EPSON

CARD-E09A

Evaluation Kit Instruction Manual (English)

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CARD-E09A Evaluation Kit Instruction Manual (English)

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1 INTRODUCTION

Thank you very much for your purchase of our CARD-E09A and the evaluation kit for the CARD-E09A. This evaluation kit for the CARD-E09A incorporates documents necessary for development of systems using the CARD-E09A, softwares, evaluation boards which are necessary to make evaluations of the CARD-E09A, peripheral equipment and cables.

2 HANDLING PRECAUTIONS

- When installing the CARD-E09A, make sure the jumper "JP2" on the SH card extension board is being set so as to short-circuit its 2-3 Pins. Otherwise, means if this setting is wrong, the CARD-E09A may become broken.
- When a system starting PROM is not being connected to the CN15 of the CARD-E09A Evaluation Board, set the "JP1" to "open" state. Otherwise, the system will not start operation.
- Always install the CARD-E09A Evaluation Board or ISH board on a level stand or table.
- Since electric circuits of the CARD-E09A Evaluation Board and ISH board are being exposed to
 outside atmosphere, existence of electrically conductive substance or dust on the surfaces
 installing these boards may cause shorting failures in their circuits.
 Do not use these boards under dusty environments.
- To prevent destructions of the elements, use the under an environment where necessary measures to deal with static electricity have duly been taken.
- When connecting and disconnecting the connectors, always turn of the power supply.
- The boards and peripheral equipment being incorporated in the evaluation kit for the CARD-E09A are merely for the evaluation purposes and they cannot be incorporated into any other.

3 HOW TO ACQUIRE LATEST UPDATING OF THE RELEVANT INFORMATION

We are providing product information of our CARD-PC's and electronic devices through the Internet. Refer to the web site for SEIKO-EPSON's electronic devices to acquire latest information.

URL http://www.epson.co.jp/device/

4 CONTENTS OF THE EVALUATION KIT

The evaluation kit for the CARD-E09A consists of the following items.

Various manuals

- CARD-E09A Evaluation Kit Instruction Manual (this manual)
- CARD-E09A Hardware Manual
- CARD-E09A Application Note (including reference circuit diagrams)
- CARD-E09A Evaluation Kit Software Manual
- CARD-E09A Evaluation Kit Hardware Manual
- SED1355F_{0A} Technical Manual

Softwares

- Quick debugger (being installed in the ATA card)
- Windows CE 2.11 demonstration image (being installed in the CompactFlash card)

Evaluation boards

- CARD-E09A Evaluation Board (SCE88J1B01)
- ISH Board (SCE88J2B01)

Peripheral equipment

- CompactFlash card
- ATA card
- Power unit

Cable sets

- MOUSE/KEYBOARD branching connector (PS/2 splitter)
- SERIAL conversion cable (SHEX#01A)× 2 units
- PARALLEL conversion cable (SHEX#02A)
- SCIF/MISC connector extension cable (SHEX#03A)× 2 units
- LCD connector extension cable (SHEX#04A)
- Speaker module (SHEX#05A)

Others

- Adaptor for the ATA card
- AC240V conversion plug

- Hexagonal spacers for installation of the CARD-E09A Evaluation Board/ISH Board
- Hexagonal spacers for installation of the CARD-E09A

5 EXPLANATIONS FOR THE CONTENTS

5.1 Manuals

CARD-E09A Hardware Manual:

This is an instruction manual introducing the hardware specifications and functions of the CARD-E09A.

CARD-E09A Application Note (including reference circuit diagrams):

This document introduces circuit configuration examples when designing products using the CARD-E09A, precautions when making designings and connection methods to different LCD's. Also, reference circuit diagrams using the CARD-E09A Evaluation Board as the basic equipment.

CARD-E09A Evaluation Kit Software Manual:

This is a summarized manual outlining the IPL and loader for the CARD-E09A through starting up of the Windows CE. For more details, refer to the instruction manual being attached to the SH-CARD Windows CE2.11 Development Kit. This document also describes the explanations for the specifications of the quick debugger for the CARD-E09A.

CARD-E09A Evaluation Kit Hardware Manual:

This is an instruction manual describing the hardware specifications and functions of the evaluation board for the CARD-E09A, CARD-E09A Evaluation Board and ISH Board.

SED1355F_{0A} Technical Manual:

This is an instruction manual describing the specifications and functions of the LCD controller $SED1355F_{0A}$ being used into the CARD-E09A. Regarding the settings of the $SED1355F_{0A}$, refer to the "CARD-E09A Application Note" and "CARD-E09A Evaluation Kit Software Manual" at the same time.

5.2 Softwares

Quick debugger:

This is a hardware debugging tool for use with the systems using the CARD-E09A. With this debugger, system memory read/write and parameter-setting/parameter-checking, editing registers, LCD controller parameter-setting can be tested .

This debugger is installed into the ATA card being packed in this evaluation kit. For details, refer to the "CARD-E09A Evaluation Kit Software Manual".

Windows CE 2.11 Demonstration Image:

This is a demonstration image of the Windows CE 2.11 Full Version. It is pre-installed into the Compact Flash card being packed in this evaluation kit. Be sure to confirm the contents of the "End-User License Agreement for MicroSoft Software" being referred to in Chapter 8 of this document and being attached as the ending pages of this document.

5.3 Evaluation boards

SH card extension board (SCE88J1B01):

The SH card extension board is an evaluation board for the CARD-E09A. In addition to various interfaces for the CARD-E09A, it is equipped with the Ethernet controller (10Base-T) which is compatible with the NE2000. The key functions of the CARD-E09A can be evaluated by use of this CARD-E09A Evaluation Board.

ISH Board (SCE88J2B01):

The ISH Board is an evaluation board for the CARD-E09A which is additional board of the CARD-E09A Evaluation Board. It is provided with debug LED, connectors for connection of the logic analyzer and universal board area.

5.4 Peripheral equipment

CompactFlash card:

This is being inserted to the ATA card adapter and packed in this package. Windows CE 2.11 demonstration image is already pre-installed.

ATA card:

This is a PCMCIA Type II ATA card. The simplified debugger is already pre-installed .

Power unit:

This power unit is equipped with the AC cable and the DC cable. Do not disconnect the cables under any circumstances. Input voltage: AC 100V/120V/240V

Output voltage: +5V 3.0A, +12V 1.2A and -12V 0.5A

5.5 Cable sets

These are evaluation cable sets for connections to various interface connectors of the CARD-E09A Evaluation Board.

MOUSE/KEYBOARD branching connector (PS/2 splitter):

By connecting this branching connector to the MOUSE/KEYBOARD connector (CN7), the mouse and keyboard become usable simultaneously.

SERIAL conversion cable (SHEX#01A):

Although the SERIAL3 (CN8) and SERIAL4 (CN10) connectors conforming to the RS232C are pin header type connectors, this SERIAL conversion cable works to convert them to the D-SUB 9-pin connectors.

Connection should be so made that the Pin No. 1 side (being marked "1" or " \blacktriangle " on the printed circuit board by silk-printing) and the marking " \bigstar " being printed on the female connector the cable set may be aligned. Meanwhile, the signal lead of the Pin No. 1 of the cable set is being coded by red-colored insulator cover.

PARALLEL conversion cable (SHEX#02A):

Although the PARALLEL connector (CN9) is a pin header type connector, this PARALLEL conversion cable works to convert it to the D-SUB 25-pin connector.

Connection should be so made that the Pin No. 1 side (being marked "1" or " \blacktriangle " on the printed circuit board by silk-printing) and the marking " \bigstar " being printed on the female connector of the cable set may be aligned. Meanwhile, the signal lead of the Pin No. 1 of the cable set is being coded by red-colored insulator cover.

SCIF/MISC connector extension cable (SHEX#03A):

This is an extension cable for signals through the SERIAL0, the SERIAL1/IrDA (MISC connector: CN4) and the SERIAL2 (SCIF connector: CN6).

LCD connector extension cable (SHEX#04A):

This is an extension cable for signals through the LCD connector (CN3). It should be very convenient to use this cable set after making suitable reworking when connecting an LCD.

Speaker module (SHEX#05A):

This module is to be connected to the speaker connector (CN12). The volume can be controlled by use of the VR1.

5.6 Others

Adapter for the ATA card:

Use this adapter when inserting the Compact Flash card into the 68-pin type PC card slot. With this evaluation kit, the Compact Flash card is already inserted into the adapter and being packed into this package.

AC240V conversion adapter plug:

This is an adapter plug for use with the AC240V plug socket. Use this adapter plug connecting to the AC cable of the power unit.

Hexagonal spacers for installation of the CARD-E09A Evaluation Board/ISH Board:

These are male and female type hexagonal spacers (M3, L=16mm) for installation of the SH card extension board and the ISH board. 10 pieces each of the male type hexagonal spacers and female type hexagonal spacers are being packed in this package.

Hexagonal spacers, screws and nuts for installation of the CARD-E09A:

These are male type hexagonal spacers (M2, L=7mm), nuts and screws for installation of the CARD-E09A. 3 pieces each of the male type hexagonal spacers, M2 nuts and screws are being packed in this package.

6 INSTALLATION PROCEDURES FOR THE EVALUATION BOARD

For evaluation of the CARD-E09A, a multi-scan type VGA monitor, PS/2 keyboard and PS/2 mouse become necessary in addition to the accessories being attached to this evaluation kit.

6.1 Installation of the CARD-E09A Evaluation Board and the ISH Board

6.1.1 Installing the CARD-E09A Evaluation Board and the ISH Board

6.1.1.1 Hexagonal spacers

- Use these hexagonal spacers to prevent direct contact of the mounted parts to the installation site surface while the CARD-E09A Evaluation Board and the ISH Board are in use.
- Install them to the printed circuit board mounting holes as shown in the schematic diagram given below. These printed circuit board mounting holes are provided at



6 places with the CARD-E09A Evaluation Board and at 4 places with the ISH Board.



•Designated below are the installation procedures for the board mounting hexagonal spacers:

(1)Prepare the following parts included in this evaluation kit.

•Male type hexagonal spacer (M3) (L=16mm): 10 pieces

•Female type hexagonal spacer (M3) (L=16mm): 10 pieces

(2)Insert the pinned end of the male type hexagonal spacers into the 10 holes being provided in the printed circuit board before fastening the board fitting the female type hexagonal spacers, respectively.



6.1.1.2 Connecting the CARD-E09A Evaluation Board and the ISH BoardConnect the CN2 of the CARD-E09A Evaluation Board to the CN1 of the ISH Board.

6.1.2 Installing the Compact Flash card

When conducting system evaluations, we recommend you to insert the Compact Flash card in the state being connected to the adapter for the ATA card as is into the PCMCIA slot of the CARD-E09A Evaluation Board.

Under this state, it is also possible to start up the Windows CE 2.11 demonstration image. For details, refer to Section 7.2 "Starting up of the Windows CE 2.11 demonstration image" in this document.

Designated below are the procedures for installation of the CARD-E09A to the Compact Flash card connector:

- •Detach the CompactFlash card from the adapter for the ATA card.
- •Insert the Compact Flash card to the Compact Flash card connector of the CARD-E09A. When doing this, direct the upper side of the Compact Flash card upward. As erroneous insertion preventive guide key is being provided, make the insertion fitting to the guide key.

6.1.3 Installing the CARD-E09A

- Install the CARD-E09A to the CN1 of the CARD-E09A Evaluation Board.
- Designated below are the installation procedures for the CARD-E09A:

(1)Prepare the following parts included in this evaluation kit.

•Hexagonal spacer (M2) (L=7mm): 3	3 pieces
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Nuts (M2):	3 pieces

Screws (M2):	3 pieces

(2)Insert the pinned end of the hexagonal spacers into the 3 holes being provided in the printed circuit board before fastening the board by use of the mating nuts.

(3)After that, insert the CARD-E09A into the CN1 securely as illustrated below.

(4)Fasten the three places using the prepared screws.



6.2 Connections of the peripheral equipment

6.2.1 Connecting the cable sets

• Locations of respective connectors of the CARD-E09A Evaluation Board are as shown in the schematic diagram given below. Refer to this schematic diagram when connecting respective cables.



The connector CN17 (battery) is located on the rear side.

6.2.2 Connecting the keyboard and the mouse

• After inserting the MOUSE/KEYBOARD branching connector to the connector CN7 of the CARD-E09A Evaluation Board, connect the mouse and the keyboard.

6.2.3 Connecting the CRT

• Connect a multi-scan type VGA monitor to the VGA connector (CN5) of the CARD-E09A Evaluation Board.

6.2.4 Connecting the power unit

- Connect the DC cable of the power unit to the power connector (CN16) of the CARD-E09A Evaluation Board. The voltage for the ISH Board is supplied through the CN2 of the CARD-E09A Evaluation Board.
- The attached power unit is not equipped with a power switch. Insertion of the power cable plug into the outlet of the AC power supply will turn the power unit on.

7 STARTING UP THE EVALUATION KIT

7.1 Backup the master ATA card

The simplified debugger being installed into an ATA card (master) ,and it is included in this evaluation kit. Before start using the ATA card, be sure to make a backup. Designated below are the necessary procedures:

- (1)Prepare a formatted backup purpose blank ATA card (4MB or more).
- (2)Copy all the files being stored in the master ATA card to the backup purpose ATA card. When doing this, use a personal computer being equipped with two PCMCIA slots.
- (3)Insert the master ATA card into the PCMCIA slot (CN11) A and insert the backup purpose ATA card into the slot B. Refer to the illustration given below regarding the locations of the slot A and slot B.
- (4)Connect the AC power cable plug to the outlet of the AC power supply to turn on the power unit.
- (5)The picture of the quick debugger appears on the CRT and enter the following command through the keyboard.

SBR SBR.BIN B [Enter]

(6)When the aforesaid entry has been finished and if the prompt "- " appears on the CRT, turn off the power unit by disconnecting the power cable plug from the outlet.

This concludes preparation of the backup card.



7.2 Starting up the Windows CE 2.11 demonstration image

Two different methods are available to start up the Windows CE 2.11 demonstration image.

- A method to insert the CompactFlash card in the state being connected to the adapter for the ATA card as is into the slot A of the PCMCIA slots (CN11) of the CARD-E09A Evaluation Board before turning on the power supply to the system.
- A method to detach the Compact Flash card from the adapter for the ATA card and to connect it to the Compact Flash card connector of the CARD-E0D9A before turning on the power supply to the system.

When conducting system evaluations, we recommend you to choose the method to insert the

Compact Flash card into the PCMCIA slot.

When the Windows CE is started up after inserting the Compact Flash card into the slot A of the PCMCIA slots, the following alarm message will appear on the display but there will be no problem. This is because this system is being designed on the presupposition that the Compact Flash card should be connected to the CARD-E09A.

Unidentified PCCard Adapter

Enter the name of the driver for this PCCard:

Driver Name : Unknown card in Socket X

Designated below are the start up procedures:

- (1)Setup the evaluation board. Refer to Chapter 6 for details.
- (2)Insert the Compact Flash card into the slot A of the PCMCIA slots. In case the Compact Flash card is already being connected to the CARD-E09A, this procedure is not necessary.
- (3)Turn on the power unit by inserting the power cable plug into the outlet.
- (4)In about 2 seconds, a SEIKO-EPSON logo will appear on the CRT display.
- (5)Since the calibration picture for the touch key panel will appear on the display, in case the touch key panel is not being connected, press the ESC key to cancel it.
- (6)The starting picture of the Windows CE will appear on the display.
- (7)Since the explorer is not being attached to the Windows CE 2.11, designate the desired file using the task bar (Ctrl + ESC) before making the executions.

7.3 Debugging methods

Quick debugger:

Using this simplified debugger, it is possible to read-out or write-in the system memories and to check parameter settings when connecting an LCD. The simplified debugger is being installed into the ATA card which is included in this evaluation kit. It can be started up by inserting the ATA card into the slot A of the PCMCIA slots of the CARD-E09A Evaluation Board before turning on the power supply. If the Compact Flash card is already being inserted into the slot A, detach it before inserting the ATA card. For details, refer to the "CARD-E09A Evaluation Kit Software Manual".

ROM emulator:

The ROM emulator can be connected to the PROM socket, CN15 of the CARD-E09A Evaluation Board. When doing this, set the "JP1" to the "shorted" state. When connecting the JTAG emulator, make concurrent use of the signal takeout through-hole of the ISH Board.

LED

LED's are being mounted to the ISH Board. When writing is made to the debugging port address 80h/81h, the LED corresponding to the data bit will turn on or off. For details, refer to the "CARD-E09A Evaluation Kit Software Manual".

Logic analyzer:

The ISH Board is being equipped with a connector for connection of the logic analyzer.

8 End-User License Agreement for MicroSoft Windows CE 2.11

The English version Windows CE 2.11 Full Version is pre-installed into the attached CompactFlash card. Be sure to confirm the contents of the "End-User License Agreement for MicroSoft Software" being attached as the ending pages of this document.

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