

[Notes]

R20TS0518EJ0100

Rev.1.00

Dec. 16, 2019

RX Family

Simple I²C Module Firmware Integration Technology,

RX Driver Package

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 I ² C 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 I ² C 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 SCLi 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 SCLi 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 * |
| 989 | p_sci_iic_info) |
| - | { |
| - | 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) ((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) ((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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