RENESAS Tool News

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Note on Using the Renesas Peripheral Driver Library for the RX63T Group and the Peripheral Driver Generator

When using the Renesas Peripheral Driver Library for the RX63T group and the Peripheral Driver Generator, take note of the problem regarding the following point.

- Using the multi-function timer pulse unit 3 (MTU3)

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1. Product and Versions Concerned
   - Renesas Peripheral Driver Library V1.02 for RX63T and later versions
   - Peripheral Driver Generator V.2.06 and later versions

2. MCUs Concerned
   RX Family: RX63T group (excluding MCUs in 48-pin packages)

3. Description
   When MTCLKD or MTCLKC is selected as a counter clock for the multi-function timer pulse unit (MTU3) and the given pin function is allocated to the port pin indicated below, setting the correct values in the PSEL bits of the P1n pin function control register (P1nPFS) (n=0 or 1) is not possible. This makes using MTCLKD or MTCLKC as the counter clock impossible.

   - MTCLKD when allocated to P10
   - MTCLKC when allocated to P11

4. Conditions for the Problem Arising
   - For the Renesas Peripheral Driver Library
     Using the given counter clocks becomes impossible when the following settings are made in the second argument of the R_MTU3_Set function.
     - PDL_MTU3_PIN_CLKD_P10
     - PDL_MTU3_PIN_CLKC_P11

- For the Peripheral Driver Generator
  Using the given counter clocks becomes impossible when the following settings are made on the "Peripheral pin usage" sheet.

  - P10/ALE/MTCLKD/IRQ0-DS as the pin for use by MTCLKD
  - P11/ALE/MTCLKC/IRQ1-DS as the pin for use by MTCLKC

5. Workaround
  Add code to set the correct values* for the PSEL bits in the P1n pin function control register (P1nPFS) (n=0 or 1) right after execution of the MTU3 setting function.

  Note: Refer to the following documents for details of the correct settings in the P1n pin function control register (P1nPFS) (n=0 or 1)
  - RX63T Group User's Manual: Hardware

https://www.renesas.com/products/microcontrollers-microprocessors/rx/rx600/rx63t.html#documents
  - Corrections of RX63T Group User's Manual: Hardware
    Issue number: TN-RX*-A086A/E

https://www.renesas.com/search/keyword-search.html#genre=document&q=tnrxa086ae

- In the case of the Renesas Peripheral Driver Library, and setting MTCLKD and MTCLKC to be on P10 and P11 as an example, the code will be as given below.

```
-------------------------------------------------------------
R_MTU3_Set(2,
        (PDL_MTU3_PIN_2A_PA3
         | PDL_MTU3_PIN_2B_PA2
         | PDL_MTU3_PIN_CLKC_P11
         | PDL_MTU3_PIN_CLKD_P10)
       );

******* Addition begins *******

//Disable write protection
MPC.PWPR.BIT.B0WI = 0;
MPC.PWPR.BIT.PFSWE = 1;

//Set MTCLKD to P10
MPC.P10PFS.BIT.PSEL = 2;
//Set MTCLKD to P11
MPC.P11PFS.BIT.PSEL = 2;
```

```
//Enable write protection
MPC.PWPR.BYTE = 0x80;

******* Addition ends *******
```

Remarks: The code which follows the comments below must be added regardless of the port pin used (P10 or P11).
- //Disable write protection
- //Enable write protection

For code other than that given above, add code which corresponds to the port pins in use.

- In the case of the Peripheral Driver Generator, and setting MTCLKD and MTCLKC to P10 and P11, the code will be as given below.

```
R_PG_Timer_Set_MTU_U0_C2();

******* Addition begins *******

//Set P10 as an IO port pin
PORT1.PMR.BIT.B0 = 0;
//Set P11 as an IO port pin
PORT1.PMR.BIT.B1 = 0;

//Disable write protection
MPC.PWPR.BIT.B0WI = 0;
MPC.PWPR.BIT.PFSWE = 1;

//Set MTCLKD to P10
MPC.P10PFS.BIT.PSEL = 2;
//Set MTCLKC to P11
MPC.P11PFS.BIT.PSEL = 2;

//Enable write protection
MPC.PWPR.BYTE = 0x80;

//Set P10 as a peripheral function
PORT1.PMR.BIT.B0 = 1;
//Set P11 as a peripheral function
PORT1.PMR.BIT.B1 = 1;

******* Addition ends *******
```

Remarks: The code which follows the comments below must be added

regardless of the port pin used (P10 or P11).
- //Disable write protection
- //Enable write protection

For code other than that given above, add code which corresponds to the port pins in use.

6. Schedule for Fixing the Problem

This problem will be fixed in a later revision of the product.
