

[Notes]

R20TS0674EJ0100

Rev.1.00

Mar. 16, 2021

RX Driver Package,

RX Family Parallel Data Capture Unit (PDC) Module Using Firmware Integration Technology

Overview

When using the RX family parallel data capture unit (PDC) module using Firmware Integration Technology (referred to as PDC FIT module hereafter,) note the following point.

1. Notes on calling the R_PDC_Close function during operations for reception or continued reception

1. Notes on calling the R_PDC_Close function during operations for reception or continued reception

1.1 Applicable Products

- (1) RX family parallel data capture unit (PDC) module using Firmware Integration Technology

The relevant revisions and documents are as shown in "Table 1.1, PDC FIT Module Applicable Products".

Table 1.1 PDC FIT Module Applicable Products

| Revision of the PDC FIT module | Document number |
|--------------------------------|-----------------|
| Rev.1.00 | R01AN2220EJ0100 |
| Rev.1.01 | R01AN2220EJ0101 |
| Rev.1.02 | R01AN2220EJ0102 |
| Rev.1.03 | R01AN2220EJ0103 |
| Rev.2.00 | R01AN3167EJ0200 |
| Rev.2.01 | R01AN3167EJ0201 |
| Rev.2.02 | R01AN3167EJ0202 |
| Rev.2.03 | R01AN3167EJ0203 |
| Rev.2.04 | R01AN3167EJ0204 |
| Rev.2.05 | R01AN3167EJ0205 |

These notes also apply to the following RX Driver Package products which include the above PDC FIT module*1.

1: The PDC FIT module is included as r_pdc_rx_v.**.zip (*.** is the revision number).

(2) RX Driver Package

The product name and revision of the relevant RX Driver Package products and the revision of the included PDC FIT module are as shown in "Table 1.2 Products Which Include the PDC FIT Module".

Table 1.2 Products Which Include the PDC FIT Module

| Product name of the RX Driver Package | Revision of the RX Driver Package | Document number | Revision of the included PDC FIT module |
|---|-----------------------------------|-----------------|---|
| RX64M Group RX Driver Package User's Manual | Rev.1.01 | R01AN2460EJ0101 | Rev.1.00 |
| RX64M, RX71M Group RX Driver Package Ver.1.02 | Rev.1.04 | R01AN2606EJ0104 | Rev.1.02 |
| RX Family RX Driver Package Ver.1.10 | Rev.1.10 | R01AN3345EJ0100 | Rev.1.03 |
| RX Family RX Driver Package Ver.1.11 | Rev.1.11 | R01AN3467EJ0111 | Rev.2.00 |
| RX Family RX Driver Package Ver.1.12 | Rev.1.12 | R01AN3651EJ0112 | Rev.2.00 |
| RX Family RX Driver Package Ver.1.13 | Rev.1.13 | R01AN3859EJ0113 | Rev.2.01 |
| RX Family RX Driver Package Ver.1.14 | Rev.1.14 | R01AN4191EJ0114 | Rev.2.01 |
| RX Family RX Driver Package Ver.1.15 | Rev.1.15 | R01AN4372EJ0115 | Rev.2.01 |
| RX Family RX Driver Package Ver.1.16 | Rev.1.16 | R01AN4471EJ0116 | Rev.2.01 |
| RX Family RX Driver Package Ver.1.17 | Rev.1.17 | R01AN4572EJ0117 | Rev.2.01 |
| RX Family RX Driver Package Ver.1.18 | Rev.1.18 | R01AN4659EJ0118 | Rev.2.01 |
| RX Family RX Driver Package Ver.1.19 | Rev.1.19 | R01AN4677EJ0119 | Rev.2.02 |
| RX Family RX Driver Package Ver.1.20 | Rev.1.20 | R01AN4794EJ0120 | Rev.2.03 |
| RX Family RX Driver Package Ver.1.21 | Rev.1.21 | R01AN4843EJ0121 | Rev.2.03 |

| | | | |
|--|----------|-----------------|----------|
| RX Family RX Driver Package Ver.1.22 | Rev.1.22 | R01AN4873EJ0122 | Rev.2.04 |
| RX Family RX Driver Package Ver.1.23 | Rev.1.23 | R01AN4976EJ0123 | Rev.2.04 |
| RX Family RX Driver Package Ver.1.24 | Rev.1.24 | R01AN5267EJ0124 | Rev.2.04 |
| RX Family RX Driver Package Ver.1.25 | Rev.1.25 | R01AN5371EJ0125 | Rev.2.05 |
| RX Family RX Driver Package Ver.1.26 | Rev.1.26 | R01AN5401EJ0126 | Rev.2.05 |
| RX Family RX Driver Package Ver.1.27 | Rev.1.27 | R01AN5600EJ0127 | Rev.2.05 |
| RX Family RX Driver Package Ver.1.28 | Rev.1.28 | —*1 | Rev.2.05 |

*1: RX Family RX Driver Package Ver.1.28 has not been released yet as of March 16, 2021.

1.2 Applicable Devices

RX64M, RX651, RX65N, RX66N, RX71M, RX72M, and RX72N groups

1.3 Details

When an R_PDC_Close function is called during operations for reception or continued reception, the processing of the R_PDC_Close function may not end because the PCCR0 register cannot be overwritten.

1.4 Conditions

When you start data capture by calling an R_PDC_Control function, and then call an R_PDC_Close function during the operations for reception or continued reception before the data capture is stopped by a frame end interrupt or error interrupt, the PCCR0 register cannot be overwritten in the processes indicated in red below. Therefore, an infinite loop occurs in the process of waiting for the register to be overwritten.

```
/* Disables interrupts (PCFEI, PCERI, and PCDFI) used by the PDC. */
R_BSP_InterruptRequestDisable(VECT(PDC, PCDFI));
PDC.PCCR0.LONG &= (~0x03F0);
/* WAIT_LOOP */
while (0 != PDC.PCCR0.BIT.DFIE)
{
    /* Do Nothing */
}
IR(PDC, PCDFI)= 0; /* Interrupt request is cleared. */
```

1.5 Workaround

Call an R_PDC_Close function in either of the following timings:

1. After the operations for reception or continued reception of PDC is stopped by a frame end interrupt or error interrupt.
2. After the operations for reception of PDC is disabled by an R_PDC_Control function.

1.6 Permanent Measure

(1) PDC FIT module

This problem will be fixed in a later version.

(2) RX Driver Package

The PDC FIT module modified in accord with this note will be included in an upcoming release of the RX Family RX Driver Package.

Revision History

| Rev. | Date | Description | |
|------|-----------|-------------|----------------------|
| | | Page | Summary |
| 1.00 | Mar.16.21 | - | First edition issued |
| | | | |

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