RENESAS Tool News

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Notes on Using the Following Tools
CS+ Code Generator for RX
e2 studio (Code Generator Plug-in)
AP4 Coding Assistance Tool for RX

When using the CS+ code generator for RX, the e2 studio (code generator plug-in), and the AP4 coding assistance tool for RX, take note of the problem on the following point that is described in this note.

Using the Multi-Function Pin Controller (MPC) to Select Functions of the PAn Pins
Applicable MCUs: RX113 group

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1. Products Concerned
 - V1.04.00 and later versions of the CS+ Code Generator for RX
 - V3.1.2.09 and later versions of the e2 studio
  (V1.1.3 and later versions of the Code Generator Plug-in)
 - V1.05.00 and later versions of the AP4 coding assistance tool for RX*

  *: This note also applies to the following products.
   - V1.04.00 and later versions of the Application Leading Tool
    which is a coding assistance tool for RX

  Note: The Application Leading Tool for RX is listed separately because its name has been changed to AP4 for RX from V1.05.00 (the latter are the newer versions of the former).

2. Applicable MCUs
 RX113 group of the RX family

3. Description
 An error in handling of the pin function selection bits (PSEL [4:0]) of

the PAn pin function control register (PAnPFS, n= 0 to 7) of the multi-function pin controller (MPC) means that the code for selecting the following peripheral functions does not select the correct functions.

- Multifunction Timer Pulse Unit 2 (MTU2)
  MTU1 MTIOC1B pin
  MTU2 MTIOC2A pin, MTIOC2B pin
- 8-bit timer (TMR)
  TMR0 external reset pin (TMRI0)
  TMR3 external reset pin (TMCI3)

Refer to the Technical Updates on the relevant device for details.
https://www.renesas.com/search/keyword-search.html#genre=document&q=TN-RX*-A143A/J
Corrections to Descriptions for the Multi-Function Pin Controller (MPC) in the RX113 Group User's Manual
Document No. TN-RX*-A143A/E

4. Workaround

Modify the settings of any PAn pin function control register (PAnPFS, n = 0 to 7) of the multi-function pin controller (MPC) which you are using in the way shown below to select the correct peripheral functions.

(1) Multifunction Timer Pulse Unit 2 (MTU2)

Modify the generated code for void R_MTU2_Create (void) in the way shown below. The function is in the r_cg_mtu2.c file.
This modification is required every time code is generated.

Before modification:

```
------------------------------------------------------------------------
void R_MTU2_Create(void)
{
.............
   /* Set MTIOC1B pin */
   MPC.PA3PFS.BYTE = 0x05U;
.............
   /* Set MTIOC2A pin */
   MPC.PA6PFS.BYTE = 0x05U;
.............
   /* Set MTIOC2B pin */
   MPC.PA4PFS.BYTE = 0x05U;
.............
}
------------------------------------------------------------------------
```

After modification:

```
------------------------------------------------------------------------
void R_MTU2_Create(void)
{
.............
   /* Set MTIOC1B pin */
   MPC.PA3PFS.BYTE = 0x03U;
.............
   /* Set MTIOC2A pin */
   MPC.PA6PFS.BYTE = 0x03U;
.............
   /* Set MTIOC2B pin */
   MPC.PA4PFS.BYTE = 0x03U;
.............
}
------------------------------------------------------------------------
```

(2) 8-bit timer (TMR)

Modify the generated code for void R_TMR_Create (void) in the way shown below. The function is in the r_cg_tmr.c file.
This modification is required every time code is generated.

Before modification:

```
------------------------------------------------------------------------
void R_TMR_Create(void)
{
.............
   /* Set TMRI0 pin */
   MPC.PA4PFS.BYTE = 0x03U;
.............
   /* Set TMCI3 pin */
   MPC.PA6PFS.BYTE = 0x03U;
.............
}
------------------------------------------------------------------------
```

After modification:

```
------------------------------------------------------------------------
void R_TMR_Create(void)
{
.............
   /* Set TMRI0 pin */
   MPC.PA4PFS.BYTE = 0x05U;
.............
   /* Set TMCI3 pin */
   MPC.PA6PFS.BYTE = 0x05U;
```

```
.............
}
----------------------------------------------------------------------
```

5. Schedule for Fixing the Problem

This problem will be fixed in the next version.
