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April 1st, 2010
Renesas Electronics Corporation

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

User's Manual

SH7612 Evaluation Chip Board (HS7612EBK81H) for the E8000 Emulator

User's Manual

Renesas Electronics
www.renesas-electoronics.com

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Preface

This manual describes how to connect and operate the EV-chip board. The EV-chip board incorporates an evaluation chip for connection to a user system that uses the SH7612 with the E8000 emulator.

Read and understand Sec. 3, “Preparation before Use” of the E8000 Emulator User’s Manual before using this EV-chip board.

CAUTION

The EV-chip board is only for connection to a user system that uses the SH7612 with the E8000 emulator. It cannot be used for user systems that target other devices.

Contents

Figures

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Section 1 Components

1.1 EV-Chip Board Components

Table 1.1 lists the product components of the EV-chip board (HS7612EBK81H: 2 x 100-pin connector type). Check all the components after unpacking.

Table 1.1 EV-chip Board Components

Item	Quantity	Remarks
EV-chip board (HS7612EBK81H)	1	Consists of two boards. • HS7410PWB20H (for connecting to the E8000 station) • HS7420PWB50H (2 x 100-pin connector)

Note: Use the specific connector (FX2-100P-1.27SVL manufactured by HIROSE ELECTRIC CO., LTD.) on the user system that is connected to the HS7612EBK81H.

1.2 Component Names

The component names of the EV-chip board are described below.

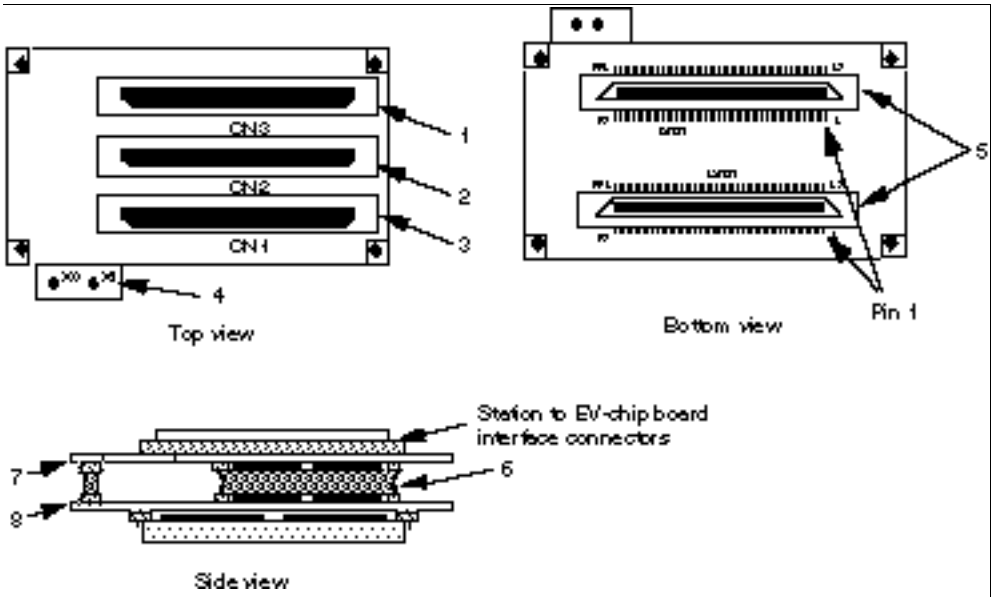


Figure 1.1 EV-Chip Board

1. Station to EV-chip board interface connector CN3: For trace cable 3 which connects the E8000 station to the EV-chip board.
2. Station to EV-chip board interface connector CN2: For trace cable 2 which connects the E8000 station to the EV-chip board.
3. Station to EV-chip board interface connector CN1: For trace cable 1 which connects the E8000 station to the EV-chip board.
4. Crystal oscillator terminals: For installing a crystal oscillator to be used as a clock source for the SH7612.
5. User-system connector: For connecting the user system.
6. Board connector: For connecting HS7410PWB20H and HS7420PWB50H.
7. HS7410PWB20H: Includes connectors for interfacing with the E8000 station via trace cables.

8. HS7420PWB50H: Includes connectors for interfacing with the user system.

Section 2 Preparation before Use

2.1 Preparing the User System

Table 2.1 lists the user interface pin assignment of the specific connector (FX2-100P-1.27SVL manufactured by HIROSE ELECTRIC CO., LTD.) when the target MCU is the SH7612.

Table 2.1 Pin Assignment of the HS7612EBK81H User Interface (USR1)

Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	GND	35	GND	69	GND
2	GND	36	SRS0/PA1	70	DREQ0
3	CAS3	37	SRS1/PA0	71	MD0
4	CAS2	38	GND	72	GND
5	GND	39	RXD1/PB13	73	MD3
6	BS	40	TXD1/PB12	74	MD4
7	RDWR	41	GND	75	GND
8	GND	42	TXD0/PB9	76	SRXD2/PA15
9	CS1	43	SCK0	77	SRCK2/PA14
10	CS0	44	GND	78	GND
11	GND	45	FTI2/PB6	79	STCK2/PA11
12	WE3	46	FTC1/PB5	80	STS2/PA10
13	WE2	47	GND	81	GND
14	GND	48	FTC0/PB2	82	SRS1/PA7
15	BACK	49	FTOA0/PB1	83	STXD1/PA6
16	BREQ	50	GND	84	GND
17	GND	51	Not connected	85	SRXD0/PA3
18	DACK0	52	UVCC	86	SRCK0/PA2
19	DREQ1	53	Not connected	87	GND
20	GND	54	GND	88	STCK0/PB15
21	MD1	55	CAS1	89	STS0/PB14
22	MD2	56	CAS0	90	GND
23	GND	57	GND	91	SCK1/PB11
24	MD5	58	CS3	92	RXD0/PB10
25	Not connected	59	CS2	93	GND
26	GND	60	GND	94	FTC2/PB8
27	SRS2/PA13	61	WAIT	95	FTOA2/PB7
28	STXD2/PA12	62	RD	96	GND
29	GND	63	GND	97	FTOA1/PB4
30	SRXD1/PA9	64	WE1	98	FTUSR1/PB3
31	SRCK1/PA8	65	WE0	99	GND
32	GND	66	GND	100	FTI0/PB0
33	STCK1/PA5	67	IVECF		
34	STS1/PA4	68	DACK1		

Table 2.2 Pin Assignment of the HS7612EBK81H User Interface (USR2)

Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	GND	35	GND	69	GND
2	A1	36	D22	70	EXTAL
3	A3	37	D20	71	GND
4	A4	38	D19	72	TRST
5	A6	39	D17	73	GND
6	GND	40	GND	74	CLK
7	A9	41	D14	75	GND
8	A11	42	D12	76	RST
9	A12	43	D11	77	GND
10	A14	44	D9	78	IRQ1
11	GND	45	GND	79	GND
12	A17	46	D6	80	IRQ3
13	A19	47	D4	81	D31
14	A20	48	D3	82	D29
15	A22	49	D1	83	GND
16	GND	50	GND	84	D26
17	Not connected	51	GND	85	D24
18	GND	52	A0	86	D23
19	Not connected	53	A2	87	D21
20	GND	54	GND	88	GND
21	Not connected	55	A5	89	D18
22	GND	56	A7	90	D16
23	Not connected	57	A8	91	D15
24	GND	58	A10	92	D13
25	NMI	59	GND	93	GND
26	GND	60	A13	94	D10
27	IRQ0	61	A15	95	D8
28	GND	62	A16	96	D7
29	IRQ2	63	A18	97	D5
30	GND	64	GND	98	GND
31	D30	65	A21	99	D2
32	D28	66	A23	100	D0
33	D27	67	GND		
34	D25	68	Not connected		

2.1.1 Recommended Mounting Pad Dimensions of the User System

Figure 2.1 shows the dimensions of the recommended mounting pad (footprint) and positioning holes for the specific connector (FX2-100P-1.27SVL) manufactured by HIROSE ELECTRIC CO., LTD. The dimension tolerance is ±0.1 mm unless otherwise specified.

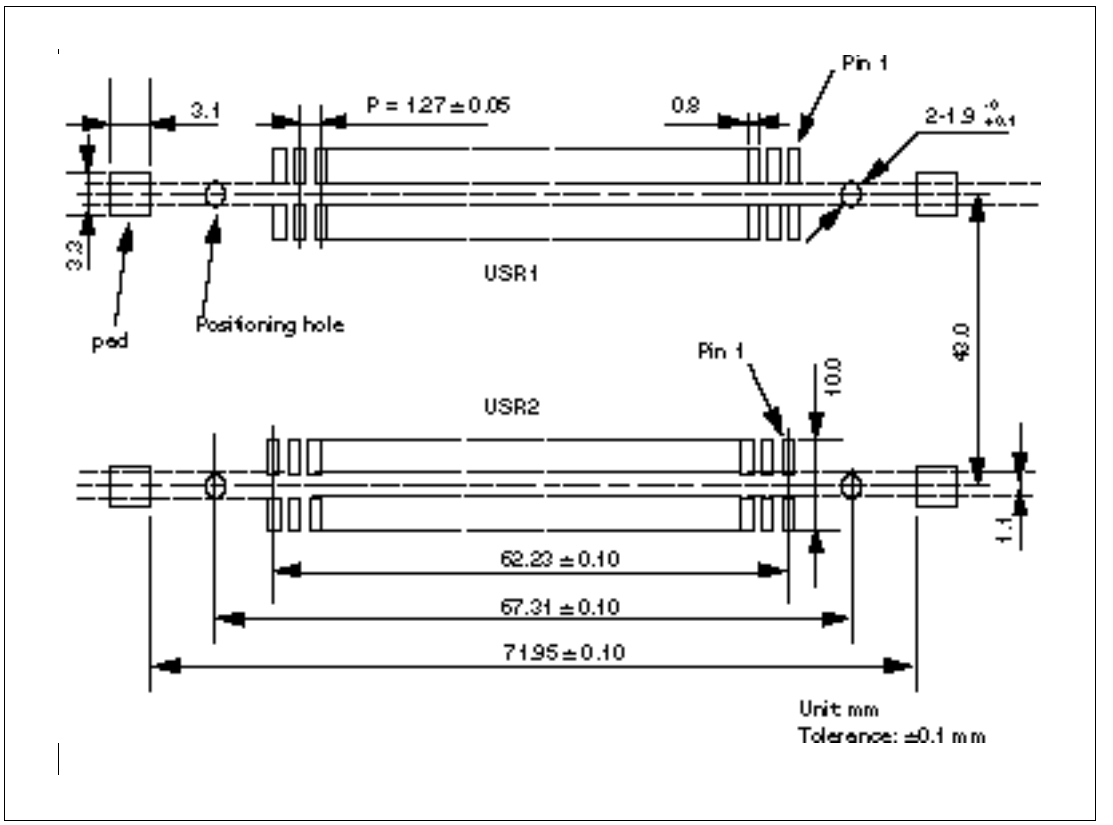


Figure 2.1 Recommended Mounting Pad Dimensions

2.1.2 Connector Position on the User System

CAUTION

Before connecting the connectors (FX2-100P-1.27SVL) to the user system, check the location of pin 1 and the connector shapes as shown in figures 2.1 and 2.2. If the connector direction is incorrect, the EV-chip board cannot be connected to the user system.

Figure 2.2 shows the direction of the connectors (FX2-100P-1.27SVL) on the user system. Comply with the user system component height restriction shown in Figure 2.3 within the external frame of the EV-chip board shown in Figure 2.2.

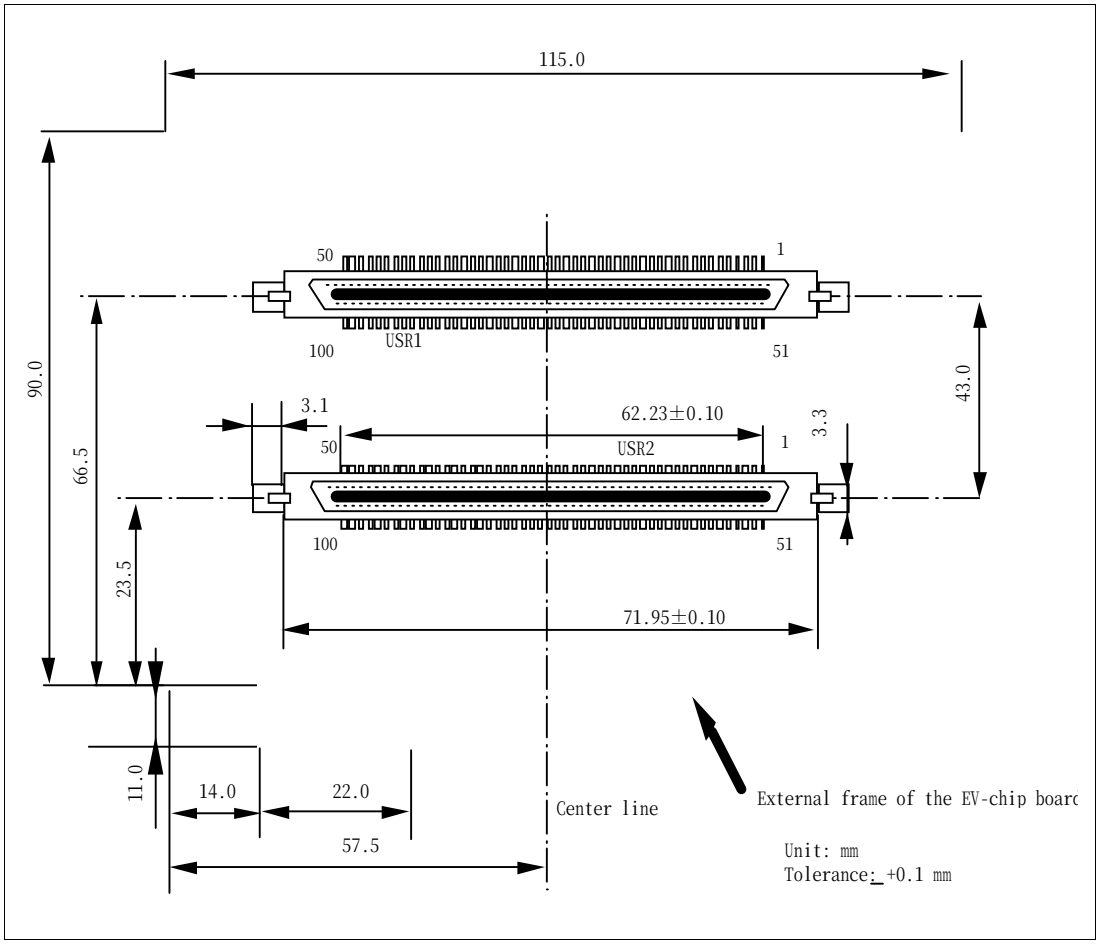


Figure 2.2 Connector Position on the User System (Top View)

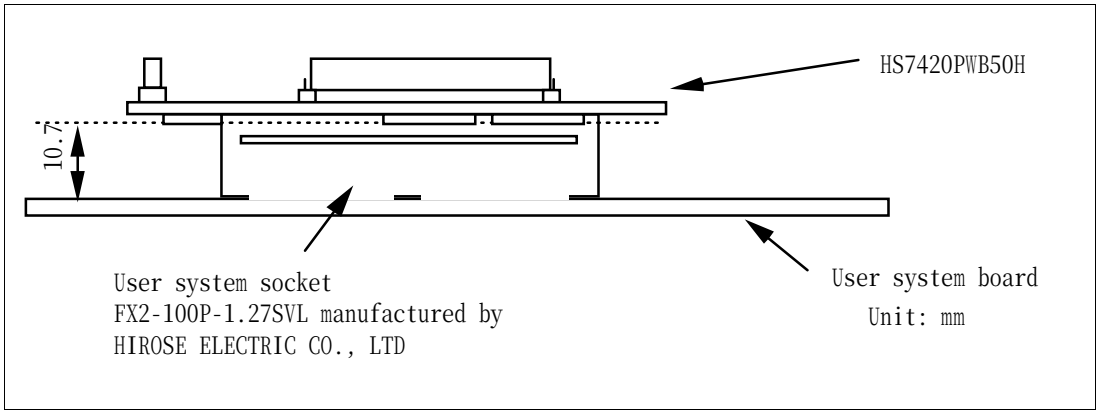


Figure 2.3 Component Height Restriction

Section 3 Connecting the EV-Chip Board to the User System

3.1 Connecting the EV-Chip Board to the User System

3.1.1 Connecting the Specified Connector

This EV-chip board is designed exclusively for the specific connector (type number: FX2-100P-1.27SVL) manufactured by HIROSE ELECTRIC CO., LTD. Therefore, it cannot be used with other connectors.

- Positioning the IC socket

  The connector FX2-100P-1.27SVL has two positioning pins. Insert the positioning pins of the connector into the positioning holes of the user system board. Apply an epoxy adhesive to the tips of the positioning pins of the connector to bond the connector to the user system board.

CAUTION

Before connecting the connectors to the user system, check the location of pin 1 on both sides and the connector shapes (USR1 and USR2).

- Mounting the connectors

  Solder the FX2-100P-1.27SVL onto the user system. Use more solder than usual so that a fillet is formed on the lead edge being soldered.

3.1.2 Connecting the Trace Cables to the EV-Chip Board

WARNING

Always switch OFF the emulator and user system before connecting or disconnecting any CABLES or sockets. Failure to do so will result in a FIRE HAZARD and will damage the user system and the emulator or will result in PERSONAL INJURY. The USER PROGRAM will be LOST.

- EV-chip board condition at shipment

  The EV-chip board is shipped with the HS7410PWB20H and HS7420PWB50H connected to each other. When connecting the EV-chip board to the user system, do not separate the HS7410PWB20H from the HS7420PWB50H.

CAUTION

Before connecting the EV-chip board to the user system, confirm that the HS7410PWB20H and HS7420PWB50H are firmly connected by lightly pushing the board.

- Connecting the trace cables to the E8000 station

  Before connecting the trace cables to the HS7410PWB20H, connect the trace cables to the E8000 station.

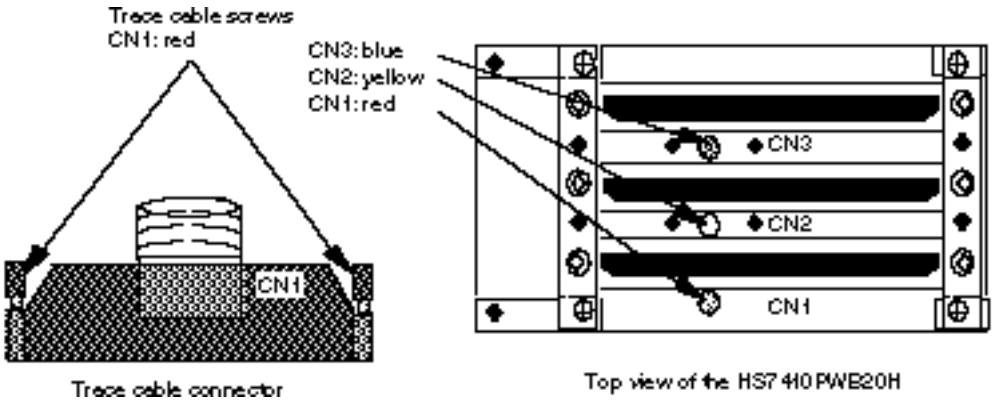
Note: At shipment, trace cables CN2 and CN3 to be connected to the E8000 station are bound into a bundle, and trace cables CN1, CN2, and CN3 to be connected to the EV-chip board are bound into a bundle to prevent an insertion error. For more information on connecting the EV-Chip board to the E8000 station, refer to section 3.2.2, Connecting the EV-Chip Board, in the SH7612 E8000 Emulator User's Manual.

- Connecting the trace cables to the EV-chip board

  Align the trace cables with the station to EV-chip board interface connectors CN1, CN2, and CN3 on the EV-chip board. Confirm that each trace cable connected to a connector on the E8000 station is also connected to its corresponding station to EV-chip board interface connector on the EV-chip board. For the prevention of insertion errors, colors are specified on the trace cable connectors and the corresponding EV-chip board interface connectors (CN1: red, CN2: yellow, CN3: blue).

CAUTION

For the prevention of insertion errors, colors are specified on the trace cable connectors and the corresponding EV-chip board interface connectors.



Tighten the screws to connect the trace cable connectors to the station to EV-chip board interface connectors while holding the HS7420PWB50H securely.

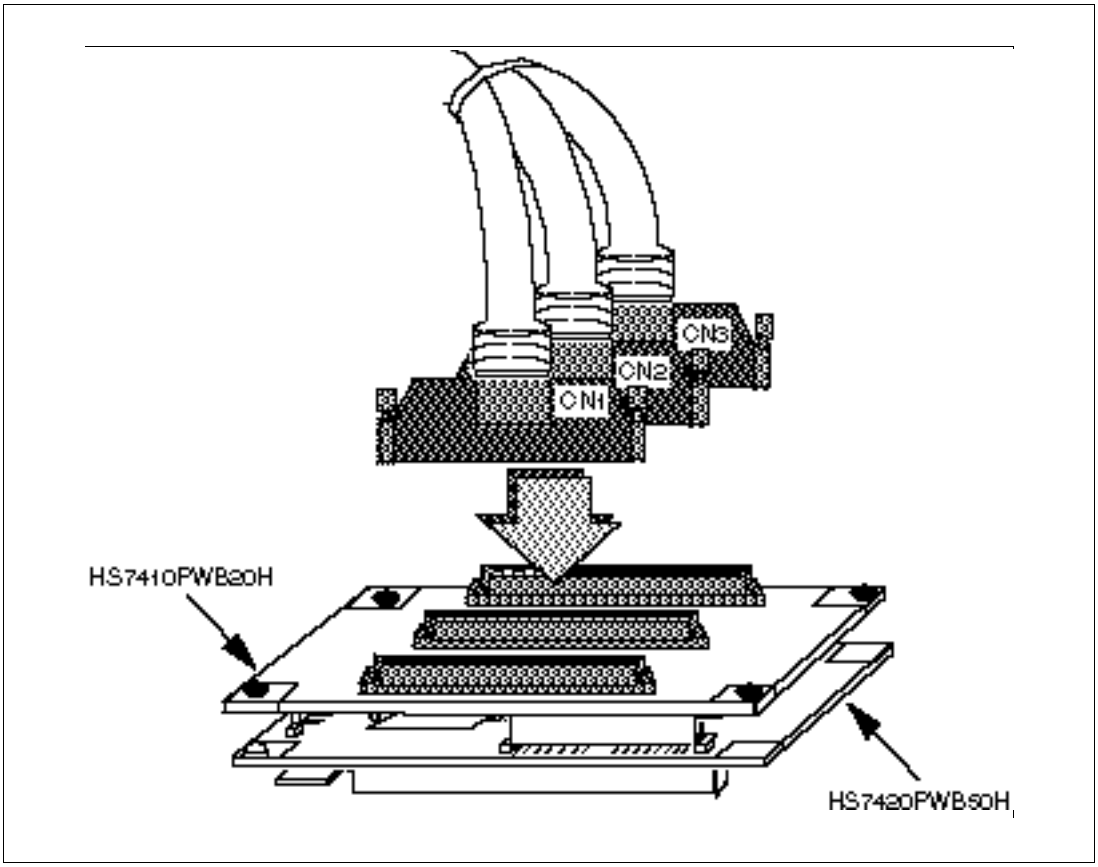


Figure 3.1 Connecting Trace Cables to the EV-Chip Board

WARNING

Make sure the connector shapes and numbers are correctly matched when connecting the trace cables to the station to EV-chip board interface connectors. Failure to do so will result in a FIRE HAZARD.

3.1.3 Connecting the EV-Chip Board to the User System Board

- Connecting the EV-chip board to the user system board

  Check the location of the FX2-100P-1.27SVL on the user system. Align the connectors on the HS7420PWB50H of the EV-chip board with those on the user system board, and insert the connectors.

CAUTION

Forcefully connecting the EV-chip board will apply stress to the soldered connectors on the user system, causing cracks in the solder. Gradually push the EV-chip board repeatedly so that no cracks occur in the soldered section of the connectors.

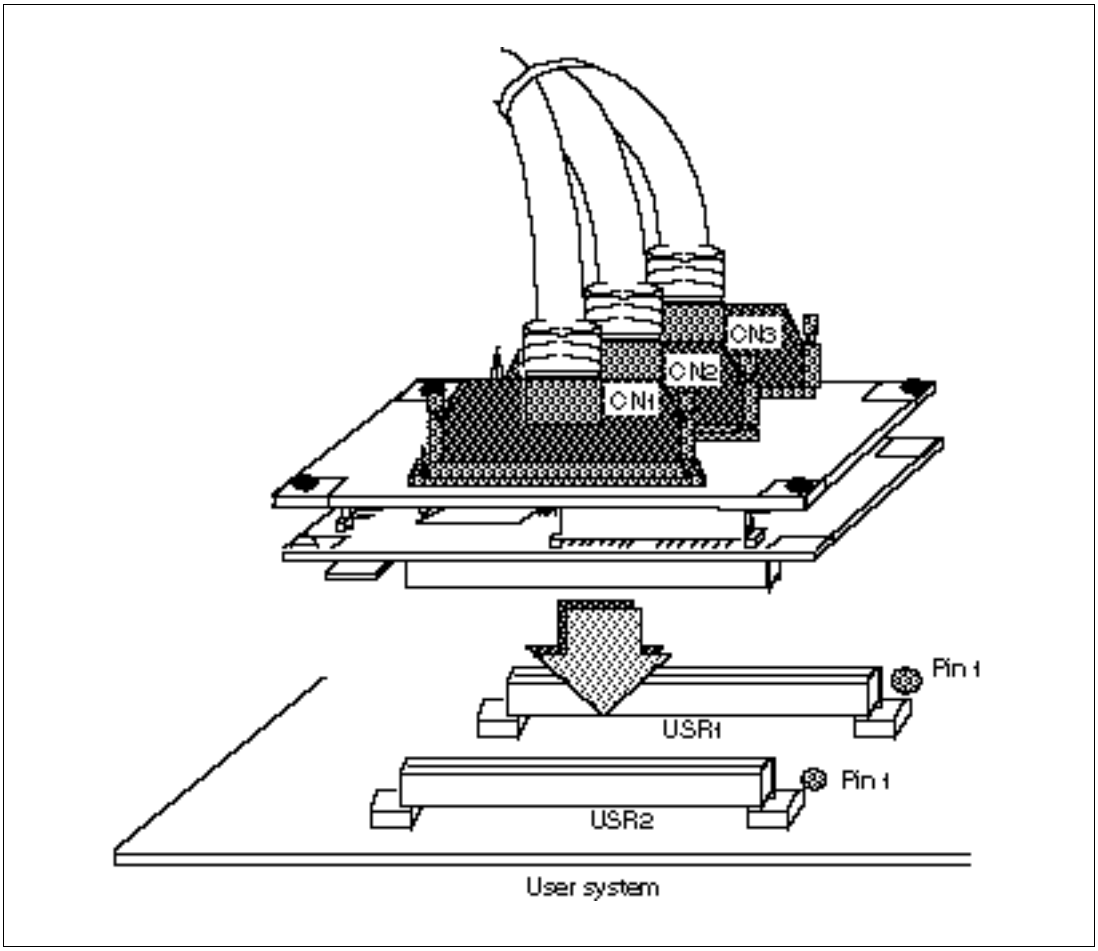


Figure 3.2 Connecting the EV-Chip Board to the User System