

To our customers,

---

## Old Company Name in Catalogs and Other Documents

---

On April 1<sup>st</sup>, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

Send any inquiries to <http://www.renesas.com/inquiry>.

## Notice

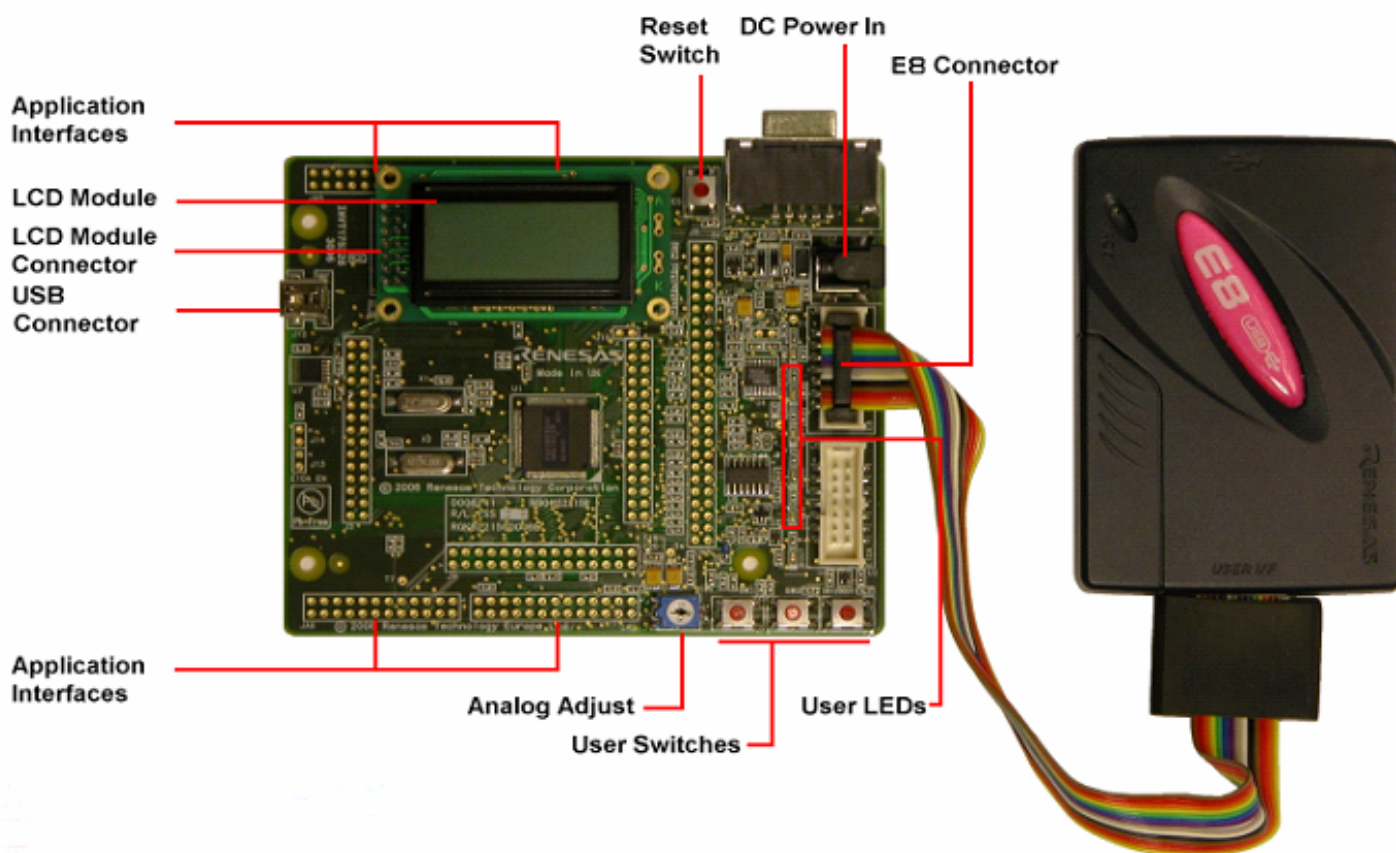
1. All information included in this document is current as of the date this document is issued. Such information, however, is subject to change without any prior notice. Before purchasing or using any Renesas Electronics products listed herein, please confirm the latest product information with a Renesas Electronics sales office. Also, please pay regular and careful attention to additional and different information to be disclosed by Renesas Electronics such as that disclosed through our website.
2. Renesas Electronics does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Renesas Electronics products or technical information described in this document. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
3. You should not alter, modify, copy, or otherwise misappropriate any Renesas Electronics product, whether in whole or in part.
4. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation of these circuits, software, and information in the design of your equipment. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from the use of these circuits, software, or information.
5. When exporting the products or technology described in this document, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations. You should not use Renesas Electronics products or the technology described in this document for any purpose relating to military applications or use by the military, including but not limited to the development of weapons of mass destruction. Renesas Electronics products and technology may not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations.
6. Renesas Electronics has used reasonable care in preparing the information included in this document, but Renesas Electronics does not warrant that such information is error free. Renesas Electronics assumes no liability whatsoever for any damages incurred by you resulting from errors in or omissions from the information included herein.
7. Renesas Electronics products are classified according to the following three quality grades: “Standard”, “High Quality”, and “Specific”. The recommended applications for each Renesas Electronics product depends on the product’s quality grade, as indicated below. You must check the quality grade of each Renesas Electronics product before using it in a particular application. You may not use any Renesas Electronics product for any application categorized as “Specific” without the prior written consent of Renesas Electronics. Further, you may not use any Renesas Electronics product for any application for which it is not intended without the prior written consent of Renesas Electronics. Renesas Electronics shall not be in any way liable for any damages or losses incurred by you or third parties arising from the use of any Renesas Electronics product for an application categorized as “Specific” or for which the product is not intended where you have failed to obtain the prior written consent of Renesas Electronics. The quality grade of each Renesas Electronics product is “Standard” unless otherwise expressly specified in a Renesas Electronics data sheets or data books, etc.
  - “Standard”: Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; and industrial robots.
  - “High Quality”: Transportation equipment (automobiles, trains, ships, etc.); traffic control systems; anti-disaster systems; anti-crime systems; safety equipment; and medical equipment not specifically designed for life support.
  - “Specific”: Aircraft; aerospace equipment; submersible repeaters; nuclear reactor control systems; medical equipment or systems for life support (e.g. artificial life support devices or systems), surgical implantations, or healthcare intervention (e.g. excision, etc.), and any other applications or purposes that pose a direct threat to human life.
8. You should use the Renesas Electronics products described in this document within the range specified by Renesas Electronics, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas Electronics shall have no liability for malfunctions or damages arising out of the use of Renesas Electronics products beyond such specified ranges.
9. Although Renesas Electronics endeavors to improve the quality and reliability of its products, semiconductor products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Further, Renesas Electronics products are not subject to radiation resistance design. Please be sure to implement safety measures to guard them against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas Electronics product, such as safety design for hardware and software including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or system manufactured by you.
10. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. Please use Renesas Electronics products in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. Renesas Electronics assumes no liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
11. This document may not be reproduced or duplicated, in any form, in whole or in part, without prior written consent of Renesas Electronics.
12. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products, or if you have any other inquiries.

(Note 1) “Renesas Electronics” as used in this document means Renesas Electronics Corporation and also includes its majority-owned subsidiaries.

(Note 2) “Renesas Electronics product(s)” means any product developed or manufactured by or for Renesas Electronics.

# QuickStart

## RSKH8S2215R Renesas Starter Kit



### 1. Installation

Do not connect the E8 debugger hardware until the software support has been installed.

1. Insert the CD into your computer's CD-ROM drive. The CD should automatically run the installation program. If the installer does not start, browse to the RSK directory from the CD root folder and double click on 'setup.exe'.
2. Choose the desired setup language and click OK.
3. You will be presented with Welcome screen, Click <Next>.
4. The software licence agreement will be displayed, read and accept the license by clicking <Yes> to continue.
5. You will be asked to select your region, select appropriate region and click <Next>.
6. Select the software components to install. Following software components are recommended for RSKH8S2215R.
  - High-Performance Embedded Workshop -> High-Performance Embedded Workshop online manuals
  - H8SX/H8S/H8 Family -> H8S,H8300 Toolchains
  - H8SX/H8S/H8 Family -> H8SX,H8S,H8300 Family Simulator Debugger
  - H8SX/H8S/H8 Family -> Starter kit for H8S2215R
  - Flash Development Toolkit FDT
  - AutoUpdate utility
7. Unselect the remaining components. Click <Next> to continue.
8. The destination folder for HEW is specified on the next screen. It is recommended to accept the default path. Click <Next> to continue.
9. The destination folder for FDT is specified on the next screen. It is recommended to accept the default path. Click <Next> to continue.
10. The selected components will be displayed on this dialog. To confirm the selections click <Next>.
11. After completing the installation, you will be given a site code, click <Next>. You will receive the final dialog box, click <Finish>.
12. The Auto-update dialog box will be launched. Configure the Auto-update settings dialog to allow the installation to be checked for available updates.

## 2. Connection

13. Connect the E8 to the 'E8' connector on the RSK using the ribbon cable.
14. Plug in the LCD module to 'LCD' connector on the RSK ensuring that the pin 1 designation corresponds to the marking on the RSK.
15. Connect the E8 debugger to a spare USB port on your PC.  
The 'Found New Hardware' Wizard will appear. Please follow the steps below to install the drivers. Note that administrator privileges are required for a Windows™ 2000/XP machine.
16. For Windows XP Select the 'No, not this time' option and click <Next>.
17. Verify the "Recommended" option is selected and click <Next>. (Renesas E-Series USB Driver).
18. If using Windows XP, skip to step 20; otherwise click <Next>.
19. Click <Next> to install the driver.
20. Click <Finish> to close the wizard.

*Note: The Windows driver signing dialog may be displayed. Please accept the driver to continue.*

## 3. HEW Workspace

HEW integrates various tools such as compiler, assembler, debugger and editor into a common graphical user interface. To learn more on how to use HEW, open the HEW manual installed on your computer (Start Menu > Programs > Renesas > High-performance Embedded Workshop > Manual Navigator).


21. Launch HEW from the Start Menu.
22. In the "Welcome" dialog box: Verify "Create New Workspace" is selected. Click <OK>
23. In the "New Project Workspace" dialog box: Verify the "CPU Family" is set "H8S,H8/300". Select "RSKH8S2215R" from the left hand pane.
24. Enter a name for the workspace. The project name will be automatically completed with the Workspace name. You can change this name to 'Tutorial' if required. Click <OK>.
25. On the "RSKH8S2215R – Step 1" window: Select "Tutorial" and click <Next>.
26. On the "RSKH8S2215R – Step 2" window: Click <Finish>.
27. On the Project Generator Information window: Click <OK>.  
The project that is created has two configurations. The Release configuration compiles the project without any debugger support and can be used for the final release code version. The Debug configuration includes HMon debugger support code.
28. Select the 'Debug' build configuration in the left hand drop down list on the tool bar.

29. Click on the 'Build' icon to compile, assemble and link the project.



## 4. Programming and Debug

*Before connecting to the RSK, HEW needs to know which device is being used so that the correct programming kernel can be used. To set this information, the Flash wizard needs to be invoked.*

30. Click on the 'Configure Flash Project' button 
31. The FDT configuration wizard will be launched.
32. Select the "H8S/2215RUF" device from the drop down list.  
In the kernels displayed it is very important to select the kernel with 'RSK' at the end of the name. This is because this kernel has been modified to support the debugger.
33. Accept all the default settings by clicking <Next> and then <Finish> to the end of the wizard.

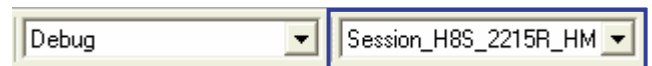
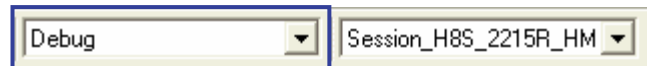
**Note:** Two warning dialogs will be displayed, accept the dialogs.

34. Select (<File> Save Workspace) from the main toolbar.

The FDT settings have now been saved and it is time to attempt the initial connection to the board.

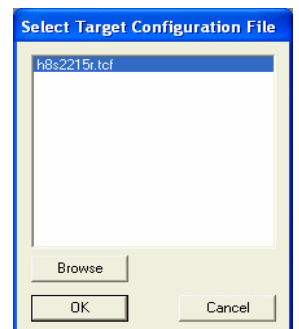
The HEW workspace contains two debug sessions. The Default session does not include any debugger information. This can be used to add support for other debugging tools such as the Renesas E10A.

35. Select the "Session\_H8S\_2215R\_HMon" session in the right hand drop down list on the toolbar. The Debug toolbar connection button should be active.
36. Click the <Connect> button on the debug toolbar.



37. In the "Select Target Configuration File" dialog choose "H8s2215r.tcf" and click <OK>.
38. When asked if it is OK to assume only one E8 will be connected, click <Yes>.
39. If your E8 Firmware needs updating, a warning dialog will be displayed. Click <OK> to continue.
40. The message pane at the bottom of the workspace window will show details of current progress.

**Note:** If this is the first time the E8 has been used in E8Direct mode then there will be a short delay and the Found New Hardware wizard will be invoked for a second time. This is to support the debugging function of the E8Direct mode. Please refer to the instructions below to install the different driver.



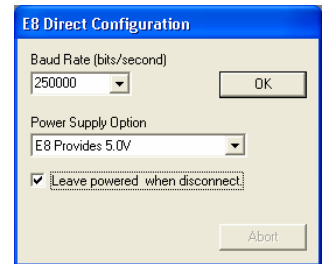
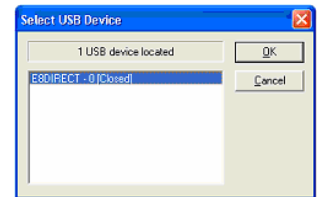
### First time E8 Direct Driver install only

The 'Found New Hardware' Wizard will appear.

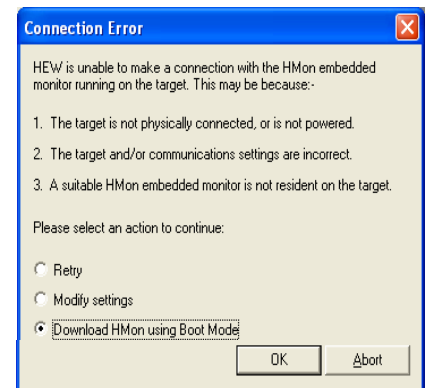
41. Select the 'No, not this time' option and click <Next>.
42. Verify the "Recommended" option is selected and click <Next>.
43. If using Windows XP, skip to step 45; otherwise click <Next>.
44. Click <Next> to install the driver.
45. Click <Finish> to close the wizard.

You may be prompted to select the USB device in a new dialog:

46. Click <OK> to select the 'E8DIRECT' USB device.
47. In the "E8 Direct Configuration" dialog box set the baud rate to 250000, select 'E8 Provides 5V' and 'Leave powered when disconnected.' Click <OK>.
48. If this is the first time you have connected to the RSK and all connections are correct then the connection will be completed, so go to step 63.  
**Note:** It is possible that a working HMon project is not programmed in to the device.
49. If the connection fails then you will be returned to the same configuration screen with the 'Abort' button enabled. Click <Abort>.
50. In the "Connection Error" dialog box, select "Download HMon using Boot Mode" and click <OK>.

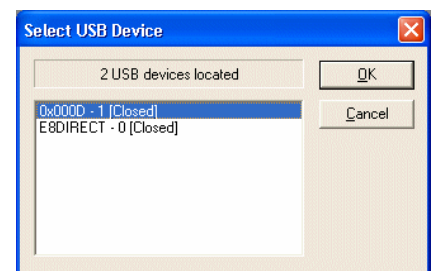


51. Click <OK> to any warning dialogs.
52. Click <Finish> in Boot Mode pin configuration dialog.



**Warning:** Please ensure that the RSK is powered before connecting a USB cable to the USBDirect port. Failing to do this may damage the board.

53. Connect another USB cable to the USB connector on the RSK and spare USB port on your PC. Wait for the 'Found New Hardware' Wizard to appear. Follow the steps below to install the driver. Note that administrator privileges are required for a Windows™ 2000/XP machine.
54. For Windows XP Select the 'No, not this time' option and click <Next>.
55. Verify the "Recommended" option (USBDirect) is selected and click <Next>.
56. If using Windows XP, skip to step 58; otherwise click <Next>.
57. Click <Next> to install the driver.
58. Click <Finish> to close the wizard.
59. Ensure '0x000D - 1 [Closed]' is selected and click <OK>.
60. HMon will program the device in Boot mode and then swap back to User mode.
61. A debug connection will then be attempted. If the connection fails the "Connection Error" dialog will be re-displayed. Re-check the settings and connections and try again.
62. When 'Download Operation finished' is displayed in the message pane at the bottom of the workspace, disconnect the USB cable from the 'USB' connector on the RSK.
63. Right click on the projectname.abs file listed in the download modules area of the Workspace view and select 'Download'.



64. In the HMON Configuration dialog select 'Compare with cache' and Click <OK>.
65. The code will be downloaded to the device.

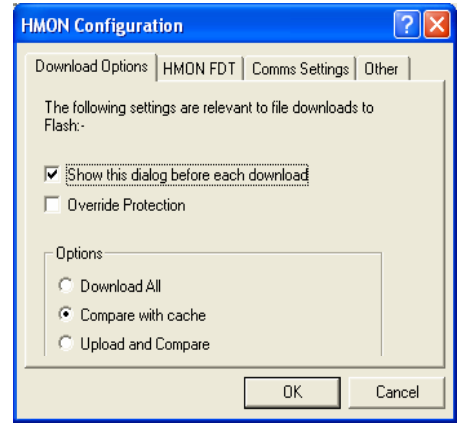
66. Click the 'Reset – Go' button.

67. The code will run and you will see the LEDs flash on the board.



68. Click the 'Stop' button.

The code will stop and the source code opened at the current program counter.



## 5. Next Step

After you have completed this quick start procedure, please review the tutorial code and sample code that came with the kit. You can add projects to the current workspace by selecting (Project > Insert Project) from the main menu. The tutorials will help you understand the device and development process using Renesas Development Tools.

The Hardware manual supplied with this RSK is current at the time of publication. Please check for any updates to the device manual from the Renesas internet site at: [www.renesas.com/renesas\\_starter\\_kits](http://www.renesas.com/renesas_starter_kits)

## 6. Renesas H8 Compiler

The version of the compiler provided with this RSK is fully functional but time limited. You have 60 days to evaluate the full product before the compiler will limit the code linker to 64k bytes.

## 7. Support

Online technical support and information is available at: [www.renesas.com/renesas\\_starter\\_kits](http://www.renesas.com/renesas_starter_kits)

### Technical Contact Details

America: [techsupport.rta@renesas.com](mailto:techsupport.rta@renesas.com)

Europe: [tools.support.eu@renesas.com](mailto:tools.support.eu@renesas.com)

Japan: [csc@renesas.com](mailto:csc@renesas.com)

- © Renesas Technology Europe Ltd 2007.
- © Renesas Solutions Corporation 2007.
- © Renesas Technology Corporation 2007.