[Notes]

RX Family

Simple I²C Module Firmware Integration Technology,

RX Driver Package

R20TS0518EJ0100
Rev.1.00
Dec. 16, 2019

Outline

When using the products in the title, note the following point.

1. Invalid bit rate by the "R_SCI_IIC_Open" function

1. Invalid Bit Rate by the "R_SCI_IIC_Open" Function

1.1 Applicable Products

(1) Simple I²C module Firmware Integration Technology (Simple I²C FIT module)

The applicable revision numbers and document numbers are as follows.

Table 1.1 Simple I²C FIT module applicable products

Simple I²C FIT module revision number	Document number
Rev.2.43	R01AN1691EJ0243

(2) RX Driver Package

The Simple I²C FIT module in (1) is also included in the RX Driver Package.
The product names and revision numbers of the applicable RX Driver Package and the revision numbers of the Simple I²C FIT module are as follows.

Table 1.2 Products that include the Simple I²C FIT module

RX Driver Package product name	RX Driver Package revision number	Document number	Revision number of the included Simple I²C FIT module
RX Family RX Driver Package, Ver.1.22	Rev.1.22	R01AN4873EJ0122	Rev.2.43

1.2 Applicable Devices

- RX72M group

1.3 Details

In the "sci_iic_set_frequency" function that is called within the "R_SCI_IIC_Open" function, an unexpected value may be set in the bit rate register (BRR) and the clock select bit (SMR.CKS) in the serial mode register. As a result, an invalid bit rate is set.

1.4 Conditions

This error occurs when all of the following conditions are met:

- One of SCI7 to SCI9 in the SCIi module is used in simple I²C mode.
- The frequencies of the PCLKA and PCLKB peripheral module clocks are different.

1.5 Workaround

Add settings for SCI7 to SCI9 in the SCIi module to the "r_sci_iic_rx72m.c" source file. The parts to be added are indicated in red in the corrected source file below.

- Before modification

Line number	Source code
988	static void sci_iic_set_frequency (sci_iic_info_t * p_sci_iic_info)
989	{
-	Omitted
1003	if ((SCI_IIC_NUM_CH10 == p_sci_iic_info->ch_no) || (SCI_IIC_NUM_CH11 == p_sci_iic_info->ch_no))
1004	{
1005	brr_n_tmp = brr_n;
1006	brr_value = (uint32_t) ((double) ((double) ((double) BSP_PCLKA_HZ / (brr_n_tmp * (prom->bitrate)))) - 0.1);
1007	}
1008	else
1009	{
1010	brr_n_tmp = brr_n;
1011	brr_value = (uint32_t) ((double) ((double) ((double) BSP_PCLKB_HZ / (brr_n_tmp * (prom->bitrate)))) - 0.1);
1012	}
-	Omitted
1046	if ((SCI_IIC_NUM_CH10 == p_sci_iic_info->ch_no) || (SCI_IIC_NUM_CH11 == p_sci_iic_info->ch_no))
1047	{
1048	brr_n_tmp = brr_n;
1049	brr_value = (uint32_t) ((double) (((double) BSP_PCLKA_HZ / (brr_n_tmp * (prom->bitrate)))) - 0.1);
1050	}
1051	else
1052	{
1053	brr_n_tmp = brr_n;
1054	brr_value = (uint32_t) ((double) (((double) BSP_PCLKB_HZ / (brr_n_tmp * (prom->bitrate)))) - 0.1);
1055	}
-	Omitted
1066	pregs->SMR.BYTE |= cks_value_tmp; /* Sets SMR */
1067	pregs->BRR = brr_value; /* Sets BRR */
1068	} /* End of function sci_iic_set_frequency() */

- After modification

```
Line number | Source code
988  static void sci_iic_set_frequency (sci_iic_info_t *
     p_sci_iic_info)
989  {
 -   Omitted
1003     if ((SCI_IIC_NUM_CH7 == p_sci_iic_info->ch_no) || ¥
1004          (SCI_IIC_NUM_CH8 == p_sci_iic_info->ch_no) || ¥
1005          (SCI_IIC_NUM_CH9 == p_sci_iic_info->ch_no) || ¥
1006          (SCI_IIC_NUM_CH10 == p_sci_iic_info->ch_no) || ¥
1007          (SCI_IIC_NUM_CH11 == p_sci_iic_info->ch_no))
1008     {
1009         brr_n_tmp = brr_n;
1010         brr_value = (uint32_t) ((double) ((double) ((double)
     BSP_PCLKA_HZ / (brr_n_tmp * (prom->bitrate)))) - 0.1);
1011     }
1012     else
1013     {
1014         brr_n_tmp = brr_n;
1015         brr_value = (uint32_t) ((double) ((double) ((double)
     BSP_PCLKB_HZ / (brr_n_tmp * (prom->bitrate)))) - 0.1);
1016     }
 -   Omitted
1050         if ((SCI_IIC_NUM_CH7 == p_sci_iic_info->ch_no) || ¥
1051              (SCI_IIC_NUM_CH8 == p_sci_iic_info->ch_no) || ¥
1052              (SCI_IIC_NUM_CH9 == p_sci_iic_info->ch_no) || ¥
1053              (SCI_IIC_NUM_CH10 == p_sci_iic_info->ch_no) || ¥
1054              (SCI_IIC_NUM_CH11 == p_sci_iic_info->ch_no))
1055         {
1056             brr_n_tmp = brr_n;
1057             brr_value = (uint32_t) ((double) (((double)
     BSP_PCLKA_HZ / (brr_n_tmp * (prom->bitrate)))) - 0.1);
1058         }
1059         else
1060         {
1061             brr_n_tmp = brr_n;
1062             brr_value = (uint32_t) ((double) (((double)
     BSP_PCLKB_HZ / (brr_n_tmp * (prom->bitrate)))) - 0.1);
1063         }
 -   Omitted
1074     pregs->SMR.BYTE |= cks_value_tmp; /* Sets SMR */
1075     pregs->BRR = brr_value; /* Sets BRR */
1076 } /* End of function sci_iic_set_frequency() */
```

1.6 Schedule for Fixing the Problem

This problem will be fixed in the next version Rev.2.45 (Note). (Scheduled to be released in 2020.)

Note: Rev.2.44 will not be released.

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Dec.16.19	-	First edition issued

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