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Renesas Electronics Corporation

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USER'S MANUAL

Phase-out/Discontinued

EP-75068GB-R

Document No. EEU-1428
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Date Published November 1992 P
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USER'S MANUAL

NEC

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EP-75068GB-R

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Phase-out/Discontinued

PREFACE

Intended Readership

This manual is intended for users who wish to perform uPD75068GB series debugging using the IE-75001-R*1 + IE-75000-R-EM or EVAKIT-75X*2 and EP-75068GB-R.

*1: The IE-75001-R is a product obtained by removing the IE-75000-R-EM removed from the IE-75000-R.
The IE-75000-R can be used instead of the IE-75001-R.
2: Discontinued model (can no longer be purchased)

Purpose

The purpose of this manual is to give users an understanding of the method of connecting the EP-75068GB-R to the IE-75001-R + IE-75000-R-EM or EVAKIT-75X, and the method of setting mask options.

Organization

This manual is broadly organized as follows:

General Description
Connection Method
Mask Option Setting Method

Using this Manual

Before reading this manual, users are requested to read the IE-75001-R, IE-75000-R-EM and EVAKIT-75X manuals for an understanding of the debugging system configuration and functions.

Phase-out/Discontinued

If the IE-75000-R* is used, "IE-75001-R" should be read as "IE-75000-R" throughout this manual (see Chapter 1 "General Description"). Unless otherwise noted, "IE-75001-R" in this manual denotes "IE-75001-R + IE-75000-R-EM".

*: Maintenance product

◉ For a general outline of the functions and method of connecting the EP-75068GB-R
⇨ Read the manual in accordance with the Contents.

◉ For a description of the operating environment, configuration, and target devices
⇨ Read Chapter 1 "General Description".

◉ For details of the connection method.
⇨ Read Chapter 2 "Connection".

◉ For a description of the mask option setting method
⇨ Read Chapter 3 "Mask Option Settings".

Legend

*	:	Explanation of item marked with an asterisk in the text
NOTE	:	Item to be especially noted
Remarks:		Supplementary information

Related Documentation

- IE-75000-R User's Manual (Document No. EEU-669)
- IE-75001-R User's Manual (Document No. EEU-846)
- IE-75000-R-EM User's Manual (Document No. EEU-673)
- EVAKIT-75X User's Manual (Document No. EEU-619)

Phase-out/Discontinued

Check of Component Items

The following items are included in the EP-75068GB-R package - please check that nothing is missing. If an item is missing, please contact your NEC sales representative or special agent.

- Emulation probe 1
- Adapter board 1
- User's Manual (this manual) 1
- Spacer (with 2 screws)*1 1
- Fixing screws*2 2
- IC socket (EV-9200G-44)*3 1

*1: Used to connect the adapter board to the IE-75000-R-EM.
2: Used to connect the emulation probe to the IE-75001-R.
3: Used to connect the emulation probe to the target system.

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CHAPTER 1. GENERAL DESCRIPTION

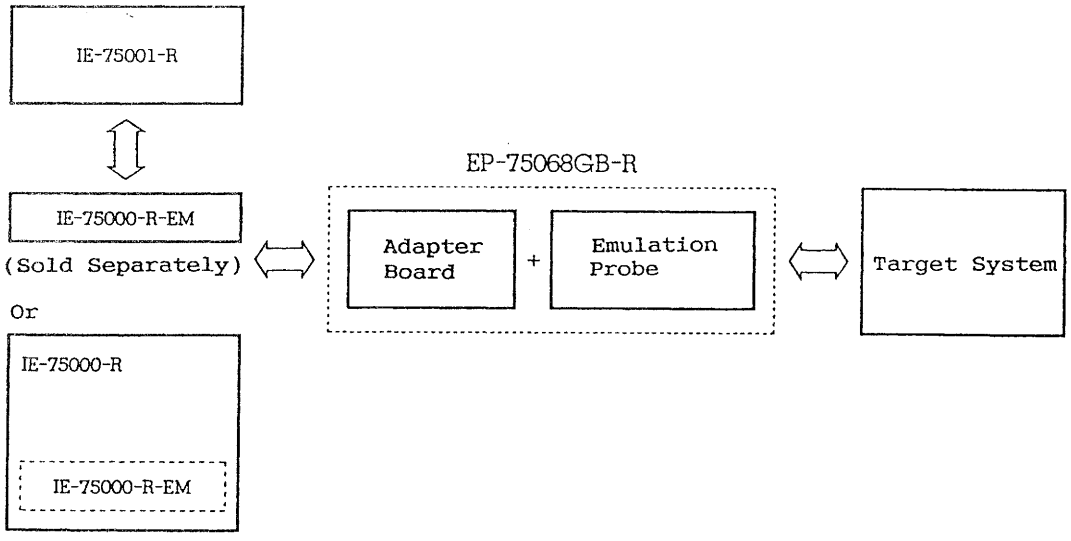
This chapter gives a general description of the EP-75068GB-R.

1.1 OPERATING ENVIRONMENT

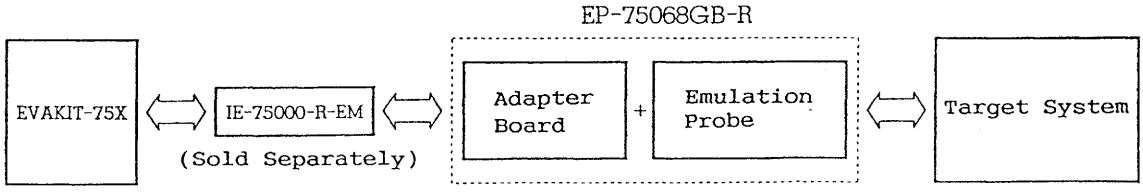
The EP-75068GB-R is probe set for connecting an IE-75001-R + IE-75000-R-EM to the target system, or an EVAKIT-75X to the target system. Using the EP-75068GB-R for the connection enables the uPD75068GB series debugging environment to be established, and overall target system hardware and software debugging to be performed.
Please refer to Chapter 2 "Connection" for details of the connection method.

Figure 1-1 Operating Environment

(a) Connection of IE-75001-R to target system



(b) Connection of EVAKIT-75X to target system



Phase-out/Discontinued

1.2 CONFIGURATION

The EP-75068GB-R consists of an emulation probe and an adapter board.

(1) Emulation probe

The emulation probe comprises the following three items.

☐ 44-pin LCC probe
Connects the IE-75001-R + IE-75000-R-EM to the target system, or the EVAKIT-75X to the target system.

☐ Earth clip
Connected to the target system GND. The GND potential of the IE-75001-R and the target system is thus made the same, providing greater resistance to static electricity and noise.

☐ External sense clips
There are 8 sense clips, used to sense the level of pins on an IC mounted on the target system.

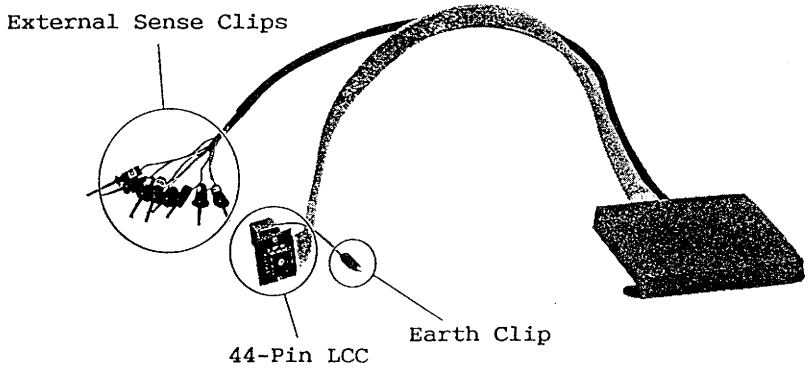
(2) Adapter board

The adapter board is used to connect the emulation board (IE-75000-R-EM) to the emulation probe. The adapter board has a function for performing mask option settings. See Chapter 3 "Mask Option Settings" for details.

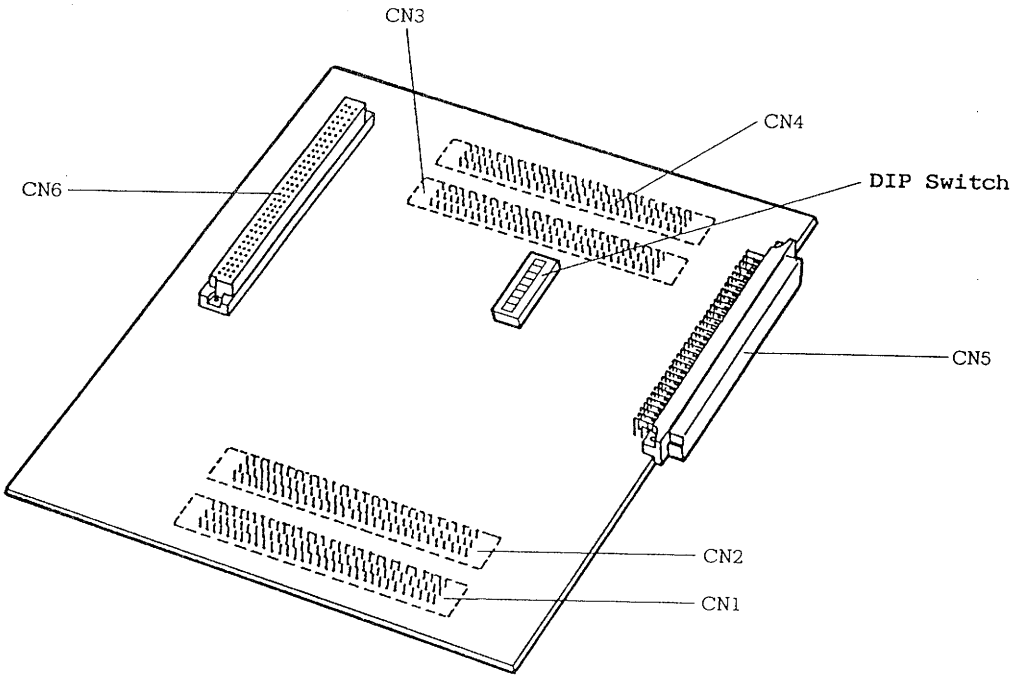
Phase-out/Discontinued

Figure 1-2 EP-75068GB-R

Emulation Probe



Adapter Board



Phase-out/Discontinued

1.3 TARGET DEVICES

The EP-75068GB-R is used for emulation of the following target devices.

- uPD75064GB (under development)
- uPD75066GB (under development)
- uPD75068GB (under development)
- uPD75P068GB (under development)

Phase-out/Discontinued

CHAPTER 2. CONNECTION

This chapter describes the EP-75068GB-R connection method, powering-on and power-off sequence, and the procedure for removing the emulation probe from the target system.

Separate descriptions are given for the connection method according to the debugger to be connected, as shown below. The appropriate description should be read in accordance with the use of the EP-75068GB-R.

- 2.1 Connecting IE-75001-R to Target System
- 2.2 Connecting EVAKIT-75X to Target System

Phase-out/Discontinued

2.1 CONNECTING IE-75001-R TO TARGET SYSTEM

The connection procedure is outlined below.

(1) Connection of adapter board to IE-75000-R-EM

① Turn off the IE-75001-R power.
② Connect the adapter board to the IE-75000-R-EM.
③ Install the IE-75000-R-EM (with the adapter board) in the IE-75001-R.

(2) Connection of emulation probe to IE-75001-R

(3) Connection of emulation probe to target system

① Turn off the target system power.
② Solder the IC socket to the target system.
③ Plug the end of the emulation probe into the IC socket.

(4) Connection of external sense clips (when external clips are used)

(5) Power on

The detailed connection procedure for each item is described next.

(1) Connection of adapter board to IE-75000-R-EM

Connect the adapter board to the IE-75000-R-EM.

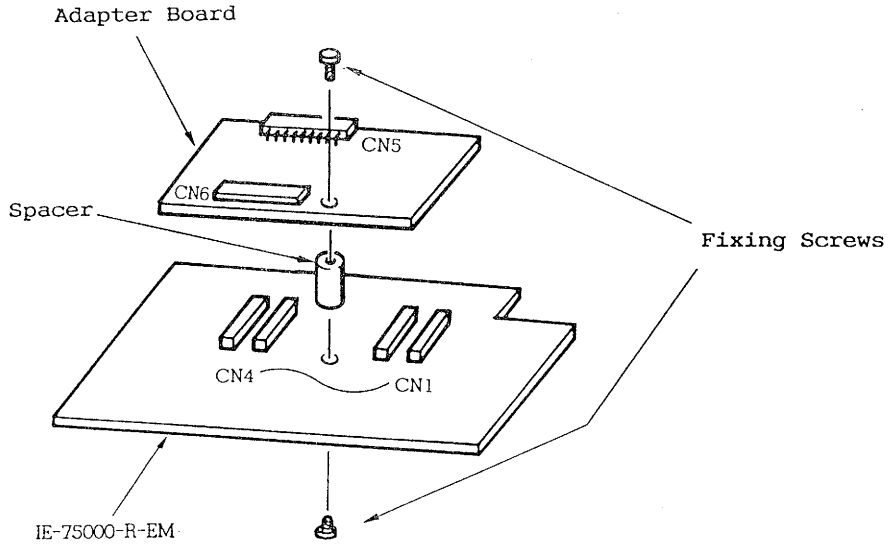
① Position the spacer between the IE-75000-R-EM and the adapter board, and connect CN1 through CN4 on the IE-75000-R-EM to CN1 through CN4 on the adapter board.

Phase-out/Discontinued

② Secure the spacer positioned between the IE-75000-R-EM and the adapter board using the spacer fixing screws.
③ Turn off the IE-75001-R power.
④ Remove the 6 screws in the top of the IE-75001-R, and remove the cover.
⑤ Pull the card puller at each side of the board forward, and remove the IE-75000-R-BK*.
⑥ Screw together the IE-75000-R-EM and IE-75000-R-BK.
⑦ Replace the IE-75000-R-BK with the IE-75000-R-EM in its original position in the IE-75001-R.

*: In the IE-75000-R, the IE-75000-R-EM and IE-75000-R-BK are installed screwed together: therefore, remove the IE-75000-R-BK from the IE-75001-R following steps ③, ④, ⑤ in that order. Undo the screws and remove the IE-75000-R-EM and follow steps ①, ②, ⑥, ⑦ in that order.

Figure 2-1 Connection of Adapter Board to IE-75000-R-EM



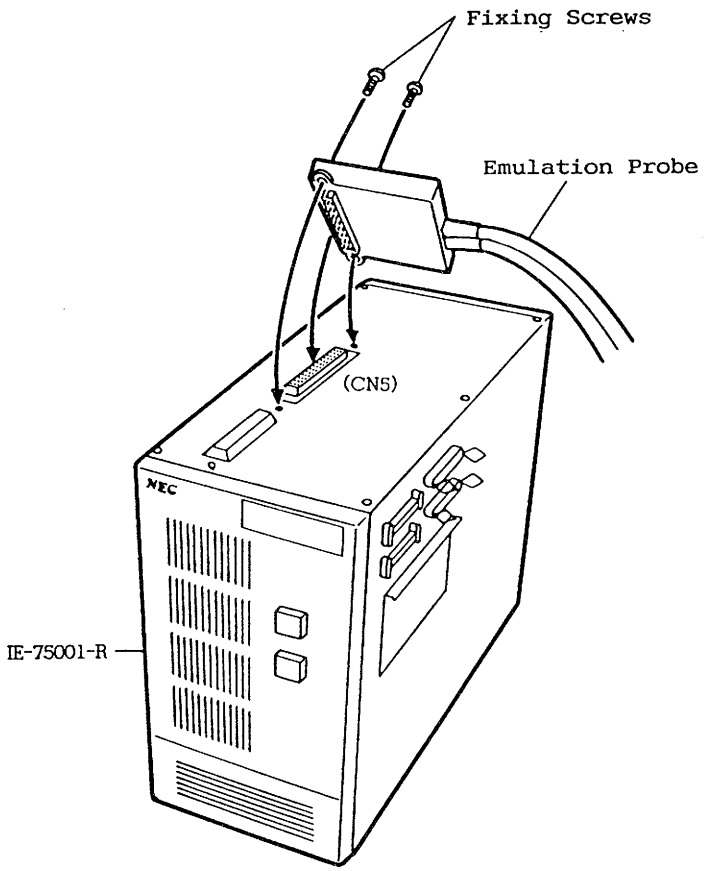
Phase-out/Discontinued

(2) Connection of emulation probe to IE-75001-R

① Connect the emulation probe to the DIN connector for the emulation probe (CN5 on the adapter board) at the top of the IE-75001-R.

② After connecting the emulation probe, be sure to secure it to the IE-75001-R with the fixing screws.

Figure 2-2 Connection of Emulation Probe to IE-75001-R



Phase-out/Discontinued

(3) Connection of emulation probe to target system

The following procedure is used to connect the emulation probe to the target system.

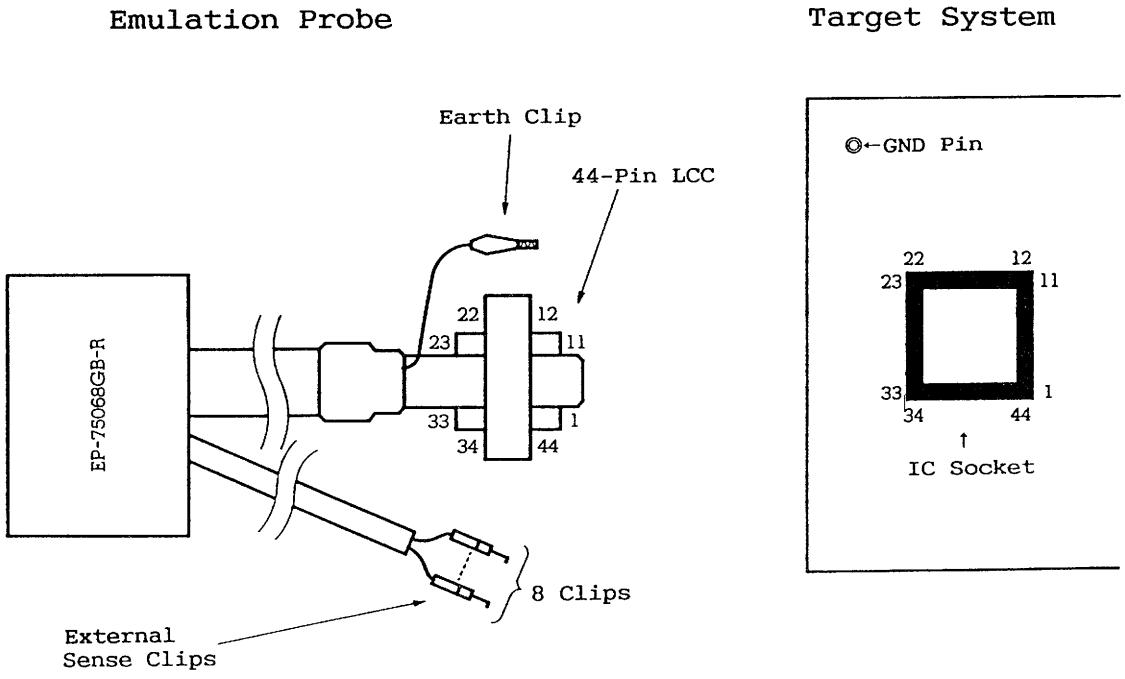
NOTE 1: Before connecting the probe to the target system, ensure that the earth clip is connected to the end. If the earth clip is not connected, the IE-75001-R may be damaged by static electricity, etc.

2: Ensure that the pins are correctly oriented when making the connection. If the connection is made incorrectly the IE-75001-R may be damaged.

① Turn off the target system power.
② Solder the IC socket (included component: EV-9200G-44) to the target system.
③ Connect the emulation probe earth clip to the target system ground (GND).
④ Align pin 1 of the 44-pin LCC at the end of the emulation probe with pin 1 of the IC socket soldered onto the target system in ② , and plug the emulation probe into the socket.

Phase-out/Discontinued

Figure 2-3 44-Pin LCC Emulation Probe Connection Diagram



Phase-out/Discontinued

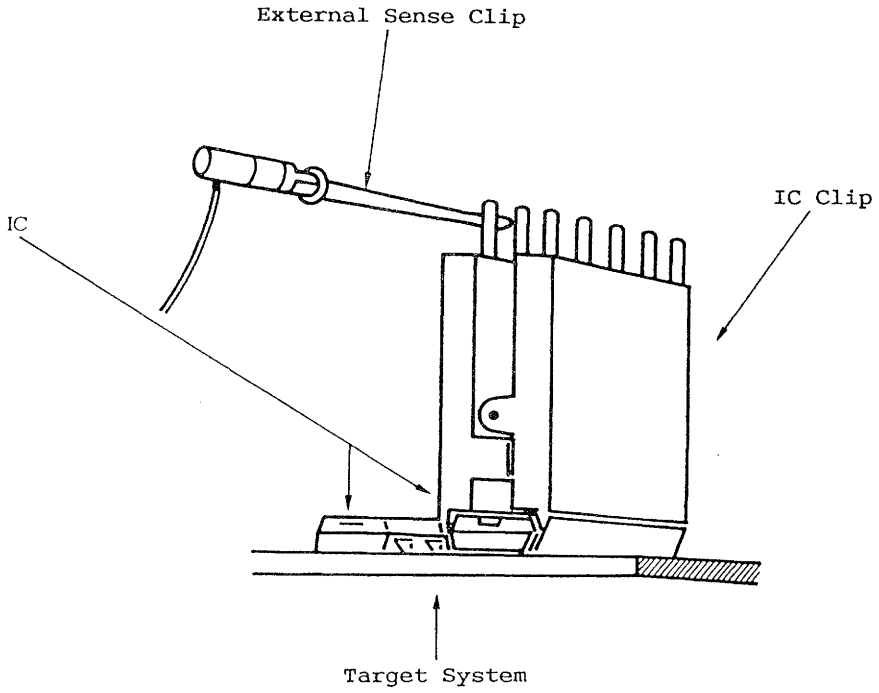
(4) Connection of external sense clips

When the external sense clips are used, the following procedure is used to connect them.

NOTE: External sense clips must only be connected to a TTL level signal line. If connected to a signal line other than a TTL signal line, correct high and low level detection is not possible. Also, depending on the voltage level, the IE-75001-R sensors may be damaged.

① Turn off the target system and IE-75001-R power, in that order.
② Fit an IC clip (commercially available) on the IC on which a trace is to be executed on the target system.
③ Connected an external sense clip to the fitted IC clip.
④ Turn on the IE-75001-R and target system power, in that order.

Figure 2-4 External Sense Clip Connection



Phase-out/Discontinued

Remarks 1: When external sense clips are connected, an IC clip should be used as far as possible. This helps prevent incorrect connection and improves operability.

2: If the EVAKIT-75X is used, external sense clips cannot be used.

Phase-out/Discontinued

2.2 CONNECTING EVAKIT-75X TO TARGET SYSTEM

The connection procedure is outlined below.

(1) Connection of adapter board to IE-75000-R-EM

① Turn off the EVAKIT-75X power.
② Connect the adapter board to the IE-75000-R-EM.

(2) Connection of IE-75000-R-EM to EVAKIT-75X

(3) Connection of emulation probe to adapter board

(4) Connection of emulation probe to target system

① Turn off the target system power.
② Solder the IC socket to the target system.
③ Plug the end of the emulation probe into the IC socket.

(5) Power on

The detailed connection procedure for each item is described next.

Phase-out/Discontinued

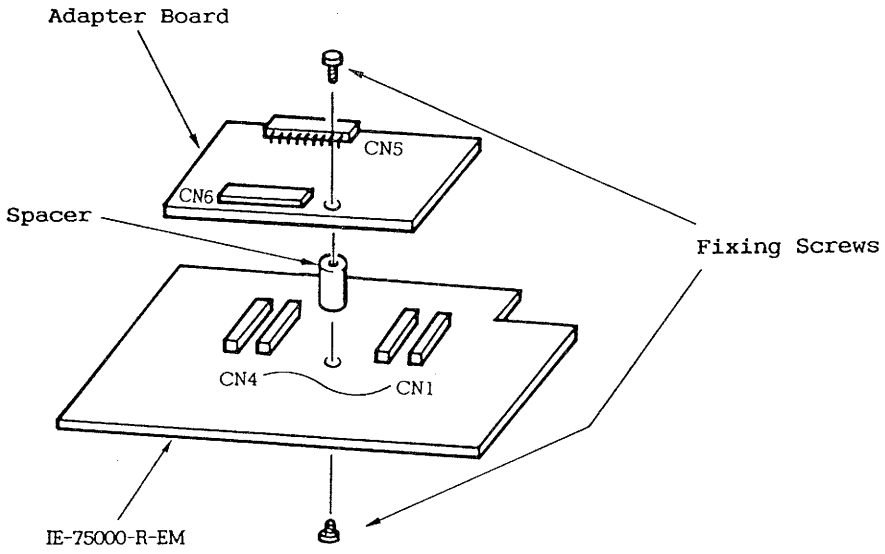
(1) Connection of adapter board to IE-75000-R-EM

Connect the adapter board to the IE-75000-R-EM (sold separately).
First prepare the IE-75000-R-EM.

① Position the spacer between the IE-75000-R-EM and the adapter board, and connect CN1 through CN4 on the IE-75000-R-EM to CN1 through CN4 on the adapter board.

② Secure the spacer positioned between the IE-75000-R-EM and the adapter board using the spacer fixing screws.

Figure 2-5 Connection of Adapter Board to IE-75000-R-EM



Phase-out/Discontinued

(2) Connection of IE-75000-R-EM to EVAKIT-75X

Use the following procedure to connect the IE-75000-R-EM to which the adapter board was connected in (1) to the EVAKIT-75X.

① Turn off the EVAKIT-75X power.
② Connect the IE-75000-R-EM to the EVAKIT-75X using the two spacers and the connection joint provided with the EVAKIT-75X.

Remarks: Refer to the IE-75000-R-EM User's Manual for details of the method of connecting the IE-75000-R-EM to the EVAKIT-75X.

Phase-out/Discontinued

(3) Connection of emulation probe to adapter board

Connect the emulation probe to the connector (CN6) on the top of the adapter board connected to the IE-75000-R-EM.

Figure 2-6 Connection of Emulation Probe to Adapter Board

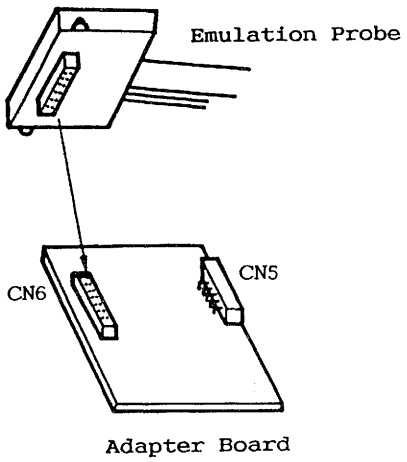
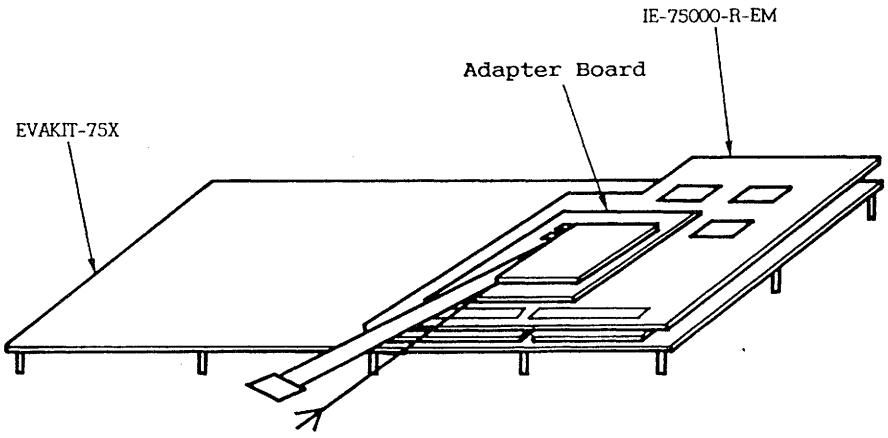


Figure 2-7 EVAKIT-75X with EP-75068GB-R Connected



Phase-out/Discontinued

(4) Connection of emulation probe to target system

The following procedure is used to connect the emulation probe to the target system.

NOTE 1: Before connecting the probe to the target system, ensure that the earth clip is connected to the end. If the earth clip is not connected, the EVAKIT-75X may be damaged by static electricity,etc.

2: Ensure that the pins are correctly oriented when making the connection. If the connection is made incorrectly the EVAKIT-75X may be damaged.

① Turn off the target system power.

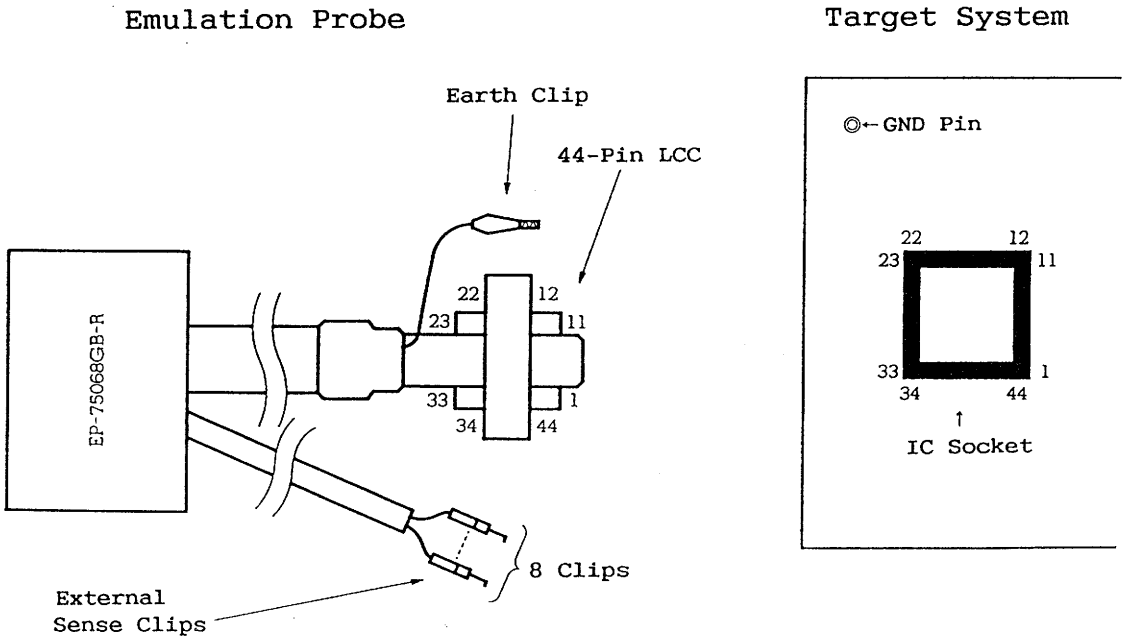
② Solder the IC socket (included component: EV-9200G-44) to the target system.

③ Connect the emulation probe earth clip to the target system ground (GND).

④ Align pin 1 of the 44-pin LCC at the end of the emulation probe with pin 1 of the IC socket soldered onto the target system in ② , and plug the emulation probe into the socket.

Phase-out/Discontinued

Figure 2-8 44-Pin LCC Emulation Probe Connection Diagram



Phase-out/Discontinued

2.3 POWERING-ON AND POWERING-OFF SEQUENCE

After the emulation probe has been connected to the target system, power is next turned on. The powering-on and powering-off sequences are described below.

NOTE: Ensure that the correct powering-on and powering-off sequences are followed. Failure to do so may result in damage to the IE-75001-R or EVAKIT-75X.

(1) When IE-75001-R is connected to target system

◆ Powering-on sequence

① Turn on the IE-75001-R power.
② Turn on the target system power.

◆ Powering-off sequence

① Turn off the target system power.
② Turn off the IE-75001-R power.

(2) When EVAKIT-75X is connected to target system

◆ Powering-on sequence

① Turn on the EVAKIT-75X power.
② Turn on the target system power.

◆ Powering-off sequence

① Turn off the target system power.
② Turn off the EVAKIT-75X power.

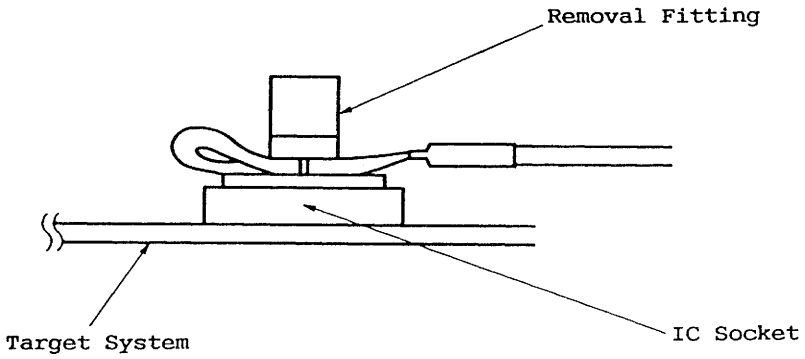
Phase-out/Discontinued

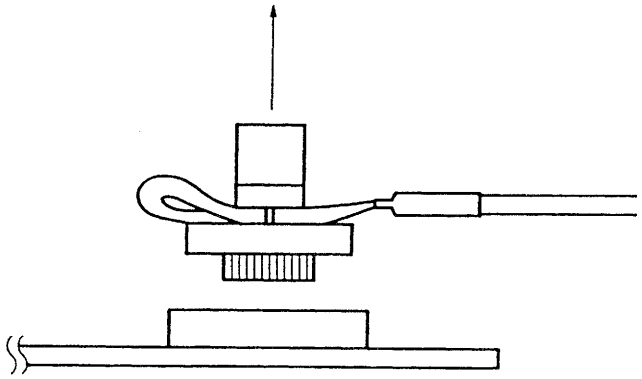
2.4 REMOVING EMULATION PROBE FROM TARGET SYSTEM

The following procedure is used to remove the emulation probe from the target system.

① Turn off the target system power.
② Turn off the IE-75001-R or EVAKIT-75X power.
③ Pull the removal fitting at the end of the emulation probe straight upward, and detach the emulation probe from the IC socket.

Figure 2-9 Removal of Emulation Probe





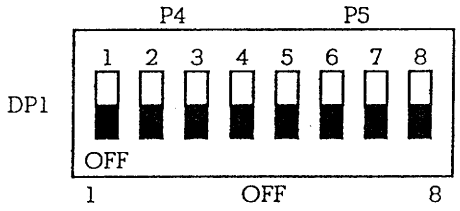
Phase-out/Discontinued

CHAPTER 3. MASK OPTION SETTINGS

DIP switch DP1 on the adapter board is used to set mask options for port 4 and port 5. When these switches are set to ON, a pull-up resistor (68 kΩ) is connected.

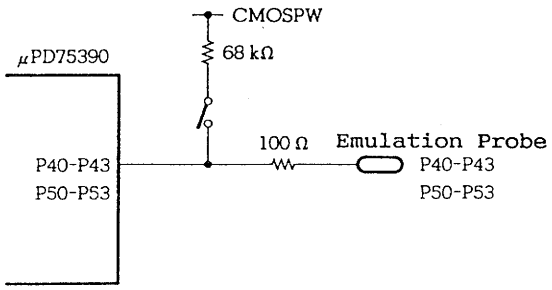
The factory setting for all DIP switches is OFF.

Figure 3-1 DIP Switch



SW·bit	Signal Name	SW·bit	Signal Name
DP1-1	→ P40	DP1-5	→ P50
-2	→ P41	-6	→ P51
-3	→ P42	-7	→ P52
-4	→ P43	-8	→ P53

Pin Processing



Phase-out/Discontinued

APPENDIX. 44-PIN LCC EMULATION PROBE PIN CORRESPONDENCE TABLE

CN5/CN6 Pin No.	Emulation Probe	CN5/CN6 Pin No.	Emulation Probe	CN5/CN6 Pin No.	Emulation Probe	CN5/CN6 Pin No.	Emulation Probe
1	GND	25	NC	49	37	73	NC
2		26		50	38	74	
3	EXT0	27		51	39	75	
4	EXT1	28	20	52	40	76	
5	EXT2	29	21	53	41	77	
6	EXT3	30	22	54	42	78	
7	EXT4	31	23	55	43	79	
8	EXT5	32	24	56	44	80	
9	EXT6	33	25	57	1	81	
10	EXT7	34	26	58	2	82	
11	6	35	27	59	3	83	
12	7	36	28	60	4	84	
13	8	37	29	61	5	85	
14	9	38	30	62	NC	86	
15	10	39	31	63		87	
16	11	40	32	64		88	
17	12	41	33	65		89	
18	13	42	34	66		90	
19	14	43	35	67		91	
20	15	44	36	68		92	
21	16	45	NC	69		93	
22	17	46		70		94	
23	18	47		71		95	GND
24	19	48		72		96	

Phase-out/Discontinued

Remarks 1: CN5/CN6 are connectors to be used in the following cases.

CN5: Connector for connection of emulation probe when IE-75001-R is used.

CN6: Connector for connection of emulation probe when EVAKIT-75X is used.

2: The meaning of the symbols or number in the Emulation Probe column is as follows:

GND	:	Earth clip (GND)
EXT0 to EXT7	:	External sense clips
1 to 44	:	Pin number of 44-pin LCC at end of emulation probe
NC	:	No Connection

Phase-out/Discontinued

Phase-out/Discontinued