

# RENESAS TECHNICAL UPDATE

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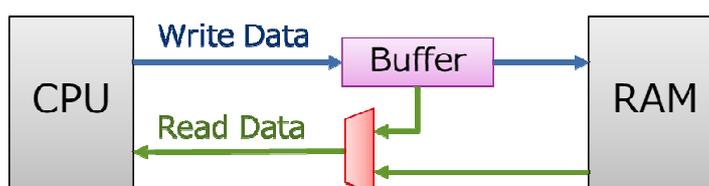
Product Category	MPU/MCU		Document No.	TN-H8*-A441A/E	Rev.	1.00
Title	Supplementary explanation on RAM self-test		Information Category	Technical Notification		
Applicable Product	H8SX/1600 Series	Lot No.	Reference Document	See below.		
		All lots				

This is a supplementary explanation for customers who perform RAM self-tests to achieve functional safety or for any other purposes while a MCU is operating.

## <Supplementary explanation>

With the above-mentioned applicable products, a buffer for high speed access is allocated between RAM and a CPU as illustrated below. When a value is written to RAM and then execute a read access to the same address, the value may be read from the buffer, not from the RAM.

The structure having a buffer will not functionally affect write/read operation. However, with a program in which a written value is to be read from RAM, the assumed (expected) operation may not be achieved. (In some cases, the written value is read from a buffer.)



Perform the following operation to ensure that a value will be read from RAM.

To read RAM data at an address of 4-aligned bytes (\*) after writing a value to the RAM address of the same 4-aligned bytes:

Write a value to any other RAM address which is out of the 4-aligned bytes, and then execute a read access to the RAM address where you want to read.

(\*) With 4-aligne bytes, the lower two bits of the address are a range of 00b to 11b.

Note that values read from a buffer and RAM are the same even if the value is read from the buffer, not from the RAM. Thus, the behavior of your program will not be affected even if this supplementary note is ignored.

However, please be aware that this (an unintentional read operation from a buffer) may happen when a value needs to be read directly from RAM (e.g. when performing a self-test for an internal RAM).

[Reference Document]

Series	Group	Related Documents
H8SX/1600	H8SX/1665MZ	H8SX/1665MZ Group Hardware Manual (REJ09B0597-0100)
	H8SX/1668MZ	H8SX/1668MZ Group Hardware Manual (REJ09B0596-0100)
	H8SX/1665 H8SX/1665M	H8SX/1665 Group H8SX/1665M Group Hardware Manual (REJ09B0498-0200)
	H8SX/1655 H8SX/1655M	H8SX/1655 Group H8SX/1655M Group Hardware Manual (REJ09B0499-0200)
	H8SX/1635 H8SX/1635L	H8SX/1635 Group H8SX/1635L Group Hardware Manual (REJ09B0496-0200)
	H8SX/1645 H8SX/1645L	H8SX/1645 Group H8SX/1645L Group Hardware Manual (REJ09B0497-0200)
	H8SX/1622	H8SX/1622 Group Hardware Manual (REJ09B0414-0200)
	H8SX/1658R H8SX/1658M	H8SX/1658R Group H8SX/1658M Group Hardware Manual (REJ09B0413-0200)
	H8SX/1668R H8SX/1668M	H8SX/1668R Group H8SX/1668M Group Hardware Manual (REJ09B0412-0200)
	H8SX/1638 H8SX/1638L	H8SX/1638 Group H8SX/1638L Group Hardware Manual (REJ09B0364-0200)
	H8SX/1648 H8SX/1648A H8SX/1648L H8SX/1648G H8SX/1648H	H8SX/1648 H8SX/1648A H8SX/1648L H8SX/1648G H8SX/1648H Group Hardware Manual (REJ09B0365-0200)
	H8SX/1650	H8SX/1650 Group Hardware Manual (REJ09B0311-0200)
	H8SX/1651	H8SX/1651 Group Hardware Manual (REJ09B0248-0200)
	H8SX/1657	H8SX/1657 Group Hardware Manual (REJ09B0341-0200)