RENESAS Tool News

Note on Using E8a Emulator Software

When using E8a Emulator Software, take note of the following problem:

- With H8S/Tiny series MCU's data transfer controller (DTC) that is invoked during single-step execution or program break

1. Description

Suppose that you are debugging a system designed with an MCU of the H8S/Tiny series. If the data transfer controller (DTC) is invoked while the program is executed in single stepping or halted at a break point, the program counter (PC) may point to an incorrect instruction depending on the timing when the DTC is invoked:

(1) If DTC is invoked while the program is executed in single stepping or halted at a break point except software break ones, the following symptoms appear:
   1. After single-step execution or during a break, the program counter (PC) points to the next instruction but several to the one by which the program has been executed in single stepping or halted at a break point.
   2. After single-step execution or during a break, the PC points to the beginning of an interrupt function.

   Even though interrupts are disabled in the E8a emulator during single-step execution, any interrupt request is acknowledged, and the program jumps to an interrupt function.

   In either case, the program has properly been executed up to the value of the PC displayed in the Source window or the Register window.

(2) If DTC is invoked while the program is halted at a software break point, the following symptom may appear in addition to items (1)-1

and (1)-2:
When the program is re-executed, the first instruction to be executed is not done.
So, do not use software break points when the DTC is operating.

2. Workaround

This problem arises when an event for invoking the DTC is established during a break. So make no event established which invokes the DTC by using the Start/Stop function.

Example:
When the DTC is invoked by a timer interrupt, stop the timer's counting within the Stop function; then restart it within the Start function.

Note, however, that this method cannot be applied to the peripheral functions (for example, IRQ) for which the program can make no event established which invokes the DTC.

3. Schedule of Fixing Problem

We have no plan to fix this problem.