[Notes]

RX Family

I²C Bus Interface (RIIC) Module Using Firmware Integration Technology

RX Driver Package

R20TS1064ES0100
Rev.1.00
Sep. 05, 2024

Outline

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

1. The EEI and TEI interrupt priority level are displayed as a red warning on Smart Configurator for RX651 Group.

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1.1 Applicable Products

1) I²C Bus Interface (RIIC) Module Using Firmware Integration Technology (RIIC FIT module)

The applicable revision numbers and document numbers are as follows:

Table 1.1 RIIC FIT module applicable products

Revision number of the RIIC FIT module	Document number
Rev.2.90	R01AN1692EJ0290

2) RX Driver Package

The RIIC 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 RIIC FIT module are as follows:

Table 1.2 RIIC FIT module applicable products

RX Driver Package product name	RX Driver Package revision number	Document number	Revision number of the included RIIC FIT module
RX Family RX Driver Package Ver.1.43	Rev.1.43	R01AN7387xx0143	Rev.2.90
RX Family RX Driver Package Ver.1.42	Rev.1.42	R01AN7163xx0142	Rev.2.90

1.2 Applicable Devices

RX651 Group

1.3 Details

Setting `RIIC_CFG_CHi_EEI_INT_PRIORITY` and `RIIC_CFG_CHi_TEI_INT_PRIORITY` (i = 0 to 2) with Smart Configurator for RX651 would result in error.

This is due to a bug in RIIC mdf file (r_riic_rx_v2.90_extend.mdf), where the “EEI and TEI interrupt priority level” constraints for RX651 are missing. Therefore, when using Smart Configurator to set “EEI and TEI interrupt priority level” for RX651, errors would occur even though the settings are correct.

1.4 Conditions

The error would happen whenever the `CH0 EEI INT Priority Level` or `CH0 TEI INT Priority Level` (corresponding to the macros `RIIC_CFG_CH0_EEI_INT_PRIORITY` and `RIIC_CFG_CH0_TEI_INT_PRIORITY`) is set (regardless of the value set).

Below is a sample which illustrates the errors:

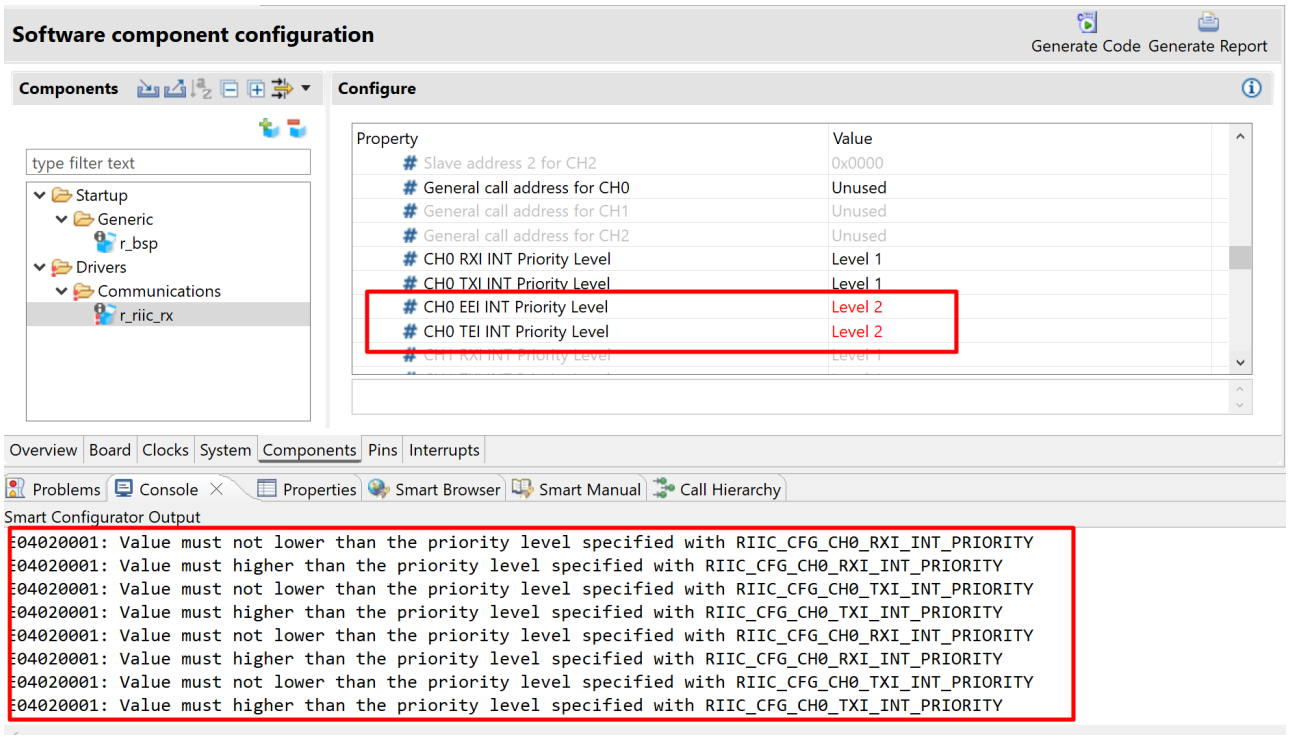

Figure 1-1 Example of error screen

1.5 Workaround

1) Temporary workaround:

- Ignore these red errors on Smart Configurator when using RIIC version 2.90.
- Make sure the configuration options in APN (as shown below) are followed. Note that for RX651, EEIi and TEIi are grouped under BL1 interrupts. After setting the interrupt level according to the table below, users should ignore the red error and generate code as usual.

  RX Family I2C Bus Interface (RIIC) Module Using Firmware Integration Technology

  "2.7 Configuration Overview table in RIIC FIT Module Application note"

RX Family I²C Bus Interface (RIIC) Module Using Firmware Integration Technology

Configuration options in *r_riic_config.h*	
RIIC_CFG_CHi_EEI_INT_PRIORITY (1) (2) i = 0 to 2 - When i = 0 to 2, the default value = 1	The priority level of the communication error / event occurrence interrupt (EEIi) of the specified RIIC channel can be selected. Specify the level from 1 to 15. Do not set this option to a value lower than the priority level specified with RIIC_CFG_CHi_RXI_INT_PRIORITY or RIIC_CFG_CHi_TXI_INT_PRIORITY. For devices where EEIi and TEIi (i = 0 to 2) are grouped as group BL1 interrupts, set a value higher than the priority level value specified in RIIC_CFG_CHi_RXI_INT_PRIORITY and RIIC_CFG_CHi_TXI_INT_PRIORITY.
RIIC_CFG_CHi_TEI_INT_PRIORITY (1) (2) i = 0 to 2 - When i = 0 to 2, the default value = 1	The priority level of the transmission end interrupt (TEIi) of the specified RIIC channel can be selected. Specify the level from 1 to 15. Do not set this option to a value lower than the priority level specified with RIIC_CFG_CHi_RXI_INT_PRIORITY or RIIC_CFG_CHi_TXI_INT_PRIORITY. For devices where EEIi and TEIi (i = 0 to 2) are grouped as group BL1 interrupts, set a value higher than the priority level value specified in RIIC_CFG_CHi_RXI_INT_PRIORITY and RIIC_CFG_CHi_TXI_INT_PRIORITY.
RIIC_CFG_CHi_TMO_ENABLE (2) i = 0 to 2 - When i = 0 to 2, the default value = 1	The timeout detection function of the specified RIIC channel can be enabled. - When this is set to 0: RIICi timeout detection function is disabled. - When this is set to 1: RIICi timeout detection function is enabled.
RIIC_CFG_CHi_TMO_DET_TIME (2) i = 0 to 2 - When i = 0 to 2, the default value = 0	You can select the timeout detection time of the specified RIIC channel. - When this is set to 0, long mode is selected. - When this is set to 1, short mode is selected.

Note:
1. The priority level cannot be set individually in devices that group EEI0, TEI0, EEI2, and TEI2 as the BL1 interrupt. In this case, the priority levels for EEI0, TEI0, EEI2, and TEI2 will be unified to all be the maximum value of the individual priority levels set in r_riic_confg.h. However, if the other module specifies a greater value than the value specified for the BL1 priority level in the RIIC, the greater value will be used.
   For EEI0 and TEI0 interrupt priority levels, set values higher than the priority levels for RXI0 and TXI0. Also, for EEI2 and TEI2 interrupt priority levels, set values higher than the priority levels for RXI2 and TXI2.
2. This setting is invalid for target devices that do not support the corresponding channel.

Figure 1-2 Setting value options

2) Users should upgrade to RIIC FIT module Rev.2.91 or later.

1.6 Schedule for Fixing the Problem

This problem will be fixed in RIIC FIT module Rev.2.91.

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Sep.05.24	-	First edition issued

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