

## Notes on Using Real-Time OSes HI7000/4, HI7700/4, and HI7750/4

Please take note of the following problems in using the real-time OS products for the SuperH MCU family:

- With issuing the iras\_tex service call
  - With issuing the iref\_cyc service call
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### 1. Problem with Issuing the iras\_tex Service Call

#### 1.1 Products and Versions Concerned

HI7000/4 V1.00r1 through V.2.02 Release 01

(for the SH-1-, SH-2-, SH2-DSP-, SH2A-, and SH2A-FPU-CPU-cored MCUs)

#### 1.2 Description

If the iras\_tex service call is issued from a non-task context to the task that is being performed, an incorrect address may be set to the program counter after the task's task exception handling routine is complete.

#### 1.3 Conditions

This problem occurs if the following conditions are all satisfied:

- (1) Neither "fpu\_knl.lib" nor "fpu\_knl.lib" is used in the kernel library.
- (2) The iras\_tex service call is issued while its object task is in task exception enabled state.

#### 1.4 Workaround

Instead of the non-task context that calls iras\_tex, prepare a task calling ras\_tex. The priority of this task is made the highest. Then, pass the following two items of information from the interrupt handler to the above task using any function that can pass information to tasks (for example, a mail box):

- The ID of the task that is the object of ras\_tex
- The task exception source pattern for the task that is the object of ras\_tex

## **2. Problem with Issuing the iref\_cyc Service Call**

### **2.1 Products and Versions Concerned**

- (1) HI7000/4 V1.00r1 through V.2.02 Release 01  
(for the SH-1-, SH-2-, SH2-DSP-, SH2A-, and SH2A-FPU-CPU-cored MCUs)
- (2) HI7700/4 V1.00r1 through V.2.02 Release 00  
(for the SH-3-, SH-3-DSP-, and SH4AL-DSP-cored MCUs)
- (3) HI7750/4 V1.00r1 through V2.02 Release 00  
(for the SH-4- and SH-4A-cpu-cored MCUs)

### **2.2 Description**

When the iref\_cyc service call stores the remaining time before the periodic handler is invoked in the area the pk\_rcyc pointer pointing to, this remaining time (lefttim) may become shorter than the correct value.

### **2.3 Conditions**

This problem may occur if the following conditions are all satisfied:

- (1) The value of CFG\_TICDENO (the denominator of the time of timer tick) specified by the configurator is equal to or greater than 2.
- (2) The iref\_cyc is called from the interrupt handler which interrupts while the kernel is processing the timer interrupt.

### **2.4 Workaround**

Rewrite your program not to satisfy either of the above conditions.

## **3. Schedule of Fixing the Problems**

The problems described above have already been resolved in the versions of the real-time OSes listed below.

For details see RENESAS TOOL NEWS Document No. 070416/tn7, published in this series of news, on the Web page.

- (1) HI7000/4 V.2.02 Release 02
- (2) HI7700/4 V.2.02 Release 02
- (3) HI7750/4 V.2.02 Release 02

### **NOTICE:**

Because it is not allowed to update V.1s of the three products to those listed above free of charge, and we are not upgrading V1s,

please purchase any of the above-listed products if necessary.

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