RENESAS TECHNICAL UPDATE

TOYOSU FORESIA, 3-2-24, Toyosu, Koto-ku, Tokyo 135-0061, Japan
Renesas Electronics Corporation

Product Category	System LSI			Document No.	TN-RIN-A014A/E	Rev.	1.00
Title	Hardware Real Time OS issue			Information Category	Technical Notification		
Applicable Product	Please refer to [1. Applicable Product] described below.	Lot No.		Reference Document	R-IN32M3 Series Programing Manual (OS edition) R-IN32M3-EC R-IN32M3-CL (R18UZ0011EJ0500)		
		All lot					

This document describes information about issues of Hardware Real Time OS. Please use the Hardware Real Time OS considering those issues.

If you do not use Hardware Real Time OS feature, this notice could be ignored.

1. Applicable Product

Product Type	Model Marking	Product Code
R-IN32M3-EC	MC-10287F1	MC-10287F1-HN4-A
		MC-10287F1-HN4-M1-A
	MC-10287BF1	MC-10287BF1-HN4-A
		MC-10287BF1-HN4-M1-A
R-IN32M3-CL	D60510F1	UPD60510F1-HN4-A
		UPD60510F1-HN4-M1-A
	D60510BF1	UPD60510BF1-HN4-A
		UPD60510BF1-HN4-M1-A

The OS library (V2.0.2) is included in the following sample software.

[R-IN32M3 sample software download site]

https://www.renesas.com/products/factory-automation/multi-protocol-communication.html

➔   download

[Sample software related to this issues]

Target	Issue Date	Data
Driver/Middleware Set for TESSERA Board	March 11, 2016	r-in32m3_samplesoft.zip
Driver/Middleware Set for IAR Board	March 11, 2016	r-in32m3-iar_samplesoft.zip
TCP/IP,UDP/IP	March 11, 2016	r-in32m3_tcpip_evaluation.zip
Modbus TCP/RTU/ASCII	March 11, 2016	r-in32m3_modbus_package_limited.zip

2.   Issue

2.1   Illegal reordering of task waiting for resources

2.1.1   Content

Target task of chg_pri() moves to the last of queue waiting for resources with TA_TFIFO attribution.

2.1.2   Condition

chg_pri() service call is called for the task waiting for resources with TA_TFIFO attribution such as Event flag, Mailbox,

Semaphore and Mutex.

2.1.3   Permanent measures

No workaround. This is new limitation of this product. This limitation is added to Programing Manual (OS edition).

Limitation
When chg_pri() service call is called for the task waiting for resources with TA_TFIFO attribution, order of the task moves to the last of the queue. In case of uITRON(ver4.03) specification, order does not change.

2.2   Deadlock during prologue of interrupt handler

2.2.1   Content

Deadlock occurs during calling interrupt handler (inside OS library)

2.2.2   Condition

In case all the following conditions are met,

1)   chg_pri() or ter_tsk() service call is called during the period from calling dis_dsp() until calling ena_dsp()

2)   Interrupt from the peripheral of which interrupt number is smaller than one of HW-RTOS is used.

# of HW-RTOS interrupt	Peripheral of which interrupt number is smaller than one of HW-RTOS
92	Timer/UART/CSI/IIC/CAN/DMAC/EtherCAT/Inter buffer DMA Ether PHY/Ether MAC/Ether Switch/Host IF/Port

2.2.3   Permanent measures

Renesas updates the OS Library.

3.   Update Plan

Renesas will update Programing Manual (OS edition) and OS library and releases the update in Oct, 2016 on Renesas

Web site.

[R-IN32M3 sample software download site]

https://www.renesas.com/products/factory-automation/multi-protocol-communication.html

➜   download

[Sample software related to this issues]

Target	Issue Date	Data
Driver/Middleware Set for TESSERA Board	October, 2016	r-in32m3_samplesoft.zip
Driver/Middleware Set for IAR Board	October, 2016	r-in32m3-iar_samplesoft.zip
TCP/IP,UDP/IP	October, 2016	r-in32m3_tcpip_evaluation.zip
Modbus TCP/RTU/ASCII	October, 2016	r-in32m3_modbus_package_limited.zip

[OS library version]

V2.0.3