

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RL*-A073A/E	Rev.	1.00
Title	Precaution of using SNOOZE mode		Information Category	Technical Notification		
Applicable Product	RL78/I1D R5F117xx	Lot No.	Reference Document	RL78/I1D User's Manual: Hardware Rev. 2.10 R01UH0474EJ0210 (Jan. 2016)		
		All lot				

Precaution described below is added to the above products in the User's Manual.

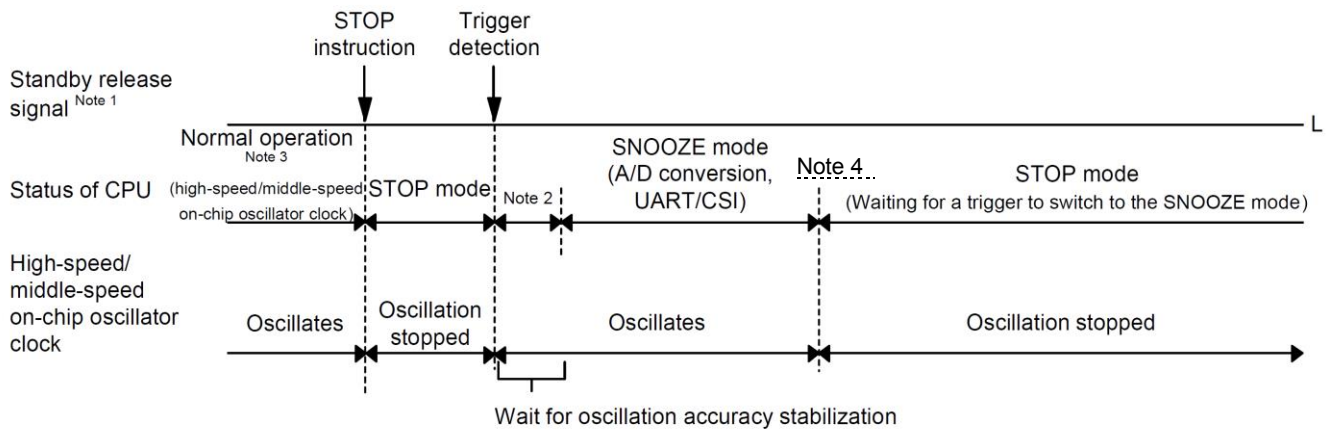
1. Addition of note when an interrupt Request Signal is Generated immediately after SNOOZE Mode transitions to STOP mode. To add a note 4 to timing chart in "(3) Timing diagram when the interrupt request signal is not generated in the SNOOZE mode" on page 724 section 23, Standby function in the User's manual.

If all of the following 1) to 3) are applicable, STOP mode has the possibility to be affected by this caution.

- 1) Using SNOOZE Mode, when SNOOZE mode transitions to STOP mode, and a Standby Release Signal occurs immediately after this transition
- 2) The High-speed on-chip oscillator (HOCO) is selected for CPU / peripheral hardware clock (fCLK).
- 3) STOP Mode is released by another Interrupt Request Signal that is not specific to the SNOOZE mode function (interrupt request that is NOT from A/D converter SNOOZE Mode or NOT from DTC used in SNOOZE Mode)

(3) Timing diagram when the interrupt request signal is not generated in the SNOOZE mode

Figure 23 - 8 When the Interrupt Request Signal is not Generated in the SNOOZE Mode



- Note 1.** For details of the standby release signal, see **Figure 21 - 1**.
- Note 2.** Transition time from STOP mode to SNOOZE mode
- Note 3.** Enable the SNOOZE mode (AWC = 1 or SWC = 1) immediately before switching to the STOP mode.
- Note 4.** If a standby release signal is generated in response to an interrupt from a peripheral function which is not set to operate in the SNOOZE mode during a transition of state from SNOOZE mode to STOP mode, the high-speed on-chip oscillator clock may run slowly for up to 15µs from when the CPU starts to operate. If the clock frequency accuracy specified in the electrical characteristics is required immediately after release from standby, wait for the number of cycles at the actual CPU clock frequency that is equivalent to 15µs.

2. Influence of precaution

If using SNOOZE mode, and selecting the High-speed on-chip oscillator for CPU / peripheral hardware clock, it has a possibility to exhibit the following symptoms.

- ✓ When restarting in CPU RUN mode and sending data using UART function within 15µs after the STOP mode is released, a communication error may occur due to a longer start bit width (since HOCO clock is temporarily too slow).
- ✓ When timer function restarts and square wave output/PWM output/one-shot pulse output within 15µs after the STOP mode is released, waveform may lengthen from influence of slower HOCO frequency.