

RENESAS TECHNICAL UPDATE

1753, Shimonumabe, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8668 Japan
Renesas Electronics Corporation

Product Category	System LSI		Document No.	TN-RIN-A001B/E	Rev.	2.00
Title	Potential issues on using the Hardware Real Time OS		Information Category	Technical Notification		
Applicable Product	See following	Lot No.	Reference Document	R-IN32M3 Series User's Manual R-IN32M3-CL (R18UZ0007EJ0202) R-IN32M3 Series User's Manual R-IN32M3-EC (R18UZ0003EJ0301) R-IN32M3 Series User's Manual Peripheral Functions R-IN32M3-CL R-IN32M3-EC (R18UZ0005EJ0601) R-IN32M3 Series Programming Manual (OS edition) R-IN32M3-EC R-IN32M3-CL (R18UZ0011EJ0400)		
		All lots				

We would like to inform updated content for issue and restriction from Rev 1.00 because the OS library, libos.a, has been released in May, 2015.

We would like to inform about potential issues on using the Hardware Real Time OS of R-IN32M3 Series as described below.

If you do not use Hardware Real Time OS feature or you don't use "auto-exec set_flg/sig_sem service call by Hardware ISR" or "twai_flg service call" with Hardware Real Time OS, this notice can 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
R-IN32M3-CL	D60510F1	UPD60510F1-HN4-A
		UPD60510F1-HN4-M1-A

2. Issue

When Hardware Real Time OS feature is activated and specified embedded data RAM area is read or write, Hardware Real Time OS might malfunction.

Cases

[case1] Condition: Performs set_flg service call by Hardware ISR and specified address access^{*1} by CPU at the same clock cycle

Fault: Eventflag is not set.

[case2] Condition: Performs sig_sem service call by Hardware ISR and specified address access^{*2} by CPU at the same clock cycle

Fault: Semaphore counter is not updated.

[case3] Condition: Performs twai_flg service call and specified address access*1 by bus master CPU at the same clock cycle

Fault: twai_flg service call doesn't return correct eventflag information. (zero will be value of *p_flgptn variable.)

Note: *1 Data RAM area: 0x2000_8400 – 0x2000_87FF, 0x2004_8400 – 0x2004_87FF

Bitband alias area: 0x2210_8000 – 0x2210_FFFF, 0x2290_8000 – 0x2290_FFFF,

CAN1 area: 0x4004_8400 – 0x4004_87FF

Bitband alias area: 0x4290_8000 – 0x4290_FFFF

*2 Data RAM area: 0x2000_8000 – 0x2000_83FF, 0x2004_8000 – 0x2004_83FF

Bitband alias area: 0x2210_0000 – 0x2210_7FFF, 0x2290_0000 – 0x2290_7FFF,

CAN1 area: 0x4004_8000 – 0x4004_83FF

Bitband alias area: 0x4290_0000 – 0x4290_7FFF

3. Restriction

If you use Hardware Real Time OS feature on applicable product, please follow EITHER option.

[option1] Limitation for CPU access area, Hardware Real Time OS function and system service calls

- ✓ Forbids that CPU accesses the following specified address area.

Data RAM area: 0x2000_8000 – 0x2000_87FF, 0x2004_8000 – 0x2004_87FF

Bitband alias area: 0x2210_0000 – 0x2210_FFFF, 0x2290_0000 – 0x2290_FFFF

CAN1 area: 0x4004_8000 – 0x4004_87FF

Bitband alias area: 0x4290_0000 – 0x4290_FFFF

[option2] Limitation for Hardware Real Time OS function and system service calls

- ✓ Do not use set_flg and sig_sem service calls by Hardware ISR
- ✓ Do not use twai_flg service call

4. Revision Plan

(1) Revised Device

Renesas plans to revise the applicable products.

Real Time OS works without the restriction which shows in Section 3.

Regarding update schedule, please contact to Renesas sales or distributors.