To our customers,

Old Company Name in Catalogs and Other Documents

   On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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April 1st, 2010
Renesas Electronics Corporation

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RENESAS TECHNICAL UPD

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Product Category	MPU&MCU		Document No.	TN-H8*-282A/EA	Rev.	1.0
Title	The caution on accessing addresses H'FFFF40 to H'FFFF5F.		Information Category	Usage Limitation		
Applicable Product	H8S/2214 Group H8S/2218 Group H8S/2212 Group	Lot No.	Reference Document	H8S/2214 Series Hardware Manual ADE-602-213A Rev.2.0 H8S/2218,H8S/2212 Group Hardware Manual REJ09B0074-0300O Rev.3.00		
		All				

When accessing the addresses H'FFFF40 to H'FFFF5F * during on-chip ROM enabled mode (mode 6 and 7) in H8S/2214, H8S/2218, and H8S/2212 group, following precautions should be taken.

Notes: *
- Address H'FFFF40-H'FFFF5F of H8S/2214 group is an external address space. (Fig.1)
- Address H'FFFF40-H'FFFF5F of H8S/2218 and H8S/2212 group are an Extended module stop register (EXMDLSTP) and the register (RSECDR, RMINDR, RHRDR, RWKDR, RTCCR1, RTCCR2 and RTCCSR) of Built-in RTC. (Fig.2)

Address		$\overline{\text{EXMS}}$ signal
H'000000	On-chip ROM	keep
H'020000	External address (1)	High
H'FFB000	Reserved	keep
H'FFC000	On-chip RAM (1)	keep
H'FFEFC0	External address (2)	High
H'FFF800	Internal I/O registers (1)	keep
H'FFFF40	External address (3)	Low
H'FFFF60	Internal I/O registers (2)	keep
H'FFFFC0 H'FFFFFF	On-chip RAM (2)	keep

Fig.1 Memory Map for H8S/2214

Address	
H'000000	On-chip ROM
H'020000	External address (4)
H'C00000	USB registers
H'E00000	External address (5)
H'FEE800	Reserved
H'FFC000	On-chip RAM (1)
H'FFEFC0	External address (6)
H'FFF800	Internal I/O registers (1)
H'FFFF40	EXMDLSTP, RTC registers
H'FFFF60	Internal I/O registers (2)
H'FFFFC0 H'FFFFFF	On-chip RAM (2)

Fig.2 Memory Map for H8S/2218 and H8S/2212

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1. Usage Notes

1.1 H8S/2214 group

 If External address (3) is accessed while the P75MSOE bit in the external module connection output pin select register (OPINSEL) is set to 1 and outputting $\overline{\text{EXMS}}$ signal from P75, $\overline{\text{EXMS}}$ signal is set to Low.
This $\overline{\text{EXMS}}$ signals retain their low output state even when on-chip ROM, on-chip RAM (1)(2), internal I/O register (1)(2) are accessed.

1.2 H8S/2218 and H8S/2212 group

After accessing an extended module stop register (EXMDLSTP) and the register (RSECDR, RMINDR, RHRDR, RWKDR, RTCCR1, RTCCR2 and RTCCSR) of Built-in RTC, pin states of the Port D register (PORTD) can't be read. However, the read of Ports other than Port D is possible.

2. Countermeasure

2.1 H8S/2214 group

The $\overline{\text{EXMS}}$ signal is driven High when the external address (1) or (2) is accessed. Therefore, when accessing on-chip RAM or internal I/O register after accessing external address (3), execute a dummy read of 1 byte in the external address (1) (2) to drive $\overline{\text{EXMS}}$ signal High.

2.2 H8S/2218 and H8S/2212 group

A dummy read of 1 byte in the external address space (4)(5)(6) enables Port D register (PORTD) to read the pin state which is performed after accessing an EXMDLSTP register and a built-in RTC register.