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Precautions on Using the H8S/2655 E6000 Emulator

Thank you for purchasing the H8S/2655 E6000 emulator.

Please note the followings when using this version of the H8S/2655 E6000 emulator.

1 Precautions on Using the Emulator

1.1 Write Buffer

When the write buffer function is enabled, the writing operation of the on-chip ROM/RAM access and the external memory is executed in parallel. In this case, the E6000 emulator has the following limitations:

- The trace information is not acquired correctly only for this write cycle of the external memory.
- The event condition is not satisfied only for this write cycle of the external memory.

Therefore, when the program is debugged by using the write cycle trace of the external memory or event condition, the write buffer function must be disabled.

However, the write buffer function cannot be used for the optional memory. Even if the write buffer function is enabled, the writing operation, which is in parallel with the on-chip ROM/RAM access, does not occur in the optional memory.

1.2 Event

1.2.1 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. Otherwise, a break will not occur even when the conditions are satisfied.

1.2.2 Removing PC Breakpoints during Execution of the User Program

Do not remove PC breakpoints in the source window, [Disassembly] window, or [Label] window during execution of the user program.

1.2.3 Recovery of PC Breakpoints by the Session File

Information on PC breakpoints that was saved in the session file is not available until a load module is loaded. If necessary, load a load module or set new PC breakpoints.

1.3 Display of the Memory Content and Operation of Memory

1.3.1 Operating Memory during Execution of the User Program

The memory copy, memory compare, memory fill, and memory test functions are not available during execution of the user program. These command lines are not available either.

1.3.2 Memory Test

- Memory Content after Execution of a Memory Test

The content of memory in the specified range after execution of a memory test will not be guaranteed. The contents of windows that display memory, such as the [Memory] window, are not automatically updated after a memory test. Be careful if you want to continue debugging.

- MT Command

When an incorrect parameter has been specified for the MT command, the command line window may display the message "UNKNOWN ERROR -nnnnnnnnnn". Enter the correct parameter. The command line window displays the message "Open this document" after ending the MT command. Ignore this message because it is not concerned with the result of the MT command.

1.3.3 Updating the Memory Content during Execution of the User Program

Updating the content of the [Memory] window during execution of the user program when either of the following conditions is satisfied causes the displayed values to be incorrect:

- [Enable read and write on the fly] in the [Configuration Properties] dialog box has been disabled
- Stepping (step-in, step-over, or step-out) is being performed
- The emulator is in sleep mode, software standby mode, watch mode, or subsleep mode.

In those cases, the correct values will be displayed when the content of the window is updated after the program has stopped. This also applies to the windows [Disassembly], [Image View], [IO], [Watch], and [Waveform].

Updating of the [Monitor] window or [Watch] window by reading values with the monitoring function is available even with those conditions.

1.3.4 [Memory] Window

Do not enter a key at a blank in the [Memory] window. Otherwise, the values on the left of the cursor may be incorrect.

1.3.5 MEMORY_EDIT Command

Do not select the V/N option in the MEMORY_EDIT command. Writing to memory by the MEMORY_EDIT command always requires no verification.

1.3.6 MEMORY_FILL Command

Do not select the V/N option in the MEMORY_FILL command. Writing to memory by the MEMORY_FILL command always requires verification.

1.3.7 MEMORY_MOVE Command

Do not select the V/N option in the MEMORY_MOVE command. Writing to memory by the MEMORY_MOVE command always requires verification.

1.3.8 Verification of Memory

Use the FILE_VERIFY command to verify memory. Do not use [Verify Memory...] in the [File] menu.

1.3.9 FILE_LOAD Command

Do not specify V in the FILE_LOAD command. Use the FILE_VERIFY command to verify memory.

1.3.10 FILE_SAVE Command

The content of memory cannot be saved in the Elf/Dwarf2 format.

1.4 Emulation

1.4.1 Temporary Breakpoints

- Run... (Run menu)

Do not set temporary breakpoints to an area wherein PC Break (User Read-only) cannot be set. Otherwise, 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.

1.4.2 Rate of Stepping

To perform stepping continuously with the [Image View] window or [Waveform] window open, select the rate of stepping either from 0 to 5.

1.4.3 Go to Cursor

The [Go to Cursor] function uses one PC breakpoint. Note the followings:

- To use the [Go to Cursor] function, the number of PC breakpoints must be 255 or less.
- To use the [Go to Cursor] function for the ROM area on the target system, do not use the On Chip Breakpoint by the PC break.

1.4.4 Note on Occurrence of Breaks

When a break occurs during execution of the user program with a dialog box open, the state of HEW2 may not transit to the breaking state. In this case, close the dialog box and select [Halt Program] from the [Debug] menu or press the [Halt Program] button on the toolbar. You can check whether a break has occurred or not by the RUN lamp (LED) on the emulator station. The RUN lamp (LED) is illuminated while the user program is running.

1.4.5 Execution Status Display

- Execution Status Display on Status Bar

At memory access wait, not the address where the access is halted, but the next fetched address is displayed.

1.4.6 Source-Level Execution

- 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.

1.5 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 HEW may become incorrect when Target Clock is chosen at the time when the session file was saved and the target clock was not supplied at the time when the session file was loaded.

1.6 Assembling and Disassembling

1.6.1 [Disassembly] Window

When the [Disassembly] window is first opened after installation of the HEW2, changing the size of the window may not be available. In this case, close the [Disassembly] window and then open it again.

1.6.2 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.)

1.6.3 Columns in the [Disassembly] Window

The columns Event and EXT.2 Trigger in the [Disassembly] window may be switched. You can identify these columns by displaying a popup menu on either of them.

1.7 Note on [Register] Window Operation during Program Execution

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

1.8 [IO] Window

1.8.1 Contents of the [IO] Window

- The invalid module display and bit information display in the [IO] window are not supported.
- If you selected another MCU, the content displayed in the [IO] window may not be correctly changed. The content of the [IO] window will not be correctly changed either if the MCU's operating mode has been switched from advanced mode to normal mode or from normal mode to advanced mode. To view the latest content of the [IO] window, save the session first, and then load this session.

1.8.2 Note on Editing Register Values from the [IO] Window

No data will be written to memory when the values of a register before and after editing are the same.

1.9 Source File

1.9.1 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 of the created load module. Select the corresponding source file.

1.9.2 Columns in the Source Window

The columns Event and EXT.2 Trigger in the source window may be switched. You can identify these columns by displaying a popup menu on either of them.

1.9.3 Event Column

When different actions have been set on an address from the windows [Event] and [Trace], note the followings:

- Deletion and change for settings may not be available on the [Event] column.
- If eight or more points have been set as the start points in execution time measurement (Timer On), changing the settings on the [Event] column may prevent further changes.

Deletion and change for settings must be made in the [Event] window or [Trace] window.

1.10 Watch

1.10.1 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.

1.10.2 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.

1.10.3 Display of float- and double-type Variables

Do not enable the automatic update of float- and double-type variables. The values of float- and double-type variables will not be correctly displayed if they are automatically updated during execution of the user program. If you want to check the values, use the monitoring function ([Monitor] window).

1.11 Monitor

1.11.1 Setting

Note the followings when using the monitoring function:

- The number of points to be set must be less than seven.
- To set four or more points, the interval of monitor acquisition between each of the points must be approximately 100 ms.

1.11.2 MONITOR_DISPLAY Command

Only use lower-case letters for names to be used in the monitor setting. The parameter <monit_name> to be specified in the commands MONITOR_DISPLAY, MONITOR_CLEAR, MONITOR_REFRESH, and MONITOR_SET must also be lower-case letters.

1.12 Command Line Interface

- Batch File

If the message “Not currently available” is displayed while executing a batch file, enter the sleep command. Adjust the length of sleep time since it varies according to the operating environment.

Example: When “Not currently available” is displayed during memory_fill execution:

```
sleep d'3000
memory_fill 0 ffff 0
```

- Overwrite File

In Command Line Interface, a file that has the same name as the output file is overwritten without asking the user.

- Log File

To change the target platform due to a change of the session while logging of the command line window, halt logging.

- CLOCK Command

Only use upper-case letters or abbreviation CK if you want to use the CLOCK command. “clock” entered in lower-case letters will be recognized as the clock command of TCL.

1.13 [Labels] Window

The search of labels is always case sensitive.

1.14 Installation and Uninstallation

1.14.1 Uninstallation from [Tool Administration]

Note that a message dialog box appears for confirmation if the folder to be removed includes a file other than those installed. Even though this dialog box is displayed, press the [Ignore] button to continue uninstallation.

1.14.2 [Add/Remove Programs Properties] of the Control Panel

Note the followings:

- Uninstalling from [Add/Remove Programs Properties] of the control panel only removes folders and files of the product most recently installed if several products that conform to HEW2 have been installed. Use the explorer to remove the folders and files of the rest of the products.
- Once uninstallation is attempted, even products that were not removed may not operate correctly. If you want to use these products, re-install them.

1.14.3 Usage with Other Products

To install the SuperH™ RISC engine C/C++ compiler package or H8S, H8/300 series C/C++ compiler package after installing the E6000 emulator software for HEW2, select [High-performance Embedded Workshop] as the component to be installed in [Select Components] during installation of the compiler package.

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.