



# Release 197 Quadro Professional Drivers for Windows - Version 197.54

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## Release Notes



# TABLE OF CONTENTS

- 1 Introduction to Release Notes ..... 1**
  - Structure of the Document ..... 1
  - Changes in this Edition ..... 1
- 2 Release 197 Driver Changes..... 2**
  - Version 197.54 Highlights ..... 3
    - What’s New in Release 197 ..... 3
    - What’s New in Version 197.54 ..... 3
    - Limitations in This Release ..... 3
  - Special Instructional Notes for this Release ..... 4
    - Turning Off V-Sync to Boost Performance ..... 4
    - NVIDIA Application Configuration Engine (ACE) ..... 4
    - SLI Multi-OS - GPU Assignment in System Virtualization ..... 5
  - Changes in Version 197.54 ..... 6
    - Windows Vista/Windows 7 32-bit Issues ..... 6
  - Changes in Version 197.28 ..... 7
    - Windows Vista/Windows 7 32-bit Issues ..... 7
    - Windows Vista/Windows 7 64-bit Issues ..... 7
  - Changes in Version 197.03 ..... 8
    - Windows Vista/Windows 7 32-bit Issues ..... 8
    - Windows Vista/Windows 7 64-bit Issues ..... 8
  - Changes in Version 196.75 ..... 9
    - Windows Vista/Windows 7 32-bit Issues ..... 9
    - Windows Vista/Windows 7 64-bit Issues ..... 9
  - Open Issues in Version 197.54 ..... 10
    - Windows Vista/Windows 7 32-bit Issues ..... 10
    - Windows Vista/Windows 7 64-bit Issues ..... 10
  - Not NVIDIA Issues ..... 12
    - Windows Vista Considerations ..... 12
    - Windows 7 Considerations ..... 12
    - Unsupported Features ..... 13
    - OpenGL Application Issues ..... 15
    - Application Issues ..... 15

# TABLE OF CONTENTS

- Other Issues..... 16
- Known Product Limitations ..... 17
  - Using HDMI/DisplayPort Audio with Displays that have a High Native Resolution..... 17
  - Using HDMI/DisplayPort Displays that do not Support Audio..... 18
  - Using HDMI/DisplayPort Audio in Dualview or Clone Mode Configurations19
  - GPU Runs at a High Performance Level (full clock speeds) in Multi-display Modes ..... 19
  - Aero Must be Enabled for Windowed SLI AFR Mode Under Vista ..... 19
  - SLI Connector Requirement on NVIDIA Quadro SLI Cards ..... 19
  - Applying Workstation Application Profiles ..... 20
  - 1280x1024 @ 60 Hz not Available on BenQ FP241W Monitors..... 20
  - Gigabyte GA-6BX Motherboard ..... 20
- 3 The Release 197 Driver ..... 21**
  - Hardware and Software Support..... 21
    - Supported Operating Systems..... 21
    - Supported NVIDIA Products..... 22
    - Supported Languages..... 25
  - Driver Installation ..... 26
    - Minimum Hard Disk Space ..... 26
    - Before You Begin ..... 26
    - Installation Instructions..... 26
- Appendix A: Mode Support for Windows ..... 27**
  - General Mode Support Information..... 28
    - Understanding the Mode Format ..... 29
    - Quadro FX, CX, and NVS Series GPUs ..... 30
  - Modes Supported by TV Encoders ..... 32

## LIST OF TABLES

Table A.1	Modes Supported for High Resolution Displays .....	28
Table A.2	Non-standard Modes Supported .....	28
Table A.3	Mode Support for S-Video and Composite Out .....	32
Table A.4	Mode Support for Component YPrPb Out and DVI Out.....	32

# 01 INTRODUCTION TO RELEASE NOTES

This edition of *Release Notes* describes the Release 197 Quadro Professional Drivers for Microsoft® Windows® Vista/Windows 7. NVIDIA provides these notes to describe performance improvements and bug fixes in each documented version of the driver.

## Structure of the Document

This document is organized in the following sections:

- ▶ “[Release 197 Driver Changes](#)” on page 2 gives a summary of changes, and fixed and open issues in this version.
- ▶ “[The Release 197 Driver](#)” on page 21 describes the NVIDIA products and languages supported by this driver, the system requirements, and how to install the driver.
- ▶ “[Mode Support for Windows](#)” on page 27 lists the default resolutions supported by the driver.

## Changes in this Edition

This edition of the *Release Notes* for Windows Vista/Windows 7 includes information about NVIDIA graphics driver version 197.54, and lists changes made to the driver since version 191.87. These changes are discussed beginning with the chapter “[Release 197 Driver Changes](#)” on page 2.

## 02 RELEASE 197 DRIVER CHANGES

This chapter describes open issues for version 197.54, and resolved issues and driver enhancements for versions of the Release 197 driver up to version 197.54. The chapter contains these sections:

- ▶ “Version 197.54 Highlights” on page 3
- ▶ “Special Instructional Notes for this Release” on page 4
- ▶ “Changes in Version 197.54” on page 6
- ▶ “Changes in Version 197.28” on page 7
- ▶ “Changes in Version 197.03” on page 8
- ▶ “Changes in Version 196.75” on page 9
- ▶ “Open Issues in Version 197.54” on page 10
- ▶ “Not NVIDIA Issues” on page 12
- ▶ “Known Product Limitations” on page 17

## Version 197.54 Highlights

This section provides highlights of version 197.54 of the NVIDIA Release 197 Driver for Windows Vista/Windows 7.

- ▶ [What's New in Release 197](#)
- ▶ [What's New in Version 197.54](#)
- ▶ [Limitations in This Release](#)

## What's New in Release 197

The section summarizes the following driver changes in Release 197:

### CUDA Updates

Added support for CUDA 3.0.

### OpenCL Support

Added support for the Open Computing Language (OpenCL) 1.0 for Quadro FX x700 and later as well as Quadro FX 5600 and FX 4600 products.

### OpenGL Updates

Added support for OpenGL 3.2.

## What's New in Version 197.54

- ▶ This driver offers performance improvements over previous driver versions.
- ▶ See [“Changes in Version 197.54”](#) on page 6 for a list of changes and resolved issues in this driver version.

## Limitations in This Release

The following are features that are not currently supported or have limited support in this driver release:

- ▶ **NVIDIA Control Panel Display Category**
  - The Graph tab on the Adjust Desktop Color Settings page is not available.
- ▶ **Workstation Category**
  - The Manage Quadro Plex settings page is not available with this driver version.

## Special Instructional Notes for this Release

This section clarifies instructions for successfully accomplishing the following tasks:

### Turning Off V-Sync to Boost Performance

To get the best benchmark and application performance measurements, turn V-Sync off as follows:

- 1 Open the NVIDIA Control Panel and make sure that *Advanced Settings* is selected from the control panel tool bar.
- 2 From the *Select a Task* pane, under 3D Settings, click **Manage 3D Settings**, then click the Global Settings tab.
- 3 From the Global presets pulldown menu, select **Base profile**.
- 4 From the Settings listbox, select **Vertical sync** and change its value to **Force off**, then click **Apply**.
- 5 From the Global presets pulldown menu, select **3D App - Default Global Settings** (the driver's default profile) or use the application profile that matches the application you are testing, then click **Apply**.

*Be sure to close the NVIDIA Control Panel completely* —leaving it open will affect benchmark and application performance.

### NVIDIA Application Configuration Engine (ACE)

This driver includes the NVIDIA Application Configuration Engine (ACE), which automatically detects the workstation application and configures the appropriate profile settings in the NVIDIA Control Panel.

See the *NVIDIA Quadro Professional Drivers: NVIDIA Control Panel Quick Start Guide* for more information about this feature.

## SLI Multi-OS - GPU Assignment in System Virtualization

On systems with two supported graphics cards installed, this driver supports a system virtualization tool's ability to directly assign a GPU to a guest virtual machine (VM). This direct assignment allows the host and guest VM to each run on their own operating system and with their own GPU and driver.

▶ **Supported Virtualization Software:** Parallels Workstation Extreme

▶ **Supported Graphics Cards**

Up to two different models can be used in a system, from among the following:

- Quadro FX 5800
- Quadro FX 4800
- Quadro FX 3800

▶ **Video BIOS Requirement**

- The graphics card assigned to the guest VM needs video BIOS version 62.00.39.00.00 or later.

For a list of SLI Multi-OS certified workstations, virtualization software, and OS combinations, please see [http://www.nvidia.com/object/sli\\_multi\\_os.html](http://www.nvidia.com/object/sli_multi_os.html) .

## Changes in Version 197.54

The following sections list the important changes and the most common issues resolved since driver version 197.28.

### Windows Vista/Windows 7 32-bit Issues

- ▶ AutoCAD 2011—vertical line corruption appears across the top of the viewport.

## Changes in Version 197.28

The following sections list the important changes and the most common issues resolved since driver version 197.03.

### Windows Vista/Windows 7 32-bit Issues

- ▶ Implemented methods to prevent tearing on each GPU head when DWM is off and V-Sync is on for applications with stringent timing requirements.
- ▶ AutoCAD—the application crashes due to the NVIDIA AutoCAD 2010 performance driver (DirectX).
- ▶ Quadro FX 5600: MSAA depth buffers are not rendered correctly.

### Windows Vista/Windows 7 64-bit Issues

- ▶ Quadro FX 5600: MSAA depth buffers are not rendered correctly.

## Changes in Version 197.03

The following sections list the important changes and the most common issues resolved since driver version 196.75.

- ▶ This driver resolves fan speed issues reported with version 196.75 drivers.

### Windows Vista/Windows 7 32-bit Issues

- ▶ Revit—artifacts appear when graphics are opened in the Render window.
- ▶ OGS—renderings show artifacts that indicate the buffers are cleared/discarded erroneously.

### Windows Vista/Windows 7 64-bit Issues

- ▶ Revit—artifacts appear when graphics are opened in the Render window.
- ▶ OGS—renderings show artifacts that indicate the buffers are cleared/discarded erroneously.
- ▶ Quadro FX 4800: Avid MediaComposer—the application window is not drawn/updated after the window SwapInterval is set from 1 to 0.

## Changes in Version 196.75

The following sections list the important changes and the most common issues resolved since driver version 191.87.

### Windows Vista/Windows 7 32-bit Issues

- ▶ Quadro FX 3800: Avid Deko-tearing occurs.

### Windows Vista/Windows 7 64-bit Issues

- ▶ Monitor information is incorrect in the NVIDIA Control Panel after hot-plugging a display.
- ▶ Adobe Premiere Pro CS5 beta-the application crashes due to a problem with cuCtxDestroy().
- ▶ Adobe Premiere Pro CS5 beta-the application crashes on startup.
- ▶ Inspired-polyline creation thickness and point connections are not displayed correctly.
- ▶ Maya 2010: Driver settings are ignored-quad buffer is initialized even though it is set to Off.
- ▶ Quadro FX 4800: Enabling "swap on V-Sync" results in high CPU usage.
- ▶ Quadro FX 3700: Buffer flip results in tears after 14 seconds with DWM turned off.

## Open Issues in Version 197.54

As with every released driver, version 197.54 of the Release 197 driver has open issues and enhancement requests associated with it. This section includes lists of issues that are either not fixed or not implemented in this version. Some problems listed may not have been thoroughly investigated and, in fact, may not be NVIDIA issues. Others may have workaround solutions.

- ▶ [“Windows Vista/Windows 7 32-bit Issues”](#) on page 10
- ▶ [“Windows Vista/Windows 7 64-bit Issues”](#) on page 10

### Windows Vista/Windows 7 32-bit Issues

- ▶ AutoCAD 2011—the drawing window does not display properly after resizing the application window.
- ▶ NX6/NX7 GDAT test—the blender object is painted the wrong color.
- ▶ DirectX 9 depth\_bias does not work when z+bias is greater than 1.
- ▶ Quadro FX 4500: SolidEdge—the graphic area does not correctly refresh with zoom fit or zoom window.
- ▶ Quadro FX 3700: SOCET GXP—on monoscopic images, a right-click pop-up menu remains flashing over the image even after the pop-up window is invoked.
- ▶ Quadro FX 3700: SOCET GXP—menus that overlap the stereo imagery cause the stereo panel to change to mono until the menu is gone.

### Multi-GPU Issues

- ▶ [SLI Mosaic], Quadro Plex D2: OpenGL blit tearing occurs for topologies with more than one row.
- ▶ [SLI Mosaic], Quadro Plex D2: Quadro Plex units connected to the DuHIC cannot be synchronized.

### Windows Vista/Windows 7 64-bit Issues

#### Single GPU Issues

- ▶ Quadro FX 4800: Avid MediaComposer/Gimp—“Driver not responding” error occurs when running Gimp or MediaComposer wireframes.
- ▶ Quadro FX 4800: The DisplayPort display gets removed from the desktop when powered off.
- ▶ Quadro FX 4800: When multiple applications windows are swapping on V-Sync, one of the applications stalls.
- ▶ Quadro FX 4600: Windows Vista image is unable to be deployed due to OpenGL visualization issue.

- ▶ Quadro 3700/1800: Maya—the viewport flashes when summoning ribbons tooltips.
- ▶ Quadro FX 3700: DirectModel toolkit—stuttering occurs when rendering display lists.
- ▶
- ▶ Quadro FX 1800/580: NX GDAT tests (NX7) fail.

### Multi-GPU Issues

- ▶ [SLI Mosaic], Quadro Plex D2: OpenGL blit tearing occurs for topologies with more than one row.
- ▶ [SLI Mosaic], Quadro Plex Model IV: When enabling frame lock, the displays connected to the secondary GPU go blank.
- ▶ [SLI], Quadro Plex D2 via DuHIC, G-Sync: When running a frame lock demo and then pausing it, the frame counter jumps to a random value.

## Not NVIDIA Issues

This section lists issues that are not due to the NVIDIA driver as well as features that are not meant to be supported by the NVIDIA driver for Windows Vista/Windows 7.

- ▶ “Windows Vista Considerations” on page 12
- ▶ “Windows 7 Considerations” on page 12
- ▶ “Unsupported Features” on page 13
- ▶ “OpenGL Application Issues” on page 15
- ▶ “OpenGL Application Issues” on page 15
- ▶ “Application Issues” on page 15
- ▶ “Other Issues” on page 16

## Windows Vista Considerations

These are behaviors that may be different from Windows XP and are related directly to the Windows Vista operating system.

- ▶ **Gamma ramps are inconsistent between single and two-headed systems.**
- ▶ **NVIDIA TurboCache**

Windows Vista now controls the allocation of system memory to the GPU for TurboCache functions. The Windows Vista Display Properties pages show the shared system memory (SSM), or how much memory is allocated for NVIDIA GPUs to use for TurboCache.

For more information on graphics memory reporting under Windows Vista, visit <http://www.microsoft.com/whdc/device/display/graphicsmemory.mspx>.

## Windows 7 Considerations

### Windows DWM Disabled for SLI Mosaic Mode

Due to compatibility issues, when using SLI Mosaic mode the driver turns off the Windows 7 Desktop Window Manager (DWM). As a result, DWM-managed desktop features such as Windows Aero or Windows Flip 3D will not be available.

### Hotplug Action

Unlike the hotplug activity under Windows Vista, the default settings are not applied when a new display is hotplugged, and there is no message balloon alert stating that a new display was detected. Under Windows 7, all display connection and detection events are handled through the Windows 7 Connecting and Configuring Displays (CCD) mechanism.

## NVIDIA Control Panel Rotate Display Page

The rotation radio button labels are changed slightly under Windows 7 to be consistent with the Microsoft panel

**Table 2.1** NVIDIA Control Panel Rotation Page Radio Buttons

Clockwise Rotation	Windows 7 Label	Windows Vista Label
0 degrees	Landscape	No rotation (Landscape)
90 degrees	Portrait	90 degrees to the right (Inverted Portrait)
180 degrees	Landscape (flipped)	180 degree rotation (Inverted landscape)
270 degrees	Portrait (flipped)	90 degrees to the left (Portrait)

### Limitation

- ▶ When switching the refresh rate from 59 Hz to 60Hz, the refresh rate remains at 59 Hz.  
*See the Microsoft KB article KB2006076 at <http://support.microsoft.com/kb/2006076>.*

## Unsupported Features

The following are features and functionality that were available in driver releases supporting Windows XP, but are not—and will not be—available in driver releases for Windows Vista:

- ▶ **High resolution scaling desktop (HRSD)**
- ▶ **MultiView Display Mode** (for NVIDIA Quadro NVS graphics cards)
- ▶ **NVKeystone**
- ▶ **Unified back buffer (UBB) controls**
- ▶ **OpenGL Video Overlays**  
This is an operating system limitation.
- ▶ **Overclocking**  
GPU overclocking is no longer supported in the default GPU driver control panel. This feature is available in the NVIDIA System Tools software, which you can download from [NVIDIA.com](http://NVIDIA.com).
- ▶ **GPU Temperature Monitoring**  
Temperature monitoring is no longer supported in the default GPU driver control panel. This feature is available in the NVIDIA System Tools software, which you can download from [NVIDIA.com](http://NVIDIA.com).
- ▶ **AGP Settings Adjustment**

- ▶ **Video Zoom**
- ▶ **Pan & Scan** - the process of panning across the desktop in order to display a desktop on a monitor with lower resolution
- ▶ **Per-display Desktop Color Setting Adjustments**

For Clone mode, the desktop color setting adjustments through the NVIDIA Control Panel can only be made across all displays in a system, and not on a per-display basis.
- ▶ **Per-display Video Color Setting Adjustments**

For Dualview mode, the video color setting adjustments through the NVIDIA Control Panel can only be made across all displays in a system, and not on a per-display basis.
- ▶ **Edge Blending**
- ▶ **Run display optimization wizard**
- ▶ **Run multiple display wizard**
- ▶ **Run television setup wizard**
- ▶ **nView Horizontal and Vertical Span Modes**

Due to architectural changes in the new Windows Vista Window Display Driver Model (WDDM), span mode cannot be supported in NVIDIA graphics drivers. NVIDIA recommends using the built-in Windows Vista multi-display modes.
- ▶ **Display/Connection Wizard** (such as was provided with Windows Media Center Edition)
- ▶ **DVD/MPEG Extensions** (such as was provided with Windows Media Center Edition)
- ▶ **Audio Extensions** (such as was provided with Windows Media Center Edition)
- ▶ **NVIDIA nView Desktop Manager**

The nView Desktop Manager will not be included in drivers for GeForce products.

## OpenGL Application Issues

The following are known compatibility issues for OpenGL applications developed under Windows XP:

- ▶ Mixed GDI and OpenGL rendering does not work.
  - A number of applications use GDI to render UI components and object highlighting. This is not supported in the Windows Vista driver model.
  - NVIDIA recommends converting GDI rendering to OpenGL.
  - The following are some applications that are known to have this issue:
    - Maya 7.01
- ▶ Applications, Tools, and Benchmarks not Supported Under Windows Vista
  - GLperf
  - 3ds max 8 (later releases may be supported)
  - CATIA V5R15 (V5R16 is supported)
  - PTC's CDRS 2001
- ▶ Front buffered rendering may be slow, especially when DWM is enabled.
  - Flushing the rendering queue while rendering to the front buffer may cause the window manager to recomposite. Applications should therefore minimize the frequency with which they flush the rendering queue.

## Application Issues

- ▶ Solidworks 2009–Application profile is not shown in the NVIDIA Control Panel when SolidWorks 2009 is installed.
- ▶ This is an issue with the application shortcut.
- ▶ ArchiCAD12–OpenGL speed is half as fast on Windows Vista than on Windows XP.
- ▶ Quadro FX 3700/4600/5600: MediaComposer–polygons are drawn in the wrong color after disabling shaders.
- ▶ Quadro FX 1700: 3ds max–fuzzy black shading appears on object faces at certain camera angles and orientation.
- ▶ Quadro FX 1700: SolidWorks 09–large areas of the screen do not refresh.
- ▶ Quadro FX 1400: AutoDesk Inventor 2009 SP1–the application crashes.
- ▶ Quadro FX 4500/3500: Maya–cpvTransparencyTest no longer renders properly with Cg2.0+.

## Other Issues

- ▶ Quadro FX 4600/1800/580: Upon rebooting the system after installing the driver, the driver fails to load.
- ▶ All older drivers from other vendors must be uninstalled first.
- ▶ The Windows Vista display mode switches from Aeroglass to Basic from when a quad-buffer for stereo is created.
- ▶ Quadbuffered windowed stereo is only supported with Aeroglass turned off.
- ▶ The NVIDIA Control Panel->Set Up Multiple Displays page does not provide the capability of setting the dual monitor order under WIndows Vista as it does under Windows XP.

*This capability is provided through the Windows Vista Dispay Properties Settings page.*

## Known Product Limitations

This section describes problems that will not be fixed. Usually, the source of the problem is beyond the control of NVIDIA. Following is the list of problems and where they are discussed in this document:

- ▶ “Using HDMI/DisplayPort Audio with Displays that have a High Native Resolution” on page 17
- ▶ “Using HDMI/DisplayPort Displays that do not Support Audio” on page 18
- ▶ “Using HDMI/DisplayPort Audio in Dualview or Clone Mode Configurations” on page 19
- ▶ “GPU Runs at a High Performance Level (full clock speeds) in Multi-display Modes” on page 19
- ▶ “Aero Must be Enabled for Windowed SLI AFR Mode Under Vista” on page 19
- ▶ “SLI Connector Requirement on NVIDIA Quadro SLI Cards” on page 19
- ▶ “Applying Workstation Application Profiles” on page 20
- ▶ “1280x1024 @ 60 Hz not Available on BenQ FP241W Monitors” on page 20
- ▶ “Gigabyte GA-6BX Motherboard” on page 20

## Using HDMI/DisplayPort Audio with Displays that have a High Native Resolution

*To use HDMI/DisplayPort audio with some displays that have a native resolution higher than 1920x1080, you must set the display to a lower HD resolution.*

Some HDMI TV's have a native resolution that exceeds the maximum supported HD mode. For example, TVs with a native resolution of 1920x1200 exceed the maximum supported HD mode of 1920x1080.

Applying this native mode results in display overscan which cannot be resized using the NVIDIA Control Panel since the mode is not an HD mode.

To avoid this situation and provide a better user experience, the driver treats certain TVs— such as the Viewsonic VX2835wm and the Westinghouse LVM- 37w3—as a DVI monitor when applying the native mode. Because the driver does not treat the TV as an HDMI in this case, the HDMI audio is not used.

## Using HDMI/DisplayPort Displays that do not Support Audio

*Some HDMI/DisplayPort displays do not support audio, or have issues with current NVIDIA graphics cards.*

The NVIDIA driver attempts to identify such displays and automatically disables the audio. For example, the NVIDIA driver disables HDMI audio for all Philips HDMI TVs, as these have been identified as having issues with current NVIDIA graphics cards.

There may be cases where either the driver disables audio even though there is no problem, or does not disable the audio when in fact the audio does not work. The following sections describe these situations and provides guidance for handling them.

### Corrupted video and no audio

The driver has not disabled audio and the display's audio signal is incompatible with the graphics card, causing video corruption.

With a different display connected in order to establish video, disable audio for the HDMI display using the NVIDIA Control Panel->Change Resolution page. From the connector list, select **HDMI-HDTV (Audio Disabled)**.

### Video but no audio

- ▶ Check the connector list on the NVIDIA Control Panel->Change Resolution page.
- ▶ If **HDMI-HDTV (Audio Disabled)** is selected and you want to test whether your HDMI audio does, in fact, work, then select **HDMI-HDTV (Audio Enabled)** and the driver will prompt you with instructions for testing HDMI audio with the display.
- ▶ If **HDMI-HDTV (Audio Enabled)** is selected, then the driver has not successfully detected that an incompatible display is connected.

*Future drive versions will properly identify such displays and disable audio.*

- ▶ If there is no HDMI connector option in the NVIDIA Control Panel->Change Resolution page, the display does not support audio and has properly reported this to the NVIDIA driver.

## Using HDMI/DisplayPort Audio in Dualview or Clone Mode Configurations

### Two Audio-enabled Ports

In a multi-display configuration where both HDMI/DisplayPort audio ports are enabled, only the primary display will provide the audio.

### One Audio-enabled Port

In a multi-display configuration where only one audio port is enabled, such as when one display is a DVI display, then the HDMI/DisplayPort display can provide the audio whether is it the primary or secondary display.

## GPU Runs at a High Performance Level (full clock speeds) in Multi-display Modes

This is a hardware limitation and not a software bug. Even when no 3D programs are running, the driver will operate the GPU at a high performance level in order to efficiently drive multiple displays. In the case of SLI or multi-GPU PCs, the second GPU will always operate with full clock speeds; again, in order to efficiently drive multiple displays. Today, all hardware from all GPU vendors have this limitation.

## Aero Must be Enabled for Windowed SLI AFR Mode Under Vista

Windows 7 Aero must be enabled in order to achieve SLI acceleration using windowed AFR mode.

## SLI Connector Requirement on NVIDIA Quadro SLI Cards

The SLI connector that links two SLI cards is needed for proper SLI operation. However, the connector can be removed if you do not intend to enable SLI mode. If you remove the connector, then you must make sure that SLI mode is disabled from the NVIDIA control panel. Enabling SLI mode without the SLI connector installed will result in video corruption.

## Applying Workstation Application Profiles

### ► Background

The workstation application profiles are software settings used by the NVIDIA Display Drivers to provide optimum performance when using a selected application. The profile also works around known application issues and bugs.

If there is an available setting for an application, it should be used, otherwise incorrect behavior or reduced performance is likely to occur.

### ► Issues

Configuration changes require that you restart the application.

Once an application is running, it does not receive notification of configuration changes. Therefore, if you change the configuration while the application is running, you must exit and restart the application for the configuration changes to take effect.

## 1280x1024 @ 60 Hz not Available on BenQ FP241W Monitors

Even though the monitor EDID lists 1280x1024 @ 60 Hz, the screen turns blank when using an HDMI connection. This is an issue with the monitor and not the NVIDIA driver.

Because of this issue with the monitor, the NVIDIA driver blocks the problem mode (1280x1024 @ 60 Hz) and makes it unavailable.

## Gigabyte GA-6BX Motherboard

This motherboard uses a Linfinity regulator on the 3.3-V rail that is rated to only 5 A—less than the AGP specification, which requires 6 A. When diagnostics or applications are running, the temperature of the regulator rises, causing the voltage to the NVIDIA chip to drop as low as 2.2 V. Under these circumstances, the regulator cannot supply the current on the 3.3-V rail that the NVIDIA chip requires.

This problem does not occur when the graphics board has a switching regulator or when an external power supply is connected to the 3.3-V rail.

## 03 THE RELEASE 197 DRIVER

This chapter covers the following main topics:

- ▶ “Hardware and Software Support” on page 21
- ▶ “Driver Installation” on page 26

### Hardware and Software Support

#### Supported Operating Systems

The Release 197 driver, version 197.54, has been tested with

- ▶ Microsoft Windows® 7, and supports both 32-bit and 64-bit versions.
- ▶ Microsoft Windows® Vista, and supports both 32-bit and 64-bit versions of Windows Vista Editions:
  - Windows Vista Home Basic
  - Windows Vista Home Premium
  - Windows Vista Business
  - Windows Vista Enterprise Edition
  - Windows Vista Ultimate

## Supported NVIDIA Products

The following tables list the NVIDIA products supported by the Release 197 driver, version 197.54

**Table 3.1** Supported NVIDIA Workstation Products

Product	Notes
NVIDIA Quadro FX 5800	
NVIDIA Quadro FX 5600	
NVIDIA Quadro FX 5500	
NVIDIA Quadro FX 4800	
NVIDIA Quadro FX 4700 X2	
NVIDIA Quadro FX 4600	
NVIDIA Quadro FX 4500 X2	
NVIDIA Quadro FX 4500	
NVIDIA Quadro FX 4400	
NVIDIA Quadro FX 4400G	
NVIDIA Quadro FX 4000	
NVIDIA Quadro FX 3800	
NVIDIA Quadro FX 3700	
NVIDIA Quadro FX 3500	
NVIDIA Quadro FX 3450	
NVIDIA Quadro FX 3400	
NVIDIA Quadro FX 1800	
NVIDIA Quadro FX 1700	
NVIDIA Quadro FX 1500	
NVIDIA Quadro FX 1400	
NVIDIA Quadro FX 580	
NVIDIA Quadro FX 570	
NVIDIA Quadro FX 560	
NVIDIA Quadro FX 550	
NVIDIA Quadro FX 540	
NVIDIA Quadro FX 470	
NVIDIA Quadro FX 380	
NVIDIA Quadro FX 380 LP (low profile)	
NVIDIA Quadro FX 370	
NVIDIA Quadro FX 370 low profile	
NVIDIA Quadro FX 350	

**Table 3.1** Supported NVIDIA Workstation Products (continued)

Product	Notes
NVIDIA Quadro VX 200	
NVIDIA Quadro CX	
NVIDIA Quadro NVS 450	
NVIDIA Quadro NVS 440	
NVIDIA Quadro NVS 420	
NVIDIA Quadro NVS 295	
NVIDIA Quadro NVS 290	
NVIDIA Quadro NVS 285	

**Table 3.2** Supported NVIDIA Quadro G-Sync Products

Product	Notes
NVIDIA Quadro FX 5500	
NVIDIA Quadro FX 4500 X2	
NVIDIA Quadro FX 4500	

**Table 3.3** Supported NVIDIA Quadro G-Sync II Products

Product	Notes
NVIDIA Quadro FX 5600	
NVIDIA Quadro FX 4600	

**Table 3.4** Supported NVIDIA Quadro SDI Products

Product	Notes
NVIDIA Quadro FX 5800 SDI	
NVIDIA Quadro CX SDI	
NVIDIA Quadro FX 5600 SDI	
NVIDIA Quadro FX 4800 SDI	
NVIDIA Quadro FX 4600 SDI	
NVIDIA Quadro FX 3800 SDI	

**Table 3.5** Supported NVIDIA Quadro Plex Products

Product	Notes
NVIDIA Quadro Plex D Series	
NVIDIA Quadro Plex Model II	
NVIDIA Quadro Plex Model IV	

**Table 3.6** Supported NVIDIA Quadro Blade/Embedded Graphics Board Series

Product	Notes
NVIDIA Quadro FX 3600M	
NVIDIA Quadro FX 1600M	
NVIDIA Quadro FX 770M	
NVIDIA Quadro FX 560M	
NVIDIA Quadro FX 370M	
NVIDIA Quadro NVS 120M	

## Supported Languages

The Release 197 Graphics Drivers supports the following languages in the main driver Control Panel:

English (USA)	German	Portuguese (Euro/ Iberian)
English (UK)	Greek	Russian
Arabic	Hebrew	Slovak
Chinese (Simplified)	Hungarian	Slovenian
Chinese (Traditional)	Italian	Spanish
Czech	Japanese	Spanish (Latin America)
Danish	Korean	Swedish
Dutch	Norwegian	Thai
Finnish	Polish	Turkish
French	Portuguese (Brazil)	

# Driver Installation

## Minimum Hard Disk Space

The hard disk space requirement for 32-bit is minimum 105 MB for English-only, and 142 MB for International.

The hard disk space requirement for 64-bit is minimum 135 MB for English-only, and 170 MB for International.

## Before You Begin

If you have previously installed NVIDIA nTune, NVIDIA recommends that you uninstall nTune before installing this driver. After the driver install is complete, you can reinstall NVIDIA nTune.

## Installation Instructions

- 1 Follow the instructions on the NVIDIA .com Web site driver download page to locate the appropriate driver to download, based on your hardware and operating system.
- 2 Click the driver download link.  
The license agreement dialog box appears.
- 3 Click **Accept** if you accept the terms of the agreement, then either open the file or save the file to your PC and open it later.
- 4 Open the NVIDIA driver installation .EXE file to launch the NVIDIA InstallShield Wizard.
- 5 Follow the instructions in the NVIDIA InstallShield Wizard to complete the installation.

# APPENDIX A MODE SUPPORT FOR WINDOWS

This chapter details the Windows modes supported by the Release 197 driver for NVIDIA products. It contains these sections:

- ▶ “General Mode Support Information” on page 28
- ▶ “Default Modes Supported by GPU” on page 29
- ▶ “Modes Supported by TV Encoders” on page 32

## General Mode Support Information

The NVIDIA graphics driver includes a standard list of display modes that are supported by default. These modes are listed in the section “Default Modes Supported by GPU” on page 29.

The actual modes available depend on the capabilities of the display. In addition, the NVIDIA graphics driver has a “dynamic EDID detection” capability and will make available *additional* modes that are listed in the display EDID, provided the graphics hardware can support it.

The NVIDIA graphics driver also supports the high resolutions available with the displays listed in [Table A.1](#) as well as the non-standard modes listed in [Table A.2](#).

**Table A.1 Modes Supported for High Resolution Displays**

Display	Maximum Resolution
Apple 30” Cinema HD Display (Dual link DVI)	2560x1600 @ 60 Hz
Dell WFP 3007 (Dual Link DVI)	2560x1600 @ 60 Hz
HP LP3065 dual-link DVI flat panel	2560x1600 @ 60Hz.

**Table A.2 Non-standard Modes Supported**

Resolution		
1680 x 1050		
1366 x 768		

## Default Modes Supported by GPU

This section lists the modes that are included by default in the driver INF for the following product families:

- ▶ “Quadro FX, CX, and NVS Series GPUs” on page 30

## Understanding the Mode Format

Figure A.1 gives an example of how to read the mode information presented in this section.

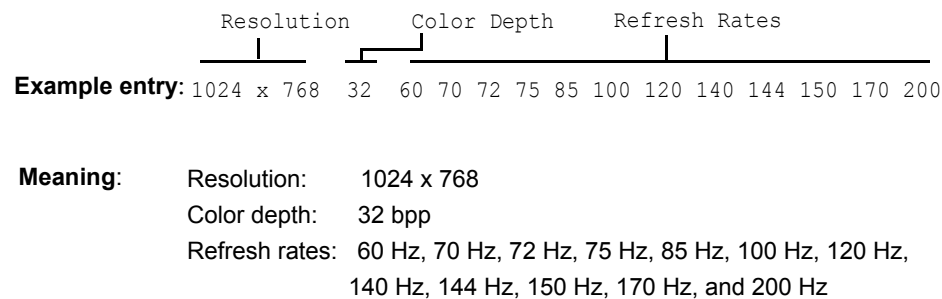


Figure A.1 Mode Format

### Note:

- Horizontal spanning modes of 3840x1080 and above, and vertical spanning modes of 1920x2160 and above generally require at least 32 MB of video memory at 32 bpp.
- An “i” next to the refresh rate indicates an interlaced refresh rate.

## Quadro FX, CX, and NVS Series GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the the products listed in [“Supported NVIDIA Products”](#) on page 22.

### Standard Modes

640 x 480	8	60 70 72 75 85 100 120 140 144 150 170 200 240
720 x 480	8	60
720 x 576	8	50
800 x 600	8	60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x 768	8	60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x 864	8	60 70 72 75 85 100 120 140 144 150 170 200
1280 x 720	8	60
1280 x 768	8	60 70 72 75 85 100 120 140 144 150 170
1280 x 800	8	60 70 72 75 85 100 120 140 144 150 170
1280 x 960	8	60 70 72 75 85 100 120 140 144 150 170
1280 x 1024	8	60 70 72 75 85 100 120 140 144 150 170
1360 x 768	8	60 70 72 75 85 100 120 140 144 150 170
1600 x 900	8	60 70 72 75 85 100 120 140 144 150
1600 x 1024	8	60 70 72 75 85 100 120
1600 x 1200	8	60 70 72 75 85 100 120
1680 x 1050	8	60
1920 x 1080	8	60
1920 x 1200	8	60 70 72 75 85 100
1920 x 1440	8	60 70 72 75 85
2048 x 1536	8	60

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640 x 480	16	60 70 72 75 85 100 120 140 144 150 170 200 240
720 x 480	16	60
720 x 576	16	50
800 x 600	16	60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x 768	16	60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x 864	16	60 70 72 75 85 100 120 140 144 150 170 200
1280 x 720	16	60
1280 x 768	16	60 70 72 75 85 100 120 140 144 150 170
1280 x 800	16	60 70 72 75 85 100 120 140 144 150 170
1280 x 960	16	60 70 72 75 85 100 120 140 144 150 170
1280 x 1024	16	60 70 72 75 85 100 120 140 144 150 170
1360 x 768	16	60 70 72 75 85 100 120 140 144 150 170
1600 x 900	16	60 70 72 75 85 100 120 140 144 150
1600 x 1024	16	60 70 72 75 85 100 120
1600 x 1200	16	60 70 72 75 85 100 120
1680 x 1050	16	60
1920 x 1080	16	60
1920 x 1200	16	60 70 72 75 85 100

1920 x 1440	16	60 70 72 75 85
2048 x 1536	16	60
-----		
640 x 480	32	60 70 72 75 85 100 120 140 144 150 170 200 240
720 x 480	32	60
720 x 576	32	50
800 x 600	32	60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x 768	32	60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x 864	32	60 70 72 75 85 100 120 140 144 150 170 200
1280 x 720	32	60
1280 x 768	32	60 70 72 75 85 100 120 140 144 150 170
1280 x 800	32	60 70 72 75 85 100 120 140 144 150 170
1280 x 960	32	60 70 72 75 85 100 120 140 144 150 170
1280 x 1024	32	60 70 72 75 85 100 120 140 144 150 170
1360 x 768	32	60 70 72 75 85 100 120 140 144 150 170
1600 x 900	32	60 70 72 75 85 100 120 140 144 150
1600 x 1024	32	60 70 72 75 85 100 120
1600 x 1200	32	60 70 72 75 85 100 120
1680 x 1050	32	60
1920 x 1080	32	60
1920 x 1200	32	60 70 72 75 85 100
1920 x 1440	32	60 70 72 75 85
2048 x 1536	32	60
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## Modes Supported by TV Encoders

Table A.3 and Table A.4 list the NTSC, PAL, and HDTV TV-Out modes supported by the NVIDIA driver.

**Table A.3 Mode Support for S-Video and Composite Out**

Resolution	Bit depth	Comments
320x200	8, 16, 32	DirectDraw mode; not selectable as a Windows desktop
320x240	8, 16, 32	DirectDraw mode; not selectable as a Windows desktop
640x400	8, 16, 32	DirectDraw mode; not selectable as a Windows desktop
640x480	8, 16, 32	
720x480	8, 16, 32	Overscans (for video)
720x576	8, 16, 32	Overscans (for video)
800x600	8, 16, 32	
1024x768	8, 16, 32	Conexant 25871 only

**Table A.4 Mode Support for Component YPrPb Out and DVI Out**

Resolution	Comments
480i (SDTV)	Supported on graphics boards with Conexant 875 or Philips 7108 TV encoders and compatible connectors, and compatible GeForce 8 Series and later GPUs.
480p (EDTV)	
720p (HDTV)	
1080i (HDTV)	
576i (PAL)	
576p (PAL)	

The driver supports manual overscan correction for component and DVI outputs. See the online NVIDIA Control Panel Help for instructions on how to use the overscan correction features.

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