To our customers,

---

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April 1st, 2010
Renesas Electronics Corporation

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Description Notes on Using LAN Adapter for E6000/E6000H/E8000 Emulator (HS6000ELN01H)

Renesas Microcomputer Development Environment System

HS6000ELN01HE
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READ FIRST

• READ this user's manual before using this emulator product.
• KEEP the user's manual handy for future reference.

Do not attempt to use the emulator product until you fully understand its mechanism.

Emulator Product:

Throughout this document, the term "emulator product" shall be defined as the following products produced only by Renesas Technology Corp. and Renesas Solutions Corp. excluding all subsidiary products.

• Emulator (including the EV-chip set)
• LAN adapter
• User system interface cables
• Optional board (including the memory board)

The user system or a host computer is not included in this definition.

Purpose of the Emulator Product:

This emulator product is a software and hardware development tool for systems employing the Renesas microcomputer. This emulator product must only be used for the above purpose.

Limited Applications:

This emulator product is not authorized for use in transportation, vehicular, medical (where human life is potentially at stake), aerospace, nuclear, or undersea repeater applications. Buyers of this emulator product must notify Renesas Technology Corporation, Renesas Solutions Corporation or an authorized Renesas Technology product distributor before planning to use the product in such applications.

Improvement Policy:

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Target User of the Emulator Product:

This emulator product should only be used by those who have carefully read and thoroughly understood the information and restrictions contained in the user's manual. Do not attempt to use the emulator product until you fully understand its mechanism.

It is highly recommended that first-time users be instructed by users that are well versed in the operation of the emulator product.

Users are required to be familiar with the basic knowledge for the electric circuits, logic circuits, and microcomputers.

Precautions to be Taken when Using This Product:

1. This emulator is a development supporting unit for use in your program development and evaluation stages. In mass-producing your program you have finished developing, be sure to make a judgment on your own risk that it can be put to practical use by performing integration test, evaluation, or some experiment else.

2. In no event shall Renesas Solutions Corporation be liable for any consequence arising from the use of this emulator.

3. Renesas Solutions Corporation does not guarantee the renovation or the provision of a workaround for product malfunction.

4. This emulator has been developed by assuming its use for program development and evaluation in laboratories. Therefore, it does not fall under the application of Electrical Appliance and Material Safety Law and protection against electromagnetic interference when used in Japan.

5. This emulator does not conform to safety standards such as UL or IEC. Be careful when you take this emulator overseas.

6. Renesas cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this user's manual and on the emulator product are therefore not all inclusive. Therefore, you must use the emulator product safely at your own risk.
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Figures:

Some figures in this user's manual may show items different from your actual system.
SAFETY PAGE

READ FIRST

• READ this user's manual before using this emulator product.

• KEEP the user's manual handy for future reference.

Do not attempt to use the emulator product until you fully understand its mechanism.

DEFINITION OF SIGNAL WORDS

Either in the user's manual or on the product, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties. Their graphic images and meanings are given in this safety page. Be sure to read this chapter before using the product.

⚠️ This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠️ DANGER DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠️ WARNING WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠️ CAUTION CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

⚠️ CAUTION CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTE emphasizes essential information.
WARNING

Observe the precautions listed below. Failure to do so will result in a FIRE HAZARD and will damage the user system and the emulator product or will result in PERSONAL INJURY. The USER PROGRAM will be LOST.

1. Do not repair or remodel the emulator product by yourself for electric shock prevention and quality assurance.

2. Always switch OFF the emulator and the host computer before connecting or disconnecting the LAN adapter or any CABLES.

3. Supply power according to the power specifications and do not apply an incorrect power voltage. Use only the provided power cable.
Preface

The LAN adapter 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 LAN adapter provides LAN connection of the E6000/E6000H/E8000 emulator to a personal computer incorporating Windows® with the LAN 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.
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Section 1  Overview

This section describes the system configuration at LAN connection and the LAN adapter.

1.1  System Configuration

Figure 1.1 shows the system configuration when connecting the E6000 emulator and the LAN adapter. The E6000H and E8000 emulators can be connected in the same way. Refer to figures 3.4 and 3.5 when connecting the E6000H and E8000 emulators and the LAN adapter, respectively.

The host computer containing Windows® and the LAN adapter are connected via LAN (10BASE-T/100BASE-TX).

The LAN adapter and the E6000/E6000H/E8000 emulator are connected through the PC interface cable.

![Figure 1.1  System Configuration of E6000 Emulator Connection](image-url)
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 LAN interface</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>Basic software</td>
<td>Microsoft® Windows® 98SE, Microsoft® Windows® Me, Microsoft® Windows NT®, Microsoft® Windows® 2000, or Microsoft® Windows® XP</td>
</tr>
<tr>
<td>LAN type</td>
<td>10BASE-T/100BASE-TX based on IEEE 802.3</td>
</tr>
<tr>
<td>Protocol</td>
<td>TCP/IP (when using the LAN adapter configuration, UDP)</td>
</tr>
</tbody>
</table>

1.3 Environmental Conditions

**CAUTION**

Observe the conditions listed in table 1.2 when using the LAN adapter. Failure to do so will damage the LAN adapter, 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/s$^2$ max.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage: 4.9 m/s$^2$ max.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transportation: 14.7 m/s$^2$ max.</td>
</tr>
<tr>
<td>4</td>
<td>AC-input power supply</td>
<td>Voltage: AC 100 V to 240 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Frequency: 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current: 61 VA to 70 VA</td>
</tr>
<tr>
<td>5</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 LAN adapter.

<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>LAN adapter</td>
<td></td>
<td>1</td>
<td>Number of printed circuit boards mounted: 1</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>AC power-supply adapter</td>
<td></td>
<td></td>
<td>1</td>
<td>Cable length: 1.8 m</td>
</tr>
<tr>
<td>AC power-supply cable</td>
<td></td>
<td></td>
<td>1</td>
<td>Cable length: 2.5 m</td>
</tr>
<tr>
<td>Documentation</td>
<td>Description Notes on Using LAN Adapter for E6000/E6000H/ E8000 Emulator (HS6000ELN01H) (This manual)</td>
<td>1</td>
<td>HS6000ELN01HE</td>
<td></td>
</tr>
</tbody>
</table>

Note: EMI is an abbreviation of electrical magnetic interference.
2.1 LAN Adapter

Figure 2.1 shows each part of the LAN adapter.

Numbers in figure 2.1 indicate the following:

(1) Product name: Product name (HS6000ELN01H) of the LAN adapter.
(2) 100BASE-TX/10BASE-T port: Connects the LAN cable.
(3) LED displaying the communication state: Table 2.2 shows the LED names, contents, and states at power-on.
Table 3  LED Names, Contents, and States at Power-on

<table>
<thead>
<tr>
<th>LED Name</th>
<th>LED Contents</th>
</tr>
</thead>
</table>
| Speed    | During 100BASE-TX mode communication: Lit  
During 10BASE-T mode communication: Unlit |
| Col      | During collision detection in half-duplex mode (with Monostable function): Lit |
| Tx       | During data transmission (with Monostable function): Lit |
| Rx       | During data receiving (with Monostable function): Lit |
| Link     | During normal linking (communication with the connected hub enabled): Lit |
| Full     | During full-duplex mode communication: Lit |

Note: The LAN adapter only lights "Speed" if the LAN cable is not connected at power-on.

(4) Power switch: Power switch for the LAN adapter. (Pressing the O-side powers-on the adapter. Pressing the I-side powers-off the adapter.)

(5) Power input connector: Inputs the external AC power supply by using the power adapter of the LAN adapter.

(6) PC interface cable connector: Connects the emulator.

Figure 2.2 shows the label on the back of the LAN adapter. The MAC address of the LAN adapter is printed on the back label.

![LAN Adapter Label](image)

**Figure 2.2  LAN Adapter Label**
Section 3  Preparation before Use

3.1  Power Supply

3.1.1  AC Power-Supply Adapter

The AC power-supply adapter supplied with the LAN adapter must be used at all times.

3.1.2  Polarity

Figure 3.1 shows the polarity of the power-supply plug.

![Polarity of Power Supply Plug](image)

Figure 3.1  Polarity of Power Supply Plug
3.2 Connecting LAN Cable to LAN Adapter

⚠️ WARNING

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

Use the AC power-supply adapter provided in the package.

(1) Connect the LAN cable to the connector marked ‘LAN’.
(2) Connect the power-supply plug of the AC power-supply adapter to the connector marked ‘DCIN’.

Figure 3.2 Connecting LAN Cable to LAN Adapter
3.3 Connecting LAN Adapter to E6000 Emulator

WARNING

Always switch OFF the emulator product and user system before connecting or disconnecting the LAN adapter. Failure to do so will result in a FIRE HAZARD and will damage the user system, LAN adapter, and E6000 emulator or will result in PERSONAL INJURY.

To use the E6000 emulator, connect the LAN adapter to the E6000 emulator station via the supplied PC 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 LAN Adapter to E6000 Emulator
3.4 Connecting USB Adapter to E6000H Emulator

**CAUTION**

Always switch OFF the emulator product and user system before connecting or disconnecting the LAN adapter. Failure to do so will result in a FIRE HAZARD and will damage the user system, LAN adapter, and E6000H emulator or will result in PERSONAL INJURY.

To use the E6000H emulator, connect the LAN adapter to the E6000H emulator station via the supplied PC 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 LAN Adapter to E6000H Emulator](image-url)
3.5 Connecting LAN Adapter to E8000 Emulator

⚠️ **WARNING**

Always switch OFF the emulator product and user system before connecting or disconnecting the LAN adapter. Failure to do so will result in a FIRE HAZARD and will damage the user system, LAN adapter, and E8000 emulator or will result in PERSONAL INJURY.

Note: When connecting the E8000 emulator to the host computer using a LAN adapter, select host computer interface as ‘IBM PC interface’ (S7: ON, S8: ON) for the console setting. For details, refer to section 3.3, System Connection, in the E8000 Emulator User's Manual.
To use the E8000 emulator, connect the LAN adapter to the E8000 emulator station via the supplied PC interface cable, as shown in figure 3.5. Connect the PC interface cable connector with a ferrite core to the emulator.

Figure 3.5  Connecting LAN Adapter to E8000 Emulator
Section 4 Setting up the LAN Adapter

4.1 Procedures

Figure 4.1 shows the setup procedures of the LAN adapter.

Before using the LAN adapter, set the IP address and the subnet mask because they have not been set initially in the LAN adapter.

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

(2) Check that the IP address is set for the host computer.

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

(4) Turn on the LAN adapter and the emulator.

(5) Set the IP address of the LAN adapter (the IP address must be set from within the same network). Refer to section 4.3, Setting the IP Address of the LAN Adapter.

(6) Turn off the LAN adapter and then turn it on again.

(7) Start the emulator control software and click [Connect]. When the [Driver Details] dialog box is displayed, select the LAN driver.

Figure 4.1 Setup Procedures
4.2 Selecting the LAN Driver

During installation of the emulator control software (HDI or High-performance Embedded Workshop), select the LAN 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 LAN driver is not selected in the [Select Components] dialog box, the LAN interface is not available.
2. If the LAN 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.

4.3 Setting the IP Address of the LAN Adapter

To set the IP address for the LAN adapter, the LAN adapter configuration (LAC) in the emulator control software (HDI or High-performance Embedded Workshop) is needed.

The online help function is available by clicking the [Help] button of the [LAN adapter configuration] dialog box. For the usage or troubleshooting, refer to the online help of the LAN adapter configuration.

(1) Select ‘LAN adapter configuration’ from the program menu of the installed HDI or High-performance Embedded Workshop.

(2) When the LAN adapter configuration is started, the following dialog box is displayed.

![Figure 4.2 Dialog Box at Starting the LAN Adapter Configuration](image)
(3) Set the IP address for the LAN adapter and register the setting information in the host computer. When the ‘Setting and registering of the IP address’ is selected and the OK button is clicked, the following dialog box is displayed.

![Setting and registering of the IP address Dialog Box](image)

Figure 4.3  [Setting and registering of the IP address] Dialog Box
(4) After entering the setting values (Host Name, MAC Address, IP Address, and Subnet Mask) and clicking the ‘Setting’ button, set the IP address for the LAN adapter and register the setting information in the host computer. The information registered in the LAN adapter is displayed in ‘Registered Information List’.

![Figure 4.4 Entering the Setting Values in the [Setting and registering of the IP address] Dialog Box](image)

Notes:
1. Set the different IP address of the LAN adapter from that of the host computer.
2. To set the IP address of the LAN adapter, connect the host computer and LAN adapter to the same network.
3. After the IP address is set for the LAN adapter, be sure to turn off the adapter, and then turn it on again.
Section 5  Troubleshooting

The problems that may occur when using the LAN adapter and the measures to be taken are as follows.

1. When the LAN adapter configuration is used, the IP address cannot be set for the LAN adapter or the IP address that has been set cannot be checked.
   — Check that the LAN adapter and the host computer using the LAN adapter configuration are connected to the same network.
   — Check that the LAN adapter is turned on.

2. The HDI or the High-performance Embedded Workshop will not start.
   — If the LAN adapter and the emulator are not both turned on, a timeout error will occur after one minute.
   — Check that the IP address, subnet mask, and default gateway in the LAN adapter are correctly set. Refer to online help for the LAN adapter configuration for details on the adapter settings.
   — After setting the IP address for the LAN adapter, turn off the adapter and turn it on again.

3. The HDI or the High-performance Embedded Workshop stops operating.
   — Check that the LAN adapter and emulator are correctly connected.
   — Check that the LAN adapter and emulator are turned on.

4. The diagnostic LED is lit.
   — The LAN adapter has diagnostic LEDs as shown in figure 5.1.
     If the problem is not resolved even if those measures have been taken, check whether or not the diagnostic LEDs are lit. If they are lit, inform Renesas’ sales agency of those LED numbers.
Figure 5.1 Diagnostic LEDs
Section 6  External Dimensions of the LAN Adapter

Unit: mm
Tolerance: ±1.0 mm
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Description Notes on Using LAN Adapter for E6000/E6000H/E8000 Emulator (HS6000ELN01H)