

EUT:CARDEXpert TNT

FCC ID:ICUVGA-GW820

GAINWARD CO., LTD.

USER'S MANUAL

EXHIBIT D

FEDERAL COMMUNICATIONS COMMISSION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must (except S-Video data cable, AV-Video data cable) be used in order to comply with emission limits.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

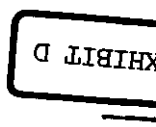


Table of Contents

<i>Chapter 1 Overview.....</i>	<i>1</i>
<i>Chapter 2 Hardware Installation.....</i>	<i>2</i>
<i>Chapter 3 Software Installation.....</i>	<i>4</i>
<i>Chapter 4 Display Properties for Windows.....</i>	<i>5</i>
<i>Chapter 5 Expertool for Windows.....</i>	<i>8</i>
<i>Chapter 6 Technical Information.....</i>	<i>11</i>
<i>Chapter 7 Trouble Shooting.....</i>	<i>12</i>

1 Overview

on gratulation on the purchase of this VGA board! You are now the owner of a state-of-the-art video adapter that offers features and functionality equal to, and beyond any other in the VGA class.

System Requirements

The minimum system requirements for installing the graphics card are as follows: a personal computer with a Pentium, Pentium II or compatible microprocessor and at least 8MB of memory
a VGA analog monitor supporting a minimum 60Hz vertical refresh rate
a free AGP bus slot
a CD-ROM drive

Features

- nVIDIA RIVA TNT Twin-Textel 32-bit Graphics Engine.
- 2 Texture-mapped, Lit Pixels per Clock
- Single Pass Multi-texture Rendering
- 24-bit 7-butter, 8-bit Stencil Buffer
- High Performance 128-bit 2D/GUI/DirectDraw Acceleration
- 128-bit Wide Framebuffer Interface Supports up to 16MB SGRAM/SDRAM
- 250 MHz Palette-DAC Supports up to 1920x1200@75Hz
- NTSC and PAL Digital Output Port External Digital TV Encoders Support (optional)
- Variable Length Burst DMA Bus Mastering for Data transfers over 450MB/s Throughput.
- 66MHz AGP clock rate and AGP 2X mode.
- TextureBlend supports Multi-texturing, Bump-mapping, Texture-modulation, Light Maps, Reflection Maps, Detail Textures, Environmental Maps, Procedural Textures
- 32-bit ARGB Rendering with Destination Alpha
- Point Sampled, Bilinear, Trilinear and 8-tap Anisotropic Filtering
- Per Pixel Perspective Correct Texture Mapping
- Fog, Light, and Mip Mapping
- 100% Hardware Triangle Setup Engine
- Optimized for DirectX Support

Software Support

- Windows 95
- Windows 98
- Windows NT4.0
- DirectX

2

Hardware Installation

CAUTION!

- Static electricity can severely damage electronic parts. Take these precautions:
 - Before touching any electronic parts, drain the static electricity from your body. You can do this by touching the internal metal frame of your computer while it's unplugged.
 - Don't remove a card from the anti-static container it shipped in until you're ready to install it. When you remove a card from your computer, place it back in its container.
 - Don't let your clothes touch any electronic parts.
 - When handling a card, hold it by its edges, and avoid touching its circuitry.

Before You Begin

Before you process further, make sure your computer system meets the peripheral requirements and switch to the standard VGA display driver.

Prepare Your Computer for Installation

Prior to working on your computer, make sure the power of the computer and any related equipment is turned off.

Select a Vacant Expansion PCI (AGP) Slot

Most AGP (PCI) bus computers have a combination of AGP (PCI) and ISA expansion slots. AGP (PCI) are usually made with plastic of a contrasting brown color (beige color), and are shorter than other slots in your computer. Your system manual should identify the AGP (PCI) slots. Plugging your Graphic card into a non-AGP (PCI) slot could damage the card, your computer, or both.

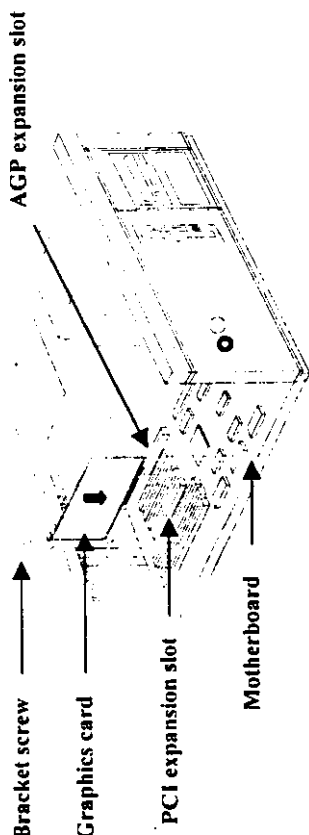


AGP vs. PCI vs. ISA expansion slots

2 Hardware Installation

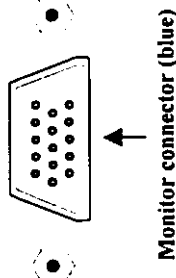
Insert your Graphic Card

Remove the cover for the slot you intend to use and save the screw for the mounting bracket. Then, pick up the Graphic card and position it over the expansion slot you've chosen. Push the card with firmly and evenly until it's fully seated in the slot. Replace the screw to secure the bracket of the Graphic card to the computer chassis.



Connect the monitor

Plug your monitor cable into the monitor connector on your Graphic card. Make sure the other end of the monitor cable is properly connected to your monitor.



3 Software Installation

- Before installing the Display driver, make sure your Windows 95/98/NT is installed in VGA mode and work fine.
- For Windows 95 system, please install the DirectX before you want to play the MPEG Movie Player.
- To use an AGP graphics card with NT4.0, you may need to pre-install NT with Service Pack 3 (SP3) before installing the AGP card.
- If you are running Windows NT4.0, please note that some drivers are not compatible with earlier releases of Windows NT. Consult your dealer or local support to ensure you have the most recent releases for Windows NT and the drivers.

Before You Begin

If your system is running Windows 95/98/NT, the New Hardware Found dialog box will appear after restart. Select **Driver** from disk provided by hardware manufacturer, click **OK**, then follow all on-screen instructions. If the New Hardware Found dialog box does not appear, follow the instructions below.

Setup VGA Mode

Click the right mouse button anywhere on the Windows 95/98/NT desktop and select Properties from the pop-up menu that appears on screen. Select Settings | Change Display Type (For OSR2 users, please select Settings | Advanced Properties. For Windows 98 users, please select Settings | Advanced. For Windows NT users, please select Setting | Display Type) and then click the [Change] button for Adapter Type. When the Select Device dialog box appears on the screen, please select [Standard display types] from the manufactures and select **Standard Display Adapter (VGA)** from the Models then click **OK** button.

Install Software Driver

1. Turn on your computer and start Windows 95/98/NT.
2. Insert the **Driver CD** into your CD-ROM driver.
3. Click the **Start** button on the task bar and then select **Run** button.
4. Type **D:\CDSETUP [Enter]** in the Run dialog box (where D:\ is the location of your CD-ROM drive).
5. The **VGA Setup** dialog box will appear on the screen, please click "Continue" button and follow the instruction on screen to complete installation.
6. Final, restart your computer for the changes to take effect.

Windows 95/98/NT Display Properties

Windows 95/98/NT allows you to select resolution, color depth, refresh frequency and font size using the standard Windows 95/98/NT Display Properties sheet, which can be accessed by right clicking anywhere on the Windows 95/98/NT desktop, and then selecting Properties from the pop-up menu that appears on screen.

4 Display Properties for Windows

The pictures in this chapter are only for reference. The Display Properties is described as below:

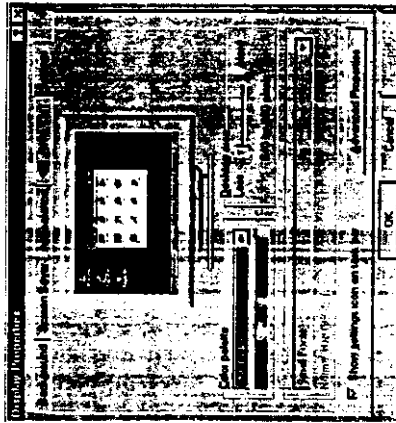


Figure 4-1 for Win95

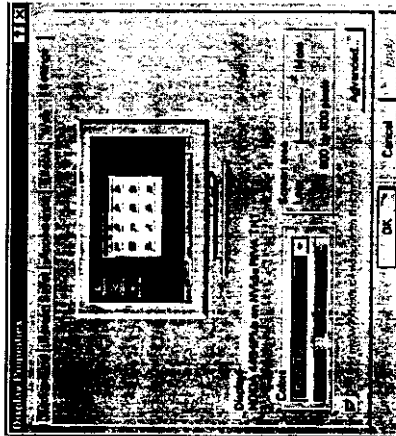


Figure 4-2 for Win98

Click the right mouse button anywhere on the Windows desktop and select Properties from the pop-up menu that appears on screen. For Win95, please select RIVA TNT item. For Win98, please select Settings | Advanced button then choose RIVA TNT item as Figure 4-3. In NVIDIA RIVA TNT Properties dialog box, select Additional Properties button, the Additional RIVA TNT Properties dialog box will appear as Figure 4-4

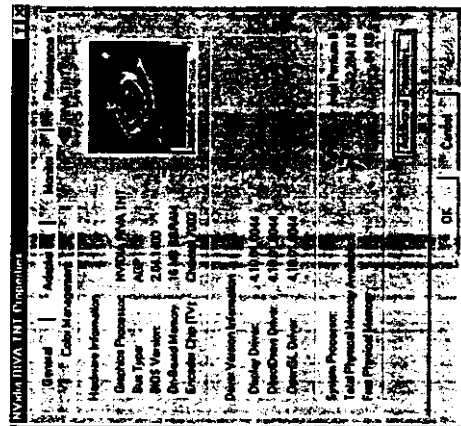


Figure 4-3

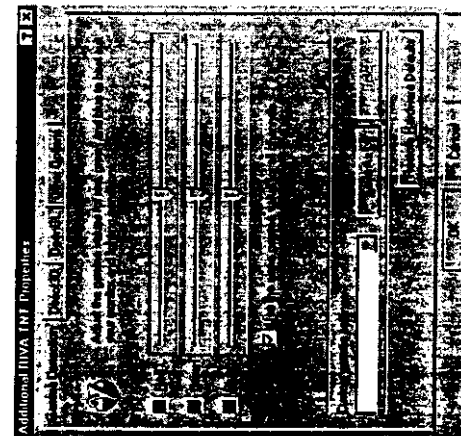


Figure 4-4

4 Display Properties for Windows

As Figure 4-4 the slider controls allow you to adjust the gamma values for each channel (red, green, or blue). Use the same gamma value for all channels check box: Selecting this option will link all three gamma slider together, allowing the gamma value for all channels to be adjusted by the same amount when any one of them is moved.

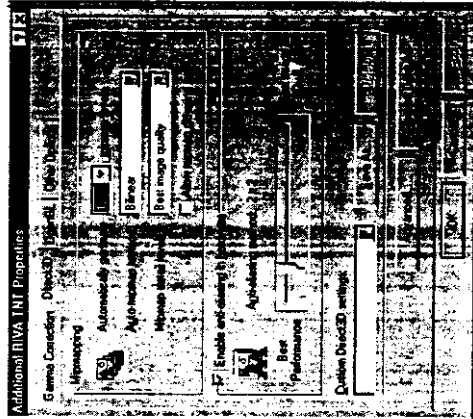


Figure 4-5

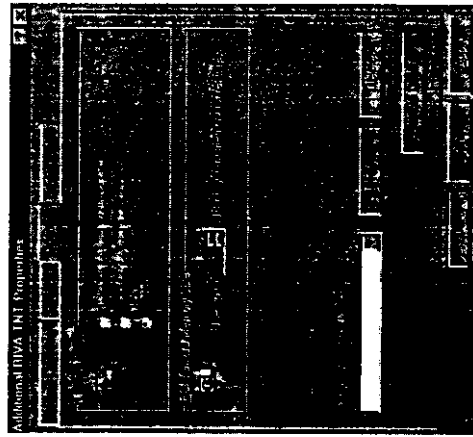


Figure 4-6

(As Figure 4-5)

Automatically generate mipmap levels: The RIVA TNT can automatically generate mipmaps to increase the efficiency of texture transfers across the bus and provide higher application performance.

Auto-mipmap method: Allows you to select the auto-mipmapping method used by the RIVA TNT.

Mipmap detail level: Allows you to adjust the LOD (Level of Detail) bias for mipmaps. A lower bias will provide better image quality, while a higher bias will increase application performance.

Allow mipmapping dithering check box: This option allows for dithering of trilinear mipmaps. **Enable anti-aliasing in hardware:** This option allows you to control the anti-aliasing features of the drivers.

Anti-aliasing method: Allows you to select the anti-aliasing sampling method.

Custom Direct3D settings: A list of the custom settings (or "tweaks") you have saved. Selecting an item from the list will activate the setting. To apply the setting, choose the "OK" or "Apply" button.

Save As: Let you save the current settings that will then be added to the adjacent list.

4 Display Properties for Windows

4

Advanced: Displays a dialog that allows you to customize additional Direct3D settings for RIVA TNT.

Restore Defaults: Restores all settings to their default values.

Texture Quality: Allows you to adjust the image quality of textures displayed in OpenGL applications.

Optimize for best image quality: Renders textures with the highest image quality available for the best appearance.

Optimize for best performance: Renders textures with reduced image quality to improve application performance.

end: Uses a combination of the above two features. This is the default value.

PCI Texture Memory Size: Allows you to specify the maximum size of the PCI texture cap. Increasing this value on PCI systems with sufficient memory may significantly improve the performance of some OpenGL applications. This option is not available on display adapters that use the AGP bus.

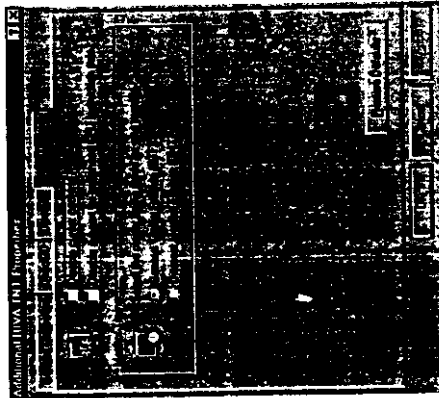


Figure 4-7

As Figure 4-7) Disable cursor caching check box: Select this option to disable the caching of cursors by the drivers

Disable support for enhanced CPU instructions sets check box: Select this option to disable driver support for enhanced instructions used by certain CPUs.

Monitor Timing: Allows you to select between two monitor timing modes.

General Timing Formula (GTF) check box: This is a standard used by most new hardware. This is the default setting.

Discreet Monitor Timings (DMT) check box: This is an older standard still in use on some hardware. Enable this option if your hardware requires DMT.

5 Expertool for Windows

5

For maximum compatibility and flexibility, the Expertool can be loaded and unloaded dynamically, but note that many of the features it provides are only available while the Expertool is running.

The pictures in this chapter are only for reference.

The Expertool is a display control and desktop enhancement utility for Windows 95/98/NT, specially designed and optimized for use with your graphics accelerator. You should think of the Expertool as a kind of supplementary "device driver" which works in conjunction with your accelerator's display driver.

Installation

The Expertool is automatically installed when you use the Setup program under windows 95/98/NT (refer to Chapter 3). Then click Programs | Expertool | Expertool (Figure 5-1) or click on the "Expertool" (Figure 5-3) icon in the System tray to show the Expertool Properties on your screen. (Figure 5-2)

Uninstall

1. Click Close button to close the Expertool. (Figure 5-2)
2. Then click Start button on the task bar and select Settings | Control Panel | add/Remove Programs.
3. Choice Expertool item for Install/Uninstall and click add/Remove button.
4. Click OK to uninstall the Expertool.

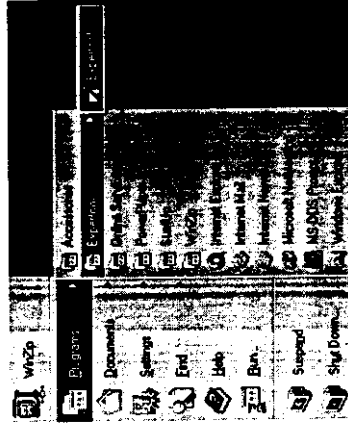


Figure 5-1

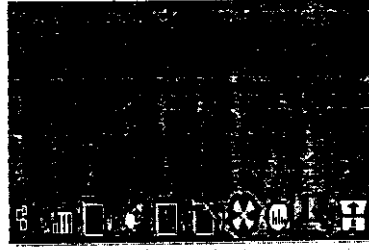


Figure 5-2



Figure 5-3 Expertool icon in the System tray

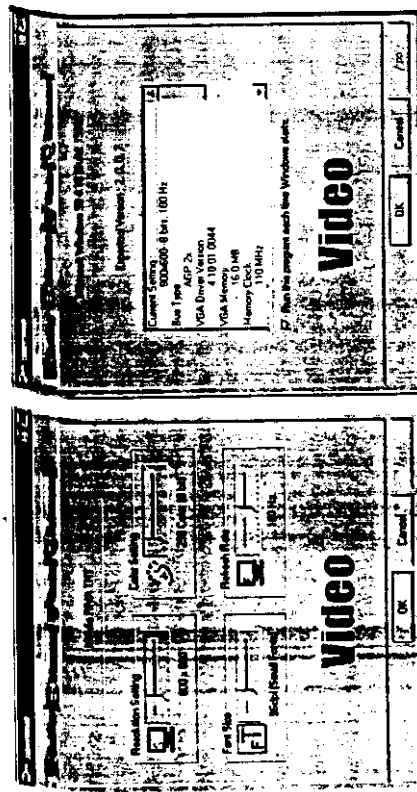


Figure 5-4

(As Figure 5-4)
Desk Top: Displays the current Resolution Setting, Color Setting, Font Size and Refresh Rate for the monitor whose video adapter in Desk Top. Drag the slider to specify the each one you want and click **OK** button to take effect.

(As Figure 5-5)
Information: Appears the current settings and information of your computer. Run this program each time Windows starts check box: Select this option to run the Expertool immediately each time when Windows starts.

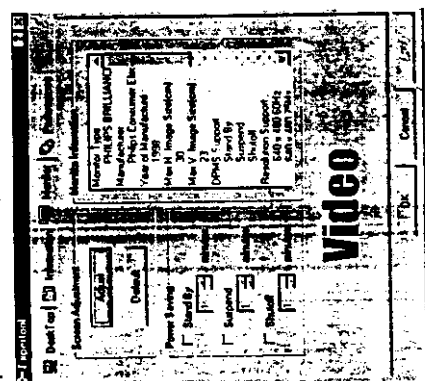


Figure 5-5

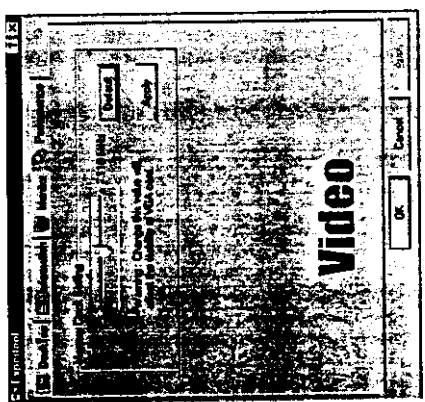


Figure 5-6

(As Figure 5-6)
Screen Adjustment: Select **Adjust** button to adjust the screen position with the keyboard. If you want resort the settings you have made, please select **Default** button.
Monitor Information: Show you the information of your monitor.
Power Saving: Allows you to adjust the Power Saving for Standby, Suspend or Shut-off mode.
Standby check box: This option instantly places your monitor in standby mode, which delivers minimal power savings but provides the fastest recovery time.
Suspend check box: This option instantly places your monitor in Suspend mode, which delivers maximum savings but requires a somewhat longer recovery time than Standby mode.
Shut-off check box: This option effectively turns your monitor off, and recovery time is practically equivalent to turning the monitor on using the monitor's power switch.
Memory Clock Setting Slider Control: Allows you to adjust your video memory clock for peak performance and maximum stability. The higher memory clock setting you select the higher performance shows. But change the value will affect the stability of VGA card. It's better for you to use the original setting value.

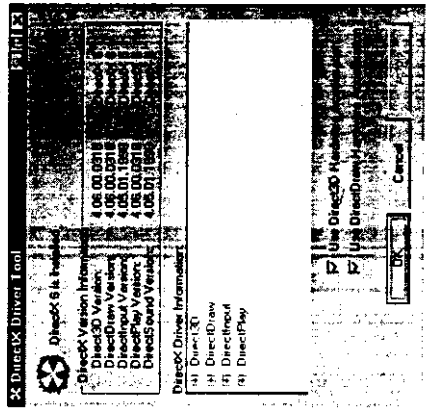


Figure 5-7

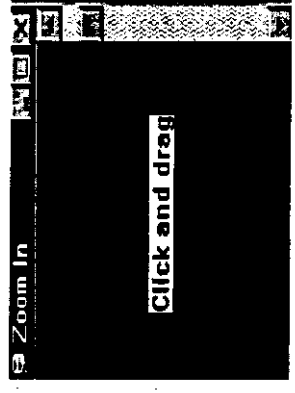


Figure 5-8

(As Figure 5-8)
DirectX: DirectX properties vary depending on the version of windows you are running, the version of DirectX installed, and the type of DirectX-enabled drivers installed. In this dialog box will also show you the system's DirectX capabilities, and relative information.
Zoom In: Click on the client area and drag the mouse to zoom the desktop.
Minimize: Close the menu and minimizes this application.
Close: Close this application and disables the features it supports.

Display Memory Configuration Memory-Resolution/Color

This table is only for reference.

	256 color	64K color	16.7M color
640x480	240Hz	240Hz	240Hz
800x600	240Hz	240Hz	240Hz
1024x768	170Hz	170Hz	170Hz
1280x1024	120Hz	120Hz	100Hz
1600x1200	85Hz	85Hz	75Hz
1920x1200	75Hz	75Hz	60Hz

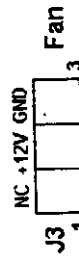
Monitor Connector Pin Assignments

Pin no.	Function	Pin no.	Function
1	Red Video	9	+5V
2	Green Video	10	Sync Return (ground)
3	Blue Video	11	NC
4	NC	12	DDC DATA
5	Ground	13	Horizontal Sync
6	Red Return (ground)	14	Vertical Sync
7	Green Return (ground)	15	DDC CLOCK
8	Blue Return (ground)		

VIP Interface

The VIP interface is compliant with the Video Interface Port VIP Specification, Version 1.1. Only a single slave device can be active at one time (no concurrency). VIP provides a glueless interface to VIP-complaint devices for example glueless interface to industry standard video digitizers and MPEG decoders.

Fan Connector



Problem: After installation and restarting, Windows 95 informs me that display setting is still incorrect. What can I do?

There may be conflict between previous and current display drivers. This is caused by not complete removal of previous display driver. Try the following steps to remove it:

Solution:

- (1) Use right button of mouse to click on "My Computer" icon on desktop.
- (2) Select "Properties" and "System Properties" box appears
- (3) Click on "Device Manager" tab
- (4) You will see a list of devices on your computer.
- (5) Open "Display adapters" in the list (double click it).
- (6) You will find two (or more) conflicted adapters listed here.
- (7) Remove all previous adapters by selecting them and press "Remove"
- (8) Close Device Manager and restart Windows 95.
- (9) Now display driver will work correctly.

Problem: After installing the driver, Windows 95 doesn't prompt me for restarting and the driver still doesn't work after I reboot it by myself. You may have installed similar drivers before. Try the following steps to install:

Solution:

- (1) Use right button of mouse to click on "My Computer" icon on desktop.
- (2) Select "Properties" and "System Properties" box appears
- (3) Click on "Device Manager" tab
- (4) You will see a list of devices on your computer.
- (5) If "Display adapters" appears in the list, click it. If "Display adapters" doesn't appear, jump to step 9 and continue.
- (6) The name of your card will be listed in the box. Double click it.
- (7) The properties box of your card appears. Select "Driver" tab.
- (8) Click "Change Driver..." and follow the installation steps.
- (9) Click "Other devices" you will see your card is listed.
- (10) Click on the name of card, the properties box appears. Select "Driver" tab.
- (11) Click "Change Driver..." and follow the installation steps.

Problem: When the system is starting up, there is a series of prolonged beeps.

Solution:

The VGA card may not be firmly inserted into the expansion slot. Ensure that the gold-striped bus connector of the graphics card is properly inserted into the expansion slot. Ensure this by pressing the card gently and evenly into the slot. Alternatively, remove the card and re-insert it.

7

Trouble Shooting

Problem: Monitor display flickers after Windows 95 or Windows 98 starts.

Solution: Your monitor may not support the resolution or refresh rate that you have set. Use display settings supported by the monitor. To change the display settings:

- 1) Restart your system in Windows 95/Windows 98 Safe mode. To do so:
 - a. Restart your system and when the message "Starting Windows 95/98..." appears, press F8. A list of options such as Safe Mode and Command Prompt Only Mode appears.
 - b. Select Safe Mode and press ENTER.
- 2) Lower your monitor's resolution. For the resolutions supported by your monitor, refer to its manual.

7

Trouble Shooting

When you need advanced technique service, please Complete this form and FAX to your dealer.

Your name: _____ Phone: _____

Product S/N: _____ P/N: _____

HARDWARE CONFIGURATION

Mainboard Chipset:	CPU Clock:	MHz	
Mainboard CPU:	VGA Memory Brand:		
Mainboard Memory:	VGA Memory	MB	
Mainboard Brand:	VGA BIOS:		
CD Version:	VGA Driver:		
Cache Memory:	Resolution:		
Monitor:	Resolution Rate:		
O.S.:	Horizontal Freq.:	kHz	to kHz
	Vertical Freq.:	Hz	to Hz

Other Cards on Mainboard:

Note:

7 Trouble Shooting

SOFTWARE CONDITION
CONFIG.SYS:
AUTOEXEC.BAT:
Operation System or Test Program:
Application Software or Test Program:
Problem Description:
Note:

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