To our customers,

Old Company Name in Catalogs and Other Documents

On April 1\textsuperscript{st}, 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: \url{http://www.renesas.com}

April 1\textsuperscript{st}, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (\url{http://www.renesas.com})
Send any inquiries to \url{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 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 depend 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 sheet or data book, 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.
PCI Interface Board for E6000, E6000H, and E8000 Emulators
HS6000EIC02H User’s Manual

Renesas Microcomputer Development Environment System

HS6000EIC02HE
1. This document is provided for reference purposes only so that Renesas customers may select the appropriate Renesas products for their use. Renesas neither makes warranties or representations with respect to the accuracy or completeness of the information contained in this document nor grants any license to any intellectual property rights or any other rights of Renesas or any third party with respect to the information in this document.

2. Renesas shall have no liability for damages or infringement of any intellectual property or other rights arising out of the use of any information in this document, including, but not limited to, product data, diagrams, charts, programs, algorithms, and application circuit examples.

3. You should not use the products or the technology described in this document for the purpose of military applications such as the development of weapons of mass destruction or for the purpose of any other military use. When exporting the products or technology described herein, you should follow the applicable export control laws and regulations, and procedures required by such laws and regulations.

4. All information included in this document such as product data, diagrams, charts, programs, algorithms, and application circuit examples, 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 products listed in this document, please confirm the latest product information with a Renesas sales office. Also, please pay regular and careful attention to additional and different information to be disclosed by Renesas such as that disclosed through our website. (http://www.renesas.com)

5. Renesas has used reasonable care in compiling the information included in this document, but Renesas assumes no liability whatsoever for any damages incurred as a result of errors or omissions in the information included in this document.

6. When using or otherwise relying on the information in this document, you should evaluate the information in light of the total system before deciding about the applicability of such information to the intended application. Renesas makes no representations, warranties or guaranties regarding the suitability of its products for any particular application and specifically disclaims any liability arising out of the application and use of the information in this document or Renesas products.

7. With the exception of products specified by Renesas as suitable for automobile applications, Renesas products are not designed, manufactured or tested for applications or otherwise in systems the failure or malfunction of which may cause a direct threat to human life or create a risk of human injury or which require especially high quality and reliability such as safety systems, or equipment or systems for transportation and traffic, healthcare, combustion control, aerospace and aeronautics, nuclear power, or undersea communication transmission. If you are considering the use of our products for such purposes, please contact a Renesas sales office beforehand. Renesas shall have no liability for damages arising out of the uses set forth above.

8. Notwithstanding the preceding paragraph, you should not use Renesas products for the purposes listed below:
   (1) artificial life support devices or systems
   (2) surgical implantations
   (3) healthcare intervention (e.g., excision, administration of medication, etc.)
   (4) any other purposes that pose a direct threat to human life

Renesas shall have no liability for damages arising out of the uses set forth in the above and purchasers who elect to use Renesas products in any of the foregoing applications shall indemnify and hold harmless Renesas Technology Corp., its affiliated companies and their officers, directors, and employees against any and all damages arising out of such applications.

9. You should use the products described herein within the range specified by Renesas, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas shall have no liability for malfunctions or damages arising out of the use of Renesas products beyond such specified ranges.

10. Although Renesas endeavors to improve the quality and reliability of its products, IC products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Please be sure to implement safety measures to guard against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas 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 applicable measures. Among others, since the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or system manufactured by you.

11. In case Renesas products listed in this document are detached from the products to which the Renesas products are attached or affixed, the risk of accident such as swallowing by infants and small children is very high. You should implement safety measures so that Renesas products may not be easily detached from your products. Renesas shall have no liability for damages arising out of such detachment.

12. This document may not be reproduced or duplicated, in any form, in whole or in part, without prior written approval from Renesas.

13. Please contact a Renesas sales office if you have any questions regarding the information contained in this document, Renesas semiconductor products, or if you have any other inquiries.
Preface

The PCI interface board for the E6000 / E6000H / E8000 emulators is described in this description notes. Read this notes and the user's manuals for the E6000, E6000H, and E8000 emulators.

This PCI interface board provides PCI connection of the E6000/E6000H/E8000 emulator to a personal computer incorporating Windows® with the PCI interface, enabling program debugging through an HDI or the High-performance Embedded Workshop.

Notes: 1. Microsoft® and Windows® are registered trademarks of Microsoft Corporation in the United States and/or in other countries. Microsoft® Windows® 98 Second Edition operating system is referred to as Windows® 98SE in this description notes. Microsoft® Windows® Millennium Edition operating system is referred to as Windows® Me in this description notes. Microsoft® Windows NT® operating system is referred to as Windows NT® in this description notes. Microsoft® Windows® 2000 operating system is referred to as Windows® 2000 in this description notes. Microsoft® Windows® XP operating system is referred to as Windows® XP in this description notes.
2. Displays in this notes are examples at using the Windows® 2000.
3. Pentium® is a registered trademark of Intel.
Contents

Section 1 Overview ........................................................................................................1
  1.1 System Configuration .............................................................................................1
  1.2 Operating Environments .......................................................................................2
  1.3 Environmental Conditions .....................................................................................2

Section 2 Components ..................................................................................................5

Section 3 Preparation before Use ................................................................................7
  3.1 Installing the PCI Interface Board ..........................................................................7
  3.2 Connecting the PCI Interface Board to the E6000 Emulator ....................................9
  3.3 Connecting the PCI Interface Board to the E6000H Emulator ................................10
  3.4 Connecting the PCI Interface Board to the E8000 Emulator ..................................11

Section 4 Setting Up the PCI Interface Board ...............................................................13
  4.1 Procedures .............................................................................................................13
  4.2 Selecting the PCI Driver .......................................................................................14

Section 5 Notes on Use ...............................................................................................15
Section 1  Overview

This section describes the system configuration at PCI connection and the PCI interface board.

1.1  System Configuration

Figure 1.1 shows the system configuration when connecting the E6000 emulator and the USB adapter. The E6000H and E8000 emulators can be connected in the same way. Refer to figures 3.3 and 3.4 when connecting the E6000H and E8000 emulators and the USB adapter, respectively.

The PCI interface board is installed in the host computer containing Windows®.

The PCI interface board and the E6000/E6000H/E8000 emulator are connected through the PC interface cable.

![Figure 1.1  System Configuration of E6000 Emulator Connection](image)
1.2 Operating Environments

Table 1.1 Operating Environments

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host computer</td>
<td>Built-in Pentium® or higher-performance CPU (600 MHz or higher recommended); personal computer incorporating Windows® with the PCI slot</td>
</tr>
<tr>
<td></td>
<td>Memory capacity: 128 Mbytes (double or more file size of the load module)</td>
</tr>
<tr>
<td></td>
<td>Hard disk capacity: 50 Mbytes or more (Prepare an area at least double the memory capacity (four-times or more recommended) as the swap area.)</td>
</tr>
<tr>
<td>PCI interface</td>
<td>Complied with Revision 2.1</td>
</tr>
<tr>
<td>Basic software (OS)</td>
<td>Microsoft® Windows® 98SE, Microsoft® Windows® Me, Microsoft® Windows NT®, Microsoft® Windows® 2000, or Microsoft® Windows® XP</td>
</tr>
</tbody>
</table>

1.3 Environmental Conditions

CAUTION

Observe the conditions listed in table 1.2 when using the PCI interface board. Failure to do so will damage the PCI interface board, the emulator product, and the user system.
## Table 1.2  Environmental Conditions

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Temperature</td>
<td>Operating: +10°C to +35°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage: -10°C to +50°C</td>
</tr>
<tr>
<td>2</td>
<td>Humidity</td>
<td>Operating: 35% RH to 80% RH, no condensation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage: 35% RH to 80% RH, no condensation</td>
</tr>
<tr>
<td>3</td>
<td>Vibration</td>
<td>Operating: 2.45 m/s² max.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage: 4.9 m/s² max.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transportation: 14.7 m/s² max.</td>
</tr>
<tr>
<td>4</td>
<td>Ambient gases</td>
<td>There must be no corrosive gasses present.</td>
</tr>
</tbody>
</table>
### Section 2 Components

Table 2.1 lists the components of the PCI interface board.

**Table 2.1 Components**

<table>
<thead>
<tr>
<th>Item</th>
<th>Product Name</th>
<th>Configuration</th>
<th>Quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>PCI interface board</td>
<td></td>
<td>1</td>
<td>70.00 x 119.91 mm (except for the PCI bracket and projections)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC interface cable</td>
<td></td>
<td></td>
<td>1</td>
<td>Cable length: 1.5 m (provided with a ferrite core as a countermeasure for EMI noise)</td>
</tr>
<tr>
<td>Documentation</td>
<td>PCI Interface Board for E6000, E6000H, and E8000 Emulators HS6000EIC02H User's Manual (This manual)</td>
<td></td>
<td>1</td>
<td>HS6000EIC02HE</td>
</tr>
</tbody>
</table>
Section 3  Preparation before Use

3.1  Installing the PCI Interface Board

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always switch OFF the host computer, emulator product, and user system before connecting or disconnecting the PCI interface board. Failure to do so will result in a FIRE HAZARD and will damage the emulator product, PCI interface board, and the user system or will result in PERSONAL INJURY.</td>
</tr>
</tbody>
</table>

1. Check that the emulator and the host computer are turned off.
2. Open the host computer cover and install the PCI interface board into an extension slot conforming to PCI bus specifications. Gently push the PCI interface board into the connector and fasten the board with the host computer screw.

Note: The installation procedure differs depending on the host computer in use. Be sure to refer to the manual of the host computer.
Figure 3.1 Installing the PCI Interface Board
3.2 Connecting the PCI Interface Board to the E6000 Emulator

**WARNING**

Always switch OFF the host computer, emulator product, and user system before connecting or disconnecting the PCI interface board. Failure to do so will result in a FIRE HAZARD and will damage the emulator product, PCI interface board, and user system or will result in PERSONAL INJURY.

When using the E6000 emulator, use the PC interface cable supplied together with the PCI interface board, and connect the PCI interface board to the E6000 emulator station through the interface cable as shown in figure 3.2. Connect the PC interface cable connector with a ferrite core to the emulator.

![Figure 3.2 Connecting the PCI Interface Board to the E6000 Emulator](image)

Figure 3.2 Connecting the PCI Interface Board to the E6000 Emulator
3.3 Connecting the PCI Interface Board to the E6000H Emulator

When using the E6000H emulator, use the PC interface cable supplied together with the PCI interface board, and connect the PCI interface board to the E6000H emulator station through the interface cable as shown in figure 3.3. Connect the PC interface cable connector with a ferrite core to the emulator.

![Figure 3.3 Connecting the PCI Interface Board to the E6000H Emulator](image)
3.4 Connecting the PCI Interface Board to the E8000 Emulator

When using the E8000 emulator, use the PC interface cable supplied together with the PCI interface board, and connect the PCI interface board to the E8000 emulator station through the interface cable as shown in figure 3.4. Connect the PC interface cable connector with a ferrite core to the emulator.

Figure 3.4 Connecting the PCI Interface Board to the E8000 Emulator
Section 4  Setting Up the PCI Interface Board

4.1  Procedures

Figure 4.1 shows the setup procedures of the PCI interface board.

1. Select the PCI driver at installation of the emulator control software (HDI or High-performance Embedded Workshop; refer to section 4.2, Selecting the PCI Driver).

2. Connect the device according to the description of section 3, Preparation before Use.

3. Turn on the host computer to start Windows®.

4. According to the message of 'Add Hardware Wizard', find the installation CD and install the PCI driver.

5. Turn on the emulator and start the emulator control software.

6. When [Connect] is clicked, the [Driver Details] dialog box is displayed. Select the PCI driver.

Figure 4.1 Setup Procedures
4.2 Selecting the PCI Driver

During installation of the emulator control software (HDI or High-performance Embedded Workshop), select the PCI driver in the [Select Components] dialog box.

Even if the [Select Components] dialog box is not displayed in some products, it is not a problem because the driver is automatically installed.

Notes: 1. If the PCI driver is not selected in the [Select Components] dialog box, the PCI interface is not available.
2. If the PCI driver is not displayed in the [Select Components] dialog box, operating environments in table 1.1 will not be satisfied. Check the operating system in use.
Section 5  Notes on Use

1. This PCI interface board is only for use with the E6000, E6000H, or E8000 emulator. Do not use any other emulator together with the PCI interface board.

2. Protect the PCI interface board from excessive impacts and stresses. Keep out of direct sunlight, heat, and high humidity.

3. Do not disassemble the PCI interface board or interface cable.

4. Be sure to turn off the host computer and the emulator before inserting or removing the PCI interface board.
PCI Interface Board for E6000, E6000H, and E8000 Emulators
HS6000EIC02H User’s Manual