# NVIDIA® Graphics Accelerator

## User's Manual

Rev. 105

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HIGH-DEFINITION MULTIMEDIA INTERFACE

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# 1. Introduction

## 1.1. Minimum System Requirements

- Hardware
  - Intel® Pentium® 4 or AMD Athlon™ XP class
  - 2GB system memory (4GB recommended)
  - Optical drive for software installation (CD-ROM or DVD-ROM drive)

- Operating System
  - Windows® 8
  - Windows® 7
  - Windows® Vista




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.

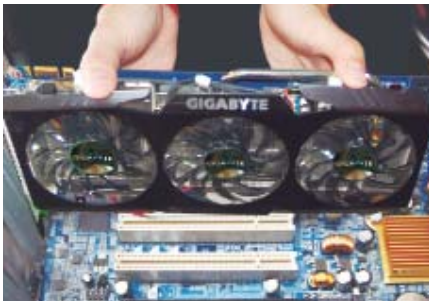
Inspect the card carton for obvious damage. Shipping and handling may cause damage to your card. Be sure there are no shipping and handling damages on the card before proceeding.

- **DO NOT APPLY POWER TO YOUR SYSTEM IF THE GRAPHICS CARD IS DAMAGED.**
- **In order to ensure that your graphics card can work correctly, please use official GIGABYTE BIOS only. Using non-official GIGABYTE BIOS might cause problem(s) on the graphics card.**

# 2.1. Hardware Installation

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

Step 1.
Locate the PCI Express x16 slot. If necessary, remove the metal cover from this slot; then align your graphics card with the PCI Express x16 slot, and press it in firmly until the card is fully seated.

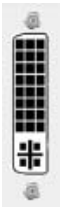


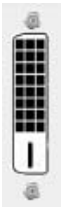

NOTE Make sure that the gold edge connector of the graphics card is securely inserted.

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



Step 3.
Connect the appropriate cable to the card and the display.


To Flat Panel Display


To Flat Panel Display


To HDMI Monitor


To Mini HDMI Monitor


To D-sub Monitor


To Mini DisplayPort Monitor


To Mini DisplayPort Monitor

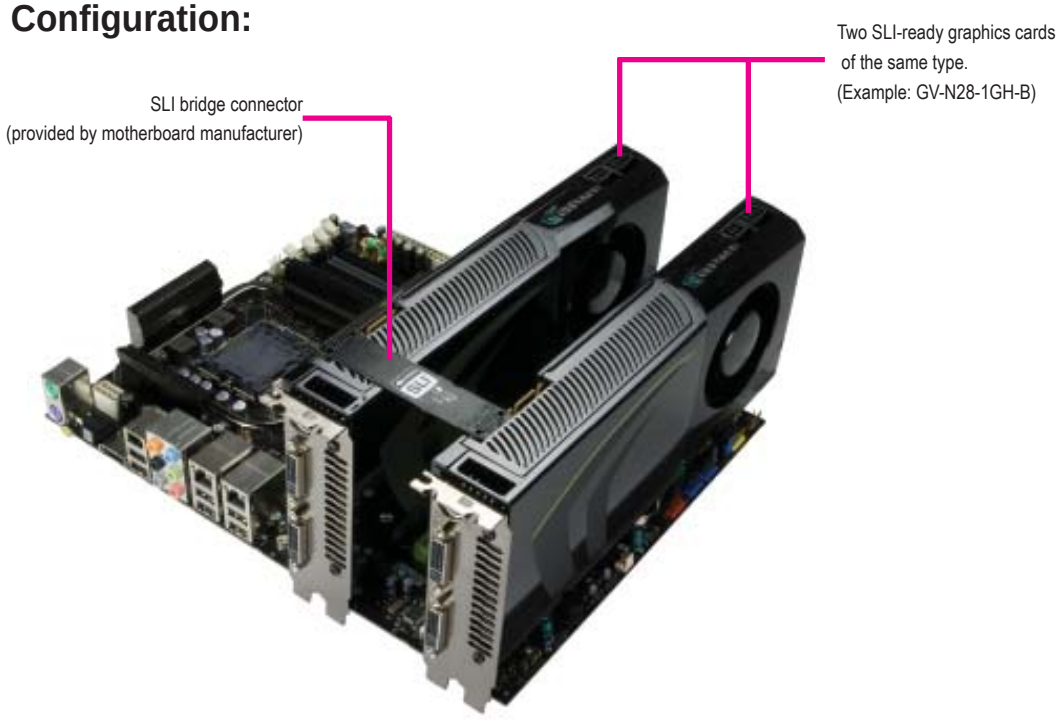
## How NVIDIA®SLI™ (Scalable Link Interface) technology works:

If you are planning on using this graphics card as part of an SLI system, the following are required:

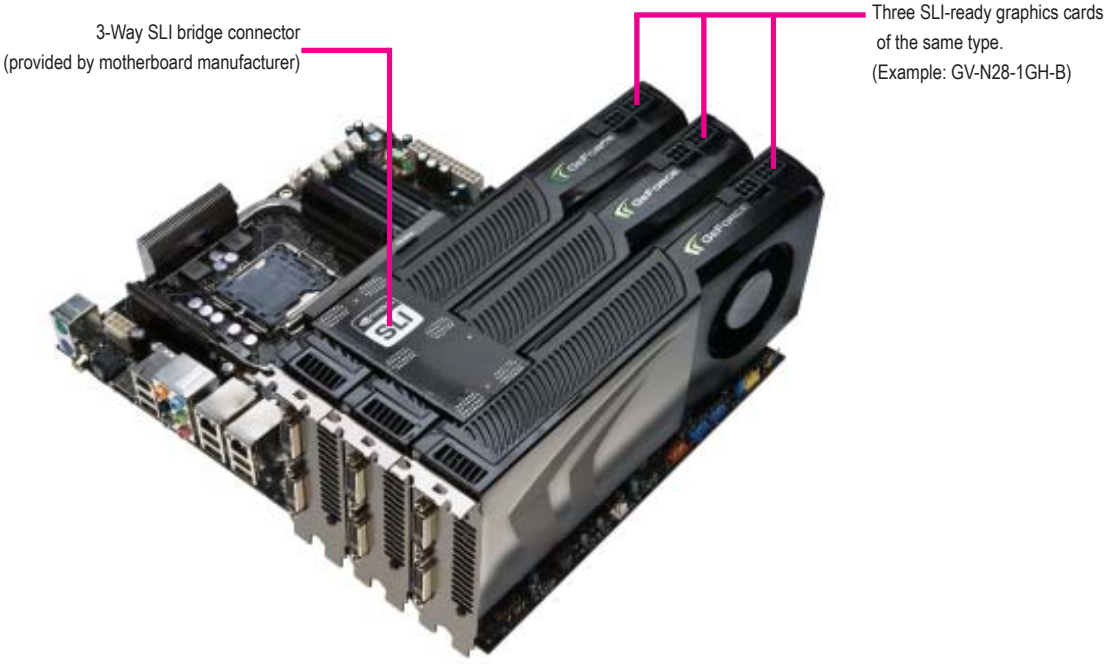
- An SLI certified motherboard with two/three PCIe x16 slots and correct chipset driver
- An SLI bridge connector or 3-way SLI bridge connector

In an SLI configuration, two/three SLI-ready graphics cards of the same model and the same manufacturers are connected together via SLI bridge connector in a system that provides two/three x16 PCI Express slots to scale graphics performance. The picture below shows that two and three graphics cards are linked in parallel in an SLI configuration.

## SLI Configuration:




## 3-Way SLI Configuration:



# 3. Software Installation

Notice the following guidelines before installing the drivers:

1. First make sure your system has installed DirectX 9 or later version.
2. Make sure your system has installed the appropriate motherboard drivers (for the motherboard drivers, please contact the motherboard manufacturer.)

Notice : The photos in this manual are for reference only and may not match what you exactly see on your screen

## 3.1. Driver and Utility Installation

### 3.1.1. Driver Installation

After installing the operating system, insert the driver disk into your optical drive. The driver Autorun screen is automatically displayed which looks like that shown in the screen shot below. (If the driver Autorun screen does not appear automatically, go to My Computer, double-click the optical drive and execute the setup.exe program.)




Step 1:
Click the **Install Display Driver** item.




Step 2:
Click the **AGREE AND CONTINUE** button.

NOTE For software MPEG support in 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 3:
Check the Express then click the **NEXT** button.




Step 4:
Check the Install NVIDIA Update then click the **NEXT** button.




The system is installing the components.




Step 5:
Click the **RESTART NOW** button to restart the computer. Then the driver installation is completed.

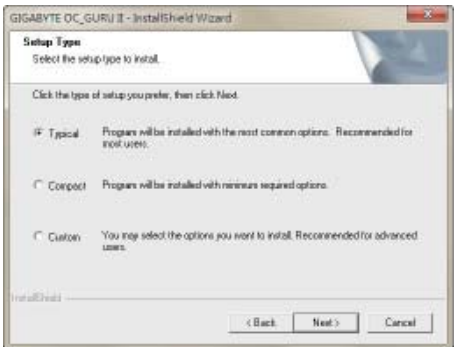
## 3.1.2. GIGABYTE OC Guru II




Step 1:
Click the **GIGABYTE OC Guru II** item.



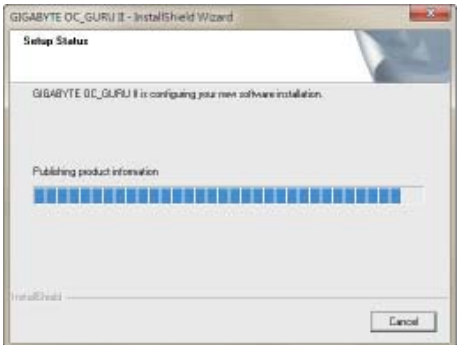
Step 2:
Choose the language for the installation and click the **OK** button.




Step 3:
Choose the Typical and click the Next button




Step 4:
Click the Finish button. Then the installation of the GIGABYTE OC Guru II is completed.



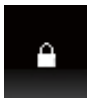

The system is installing the components.

## OC GURU II: Profiles

Users have 5 Profiles, 1/ 2/ 3/ 4/ 5 , to set different profiles.
By clicking 1/ 2/ 3/ 4/ 5, users can switch around these profiles




This page indicates where users can set up MONITORING、GPU CLOCK、MEMORY CLOCK、FAN、MINIMUM VOLTAGE、POWER TARGET、OSD、ONLINE SUPPORT.



Function: When it's locked, GPU CLOCK/MEMORY CLOCK/MINIMUM VOLTAGE/POWER TARGET can not be changed.



Function: When it's unlocked, GPU CLOCK/MEMORY CLOCK/MINIMUM VOLTAGE/POWER TARGET can be adjusted.




Function: Apply to what has just been setup.

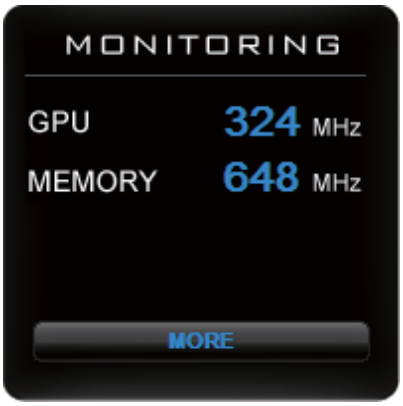



Function: Return to the previous applied setup.




Function: Restore the default setup.

## MONITORING:

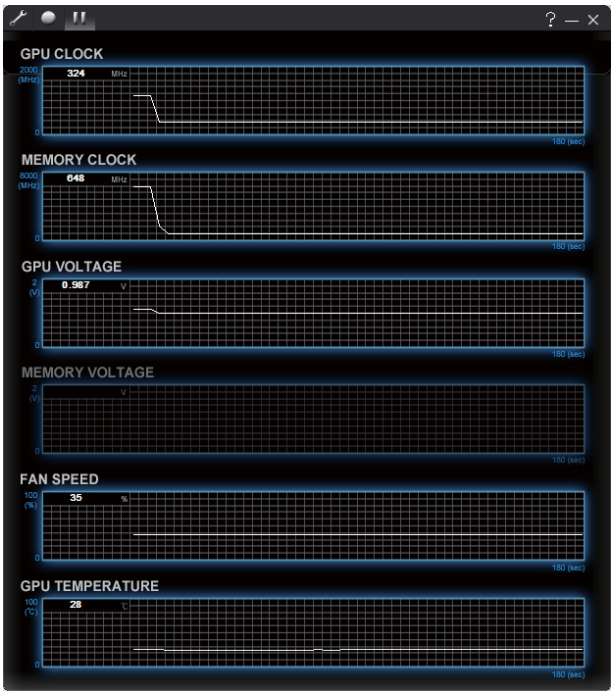



Show real time GPU Clock/MEMORY Clock




Click MORE to MONITORING PANEL

## MONITORING PANEL:

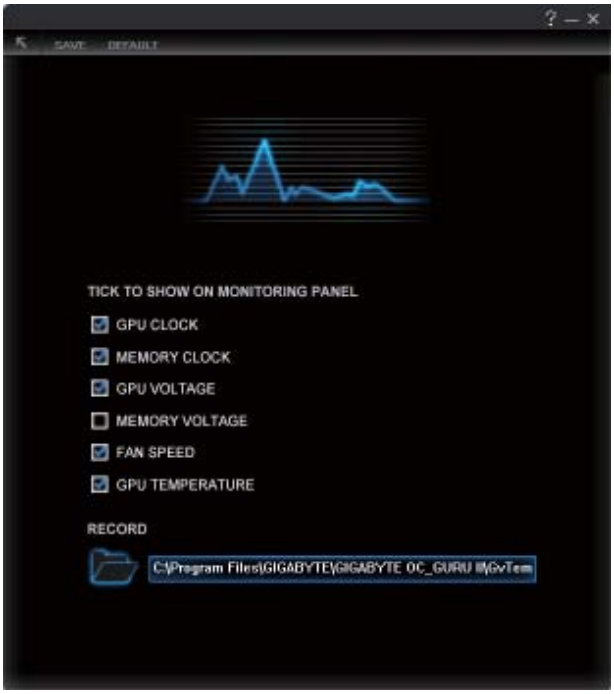



 Function: Monitoring Panel Settings.

 Function: Start recording.

 Function: Stop recording.

Monitoring panel settings:






Function: Show the chosen items on the MONITORING PANEL.




Function: Set up a folder to save the recorded files.



Function: Return to MONITORING Page.




Function: Save the settings.




Function: Restore the default setup.

## GPU CLOCK

Under nVIDIA new structure, there are BASE and BOOST CLOCK under GPU Clock.
BASE CLOCK is the combination of DEFAULT BASEC LOCK and OFFSET.
BOOST CLOCK is the combination of DEFAULT BOOST CLOCK and OFFSET.
Under most cases, BASE CLOCK is smaller/ equal to BOOST CLOCK.









When changing DEFAULT CLOCK,  represents PLUS and  represents MINUS.




Show GPU OFFSET, users can enter numbers directly to change GPU OFFSET.

## MEMORY CLOCK:




MEMORY CLOCK is the combination of DEFAULT CLOCK and OFFSET.



When changing MEMORY CLOCK,  represents PLUS and  represents MINUS.




Show MEMORY OFFSET, users can enter numbers directly to change MEMORY OFFSET.

**FAN**

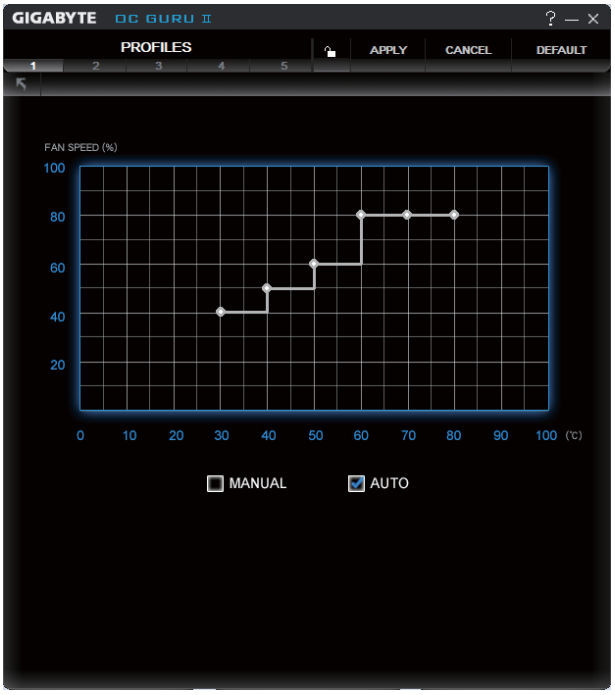
Show real time fan speed and fan mode




SPEED: shows real time fan speed, it will show 0% if using a passive graphics card.

MODE: shows Auto mode or Manual mode, users can set up in SETTINGS

**SETTINGS:**







AUTO mode, fans will be controlled automatically.




MANUAL mode, users can adjust fan behavior by adjusting the blue point on the fan graph.



Return to PROFILES page.

### MINIMUM VOLTAGE




Show and set up MINIMUM VOLTAGE



When changing MINIMUM VOLTAGE,  represents PLUS and  represents MINUS.




Users can enter numbers directly to change MINIMUM VOLTAGE.

### POWER TARGET




Show and set up POWER TARGET



When changing POWER TARGET,  represents PLUS and  represents MINUS.

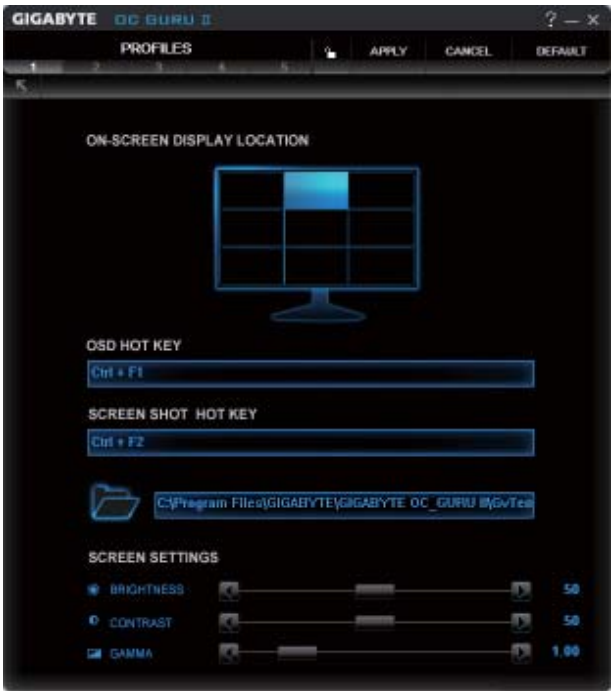



Show OSD HOT KEY and OSD location



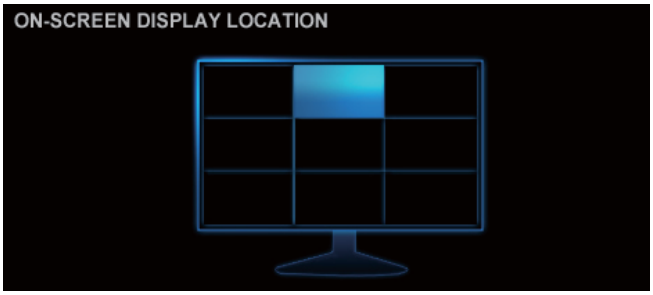

Click SETTINGS to OSD settings

## OSD settings:






Function: Return to SETTINGS Page.




Function: Set up where OSD will show during games through clicking on one of the 9 squares.




Function: Setup a shortcut key for SOFTWARE On-Screen Display (OSD).




Function: Setup shortcut keys and a folder to save screenshots.




The settings can be adjusted by clicking on  or by dragging the scrollbar.

## ONLINE SUPPORT




Click to enter ONLINE SUPPORT

ONLINE SUPPORT:




1.Update BIOS:




The BIOS version of your VGA is shown in the page. By clicking the item while you are connected to the internet, the software detects if there is an updated BIOS version available. You can download the updated BIOS version and it installs automatically.

2.Update Driver




The DRIVER version of your VGA is shown in the page.
By clicking the item while you are connected to the internet, the software detects if there is an updated DRIVER version available. You can download the updated DRIVER version and it installs automatically.

3.Update OC GURU




The OC GURU version of your VGA is shown in the page.
By clicking the item while you are connected to the internet, the software detects if there is an updated OC GURU version available. You can download the updated OC GURU version and it installs automatically.

4.PRODUCT INFO



When you are connected to the internet, clicking the item will link to the official GIGABYTE product page.

5.CONTECT US



When you are connected to the internet, clicking the item will link to the official GIGABYTE CONTECT US page.

6.FAQ

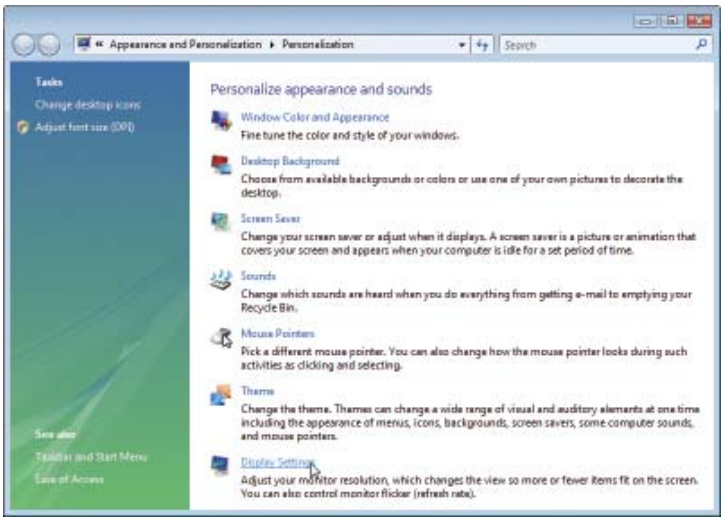


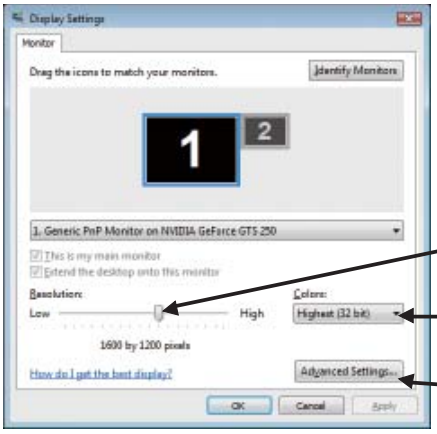
When you are connected to the internet, clicking the item will link to the official GIGABYTE product FAQ page.

# 3.2. Display Properties Pages

## Display Settings (Resolutions and Color Quality for Windows)

To access **Display Settings** page, right-click on desktop and select **Personalize**, then the Personalization windows will show up. Select **Display Settings** to adjust the screen resolution and color quality settings.



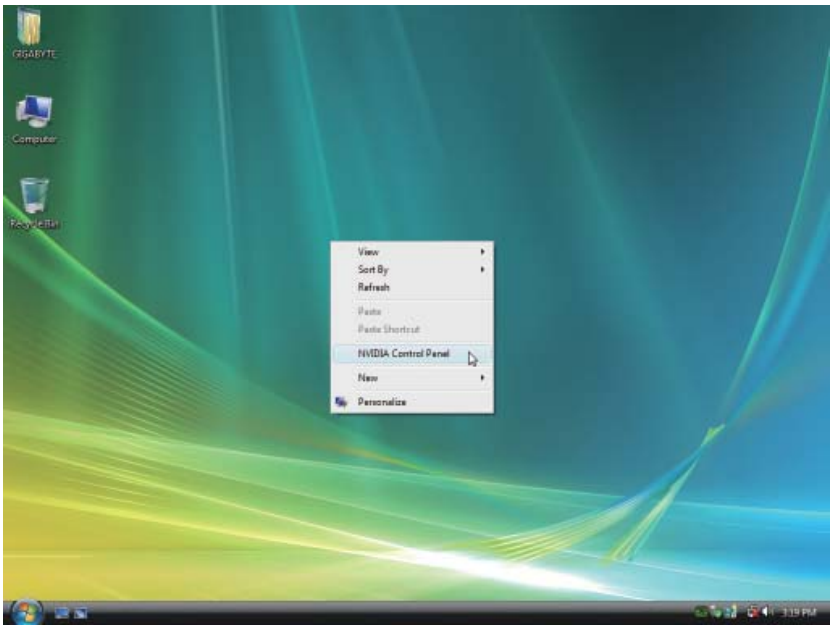

You can move the slider to change the resolution.

You can click the item to change the color quality.

Click the **Advanced** button for advanced settings.

## 3.3. Accessing NVIDIA Control Panel

After installation of the display driver, right-click on the desktop and select **NVIDIA Control Panel.**
The **NVIDIA Control Panel** is used to configure all your graphics card settings.




Right-click on the desktop and select **NVIDIA Control Panel.**




In the NVIDIA Control Panel, select a category to alter specific NVIDIA display settings.

- 3D settings
- Display
- Stereoscopic 3D
- Video

## 3D Settings

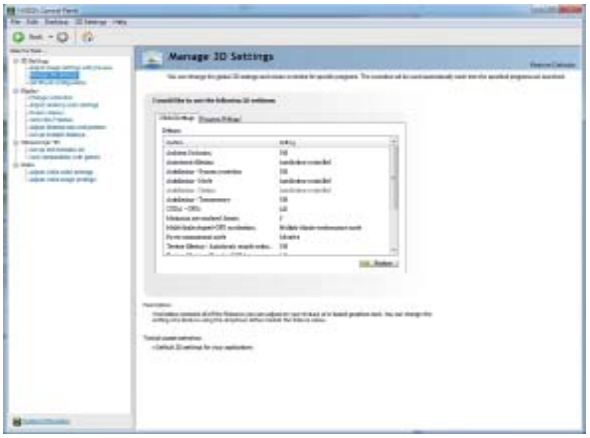
Tasks in the 3D Settings pages allow you to do the following:

- Change the image and rendering settings of your 3D applications and games that utilize Direct3D and OpenGL technology.
- Override the shipped clocked frequencies of your GPU and GPU memory to increase your GPU performance.
- Assign specific 3D settings to a game so that these settings automatically load when a game is launched.



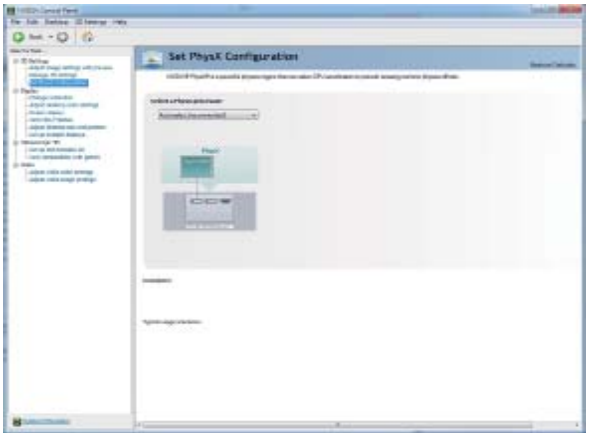

### ■ Adjust Image Settings with Preview

If you are unfamiliar with 3D technology or not an advanced graphics user, use the Adjust Image Settings with Preview page to preview any changes you make for improved image quality and rendering.




### ■ Manage 3D Settings

The Manage 3D Settings page enables you to establish default 3D settings to use for all your Direct3D or OpenGL applications and to establish a unique set of 3D settings for a particular game or application.



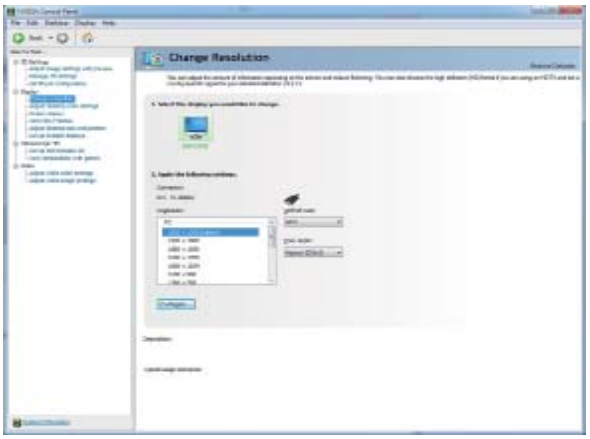

### ■ Set PhysX confiquration

NVIDIA® PhysX® is a powerful physics engine that can utilize GPU acceleration to provide amazing real-time physics effects.

## Display

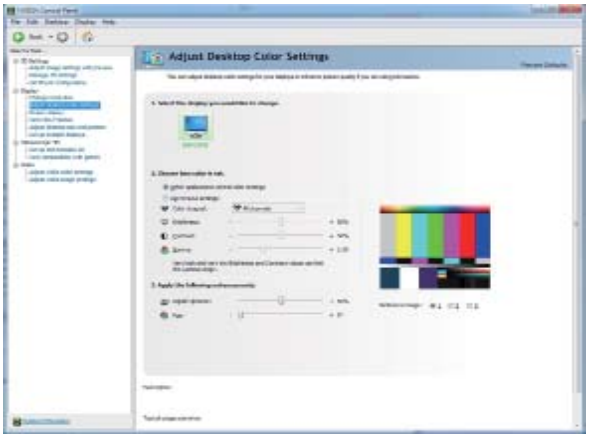
A variety of display features enable you to further manipulate and configure your display settings to optimize the use of your displays. Tasks in the Display pages allow you to do the following:

- Move CRT screen position
- Change resolution
- Adjust desktop color settings
- Rotate display
- Manage custom resolutions
- Set up multiple displays



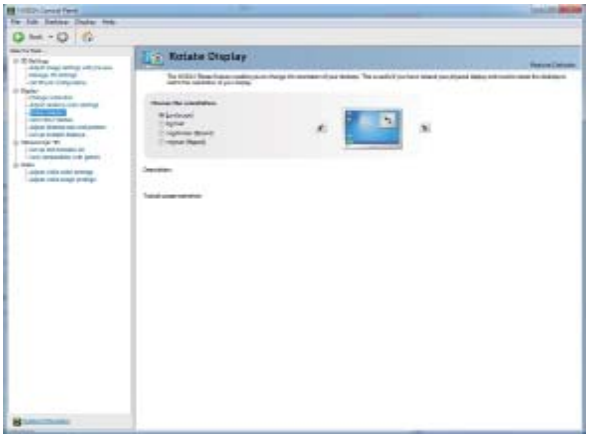

### ■ Change Resolution

Using the Change Resolution controls, you can change the color setting, reduce screen flickering, or adjust the amount of information appearing on your display.




## ■ Adjust Desktop Color Settings

Use this page to set the contrast, sharpness, and color depth (Digital Vibrance) of the images on your desktop. These changes will not affect any video playback. To change video color settings, go to Adjust Video Color Settings under the Video and TV section from the Start page.



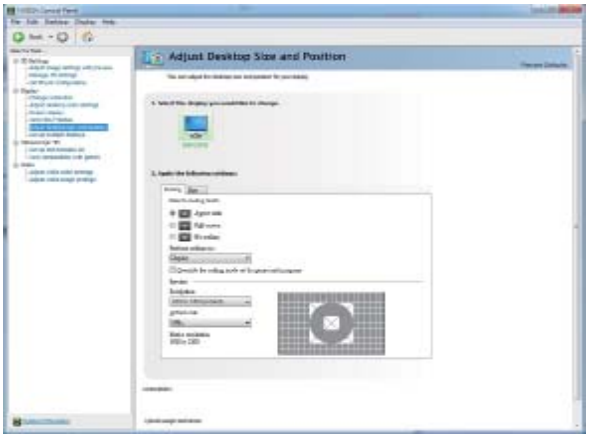

## ■ Rotate Display

The NVIDIA Rotate features enable you to change the orientation of your desktop to portrait, landscape, and inverted modes. This is useful if you have rotated your physical display and need to rotate the desktop to match the orientation of your display.



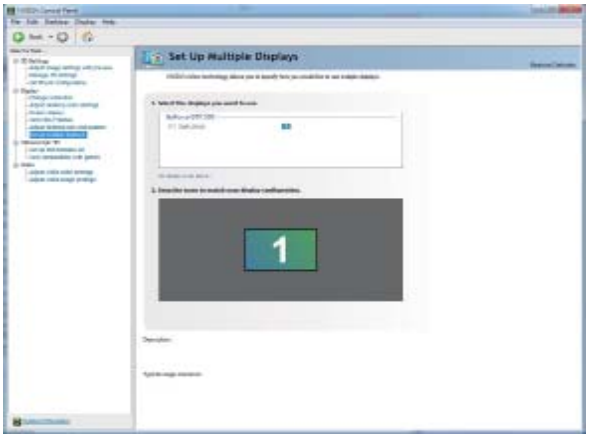

## ■ View HDCP status

Use this page to check if your system is HDCP-capable.




■ Adjust Desktop Size and Position

You can adjust desktop size and position for your displays.

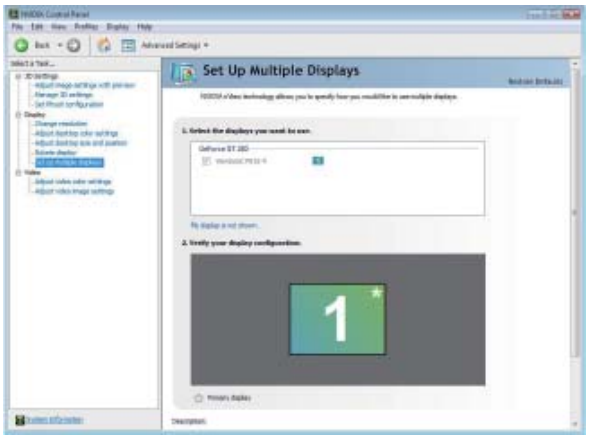



■ Set Up Multiple Displays

NVIDIA nView technology enables you to view your desktop in one of several multi-display modes to make the best use of the displays (monitors) that are connected to your computer.

## Dual-Monitor Setup

You can set the display to output from two monitors on the Set Up Multiple Displays page.




Select your preferred nView display modes here.

- Only use one display (Single)
- The same on both display (Clone)
- Configured independently from each other (Dualview)
- As one large horizontal desktop (Horizontal span)
- As one large vertical desktop (Vertical span)

**(1) The same on both display (Clone)**

Clone mode indicates that both displays in the display pair show images of the same desktop.



Clone Mode

**(2) Configured independently from each other (Dualview)**

Dualview mode indicates that both displays in the display pair function as one virtual desktop. Unlike Horizontal Span or Vertical Span mode, Dualview treats each display as a separate device. This means that the taskbar will not be stretched across displays and 3D applications are not accelerated as efficiently as when the application spans displays.



Dualview Mode

**(3) As one large horizontal desktop (Horizontal span)**

Horizontal Span mode indicates that both displays in the display pair function as one wide virtual desktop. The width of each display is half the width of the total virtual desktop width.



Horizontal Span Mode

**(4) As one large vertical desktop (Vertical span)**

Vertical Span mode indicates that both displays in the display pair function as one tall virtual desktop. The height of each display is half the height of the total virtual desktop height.

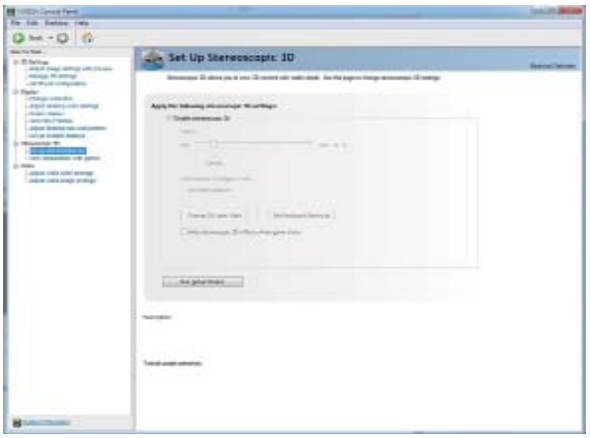


Vertical Span Mode

## Stereoscopic 3D

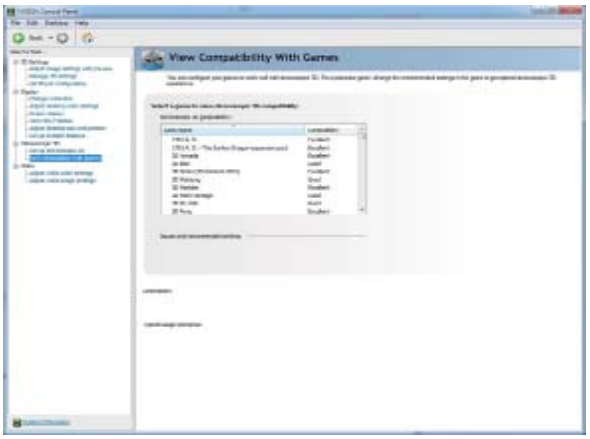
Tasks in the Stereoscopic 3D pages allow you to do the following:

- Set up stereoscopic 3D
- View compatibility with games




### ■ Set Up Stereoscopic 3D

You can enable stereoscopic 3D, set depth, and set your 3D displays and 3D glasses. (To enable stereoscopic 3D function, you will need 3D displays and glasses. The details: http://www.nvidia.com/object/3d-vision-main.html)



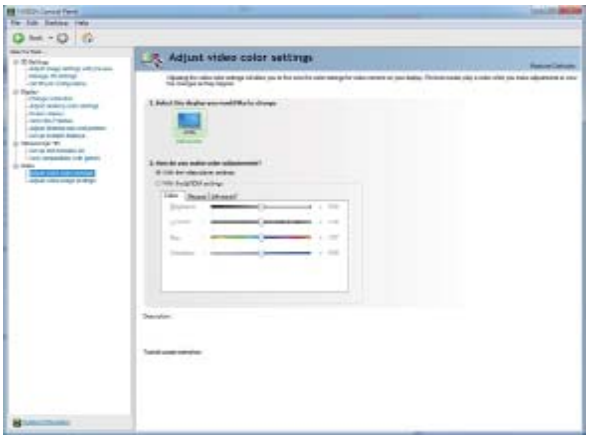

### ■ View Compatibility With Games

You can view stereoscopic 3D compatibility with games.

## Video & Television

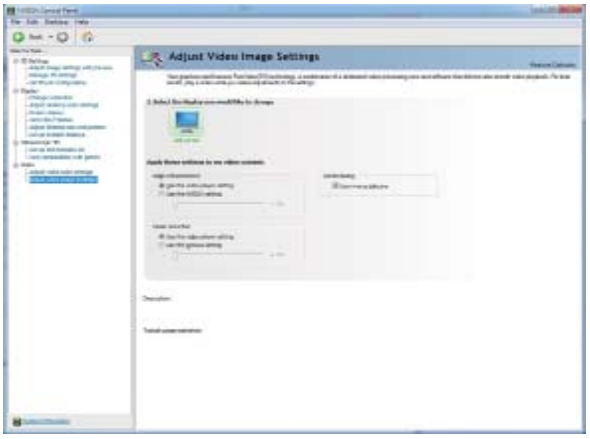
Video and television features are similar to those for analog for optimal viewing. Tasks in the Video & Television pages allow you to do the following:

- Adjust your television picture quality and video color settings for the best possible viewing in its environment.
- Change the position and size of the desktop video to best fit your television screen.




### ■ Adjust Video Color Settings

Use the controls on this page to fine tune the color settings for video content on your display. Select one of the test images to monitor your changes. For best results, play a video while you make adjustment to view the changes as they happen.




### ■ Adjust Video Image Settings

Use the controls on this page to fine tune the image settings for video content on your display. You can choose to use inverse telecine, adjust edge sharpness, or apply noise filtering. For best results, play a video while you make adjustment to view the changes as they happen.

Note:
Support for some features under Windows Vista is in development and may not be available with your ForceWare graphics driver version. Consult the release notes for updated information on
supported features.

# 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 x16 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 install the graphics driver.
- Restart your computer.
  Press <F8> 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 you are not able to find the desired monitor color/resolution settings:
  The color and screen resolution options available for selection depend on the graphics card being installed.




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

# 5.1. Regulatory Statements

## Regulatory Notices

This document must not be copied without our written permission, and the contents there of must not be imparted to a third party nor be used for any unauthorized purpose. Contravention will be prosecuted. We believe that the information contained herein was accurate in all respects at the time of printing. GIGABYTE cannot, however, assume any responsibility for errors or omissions in this text. Also note that the information in this document is subject to change without notice and should not be construed as a commitment by GIGABYTE.

## Our Commitment to Preserving the Environment

In addition to high-efficiency performance, all GIGABYTE VGA Card fulfill European Union regulations for RoHS (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) and WEEE (Waste Electrical and Electronic Equipment) environmental directives, as well as most major worldwide safety requirements. To prevent releases of harmful substances into the environment and to maximize the use of our natural resources, GIGABYTE provides the following information on how you can responsibly recycle or reuse most of the materials in your "end of life" product.

## Restriction of Hazardous Substances (RoHS) Directive Statement

GIGABYTE products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at GIGABYTE are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

## Waste Electrical & Electronic Equipment (WEEE) Directive Statement

GIGABYTE will fulfill the national laws as interpreted from the 2002/96/EC WEEE (Waste Electrical and Electronic Equipment) directive. The WEEE Directive specifies the treatment, collection, recycling and disposal of electric and electronic devices and their components. Under the Directive, used equipment must be marked, collected separately, and disposed of properly.

## WEEE Symbol Statement



The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
- If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.

Finally, we suggest that you practice other environmentally friendly actions by understanding and using the energy-saving features of this product (where applicable), recycling the inner and outer packaging (including shipping containers) this product was delivered in, and by disposing of or recycling used batteries properly. With your help, we can reduce the amount of natural resources needed to produce electrical and electronic equipment, minimize the use of landfills for the disposal of "end of life" products, and generally improve our quality of life by ensuring that potentially hazardous substances are not released into the environment and are disposed of properly.

## China Restriction of Hazardous Substances Table

The following table is supplied in compliance with China's Restriction of Hazardous Substances (China RoHS) requirements:



关于符合中国《电子信息产品污染控制管理办法》的声明
Management Methods on Control of Pollution from Electronic Information Products
(China RoHS Declaration)

产品中有毒有害物质或元素的名称及含量
Hazardous Substances Table

| 部件名称(Parts) | 有毒有害物质或元素(Hazardous Substances) | | | | | |
|---|---|---|---|---|---|---|
| | 铅(Pb) | 汞(Hg) | 镉(Cd) | 六价铬(Cr(VI)) | 多溴联苯(PBB) | 多溴二苯醚(PBDE) |
| PCB板<br>PCB | ○ | ○ | ○ | ○ | ○ | ○ |
| 结构件及风扇<br>Mechanical parts and Fan | × | ○ | ○ | ○ | ○ | ○ |
| 芯片及其他主动零件<br>Chip and other Active components | × | ○ | ○ | ○ | ○ | ○ |
| 连接器<br>Connectors | × | ○ | ○ | ○ | ○ | ○ |
| 被动电子元器件<br>Passive Components | × | ○ | ○ | ○ | ○ | ○ |
| 线材<br>Cables | ○ | ○ | ○ | ○ | ○ | ○ |
| 焊接金属<br>Soldering metal | ○ | ○ | ○ | ○ | ○ | ○ |
| 助焊剂，散热膏，标签及其他耗材<br>Flux, Solder Paste, Label and other Consumable Materials | ○ | ○ | ○ | ○ | ○ | ○ |

○:表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。
Indicates that this hazardous substance contained in all homogenous materials of this part is below the limit requirement SJ/T 11363-2006

×:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。
Indicates that this hazardous substance contained in at least one of the homogenous materials of this part is above the limit requirement in SJ/T 11363-2006

对销售之日的所受售产品，本表显示我公司供应链的电子信息产品可能包含这些物质。注意：在所售产品中可能会也可能不会含有所有所列的部件。
This table shows where these substances may be found in the supply chain of our electronic information products, as of the date of the sale of the enclosed products, Note that some of the component types listed above may or may not be a part of the enclosed product.