

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

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# Connection of H8S/2437F with E10A Emulator

HS2437KCM01H HS2437KCI01H with User System

## 1. Connecting the E10A Emulator with the User System

To connect the E10A emulator (hereafter referred to as emulator), an H-UDI port connector must be installed on the user system to connect the user system interface cable. When designing the user system, refer to the recommended circuit between the H-UDI port connector and the MCU. Before designing the user system, be sure to read the H8S/2437F E10A user's manual and the hardware manual of the related MCU.

## 2. Installing the H-UDI Port Connector on the User System

Table 2.1 shows the H-UDI port connector for the emulator.

**Table 2.1 Recommended Connector**

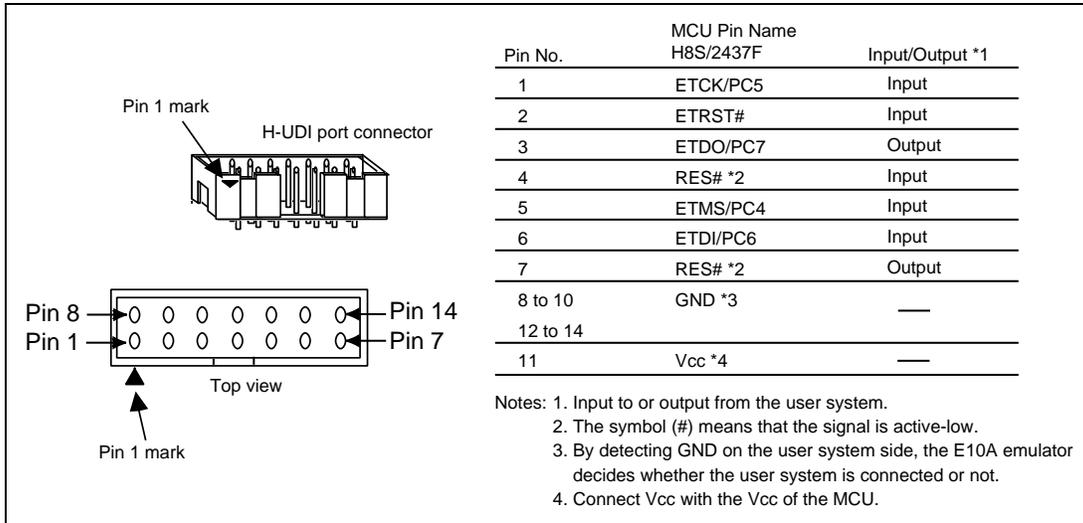
<b>Type Number</b>	<b>Manufacturer</b>	<b>Specifications</b>
2514-6002xx*	3M Limited	14-pin straight type

Note: xx means plated version.

**Note: Do not install any components within 3 mm of the H-UDI port connector.**

### 3. Pin Arrangement of the H-UDI Port Connector

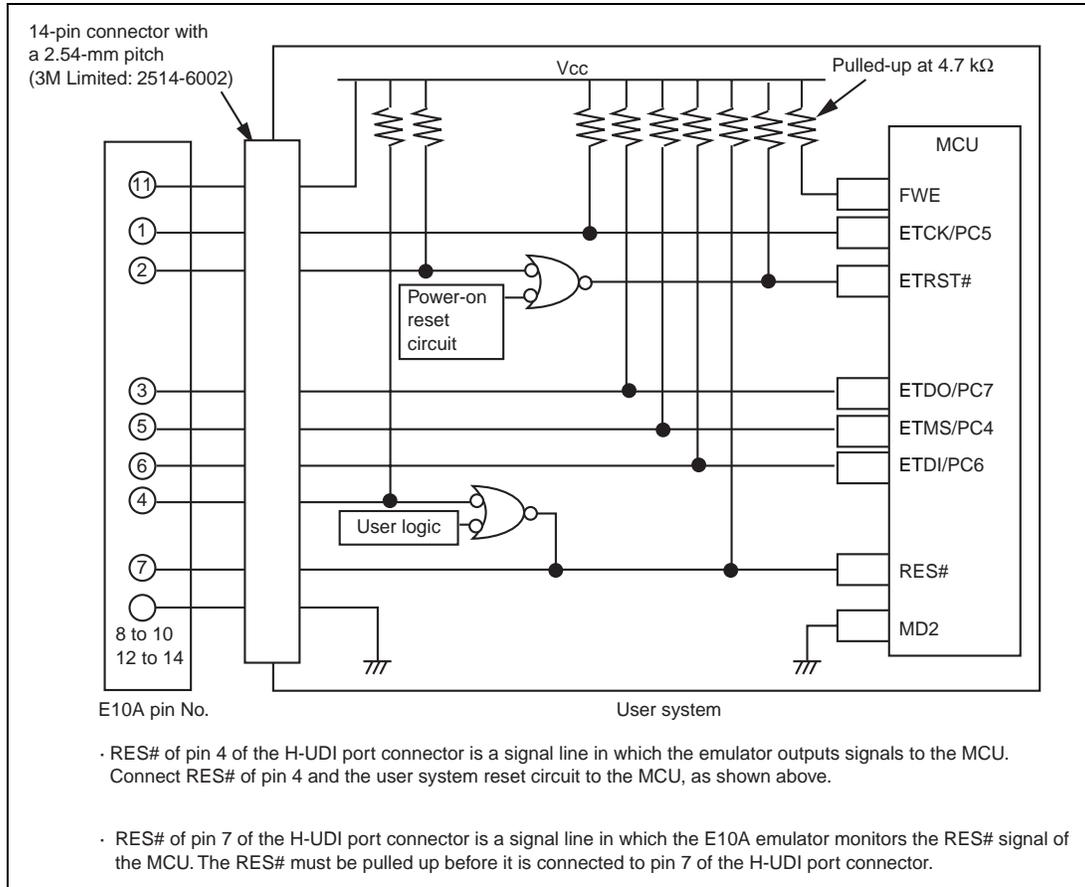
Figure 3.1 shows the pin arrangement of the H-UDI port connector.



**Figure 3.1 Pin Arrangement of the H-UDI Port Connector**

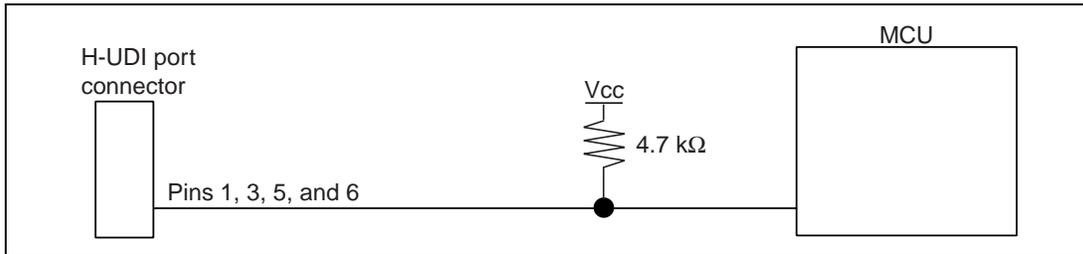
## 4. Example of Emulator Connection

The figure shown below is an example of connecting the user system to the emulator.



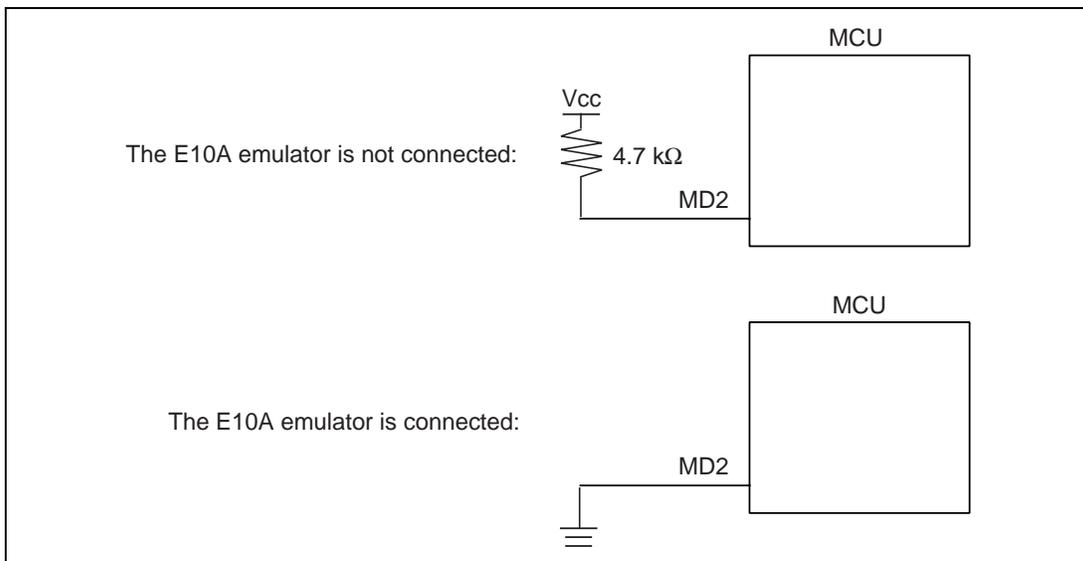
**Figure 4.1 Example of Emulator Connection**

**Notes: 1. ETCK/PC5, ETMS/PC4, ETDO/PC7, and ETDI/PC6 are used by the emulator.  
Pull up and connect the emulator and the MCU pins.**



**Figure 4.2 Connection of Emulator and MCU**

**2. If the emulator is not connected to the user system, pull up pin MD2 of the MCU.  
When the emulator is connected to the user system, ground the MD2.**



**Figure 4.3 Emulator and Pin MD2**

- RES# of pin 4 of the H-UDI port connector is a signal line in which the emulator outputs signals to the MCU. RES# of pin 4 and the user system reset circuit must be connected to the MCU, as shown in figure 4.4. RES# of pin 7 of the H-UDI port connector is a signal line in which the emulator monitors the RES# signal of the MCU. The RES# must be pulled up before it is connected to pin 7 of the H-UDI port connector.

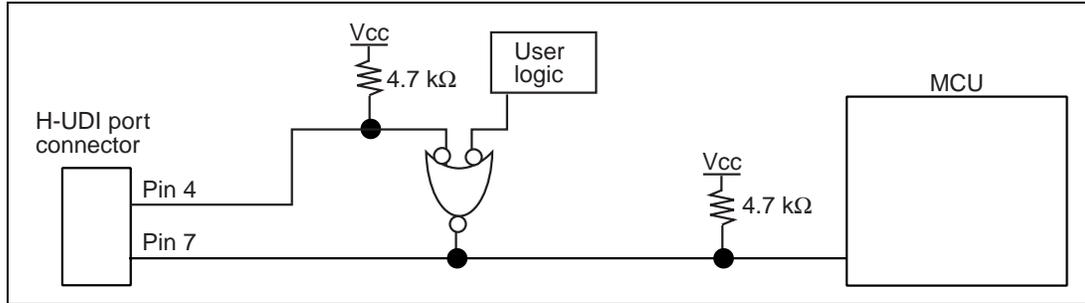


Figure 4.4 Examples of Reset Circuits

- Pin FWE of the MCU must be pulled up if the emulator is connected to the user system.

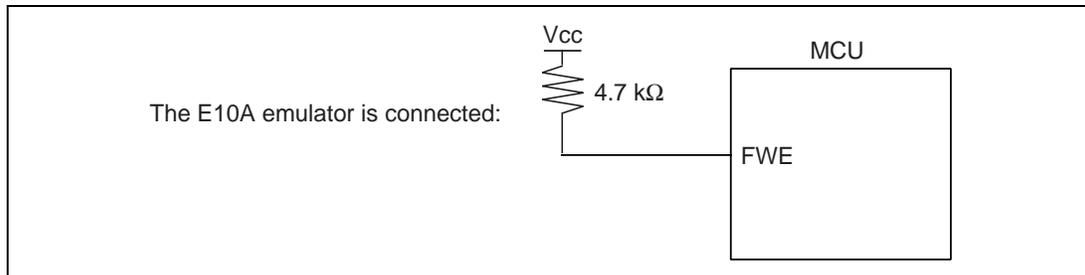


Figure 4.5 Connection of Pin FWE

- Pin ETRST# must be connected as shown in figure 4.6.

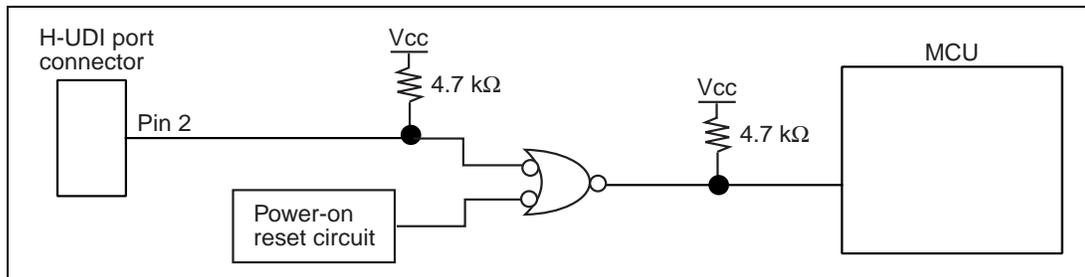


Figure 4.6 Connection of Pin ETRST#

- Ground pins 8 to 10 and 12 to 14 of the H-UDI port connector.

7. Pin 11 of the H-UDI port connector must be connected to the user system Vcc (power supply). The amount of voltage permitted to input to the H-UDI port connector must be within the guaranteed range of the microcomputer.
8. Figure 4.7 shows the interface circuit in the emulator. Use this figure as a reference to decide the pull-up resistance value.

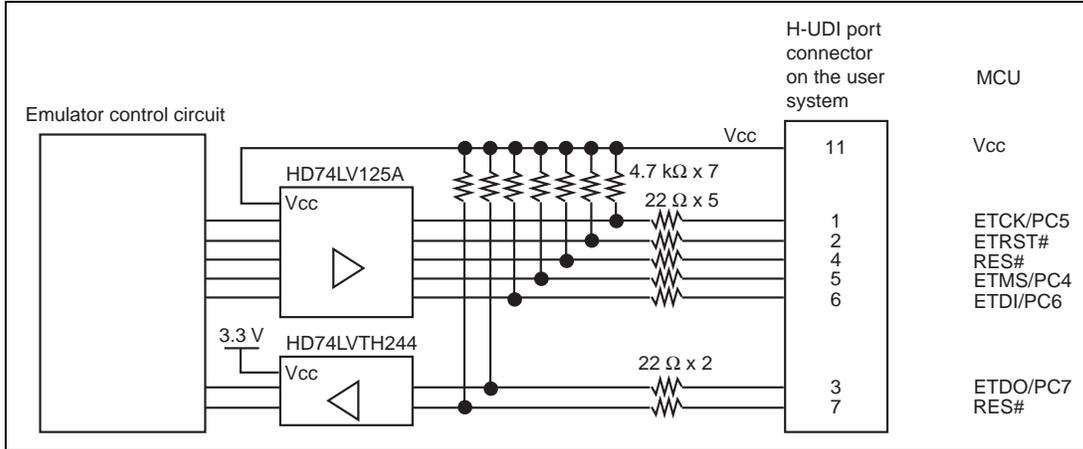


Figure 4.7 Interface Circuit in the Emulator (Reference)

9. When the H8S/2437F in use is connected to the emulator, the pin functions listed below are not available.

Table 4.1 Pin Functions Not Available

**H8S/2437F**

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PC4 to PC7

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The symbol (#) means that the signal is active-low.