

To our customers,

---

## Old Company Name in Catalogs and Other Documents

---

On April 1<sup>st</sup>, 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.

Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

Send any inquiries to <http://www.renesas.com/inquiry>.

# HITACHI SEMICONDUCTOR TECHNICAL UPDATE

DATE	10th August, 1999	No.	TN- EML - 050 A/E
THEME	Limitations on H8S/2227, 2237, 2238 E7000 emulator		
CLASSIFICATION	<input type="checkbox"/> Spec. change <input type="checkbox"/> Supplement of Documents <span style="float: right;"><input checked="" type="checkbox"/> Limitation on Use</span>		
PRODUCT NAME	HS2633EPD70H	Lot No. etc.	All
REFERENCE DOCUMENT	None	Effective Date	Permanent
		From	

When the H8S/2227,2237,2238 E7000 emulator (HS2633EPD70H) is used, note that there are the following limitations. These limitations are not applied to H8S/2633 series.

1. Microcomputers that E7000 emulator (HS2633EPD70H) supports classified by using multiplier in two as Table.1.

Table.1

Multiplier	Microcomputers
used	H8S/2633 series
none	H8S/2227 series, H8S/2237 series, H8S/2238 series

However, in the E7000 emulator (HS2633EPD70H), even if H8S/2227, 2237, 2238 series is selected, **the multiplier operates and the number of instruction execution states is less than the actual microcomputer as Table.2(same as the H8S/2633 series).**

Table.2

Execution instruction	Mnemonic	Number of instruction execution states	
		H8S/2227, 2237, 2238 series microcomputer operation	E7000 emulator operation
MULXU	MULXU.B Rs, Rd	12	3
	MULXU.W Rs, ERd	20	4
MULXS	MULXS.B Rs, Rd	13	4
	MULXS.W Rs, ERd	21	5

2. When 8-bit timers are used in H8S/2227, 2237, 2238series, **clock input and reset input for timer are different from the actual microcomputer operation as the Table. 3. Do not use external clock/reset input for Timer 1 and 3 with E7000 emulator.** Note: Channel 2 and 3 are not used by H8S/2227, 2237 series.

Table.3

Microcomputers	Pin name	Symbol	Target channel of microcomputers	E7000 emulator operation
H8S/2227, 2237, 2238 series	Timer clock input pin 01	TMCI01	Ch0 and Ch1 can be selected	Ch0 only operates correctly
	Timer reset input pin 01	TMRI01	Ch0 and Ch1 can be selected	Ch0 only operates correctly
H8S/ 2238 series	Timer clock input pin 23	TMCR23	Ch2 and Ch3 can be selected	Ch2 only operates correctly
	Timer reset input pin 23	TMRI23	Ch2 and Ch3 can be selected	Ch2 only operates correctly

3.The Contents of the HD64F2633 Technical Update(TN-H8\*-135A) is available to the emulator.