To our customers,

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

Precautions on Using the H8S/2214 Series E6000 Emulator

This section shows notes on using the H8S/2214 Series E6000 Emulator.

1 Precautions on Using the Emulator

1.1 Event

- Combination of Address-Range and Data Compare-Byte
  When an address range is set as the address condition and byte data as the data condition, a break will occur only at even addresses in the address range. When an address range is set as the address condition, do not set an odd address as the Address Lo condition. If set, a break will not occur even when the conditions are satisfied.

1.2 Devices that cannot be Emulated Independently by E6000

When the following devices are emulated, an expansion board and a user cable are required besides the E6000 H8S/2214 station (HS2214EPI61H). Therefore, do not select the corresponding devices when the following expansion boards and user cables are disconnected.

Emulation Device	Expansion Board and User Cable	Type Number
H8S/2215	User cable for H8S/2215	HS2215ECN61H or HS2215ECB62H
H8S/2277R, H8S/2277	H8S/2276R series expansion I/O board for E6000 emulator or H8S/2276 series expansion I/O board for E6000 emulator	HS2276REIO61H or HS2276EIO61H

1.3 USB Module of the H8S/2215

- Displaying the [I/O Registers] Window
  In the USB registers, USB Endpoint Information Registers 00_0 to 22_4 (UEPIR00_0 to UEPIR22_4) are defined as other modules (USB_Endpoint_Information_Registers).

- Access Area
  The USB module is allocated to the external bus area of area 6 (H'C00000 to H'DFFFFF).
  Therefore, the access area that has been traced for this area is displayed in the external area (EXT-8).
  There is no display of 'Internal IO' for areas H'C00000 to H'DFFFFF by the [Target Device Configuration] item in the [Memory] sheet of the [System Status] window.

1.4 Memory Mapping

Cannot map both emulator memory and user memory in the address area block below at the same time. If mapped, the previous mapped area changes to guarded area.

Block name	Address area	Block name	Address area
SB0	H'000000-H'01FFFF	LB0	H'100000-H'1FFFFF
SB1	H'020000-H'03FFFF	LB1	H'200000-H'3FFFFF
SB2	H'040000-H'05FFFF	LB2	H'400000-H'5FFFFF
SB3	H'060000-H'07FFFF	LB3	H'600000-H'7FFFFF
SB4	H'080000-H'09FFFF	LB4	H'800000-H'9FFFFF
SB5	H'0A0000-H'0BFFFF	LB5	H'A00000-H'BFFFFF
SB6	H'0C0000-H'0DFFFF	LB6	H'C00000-H'DFFFFF
SB7	H'0E0000-H'0FFFFF	LB7	H'E00000-H'FFFFFF

1.5 Voltage Follower Circuit

When setting the Vccdown detection voltage in the voltage follower circuit, make the setting be at least 3V on higher.

1.6 Reserved Area to be Changed for External Address Area

The reserved area that can be changed for the external address area by clearing the RAME bit in the system control register (SYSCR) to 0 is used as the external address area, change the attribute of this area from 'User Guarded' to 'User Read-write' or 'User Read-only' in the [Memory Mapping] dialog box that is displayed by selecting [Configure Map...] from the [Memory] menu, before loading the user program.

However, if other attributes than 'User Guarded' are set, an accessing-error break for this area will not occur. Be careful when the reserved area (RAME = 1) is also used as the external address area (RAME = 0).

1.7 Temporary Breakpoint

- Run... (Run menu)
  Do not set temporary breakpoints to an area wherein PC Break (User Read-only) cannot be set. If set, user program execution will not stop at the breakpoint. Moreover, the On Chip Breakpoint may remain. In this case, delete the breakpoint from the [Breakpoints] window.

1.8 Bus Monitor

The bus monitor function cannot be used in power-down modes.

1.9 Monitor

- Execution status display on status bar
  At memory access wait, not the address where access is halted, but the next fetched address is displayed.

1.10 The Load/Save of the Session File

Load the file after you confirm that the H/W environment is the same as that when the last session file was loaded.
Note that the operation of HDI may become incorrect when Target Clock is chosen at the time when the session file was saved and Target was not connected at the time when the session file was loaded.

1.11 Load Memory

During loading memory, if loading is stopped by [Halt] from the [Run] menu, there may be no responses from the HDI for a few seconds. For loading file, use [Load Program] from the [File] menu.

1.12 [Disassembly] Window

At address specification to open the [Disassembly] window, when a value larger than the maximum one of the absolute address is input, the contents of the last address may not be displayed. In this case, do not perform scrolling with the scroll box on the scroll bar in the [Disassembly] window.
If nothing is displayed on the Code or Assembly column in the [Memory] window or [Disassembly] window, close and open again the [Memory] window or [Disassembly] window.

1.13 [Trace] Window

- Note when the Number of Acquired Records is 1
  When the number of acquired trace records is 1, the trace result may not be displayed on the [Trace] window.
  If no data is displayed on the [Trace] window even if "Trace - 1 record (no filter)" is displayed on the title bar in the [Trace] window, open the [Trace] window again.
  When the trace is acquired with the trace window opened and when the number of acquired records is 1, the displayed data is illegal. Update the data by reopening the [Trace] window.

- Note when Time Stamp Setting is Changed
  Even if the valid/invalid setting for the Time Stamp is switched in the [Trace Acquisition] dialog box, the header character string in the [Trace] window is not changed.
  When the valid/invalid setting is switched, open the [Trace] window again.

- Filter
  When the trace filter function is used, the information of the Address and Source columns in the [Trace] window does not match. When the filter function is used, ignore the source information displayed on the Source column.

1.14 [Memory Mapping] Dialog Box

Even if the [Reset] button is clicked, the mapping information is not reset to the default setting. When the mapping information is reset to the default setting, once close the [Memory Mapping] dialog box with the [Close] button after clicking the [Reset] button.

1.15 Note on Setting Change Operation from BP Column

When the execution time measurement start point (+Time) or trace start point (+Trace) is clicked with the right mouse button, a pop-up menu is displayed. An item in this pop-up menu may not be changed to another one. In this case, change the item with double-clicking or from the [Breakpoints] window or [Trace] window directly.

1.16 Note on [Registers] Window Operation during Program Execution

During program execution, when the [Registers] window is double-clicked, a dialog box to change the register contents is displayed. However, the operation to change the register contents during program execution becomes invalid.

1.17 [Breakpoints] Window

During user program execution, it is impossible to jump to the corresponding source line or address line on the [Source] or [Disassembly] window from a breakpoint by using Go to Source in the pop-up menu that is displayed on the [Breakpoints] window.

1.18 Profile Function

The E6000 HDI does not support the profile function (section 13.10, Profile-List, section 13.11, Profile-Tree, and section 13.12, Profile-Chart, described in Hitachi Debugging Interface User's Manual).

1.19 [I/O Registers] Window

The E6000 HDI does not support the invalid module display and bit information display in the [I/O Registers] window (described in section 8, Displaying Variables, in the Hitachi Debugging Interface User's Manual).

1.20 Compare Memory

The Compare Memory function, which can be used by selecting [Compare…] from the [Memory] menu, is not supported.

1.21 [Select Function] Dialog Box

The E6000 HDI does not support software breakpoint setting in the [Select Function] dialog box (described in section 10, Selecting Functions, in the Hitachi Debugging Interface User's Manual).

1.22 Note on Radix in [Register] Dialog Box

The default input radix in the [Register] dialog box is hexadecimal regardless of the Radix setting. If you want to input the radix other than hexadecimal, specify the prefix code such as B'.

1.23 Note on Moving Source File Position after Creating Load Module

When the source file is moved after the load module has been created, the [Open] dialog box, which specifies the source file, may be displayed during debugging the created load module. Select the corresponding source file and click the [Open] button.

1.24 Source-Level Execution

- Source file
  Do not display source files that do not correspond to the load module in the program window. For a file having the same name as the source file that corresponds to the load module, only its addresses are displayed in the program window. The file cannot be operated in the program window.

- Step
  Even standard C libraries are executed. To return to a higher-level function, enter Step Out. In a for statement or a while statement, executing a single step does not move execution to the next line. To move to the next line, execute two steps.

1.25 Watch

- Local variables at optimization
  Depending on the generated object code, local variables in a C source file that is compiled with the optimization option enabled will not be displayed correctly. Check the generated object code by displaying the [Disassembly] window.

- Variable name specification
  When a name other than a variable name, such as a symbol name or a function name, is specified, no data is displayed.
  Example: The function name is main.
  main =

- Array display
  When array elements exceed 1000, elements from after 1000 will not be displayed.

1.26 Line Assembly

- Input radix
  Regardless of the Radix setting, the default for line assembly input is decimal. Specify H’ or 0x as the radix for a hexadecimal input.

- Address space size
  In absolute addressing mode, specify the size (:16, etc.)

1.27 Command Line Interface

- Batch file
  To display the message “Not currently available” while executing a batch file, enter the sleep command. Adjust the sleep time length which differs according to the operating environment.
  Example: To display “Not currently available” during memory_fill execution:
  sleep d’3000
  memory_fill 0 ffff 0

- Overwrite file
  In Command Line Interface, a file having the same name as the output file is overwritten without asking the user.

1.28 Usage with Another HDI

- Automatic load of session files
  Since the emulator cannot use another HDI, re-install this HDI whenever another HDI has been previously installed is used.
  If another HDI has been used, initiate this HDI with "Run" as follows without using the session files.
  <Directory path name in which HDI is installed>\hdi /n (RET)
  /n initiates the HDI without loading the recently used session files.
  If there is another session file in the different debug platform, the following error message is displayed:
  invalid target system: <recently used debug platform name>

- Uninstallation of Another HDI
  When another HDI is uninstalled after installing this HDI, the bus monitor function and the stack trace function cannot be used. To use this function, re-install this HDI.

1.29 Limitations when Using Old Version of Windows® 95

When using the old released version (4.00.950a, etc.) of Windows® 95, an illegal operation may occur; for example, the HDI is abnormally terminated by an application error if [Options…] is selected from the [Setup] menu. This is because of the old version of COMCTL32.DLL in the System directory in the Windows directory. Download the updated program of COMCTL32.DLL from the Microsoft® homepage, or update the version of Windows® 95.

2 User's Manual

2.1 Emulator User's Manual

In the E6000 emulator user's manual, some screen bitmap may be different from actual ones. For details on functions, refer to the on-line help or Hitachi Debugging Interface User's Manual.

2.2 Execution Environment of the Tutorial Program

When the tutorial program is executed, after [E6000 H8S/2214 Emulator] is selected in the [Select Session] dialog box and the HDI is started, select [Configure Platform...] from the [Setup] menu, and then set the followings according to the Configuration dialog box to be displayed.

Option	Set Value
Device	H8S/2214
Mode	7 (advanced mode, single chip)
Clock	Main: 10 MHz
Timer Resolution	125 ns
Others	Default