[Notes]

RX Family

Flash Module Using Firmware Integration Technology,

RX Driver Package

Outline

When using the product in the title, note the following point.

1. Note on the flash type 1 access window settings

1. Note on the Flash Type 1 Access Window Settings

1.1 Applicable Products

(1) RX Family Flash Module Using Firmware Integration Technology

(Hereafter referred to as the Flash Module)

The applicable revisions and documents are as follows.

Table 1.1　Flash Module applicable products

Revision	Document number
Rev.4.60	R01AN2184EJ0460
Rev.4.70	R01AN2184EJ0470
Rev.4.80	R01AN2184EJ0480
Rev.4.81	R01AN2184EJ0481

(2) RX Driver Package

The following RX Driver Packages include the Flash Modules in (1).

The product names, revisions, documents of the RX Driver Packages, and the revisions of the included Flash Modules are as follows.

Table 1.2　Products that include the Flash Module

RX Driver Package product name	RX Driver Package revision	Document number	Flash Module revision
RX Family RX Driver Package Ver.1.27	Rev.1.27	R01AN5600EJ0127	Rev.4.60
RX Family RX Driver Package Ver.1.29	Rev.1.29	R01AN5826EJ0129	Rev.4.60
RX Family RX Driver Package Ver.1.30	Rev.1.30	R01AN5882EJ0130	Rev.4.60
RX Family RX Driver Package Ver.1.31	Rev.1.31	R01AN5975EJ0131	Rev.4.70
RX Family RX Driver Package Ver.1.32	Rev.1.32	R01AN6013EJ0132	Rev.4.80
RX Family RX Driver Package Ver.1.33	Rev.1.33	R01AN6073EJ0133	Rev.4.81

(3) FIT Modules used in combination with the Flash Module and their application notes

The problem may occur when certain FIT Modules are used with the Flash Modules in (1).

Examples:

- RX Family Firmware Update Module Using Firmware Integration Technology (R01AN5824EJ)
  https://www.renesas.com/jp/en/search?keywords=R01AN5824
- RX Family TSIP (Trusted Secure IP) Module Firmware Integration Technology (R20AN0548EJ)
  https://www.renesas.com/jp/en/search?keywords=R20AN0548

1.2 Applicable Devices

(1) RX110, RX111, RX113, RX130, and RX13T group

Flash module revisions: 4.80 to 4.81

(2) RX230, RX231, RX23E-A, RX23T, RX23W, RX24T, and RX24U group

Flash module revisions: 4.60 to 4.81

1.3 Details

An error may occur if you execute the function "R_FLASH_Control",
"FLASH_CMD_ACCESSWINDOW_SET" to set up the access window, and then "R_FLASH_Erase"
or "R_FLASH_Write".

1.4 Conditions

The problem occurs when the following conditions are met.

Condition 1: The access window's end address is set to FLASH_CF_BLOCK_END(0xFFFFFFFF).

Condition 2: "R_FLASH_Erase" or "R_FLASH_Write" is executed.

The following is an example of code that causes the problem.

If the access window's end address is set to block 0, and the end address of block 0 is set to
FLASH_CF_BLOCK_END, the correct value is not set to the register (FAWEMR).

If the subsequent "R_FLASH_Erase" runs in the condition, the ILLEGAL error occurs and
FLASH_ERR_FAILURE returns.

```
(Omitted)
void main(void)
{
    flash_err_t err;            Set FLASH_CF_BLOCK_END to the access window's end address
    flash_access_window_config_t accessInfo;
(Omitted)
    accessInfo.start_addr = (uint32_t)FLASH_CF_BLOCK_1;
    accessInfo.end_addr = (uint32_t)FLASH_CF_BLOCK_END;
    err = R_FLASH_Control(FLASH_CMD_ACCESSWINDOW_SET, (void *)&accessInfo);
    if (FLASH_SUCCESS != err)
    {
        /* Error handling */
    }

    err = R_FLASH_Erase(FLASH_CF_BLOCK_0, 1);
    if (FLASH_SUCCESS != err)
    {
        /* Error handling */     Error occurs
    }
(Omitted)
}
(Omitted)
```

1.5　Workaround

Refer to the following (r_flash_rx¥src¥flash_type_1¥r_flash_type1_if.h) and add the lines shown in red.

(1)　Flash Module Rev. 4.60 to 4.70

Before modification

```
(Omitted)
#define FLASH_ACCESS_WINDOW_END_NEXT_REG_VALUE  (0x200)
(Omitted)
```

After modification

```
(Omitted)
#if defined(MCU_RX23_ALL) || defined(MCU_RX24_ALL)
#define FLASH_ACCESS_WINDOW_END_NEXT_REG_VALUE  (0x800)
#else
#define FLASH_ACCESS_WINDOW_END_NEXT_REG_VALUE  (0x200)
#endif
(Omitted)
```

(2)　Flash Module Rev. 4.80 to 4.81

Before modification

```
(Omitted)
#define FLASH_ACCESS_WINDOW_END_VALUE  (0x400)
(Omitted)
```

After modification

```
(Omitted)
#if (FLASH_TYPE_VARIETY == FLASH_TYPE_VARIETY_A)
#define FLASH_ACCESS_WINDOW_END_VALUE  (0x400)
#elif defined(MCU_RX23_ALL) || defined(MCU_RX24_ALL)
#define FLASH_ACCESS_WINDOW_END_VALUE  (0x800)
#else
#define FLASH_ACCESS_WINDOW_END_VALUE  (0x200)
#endif
(Omitted)
```

1.6　Schedule for Fixing the Problem

The problem will be fixed in the next version.

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Mar.16.22	-	First edition issued

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TS Colophon 4.3