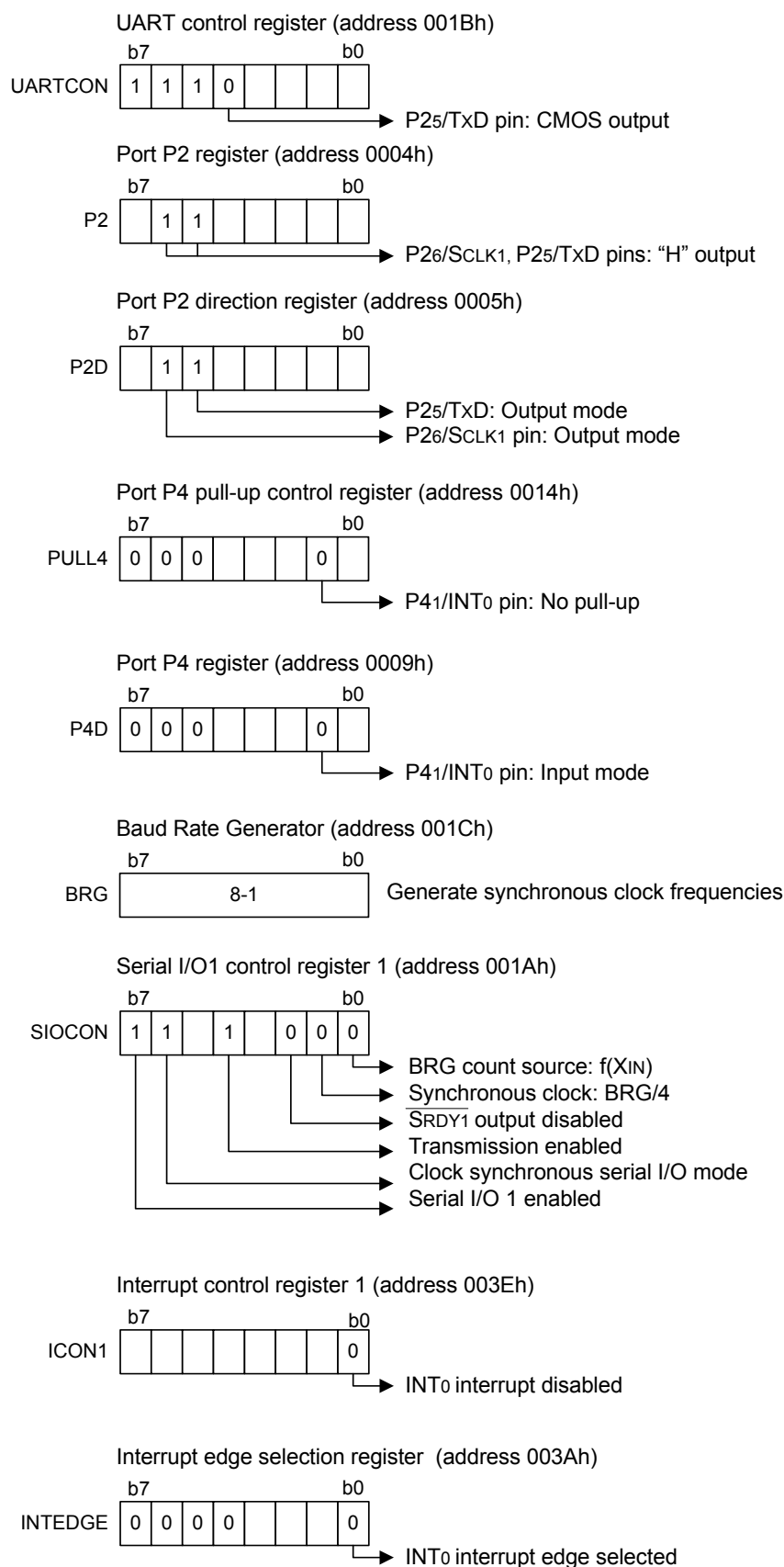


Figure 3.2 Timing Chart

Transmitting side



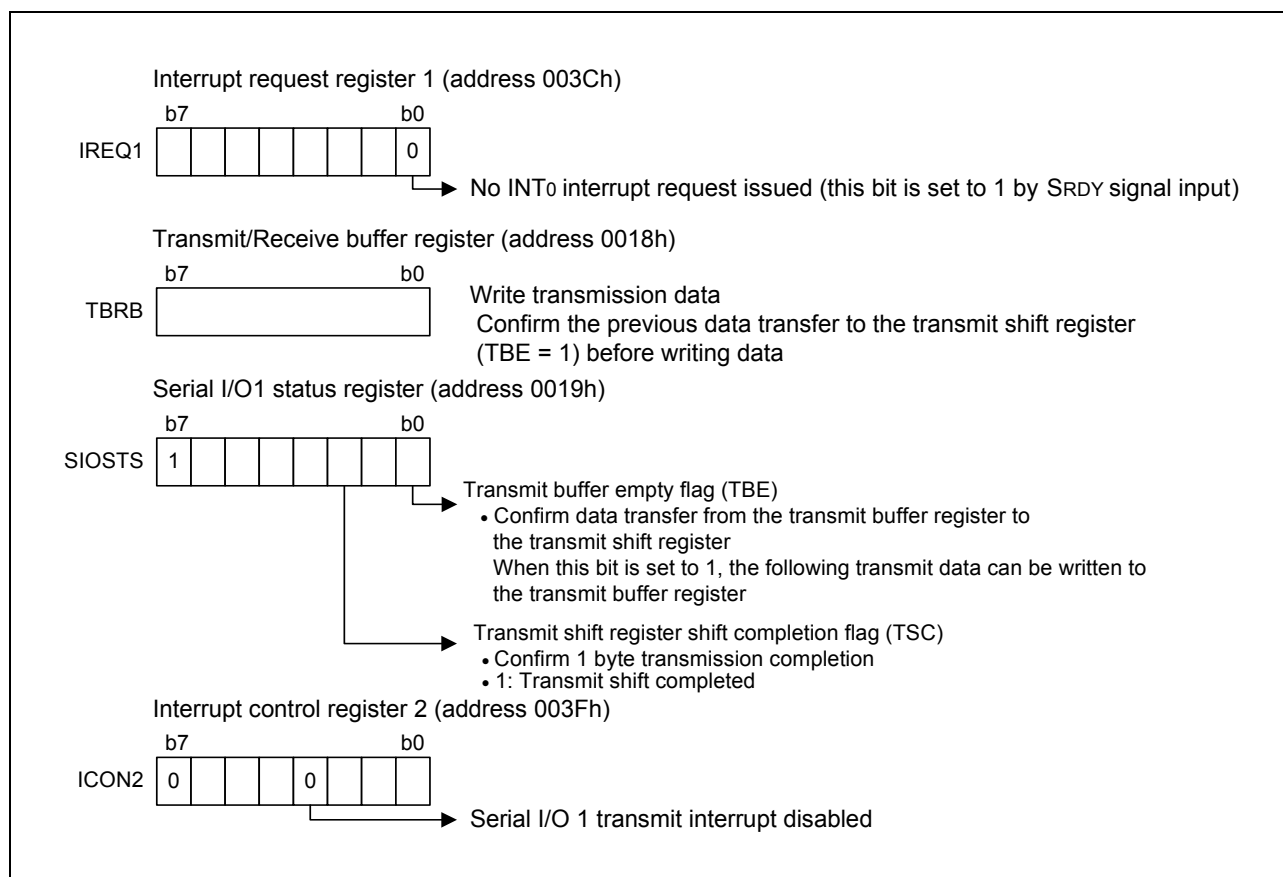


Figure 3.3 Register Settings Relevant to Transmitting Side

Receiving side

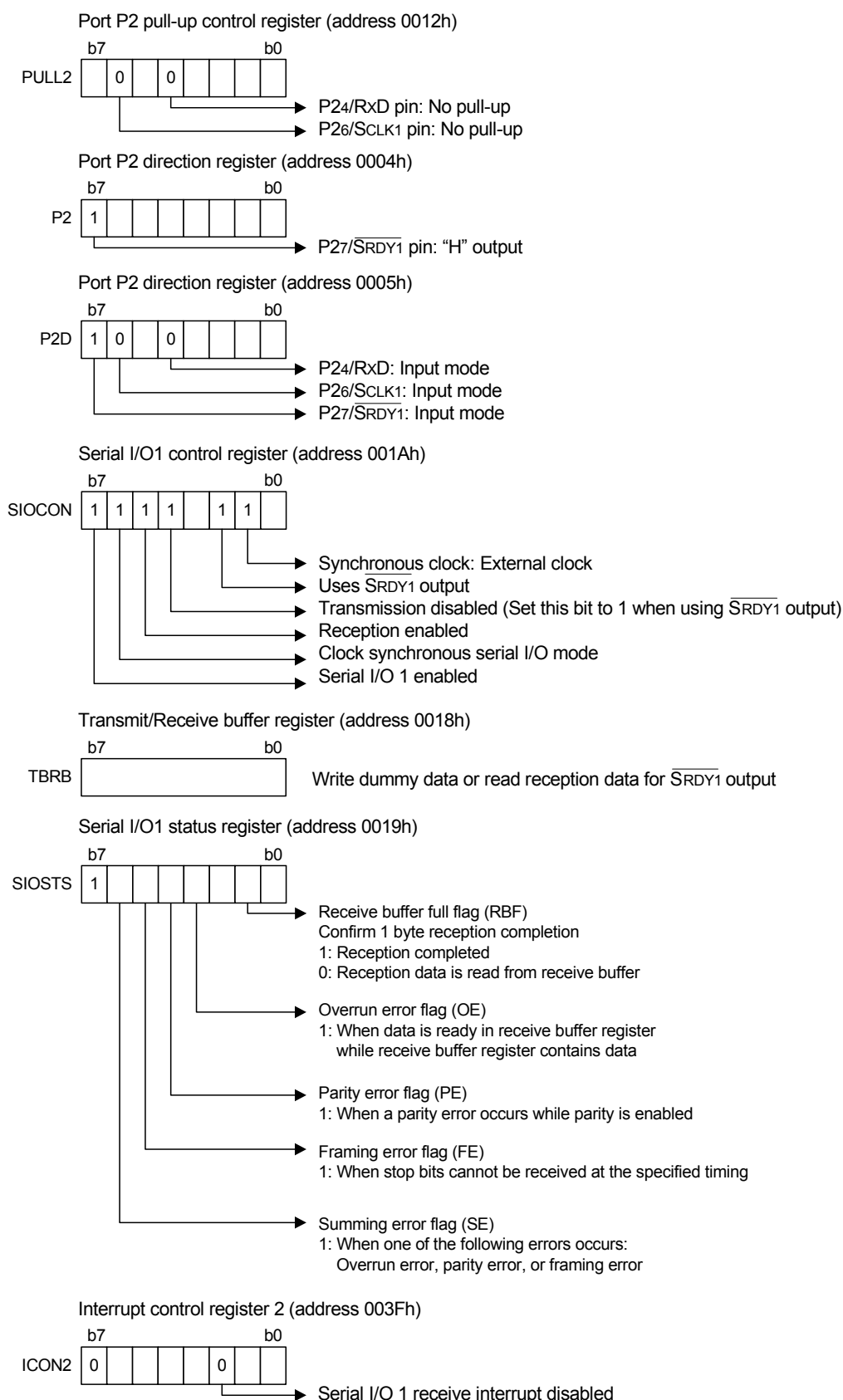


Figure 3.4 Register Settings Relevant to Receiving Side

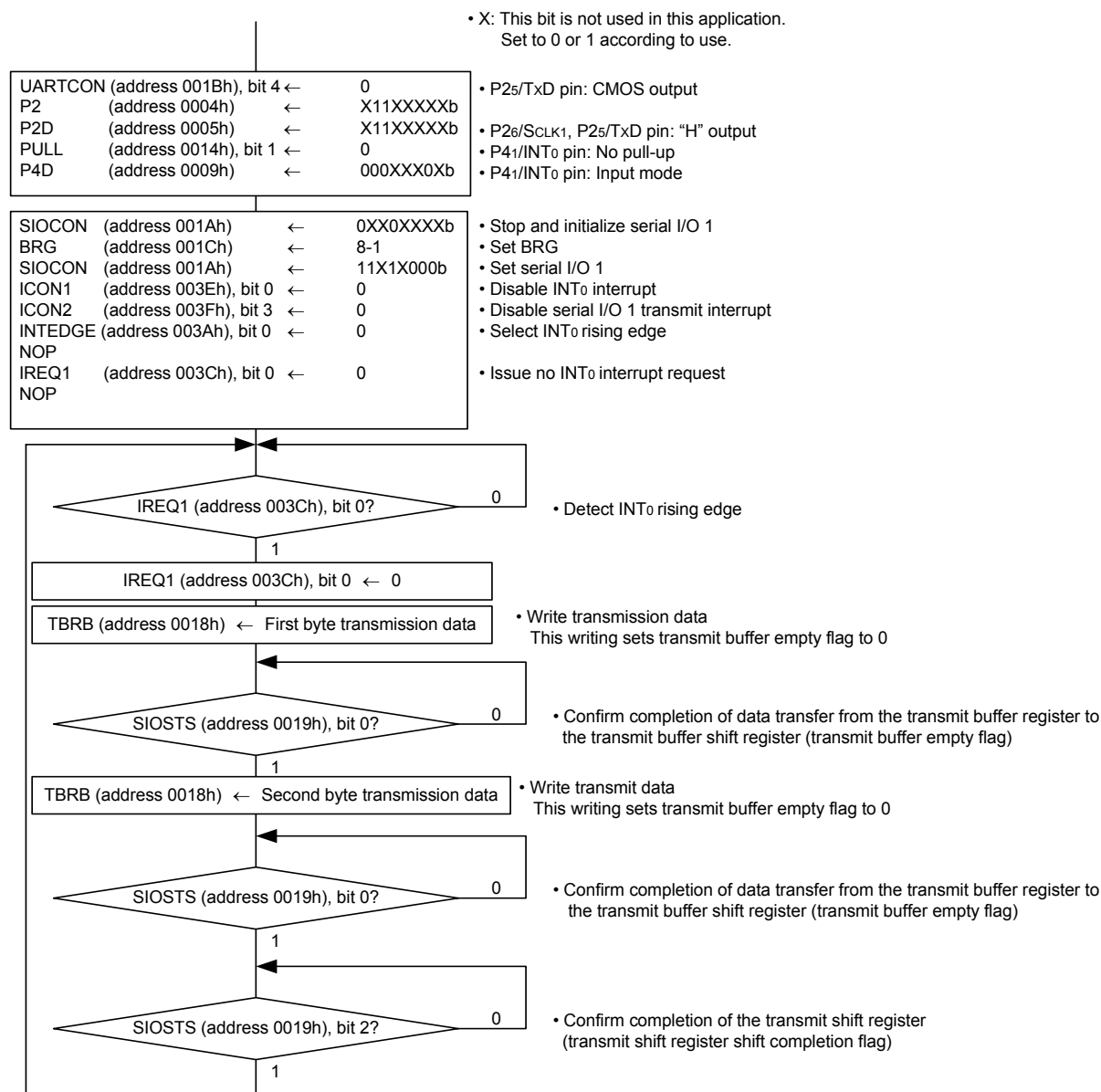


Figure 3.5 Control Procedure of Transmitting Side

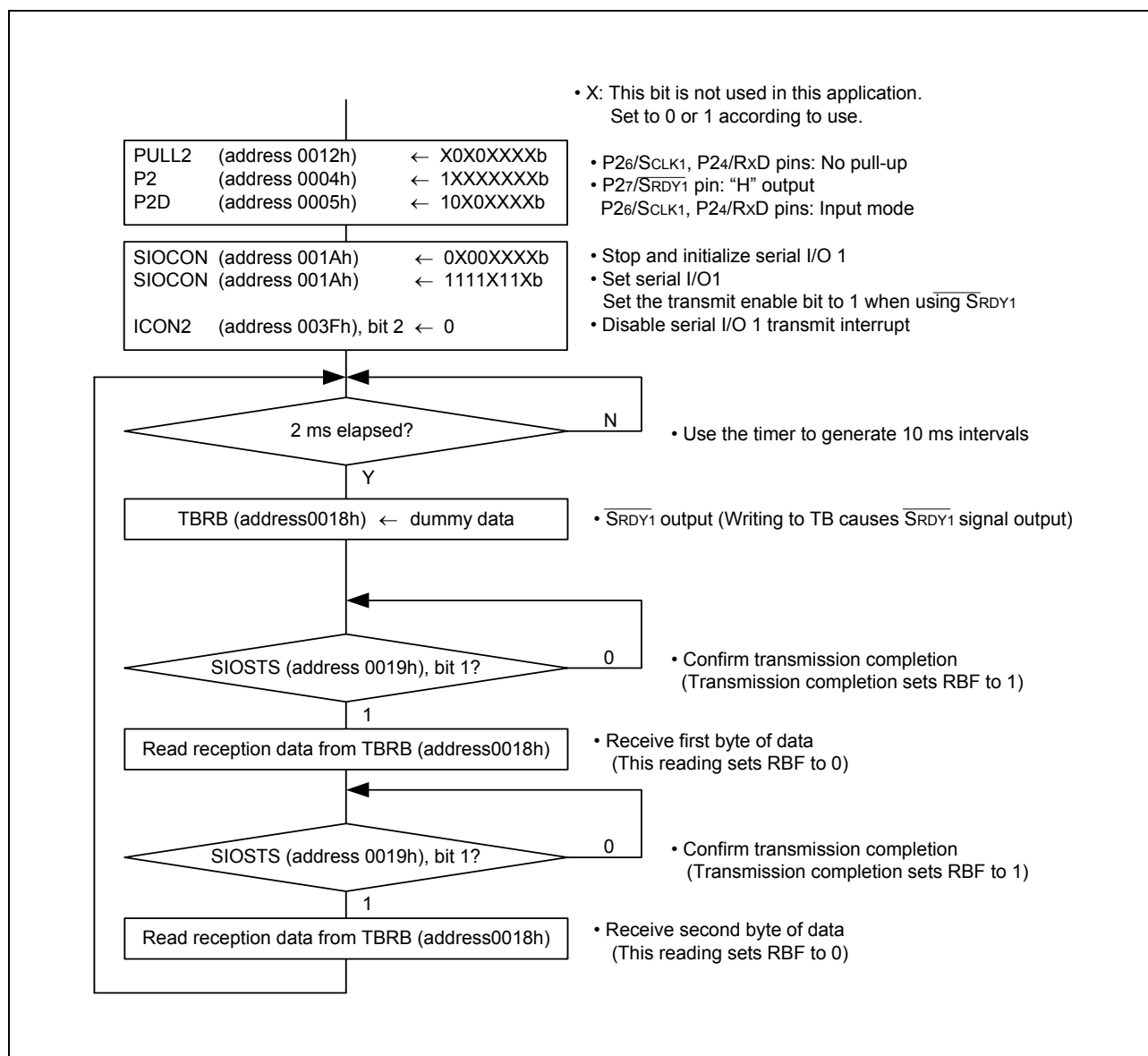


Figure 3.6 Control Procedure of Receiving Side

4. Sample Programming Code

Download a sample program from the Renesas Technology website.

To download, click “Application Notes” in the left-hand side menu on the page of the 3858 Group.

5. Reference Document

Datasheet

3858 Group Datasheet

Download the latest version from the Renesas Technology website.

Technical News/Technical Update

Download the latest information from the Renesas Technology website.

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REVISION HISTORY	3858 Group Serial I/O 1 (Clock Synchronous Serial I/O Mode: Example 1) Application Note
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Rev.	Date	Description	
		Page	Summary
1.00	Aug 10, 2006	–	First Edition issued

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