

To our customers,

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## Old Company Name in Catalogs and Other Documents

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On April 1<sup>st</sup>, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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# RENESAS TECHNICAL NEWS

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M16C/62P Group and M16C/26 Group

## Precautions when using Special Mode 4 (SIM mode) of UART2

### Classification

Corrections and supplementary explanation of document

√ Notes

Knowhow

Others

### Concerned Products

M16C/62P Group

M16C/26 Group

### 1. Precautionary Note

A transmit interrupt request is generated if the TE bit is set to "1" (transmission enabled) and data is written to the U2TB register when in special mode 4 of UART2 under the following conditions:

- U2IRS bit in the U2C1 register is set to "1" (transmission completed)
- U2ERE bit is set to "1" (error signal output)

This condition will only occur the first time data is transmitted in special mode 4 (SIM mode) after reset. In addition, the U2IRS and U2ERE bits are only set to "1" when using special mode 4 (SIM mode) of UART2. Therefore, this condition will only occur in special mode 4 (SIM mode) of UART2. Figure 1 shows an example of transmission timing in special mode 4.

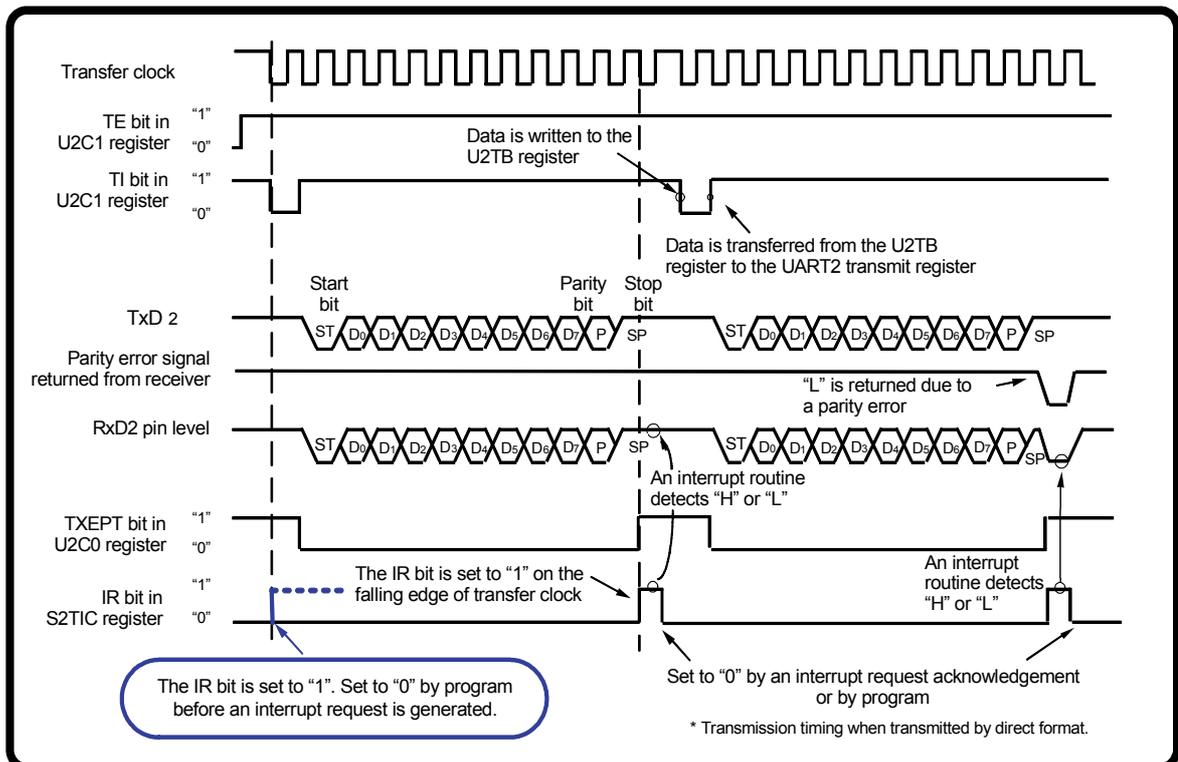


Figure 1: Example of Special Mode 4 Transmission Timing

2. Countermeasure

2-1 Follow the procedure below to clear the first interrupt request when using UART2 in special mode 4.

- 1) Set the U2IRS and U2ERE bits to "1".
- 2) Set the TE bit to "1".
- 3) Disable interrupts and DMA transfer.
- 4) Write transmit data into the U2TB register.
- 5) If transmission starts, the IR bit in the S2TIC register is set to "1". Therefore, set the IR bit to "0". If using a transmit interrupt or selecting UART2 transmit for DMA transfer trigger, enable the interrupt and DMA transfer before an interrupt request is generated.

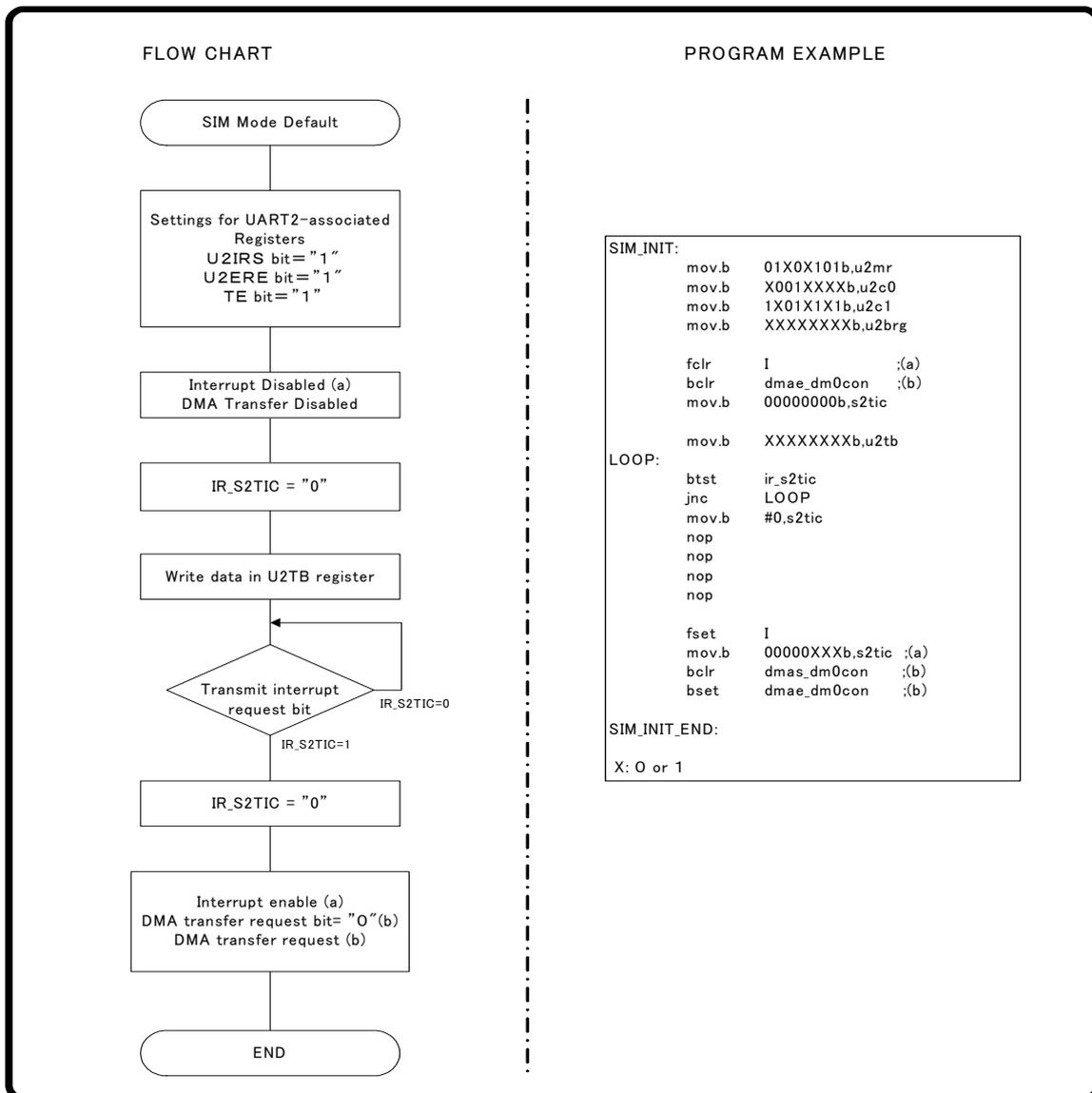


Figure 2: Procedure for Clearing First Interrupt Request

2-2 Follow the procedure the first interrupt workaround when using UART2 in special mode 4.

- 1) Set the U2IRS and U2ERE bits to "1".
- 2) Set the TE bit to "1".
- 3) Write transmit data in the U2TB register.
- 4) Do not process the first transmit interrupt routine.

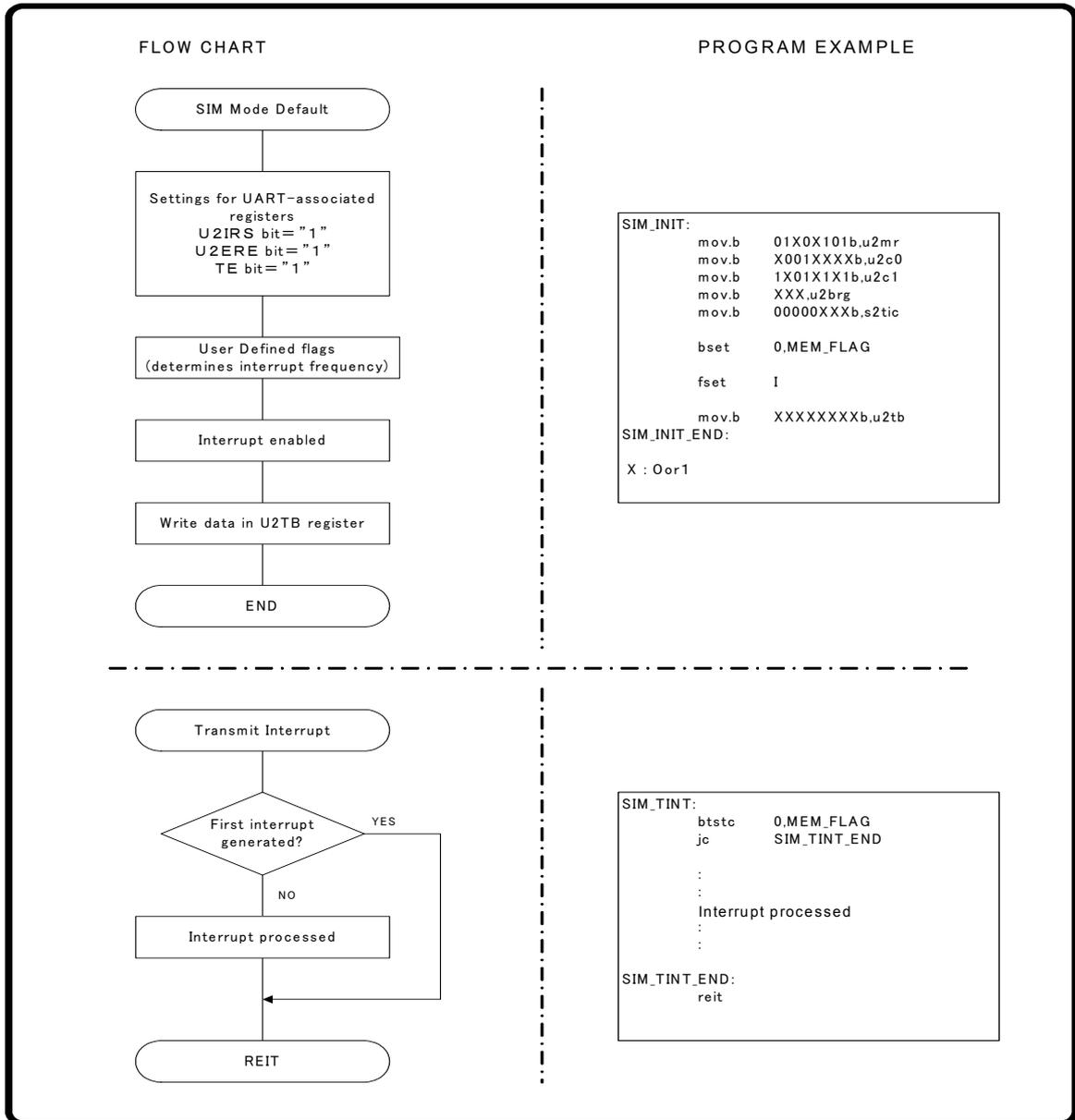


Figure 3: Procedure to Avoid Processing First Interrupt