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RENESAS TECHNICAL UPDATE

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Product Category	System LSI		Document No.	TN-RZ*-A0081A/E	Rev.	1.00
Title	UART DE signal HW control issue		Information Category	Technical Notification		
Applicable Product	See below	Lot No. All lots	Reference Document	RZ/N1 Series User's Manual (See below for details)		

We would like to inform about UART DE (Data Enable) signal HW control issue.

1. Applicable Product

Product Group	Part Number	Package Type	Configuration
RZ/N1D	R9A06G032NGBG	400BGA	Dual Cortex-A7, PRP/HSR
	R9A06G032VGBG	400BGA	Dual Cortex-A7
	R9A06G032PGBG	400BGA	Dual Cortex-A7, PRP/HSR, Security
	R9A06G032EGBG	400BGA	Dual Cortex-A7, Security
	R9A06G032VGBA	324BGA	Dual Cortex-A7
	R9A06G032EGBA	324BGA	Dual Cortex-A7, Security
RZ/N1S	R9A06G033NGBG	324BGA	Single Cortex-A7, PRP
	R9A06G033PGBG	324BGA	Single Cortex-A7, PRP, Security
	R9A06G033VGBA	196BGA	Single Cortex-A7
	R9A06G033EGBA	196BGA	Single Cortex-A7, Security
RZ/N1L	R9A06G034VGBA	196BGA	Cortex-M3

2. Reference Document

Reference document name	Document Number	Current Revision	Revised Revision
RZ/N1D Group, RZ/N1S Group, RZ/N1L Group User's Manual: Peripherals	R01UH0752EJ****	V1.10	V1.20

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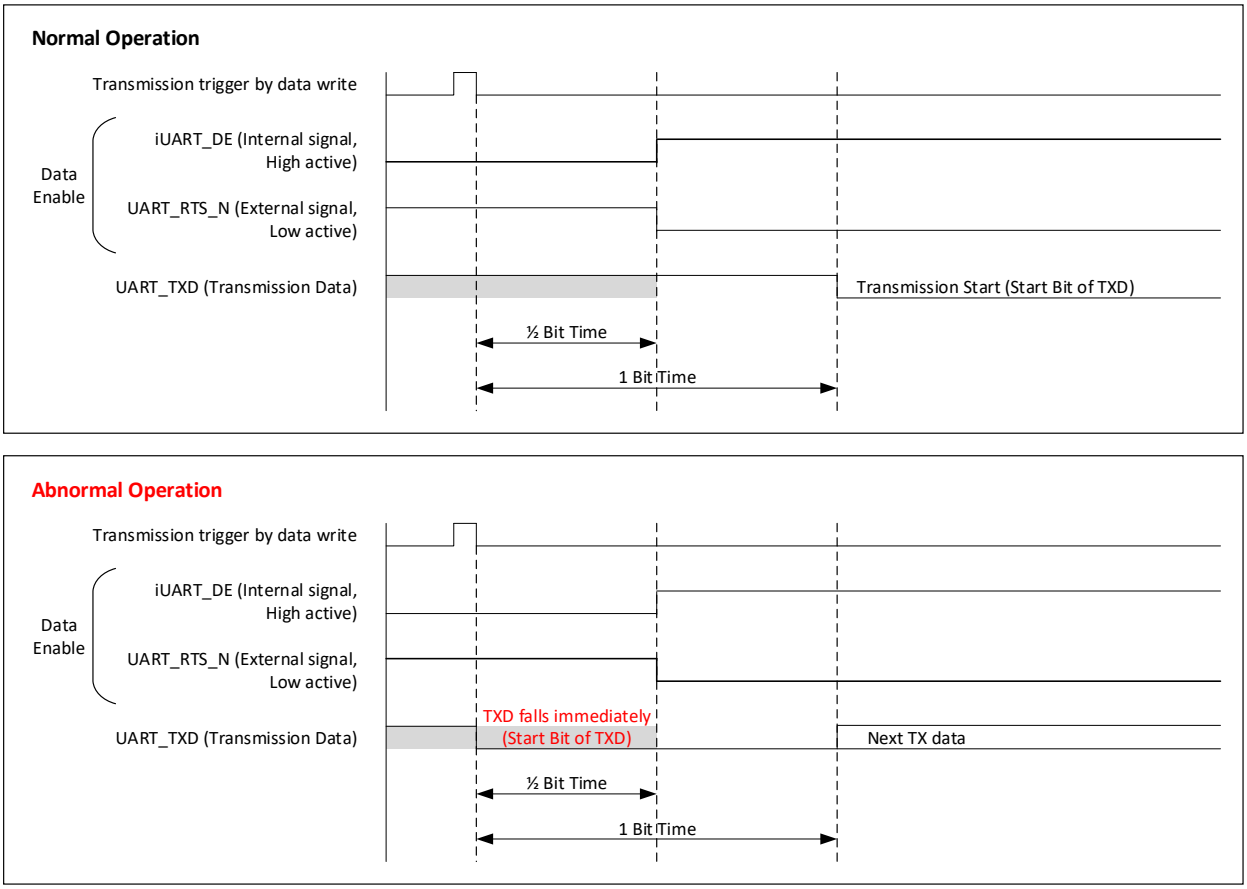
3. Issue and condition

When UART DE signal by HW control (rUart_CTRLTO.bUart_EnableDE=1) is used, transmission of TXD might start before DE is asserted.

In the case of the issue, start bit of UART_TXD is asserted first, and DE signal is asserted 1/2 bit time later. Therefore receive side might not be able to detect start bit correctly.



The issue happens randomly, its probability is below.

Serial Clock (UART[m]_SCLK)	Baud Rate	Baud Rate Divisor (bUart_DLH,bUART_DLL)	Probability
48 MHz	9600	313	0.02%
48 MHz	19200	156	0.04%
48 MHz	115200	26	0.24%
83.3 MHz	9600	543	0.01%
83.3 MHz	19200	271	0.02%
83.3 MHz	115200	45	0.14%

4. Workaround

Use of DE signal control by HW (rUart_CTRLTO.bUart_EnableDE=1) is prohibited.

Control DE signal by SW through GPIO or rUart_MCR.bUart_RTS with rUart_MCR.bUart_AFCE=0.

5. Sample driver

No sample driver for this function is available. In addition, Renesas doesn’t have a plan of updating our MOSBUS sample driver, since the function is not used in the driver.