

Declaration of Conformity

We, Manufacturer/Importer
(full address)

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

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

VGA Card

GV-RX16T256V-RH

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 checked="" type="checkbox"/> EN 61000-3-2 | Disturbances in supply systems caused |
| <input type="checkbox"/> EN 55013 | Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment | <input checked="" type="checkbox"/> EN 61000-3-3 | Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations" |
| <input type="checkbox"/> EN 55014-1 | Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus | <input checked="" type="checkbox"/> EN 55024 | Information Technology equipment-Immunity characteristics-Limits and methods of measurement |
| <input type="checkbox"/> EN 55015 | Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaires | <input type="checkbox"/> EN 50082-1 | Generic immunity standard Part 1: Residual, commercial and light industry |
| <input type="checkbox"/> EN 55020 | Immunity from radio interference of broadcast receivers and associated equipment | <input type="checkbox"/> EN 50082-2 | Generic immunity 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"/> EN 55014-2 | Immunity requirements for household appliances tools and similar apparatus |
| <input type="checkbox"/> DIN VDE 0855 | Cabled distribution systems; Equipment | <input type="checkbox"/> EN 50091- 2 | EMC requirements for uninterruptible power systems (UPS) |
| <input type="checkbox"/> part 10 | for receiving and/or distribution from | | |
| <input type="checkbox"/> part 12 | sound and television signals | | |

☒ **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

Signature : Timmy Huang

(Stamp)

Date : Jan. 6, 2006

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-RX16T256V-RH

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: Jan. 6, 2006

GV-RX16T256V-RH

Radeon X1600XT Graphics Accelerator

User's Manual

Rev. 101

12MD-RX16T2VR-101R



* The WEEE marking on the product indicates this product must not be disposed of with user's other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment!!

* The WEEE marking applies only in European Union's member states.

Copyright

© 2005 GIGABYTE TECHNOLOGY CO., LTD

Copyright by **GIGA-BYTE TECHNOLOGY CO., LTD.** ("GBT"). No part of this manual may be reproduced or transmitted in any form without the expressed, written permission of **GBT**.

Trademarks

Third-party brands and names are the property of their respective owners.

Notice

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

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 that may appear in this document nor does the author make a commitment to update the information contained herein.

Table of Contents

1. Introduction	3
1.1. Features	3
1.2. Minimum System Requirement	3
2. Hardware Installation	4
2.1. Board Layout	4
2.2. Hardware Installation	6
3. Software Installation	8
3.1. Windows® XP Driver and Utilities Installation	8
3.1.1. Operating System Requirement	8
3.1.2. DirectX Installation	9
3.1.3. Driver Installation	10
3.1.4. Utilities on Driver CD	12
3.1.5. Vedio In Introduction	15
3.1.6. Taskbar Icon	18
3.1.7. Display Properties pages	21
3.2. Windows® 2000 Driver Installation	38
4. Troubleshooting Tips	39
5. Appendix	40
5.1. How to Reflash the BIOS	40
5.1.1. Reflash BIOS in MS-DOS mode	40
5.1.2. Reflash BIOS in Windows mode	40
5.2. Resolutions and Color Depth Table (In Windows® XP)	41

1. Introduction

1.1. Features

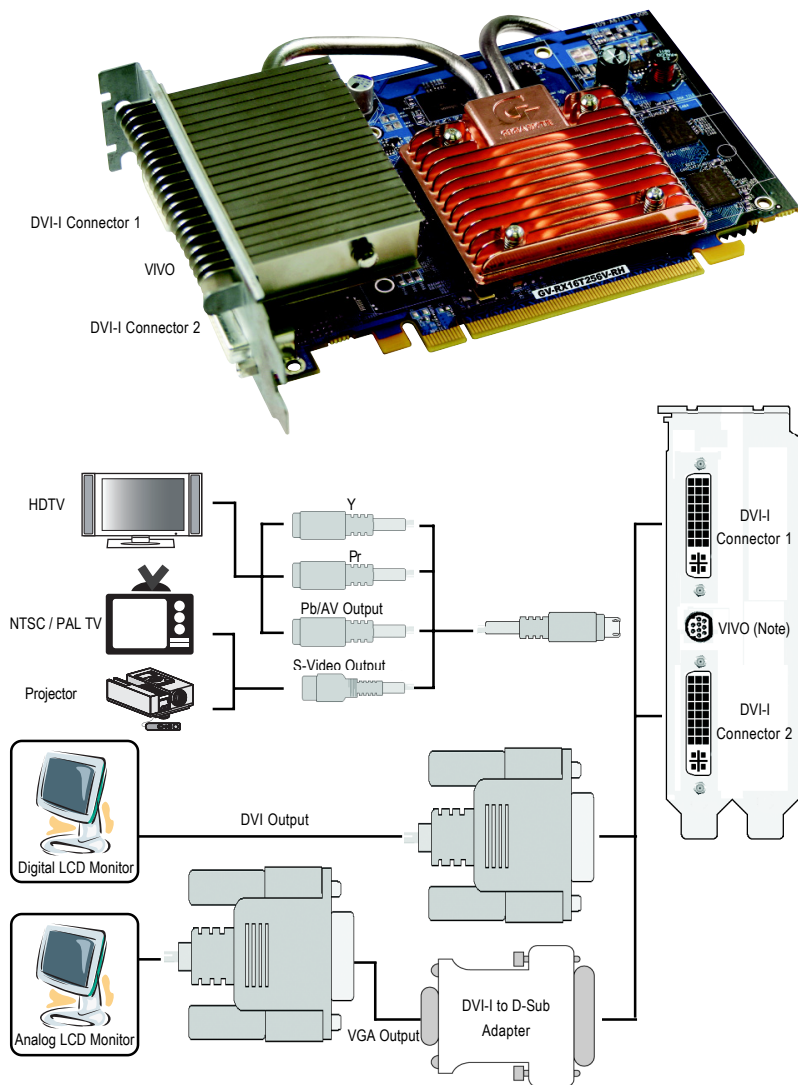
- Powered by **ATI Radeon X1600XT** Visual Processing Unit (VPU)
- Supports the newest PCI Express x 16
- Integrated with 256MB GDDR3 memory
- Supports DirectX 9.0C
- Supports AV / S-Video and HDTV output
- Supports AV / S-Video input
- Supports TV-Out connector
- Supports D-sub connector (by adapter)
- Supports 2 DVI-I connectors

1.2. Minimum System Requirement

- IBM® or 100% PC compatible with Pentium® III 650MHz or AMD Athlon 650MHz class processor or higher
- One PCI Express x 16 slot
- Operating Systems Windows® 2000 / Windows® XP
- 64MB system memory
- 50MB of available disk space for full installation
- CD-ROM or DVD-ROM drive

2. Hardware Installation

2.1. Board Layout



(Note) Please refer to page 15 about Video In introduction.



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. Hardware Installation

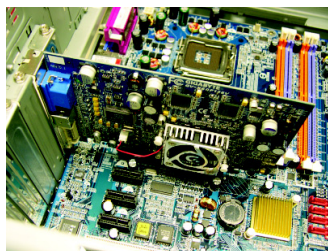
Now that you have prepared your computer, you are ready to install your graphics accelerator card.

To remove the existing graphics card:

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

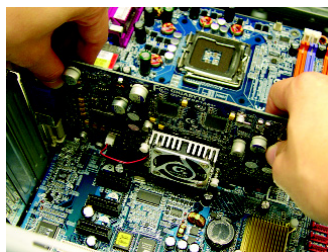


2. Remove the computer cover. If necessary, consult your computer's manual for help in removing the cover.



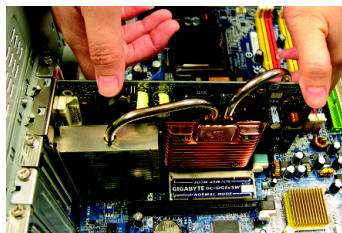
3. Remove any existing graphics card from your computer.

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.

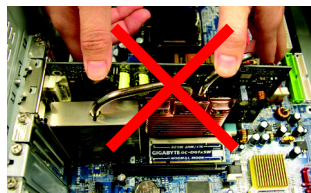


To install your new graphics card:

1. Locate the PCI Express x 16 slot. If necessary, remove the metal cover from this slot; then align your graphics card with the PCI Express x 16 slot, and press it in firmly until the card is fully seated.



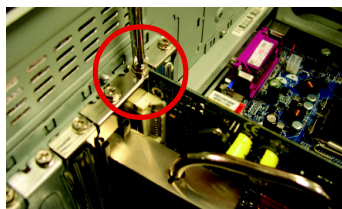
* Please make sure that the gold edge connectors of the graphics card is securely inserted.



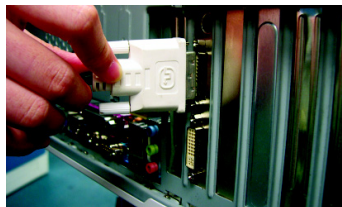
Warning!

When installing the graphics card, do not push down the heat pipe. This may displace the heat pipe and cause bad contact between the GPU and thermal pad as well as affect the heat dissipation. To avoid system instability, do not touch the graphics card when it is running.

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



3. Plug the display cable into your graphics card; then turn on the computer and monitor. To connect a flat panel directly to your graphics card, use the DVI-I connector. To connect a VGA monitor to the DVI-I connector, plug the DVI-I to D-sub adapter into the DVI-I connector, then plug the monitor cable into the adapter.



Connect a flat panel



To Flat Panel Display



9-Pin for VIVO



Connect a VGA monitor via DVI-I to D-sub adapter

You are now ready to proceed with the installation of the graphics card drivers. Please refer to next chapter for detailed instructions.

3. Software Installation

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

The installation of Windows® 2000 / Windows® 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 the guides to setup your graphics card driver. (Please follow the subsection 3.1.3 "Driver installation" to install the driver for your graphics accelerator.)

3.1. Windows® XP Driver and Utilities Installation

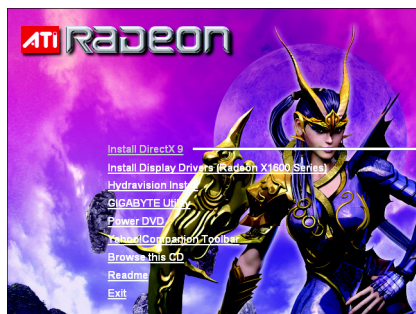
3.1.1. Operating System Requirement

- When loading the graphics card drivers for the system, please make sure your system has installed DirectX 9.0C or later version.
- If you install the graphics card drivers for the motherboard, which consist of SIS, or VIA chipsets, please install the appropriate driver program for that motherboard. Or please contact your motherboard nearest dealer for motherboard driver.

3.1.2. DirectX Installation

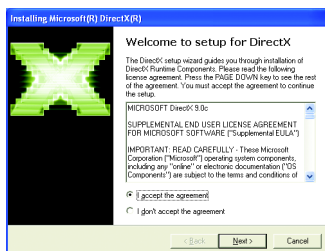
Install Microsoft DirectX to enable 3D hardware acceleration support for Windows® 2000 or Windows® XP to achieve better 3D performance.

- **Note:** For software MPEG support in Windows® 2000 or Windows® XP, you must install DirectX first. Users who run Windows XP with Service Pack 2 or above do not need to install DirectX separately.

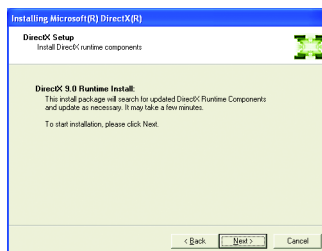


Step 1. When autorun window show up, click the **Install DirectX 9** item.

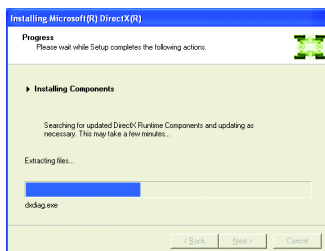
Click the **Install DirectX 9** item.



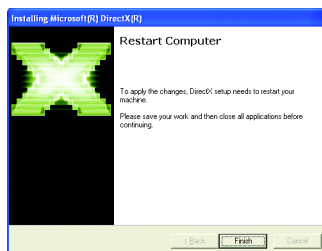
Step 2. Choose **I accept the agreement** and click the **Next** button.



Step 3. Click the **Next** button.



Installing the components.



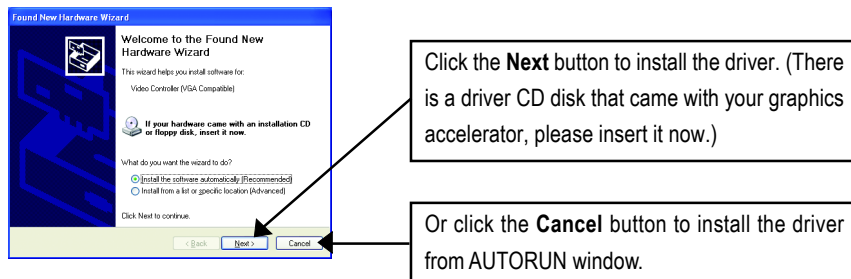
Step 4. Click **Finish** to restart computer.
Then the DirectX 9 installation is completed.

3.1.3. Driver Installation

A. New hardware found

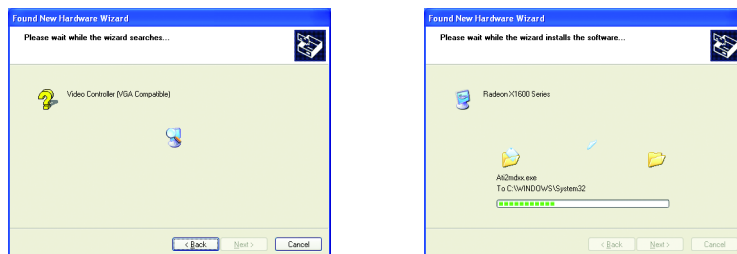
After the graphics card is inserted into your computer at the first time, the windows will automatically detect a new hardware in the system and pop out a "New Hardware Found" message. The following is the step-by-step installation guide.

Step 1: Found new hardware wizard: Video controller (VGA Compatible)



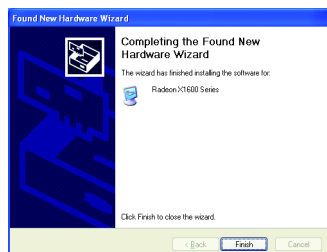
Step 2: Found new hardware wizard: Searching and installing

The wizard will search for the driver and install it automatically.



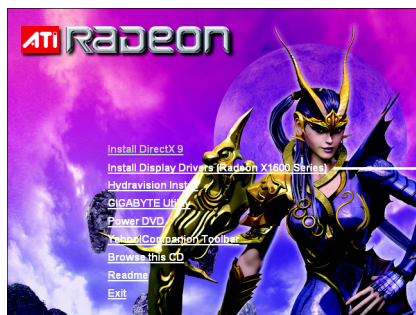
Step 3: Found new hardware wizard: Finish

Click the **Finish** button to finish the installation.



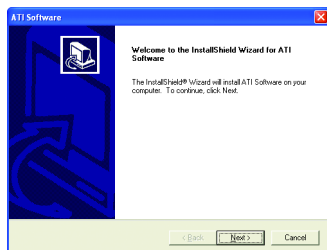
B. Driver installation (Autorun Window)

Insert the 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".

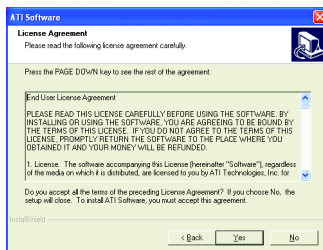


Step 1. When autorun window show up, click the **Install Display Drivers (Radeon X1600 Series)** item.

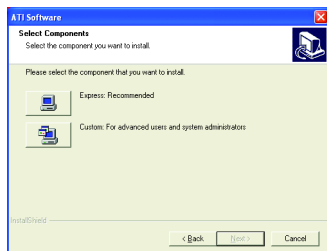
Click the **Install Display Drivers (Radeon X1600 Series)** item.



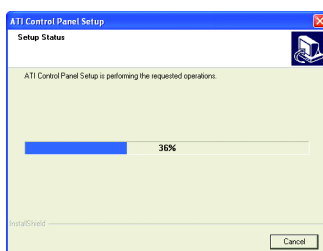
Step 2. Click the **Next** button.



Step 3. Click the **Yes** button.



Step 4. Click the **Express** or **Custom** icon.



Windows installing the components.

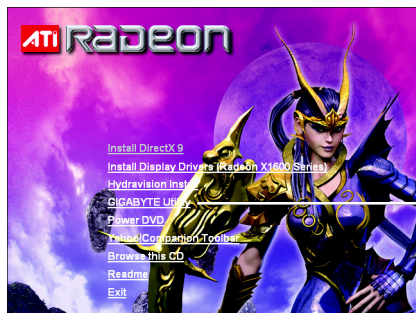


Step 5. Click the **Finish** button to restart computer. Then the driver installation is completed.

3.1.4. Utilities on Driver CD

Insert the 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".

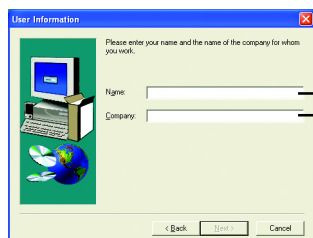
- Install GIGABYTE Utility (V-Tuner 2):



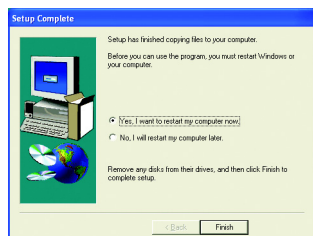
Click the **GIGABYTE Utility** item.



Step 2. Click the **Next** button.



Step 3. Enter your name and company.

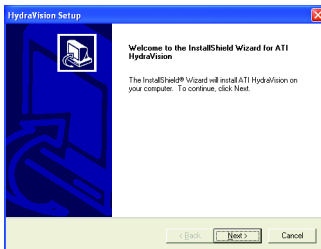


Step 4. Click the **Finish** button to restart computer.
Then the V-Tuner2 installation is completed.

● Install Hydravision :



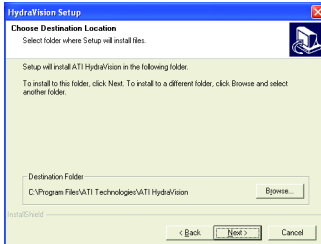
Click the **Hydravision Install** item.



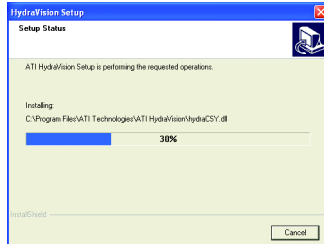
Step 2. Click the **Next** button.



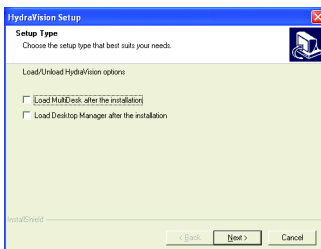
Step 3. Click the **Yes** button.



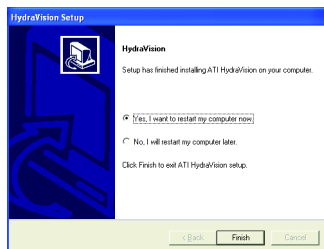
Step 4. Click the **Next** button.



Windows installing the components.



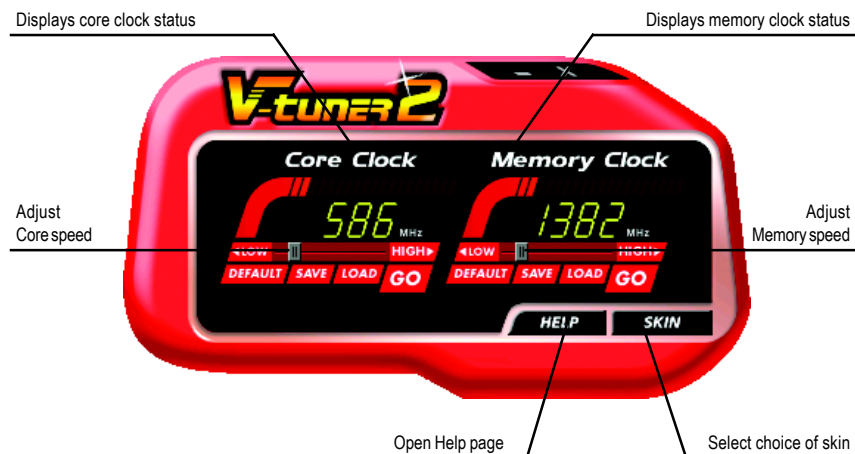
Step 5. Click the **Next** button.



Step 6. Click the **Finish** button to restart computer. Then the Hydravision Install is completed.

V-Tuner 2

V-Tuner 2 lets you adjust the working frequency of the graphic engine and video memory (Core Clock and Memory Clock).



3.1.5. Vedio In Introduction

A. Cyberlink Power Director 3.X Installation ^(Note)

Please install the Cyberlink Power Director 3.X (or above) version with your graphics card. Press the "Capture" button, PowerDirector enter Capture mode, in which you can capture media from a variety of device. (Figure 1)

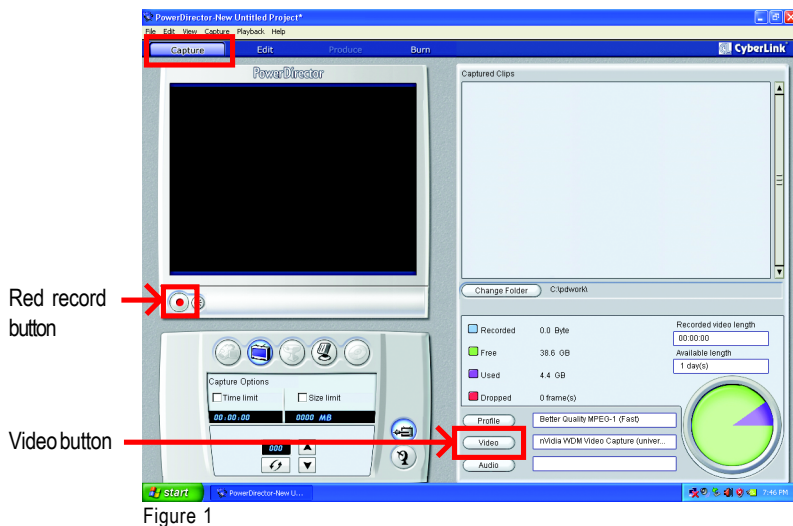


Figure 1

(Note) Power Director 3.X only supported on the Windows XP operating systems.

B. Introduction of the capture sources device

Please check out your capture source. In general, the media sources comprise the following item:


1. Video Tape Recorder (VCR), V8 :

Connect the AV connector or video cable of the VCR to the Video In of the video capture card. And if your VCR, V8 supports S-Video output, connect S-Video connector to the S-Video In port of the graphics card. Connect the audio cable of the VCR, V8 to the Line In of the sound card.

If your sound card has no Line In port, try the Microphone port.

2. DV (recommend to use IEEE1394 card)

DV (Check out if the power of DV is turned on, and enter VCR mode; moreover, make sure FireWire cable connect well.

Furthermore, when capturing media by VIVO-based graphics card, you could chose two ways^(Note), including Composite (COMP-IN) and SVideo(SVID-IN). Afterward please click the play button of captured devices, and click the red REC  button between Capture preview window and Capture device selection area.



Please verify how your cable connects. If the cable connects to SVID-IN port on HDTV/VIVO cable, please press the "Video" button (Figure 2), and please select the "Video SVideo" item (Figure 2); if it connects to COMP-IN port on HDTV/VIVO cable, please select the "Video Composite" item (Figure 3).

Figure 2

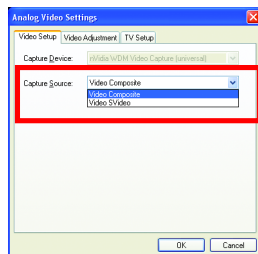
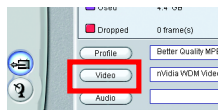


Figure 3

When you got the media you need, click the red REC button again to stop capturing. And then the media clips will be loaded into Capture clips area automatically. (Figure 4)

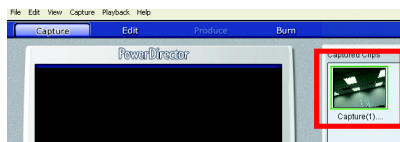
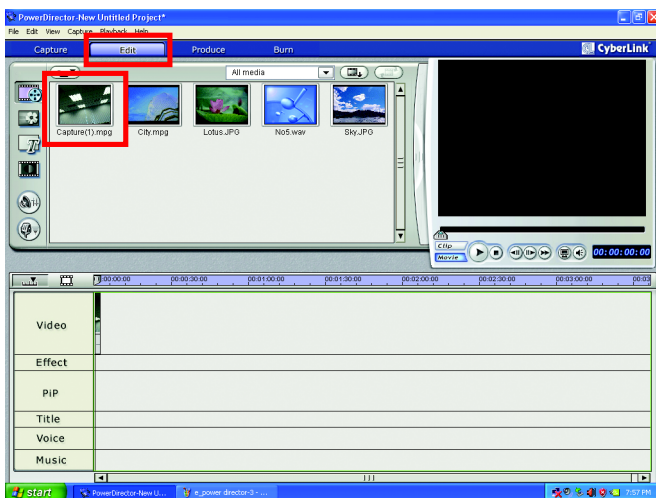


Figure 4

Once you click the "Edit" button to return Edit mode, the media clips will be loaded into Library immediately.

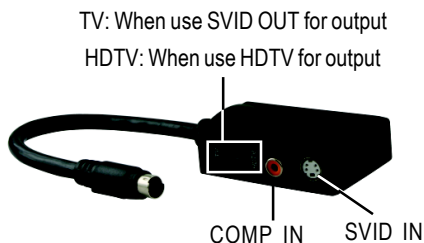
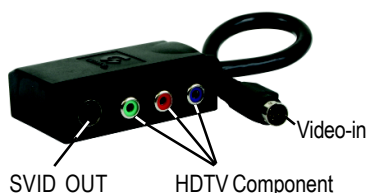


(Figure. 4)


At this moment in time, you can expand a series of outstanding editing experience to fill you life with boundless possibility.

(For more details about movie editing function of PowerDirector, please refer to user's guide, or visit Cyberlink website for official technical support.)

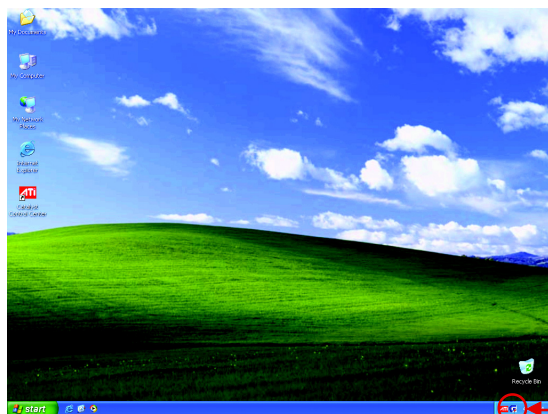
C. HDTV / VIVO cable introduction



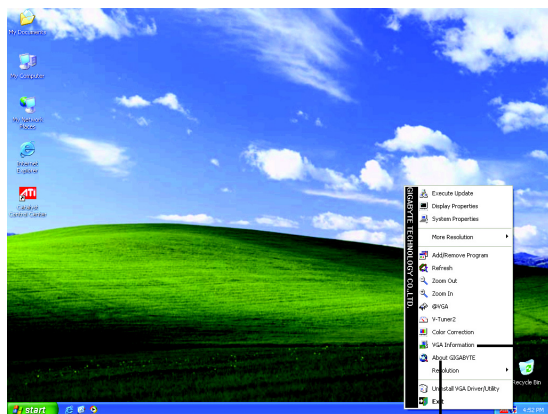
3.1.6. Taskbar Icon

After installation of the display drivers, you will find a GIGABYTE icon  on the taskbar's status area. Right-clicking this icon opens the GIGABYTE control panel, showing a menu composed of shortcut of the graphics card's enhanced and other functions.

You may click the "Display Properties" item, and then click Settings. Click "Advanced" after clicking Settings. Click the appropriate tab to change your display settings.



Right-click the icon.

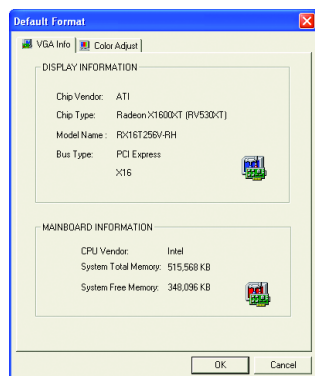


Click "VGA Information" item into the "VGA Info" and "Color Adjust" tabs.

You can link to GIGABYTE website for updated information about the graphics accelerator, latest drivers, and other information.

VGA Information

VGA Info lists the relevant information about your card.




Color Adjust

Color Adjust allows you to make color adjustments, such as brightness, contrast and gamma values for each or all of RGB colors.



ATI CATALYST™ Control Center:

After installation of the display drivers, you will find an **ATI CATALYST™ Control Center** icon  on the taskbar's status area. The **ATI CATALYST™ Control Center** is used to configure all your graphics card settings. Right-click the icon to enter the **ATI CATALYST™ Control Center** (refer to Fig. 1). Or you can right-click on the desktop to select Properties>Settings>Advanced>ATI CATALYST Control Center tab and press **ATI CATALYST(tm) Control Center** button (refer to Fig. 2).

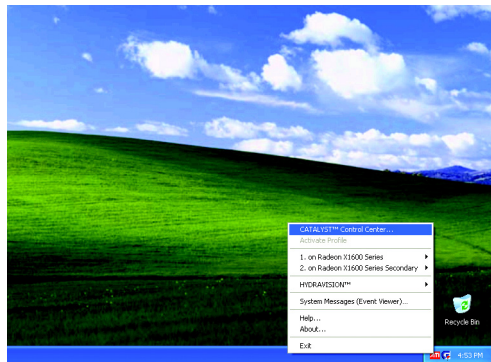


Fig. 1

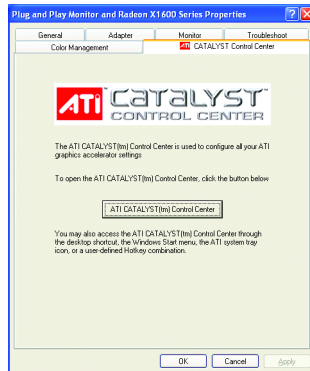


Fig. 2

HYDRAVISION™ :

HYDRAVISION has everything you need to manage increased amounts of information across your computer desktop. It allows you to quickly and easily tailor your computer desktop to the way you work. You can:

- arrange and rearrange monitors.
- create up to 9 virtual desktops.
- assign Hot Key shortcuts.
- add special effects to windows and menus.

You can right-click on **ATI CATALYST™ Control Center** icon  to select **HYDRAVISION™> HYDRAVISION™ Properties** to set the HYDRAVISION (refer to Fig. 3).

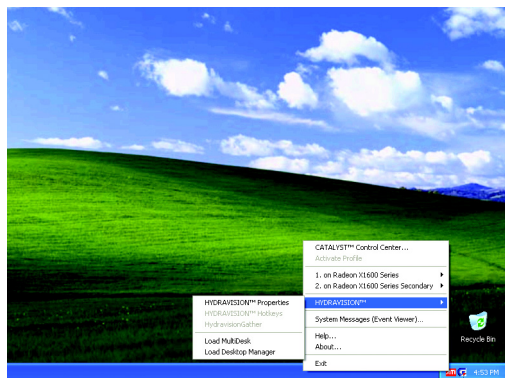


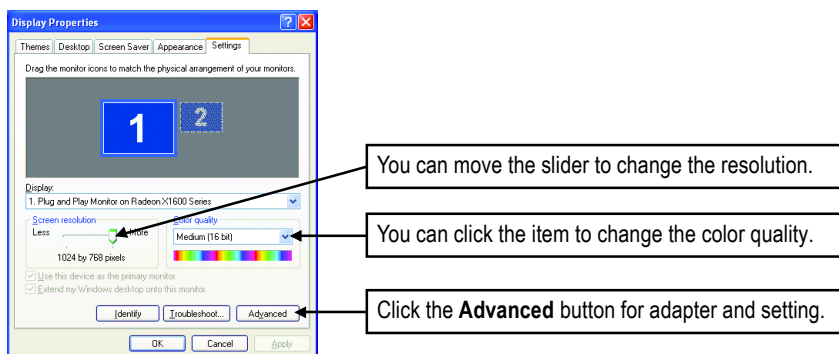
Fig. 3

3.1.7. Display Properties pages

To access Display Properties pages, right-click the GIGABYTE icon on the taskbar and select **Display Properties** or right-click on Desktop and then select **Properties**. The **Display Properties** dialog box shows the information of display adapter, color, the range of display area, and the refresh rate.

Settings (Resolutions and Color depth for Windows)

You may adjust the screen resolution and color quality settings in this dialog box.



Display	Model	GV-RX16T256V-RH
Matrix	CRT+TV ^(Note)	Yes
	CRT+DVI	Yes
	DVI+TV	Yes
	DVI+TV+CRT	No
	DVI+DVI	Yes

(Note) The CRT+TV configuration requires that you connect your CRT display to the DVI connector 2 on the card using the DVI-I to VGA adapter to ensure normal operation.

This configuration is not supported if the CRT monitor is directly attached to the DVI connector 1 on the card.

View Properties:

The CATALYST Control Center dashboard supports three types of views: Standard View/ Advanced View/ Custom View.



■ Standard View

The Standard view is the default view when CATALYST Control Center is launched for the first time. It provides a single button in the left navigation pane for each main page. The Standard view is recommended for novice users.

■ Advanced View

The Advanced view provides access to the advanced features on each page. The left navigation pane displays a tree view that lists all the advanced features. The Advanced view is recommended for experienced users.

■ Custom View

The Custom view allows you to display only the features you choose in the left navigation pane. The Custom view is recommended for experienced users who want to expose only the features they adjust most often or that their 3D application supports.

Hotkeys Properties:

The Hotkeys Manager allows you to create shortcut key combinations to quickly perform tasks such as changing a graphics setting or opening an application. A Hotkey is a combination of a modifier key or keys, such as Ctrl, Alt, or Shift, and any letter from the alphabet.



Profiles Properties:

You can use profiles to create customized environments for your desktop, video, and 3D applications. Define and save your own personal video settings that can be quickly activated manually, through a Hotkey, or by file association.



Note:

A profile applies to a specific graphics card. If there is more than one graphics card installed in your computer, you need to select the appropriate card before creating, loading, or activating a Profile.

Preferences Properties:

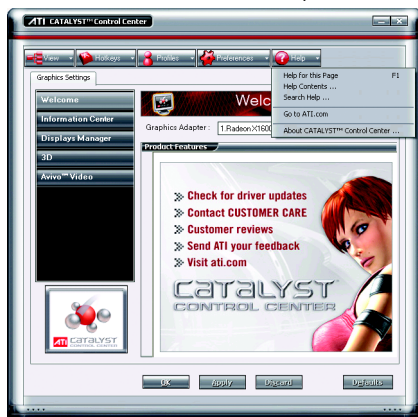
The Preferences page helps to restore defaults, change skins, and update the CATALYST Control Center. The CATALYST Control Center Preferences page contains the following options:



- Always on Top
- Hide Tooltips
- Hide Toolbar Text
- Enable System Tray menu
- Select a Language ...
- Select a Skin ...
- Restore Factory Defaults ...

Help Properties:

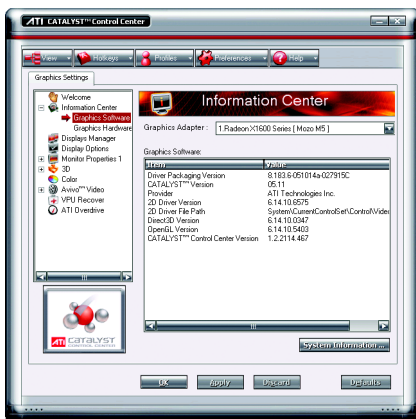
The CATALYST Control Center Help feature allows you to access the comprehensive online help, register your product, or generate a problem report should you require technical support. The CATALYST Control Center Help feature offers the following options:



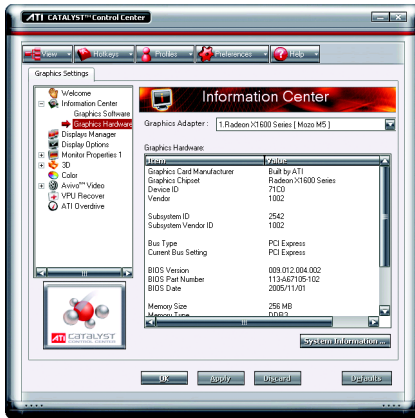
- Help for this Page
- Help Contents ...
- Search Help ...
- Go to ATI.com
- About CATALYST Control Center ...

Information Properties:

The Information Center provides detailed information about the installed graphics hardware and associated software.



- Graphics Software
- Graphics Software includes information such as installed 2D and 3D driver versions, OpenGL® version, and Catalyst® Control Center version.



■ Graphics Hardware

Graphics Hardware includes information about each installed graphics card, such as the installed, graphics chipset, device ID, bus type, memory size, and BIOS version.

Displays Manager :



■ Displays Manager Standard View

Use Displays Manager Standard View to set your desktop resolution, arrange your displays, enable secondary devices such as a TV, or use the Wizard to help you configure your display(s).



- Displays Manager Advanced View
Use Display Manager Advanced View to set your desktop resolution, the display refresh rate, and arrange your displays.

Display Options :

The Display Options aspect gives you additional control to optimize performance of OpenGL® and Direct 3D® applications.



- Use 3D Refresh Rate Override to set a refresh rate of your choice when a full-screen application or game has a default refresh rate that is lower than optimal.
- Choose one of the Display Detection Options to prevent screen flicker when detecting a display.
- If you are using an older TV or one that has non-standard inputs that may not be automatically detected, use Force TV Detection. When a TV is detected using this method, it appears in the Displays Manager aspect and can be configured as required. However, some features that rely on automatic detection, such as extended desktop, will not be supported.

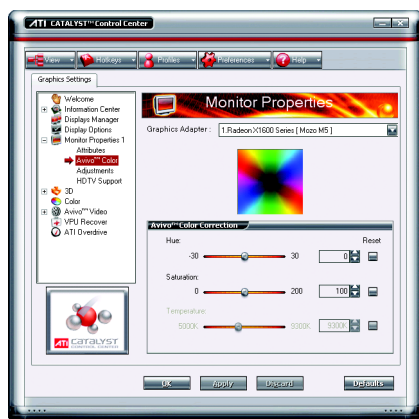
Monitor Properties 1 :



■ Attributes

Monitor Attributes provides information about the attached monitor. You can also enable Extended Display Identification Data.

Extended Display Identification Data (EDID) uses the information provided by the attached monitor to determine the limits for the resolution and refresh rate.



■ Avivo™ Color

Use Avivo™ Color for ATI graphics cards that supports per-display color settings.

Independently set the hue, saturation, and temperature for each attached and enabled display.



■ Adjustments

Use Monitor Adjustments to resize and reposition the computer desktop on your monitor's display screen. You can also adjust the horizontal and vertical sync or enable composite sync.



■ HDTV Support

Use HDTV Support when your CRT or DFP device supports one or more HDTV modes that are not initially listed in the Displays Manager due to an incomplete EDID. Selecting one or both of the HDTV modes adds them to the Force button located in the Displays Manager when the associated display is selected.

If you have a CRT and DFP device and want both to support HDTV, you must go to both HDTV Support pages and select both Add 720p and Add 1080i check boxes.

Note: Forcing a display mode that exceeds its EDID limits may result in permanent damage to your display!

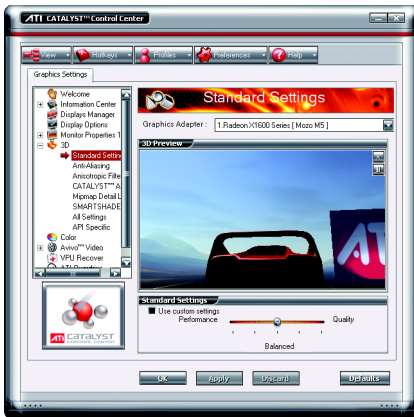
3D :



■ 3D Standard View

You can use 3D settings to adjust features found in such 3D applications as graphic-design and CAD programs and games.

This page is useful when you are not aware of which type of 3D settings your application uses, or when you want to use an overall adjustment control that rapidly configures your application.



■ Standard Settings

The Standard settings page provides access to a universal slider control where you can simultaneously adjust all of the standard 3D settings for any type of 3D application. The slider enables you to adjust for overall system performance, overall 3D image quality, or a balance between the two.



■ Anti-Aliasing

Anti-Aliasing is a technique used to smooth out the jagged edges of three-dimensional curved objects or objects with diagonal edges.

Anti-aliasing can be set to favor either an increase in system processing performance or improved image quality:

Setting for performance is best used when the 3D image is animated and smoothness of motion is the most important consideration.

Setting for quality is best used when having highly detailed and realistic 3D objects is the primary concern.

If you are unsure of how to configure anti-aliasing, use the Let the Application Decide option. Your display will automatically adjust to the application's requirements.



■ Anisotropic Filtering

Anisotropic filtering is a technique that preserves detail on surfaces that have three-dimensional perspective and fade away into the background. It works best when used in conjunction with Mipmapping.

Anisotropic filtering can be set to favor either an increase in system processing performance or improved image quality:

Setting for performance is best used with applications that display objects with smooth, simple surfaces, like those seen in CAD applications.

Setting for quality is best used with applications that display highly detailed scenes, backgrounds, and textured objects, like those seen in 3D games.

If you are unsure how to configure anisotropic filtering, use the Let the Application Decide option. Your display will automatically adjust to the application's requirements.



■ CATALYST™ A.I.

The CATALYST™ A.I. helps to enable or disable application specific optimization of the video driver. You can set the level of optimization by moving the slider from low to high.



■ Mipmap Detail Level

Mipmapping is a texturing technique that preserves the detail on a 3D object's surface as it moves into the background. A series of low- and high-resolution texture maps are stored in memory and selectively used to create the object's surface, depending on what level of detail is needed.

Mipmap detail level can be set to favor either an increase in system processing performance or improved image quality:

Setting for performance is best used when the 3D image is animated and smoothness of motion is the most important consideration.

Setting for quality is best used when high surface detail is required, especially if the animated object rotates or moves into the background.



■ SMARTSHADER™

SMARTSHADER technology incorporates major advances in the area of Pixel Shaders, which are small programs that execute on every pixel rendered to the display device. With support for up to six textures in a single rendering pass, the memory bandwidth constraints associated with multi-pass rendering can be greatly reduced, which translates into better rendering performance. By doubling the maximum allowable length of the shader programs, more complex effects can be created to accurately model the visual properties of materials and surfaces, including hair, skin, wood, and water.

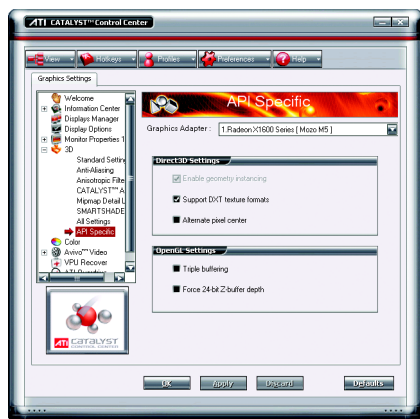


■ All settings

The All Settings page combines all of the principal 3D features onto a single page, without any preview window, allowing for quick access and adjustment. You can change the settings for the following 3D features as you normally would on each feature's own page:

- Anti-aliasing
- Anisotropic filtering
- Texture preference
- Mipmap detail level
- Wait for display refresh
- SmartShader™ effects

This page is useful when it is not necessary to preview the adjusted settings because the effect is already known or understood.



■ API-Specific

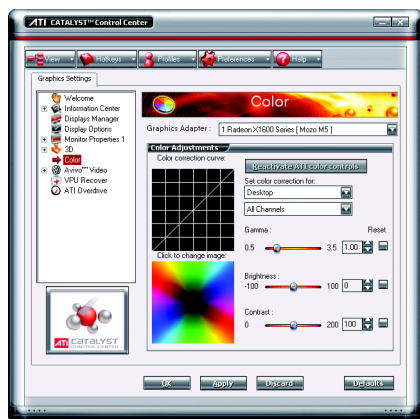
The 3D API-Specific dialog helps to select settings that are exclusively for the Direct3D® and OpenGL® Application Programmable Interfaces (API). These settings are provided for resolving certain incompatibilities within 3D applications that use one of these APIs.

Use this dialog when you are know which type of API (Direct3D® or OpenGL®) your 3D application uses, and you want to select a particular API-specific feature.

If you are not sure which API your 3D application uses, consult the documentation of your 3D application.

Color :

The Color page helps to adjust the color properties of your Desktop and Full Screen 3D applications and games. Use the Color Correction Images to preview the changes before applying them. The Color curve is a graphical representation of all the values of gamma, brightness, or contrast. The color curve line will reflect any changes made to these elements.



Set color correction for:

■ Desktop

Adjust the overall richness of color by using the Gamma control. To adjust the overall brightness use the Brightness control, and the overall contrast use the Contrast control.

■ Full Screen 3D

Adjusting the Gamma control alters the overall richness of color. Adjusting the Brightness control alters the overall brightness. Adjusting the Contrast control alters the overall contrast. Adjusting the Gamma can be useful for CAD applications that rely heavily on color coding or applications that require realistic color.

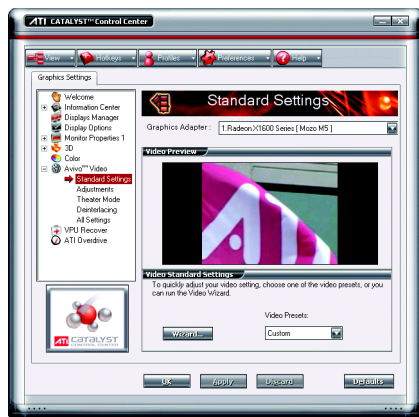
Adjusting the Brightness and Contrast can be useful for 3D games that display dimly lit scenes.

Avivo™ Video :



■ Avivo Video Standard View

Use the Avivo™ Video aspect to apply standard video settings with a Wizard or selecting a video preset. Use Adjustments to configure gamma, brightness, and hue. Use Theater Mode to set aspect ratio and overlay display mode. Preview your changes before applying them.



■ Standard Settings

To quickly adjust your video settings choose one of the video presets or use the Video Wizard to configure your display devices.



■ Adjustments

Use Avivo™ Video Adjustments to manually set Gamma, Brightness, Contrast, Saturation, and Hue.



■ TheaterMode

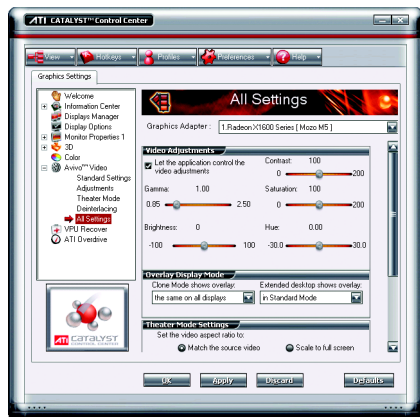
Use Theater Mode to change the way you view streaming video.



■ Deinterlacing

Deinterlacing creates a sharp image from the two video fields of interlaced video. Select one of five options for deinterlacing video for better viewing.

- Auto Detect lets the multimedia driver to select the best deinterlacing scheme for different video sources and sizes.
- Bob deinterlacing, when selected, removes every other line of the video image and is recommended for motion video.
- Adaptive deinterlacing, when selected, reacts to the amount of motion in the video and apply a media filter on a motion block and apply weave on the remaining blocks.
- Motion Adaptive deinterlacing, when selected, applies the advanced motion detection to deinterlace the video.
- Weave does not apply any deinterlacing.



■ All Settings

The All Settings page combines all of the principal Video features onto a single page, without any preview window, allowing quick access and adjustment.

This page is useful when it is not necessary to preview the adjusted settings because the effect is already known or understood.

VPU Recover :

VPU Recover enables the ATI display driver to detect when the graphics processor stops responding to display-driver instructions. When this happens, the display driver attempts to reset the graphics hardware. In most cases, VPU Recover will be able to reset the graphics processor without requiring a system restart.

Should the computer be unable to recover from a crash, VPU Recover will switch the computer to software rendering mode, allowing you to save any work in progress before restarting the computer.



- Enable VPU Recover
- Prepare an error report if VPU Recover is activated, for submission to ATI Technologies. Allows the VPU Recover, once it is activated, to generate an error report that you can send to ATI via e-mail.

ATI Overdrive :

Use the ATI Overdrive™ aspect to maximize the performance of the graphics processing unit (GPU) on your graphics card. An on-chip thermal sensor constantly monitors the temperature of the GPU allowing the maximum clock speed to be maintained while avoiding overheating. If the GPU gets too hot, the ATI Overdrive aspect will automatically decrease the clock speed until a safe temperature is reached. The ATI Overdrive aspect will never reduce the graphics processor speed below the default clock speed.



3.2. Windows® 2000 Driver Installation

With Windows running on your computer, you need to install the graphics card driver to take advantage of the higher performance, resolutions, and special graphics features of the graphics card. To ensure you install the latest driver, insert the Installation CD that shipped with your graphics card.

To install the graphics card driver for Windows® 2000, please insert the Installation CD. Then the AUTORUN window will show up. Click **Install Display Driver** item, and follow the wizard to install the driver.

If Windows® does not show the CD automatically, please run following steps:

1. Click the **Start** button on the control bar.
2. Select **Run**.
3. Type the following: D:\SETUP.exe
(If D is not your CD-ROM drive, substitute D with the correct drive letter.)
4. Click **OK**.
5. Click on **Install Display Drivers** to begin the Installation Wizard.
6. Click **Next**.
7. Click **Yes** to the license agreement.
8. Follow the Wizard's on-screen instructions to complete the installation.



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

4. Troubleshooting Tips

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

- Check that the card is seated properly in the PCI Express x 16 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.
- Restart your computer. Press the **F8** key on your keyboard after system starts up. When the Windows Advanced Options Menu appears, select Safe Mode and press Enter. After getting into Safe Mode, in Device Manager check whether the driver for the graphics card is correct.
- 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

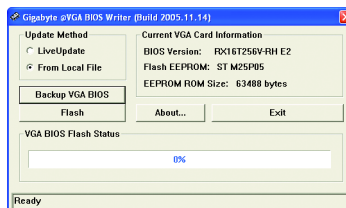
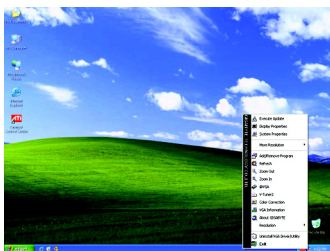
5.1. How to Reflash the BIOS

5.1.1. Reflash BIOS in MS-DOS mode

1. Extract the downloaded Zip file to your hard disk(s) or floppy disk. This procedure assumes drive A.
2. Restart the computer in MS-DOS mode. (For Windows 2000/XP, you need a startup disk to restart the computer in MS-DOS mode.)
3. Change the command prompt to A:\>.
4. To back up the current BIOS, at the A:\> prompt, type `[BIOS flash utility name] -s [BIOS file name]` (example: `gvf17 -s rx16t8vr.e1`) and press **Enter**.
5. To flash BIOS, at the A:\> prompt, type `[BIOS flash utility name] -p [BIOS file name]` (example: `gvf17 -p rx16t8vr.e2`) and press **Enter**.
6. Wait until it's done, then restart your computer.

5.1.2. Reflash BIOS in Windows mode

1. After installing the display drivers, you will find a GIGABYTE  icon in the lower-right corner of the Taskbar. Right-click to select the @VGA utility.



@VGA flash BIOS utility.

2. Update BIOS through the Internet
 - a. Select the **Live Update** check box and click **Flash**. Then @VGA will automatically download the BIOS for your card from GIGABYTE @VGA server and do the update for you. (@VGA will not download/update the BIOS if it detects the current BIOS on your card is the latest one.)
3. Update BIOS NOT through the Internet
 - a. Download the BIOS ZIP file for your card from GIGABYTE website and extract it to your hard disk (or floppy disk).
 - b. Select the **From Local File** check box and then click **Flash**.
 - c. Select the BIOS file from your hard disk (or floppy disk).
 - d. Complete the update procedure following the on-screen instructions.

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

Radeon X1600XT 2D Single Display Modes

Display	Maximum	Color Depth (bpp)		
Screen	Refresh Rate	8bpp(256 color)	16bpp(65K color)	32bpp(16.7M)
Resolution	(Hz)	Standard mode	High mode	True mode
640 x 480	200	✓	✓	✓
800 x 600	200	✓	✓	✓
1024 x 768	200	✓	✓	✓
1152 x 864	100	✓	✓	✓
1280 x 768	85	✓	✓	✓
1280 x 960	160	✓	✓	✓
1280 x 1024	120	✓	✓	✓
1600 x 1200	100	✓	✓	✓
1792 x 1344	85	✓	✓	✓
1800 x 1440	70	✓	✓	✓
1856 x 1392	75	✓	✓	✓
1920 x 1080	75	✓	✓	✓
1920 x 1200	85	✓	✓	✓
1920 x 1440	75	✓	✓	✓
2048 x 1536	66	✓	✓	✓

Radeon X1600XT HDTV Display Modes

	Display	Maximum
	Screen	Refresh Rate
	Resolution	(Hz)
480i	640 x 480	30
	704 x 480	30
	720 x 480	30
480p	640 x 480	60
	704 x 480	60
	720 x 480	60
	856 x 480	60
720p	960 x 720	60
	1280 x 720	60
1080i	1920 x 1080	30

* The table is for reference only. The actual resolutions supported depend on the monitor you use.

