

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics Corporation

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# Connection of H8S/2158F E10A Emulator

with User System

HS2158KCM01H  
HS2158KCI01H

## 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/2158F 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**

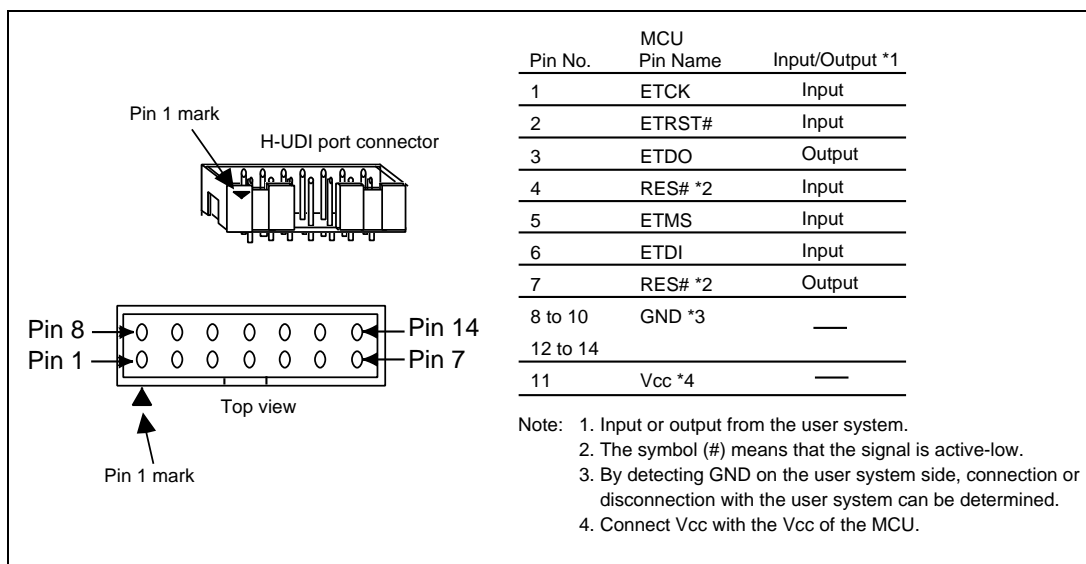
| Type Number  | Manufacturer | Specifications       |
|--------------|--------------|----------------------|
| 2514-6002xx* | 3M Limited   | 14-pin straight type |

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

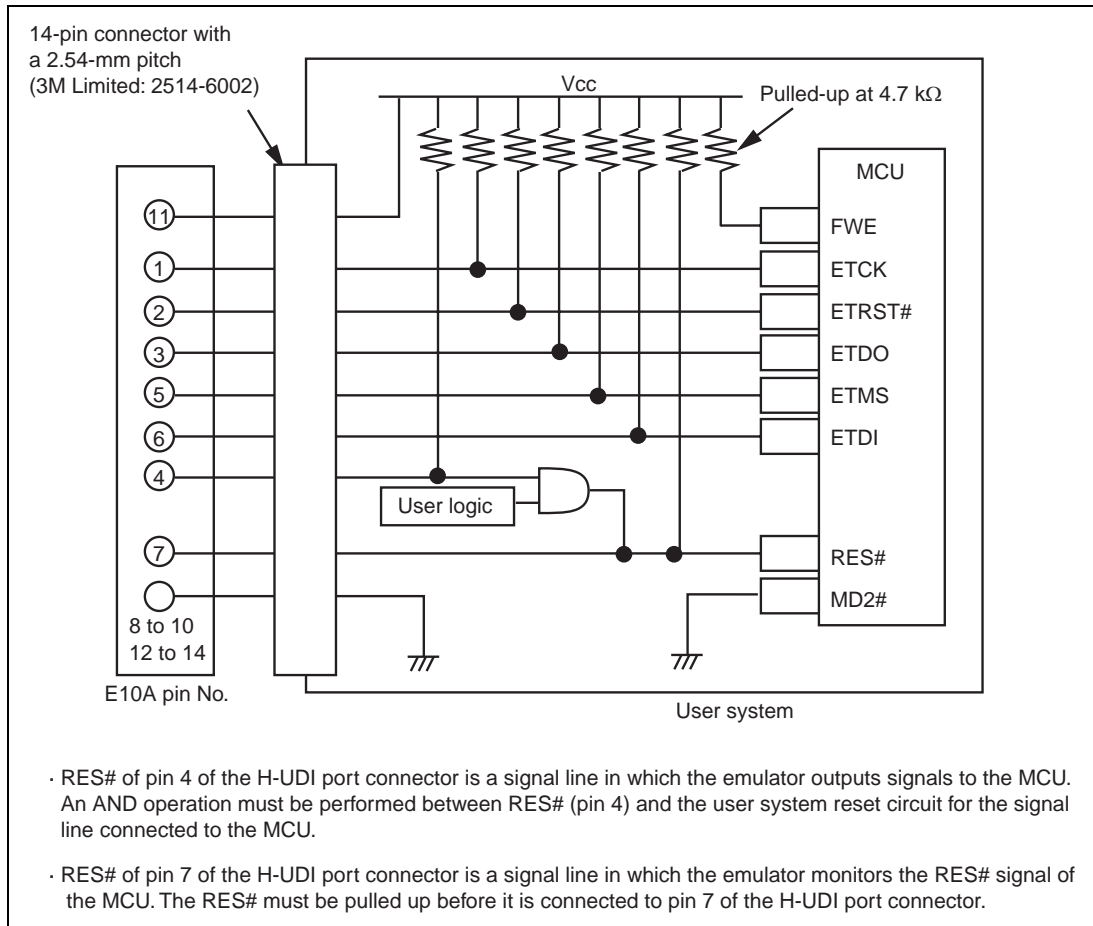
Figure3.1 shows the pin arrangement of the H-UDI port connector.



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

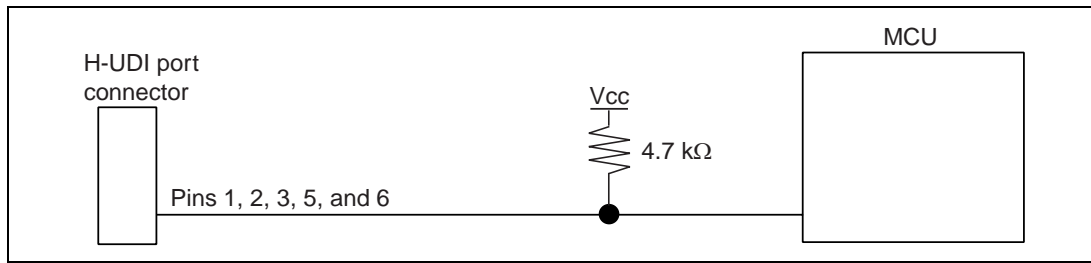
## 4. Example of Emulator Connection

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



**Figure 4.1 Example of Emulator Connection**

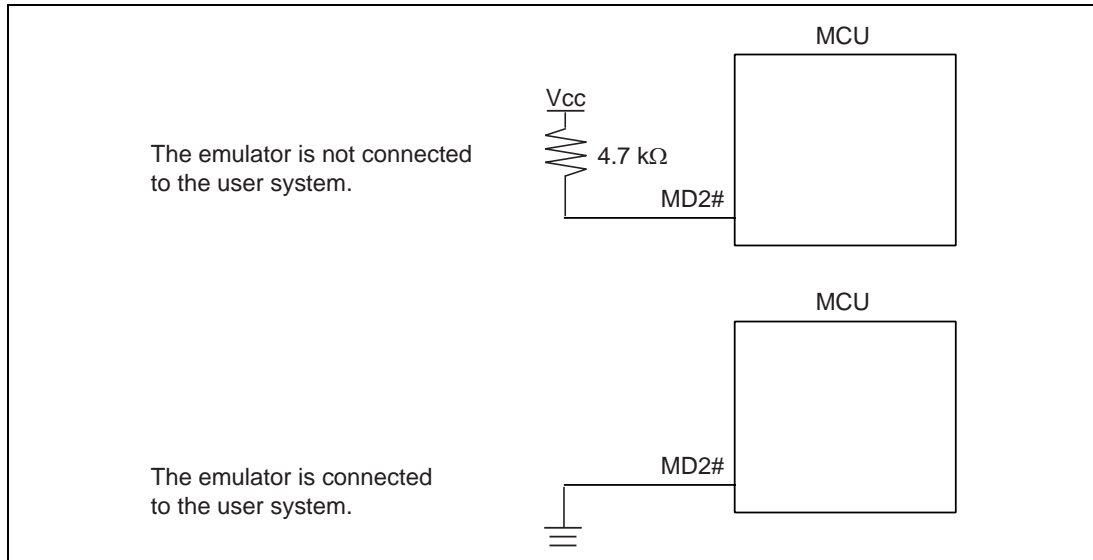
**Notes: 1. ETRST#, ETCK, ETMS, ETDO, and ETDI are used by the emulator. Pull up and connect the emulator and MCU pins.**



**Figure 4.2 Connection of Emulator and MCU**

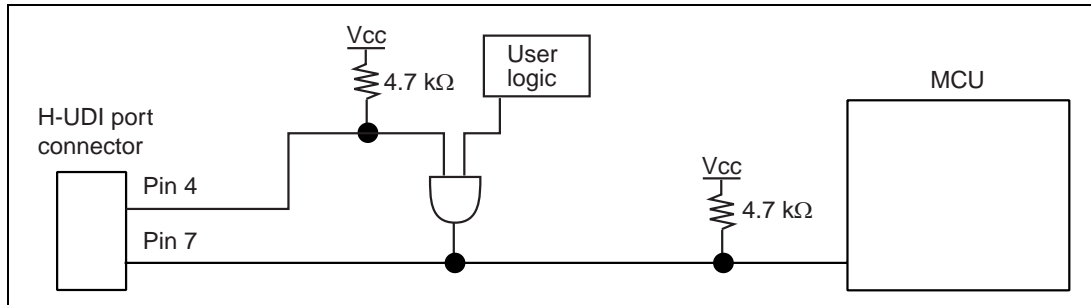


2. **If the emulator is not connected to the user system, pull up pin MD2# of the MCU. When the emulator is connected to the user system, ground the MD2#.**



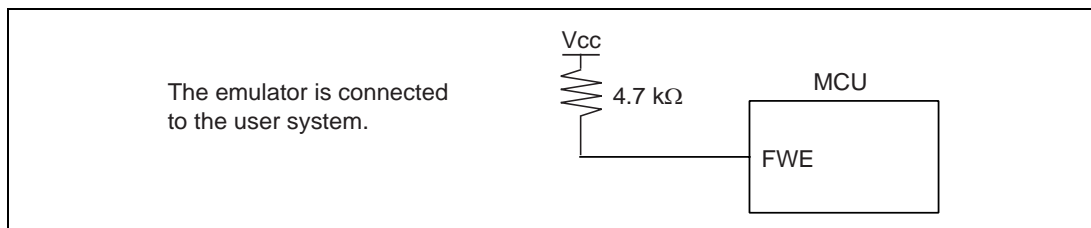
**Figure 4.3 E10A Emulator and Pin MD2#**

3. **RES# of pin 4 of the H-UDI port connector is a signal line in which the emulator outputs signals to the MCU. An AND operation must be performed between RES# and the user system reset circuit for the signal line connected to the MCU. 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**

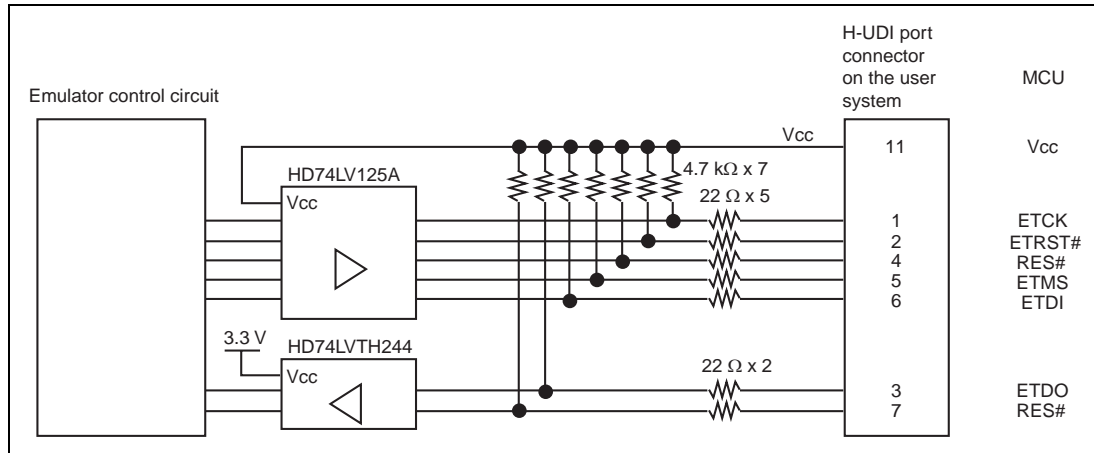
4. **Pin FWE must be pulled up if the emulator is connected to the user system.**



**Figure 4.5 Connection of Pin FWE**

5. **Ground pins 8 to 10, and 12 to 14 of the H-UDI port connector.**
6. **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.**

7. Figure 4.6 shows the interface circuit in the emulator. Use this figure as a reference to decide the pull-up resistance value.



**Figure 4.6 Interface Circuit in the Emulator (Reference)**