EIZO®

User's Manual

AA40

Enhanced 8514/A Graphics Board
for the IBM PC/AT

Professional
Display
Systems

EIZO CORPORATION

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Printed in Japan

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About This Manual

This "User's Manual" will provide a EIZO Graphics Board owner with basic information on configuring and installing an EIZO Graphics Board.
This document is written **only for hardware**. When you need information on software, please consult the "Software Manual".

PART1: Introduction

1.1. Overview

The EIZO AA40 is an enhanced graphics board designed to be fully compatible with IBM 8514/A on the IBM PC/AT or other compatible machines. All software written for IBM 8514/A run on the AA40.

1.2. Features

Display

- Support standard 8514/A modes:
  1024 x 768 interlaced mode
  640 x 480 non-interlaced mode
- High-refresh rate and non-interlaced mode:
  70Hz High-refresh rate in 1024 x 768 non-interlaced mode
  60Hz refresh rate in 1024 x 768 non-interlaced mode
- Support 16 or 256 colours at a time out of a palette of 256K:
  16 colours as standard
  256 colours with optional Video Memory

VGA mode support

- Support VGA pass-through mode by following ways:
  with EIZO VGA board (not support VA41 high-refresh modes)
  with 8514/A VGA Daughter Board (VA20D)
  with other VGA board
  (in 1024x768 resolution, only supports up to 60Hz refresh rate)

Software support

- Software compatible with IBM 8514/A
- Application Software support:
  Microsoft Windows
  AutoCAD
  Ventura Publisher
  GEM/3
  8514/A Adapter Interface (AI)

NOTE: Please refer to the **AA40 Software Installation Manual** for the detail of its software.

PART2: System Requirements

2.1. System Configuration

The AA40 supports VGA pass-through mode. When VGA pass-through mode is set, the AA40 can be used as a one-monitor system.

One-Monitor System

To use the AA40 as a one-monitor system, connect the AA40 and other VGA board with VGA pass-through cable or install the **8514/A VGA Daughter Board (VA20D)** to the AA40, then the AA40 is automatically in VGA pass-through mode. (Please refer to the **VA20D User's Manual** for the detail.)

> **NOTE:** In **1024x768** resolution, the AA40 One-Monitor System supports up to **60Hz** refresh rate only.

Two-Monitor System

To use the AA40 as a two-monitor system, prepare another Graphics Board (ex. VGA Board), and connect suitable monitors to each board.

2.2. Computer System

IBM PC/AT compatible computers which has more than 80386SX CPU.

> **NOTE:** The mother board designed by Intel does not coincide with 8514/A compatibles and machines with these boards should not be used with AA40.

PART3: Board Configuration

3.1. Location of the Dip-Switch

The AA40 has a Dip-Switch which is needed to be set before attaching the monitor to the AA40.
Location of the Dip-Switch is shown below:

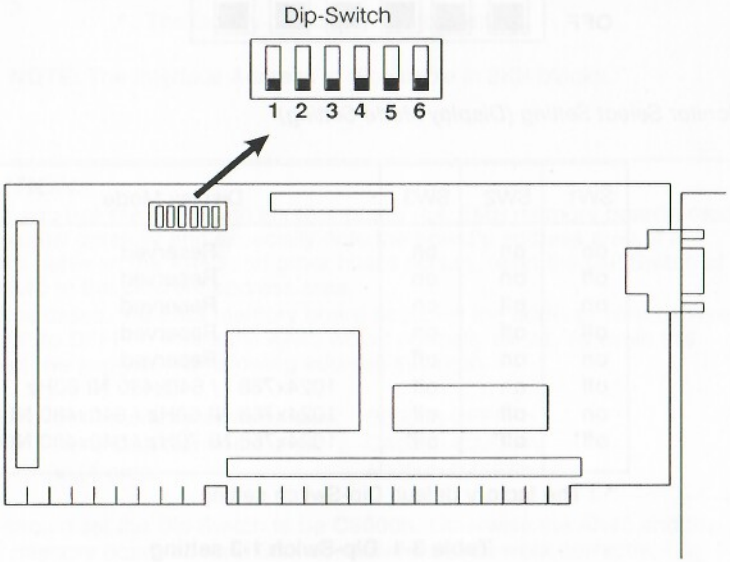


Figure 3-1 Location of the Dip-Switch on the AA40

3.2. Dip-Switch Setting

Bits 1 to **3** of this Dip-Switch determine the monitor connected to AA40, and **bits4** to **5** determine the interface address of AA40 to the Host computer.
(**NOTE: Bit6** is not in use.)

Monitor Select Setting (Display Mode Setting)

SW1	SW2	SW3	Display Mode
on	on	on	Reserved
off	on	on	Reserved
on	off	on	Reserved
off	off	on	Reserved
on	on	off	Reserved
off	on	off	1024x768 **I** / 640x480 **NI** 60Hz
on	off	off	1024x768 **NI** 60Hz / 640x480 **NI** 60Hz
off*	off*	off*	1024x768 **NI** 70Hz / 640x480 **NI** 60Hz

* : The factory default Dip-Switch setting.

Table 3-1 Dip-Swich 1-3 setting

Compatible EIZO Monitors

Following are the sample EIZO Monitors for each display mode.

Display Mode	EIZO Monitor
1024 x 768 **NI** 60Hz	T660, 9500, T560i, 9070S, 9065S
1024 x 768 **NI** 70Hz	T660, 9500, T560i, 9080i

I : Interlaced **NI** : Non-interlaced

Table 3-2 Compatible EIZO Monitors

NOTE: When using AA40 with 9070S, the Dip-Switch must be reset to the **1024x768 NI 60Hz** mode. Otherwise the screen may be scrambled. (Please refer to **Table 3-1** for the Dip-Switch setting.)

Interface Address Setting

SW4	SW5	ROM Base Address
on	off	C0000h
on	on	C6000h
off*	off*	C8000h
off	on	D8000h

* : The factory default Dip switch setting.

NOTE: The Interface Address is allocatable in 8KB blocks.

CAUTION:

When you use the AA40 with another board (ex. EMS memory board), read the manual carefully and especially note the board's address area. If a conflict between the AA40 and other board occurs, reset the DIP Switch of the AA40 to the different address area.

In some cases, the EMS memory board occupies the address area between C0000h to DFFFFh where the AA40 would normally exists. To avoid this conflict, we suggest the following address settings:

(ex.) EMS memory address area: D0000h-DFFFFh
Hard Disk Controller area: CA000h-CAFFFh
VGA area: A0000h-C7FFFh

You should set the Dip Switch to be **C8000h**. Otherwise the AA40 and the EMS memory board or Hard Disk controller may not work correctly.

PART4: Installation

4.1. Basic Installation

Step 1. Power-off the computer and all attached peripherals.

Step 2. Turn the computer around so that the back is facing you. Remove the screws that hold the cover in place and remove the cover.
Refer to your computer reference manual for specific installation instructions.

Step 3. Select any expansion slot (16-bit) and remove the back panel slot cover by removing the screw on the top edge of the back panel and pilling it up.

Step 4. Aligning the AA40 with a expansion slot, push evenly along the top edge of the board until it is fully seated in the expansion slot.

Step 5. Set the screw on the back panel slot cover to secure the AA40. This ensures proper grunding of the board.

Step 6. Put on the computer cover and plug your display into the 15 pin D-sub Miniature Connector on the back panel of the AA40 board.

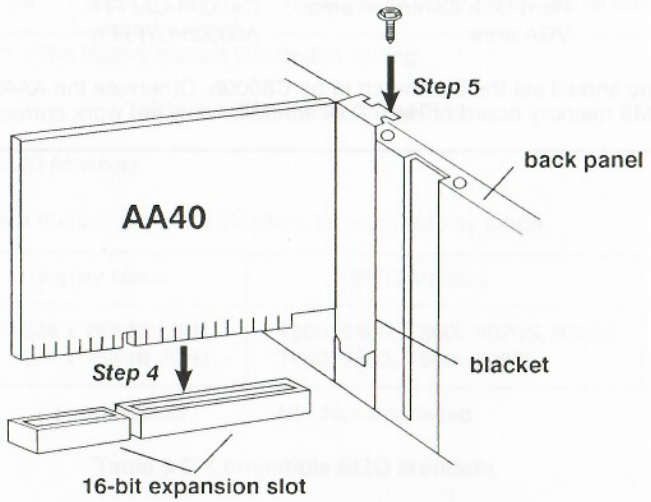


Figure 4-1 Installing the AA40 in your computer

4.2. VGA pass-through Installation

Step 1. Install the VGA board in a expansion slot in the same way as the AA40 installation. Connect the VGA board pass-through connector to the AA40 pass-throrgh connector with VGA pass-through cable as follows (Refer to Figure 4-2.):

Use the suitable VGA pass-through cable for each VGA board:
for the EIZO VGA board...pass-through cable A (Header - Header)
for other VGA board.....pass-through cable B (Header - Card edge)

Step 2. Put on the computer cover and plug your monitor into the 15pin D-sub Miniature Connector on the back of the AA40 board.

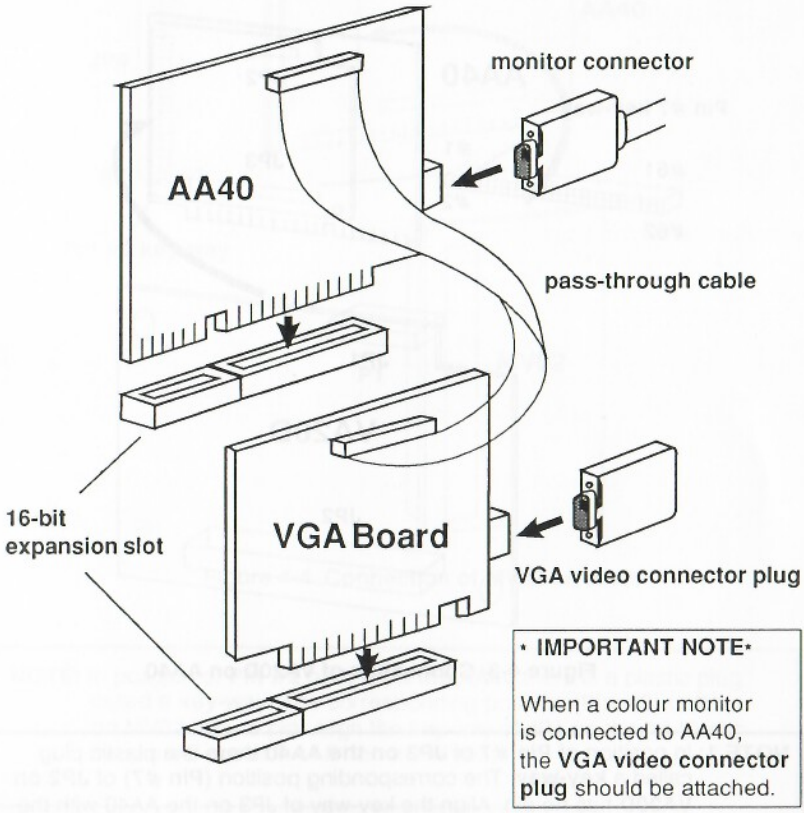


Figure 4-2 VGA pass-through connection of AA40 with VGA board

4.3. 8514/A VGA Daughter Board (VA20D) Installation

Step 1. Carefully install the VA20D on the connectors by aligning the pins on the VA20D with connectors on the AA40 board as follows:

Connect the following connectors of each board:

VA20D	*AA40*
JP1	**JP2**
JP2	**JP3**

Step 2. Put on the computer cover and plug your monitor into the 15pin D-sub Miniature Connector on the back of the AA40 board. (Refer to the **VA20D User's Manual** for the detail information.)

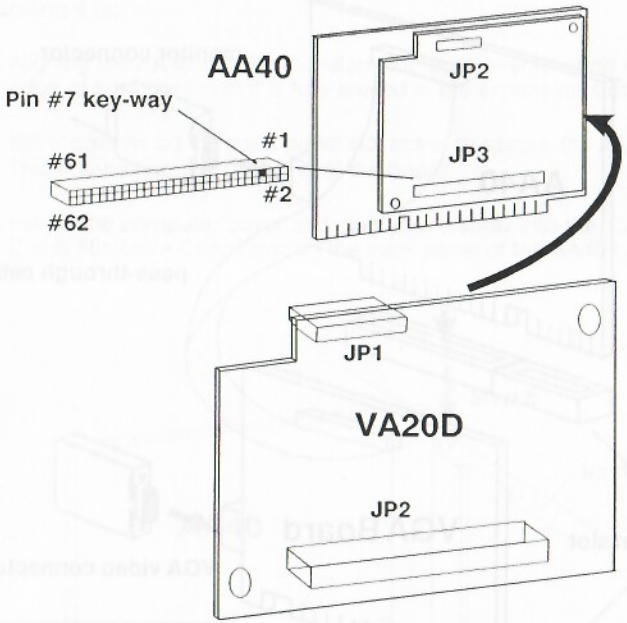


Figure 4-3 Connection of VA20D on AA40

NOTE 1: In position of **Pin #7** of **JP3 on the AA40** there is a plastic plug called a **key-way**. The corresponding position (**Pin #7**) of **JP2 on VA20D** has no pin. Align the key-way of JP3 on the AA40 with the pin #7 posision of JP2 on the VA20D.

2: The **EIZO VGA Daughter Board** (for EIZO MD-B11/MD-B12) is not available to use on AA40.

4.4. Memory Board (MV02) Installation

Carefully install the MV02 on the connectors by aligning the pins on the MV02 with connectors on the AA40 board as follows:

Connect the following connectors of each board:

MV02	*AA40*
P1	**JP4**

(Refer to the **MV02 Installation Sheet** attached with the MV02 package.)

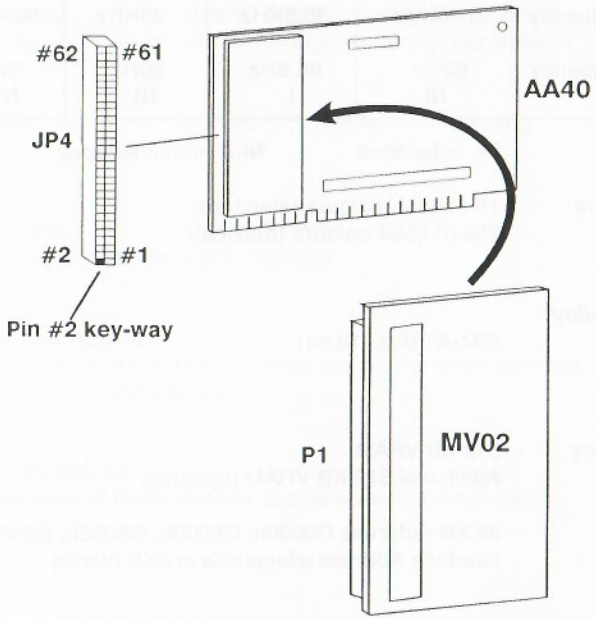


Figure 4-4 Connection of MV02 on AA40

NOTE: In position of **Pin #2** of **JP4 on the AA40** there is a plastic plug called a **key-way**. The corresponding position (**Pin #2**) of **P1** on MV02 has no pin. Align the key-way of JP4 on the AA40 with the pin #2 posision of P1 on the MV02.

PART5: Specifications

5.1. Electrical Specifications

Display Format

Resolution	640 x 480	1024 x 768	1024 x 768	1024 x 768
Dot Clock	25.175MHz	44.9MHz	65MHz	76MHz
H.Scan Frequency	31.5KHz	35.5KHz	49KHz	56.4KHz
V.Scan Frequency	60Hz **NI**	86.8Hz **I**	60Hz **NI**	70Hz **NI**

I = interlaced NI = non-interlaced

Colour Palette
16 of 256K colours (standard)
256 of 256K colours (optional)

Bus Compatibility

IBM-AT Bus (16 bit)

Memory

Video Memory
512 KB VRAM
Additional 512 KB VRAM (optional)

PROM
32 KB (address C0000h, C6000h, C8000h, D8000h)
Interface Address allocatable in 8KB blocks

Output Signal

Video
Analog R, G, B (RS-343A compatible)

Sync
H.Sync (TTL Level)
V.Sync (TTL Level)

Connector
D-sub Miniature 15 pins

Power Input

+ 5V ± 5%
+ 12V ± 5%

5.2. Mechanical Specifications

Dimensions	126 x 170 mm (net)
Weights	140g (net)

5.3. Environmental Specifications

Temparature

Operating	0 to 50 degrees centigrade ambient
Storage	-10 to 70 degrees centigrade ambient

Humidity 10% to 80% R.H.Non-condensing

Altitude

Operating	Up to 3000m
Shipping or storage	Up to 12000m

Vibration (Shipping)

A vibration of 1G (1000cpm. 2mm amplitude) along all three axes shall be sustained without damage.

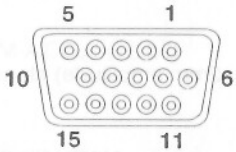
Shock (Shipping)

A free drop of 60cm shall be sustained without damage.

PART6: Pin Assignments

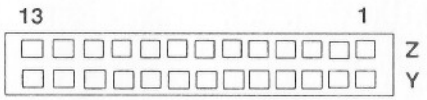
6.1. Video Output (15-pin D-sub Miniature Connector)

Pin No.	*Signal*
1	Video Red
2	Video Green
3	Video Blue
4	Reserved (Monitor Sense)
5	Digital Ground
6	Return of Red Video Signal (Analog GND)
7	Return of Green Video Signal (Analog GND)
8	Return of Blue Video Signal (Analog GND)
9	N.C.
10	Digital GND
11	Reserved (Monitor Sense)
12	Reserved (Monitor Sense)
13	H. Sync (TTL Level)
14	V. Sync (TTL Level)
15	N.C.



6.2. VGA pass-through (26-pin Connector)

Pin No. Z	Signal	Pin No. Y	Signals
1	GND	1	Pixel Data 0
2	GND	2	Pixel Data 1
3	GND	3	Pixel Data 2
4	N.C.	4	Pixel Data 3
5	N.C.	5	Pixel Data 4
6	N.C.	6	Pixel Data 5
7	N.C.	7	Pixel Data 6
8	GND	8	Pixel Data 7
9	GND	9	PCLK
10	GND	10	PBLANK
11	GND	11	PHSYNC
12	N.C.	12	PVSYNC
13	N.C.	13	GND



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In the event of malfunction during the warranty period attributable directly to faulty material and/or workmanship, we will, at our option, either repair or replace the faulty product with the same or similar model. We shall have no obligation under this warranty, however, if the product has been misused, carelessly handled, defaced or modified, altered or repaired with no prior authorization. The product must be returned with a proof of original purchase, in its original (or other adequate) package to the point of purchase or to other place through prior arrangement with us. The product must be returned with shipping charges prepaid and insured or the purchaser assumes the risk of loss or damage in transit. We shall make the final determination as to the existence and the cause of any alleged defect.

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