[Notes]
RX Family
ADC Module Firmware Integration Technology,
RX Driver Package

R20TS0553EJ0100
Rev.1.00
Mar. 16, 2020

Outline

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

1. “R_ADC_ReadAll” function
2. Group scan mode

1. “R_ADC_ReadAll” Function

1.1 Applicable Products

(1) ADC module Firmware Integration Technology (ADC FIT module)

The applicable revision numbers and document numbers are as follows.

Table 1.1 ADC FIT module applicable products

ADC FIT module revision number	Document number
Rev.4.00	R01AN1666EJ0400
Rev.4.20	R01AN1666EJ0420

(2) RX Driver Package

The ADC FIT module in (1) is also included in the RX Driver Package.
The product names and revision numbers of the applicable RX Driver Package and the revision numbers of the ADC FIT module are as follows.

Table 1.2 Products which include the ADC FIT module

RX Driver Package product name	RX Driver Package revision number	Document number	Revision number of the included ADC FIT module
RX Family RX Driver Package Ver.1.20	Rev.1.20	R01AN4794EJ0120	Rev.4.00
RX Family RX Driver Package Ver.1.22	Rev.1.22	R01AN4873EJ0122	Rev.4.20
RX Family RX Driver Package Ver.1.23	Rev.1.23	R01AN4976EJ0123	Rev.4.20

1.2 Applicable Devices

RX110, RX111, and RX113 groups

1.3 Details and Conditions

When the A/D data duplication register (ADDBLDR) value is referenced by the parameter p_data after the “R_ADC_ReadAll” function is executed, the ADDBLDR register information cannot be obtained.

1.4 Workaround

Add the processing shown in red in the “R_ADC_ReadAll” function.

- Before modification (The read processing of the A/D data duplicate register (ADDBLDR) is missing.)

```
adc_err_t R_ADC_ReadAll(adc_data_t * const  p_all_data)
{
-------------------------(Omitted)-------------------------
#else // rx110/rx111/rx113
-------------------------(Omitted)-------------------------
#if (!defined(BSP_MCU_RX110) && !defined(BSP_MCU_RX111))
    p_all_data->chan[ADC_REG_CH5] = S12AD.ADDR5;
    p_all_data->chan[ADC_REG_CH7] = S12AD.ADDR7;
#endif
#ifdef BSP_MCU_RX113
    p_all_data->chan[ADC_REG_CH21] = S12AD.ADDR21;
#endif
    p_all_data->temp = S12AD.ADTSDR;
    p_all_data->volt = S12AD.ADOCDR;

    return ADC_SUCCESS;

#endif /* rx110/rx111/rx113 */
} /* End of function R_ADC_ReadAll() */
```

- After modification (The read processing of the A/D data duplicate register (ADDBLDR) is added.)

```
adc_err_t R_ADC_ReadAll(adc_data_t * const  p_all_data)
{
-------------------------(Omitted)-------------------------
#else // rx110/rx111/rx113
-------------------------(Omitted)-------------------------
#if (!defined(BSP_MCU_RX110) && !defined(BSP_MCU_RX111))
    p_all_data->chan[ADC_REG_CH5] = S12AD.ADDR5;
    p_all_data->chan[ADC_REG_CH7] = S12AD.ADDR7;
#endif
#ifdef BSP_MCU_RX113
    p_all_data->chan[ADC_REG_CH21] = S12AD.ADDR21;
#endif
    p_all_data->temp = S12AD.ADTSDR;
    p_all_data->volt = S12AD.ADOCDR;
    p_all_data->dbltrig = S12AD.ADDBLDR;

    return ADC_SUCCESS;

#endif /* rx110/rx111/rx113 */
} /* End of function R_ADC_ReadAll() */
```

1.5 Schedule for Fixing the Problem

This problem will be fixed in the next version Rev.4.50.

2. Group Scan Mode

2.1 Applicable Products

(1) ADC module Firmware Integration Technology (ADC FIT module)

The applicable revision numbers and document numbers are as follows.

Table 2.1 ADC FIT module applicable products

ADC FIT module revision number	Document number
Rev.4.00	R01AN1666EJ0400
Rev.4.20	R01AN1666EJ0420

(2) RX Driver Package

The ADC FIT module in (1) is also included in the RX Driver Package.
The product names and revision numbers of the applicable RX Driver Package and the revision numbers of the ADC FIT module are as follows.

Table 2.2 Products which include the ADC FIT module

RX Driver Package product name	RX Driver Package revision number	Document number	Revision number of the included ADC FIT module
RX Family RX Driver Package Ver.1.20	Rev.1.20	R01AN4794EJ0120	Rev.4.00
RX Family RX Driver Package Ver.1.22	Rev.1.22	R01AN4873EJ0122	Rev.4.20
RX Family RX Driver Package Ver.1.23	Rev.1.23	R01AN4976EJ0123	Rev.4.20

2.2 Applicable Devices

RX110, RX111, RX113, RX130, RX230, RX231, and RX23W groups

2.3 Details and Conditions

The following modes in which group scan mode is used cannot be used.

- ADC_MODE_SS_MULTI_CH_GROUPED
- ADC_MODE_SS_MULTI_CH_GROUPED_DBLTRIG_A

If A/D conversion is performed when one of these modes is selected for the “R_ADC_Open” function, the A/D conversion end interrupt for group B cannot be detected, and the callback function is not called on completion.

2.4 Workaround

Add the scan end interrupt handling for group B (shown in red) in the r_s12ad_rx.c source file.

- Before modification (The scan end interrupt handling for group B is missing.)

```
R_BSP_PRAGMA_STATIC_INTERRUPT(adc_s12adi0_isr, VECT(S12AD,S12ADI0))
R_BSP_ATTRIB_STATIC_INTERRUPT void adc_s12adi0_isr(void)
{
    adc_cb_evt_t    event=ADC_EVT_SCAN_COMPLETE;

    // presence of callback function verified in Open()
    if ((g_dcb.callback != NULL) && (g_dcb.callback != FIT_NO_FUNC))
    {
        g_dcb.callback(&event);
    }
} /* End of function adc_s12adi0_isr() */

#endif /* #if (!defined(BSP_MCU_RX64M) && !defined(BSP_MCU_RX65_ALL)
&& !defined(BSP_MCU_RX66T) &&
```

- After modification (The scan end interrupt handling for group B is added.)

```
R_BSP_PRAGMA_STATIC_INTERRUPT(adc_s12adi0_isr, VECT(S12AD,S12ADI0))
R_BSP_ATTRIB_STATIC_INTERRUPT void adc_s12adi0_isr(void)
{
    adc_cb_evt_t    event=ADC_EVT_SCAN_COMPLETE;

    // presence of callback function verified in Open()
    if ((g_dcb.callback != NULL) && (g_dcb.callback != FIT_NO_FUNC))
    {
        g_dcb.callback(&event);
    }
} /* End of function adc_s12adi0_isr() */

/***********************************************************************
****
* Function Name: adc_gbadi_isr
* Description  : Interrupt handler for Group B scan complete.
* Arguments    : none
* Return Value : none
***********************************************************************
****/
R_BSP_PRAGMA_STATIC_INTERRUPT(adc_gbadi_isr, VECT(S12AD,GBADI))
R_BSP_ATTRIB_STATIC_INTERRUPT void adc_gbadi_isr(void)
{
    adc_cb_evt_t    event = ADC_EVT_SCAN_COMPLETE_GROUPB;

    /* presence of callback function verified in Open() */
    if ((NULL != g_dcb.callback) && (FIT_NO_FUNC != g_dcb.callback))
    {
        g_dcb.callback(&event);
    }
} /* End of function adc_gbadi_isr() */

#endif /* #if (!defined(BSP_MCU_RX64M) && !defined(BSP_MCU_RX65_ALL)
&& !defined(BSP_MCU_RX66T) &&
```

2.5 Schedule for Fixing the Problem

This problem will be fixed in the next version Rev.4.50.

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Mar.16.20	-	First edition issued

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