

Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Trading GmbH
AusschlaglerWeg 41,1F,20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

VGA Card

GV-R9700 PRO

is in conformity with

(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

<input type="checkbox"/> EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment	<input type="checkbox"/> EN 6100-3-2* <input checked="" type="checkbox"/> EN 6055-2	Disturbances in supply systems cause by household appliances and similar electrical equipment * Harmonics"
<input type="checkbox"/> EN 55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	<input type="checkbox"/> EN 6100-3-3* <input checked="" type="checkbox"/> EN 6055-3	Disturbances in supply systems cause by household appliances and similar electrical equipment * Voltage fluctuations"
<input type="checkbox"/> EN 55014	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	<input checked="" type="checkbox"/> EN 5081-1 <input checked="" type="checkbox"/> EN 5082-1	Generic emission standard Part 1: Residual commercial and light industry Generic immunity standard Part 1: Residual commercial and light industry
<input type="checkbox"/> EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	<input type="checkbox"/> EN 5081-2	Generic emission standard Part 2: Industrial environment
<input type="checkbox"/> EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	<input type="checkbox"/> EN 5082-2	Generic emission standard Part 2: Industrial environment
<input checked="" type="checkbox"/> EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	<input type="checkbox"/> ENV 55104	Immunity requirements for household appliances tools and similar apparatus
<input type="checkbox"/> DIN VDE 0855 <input type="checkbox"/> part 10 <input type="checkbox"/> part 12	Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals	<input type="checkbox"/> EN 50091-2	EMC requirements for uninterruptible power systems (UPS)

CE marking



(EC conformity marking)

The manufacturer also declares the conformity of above mentioned product
with the actual required safety standards in accordance with LVD 73/23/EEC

<input type="checkbox"/> EN 60065	Safety requirements for mains operated electronic and related apparatus for household and similar general use	<input type="checkbox"/> EN 60950	Safety for information technology equipment including electrical business equipment
<input type="checkbox"/> EN 60335	Safety of household and similar electrical appliances	<input type="checkbox"/> EN 50091-1	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

Date: Aug. 28, 2002

Signature:

Timmy Huang

Name:

Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)



Responsible Party Name: G.B.T. INC. (U.S.A.)

Address: 17358 Railroad Street

City of Industry, CA 91748

Phone/Fax No: (818) 854-9338 / (818) 854-9339

hereby declares that the product

Product Name: VGA Card

Model Number: GV-R9700 PRO

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109
(a), Class B Digital Device

Supplementary Information:

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 and (2) this device must accept any interference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Aug. 28, 2002

R9700 PRO

Radeon 9700 PRO Graphics Accelerator

USER'S MANUAL

中文使用手冊

Rev. 112

12MD-R9700P-112

Chapter 1 User's Manual

Copyright

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Notice

Due to rapid change in technology, some of the specifications might be out of date before publication of this booklet.

The author assumes no responsibility for any errors or omissions which may appear in this document nor does it make a commitment to update the information contained herein.

Please do not remove any labels on VGA card, this may void the warranty of this VGA card.

Dec, 20, 2002 Taipei, Taiwan

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1. INTRODUCTION

1.1. PREFACE

R9700 PRO features world's first 8-pipeline architecture for twice the rendering power, 128MB of memory to accelerate latest 3D games and new SMARTSHADER™ 2.0 technology supporting DirectX® 9.0 and the latest OpenGL® functionality to give developers the freedom to create more complicated and realistic visual effects than ever before. R9700 PRO supports the new AGP 8X standard, which allows large volumes of texture and vertex data to be transferred faster from system memory to the chip.

1.2. KEY FEATURES

- Powered by RADEON™ 9700 PRO Visual Processing Unit (VPU)
- First to fully support DirectX® 9.0
- Supports the new AGP 8X standard
- First 8-pixel pipeline architecture
- All new 256-bit memory interface
- 128MB DDR memory accelerates the latest 3D games
- First to use pixel shaders to accelerate video
- DVI-I and TV-Out connector supported

2.HARDWARE INSTALLATION

2.1. UNPACKING

The R9700 PRO package contains the following:

- The R9700 PRO graphics accelerator
- This USER'S MANUAL
- The R9700 PRO Driver CD x 1
- Power DVD XP CD x 1
- Game CD x 5
- One cable support S-video and AV-Output ; DVI-I to D-Sub connector



WARNING!

Expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Turn off your computer and unplug power supply.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.

The card contains sensitive electric components, which can be easily damaged by static electricity, so the card should be left in its original packing until it is installed.

Unpacking and installation should be done on a grounded anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same point as the anti-static mat.

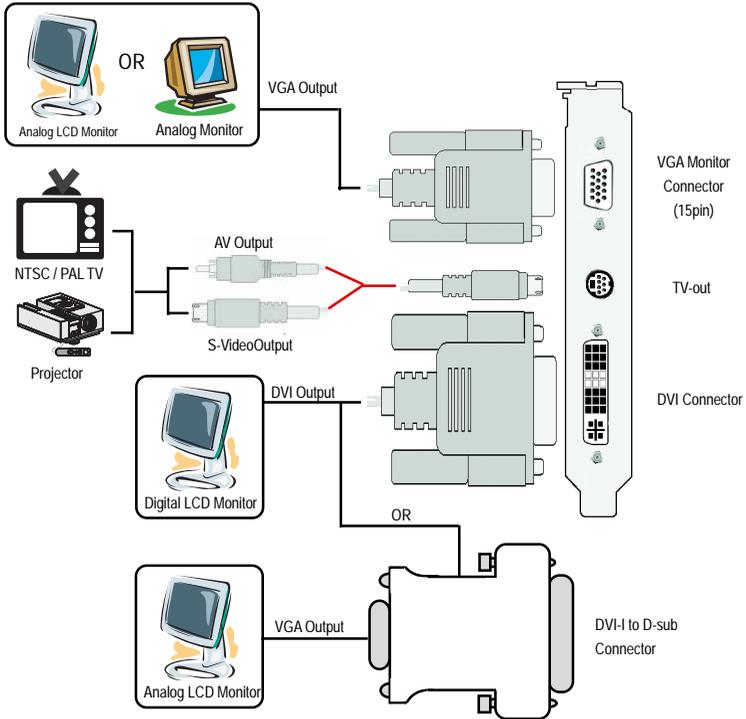
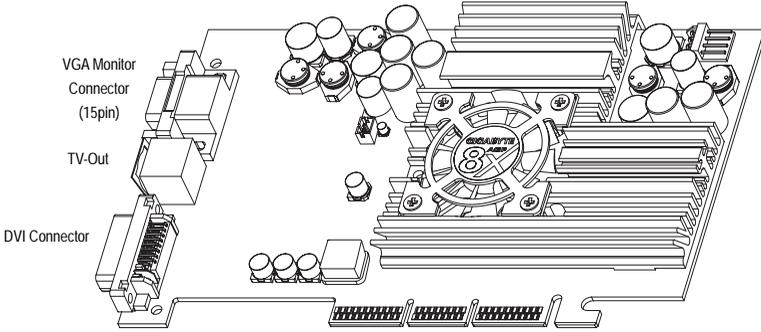
Inspect the card carton for obvious damage. Shipping and handling may cause damage to your card. Be sure there are no shipping and handling damages on the card before proceeding.

⚡ **DO NOT APPLY POWER TO YOUR SYSTEM IF IT HAS BEEN DAMAGED ON THE CARD.**

⚡ **In order to ensure your graphics card working correctly, please use official Gigabyte BIOS only. Use none official gigabyte BIOS might cause problem on the graphics card.**

2.2. BOARD LAYOUT

R9700 PRO (128MB DDR)



2.3. HARDWARE INSTALLATION

Installing Your Graphics card.

Now that you have prepared your computer, you are ready to install your graphics accelerator card.

To install your graphics accelerator card:

1. Power off the computer and monitor, then disconnect the display cable from the back of your computer.

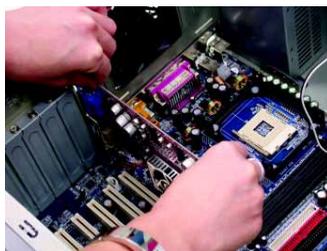


2. Remove the computer cover. If necessary, consult your computer's manual for help in removing the cover.

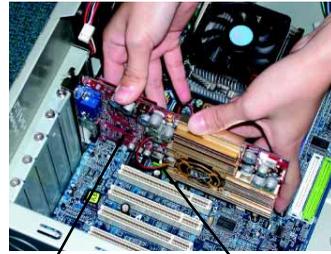


3. Remove any existing graphics card from your computer.

Or, if your computer has any on-board graphics capability, you may need to disable it on the motherboard. For more information, see your computer documentation.

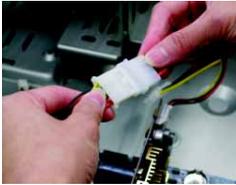
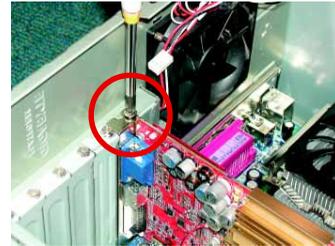


4. Locate the AGP slot. If necessary, remove the metal cover from this slot; then align your Graphics card with the AGP slot, and press it in firmly until the card is fully seated.



R9700 PRO Graphics card AGP Slot

5. Replace the screw to fasten the card in place, and replace the computer cover.



After installation, please connect the power cable to your R9700 PRO graphics card, or system will not boot.

6. Plug the display cable into your card; then turn on the computer and monitor. If your Graphics card came with a DVI connector, you can connect a flat panel display to the appropriate connector, as shown below...



To Flat Panel Display



To VGA Monitor



To TV or VCR

You are now ready to proceed with the installation of the Graphics card driver. For detailed instructions, select your operating system from the list below.

3.SOFTWARE INSTALLATION

In this manual, we assume that your CD-ROM Drive letter to be Drive D:

3.1. WINDOWS® 98 /98SE / WINDOWS® ME / WINDOWS® XP DRIVER AND UTILITIES INSTALLATION

The installation of Win® 98/98SE / WINDOWS® 2000 / Win® ME / Win® XP drivers is very simple. When you insert the driver CD into your CD-ROM drive, you can see the AUTORUN window (if it does not show up, run "D:\setup.exe"). Then you can follow guides to setup your R9700 PRO driver (Please follow the subsection 3.1.3 "Step By Step Installation" to install the driver for your R9700 PRO graphics accelerator.

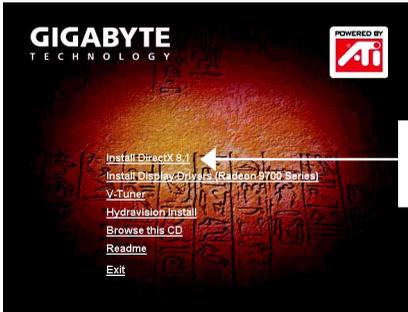
3.1.1. Operating system requirement

- If your OS is Microsoft Windows, when loading the R9700 PRO drivers for the system, please make sure your system (Windows 98/98SE, Windows2000 or Windows ME) has installed DirectX8.1 or later.
- If you install the R9700 PRO drivers for the motherboard, which consist of SIS, ALI or VIA chipsets, please install the appropriate Driver program for that motherboard. Or please contact your motherboard nearest dealer for M/B Driver.

3.1.2. DirectX Installation

Install Microsoft DirectX 8.1 to enable 3D hardware acceleration support for Windows® 98/98SE/ Windows® 2000 / or Windows® ME to achieve better 3D performance.

- Note: For software MPEG support in Windows® 98/ 98SE/ Windows® 2000 or Windows® ME, you must install DirectX8.1(or later) first. (If your OS is Windows® XP, please skip this section.)



1. Install DirectX Driver:
Click "Install DirectX 8.1" Item.

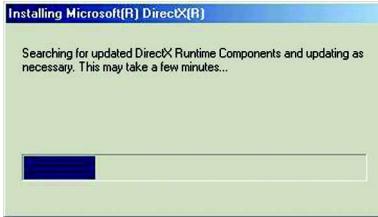


2. Click "Yes" icon.



3. Click "Yes" icon.





Then the DirectX 8.1 installation is completed.

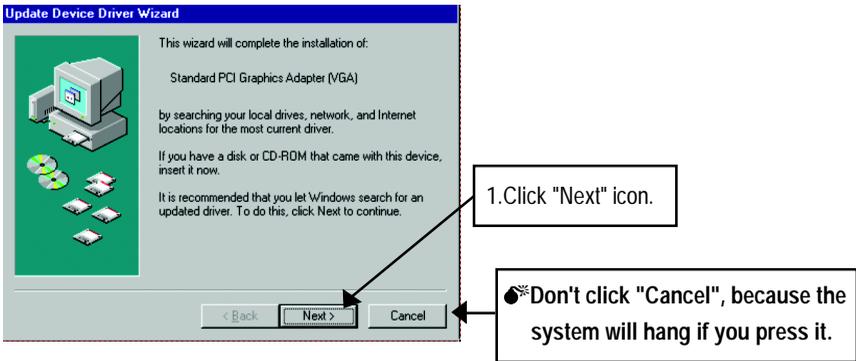
3.1.3. Driver Installation

The following is the step-by-step installation guide.

Step 1: New Hardware Found

After R9700 PRO is inserted into your computer at the first time, the windows will automatically detect a new hardware in the system and pop out a "New Hardware Found" message. Please select "Do not install a driver" and press OK.

Step 2: Update Device Driver Wizard: Standard PCI Graphics Adapter(VGA)

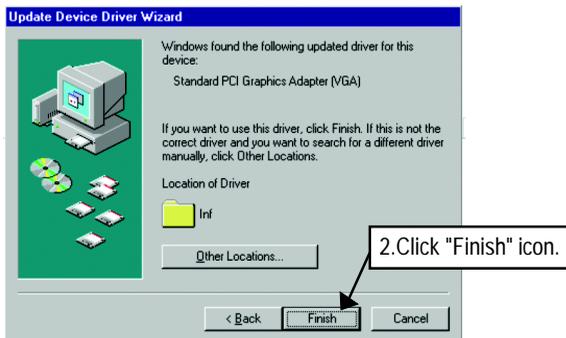


Step 3: Update Device Driver Wizard: Finish

At this time, system will ask for your Windows CD in order to complete the VGA driver installation.

If you don't have the CD, you can press C:\Windows\System directory.

Step 4: System Setting Change



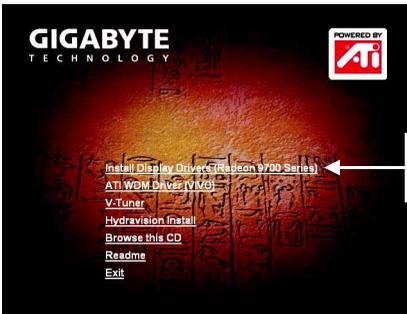


3..Click "No" icon.

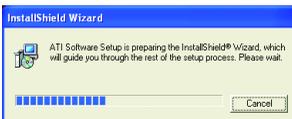
After the system has finished loading, insert the R9700 PRO driver CD disk into your CD-ROM, and then you can see the AUTORUN window. If it does not show up, please run "D:\setup.exe".

Step 5: Driver Setup

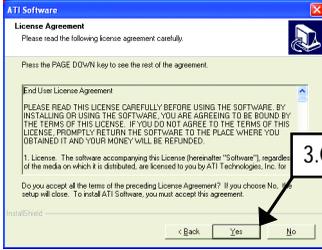
(Pictures below are shown in Windows XP)



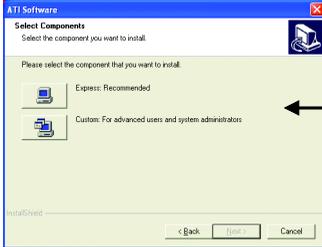
1. Click "Install Display Drivers (Radeon 9700 Series)" item.



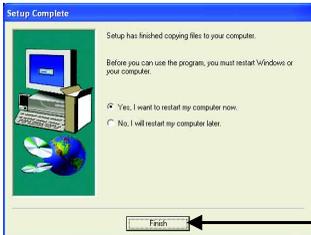
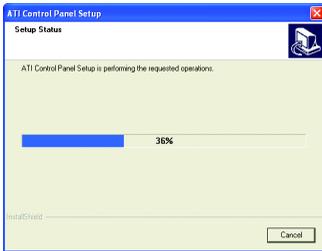
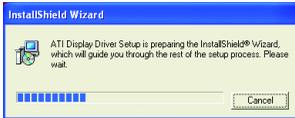
2. Click "Next".



3. Click "Yes".



4. Click "Express" or "Custom" icon.



5. Click "Finish" to restart computer.

After installation of the display drivers, you will find an ATI icon  on the taskbar's status area. Clicking this icon opens the ATi control panel.



1. Rotate Screen



2. Using Single Display

HYDRAVISION™

HYDRAVISION™ and the Desktop Manager are activated whenever Windows® starts. Installing HYDRAVISION™ adds menu options to the ATI Icon.

Click on the ATI icon to access the application's features and help, or to unload the HYDRAVISION™ Desktop Manager.



3. Hydration

HYDRAVISION™ is primarily software designed for multiple monitor settings. RADEON 9700 PRO graphic cards that have more than one display output can benefit fully from this software. A RADEON 9700 PRO with only one display output can still take advantage of the many features of HYDRAVISION™.

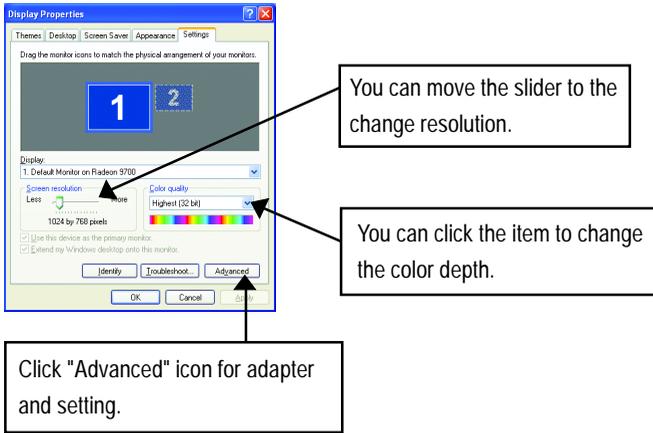
HYDRAVISION™ installation enables the Desktop Manager and creates a Windows® program group for HYDRAVISION™ display management software.

3.1.4. Display Properties pages

The screen shows the information of display adapter, color, the range of display area and the refresh rate.

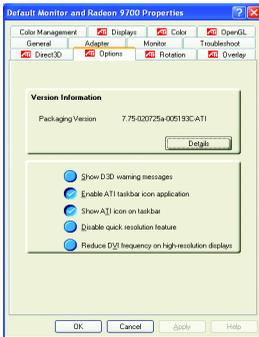
Settings (Resolutions and Color depth for windows)

The Setting properties page allows you to adjust the Direct 3D settings.



Click "Advanced", into details settings:

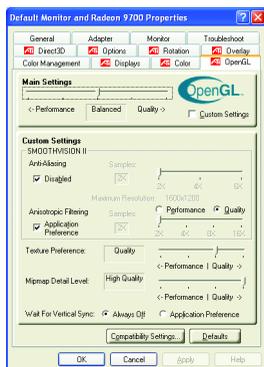
Options Properties



- **Version Information** provides the Catalyst version number, 2D version number and the driver build information.
- **Details button** access to the Details tab which lists the card's hardware details and driver information.
- **Show D3D warning messages** allows you to reactivate any disabled graphics warning messages.
- **Enable ATI taskbar icon application** enables or disables the ATI taskbar icon. However, this feature must be enabled for ATI hotkey support.
- **Show ATI icon on taskbar** adds or removes the ATI icon from the taskbar.
- **Disable quick resolution feature** is accessible by left-clicking the ATI icon in the taskbar.
- **Reduce DVI frequency on high-resolution displays** enables or disables to reduce the DVI frequency when using high-resolution.

OpenGL Properties:

The OpenGL properties page gives you complete control of the OpenGL settings.



■ Main Settings slider

Moving the slider to the left will maximize application performance, while moving the slider to the right will provide excellent 3D image quality. Moving this slider from one position to the next changes the individual Custom Settings sliders found below.

● Custom Settings checkbox

When **Custom Settings** is checked, the Main Settings slider is disabled, allowing you to move each individual slider in the Custom Settings section below. Setting the

individual sliders gives you complete control over your application experience. Using Custom Settings is recommended for advanced users only.

■ SMOOTHVISION II

- **Anti-Aliasing checkbox** improves image quality by removing jagged edges from 3D images, resulting in smoother, more natural looking objects.
- **Anti-Aliasing slider** can be applied using different sample patterns and sample points such as 2X, 4X, or 6X. Moving this slider to the right increases sampling to provide the most realistic 3D image.
- **Anisotropic Filtering checkbox** uses a texture filtering technique that blends multiple texture samples together. Selecting **Application Preference** will result in high quality textures, with a negligible reduction in the application's performance.
- **Anisotropic Filtering slider** By moving this slider to the right, as the number of samples taken increases, the quality of the final image increases significantly. 16X provides extremely detailed, crisp-looking images as a result of the largest number of texture samples possible.

■ Texture Preference slider

Selecting this decides whether your application should use high quality or high performance textures. Moving the slider to the right delivers the highest quality experience. Moving the slider to the left emphasizes a high performance solution while still providing good visuals.

■ Mipmap Detail Level slider

This will allow you to choose the texture quality of the mipmaps the application will use. Mipmaps are a collection of different sized textures of the same image. As the user moves closer to a 3D object the image quality should increase, requiring a higher quality texture of the same image. The base mipmap is the highest quality texture, and all subsequent mipmaps are smaller sized

textures of the same image. Moving the slider to the right selects a higher quality base mipmap, delivering the highest quality application experience. Moving the slider to the left selects a lower quality mipmap, delivering the highest application performance.

■ Wait for Vertical Sync

This will lower the frame rate of full screen games but reduce the image tearing that can occur with the higher frame rate. Selecting **Application Preference** allows the application to decide whether or not it should display its frames at the refresh rate of the monitor. Selecting **Always Off** allows the application to run at its highest possible frame rate, regardless of the monitor's refresh rate which is typically less than the frame rate at which the application will run.

■ Compatibility Settings button

This button allows you to access advanced settings that can solve compatibility issues for a few specific OpenGL applications.



- **Force Z-buffer depth** allows you to explicitly set the Z-Buffer depth. Most applications will work best when **Disabled** is selected.

- **Support KTX buffer region extension** Enabling this feature allows rapid updates of those portions of your screen that have changed. Note that most applications will not be affected by activating this feature.

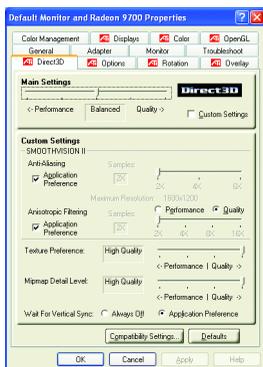
- **Defaults button** allows you to reset the OpenGL Compatibility Settings to default values.

■ Defaults button

This button allows you to reset the OpenGL Settings to default values.

Direct 3D Properties:

The Direct 3D properties page allows you to adjust the Direct 3D settings.



■ Main Settings slider

Moving the slider to the left will maximize application performance, while moving the slider to the right will provide excellent 3D image quality. Moving this slider from one position to the next changes the individual Custom Settings sliders found below.

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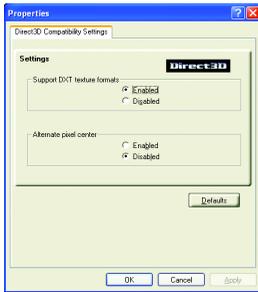
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■ Compatibility Settings button

This button allows you to access advanced settings that can solve compatibility issues for a few specific Direct 3D applications.



- **Support DTX texture formats** allows applications to use this kind of texture format. There are a few applications that can only support a limited number of texture formats. By selecting **Disabled**, the driver will not support DTX texture formats, thus reducing the number of texture formats supported.

- **Alternate pixel center** This may eliminate problems with some Direct 3D games which display vertical and horizontal lines around textures, or text that appears incorrect. However,

this setting should only be used if you are experiencing the symptoms mentioned, as it may cause problems with other games.

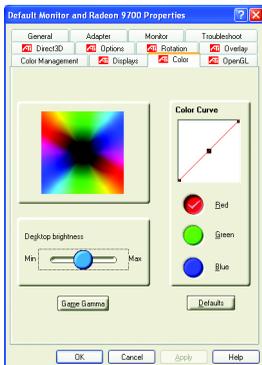
- **Defaults button** allows you to reset the Direct 3D Compatibility Settings to default values.

■ Defaults button

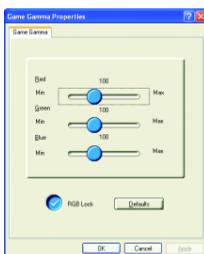
This button allows you to reset the Direct 3D Settings to default values.

Color Properties:

The **Color Properties** is used to adjust the color settings. It also allows gamma control for video playing of the Video Overlay. The color settings affect all display devices mapped to the view. You can change red, green, and blue display colors. Set Desktop and Video Overlay brightness (gamma) levels can also be changed.



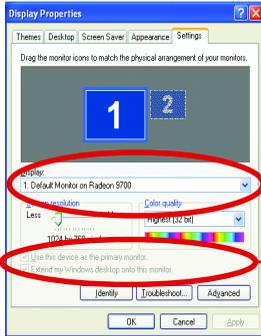
- **Desktop brightness** increases or decreases the color brightness of your desktop. The higher the gamma value, the higher the brightness and contrast of your display.
- **Color Curve** adjusts the selected color (red, green or blue) by moving the color curve with your mouse.
- **Game Gamma button** accesses Game Gamma properties.
- **Default** resets the desktop brightness and color settings to the default values.



- **Red / Green / Blue sliders** These controls allow you to increase or decrease the color brightness of Direct 3D and OpenGL games played in fullscreen mode.
(NOTE: Game Gamma is NOT supported in Windows NT4.0)
- **RGB Lock** adjust the RGB sliders individually or adjust all three sliders at the same time.
- **Default** resets the Game Gamma settings to the default values.

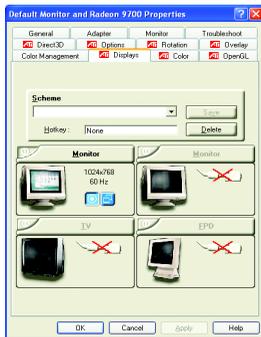
Display Properties:

If your VGA card is equipped with a S-Video connector, you can use a second output device (e.g. a TV or a computer monitor) as part of your operating desktop extending your desktop to second device or copying your desktop on the second device.



Select Display Type

Enable / Disable "Extend my windows desktop onto this monitor"



The Display tab provides the multi monitor features. Here you can enable/disable display devices and swap the assignment of **Primary** and **Secondary** displays.

Connecting your graphics card to a TV or VCR

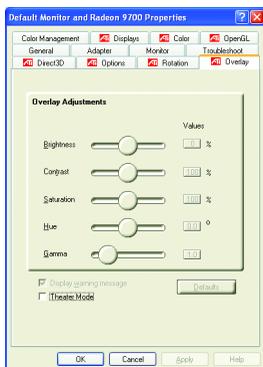
To connect your R9700 PRO graphics card to a TV (or VCR), use an S-Video cable. However, most TVs (and VCRs) have a Composite video input, in which case you can use the supplied S-Video-to-Composite video adapter.

1. Turn off your computer and your television (or VCR).
2. Ensure your graphics card was installed correctly. (For information about placing the card in your computer and installing the enhanced graphics driver, see the user's manual.)
3. Determine if your television (or VCR) has an S-Video or Composite video connection.
4. Looking at the back of your computer, locate your S-Video Out. Using an S-Video cable or the supplied adapter cable, attach one end of the cable to your graphics card and the other to your television (or VCR).
5. Turn on your television (or VCR) then your computer.

Overlay Properties:

The **Overlay Properties** is used to adjust the Brightness / Contrast / Saturation / Hue / Gamma settings.

Overlay properties allows for the viewing of full-motion video on your PC. However, there is only one video overlay, which is only available on the **Primary** display. The video overlay controls are automatically activated during playback of any video file type that supports overlay adjustments.



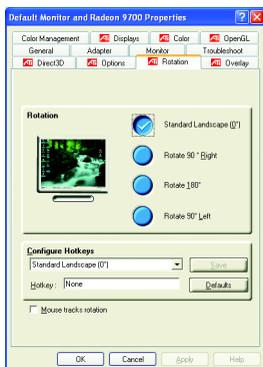
■ Overlay Adjustments

- **Brightness** allows you to adjust the brightness of the video image.
- **Contrast** allows you to adjust the contrast in the video image.
- **Saturation** allows you to adjust the vividness of the color. Sliding it all the way to the left removes all color and produces a black and white picture.
- **Hue** allows you to adjust the pureness or tint of the red, green and blue components of the color.
- **Gamma** allows you to adjust the overall intensity of the video image.

- **Defaults** button allows you to reset the Overlay settings to default values.
- **Theater Mode** checkbox allows you to display video playback in full screen on a secondary monitor, if available and enabled.

Rotation Properties:

The **Rotation Properties** is used to rotate the screen. If your monitor is capable of operating in either Landscape or Portrait mode, you can adjust the screen by this properties.



■ Rotation

- **Standard Landscape** allows you to set the screen at standard landscape.
- **Rotate 90° Right** allows you to rotate the screen clockwise 90°.
- **Rotate 180°** allows you to rotate the screen 180°.
- **Rotate 90° Left** allows you to rotate the screen counterclockwise 90°.
- **Configure Hotkeys** allows you to set the screen rotation by Hotkeys.
- **Defaults** button allows you to reset the hotkey.

3.2. WINDOWS NT 4.0 DRIVER INSTALLATION

Please make sure the Windows NT 4.0 have installed Windows NT 4.0 Service Pack version 6.0 (or later) before installing the R9700 PRO graphics accelerator driver.

To install the R9700 PRO driver for Windows NT:

1. Insert the INSTALLATION CD into your CD-ROM drive. If Windows® runs the CD automatically.
2. Click Start.
3. Select Run.
4. Type the following:
D:\SETUP
(If D is not your CD-ROM drive, substitute D with the correct drive letter.)
5. Click "OK".
6. Click on "Install Display Drivers(Radeon 9700 Series)" to begin the Installation Wizard.
7. Click "Next".
8. Click "Yes" to the license agreement.
9. Follow the Wizard's on-screen instructions to complete the installation.

3.3. WINDOWS 2000 DRIVER INSTALLATION

Please make sure the Windows 2000 have installed Windows[®] 2000 Service Pack version 2 (or later) before installing the graphics accelerator driver.

With Windows[®] 2000 running on your computer, you need to install the R9700 PRO driver to take advantage of the higher performance, resolutions, and special graphic features of the Graphics card. To ensure you install the latest driver, use the Installation CD that shipped with your R9700 PRO Graphics card.

To install the R9700 PRO driver for Windows[®] 2000

1. Insert the INSTALLATION CD into your CD-ROM drive. If Windows[®] runs the CD automatically.
2. Click Start.
3. Select Run.
4. Type the following:
D:\SETUP
(If D is not your CD-ROM drive, substitute D with the correct drive letter.)
5. Click "OK".
6. Click on "Install Display Drivers(Radeon 9000 Series)" to begin the Installation Wizard.
7. Click "Next".
8. Click "Yes" to the license agreement.
9. Follow the Wizard's on-screen instructions to complete the installation.

3.4. BIOS FLASH UTILITY

R9700 PRO BIOS update procedure:

- Note: Please download the newest BIOS from our website (www.gigabyte.com.tw) or contact your local dealer for the file.
- If you want to realize the BIOS flash information, please refer to detail on P.27

4. Troubleshooting Tips

The following troubleshooting tips may help if you experience problems. Contact your dealer or GBT for more advanced troubleshooting information.

- Check that the card is seated properly in the AGP slot.
- Ensure that the display cable is securely fastened to the card's display connector.
- Make sure that the monitor and computer are plugged in and receiving power.
- If necessary, disable any built-in graphics capabilities on your motherboard. For more information, consult your computer's manual or manufacturer.

(NOTE: Some manufacturers do not allow the built-in graphics to be disabled or to become the secondary display.)

- Make sure you selected the appropriate display device and graphics card when you installed the graphics driver.
- If you have problems during bootup, start your computer in Safe Mode. In Windows® 98 SE and Windows® Me, press and hold the CTRL key until the Microsoft® Windows® Startup Menu appears on the screen. Then select the number for Safe Mode, and press Enter. (You can also use F8 to bring up the Microsoft Windows® Startup Menu.) In Safe Mode, bring up the Device Manager and check for duplicate display adapter and monitor entries if you are only using one graphics card.
- For more assistance, use the Troubleshooting Guide located in the Windows® Help or contact your computer manufacturer.



If necessary, adjust your monitor's setting by monitor's adjust panel to make the screen looks focused, crisp, and sharp. (Please refer to the monitor's manual.)

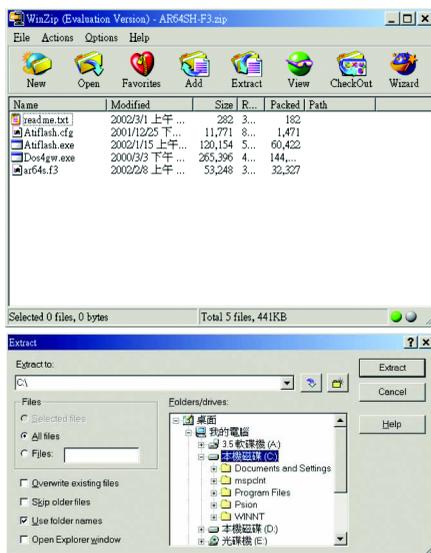
5. Appendix

5.1. How to reflash the BIOS

☛ We use GV-AR64SH VGA card and Atiflash BIOS flash utility as example.

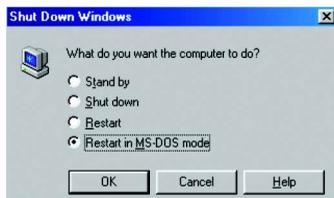
How to reflash the BIOS for your graphics card?

1. Extract the Zip file to the drive C: or A:

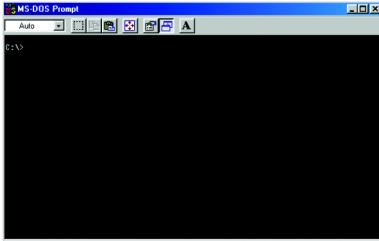


2. Restart your PC in MS-DOS mode

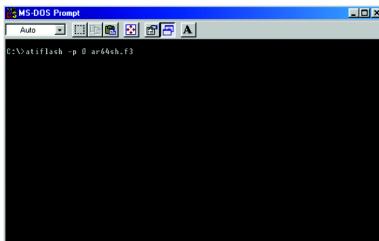
(This function only for Windows® 95 or Windows® 98. If your OS is Windows 2000 / Windows Me / Windows XP. Please use the bootable disk to MS-DOS mode)



3. Change the command path to the file location C:\> or A:\>



4. Reflash BIOS command as below : C:\> atiflash -p 0 <filename>



5. Reboot your PC when it's done.

5.2. Resolutions and Color Depth Table (In Windows® XP)

Radeon 9700 PRO 2D Single Display Modes

Display Screen Resolution	Refresh Rate (Hz)	Color Depth (bpp)		
		8bpp(256 color) Standard mode	16bpp(65K color) High mode	32bpp(16.7M) True mode
640 x 480	60	✓	✓	✓
	72	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
	90	✓	✓	✓
	100	✓	✓	✓
	120	✓	✓	✓
	160	✓	✓	✓
	200	✓	✓	✓
800 x 600	47	✓ (interlaced)	✓ (interlaced)	✓ (interlaced)
	56	✓	✓	✓
	60	✓	✓	✓
	70	✓	✓	✓
	72	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
	90	✓	✓	✓
	100	✓	✓	✓
	120	✓	✓	✓
	160	✓	✓	✓
	200	✓	✓	✓
1024 x 768	43	✓ (interlaced)	✓ (interlaced)	✓ (interlaced)
	60	✓	✓	✓
	70	✓	✓	✓
	72	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
	90	✓	✓	✓
	100	✓	✓	✓
	120	✓	✓	✓
	150	✓	✓	✓
	160	✓	✓	✓
	200	✓	✓	✓

To be continued...

Display	Refresh	Color Depth (bpp)		
Screen	Rate	8bpp(256 color)	16bpp(65K color)	32bpp(16.7M)
Resolution	(Hz)	Standard mode	High mode	True mode
1152 x 864	43	✓ (interlaced)	✓ (interlaced)	✓ (interlaced)
	47	✓ (interlaced)	✓ (interlaced)	✓ (interlaced)
	60	✓	✓	✓
	70	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
	100	✓	✓	✓
1280 x 768	56	✓	✓	✓
	60	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
1280 x 960	60	✓	✓	✓
	70	✓	✓	✓
	72	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
	100	✓	✓	✓
	120	✓	✓	✓
	160	✓	✓	✓
1280 x 1024	43	✓ (interlaced)	✓ (interlaced)	✓ (interlaced)
	47	✓ (interlaced)	✓ (interlaced)	✓ (interlaced)
	60	✓	✓	✓
	70	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
	90	✓	✓	✓
	100	✓	✓	✓
	120	✓	✓	✓
	1600 x 1200	60	✓	✓
70		✓	✓	✓
75		✓	✓	✓
85		✓	✓	✓
100		✓	✓	✓

To be continued...

Display Screen Resolution	Refresh Rate (Hz)	Color Depth (bpp)		
		8bpp(256 color) Standard mode	16bpp(65K color) High mode	32bpp(16.7M) True mode
1792 x 1344	60	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
1800 x 1440	60	✓	✓	✓
	70	✓	✓	✓
1856 x 1392	60	✓	✓	✓
	72	✓	✓	✓
	75	✓	✓	✓
1920 x 1080	60	✓	✓	✓
	75	✓	✓	✓
1920 x 1200	60	✓	✓	✓
	75	✓	✓	✓
	85	✓	✓	✓
1920 x 1440	60	✓	✓	✓
	75	✓	✓	✓
2048 x 1536	60	✓	✓	✓
	66	✓	✓	✓

* Lower maximum refresh rates at some resolutions when using lower bandwidth memory configuration.

