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RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RX*-A0235B/E	Rev.	2.00
Title	Notes on the Transmit Data Empty Interrupt When the FIFO is in Use with the Serial Communications Interface (SCI)		Information Category	Technical Notification		
Applicable Product	RX65N Group, RX651 Group, RX66N Group, RX72N Group, RX72M Group, RX66T Group, RX72T Group	Lot No. All	Reference Document	User's Manual: Hardware for applicable products (see the table at the last page)		

This document describes notes on the transmit data empty interrupt (TXI) request when the FIFO is in use (FCR.FM bit is 1) with the serial communications interface (SCI) in the above applicable products.

1. Notes

In setting the SCR.TE bit to 1 after having changed the value of the SCR.TIE bit from 0 to 1 in the procedure when the FIFO is in use, a TXI interrupt request may be generated before the SCR.TE bit is set to 1.
Data written by the CPU from within the interrupt handler or by DMA/DTC transfer while the SCR.TE bit is 0 may be lost.

2. Cause

The conditions for generating the transmit data empty interrupt (TXI) request in the FIFO mode differ on the following points from those for the non-FIFO mode or channels which do not support operation with a FIFO.

(1) When the value of the SCR.TIE bit is changed from 0 to 1, a TXI interrupt request is generated regardless of the value of the SCR.TE bit.

(2) When the value of the SCR.TE bit is changed while the SCR.TIE bit is 1, a TXI interrupt request is not generated.

Table 1 lists the conditions for generating the TXI interrupt request on each case.

Table 1 Conditions for Generating the TXI Interrupt Request

TE bit	TIE bit	Channels not having FIFOs	Channels having FIFOs	
			Non-FIFO mode	FIFO mode
TE = 0	TIE = 0 to 1	Not generated	Not generated	Generated (case (1))
	TIE = 1 to 0	Not generated	Not generated	Not generated
TE = 1	TIE = 0 to 1	Not generated	Not generated	Generated (case (1))
	TIE = 1 to 0	Not generated	Not generated	Not generated
TE = 0 to 1	TIE = 0	Not generated	Not generated	Not generated
TE = 1 to 0		Not generated	Not generated	Not generated
TE = 0 to 1	TIE = 1	Generated	Generated	Not generated (case (2))
TE = 1 to 0		Generated	Generated	Not generated (case (2))
TE = TIE = 0 to 1		Generated	Generated	Generated
TE = TIE = 1 to 0		Not generated	Not generated	Not generated

While the SCR.TE bit is 0, the data in the FIFO are not guaranteed.

3. Measure

When the SCI is to be used in the FIFO mode, set the SCR.TIE bit to 1 at the same time as or after setting the SCR.TE bit to 1.

Reference Documents

Applicable Products	Manual Title (Document Number)
RX65N Group, RX651 Group	RX65N Group, RX651 Group User's Manual: Hardware Rev.2.30 (R01UH0590EJ0230)
RX66N Group	RX66N Group User's Manual: Hardware Rev1.00 (R01UH0825EJ0100)
RX66T Group	RX66T Group User's Manual: Hardware Rev1.10 (R01UH0749EJ0110)
RX72M Group	RX72M Group User's Manual: Hardware Rev1.00 (R01UH0804EJ0100)
RX72N Group	RX72N Group User's Manual: Hardware Rev1.00 (R01UH0824EJ0100)
RX72T Group	RX72T Group User's Manual: Hardware Rev1.00 (R01UH0803EJ0100)