

# RENESAS TECHNICAL UPDATE

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Renesas Electronics Corporation

|                    |  |         |                      |   |      |      |
|--------------------|--|---------|----------------------|---|------|------|
| Product Category   | System LSI   |         | Document No.         | TN-RIN-A009A/E  | Rev. | 1.00 |
| Title              | Hardware Real Time OS Library issues                     |         | 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<br>R-IN32M3-CL (R18UZ0011EJ0500) |      |      |
|                    |  | All lot |                      |   |      |      |

This document describes information about issues of Hardware Real Time OS Library (V2.0.1). Please use the Hardware Real Time OS Library 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 is included in the following sample software.

[R-IN32M3 sample software download site (English)]

Japan: [http://www.renesas.com/products/soc/fa\\_lsi/multi\\_protocol\\_communication/peer/sample\\_software.jsp](http://www.renesas.com/products/soc/fa_lsi/multi_protocol_communication/peer/sample_software.jsp)

Europe: [http://www.renesas.eu/applications/industrial\\_equipment/industrial\\_communications/r-in/peer/sample\\_software.jsp](http://www.renesas.eu/applications/industrial_equipment/industrial_communications/r-in/peer/sample_software.jsp)

China: [http://hk.renesas.com/products/soc/fa\\_lsi/multi\\_protocol\\_communication/peer/sample\\_software.jsp](http://hk.renesas.com/products/soc/fa_lsi/multi_protocol_communication/peer/sample_software.jsp)

Singapore: [http://sg.renesas.com/products/soc/fa\\_lsi/multi\\_protocol\\_communication/peer/sample\\_software.jsp](http://sg.renesas.com/products/soc/fa_lsi/multi_protocol_communication/peer/sample_software.jsp)

India: [http://in.renesas.com/products/soc/fa\\_lsi/multi\\_protocol\\_communication/peer/sample\\_software.jsp](http://in.renesas.com/products/soc/fa_lsi/multi_protocol_communication/peer/sample_software.jsp)

[Sample software related to this issues]

| Target                                  | Issue Date        | Data                                |
|---|-------------------|-------------------------------------|
| Driver/Middleware Set for TESSERA Board | December 28, 2015 | r-in32m3_samplesoft.zip             |
| Driver/Middleware Set for IAR Board     | December 28, 2015 | r-in32m3-iar_samplesoft.zip         |
| TCP/IP,UDP/IP                           | December 28, 2015 | r-in32m3_tcpip_evaluation.zip       |
| Modbus TCP/RTU/ASCII                    | December 28, 2015 | r-in32m3_modbus_package_limited.zip |

Note that sample software prior to December 28<sup>th</sup> 2015 also has the same issues.

## 2. Issue

2.1 OS Library may fall into infinite loop incorrectly when interrupt service routine of  $\mu$  ITRON is used.

### 2.1.1 Content

OS Library may fall into infinite loop incorrectly when interrupt service routine of  $\mu$  ITRON (the interrupt service routine is called SW-ISR in this document) and some HW-RTOS internal process are executed at the same time. This issue can be avoided by not using SW-ISR. There are no other measures to avoid this issue.

### 2.1.2 Condition

SW-ISR and HW-ISR (HW-RTOS specific interrupt service routine) are executed in specific order, timing and condition or SW-ISR and HW-RTOS internal timeout process are executed in specific order, timing and condition.

### 2.1.3 Permanent measures

Renesas updates the OS Library.

2.2 SW-ISR that has maximum interrupt number can't be registered.

### 2.2.1 Content

When user tries to register SW-ISR that has maximum interrupt number (117) by OS configuration (kernel\_cfg.c), OS Library judges the number is out of normal range and the SW-ISR can't be registered.

### 2.2.2 Condition

Maximum interrupt number (117) is specified as interrupt number for SW-ISR by OS configuration (kernel\_cfg.c).

### 2.2.3 Permanent measures

Renesas updates the OS Library so that user can register the SW-ISR with maximum interrupt number (117) by OS configuration (kernel\_cfg.c).

2.3 wai\_flg / twai\_flg / pol\_flg service calls does not return error when NULL is specified as argument p\_flgptn.

### 2.3.1 Content

wai\_flg / twai\_flg / pol\_flg service calls does not return error (E\_PAR) when NULL is specified as argument p\_flgptn (memory address to store flag pattern). These service calls return E\_OK and store flag pattern in memory that address is zero incorrectly.

### 2.3.2 Condition

NULL is specified as argument p\_flgptn of wai\_flg / twai\_flg / pol\_flg service calls.

### 2.3.3 Permanent measures

Renesas updates the OS Library. The Library checks value of argument p\_flgptn of wai\_flg / twai\_flg / pol\_flg and returns E\_PAR as error return value if the argument p\_flgptn is NULL.

2.4 unl\_mtx service call returns incorrect value when this service call is called for mutex that is unlocked state.

### 2.4.1 Content

unl\_mtx service call returns incorrect value E\_QOVR when this service call is called for mutex that is unlocked state. The unl\_mtx service call should return E\_ILUSE (Illegal service call use) in this case.

### 2.4.2 Condition

unl\_mtx service call is called for mutex that is unlocked state.

### 2.4.3 Permanent measures

Renesas updates the OS Library to return E\_ILUSE when unl\_mtx service call is called for mutex that is unlocked state.

2.5 prcv\_mbx / trcv\_mbx" (TMO\_POL) service calls does not work correctly in case of OS is disable dispatching state and message for the mailbox exists.

2.5.1 Content

When OS is disable dispatching state and message is exists in mailbox, prcv\_mbx / trcv\_mbx (TMO\_POL) service calls are failed and returned E\_SYS as error return value.

2.5.2 Condition

prcv\_mbx / trcv\_mbx (TMO\_POL) service calls are issued when OS is disable dispatching state and message for the mailbox exists.

2.5.3 Permanent measures

Renesas updates the OS Library. When OS is disable dispatching state and message is exists in mailbox, prcv\_mbx / trcv\_mbx (TMO\_POL) service calls returns E\_CTX (Context error) as restriction to use these service calls.

3. Update Plan

Renesas updates OS library and releases the update in Feb, 2016 on Renesas Web site.

[R-IN32M3 sample software download site (English)]

Japan: [http://www.renesas.com/products/soc/fa\\_lsi/multi\\_protocol\\_communication/peer/sample\\_software.jsp](http://www.renesas.com/products/soc/fa_lsi/multi_protocol_communication/peer/sample_software.jsp)

Europe: [http://www.renesas.eu/applications/industrial\\_equipment/industrial\\_communications/r-in/peer/sample\\_software.jsp](http://www.renesas.eu/applications/industrial_equipment/industrial_communications/r-in/peer/sample_software.jsp)

China: [http://hk.renesas.com/products/soc/fa\\_lsi/multi\\_protocol\\_communication/peer/sample\\_software.jsp](http://hk.renesas.com/products/soc/fa_lsi/multi_protocol_communication/peer/sample_software.jsp)

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| Driver/Middleware Set for IAR Board     | February 26, 2016 | r-in32m3-iar_samplesoft.zip         |
| TCP/IP,UDP/IP                           | February 26, 2016 | r-in32m3_tcpip_evaluation.zip       |
| Modbus TCP/RTU/ASCII                    | February 26, 2016 | r-in32m3_modbus_package_limited.zip |

[OS library version]

V2.0.2