

# RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RA*-A0154A/E	Rev.	1.00
Title	Limitation about HOCOSCR and MOSCSCR register setting		Information Category	Technical Notification		
Applicable Product	RA8M1, RA8D1, RA8T1, RA8E1, and RA8E2 Group	Lot No.	Reference Document	Refer table at the end of this document		
		All				

Limitation to the HOCOSCR and MOSCSCR register in the user's manual hardware are added as shown in 1 and 2 below.

## 1. Limitation on HOCOSCR.HOCOSOKP

Set HOCOSCR.HOCOSOKP=0.

Because when setting HOCOSCR.HOCOSOKP=1 and transit to software standby mode, there is a potential that resuming from software standby mode does not work properly.

## 2. Limitation on MOSCSCR.MOSCSOKP

When setting MOSCSCR.MOSCSOKP=1 and transit to software standby mode, apply one of the workarounds in Workaround 1 or Workaround 2. If the workaround below is not applicable, set MOSCSCR.MOSCSOKP=0, because there is a potential that resuming from software standby mode does not work properly.

### Workaround 1

[Execute the following step1 and step2 procedure when reset is released.]

(Step 1) Set MOSCCR.MOSTP=1 to stop MOSC and set OSTDCR.OSTDE=1 to enable the oscillation stop detection function.

(Step 2) Set MOSCCR.MOSTP=0 to start MOSC and wait for the MOSC to be stabilized by checking OCSF.MOSCSF.

[Execute following step 3 procedure before WFI instruction execution or Sleep-on-exit before transition to software standby mode.]

(Step 3) Set either a) or b) for USBCLK, OCTACLK, CANFDCLK, USB60CLK, I3CCLK, SCICLK, SPICLK, or LCDCLK clocks.

(a) Set the MSTP bit of each clock to 1.

(b) Select PLL1P, PLL1Q, PLL1R, PLL2P, PLL2Q, or PLL2R as the clock source.

(\*CKCR.\*CKSEL[3:0]=4'b0101,0110,0111,1000,1001,1010)

When implementing Workaround 1, the following restrictions apply.

- MOSC cannot be selected as the clock source for the system clock or peripheral IP dedicated clock. (\*)

- CACMCLK, CANMCLK, and MIPIMCLK cannot be used. (\*)

- MOSC oscillation stop detection function cannot be used.

(\*) It is possible to select MOSC as the reference clock of the PLL, select MOSC as the clock source output from the CLKOUT

pin, and use USBMCLK.

No special steps are required after resuming from software standby mode. When a reset occurs, it is necessary to follow the procedure from step1.

## Workaround 2

[Execute the following step1,2,3,4,5 and 6 procedures before WFI instruction execution or Sleep-on-exit before transition to software standby mode]

(Step 1) Set the following clock settings.

- Select system clock source from other than MOSC or PLL1 whose clock source is MOSC.
- Select peripheral clock source from other than MOSC, PLL1 whose clock source is MOSC, PLL2 whose clock source is MOSC
- Stop MOSC, PLL1, and PLL2.
- Stop the module whose clock source is either CACMCLK or CANMCLK or MIPIMCLK.

(Step 2) Set MOSCCR.MOSTP=1 to stop MOSC and set OSTDCR.OSTDE=1 to enable the oscillation stop detection function.

(Step 3) Set MOSCCR.MOSTP=0 to start MOSC and wait for the MOSC to be stabilized by checking OSCSF.MOSCSF.

(Step 4) If PLL1 whose clock source is MOSC is used as the clock source for the system clock or peripheral IP, set PLLCR.PLLSTP=0 to start PLL1 and wait until OSCSF.PLLSF=1 for PLL to be stabilized. And then start using PLL1.

(Step5) If PLL2 whose clock source is MOSC is used as the clock source for the system clock or peripheral IP, set PLL2CR.PLL2STP=0 to start PLL2 and wait until OSCSF.PLL2SF=1 for PLL to be stabilized. And then start using PLL2.

(Step 6) Set either a) or b) for USBCLK, OCTACLK, CANFDCLK, USB60CLK, I3CCLK, SCICLK, SPICLK, or LCDCLK clocks.

- (a) Set the MSTP bit of each clock to 1.
- (b) Select PLL1P, PLL1Q, PLL1R, PLL2P, PLL2Q, or PLL2R as the clock source.

(\*CKCR.\*CKSEL[3:0]=4'b0101,0110,0111,1000,1001,1010)

[Execute the following step 7, 8, 9, 10, and 11 procedures After resuming from software standby mode]

(Step 7) Execute either (a) or (b)

- (a) Set OSTDCR.OSTDE=0 to disable the oscillation stop detection function.
- (b) Select the system clock source from other than MOSC or PLL1, and clear the oscillation stop detection flag to cancel the oscillation stop detection state.

(Step 8) If step7 (b) procedure is performed, change the system clock to whatever clock.

(Step 9) When the MSTP bit is set to 1 in step 6 (a), set the MSTP bit to 0 for the module which needs to be used.

(Step 10) If you changed the clock settings of USBCLK, OCTACLK, CANFDCLK, USB60CLK, I3CCLK, SCICLK, SPICLK, or LCDCLK in step 6, change the clock setting to be required. In this step 10, MOSC, PLL1, and PLL2 can be used for source clock.

(Step 11) If CACMCLK, CANMCLK, or MIPIMCLK is required, cancel module stop of required IP.

When using Workaround 2, the following limitations apply:

- MOSC cannot be selected as the clock source for the system clock or peripheral IP clock from the start of this workaround until resuming from software standby mode.
- CACMCLK, CANMCLK, and MIPIMCLK cannot be used from the start of this workaround until resuming from software standby mode.
- MOSC oscillation stop detection function cannot be used from the start of this workaround until resuming from software

standby mode.

**Related Documentation**

Product	Document Name
RA8M1 Group	Renesas RA8M1 Group User's Manual: Hardware Rev. 1.20
RA8D1 Group	Renesas RA8D1 Group User's Manual: Hardware Rev. 1.20
RA8T1 Group	Renesas RA8T1 Group User's Manual: Hardware Rev. 1.20
RA8E1 Group	Renesas RA8E1 Group User's Manual: Hardware Rev. 1.00
RA8E2 Group	Renesas RA8E2 Group User's Manual: Hardware Rev. 1.00