

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-MC*-A027B/E	Rev.	2.00
Title	Notes on Switching from Master Transmit Mode to Master Receive Mode in IIC2 and IIC3		Information Category	Technical Notification		
Applicable Product	See below.	Lot No.	Reference Document	See below.		
		All lots				

This update concerns usage of the I²C bus interface 2 (IIC2) and I²C bus interface 3 (IIC3) in the products listed below.

The register referred to as ICCR2 below is referred to as ICCRB in some products, so read ICCRB for ICCR2 in the following descriptions as required for the product you are using.

[Precaution]

Notes on Switching from Master Transmit Mode to Master Receive Mode

If TRS is cleared to 0 to switch from master transmit mode to master receive mode before the falling edge of the 9th clock cycle in master transmit mode, the IIC2 and IIC3 modules output the reception clock in synchronization with the internal clock whether ICDRR is read (dummy read) or not. At this time, the data received in a dummy read of ICDRR should be discarded if the dummy read is delayed until after RDRF is set to 1.

Countermeasures for this phenomenon are listed below.

- (1) Design the timing so that ICDRR is read (dummy read) before the 9th cycle of the reception clock when switching from master transmit mode to master receive mode.
- (2) Clear TRS to 0 on or after the falling edge of the 9th cycle of the transmission clock when switching from master transmit mode to master receive mode.

For countermeasure (2), confirm that the SCLO bit (SCL monitor flag) in ICCR2 has been set to 0 (the SCL pin outputs the low level) before clearing TRS to 0 on or after the falling edge of the 9th cycle of the transmission clock.

Note: When interrupts are not allowed during steps [1] to [3] in the flowchart for master receive mode shown in figure 1 so the CPU will not be stalled for a relatively long time, countermeasure (1) is not necessary because ICDRR is dummy read right after TRS is cleared to 0.

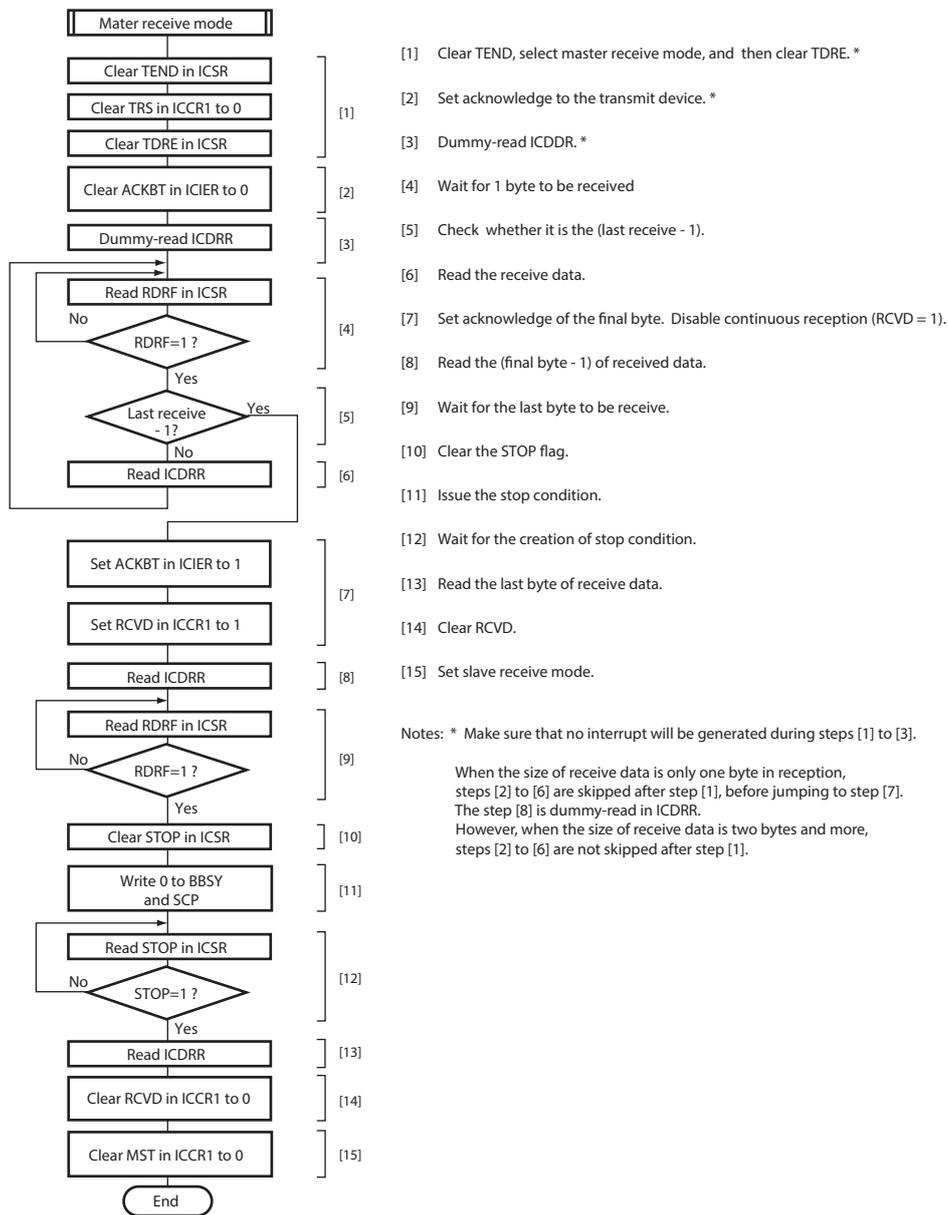


Figure 1 Sample Flowchart for Master Receive Mode

Figure 1 is an example of SH7080 family.
 Refer to the following related documents for the example of each product.

[Applicable Products and Related Documents]

Family	Group	Related Documents	Rev.	Control Code
H8/300H Tiny	H8/3687	H8/3687 Group Hardware Manual	5.00	REJ09B0027-0500
	H8/3694	H8/3694 Group Hardware Manual	5.00	REJ09B0028-0500
	H8/36049	H8/36049 Group Hardware Manual	3.00	REJ09B0060-0300
	H8/36064	H8/36064 Group Hardware Manual	2.00	REJ09B0068-0200
	H8/36077, 36079	H8/36079 Group, H8/36077 Group Hardware Manual	3.00	REJ09B0216-0300
	H8/36087	H8/36087 Group Hardware Manual	2.00	REJ09B0160-0200
	H8/36094	H8/36094 Group Hardware Manual	1.00	REJ09B0268-0100
	H8/36109	H8/36109 Group User's Manual: Hardware	2.00	R01UH0294EJ0200
H8/36912, 36902	H8/36912 Group, H8/36902 Group Hardware Manual	3.00	REJ09B0105-0300	

Family	Group	Related Documents	Rev.	Control Code
H8/300H Super Low Power	H8/38076R	H8/38076R Group Hardware Manual	4.00	REJ09B0093-0400
	H8/38086R	H8/38086R Group Hardware Manual	3.00	REJ09B0182-0300
	H8/38099	H8/38099 Group Hardware Manual	2.00	REJ09B0309-0200
	H8/38602R	H8/38602R Group Hardware Manual	3.00	REJ09B0152-0300
	H8/38776	H8/38776 Group Hardware Manual	1.00	REJ09B0348-0100
	H8/38799	H8/38799 Group Hardware Manual	1.00	REJ09B0380-0100
H8S/2300	H8S/2368	H8S/2368 Group Hardware Manual	6.00	REJ09B0050-0600
	H8S/2378, 2378R	H8S/2378, H8S/2378R Group Hardware Manual	7.00	REJ09B0109-0700
H8S/2400	H8S/2437	H8S/2437 Group Hardware Manual	2.00	REJ09B0059-0200
H8S/2500	H8S/2556, 2552, H8S/2506	H8S/2556 Group, H8S/2552 Group, H8S/2506 Group Hardware Manual	6.00	REJ09B0099-0600
H8S/Tiny	H8S/20103, 20203 H8S/20223, 20115 H8S/20215, 20235	H8S/20103, H8S/20203, H8S/20223, H8S/20115, H8S/20215, H8S/20235 Group User's Manual: Hardware	3.00	REJ09B0465-0300
	H8S/20103R,20203R H8S/20223R,20323R H8S/20115R,20215R H8S/20235R,20335R	H8S/20103R, H8S/20203R, H8S/20223R, H8S/20323R, H8S/20115R, H8S/20215R, H8S/20235R, H8S/20335R Groups User's Manual: Hardware	3.00	R01UH0185EJ0300
H8SX/1500	H8SX/1544	H8SX/1544 Group Hardware Manual	3.00	REJ09B0381-0300
H8SX/1600	H8SX/1622	H8SX/1622 Group Hardware Manual	2.00	REJ09B0414-0200
	H8SX/1635, 1635L	H8SX/1635 Group, H8SX/1635L Group Hardware Manual	2.00	REJ09B0496-0200
	H8SX/1638, 1638L	H8SX/1638 Group, H8SX/1638L Group Hardware Manual	2.00	REJ09B0364-0200
	H8SX/1645, 1645L	H8SX/1645 Group, H8SX/1645L Group Hardware Manual	2.00	REJ09B0497-0200
	H8SX/1648, 1648A, H8SX/1648L,1648G, H8SX/1648H	H8SX/1648, H8SX/1648A, H8SX/1648L, H8SX/1648G, H8SX/1648H Group Hardware Manual	2.00	REJ09B0365-0200
	H8SX/1653	H8SX/1653 Group Hardware Manual	1.00	REJ09B0219-0100
	H8SX/1655, 1655M	H8SX/1655 Group, H8SX/1655M Group Hardware Manual	2.00	REJ09B0499-0200
	H8SX/1658R, 1658M	H8SX/1658R Group, H8SX/1658M Group Hardware Manual	2.00	REJ09B0413-0200
	H8SX/1663	H8SX/1663 Group Hardware Manual	1.00	REJ09B0294-0100
	H8SX/1665, 1665M	H8SX/1665 Group, H8SX/1665M Group Hardware Manual	2.00	REJ09B0498-0200
	H8SX/1665MZ	H8SX/1665MZ Group Hardware Manual	1.00	REJ09B0597-0100
	H8SX/1668R, 1668M	H8SX/1668R Group, H8SX/1668M Group Hardware Manual	2.00	REJ09B0412-0200
	H8SX/1668MZ	H8SX/1668MZ Group Hardware Manual	1.00	REJ09B0596-0100
	SH7080	SH7084, SH7085, SH7086	SH7080 Group User's Manual: Hardware	5.00
SH7137	SH7131, SH7132, SH7136, SH7137	SH7137 Group Hardware Manual	3.00	REJ09B0402-0300
SH7200	SH7201	SH7201 Group User's Manual: Hardware	3.00	R01UH0026EJ0300
	SH7203	SH7203 Group User's Manual: Hardware	4.00	R01UH0458EJ0400
	SH7205	SH7205 Group Hardware Manual	2.00	REJ09B0372-0200
	SH7206	SH7206 Group User's Manual: Hardware	4.00	R01UH0283EJ0400
SH7210	SH7211	SH7211 Group Hardware Manual	3.00	REJ09B0344-0300
SH7216	SH7214, SH7216	SH7214 Group, SH7216 Group User's Manual: Hardware	4.00	R01UH0230EJ0400

Family	Group	Related Documents	Rev.	Control Code
SH7231	SH7231	SH7231 Group User's Manual: Hardware	2.00	R01UH0073EJ0200
SH7260	SH7261	SH7261 Group User's Manual: Hardware	3.00	R01UH0025EJ0300
	SH7262, SH7264	SH7262 Group, SH7264 Group User's Manual: Hardware	3.00	R01UH0134EJ0300
	SH7263	SH7263 Group User's Manual: Hardware	4.00	R01UH0459EJ0400
	SH7265	SH7265 Group Hardware Manual	2.00	REJ09B0351-0200
	SH7266, SH7267	SH7266 Group, SH7267 Group User's Manual: Hardware	2.00	R01UH0412EJ0200
	SH7268, SH7269	SH7268 Group, SH7269 Group User's Manual: Hardware	2.00	R01UH0048EJ0200
	SH726A, SH726B	SH726A Group, SH726B Group User's Manual: Hardware	1.00	R01UH0202EJ0100
SH7280	SH7285, SH7286	SH7280 Group, SH7243 Group User's Manual: Hardware	3.00	R01UH0229EJ0300
SH7450	SH7450, SH7451	SH7450 Group, SH7451 Group User's Manual: Hardware	1.10	R01UH0286EJ0110
	SH7455, SH7456	SH7455 Group, SH7456 Group User's Manual: Hardware	1.10	R01UH0030EJ0110
	SH7457, SH7459	SH7457 Group, SH7459 Group User's Manual: Hardware	1.20	R01UH0420EJ0120
SH-Ether	SH7670	SH7670 Group User's Manual: Hardware	3.00	R01UH0234EJ0300