RENESAS Tool News

Note on Using Renesas Peripheral Driver Library and Peripheral Driver Generator --Problem with Setting the USB Clock (UCLK)--

When using Renesas Peripheral Driver Library and Peripheral Driver Generator, take note of the following problem:

- With setting the USB clock (UCLK)

1. Products and Versions Concerned
   - RX630 Group Renesas Peripheral Driver Library V.1.00
   - Peripheral Driver Generator V.2.04 and later

2. Description
If you pass "PDL_NO_DATA" as the 9th argument (for setting UCLK) to the R_CGC_Set function, which sets the system clocks, the SCKCR2.UCK bit (the Select UCLK bit) and the SCKCR2.IEBCK bit (the Select IECLK bit) are set to incorrect values.

3. Conditions
This problem arises under the following conditions:

(1) In Renesas Peripheral Driver Library
   A call is made to the R_CGC_Set function to which "PDL_NO_DATA" has been passed as the 9th argument.

(2) In Peripheral Driver Generator
   Any MCU of the RX630 group is used, and a call is made to the R_PG_Clock_Set function that has been generated with the Use USB check box in the clock generation circuit area being not selected.

4. Workarounds
(1) In Renesas Peripheral Driver Library
   After setting other clocks than UCLK and IEBCK in the R_CGC_Set function, make the settings of frequency division of UCLK and IEBCK

directly in the SCKCR2 register. At this time, pass "PDL_NO_DATA" as the 8th argument (for setting IEBCK) and also the 9th argument (for setting UCLK) to the R_CGC_Set function.

Example:
```
-------------------------------------------------------------------
res = R_CGC_Set(PDL_CGC_CLK_MAIN,  PDL_CGC_BCLK_DISABLE,  6000000,
   6000000.000000,  6000000.000000,  6000000.000000,
   PDL_NO_DATA,
   PDL_NO_DATA,   /* PDL_NO_DATA passed as 8th argument
                              (IEBCK not set) */
   PDL_NO_DATA);  /* PDL_NO_DATA passed as 9th argument
                              (UCLK not set) */

res = R_CGC_Set(PDL_CGC_CLK_PLL,  PDL_CGC_BCLK_DISABLE,  150000000,
   75000000.000000,  37500000.000000,  37500000.000000,
   PDL_NO_DATA,
   PDL_NO_DATA,   /* PDL_NO_DATA passed as 8th argument
                              (IEBCK not set) */
   PDL_NO_DATA);  /* PDL_NO_DATA passed as 9th argument
                              (UCLK not set) */

res = R_CGC_Control(PDL_CGC_CLK_PLL,  PDL_CGC_OSC_STOP_DISABLE,
   PDL_NO_DATA);

/* Workaround for setting UCLK and IEBCK */
SYSTEM.PRCR.WORD   = 0xA501;   /* SCKCR2 register protect disabled */
SYSTEM.SCKCR2.WORD = 0x0012;   /* USB function unused;
                              IEBCK divided by 4 */

if(SYSTEM.SCKCR2.WORD);        /* Once read out SCKCR2 register */

SYSTEM.PRCR.WORD  = 0xA500;    /* SCKCR2 register protect enabled */
-------------------------------------------------------------------
```

(2) In Peripheral Driver Generator
   If you do not use the USB clock (the Use USB check box not
   selected), write values into the SCKCR2 register as follows after
   making a call to the R_PG_Clock_Set function. If you define the
   frequency division ratio of the IEB clock on the GUI, also write into
   the register the value corresponding to the above frequency division
   ratio.

Example:
```
-------------------------------------------------------------------
```

```
      res = R_PG_Clock_Set();

      /* Measure to set UCLK and IEBCK */
      SYSTEM.PRCR.WORD   = 0xA501;   /* SCKCR2 register protect disabled */
      SYSTEM.SCKCR2.WORD = 0x0012;   /* USB function unused;
                                IEBCK divided by 4 */

      if(SYSTEM.SCKCR2.WORD);        /* Once read out SCKCR2 register */

      SYSTEM.PRCR.WORD  = 0xA500;    /* SCKCR2 register protect enabled */
      ------------------------------------------------------------------
```

5. Schedule of Fixing Problem

We plan to fix this problem in the near future.