

# RENESAS TECHNICAL UPDATE

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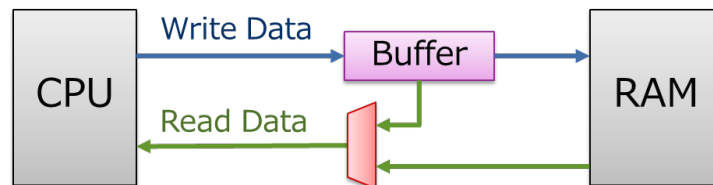
Product Category	MPU/MCU		Document No.	TN-SH7-A913A/E	Rev.	1.00
Title	Supplementary explanation on RAM self-test		Information Category	Technical Notification		
Applicable Product	See below.	Lot No.	Reference Document	See below.		
		All lots				

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).

## [Applicable Products and Reference Documents]

Series	Group	Reference Document	Rev.	Ref. No.
SH7080	SH7083, SH7084, SH7085, SH7086	SH7080 Group User's Manual: Hardware	6.00	R01UH0198EJ0600
SH7137	SH7131, SH7132, SH7136, SH7137	SH7137 Group Hardware Manual	3.00	REJ09B0402-0300
SH7146	SH7146, SH7149	SH7146 Group User's Manual: Hardware	4.00	R01UH0049EJ0400
SH/Tiny	SH7124, SH7125	SH7125 Group, SH7124 Group Hardware Manual	5.00	REJ09B0243-0500

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