

[Notes]

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Simulator for RX Family

(Note on Using the Trigonometric Function Unit)

Outline

When using the simulator for RX Family, note the following point.

1. Simulation when using the trigonometric function unit

1. Simulation When Using the Trigonometric Function Unit

1.1 Applicable Products

Simulator for RX Family V3.02.00 (Note)

Note: This feature is included in the following integrated development environments:

- e² studio 2020-04 to 2022-04: e² studio simulator for RX Family V3.02.00
- e² studio v7.5 to v7.8: e² studio simulator for RX Family V3.02.00
- CS+ for CC V8.02.00 to V8.07.00: CS+ simulator for RX Family V3.02.00

1.2 Applicable Devices

RX Family RX72M, RX72N, and RX72T group

1.3 Details

No problem occurs when running a program for the first time after the simulator is connected. However, when a program is rerun after a CPU reset, operation results obtained by simulation with the trigonometric function unit might not be correct.

1.4 Conditions

When a program is rerun after a CPU reset, operation results obtained by simulation with the trigonometric function unit might not be correct in the following cases.

- (1) The CC-RX intrinsic function "trigonometric function unit" is used.
- (2) Mathematics library functions are used while [Execution method of library function that can use trigonometric function unit] is set to [Use trigonometric function unit] in the CC-RX compile options.

➤ e² studio

In the Project Explorer, right-click on a project name and then select [Properties]. In the Properties window, select [C/C++ Build], [Settings], and then the [Tool Settings] tab. In the [Tool Settings] tab, select [Compiler], [Optimization], [Advanced], and then set [Execution method of library function that can use trigonometric function unit (-tfu)] to [Use trigonometric function unit]. The problem might occur if mathematics library functions are used under the condition.

➤ CS+

On the project tree, select the [CC-RX (build tool)] node. In the Property panel, select the [Compile Options] tab, [Optimization], and then set [Execution method of library function that can use trigonometric function unit] to [Use trigonometric function unit (-tfu= intrinsic, mathlib)]. The problem might occur if mathematics library functions are used under the condition.

1.5 Workaround

Take any of the following actions.

(1) Enable the coverage, trace, or timer measurement event function.

➤ e² studio

In the Renesas Coverage view, enable the coverage function with the [Turn Coverage On/Off] button.

Alternatively, in the Trace view, enable the trace function with the [Turn Trace On/Off] button.

Alternatively, in the Performance Analysis view, enable the performance analysis function with the [Turn Performance Analysis On/Off] button and then set the timer start event point and timer end event point to measure the time between the points.

➤ CS+

On the project tree, select the [RX Simulator (debug tool)] node. In the Property panel, select the [Debug Tool Settings] tab, [Trace], and then set [Use trace function] to [Yes].

Alternatively, select [Coverage] and set [Use coverage function] to [Yes].

Alternatively, set the timer start event and timer end event to measure the execution time of the section.

(2) Use CMT, ICU, or MPU of the simulator's peripheral function simulation module.

➤ e² studio

In the [Debug Configurations] window, select the [Debugger] tab, [Debug Tool Settings] tab, [IO], find [On-chip Peripheral Simulation], and then enable CMT, ICU, or MPU.

➤ CS+

On the project tree, select the [RX Simulator (debug tool)] node. In the Property panel, select the [Connect Settings] tab, [Peripheral Function Simulation], [Peripheral function simulation module], and then enable CMT, ICU, or MPU.

1.6 Schedule for Fixing the Problem

The problem will be fixed in the simulator for RX Family V3.03.00, which will be included in the following integrated development environments.

(Scheduled to be released on July 20, 2022.)

- CS+ for CC V8.08.00: CS+ simulator for RX Family V3.03.00
- e² studio 2022-07: e² studio simulator for RX Family V3.03.00

Note: The symptom will remain as a restriction in the e² studio simulator for RX Family of e² studio v7.8.

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Jul.16.22	-	First edition issued

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Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

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