

[Notes]

R20TS0115EJ0100

Rev.1.00

Mar. 16, 2017

Renesas Starter Kit for RX231,
Renesas Starter Kit for RX231 (B Mask)

Outline

When using the CPU board included with the Renesas Starter Kit for RX231 and Renesas Starter Kit for RX231 (B Mask), note the following point.

1. Current consumption of the MCU mounted on the CPU board

1. Current Consumption of the MCU Mounted on the CPU Board

1.1 Applicable Products and List of Sample Projects

Product name	Renesas Starter Kit for RX231 (Mounted MCU: R5F52318ADFP)	Renesas Starter Kit for RX231 (B Mask) (Mounted MCU: R5F52318BDFP)
Applicable item	<ul style="list-style-type: none"> • Sample project in installers attached to the product • Sample project as attachments to the following application notes posted on the Web <ul style="list-style-type: none"> - R01AN3138EG0100 (CS+) - R01AN3137EG0100 (e² studio) 	
Applicable sample projects	<ul style="list-style-type: none"> • Application • Async_Serial • Low_Power_Mode • RTC • System_BootLoader • System_BootLoader_Application • System_Input_Capture • Timer_PWM • Touch • Tutorial 	

1.2 Details

The RX231 group of MCUs has a circuit that may continue operating from reset release because no clock is supplied at reset of the MCU. Therefore, current consumption might be several hundred microamperes when processing transitions to the software standby mode.

Refer to the Technical Updates at the following URL for details:

https://www.renesas.com/search/keyword-search.html#genre=document&q=tn-rx*-a169a

Note regarding increase of supply current in low power consumption mode for RX231 Group

1.3 Workaround

Add the processing codes in red to the main function in the following source files to initialize unused circuits.

Sample project	Source file to which to add the processing
• Application	• r_cg_main.c
• Async_Serial	• r_cg_main.c
• Low_Power_Mode	• r_cg_main.c
• RTC	• r_cg_main.c
• System_BootLoader	• r_cg_main.c
• System_BootLoader_Application	• r_cg_main.c
• System_Input_Capture	• System_Input_Capture.c
• Timer_PWM	• r_cg_main.c
• Touch	• r_main.c
• Tutorial	• r_cg_main.c

- r_cg_main.c file

```

void main(void)
{
    R_MAIN_UserInit();
    /* Start user code. Do not edit comment generated here */
    volatile unsigned char dummy;

    SYSTEM.PRCR.WORD = 0xA502U;

    SYSTEM.MSTPCRD.BIT.MSTPD31 = 0;

    /* Wait for 3 PCLK */
    dummy = PORT1.PODR.BYTE;
    while(dummy != PORT1.PODR.BYTE){}

    SYSTEM.MSTPCRD.BIT.MSTPD31 = 1;

    SYSTEM.PRCR.WORD = 0xA500U;
    .....Omitted.....
}
    
```

- System_Input_Capture.c file

```
void main(void)
{
    R_MAIN_UserInit();

    volatile unsigned char dummy;

    SYSTEM.PRCR.WORD = 0xA502U;

    SYSTEM.MSTPCRD.BIT.MSTPD31 = 0;

    /* Wait for 3 PCLK */
    dummy = PORT1.PODR.BYTE;
    while(dummy != PORT1.PODR.BYTE){}

    SYSTEM.MSTPCRD.BIT.MSTPD31 = 1;

    SYSTEM.PRCR.WORD = 0xA500U;
    .....Omitted.....
}
```

- r_main.c file

```
void main(void)
{
    uint8_t method;
    uint8_t ret_val;

    R_MAIN_UserInit();

    volatile unsigned char dummy;

    SYSTEM.PRCR.WORD = 0xA502U;

    SYSTEM.MSTPCRD.BIT.MSTPD31 = 0;

    /* Wait for 3 PCLK */
    dummy = PORT1.PODR.BYTE;
    while(dummy != PORT1.PODR.BYTE){}

    SYSTEM.MSTPCRD.BIT.MSTPD31 = 1;

    SYSTEM.PRCR.WORD = 0xA500U;

    .....Omitted.....
}
```

1.4 Schedule for Fixing the Problem

We will fix the problem with the sample project as attachments to the application notes on the Web in the next version.

We do not plan to fix the sample code in the installers attached to the product because we will release the latest sample code on the Web.

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Mar. 16, 2017	-	First edition issued

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