

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RX*-A177A/E	Rev.	1.00
Title	Restriction of input capture function at TPU cascaded operation		Information Category	Technical Notification		
Applicable Product	RX family (Please refer to the following table)	Lot No.	Reference Document	Please refer to the following table		
	RZ family (Please refer to the following table) H8SX family (Please refer to the following table) H8 family (Please refer to the following table)	ALL				

Regarding 16-bit timer pulse unit (TPU) implemented in the product shown above, it is found that there is a restriction of input capture function at cascaded operation. Please take the restriction into account at the time of use.

1. Restriction

When 16-bit timer counter 1 and 2 (TPU1.TCNT and TPU2.TCNT) are connected in cascade and operate as 32-bit counter, the value of 32-bit counter can be captured by input capture signal of timer counter 1 and 2 (TIOCA1 and TIOCA2 or TIOCB1 and TIOCB2) simultaneously.

However, even 2 input capture signals are input simultaneously, there is a possibility that the capture timing of the upper counter and the lower counter can be deviated 1 clock due to the delay time difference into LSI.

When capturing overflow timing of the lower counter, like from 0000_FFFF to 0001_0000, the captured value should be either 0000_FFFF or 0001_0000, but due to the 1 clock deviation of the capture timing, 0000_0000 or 0001_FFFF can be captured.

2. Example of workaround

When these timers are operated as 32-bit input capture counter, the deviation of the captured value can be occurred when the captured values of the lower counter are 0000 or FFFF. In this case, please disable the values, discard the captured value etc.

3. Related document of applicable product

Applicable products are shown in the next page.

Groupe		Documents	Rev	Doc Number
RX	RX210 Groupe	RX210 Groupe User' s Manual: Hardware	1. 50	R01UH0037EJ0150
	RX230 Groupe, RX231 Groupe	RX230 Groupe, RX231 Groupe User' s Manual: Hardware	1. 10	R01UH0496EJ0110
	RX610 Groupe	RX610 Groupe User' s Manual: Hardware	1. 20	R01UH0032EJ0120
	RX630 Groupe	RX630 Groupe User' s Manual: Hardware	1. 60	R01UH0040EJ0160
	RX634 Groupe	RX634 Groupe User' s Manual: Hardware	1. 00	R01UH0495EJ0100
	RX63N Groupe, RX631 Groupe	RX63N Groupe, RX631 Groupe User' s Manual: Hardware	1. 80	R01UH0041EJ0180
	RX64M Groupe	RX64M Groupe User' s Manual: Hardware	1. 10	R01UH0377EJ0110
	RX65N Groupe, RX651 Groupe	RX65N Groupe, RX651 Groupe User' s Manual: Hardware	1. 00	R01UH0602EJ0100
RZ	RZ/T1 Groupe	RZ/T1Groupe, User' s Manual: Hardware	1. 20	R01UH0483EJ0120
H8SX	H8SX/1622 Groupe	H8SX/1622 Group Hardware Manual	2. 00	REJ09B0414-0200
	H8SX/1635, H8SX/1635L Groupe	H8SX/1635 Group H8SX/1635L Group Hardware Manual	2. 00	REJ09B0496-0200
	H8SX/1638, H8SX/1638L Groupe	H8SX/1638 Group H8SX/1638L Group Hardware Manual	2. 00	REJ09B0364-0200
	H8SX/1645, H8SX/1645L Groupe	H8SX/1645 Group H8SX/1645L Group Hardware Manual	2. 00	REJ09B0497-0200
	H8SX/1648A, H8SX/1648L, H8SX/1648G, H8SX/1648H Groupe	H8SX/1648 H8SX/1648A H8SX/1648L H8SX/1648G H8SX/1648H Group Hardware Manual	2. 00	REJ09B0365-0200
	H8SX/1650 Groupe	H8SX/1650 Group Hardware Manual	2. 00	REJ09B0311-0200
	H8SX/1651 Groupe	H8SX/1651 Group Hardware Manual	2. 00	REJ09B0248-0200
	H8SX/1653 Groupe	H8SX/1653 Group Hardware Manual	1. 00	REJ09B0219-0100
	H8SX/1655, H8SX/1655M Groupe	H8SX/1655 Group H8SX/1655M Group Hardware Manual	2. 00	REJ09B0499-0200
	H8SX/1657 Groupe	H8SX/1657 Group Hardware Manual	2. 00	REJ09B0341-0200
	H8SX/1658R, H8SX/1658M Groupe	H8SX/1658R Group H8SX/1658M Group Hardware Manual	2. 00	REJ09B0413-0200
	H8SX/1663 Groupe	H8SX/1663 Group Hardware Manual	1. 00	REJ09B0294-0100
	H8SX/1665, H8SX/1665M Groupe	H8SX/1665 Group H8SX/1665M Group Hardware Manual	2. 00	REJ09B0498-0200
	H8SX/1668R, H8SX/1668M Groupe	H8SX/1668R Group H8SX/1668M Group Hardware Manual	2. 00	REJ09B0412-0200
	H8SX/1665MZ Group	H8SX/1665MZ Group Hardware Manual	1. 00	REJ09B0597-0100
H8SX/1668MZ Group	H8SX/1668MZ Group Hardware Manual	1. 00	REJ09B0596-0100	
H8	H8/38076R Group	H8/38076R Group Hardware Manual	4. 00	REJ09B0093-0400
	H8/38086R Group	H8/38086R Group Hardware Manual	3. 00	REJ09B0182-0300
	H8/38099 Group	H8/38099 Group Hardware Manual	2. 00	REJ09B0309-0200
	H8/38776 Group	H8/38776 Group Hardware Manual	1. 00	REJ09B0348-0100
	H8/38799 Group	H8/38799 Group Hardware Manual	1. 00	REJ09B0380-0100