AR-B1042
PC/104 VGA/LCD
DISPLAY MODULE
User's Guide

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0.PREFACE

0.1 COPYRIGHT NOTICE AND DISCLAIMER

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0.2 WELCOME TO THE AR-B1042 DISPLAY MODULE

This guide introduces the Acrosser AR-B1042 display module.

Use the information describes this card's functions, features, and how to start, set up and operate your AR-B1042. You also could find general system information here.

0.3 BEFORE YOU USE THIS GUIDE

Check the packing list, make sure the accessories in the package.

AR-B1042 diskette provides the newest information about the card**. Please refer to the README.DOC file of the enclosed utility diskette**. It contains the modification and hardware & software information, and adding the description or modification of product function after manual published.

0.4 RETURNING YOUR BOARD FOR SERVICE

If your board requires servicing, contact the dealer from whom you purchased the product for service information. If you need to ship your board to us for service, be sure it is packed in a protective carton. We recommend that you keep the original shipping container for this purpose.

You can help assure efficient servicing of your product by following these guidelines:

1. Include your name, address, telephone and facsimile number where you may be reached during the day.
2. A description of the system configuration and/or software at the time is malfunction.
3. A brief description is in the symptoms.

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User's comments are always welcome as they assist us in improving the usefulness of our products and the understanding of our publications. They form a very important part of the input used for product enhancement and revision.

We may use and distribute any of the information you supply in any way we believe appropriate without incurring any obligation. You may, of course, continue to use the information you supply.

If you have suggestions for improving particular sections or if you find any errors, please indicate the manual title and book number.

Please send your comments to Acrosser Technology Co., Ltd. or your local sales representative.

Internet electronic mail to: **webmaster@acrosser.com**

0.6 ORGANIZATION

This information for users covers the following topics (see the Table of Contents for a detailed listing):

- Chapter 1, "Overview", provides an overview of the system features and packing list.
- Chapter 2, "Setting Up the System", describes how to adjust the jumper, and the connectors setting.
- Chapter 3, "CRT/LCD Flat Panel Display", describes the configuration and installation procedure using LCD display.
- Chapter 4, "Installation of the Utility Software", describes setup procedures including information on the utility diskette.
- Chapter 5, Error (Beep) Code & Index

0.7 STATIC ELECTRICITY PRECAUTIONS

Before removing the board from its anti-static bag, read this section about static electricity precautions.

Static electricity is a constant danger to computer systems. The charge that can build up in your body may be more than sufficient to damage integrated circuits on any PC board. It is, therefore, important to observe basic precautions whenever you use or handle computer components. Although areas with humid climates are much less prone to static build-up, it is always best to safeguard against accidents may result in expensive repairs. The following measures should generally be sufficient to protect your equipment from static discharge:

- Touch a grounded metal object to discharge the static electricity in your body (or ideally, wear a grounded wrist strap).
- When unpacking and handling the board or other system component, place all materials on an antic static surface.
- Be careful not to touch the components on the board, especially the "golden finger" connectors on the bottom of every board.

1. OVERVIEW

This chapter provides an overview of your system features and capabilities. The following topics are covered:

- Introduction
- Packing List
- AR-B1042 and Accessory List
- Features

1.1 INTRODUCTION

The AR-B1042 is a PC/104 form factor super VGA controller for CRT and LCD display. It supports CRT color monitor, STN, Dual-Scan, TFT, monochrome and color panels. It can be connected to create a compact video solution for the industrial environment. 1MB of RAM on-boarded allows a maximum CRT resolution of 1280X1024 and a LCD resolution of 640X480 with 64K colors.

For different VGA display modes, your monitor must possess certain characteristics for display the mode you want. There is the table to list the standard VGA display modes for the module and monitor information which supports them.

Model# (Hex)	Color	Text Display	Font Size	Pixel Resolution	Display Mode	Dot Clock (MHz)	Horizontal Freq. (KHz)	Vertical Freq. (Hz)
0+, 1+	16	40x25	9x16	360x400	Text	50/28.322	31.5	70
0+, 1+	16	40x25	8x14	320x350	Text	56/25.175	31.5	70
0+, 1+	16	40x25	8x8	320x200	Text	56/25.175	31.5	70
2+, 3+	16	80x25	9x16	720x400	Text	56/28.322	31.5	70
2+, 3+	16	80x25	8x14	640x350	Text	56/25.175	31.5	70
2+, 3+	16	80x25	8x8	640x200	Text	56/25.175	31.5	70
4	4	40x25	8x8	320x200	Graphics	56/25.175	31.5	70
5	4	40x25	8x8	320x350	Graphics	56/25.175	31.5	70
6	2	80x25	8x8	640x200	Graphics	56/25.175	31.5	70
7+	Mono	80x25	9x16	720x400	Text	56/25.322	31.5	70
7+	Mono	80x25	9x14	720x350	Text	56/25.322	31.5	70
7+	Mono	80x25	9x8	720x350	Text	56/25.322	31.5	70
13	256	40x25	8x8	320x200	Graphics	56/25.175	31.5	70

Table 1-1 Supported Video Modes – VGA Standard

Model# (Hex)	Color	Text Display	Font Size	Pixel Resolution	Display Mode	Dot Clock (MHz)	Horizontal Freq. (KHz)	Vertical Freq. (Hz)
20	16	80x30	8x16	640x480	Note 3	56/25.175	31.5	60
22	16	100x37	8x16	800x600	Note 3	56/40.000	37.5	60
24	16	128x48	8x16	1024x768	Note 3	65/65.000	48.5	60
24I	16	128x48	8x16	1024x768	Note 3	65/44.900	35.5	43
30	256	80x30	8x16	640x480	Note 1	56/25.175	31.5	60
32	256	100x37	8x16	800x600	Note 1	56/40.000	37.5	60
34	256	128x48	8x16	1024x768	Note 1	65/65.000	48.5	60
34I	256	128x48	8x16	1024x768	Note 1	64/44.900	35.5	43
40	32K	80x30	8x16	640x480	Note 4	65/50.350	31.5	60
41	64K	80x30	8x16	640x480	Note 5	65/50.350	31.5	60
50	16	80x30	8x16	640x480	Note 6	65/65.000	27.1	51.6
60	16	132x35	8x16	1056x400	Text	65/40.000	30.5	68
61	16	132x50	8x16	1056x400	Text	65/40.000	30.5	68
71,75I						65/44.900	35.5	43
78	16	80x25	8x16	640x400	Note 2	56/25.175	31.5	70
79	256	80x30	8x16	640x480	Note 2	56/25.175	31.5	60

Table 1-2 Supported Video Modes – Extended Resolution

NOTE: 1. 8 bit Linear
2. Packed Pixel
3. 4 bit Linear
4. 15 bit Linear
5. 16 bit Linear
6. 24 bit Linear, the specification shows below:
   a.) Multi-frequency CRT monitor (37.5KHz minimum horizontal frequency specification) [NEC MultiSync 3D or equivalent]
   b.) Multi-frequency high-performance CRT monitor (48.5KHz Min. H Freq. Specification) [Nanao Flexscan 9070s, MultiSync 5D or equivalent]
7. a.) The I in the mode# column indicates interlaced
   b.) Max. MCLK refers to the maximum clock rate required for proper node operation.
   c.) These tables reflect values found in the Chips and Technologies BIOS for the C&T F65545. If a Video BIOS from another manufacturer is used these values may be different.

1.2 PACKING LIST

The accessories are included with the system. Before you begin installing your AR-B1042 board, take a moment to make sure that the following items have been included inside the AR-B1042 package.

- The quick setup manual
- 1 AR-B1042 PC/104 VGA/LCD display board
- 1 10-pin to D-Sub 15-pin VGA CRT adapter cable
- 2 Software utility diskettes.

Caution: The Acrosser provides many various transfer boards for using, please contact the Sales department will get more information.

1.3 AR-B1042 AND ACCESSORY LIST

The AR-B1042 is a PC/104 form factor supports VGA controller for CRT or LCD display, it is very suitable for different types of monitors like the CRT monitor, STN, Dual-scan, TFT, Monochrome and color panels. With 512KB (or 1MB) of RAM on board, it allows a maximum CRT resolution of 1024x768x256 an LCD resolution of 640x480x64K colors. It can be connected to create a compact video solution for industrial environment.

AR-B1042 in its standard package can be used with CRT monitor through the 15-pin D-Sub connector provided for interface. AR-B1042 VGA module is also available is an enhanced package for CRT/LCD display, it contains the standard package, plus additional accessories for using LCD flat panel display. Below table shows the list of accessories including for both packages provided for AR-B1042 VGA module.

Description	AR-B1042 for CRT (Standard)	AR0B1042 for LCD/CRT (With Enhanced Accessories)
Interface Provided	CRT Connector (DB-15) PC/104 Standard Bus	CRT Connector (DB-15) PC.104 Connector Bus LCD panel Interface
Accessory	Driver Diskettes	LCD Panel Adjust VR Board LCD Panel Inverter VR Board Parts Package Driver Diskettes

Table 1-3 Standard Display

1.4 FEATURES

The system provides a number of special features that enhance its reliability, ensure its availability, and improve its expansion capabilities, as well as its hardware structure.

- IBM-VGA hardware compatible
- Supports CRT color monitors and STN, TFT, Dual-Scan STN, monochrome and color panels
- CRT resolution up to 1280x1024x16 colors
- LCD resolution up to 640x480x64K colors
- Windows performance improvement features
- Chips and Technology F65545 Chipset
- Simultaneous CRT and LCD operation
- Operating temperature 0 degree C to 70 degree C
- Up to 95% Humidity non-condensing
- PC/104 form-factor (92x97mm/3.6”x3.8”) on a 4-layer PCB

2. SETTING UP THE SYSTEM

This section describes pin assignments for system' s external connectors and the jumpers setting.

- Overview
- System Setting

2.1 OVERVIEW

The AR-B1042 is a PC/104 form factor super VGA controller for CRT and LCD display board. This section provides hardware' s jumpers setting, the connectors' locations, and the pin assignment.

The Acrosser provides many various transfer boards for using, please contact the Sales department will get more information.

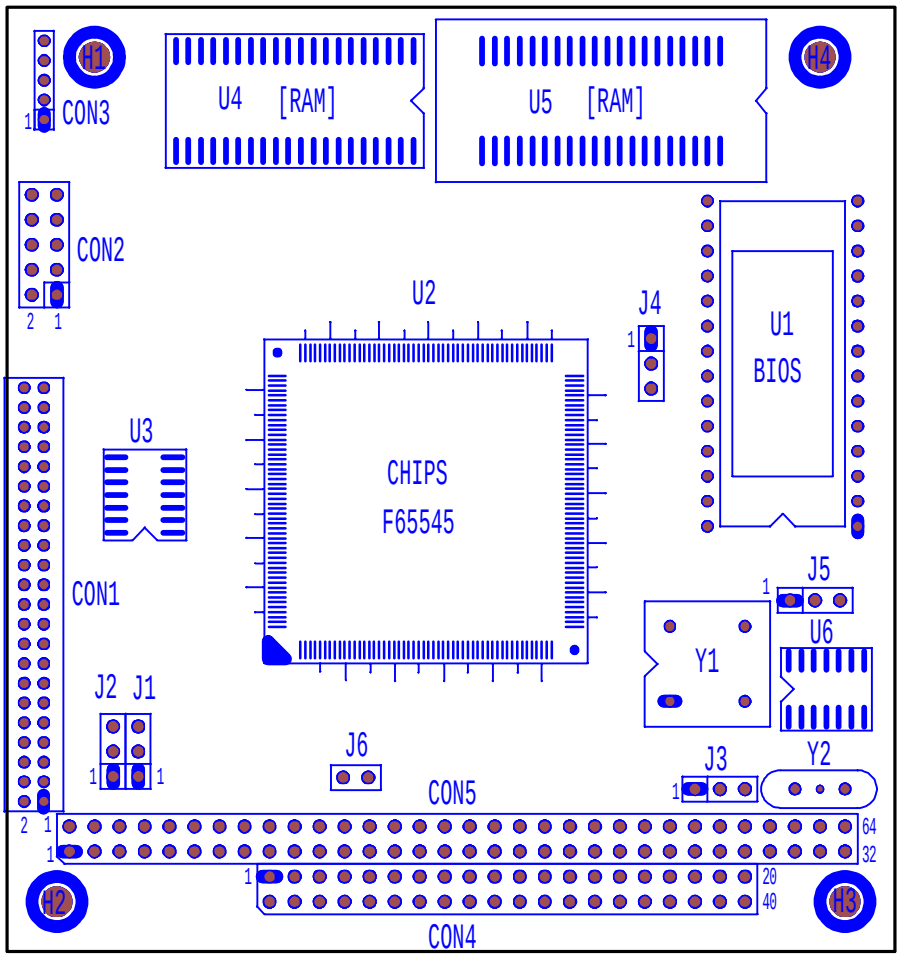


Figure 2-1 External System Location

2.2 SYSTEM SETTING

Before installing the AR-B1042 VGA module, you should first configure the VGA board's hardware. This section describes how to make connections and configure the VGA board. You may find it is convenient to go through these sections first before installing the VGA board into the PC/104 interface.

The AR-B1042 VGA module is a very versatile VGA controller that can be used for either CRT or LCD display. It is very important that you go through the whole chapter before installation.

Before you actually plug the module into your PC/104 bus, you must first set the jumper pins to configure the AR-B1042 module to your system requirements. This is done by closed the jumper pins with a jumper or leaving the pins open.

Once you have installed the VGA card into the CPU's PC/104 bus, you can start connect internal cables. The internal cables are wire leads with plastic female connector that attached to the card's connectors. The VGA card's connectors have many numbers of pins and are the points of contact between the CPU card and other parts of the computer.

CAUTION: Before making connection on the board, make sure that power to the system is turned off.

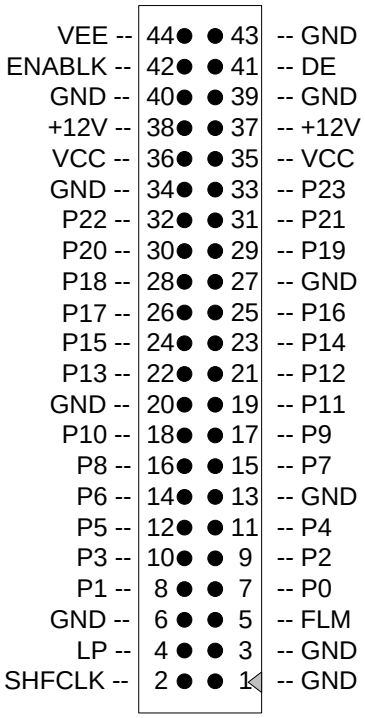
Jumper pins allow you to set specific system parameters. Set them by changing the pin location of jumper blocks. (A jumper block is a small plastic-encased conductor [shorting plug] that slips over the pins.) To change a jumper setting, remove the jumper from its current location with your fingers or small needle-nosed pliers. Place the jumper over the two pins designated for the desired setting. Press the jumper evenly onto the pins. Be careful not to bend the pins.

We will show the locations of the AR-B1042 jumper pins, and the factory-default setting.

CAUTION: Do not touch any electronic component unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system unit chassis. The static discharges from your fingers can permanently damage electronic components.

2.2.1 Universal Panel Control (CON1)

Attach a display panel connector to this 44-pin connector with pin assignments as shown below:

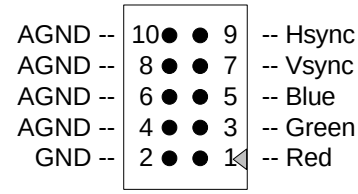


CON1 -- Universal Panel Control

Figure 2-2 CON1: Universal Panel Control

2.2.2 VGA Monitor Connector (CON2)

CON2 is a 10-pin connector that attaches to the CRT monitor via a D-Sub 15-pin adapter cable. The pin assignment of CON2 is shown below:

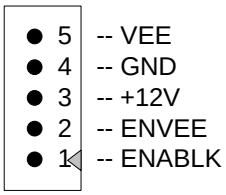


CON2 -- VGA Monitor Connector

Figure 2-3 CON2: VGA Monitor Connector

2.2.3Panel Power Connector (CON3)

CON3 is a 5-pin connector that attaches to the Contrast and Backlight board. Its pin assignments are shown below:



CON3 -- Panel Power Connector

Figure 2-4 CON3: Panel Power Connector

2.2.4 PC/104 Connector

(1) 64 Pin PC/104 Connector Bus A & B (CON5)

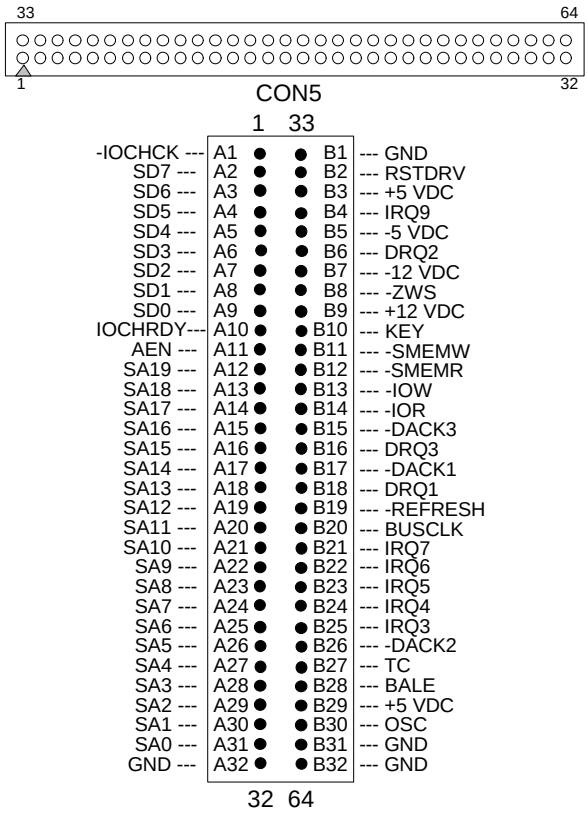


Figure 2-5 CON5: 64-Pin PC/104 Connector Bus A & B

(2) 40 Pin PC/104 Connector Bus C & D (CON4)

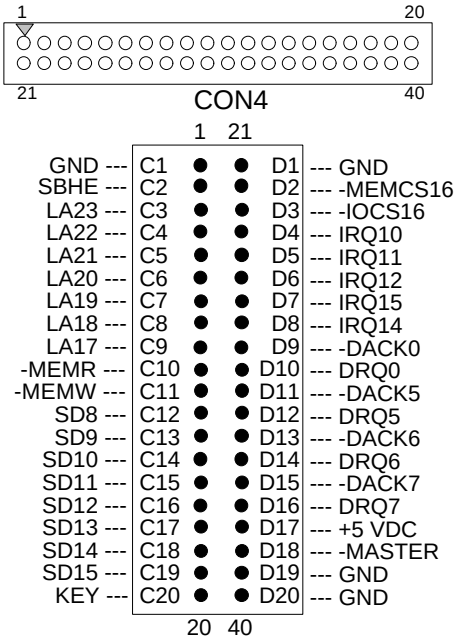


Figure 2-6 CON4: 40-Pin PC/104 Connector Bus C & D

(3) I/O Channel Signal Description

Name	Description
BUSCLK [Output]	The BUSCLK signal of the I/O channel is asynchronous to the CPU clock.
RSTDRV [Output]	This signal goes high during power-up, low line-voltage or hardware reset
SA0 - SA19 [Input / Output]	The System Address lines run from bit 0 to 19. They are latched onto the falling edge of "BALE"
LA17 - LA23 [Input/Output]	The Unlatched Address line run from bit 17 to 23
SD0 - SD15 [Input/Output]	System Data bit 0 to 15
BALE [Output]	The Buffered Address Latch Enable is used to latch SA0 – SA19 onto the falling edge. This signal is forced high during DMA cycles
-IOCHCK [Input]	The I/O Channel Check is an active low signal which indicates that a parity error exist on the I/O board
IOCHRDY [Input, Open collector]	This signal lengthens the I/O, or memory read/write cycle, and should be held low with a valid address
IRQ 3-7, 9-12, 14, 15 [Input]	The Interrupt Request signal indicates I/O service request attention. They are prioritized in the following sequence : (Highest) IRQ 9, 10, 11, 12, 13, 15, 3, 4, 5, 6, 7 (Lowest)
-IOR [Input/Output]	The I/O Read signal is an active low signal which instructs the I/O device to drive its data onto the data bus
-IOW [Input/Output]	The I/O write signal is an active low signal which instructs the I/O device to read data from the data bus
-SMEMR [Output]	The System Memory Read is low while any of the low 1mega bytes of memory are being used
-MEMR [Input/Output]	The Memory Read signal is low while any memory location is being read
-SMEMW [Output]	The System Memory Write is low while any of the low 1mega bytes of memory is being written
-MEMW [Input/Output]	The Memory Write signal is low while any memory location is being written
DRQ 0-3, 5-7 [Input]	DMA Request channels 0 to 3 are for 8-bit data transfers. DMA Request channels 5 to 7 are for 16-bit data transfers. DMA request should be held high until the corresponding DMA has been completed. DMA request priority is in the following sequence:(Highest) DRQ 0, 1, 2, 3, 5, 6, 7 (Lowest)
-DACK 0-3, 5-7 [Output]	The DMA Acknowledges 0 to 3, 5 to 7 are the corresponding acknowledge signals for DRQ 0 to 3 and 5 to 7
AEN [output]	The DMA Address Enable is high when the DMA controller is driving the address bus. It is low when the CPU is driving the address bus
-REFRESH [Input/Output]	This signal is used to indicate a memory refresh cycle and can be driven by the microprocessor on the I/O channel
TC [Output]	Terminal Count provides a pulse when the terminal count for any DMA channel is reached
SBHE [Input/Output]	The System Bus High Enable indicates the high byte SD8 - SD15 on the data bus

Name	Description
-MASTER [Input]	The MASTER is the signal from the I/O processor which gains control as the master and should be held low for a maximum of 15 microseconds or system memory may be lost due to the lack of refresh
-MEMCS16 [Input, Open collector]	The Memory Chip Select 16 indicates that the present data transfer is a 1-wait state, 16-bit data memory operation
-IOCS16 [Input, Open collector]	The I/O Chip Select 16 indicates that the present data transfer is a 1-wait state, 16-bit data I/O operation
OSC [Output]	The Oscillator is a 14.31818 MHz signal
-ZWS [Input, Open collector]	The Zero Wait State indicates to the microprocessor that the present bus cycle can be completed without inserting additional wait cycle

Table 2-1 I/O Channel Pin Assignment

2.2.5 Setting Linear Address (J1 & J2)

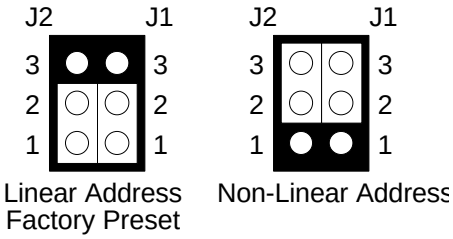


Figure 2-7 J1 & J2: Setting Linear Address

2.2.6 Setting Clock Source (J3)

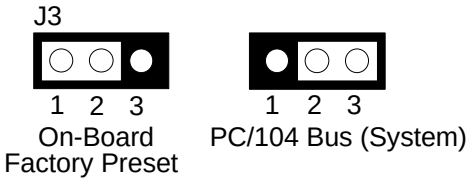


Figure 2-8 J3: Setting Clock Source

2.2.7 DE/E Signal from M or LP (J4)

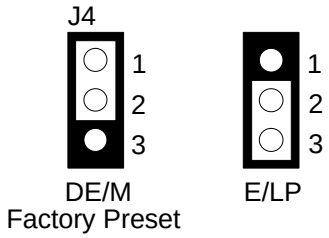


Figure 2-9 J4: DE/E Signal from M or LP Select

2.2.8 Setting BIOS Bank (J5)

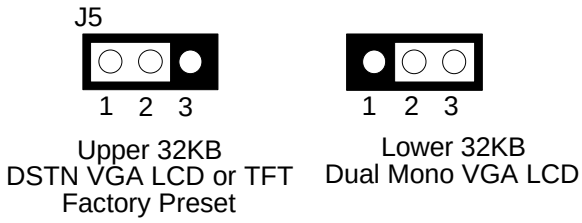


Figure 2-10 J5: Setting BIOS Bank

BIOS BANK	FUNCTION
Upper 32KB	DSTN VGA LCD or TFT
Lower 32KB	Dual Mono VGA LCD

Table 2-2 Setting BIOS Bank

3. CRT/LCD FLAT PANEL DISPLAY

This section describes the configuration and installation procedure using LCD and CRT display.

- Board Installation
- Connecting the CRT Monitor
- LCD Flat Panel Display
- Supported LCD Panel
- Inverter Board Description

3.1 BOARD INSTALLATION

After setting the board's jumpers, install the AR-B1042 module as follows:

Step 1 : Make sure that the power to the system is off.

Step 2 : Locate the PC/104 bus connector on the AR-B1042 VGA module and its counterpart on the CPU card.

Step 3 : Align the PC/104 bus connector pins on the AR-B1042 module with the CPU's connector and gently press the two cards firmly together.

Step 4 : Fasten the two cards together with the screws.

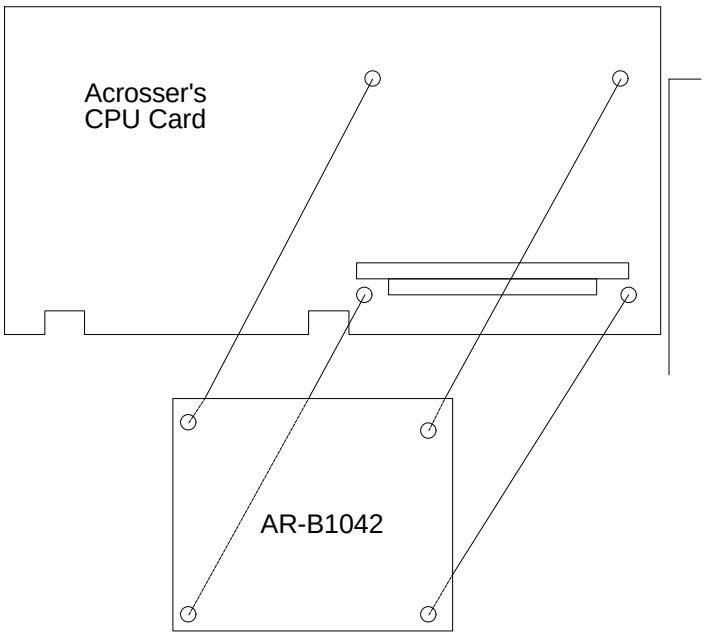


Figure 3-1 LCD Panel Block Diagram

3.2 CONNECTING THE CRT MONITOR

To connect a CRT monitor, an adapter cable has to be connected to the CON2 (10-pin header type) connector. This adapter cable is included in your AR-B1042 package.

3.3 LCD FLAT PANEL DISPLAY

This section describes the configuration and installation procedure using LCD display. Skip this section if you are using CRT monitor only.

J5 is used to configure the BIOS default setting for different types of LCD panel. To set your system properly, configure you AR-B1042 VGA module for the right type of LCD panel you are using by opening or shorting the jumper located at the component side of the AR-B1042 module labeled as J5.

The sample LCD models listed on the table are just some of the LCD panel models available in the market that the Chips & Technologies used by AR-B1042 VGA module can support. If you are using a different LCD panel other than those listed, choose from the panel description column which type of LCD panel you are using.

The following shows the block diagram of using AR-B1042 for LCD display.

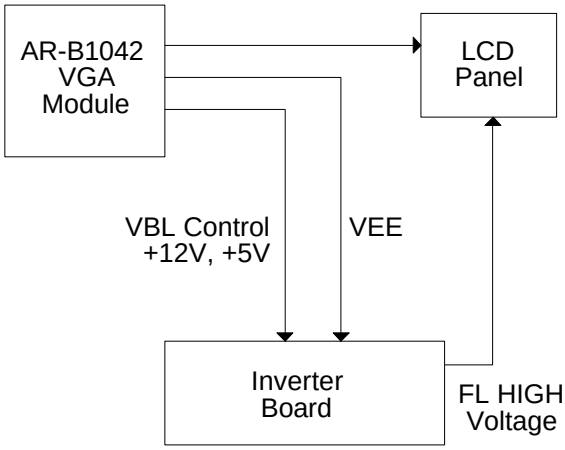


Figure 3-1 LCD Panel Block Diagram

The block diagram shows that AR-B1042 still needs components to be used for LCD panel. The inverter board provides the control for the brightness and the contrast of the LCD panel while the inverter is the one that supplies the high voltage to drive the LCD panel. Each item will be explained further in the section.

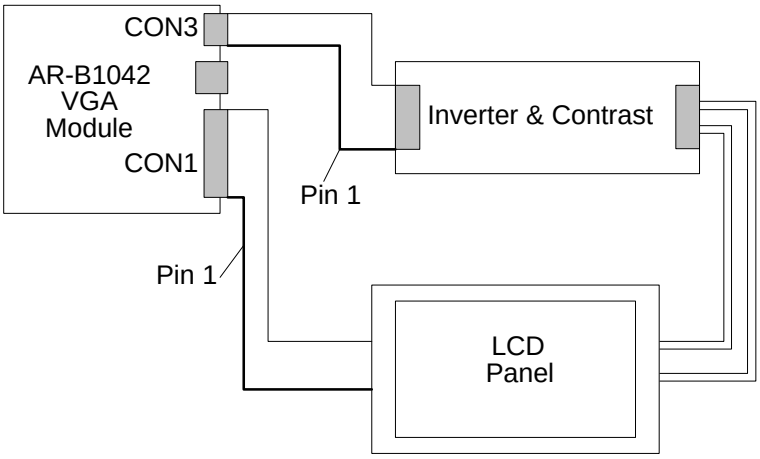


Figure 3-2 LCD Panel Cable Installation Diagram

NOTE: Be careful with the pin orientation when installing connectors and the cables. A wrong connection can easily destroy your LCD panel. The pin 1 of the cable connectors is indicated with a sticker and the pin 1 of the ribbon cable is usually with different color.

3.4 SUPPORTED LCD PANEL

At present, this VGA card can provide the total solution with inverter board for the following list of standard LCD panel using the PC/104 VGA module (AR-B1042). Consult your Acrosser representative for new developments, when using other models of standard LCD panels in the market.

NO.	Manufacture	Model No.	Description
1	NEC	NL-6448AC30-10	TFT 9.4”
2	NEC	NL-6448AC32-10	TFT 10.2”
3	NEC	NL-6448AC33-10	TFT 10.4”
4	HITACHI	LMG5371	MONO 9.4” Dual Scan
5	HITACHI	LMG9200	DSTN 9.4”
6	HITACHI	LMG9400	DSTN 10.4”
7	ORION	OGM-640CN03C-S	DSTN 10.4”
8	SHARP	LQ10D321	TFT 10.4”

Table 3-1 LCD Panel Type List

CAUTION: If you want to connect the LCD panel, must update the AR-B9622's BIOS, then you can setup the correct BIOS. Please contact the Acrosser who will provide the utility for this function.

3.5 INVERTER BOARD DESCRIPTION

The inverter board is the one that supplies the high voltage signals to drive the LCD panel by converting the 12 volt signal from the AR-B1042 into high voltage AC signal for LCD panel.

It can be installed freely on the space provided over the VR board. If the VR board is installed on the bracket, you will have to provide a place to install the inverter board into your system.

4. INSTALLATION OF THE UTILITY SOFTWARE

This chapter describes the installation of the utility software. The following topics are covered:

- Install Application Software
- The CHIPSDSP Utility Program
- The CHIPSCPL Utility Program
- The SETCOL Utility Program

4.1 INSTALL APPLICATION SOFTWARE

4.1.1 Windows 3.1

These drivers are designed to work with Microsoft Windows Version 3.1. You may install these drivers either through Windows or in DOS.

(1) Driver Installation – Windows Setup

Step 1 : Install Windows as you normally would for a VGA display. Run Windows to make sure that it is working correctly.

Step 2 : Place the Display Driver Diskette#1 in drive A. In Windows Program Manager, choose File from the Options Menu. Then from the pull-down menu, choose Run… At the Command Line prompt, type A:\WINSETUP. Press the <ENTER> key or click OK to begin the installation. At this point the setup program locates the directory where Windows is installed. For proper operation, the drivers must be installed in the Windows sub-directory. Press <ENTER> to complete the installation. Once completed, the Display Driver Control Panel appears on the screen. This Control Panel allows you to select and load the installed drivers.

Another method of installing these drivers is through the File Manager. Click on Drive A:, and then double-click on WINSETUP.EXE to begin installation.

(2) Changing Display Drivers from Windows

To change display drivers from Windows, select the Windows Setup icon from the Main window. You will be shown the current setup configuration. Select Change System Settings from the Option menu. Click on the arrow at the end of the Display line. You will be shown a list of display drivers. Click on the driver you want to select. Then click on the OK button. Follow the directions to complete the setup.

(3) Changing Color Schemes

After you change display drivers, you may notice that the color scheme used by Windows looks strange. This is because different drivers have different default colors. You can correct this by choosing the same color scheme or a new color scheme. First select the Control Panel from the Main window. Select the Color icon. You will be shown the current color scheme. Choose a new color scheme and click the OK button.

(4) Driver Installation – DOS Setup

Step 1 : Install Windows as you normally would for a VGA display. Run Windows to make sure that it is working correctly. Then exit from Windows.

Step 2 : Place the Display Driver Diskette #1 in drive A. Type A: <ENTER> to make this the default drive. Type SETUP <ENTER> to run the driver SETUP program. Press any key to get to the applications list. Using the arrow keys, select Windows Version 3.1 and press the <ENTER> key. Press the <ENTER> key to select <All Resolutions>, then press<END> to begin the installation. At this point you will be asked for the path to your Windows System directory (default C:\WINDOWS). When the installation is complete, press any key to continue. Press <ESC> followed by Y to exit to DOS.

Step 3 : Change to the directory where you installed Windows (usually C:\WINDOWS).

Step 4 : Type SETUP <ENTER> to run the Windows Setup program. It will show the current Windows configuration. Use the up arrow key to move to the Display line and press <ENTER>. A list of display drivers will be shown. Use the arrow keys to select one of the drivers starting with an asterisk (*) and press <ENTER>.

Step 5 : Follow the directions on the screen to complete the setup. In most cases, you may press <ENTER> to accept the suggested option. When Setup is done, it will return to DOS. Type WIN <ENTER> to start Windows with the new display driver.

(5) Changing Display Drivers from DOS

To change display drivers from DOS, change to the Windows directory and run Setup repeating step 4 and 5 in the section of <Driver Installation – DOS Setup>. Besides the special display drives marked by an asterisk (*), you should be able to use the following standard drivers:

VGA	640x480, 16 colors
Super VGA	800x600, 16 colors

Table 4-2 Display Driver Colors

4.1.2 Panning Drivers

Special panning drivers are provided to allow high-resolution modes to be displayed on a flat panel or CRT. These drivers will show a section of a larger screen, and will automatically pan or scroll the screen horizontally and vertically when the mouse reaches the edge of the display.

4.1.3 AutoCAD R12

These drivers are designed to work with AutoCAD R12. They conform to the Autodesk Device Interface (ADI) for Rendering drivers and Display drivers. These display drivers accelerate redraw, pan, and zoom functions.

(1) Driver Installation

To install the drivers, follow these instructions:

Step 1 : Place the Display Driver Diskette #1 in drive A. Type A: <ENTER> to make this the default drive. Type SETUP <ENTER> to run the SETUP program. Press any key to get to the applications list. Using the arrow keys, select AutoCAD Release 12 and press <ENTER>. This will display a list of supported driver resolutions. Using the arrow keys and the <ENTER> key, select the resolutions that are appropriate for your monitor. When all of the desired resolutions have been selected, press <END> to begin the installation. At this point you will be asked for a drive and directory to copy the driver files. Enter the drive and directory that contains the installed AutoCAD R12. You may be asked to change display driver diskettes, and if the destination directory does not exist you will be asked for confirmation. When the installation is complete, press any key to continue. Press <ESC> followed by Y to exit to DOS.

Step 2 : Go to the AutoCAD directory where the new drivers were installed and run the driver installation program by typing ACAD12 –r <ENTER>. This program will configure your AutoCAD R12 to use the new display drivers. Select TurboDLD Classic.

(2) Configuring TurboDLD Driver

Select Configure Video Display. In Display Device Configuration choose Select Graphics Board/Resolution. Then choose Select Display Graphics Board. After choosing a Graphics Board, go to Select Display Resolution. After selected Display Resolution, save the new configuration and return to the main menu.

1. Basic Configuration Menu
   This menu allows you to modify:
   - Number Of AutoCAD Command Lines
   - Screen Configuration — Dual/Single/Text Window on Single
   - Select Font from List — 6x8/8x8/8x14/8x16/12x20/12x24
   - Select Font Filter — All Fonts/IS08859/jisx0201.1976

2. User Interface Configuration
   - Double Click Interval Time
   - BP Button
   - BP Highlight — Patt. Line/Xor Rect/Both
   - BP Refresh — Enable/Disable

3. Expert Configuration Menu
   This menu allows you to modify:
   - Display List — Enable/Disable
   - Use Acad 31 bit space? — Yes/No
   - Internal Command Echo — Enable/Disable
   - BP Zoom Mode — Freeze/Float
   - Disable DL in PSpace? — Yes/No

If you have previously installed a driver different from the TurboDLD driver, please note the following:

After installing the TurboDLD Classic, when running the Render Command, AutoCAD R12 will take you into AVE_RENDER to reconfigure Render for your new driver.

4.1.4 Lotus 1-2-3 Lotus Symphony

These drivers are designed to work with Lotus 1-2-3 Version 2.0, 2.01 and 2.02, and with Lotus Symphony Version 1.0 and 1.1.

To install the Lotus drivers, follow this procedure:

Step 1 : Place Display Driver Diskette#1 into drive A. Make A the default drive by typing A:<ENTER>. Run the SETUP program by typing SETUP <ENTER>. Press any key to display a list of supported applications. Use the arrow keys to select Lotus/Symphony and press <ENTER>. A list of supported screen resolutions will be displayed. Use the arrow keys to select the desired screen resolution and press <ENTER > (make sure your monitor is able to display the resolution desired). Press <END> to begin the driver installation process. A default drive and directory path will be displayed. Use the backspace key to erase this default and type in the 123 directory. At this point you may be prompted to insert one of the other driver diskettes. You also may be asked to create the target directory if it does not already exist. After the files have been installed, press any key to return to the list of supported applications. Press <ESC> followed by Y to exit to DOS. Copy all the files that were just created on the temporary directory onto a formatted floppy diskette.

Step 2 : Go to your 123 directory and start the installation program. Type the following commands:
C:<ENTER>
INSTALL <ENTER>

Step 3 : The Lotus installation program will load and present the installation menu. From this menu, select Advanced Options. From the Advanced Options menu, select Add New Drivers To Library From the Add New Drivers Menu, select Modify Current Driver Set. From the Modify Driver Set Menu, select Text Display. From the Text Display menu, select one of drivers.

Step 4 : After the selection of the appropriate VGA display driver, you will need to exit this menu and return to the Main Lotus Installation Menu. Do this by selecting Return to Menu.

Step 5 : At the Main Lotus Installation Menu, select Save Changes

Step 6 : At this point the Installation Menu will prompt you for the name of your new Lotus configuration file. The Lotus system will prompt you with the default value 123.SET. You do not have to use this name, however. You may want to use a filename that indicates the resolution of the driver it contains. For example, if you installed the 123 column by 25 line driver, you could name this driver 132x25. SET. Or if you installed the 80 by 50 driver, you many want to call the file 80x50.SET.

Step 7 : The installation of your Lotus 1-2-3 driver is now complete. You will need to exit the Lotus installation program at this point. At the main Lotus Installation Menu, select Exit.

NOTE: If you use a different name of the driver set than 123.SET, you have to remember to place the filename of your driver set on the command line when you start Lotus 1-2-3. For example, if you named your driver set 132x25.SET, give the following command to start Lotus 1-2-3:
123 132x25.SET <ENTER>

4.1.5 Word

These drivers are designed to work with Microsoft Word Version 5.0 and 5.5.
If you have already installed Word on your computer go to Step 2 install the new video driver.

Step 1 : Install Word as you normally would.

Step 2 : After you complete the Word installation, place the Display Driver Diskette #1 into drive A. Make A the default drive by typing A:<ENTER>. Run the SETUP program by typing SETUP <ENTER>. Press any key to display a list of supported applications. Use the arrow keys to select Word and press <ENTER>. Use the arrow keys to select the desired screen resolution and press <ENTER> (make sure your monitor is able to display the resolution desired). Press <END> to begin the driver installation process. A default drive and directory path will be displayed. Use the backspace key to erase this and type in your Word directory. At this point you may be prompted to insert one of the other driver diskettes. After the files have been installed, press any key to return to the list of supported application. Press <ESC> followed by Y to exit to DOS.

Step 3 : Copy the driver file for the desired resolution that was just installed to SCREEN.VID.

4.1.6 WordPerfect

These drivers are designed to work with WordPerfect Version 5.0 or 5.1. They support 132-column display in editing mode, and high-resolution graphics display in preview mode.

(1) Driver Installation

Step 1 : Place Display Driver Diskette #1 into drive A. Make A the default drive by typing A:<ENTER>. Run the SETUP program by typing SETUP <ENTER>. Press any key to display a list of supported applications. Use the arrow keys to select WordPerfect and press <ENTER>. A list of supported screen resolutions will be displayed. Use the arrow keys to select the desired screen resolution and press <ENTER> (make sure your monitor is able to display the resolution desired). Press <END> to begin the driver installation process. A default drive and directory path will be displayed. Use the backspace key to erase this default and type in the WordPerfect directory. At this point you may be prompted to insert one of the other driver diskettes. You also may be asked to create the target directory if it does not already exist. After the files have been installed, press any key to return to the list of supported applications. Press <ESC> followed by Y to exit to DOS.

Step 2 : Start WordPerfect and press <SHIFT>+<F1> to enter the setup menu. Select D for Display and G for Graphics Screen Type and then choose the desired Chips VGA resolution.

(2) Configuring WordPerfect 5.0 for 132 columns

Follow these instructions to configure WordPerfect 5.0 for 132 column text mode:

Step 1 : Use the SETCOL program to set 132 columns and 25 rows. Give the following command:
SETCOL 132, 25 <ENTER>

Step 2 : Start WordPerfect. The program will detect the number of rows and columns automatically. If for some reason WordPerfect is unable to adapt to 132 columns by 25 rows, start WordPerfect with the following command:
WP /SS=25,132 <ENTER>

(3) Configuring WordPerfect 5.1 for 132 columns

Start WordPerfect and press <SHIFT>+<F1> to enter the setup menu. Select D for Display and T for Text Screen Type and then select Chips 132 Columns Text.

4.1.7 Windows NT

These drivers are designed to work with Microsoft Windows NT 3.5x.

Step 1 : Install Windows NT as you normally would for a VGA display. Run Windows NT Control Panel from the Main Group. Choose the Display option. In the Display Settings dialog box, click on Change Display Type. Click on Change from the Adapter Type in the Display Type dialog box. Click on Other in the Select Device dialog box.

Step 2 : Place the Windows NT Display Driver Diskette in drive A. Press <ENTER> and the following names of the driver:
CHIPS Video Accelerator (65545,65548)
CHIPS Video Controller (65510,65530,65535,65540)
Will appear highlighted in the Models list box. Click on INSTALL to install the selected driver. Once the installation is complete, the system must be shut down and restarted.

Step 3 : Upon restart, at the Invalid Display Selection message, click on OK and select the desired display settings from the Display Settings dialog box. Click on Test to test the newly selected graphics mode. A color test screen should appear, followed by the Testing Mode window. Click on Yes to continue. The Display Settings Change windows will appear. Click on Restart Now for the new settings to take effect.

4.2 THE CHIPSDSP UTILITY PROGRAM

This utility program is designed to work with Microsoft Windows 95.

4.2.1 Installing the Utility

CHIPSDSP.DLL is a Windows 95 based utility to select display type and refresh rate. It is a Display Properties Refresh window that is automatically installed when installing CHIPS Windows 95 display drivers. The Display icon is in the Control Panel group. To invoke the Display icon, simply click on the Start button, go to Settings and click on Control Panel.

4.2.2 How to Use the Utility

DISPLAY DEVICE allows you to select the display type from the following:

- CRT only <ALT C>
- LCD (Flat Panel) only <ALT L>
- Both CRT and LCD (Flat Panel) <ALT B>

REFRESH RATE allows you to select the refresh rate from the following:

- Interlaced
- 56 Hz
- 60 Hz
- 70 Hz
- 72 Hz
- 75 Hz

The refresh rate is available in CRT Mode only and only the refresh rates supported by the selected monitor will be listed.

WINDOWS DEFAULT allows you to return to the default refresh rate setting for the selected monitor in Windows 95.

4.3 THE CHIPSCPL UTILITY PROGRAM

This utility program is designed to work with Microsoft Windows Version 3.1.

4.3.1 Installing the Utility

CHIPSCPL.CPL is a Windows based utility to select resolutions and color depth. It is a control Panel Applet with its own icon that is automatically installed when installing Chips Windows 3.1 Linear drivers. The Control Panel icon is in the Main Windows group. To invoke the control panel applet, simply click on the icon. The driver resolution and color depth take effect only after Windows is rebooted with the new driver.

4.3.2 How to Use the Utility

SCREEN SIZE <ALT S> allows you to select from the following resolutions:

- 640x480
- 800x600
- 1024x768
- 1280x1024

By selecting the resolution first, it will determine the allowable selections for color depth.

COLOR <ALT O> allows you to select the number of colors from the following:

- 16 (4 bits per pixel)
- 256 (8 bpp)
- 32K (15 bpp)
- 64K (16 bpp)
- 16M (24 bpp)

By selecting the color depth first, it will determine the allowable selections for resolution.

DPI <ALT P> allows you to select a large or small font.

DISPLAY <ALT D> allows you to select the display type from the following:

- CRT only
- LCD (Flat Panel) only
- Both CRT and LCD (Flat Panel)

MONITOR SELECTION <ALT M> allows you to select from the list of monitors.

REFRESH <ALT R> allows you to select the refresh rate from the following:

- Interlaced
- 56 Hz
- 60 Hz
- 70 Hz
- 72 Hz
- 75 Hz

The refresh rate is available on CRT Mode only. The refresh rates supported by the selected monitor are the only available refresh rates that can be selected.

CURSOR-ANIMATION <ALT A> allows you to select an animated cursor instead of the hour glass wait cursor.

BIG CURSOR <ALT G> allows you to select a big cursor for better visibility on the Flat Panel.

VERSION <ALT V> displays version information about the current driver.

HELP <ALT H> displays help information on how to use the display Driver Control Panel.

FONT SIZE <ALT F> (Japanese Windows only) allows you to select the font size from the following:

- 12
- 16
- 20
- 24

NOTE: The **CHIPSCPL** will prompt for Windows 3.1 and/or Chips driver disk(s) if required files are missing.

4.4 THE SETCOL UTILITY PROGRAM

This utility program is used to provide 132 text columns in popular text-based applications such as WordStar and WordPerfect. If you do not intend to use 132 column text mode, do not install this utility.

4.4.1 Installing the Utility

To install the utility, follow this procedure:

Step 1 : Determine where you want to stone the program. Locate a directory on your hard disk where you have other utility programs. For your convenience, this directory should be specified in the PATH=statement in your AUTOEXEC.BAT file.

Step 2 : Place Display Driver Diskette #1 into drive A. Make A the default drive by typing A:<ENTER>. Run the SETUP program by typing SETUP <ENTER>. Press any key to display a list of supported applications. Use the arrow keys to select Utilities and press <ENTER>. A list of utilities will be displayed. Use the arrow keys to select the utilities desired and press <ENTER>. Press <END> to begin the utility installation process. A default drive and directory path will be displayed. Use the backspace key to erase this default and type in the proper directory. At this point you may be prompted to insert one of the other driver diskettes. You also may be asked to create the target directory if it does not already exist. After the files have been installed, press any key to return to the list of supported applications. Press <ESC> followed by Y to exit to DOS.

4.4.2 How to Use the Utility

The SETCOL utility program allows you to specity the number of rows and columns on the screen. You indicate these values to the SETCOL program by placing them after the name SETCOL on the command line. The format for the command is:

SETCOL COLUMNS,ROWS <ENTER>

Valid values for columns and rows are:

Columns	Rows
80 or 132	25 or 50

Table 4-3 The Values for Columns and Rows

If you want to set 132 columns with 25 rows, give the following command:

SETCOL 132,25 <ENTER>

Note 1 : To use this program with an application program such as WordStar or WordPerfect, the application may need to be configured for the specific screen size. Please refer to other sections in this manual on how to configure your applications for this.

Note 2 : Certain monitors cannot display 50 character rows on the screen, due to hardware limitations in these monitors. The following table specifies how many rows can be displayed on common monitors:

Monitor	Rows
IBM Monochrome	25
IBM Color Graphics Display	25
IBM Enhanced Graphics Display	25
IBM VGA Display (analog)	25 or 50
Multi-Frequency Display	25 or 50

Table 4-4 Monitor Display the Rows

5. ERROR (BEEP) CODES & INDEX

5.1 ERROR (BEEF) CODES

There are three possible beep codes produced by the BIOS during POST listed below:

Beep Code	Error Condition
1 long followed by 2 short beeps	CMGA card failure
1 long followed by 3 short beeps	RAM test failure
1 long followed by 4 short beeps	DAC test failure
1 long followed by 8 short beeps	VGA initialized failure

Table 5-5 Error (Beef) Codes

If you have problems after installation, check the following to determine the cause.

1. Ensure that all cable are properly connected, all plugs are firmly seated in their sockets. Check to see if the VGA and LCD is firmly seated in its bus PC/104. Be sure it is not making contact with any other cards in the system.

2. Ensure that the display monitor is properly connected to computer. Be sure the display monitor and your system's power supply is operating properly (i.e. FAN operates, system power light come on). Power OFF the computer system and all other connector devices before checking the following:

3. Ensure that the system motherboard switch's/jumper(s) are set properly for use with the VGA board.

4. Ensure that no other switch setting on the CPU card have been accidentally change. Refer to the documentation provided with you computer to determine the corrector switch settings.

5. Be sure the CLMODE.EXE setting match you monitor frequency.

6. Ensure the LCD panel's VEE and BACKLIGHT voltage (adjust VR)

If checking these items does not locate the problem, there may be a malfunction of the computer system, display monitor or the VGA and LCD board. Consult you computer dealer for assistance in locating the problem.

5.2 INDEX

Name	Function	Page
CON1	Universal panel connector	2-3
CON2	10-pin VGA monitor connector	2-3
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U4 & U5	RAM socket	

Table 5-6 Index