



# Release 331 Quadro & NVS Notebook Drivers for Windows - Version 331.82

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Windows Vista, Windows 7, Windows 8, & Windows 8.1

## Release Notes



# TABLE OF CONTENTS

|          |   |          |
|----------|---|----------|
| <b>1</b> | <b>Introduction to Release Notes</b>  | <b>1</b> |
|          | Structure of the Document   | 1        |
|          | Changes in this Edition   | 1        |
| <b>2</b> | <b>Release 331 Driver Changes</b>   | <b>2</b> |
|          | Version 331.82 Highlights   | 3        |
|          | Existing Support  | 3        |
|          | What's New in Release 331   | 3        |
|          | What's New in Version 331.82  | 5        |
|          | Discontinued and Unsupported Features in this Release                         | 5        |
|          | Advanced Instructions for this Release  | 7        |
|          | Docking/Undocking Notebooks with Mosaic                                       | 7        |
|          | Turning Off V-Sync to Boost Performance                                       | 7        |
|          | NVIDIA Application Configuration Engine (ACE)                                 | 7        |
|          | Changes in Version 331.82   | 8        |
|          | Windows Vista/Windows 7/Windows 8 Fixed Issues                                | 8        |
|          | Changes in Version 331.65   | 9        |
|          | Windows Vista/Windows 7/Windows 8 Fixed Issues                                | 9        |
|          | Open Issues in Version 331.82   | 10       |
|          | Windows Vista/Windows 7 32-bit Issues   | 10       |
|          | Windows Vista/Windows 7 64-bit Issues   | 10       |
|          | Not NVIDIA Issues   | 11       |
|          | Windows Vista Considerations  | 11       |
|          | Windows 7 Considerations  | 11       |
|          | Unsupported Features  | 12       |
|          | OpenGL Application Issues   | 14       |
|          | Application Issues  | 14       |
|          | Other Issues  | 14       |
|          | Known Product Limitations   | 16       |
|          | Some APIs do not Report Total Available Graphics Memory Correctly             | 16       |
|          | Using HDMI/DisplayPort Audio with Displays that have a High Native Resolution | 18       |
|          | Using HDMI/DisplayPort Displays that do not Support Audio                     | 18       |
|          | Using HDMI/DisplayPort Audio in Dualview or Clone Mode Configurations         | 19       |

# TABLE OF CONTENTS

|   |           |
|---|-----------|
| 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 .....                            | 20        |
| Applying Workstation Application Profiles .....                                       | 20        |
| 1280x1024 @ 60 Hz not Available on BenQ FP241W Monitors .....                         | 20        |
| Gigabyte GA-6BX Motherboard .....   | 20        |
| <b>3 The Release 331 Driver .....</b>   | <b>21</b> |
| Hardware and Software Support .....   | 21        |
| Supported Operating Systems .....   | 21        |
| Supported NVIDIA Notebook Products .....  | 22        |
| Supported Languages .....   | 24        |
| Driver Installation .....   | 25        |
| Minimum Hard Disk Space .....   | 25        |
| Before You Begin .....  | 25        |
| Installation Instructions .....   | 25        |
| <b>Appendix A: Mode Support for Windows .....</b>                                     | <b>27</b> |
| General Mode Support Information .....  | 28        |
| Default Modes Supported by GPU .....  | 29        |
| Understanding the Mode Format .....   | 29        |
| Quadro Notebook GPUs .....  | 30        |
| Modes Supported by TV Encoders .....  | 32        |

## LIST OF TABLES

|   |    |
|---|----|
| Table 3.1 Supported NVIDIA NVS and Quadro NVS Notebook GPUs ..... | 22 |
| Table 3.2 Supported NVIDIA Quadro M and Quadro FX M GPUs .....    | 23 |
| 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 331 family of NVIDIA Quadro and NVS Notebook Drivers for Microsoft® Windows® 7 and later<sup>1</sup>. 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 331 Driver Changes](#)” on page 2 gives a summary of changes, and fixed and open issues in this version.
- ▶ “[The Release 331 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 7 and later includes information about NVIDIA graphics driver version 331.82, and lists changes made to the driver since version 320.92. These changes are discussed beginning with the chapter “[Release 331 Driver Changes](#)” on page 2.

1. Includes Windows 7, Windows 8, and Windows 8.1

## 02 RELEASE 331 DRIVER CHANGES

This chapter describes open issues for version 331.82, and resolved issues and driver enhancements for versions of the Release 331 driver up to version 331.82. The chapter contains these sections:

- ▶ “Version 331.82 Highlights” on page 3
- ▶ “Advanced Instructions for this Release” on page 7
- ▶ “Changes in Version 331.82” on page 8
- ▶ “Changes in Version 331.65” on page 9
- ▶ “Open Issues in Version 331.82” on page 10
- ▶ “Not NVIDIA Issues” on page 11
- ▶ “Known Product Limitations” on page 16

## Version 331.82 Highlights

This section provides highlights of version 331.82 of the NVIDIA Release 331 Driver for Windows Vista and later.

- ▶ Existing Support
- ▶ What's New in Release 331
- ▶ What's New in Version 331.82
- ▶ Discontinued and Unsupported Features in this Release
- ▶ Limitations in This Release

## Existing Support

This release supports the following APIs:

- ▶ Open Computing Language (OpenCL) 1.1 in Quadro FX4600, FX5600 FX, and Quadro x700 series
- ▶ OpenGL 4.4
- ▶ DirectX 11
- ▶ CUDA 5.5

## What's New in Release 331

The section summarizes the following driver changes in Release 331 since Release 319:

### ODE Driver

This is the initial release of the WHQL'd R331 drivers—the sixth 'Optimal Drivers for Enterprise'(ODE). ODE branches are dedicated to relatively long term stability for ISV certification, OEMs, and Enterprise customers.

### OS Support

- ▶ This is the first ODE driver to support Windows 8.1
- ▶ Support for Windows XP is discontinued starting with this release.

### OpenGL

- ▶ Added support for OpenGL 4.4

## Workstation Features

### Mosaic

- ▶ Improved Mosaic setup time.
- ▶ Added default topology and display numbering in the NVIDIA Control Panel->Mosaic setup process.

### NvWMI

Updated to version 2.15.

- ▶ Added support for creating multiple display grids.
- ▶ Added support for passive stereo modes.

### NvAPI

- ▶ **Viewport Scanout with Warp and Blend:** Added support via NVAPI for viewport scanout with warp and blend. The warp NVAPI interface supports viewport scanout on custom resolutions.

## NVIDIA Control Panel

### ▶ Workstation->EDID Management

Added controls to improve productivity by providing a way to force an EDID on multiple connectors at a time, instead of one at a time.

### ▶ Display->Change Resolution

Added controls to import or export custom resolutions. Allows users to create a custom resolution and then export it to a file which can be imported for recreating the same set of custom resolutions on the same system or across systems.



## What's New in Version 331.82

- ▶ This driver offers performance improvements over previous driver versions, including workstation compatibility fixes.
- ▶ This driver installs **nView Desktop Manager** version 140.75.
- ▶ This driver adds support for the following notebook GPUs:
  - Quadro K5100M
  - Quadro K4100M
  - Quadro K3100M
  - Quadro K2100M
  - Quadro K1100M
  - Quadro K610M
- ▶ See [“Changes in Version 331.82” on page 8](#) for a list of changes and resolved issues in this driver version.

## Discontinued and Unsupported Features in this Release

### Discontinued Features

- ▶ The NVIDIA® AutoCAD Performance driver is no longer integrated in the graphics driver.  
Standalone versions or version updates can still be downloaded from the NVIDIA driver download page.
- ▶ The following features are removed from the NVIDIA Control Panel
  - The Views option  
You no longer need to select between Standard and Advanced views for many NVIDIA Control Panel controls.
  - The Profiles menu
- ▶ Support for Quadro SDI products is discontinued for Windows 8 and later operating systems.
- ▶ Legacy Support for Curie generation of Workstation products  
Beginning with Release 310, the NVIDIA professional drivers no longer support the Curie generation of Workstation products.

|                        |
|------------------------|
| NVIDIA Quadro FX 3500M |
| NVIDIA Quadro FX 2500M |
| NVIDIA Quadro FX 1500M |
| NVIDIA Quadro FX 560M  |

|                        |
|------------------------|
| NVIDIA Quadro FX 560M  |
| NVIDIA Quadro FX 350M  |
| NVIDIA Quadro NVS 120M |

Release 304 drivers continue to support Curie generation Workstation products, and NVIDIA will continue to address driver issues for these products in driver branches up to and including Release 304. However, future driver enhancements and optimizations in driver releases after Release 304 will not support Curie generation products.

## Limitations in This Release

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

### ► Video Memory Support

For Windows 7 and Windows Vista 64-bit, this driver recognizes up to the total available video memory on Quadro cards for Direct3D and OpenGL applications.

For Windows 7 and Windows Vista 32-bit, this driver recognizes only up to 4 GB of video memory on Quadro cards for DirectX, OpenGL, and CUDA applications.

### ► NVIDIA Control Panel Display Category

- The Graph tab on the Adjust Desktop Color Settings page is not available.

## Advanced Instructions for this Release

This section clarifies instructions for successfully accomplishing the following tasks:

- ▶ Docking/Undocking Notebooks with Mosaic
- ▶ Turning Off V-Sync to Boost Performance
- ▶ NVIDIA Application Configuration Engine (ACE)

### Docking/Undocking Notebooks with Mosaic

When using a docked Quadro notebook that is configured for NVIDIA Mosaic, you must disable Mosaic before undocking the notebook.

### 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 pull-down menu, select **Base profile**.
- 4 From the Settings list box, select **Vertical sync** and change its value to **Force off**, then click **Apply**.
- 5 From the Global presets pull-down 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.

## Changes in Version 331.82

The following sections list the important changes and the most common issues resolved since driver version 331.65.

### Windows Vista/Windows 7/Windows 8 Fixed Issues

- ▶ [Quadro 4000][Maya]: The application crashes if the NVIDIA driver intercepts memory allocation calls on Windows.
- ▶ [ESI]: Added unique profile.

## Changes in Version 331.65

The following sections list the important changes and the most common issues resolved since driver version 320.92.

### Windows Vista/Windows 7/Windows 8 Fixed Issues

- ▶ [NX 8.5]: The application crashes when performing Assemblies Constraint operations with Threaded optimization turned ON. [
- ▶ [Cinema 4D]: Performance improvements are requested.
- ▶ [Cinema 4D]: Threaded optimization causes the application to respond slowly.
- ▶ [Vegas Pro 12]: The driver crashes in nvogl64.DLL ("NVIDIA Compatible OpenGL ICD").
- ▶ [AVID Motion Graphics]: The application performance has dropped since driver version 307.32.
- ▶ [NVIDIA Nsight]: The application crashes when launched.
- ▶ [Mantis][Quadro 6000][G-Sync]: The application locks up in SwapBuffers() when using G-Sync.
- ▶ [Quadro 6000]: clCreateFromGLTexture2D fails with Mipmaps.
- ▶ Quadro 6000: GLSL break statement is broken.
- ▶ [Quadro 6000/K600]: The driver crashes in clCreateFromGLBuffer when many instructions are in the pipeline and graphics memory use is high.
- ▶ [Quadro 4000]: Sampler uniforms do not retain their values.
- ▶ [Quadro 2000]: Memory usage is increased.
- ▶ [Quadro 2000][Catia]: When repeatedly zooming in and out a model, the application becomes unresponsive and a driver "lost connection" error occurs.
- ▶ [Quadro 600]: The primary display automatically switches to a second DVI display once the new display is connected.
- ▶ [Quadro FX 4800/5800][CUDA]: With CUDA enabled, SD files appear corrupt when played on an HD timeline. [
- ▶ [Quadro FX 3800/4800]: There is a 3x performance drop after driver version 275.89.
- ▶ [Quadro FX 1700]: There is a 10x performance drop after driver version 275.89.
- ▶ [Quadro FX 1800M]: The clCreateContext operation fails.

## Open Issues in Version 331.82

As with every released driver, version 331.82 of the Release 331 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

- ▶ NVIDIA Control Panel: Pro E Wildfire 5—the application doesn’t appear in the NVIDIA Control Panel->Manage 3D Settings page ‘show only programs found on this computer’ list.

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

- ▶ NVIDIA Control Panel: Pro E Wildfire 5—the application doesn’t appear in the NVIDIA Control Panel->Manage 3D Settings page ‘show only programs found on this computer’ list.

## 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 11
- ▶ “Windows 7 Considerations” on page 11
- ▶ “Unsupported Features” on page 12
- ▶ “OpenGL Application Issues” on page 14
- ▶ “OpenGL Application Issues” on page 14
- ▶ “Application Issues” on page 14
- ▶ “Other Issues” on page 14

## 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 is available only with NVIDIA Mosaic Technology.
- ▶ **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)

## 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

- ▶ Softimage–The application crashes when thumbing the CgFX scene model while in wireframe display mode.
- ▶ 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.*
- ▶ ArchiCAD–the driver crashes when navigating 3D shadows.
- ▶ ArchiCAD12–OpenGL speed is half as fast on Windows Vista than on Windows XP.
- ▶ CATIA V5R20–not all drawing elements appear if the drawing is created using Approximate mode.

## Other Issues

- ▶ All older drivers from other vendors must be uninstalled first.
- ▶ The Windows Vista display mode switches from Aeroglass to Basic when a quad-buffer for stereo is created.
- ▶ Quad-buffered 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 Display 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:

- ▶ “Some APIs do not Report Total Available Graphics Memory Correctly” on page 16
- ▶ “Using HDMI/DisplayPort Audio with Displays that have a High Native Resolution” on page 18
- ▶ “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 20
- ▶ “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

## Some APIs do not Report Total Available Graphics Memory Correctly

### Background-TAG Memory

In the Windows Display Driver Model (WDDM), Total Available Graphics (TAG) memory is reported as the sum of

- Dedicated Video Memory (video memory dedicated for graphics use)
- Dedicated System Memory (system memory dedicated for graphics use), and
- Shared System Memory (system memory shared between the graphics subsystem and the CPU).

The values for each of these components are computed according to WDDM guidelines when the NVIDIA Display Driver is loaded.

### Issue

NVIDIA has found that some TAG-reporting APIs represent video memory using 32-bits instead of 64-bits, and consequently do not properly report available graphics memory when the TAG would otherwise exceed 4 gigabytes (GB). This results in under reporting

of available memory and potentially undesirable behavior of applications that rely on these APIs to report available memory.

The reported memory can be severely reduced. For example, 6 GB might be reported as 454 MB, and 8 GB might be reported as 1259 MB.

## NVIDIA Action for Some GeForce-based Systems

For GeForce GPUs with 2.75 GB or less of video memory, the NVIDIA display driver constrains TAG memory to just below 4 GB<sup>1</sup>. In this scenario, the Shared System Memory component of TAG is limited first, before limiting Dedicated Video Memory.

This is a policy decision within the driver, and results in reliable reporting of sub-4 GB TAG memory.

## When TAG Reporting Would Not Be Limited

For GeForce-based GPUs with more than 2.75 GB of video memory, as well as all Quadro and Tesla GPUs, the NVIDIA display driver does not constrain TAG memory reporting.

The disadvantage of constraining TAG on systems with larger amounts of video and system memory is that memory which otherwise would be available for graphics use is no longer available. Since shared system memory is limited first, driver components and algorithms utilizing shared system memory may suffer performance degradation when TAG is constrained.

Since these and similar scenarios are prevalent in many Workstation applications, the NVIDIA driver avoids constraining TAG on all Quadro and Tesla-based systems. Likewise, the driver does not constrain TAG for GeForce-based systems with more than 2.75 GB of video memory.

1. The WDDM guidelines dictate minimum and maximum values for the components, but the display driver may further constrain the values that are reported (within the allowed minimum and maximum).

## 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 Quadro FX family and earlier 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 Quadro FX family and earlier 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 331 DRIVER

The notebook driver is part of the NVIDIA Verde Notebook Driver Program, and can be installed on supported NVIDIA notebook GPUs. However, please note that your notebook original equipment manufacturer (OEM) provides certified drivers for your specific notebook on their website. NVIDIA recommends that you check with your notebook OEM about recommended software updates for your notebook. OEMs may not provide technical support for issues that arise from the use of this driver.

This chapter covers the following main topics:

- ▶ “Hardware and Software Support” on page 21
- ▶ “Driver Installation” on page 25

### Hardware and Software Support

#### Supported Operating Systems

The Release 331 driver, version 331.82, has been tested with

- ▶ Microsoft Windows® 8.1, and supports both 32-bit and 64-bit versions.
- ▶ Microsoft Windows® 8, and supports both 32-bit and 64-bit versions.
- ▶ Microsoft Windows® 7, and supports both 32-bit and 64-bit versions.
- ▶ Microsoft Windows® Vista, and supports both 32-bit and 64-bit versions.

## Supported NVIDIA Notebook Products

The following tables list the NVIDIA notebook products supported by the Release 331 driver, version 331.82:



### Note:

Hybrid Power technology is not supported by this release.

The following Sony VAIO notebooks are supported: Sony VAIO F Series with NVIDIA GeForce 310M, GeForce 315M (All-in-One system), GeForce GT 330M, GeForce GT 425M, GeForce GT 520M, or GeForce GT 540M (All-in-One system). Other Sony VAIO notebooks are not supported at this time (please contact Sony for driver support).

Fujitsu notebooks are not supported by this release (Fujitsu Siemens notebooks are supported).

Table 3.1 Supported NVIDIA NVS and Quadro NVS Notebook GPUs

| Quadro Notebook Products |
|--------------------------|
| NVS 5400M                |
| NVS 5200M                |
| NVS 5100M                |
| NVS 4200M                |
| NVS 3100M                |
| NVS 2100M                |
| Quadro NVS 320M          |
| Quadro NVS 160M          |
| Quadro NVS 150M          |
| Quadro NVS 140M          |
| Quadro NVS 135M          |
| Quadro NVS 130M          |

Table 3.2 Supported NVIDIA Quadro M and Quadro FX M GPUs

| Consumer Products |
|-------------------|
| Quadro K5000M     |
| Quadro K5100M     |
| Quadro K4000M     |
| Quadro K4100M     |
| Quadro K3000M     |
| Quadro K3100M     |
| Quadro K2000M     |
| Quadro K2100M     |
| Quadro K1000M     |
| Quadro K1100M     |
| Quadro K610M      |
| Quadro 5010M      |
| Quadro 5000M      |
| Quadro 4000M      |
| Quadro 3000M      |
| Quadro 2000M      |
| Quadro 1000M      |
| Quadro FX 3800M   |
| Quadro FX 3700M   |
| Quadro FX 3600M   |
| Quadro FX 2800M   |
| Quadro FX 2700M   |
| Quadro FX 1800M   |
| Quadro FX 1700M   |
| Quadro FX 1600M   |
| Quadro FX 880M    |
| Quadro FX 770M    |
| Quadro FX 570M    |
| Quadro FX 380M    |
| Quadro FX 370M    |
| Quadro FX 360M    |

## Supported Languages

The Release 331 Graphics Drivers supports the following languages in the main driver Control Panel:

|                       |                     |                               |
|-----------------------|---------------------|-------------------------------|
| English (USA)         | German              | Portuguese (Euro/<br>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 295 MB.

The hard disk space requirement for 64-bit is minimum 395 MB.

## Before You Begin

### nTune

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.

### Notebooks

- ▶ Check to make sure that your notebook has a supported GPU (see [“Supported NVIDIA Notebook Products”](#) on page 22).
- ▶ It is recommended that you back up your current system configuration.
- ▶ If you own a Dell Inspiron 1420, Dell XPS M1330, or Dell XPS M1530, or Dell LatitudeD630 or D630c, it is highly recommended that you first install this [Dell software update](#).

### SLI Mosaic Mode

You must make sure SLI Mosaic mode is disabled before installing a new driver over a previously installed driver. If SLI Mosaic mode is active on your displays when you install the new driver, the driver will not install properly.

## 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.



**Note:** If you are overinstalling the driver (installing over a previous driver without first removing the previous driver), then you must reboot your computer in order to complete the installation.

# APPENDIX A MODE SUPPORT FOR WINDOWS

This chapter details the Windows modes supported by the Release 331 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 Notebook 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.

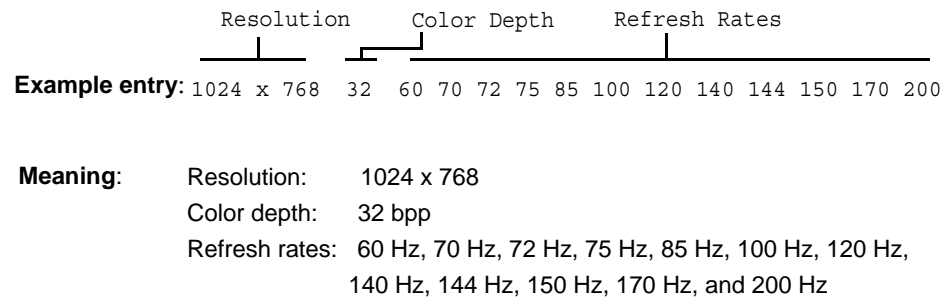


Figure A.1 Mode Format

**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 Notebook GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the products listed in [“Supported NVIDIA Notebook 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   |
| -----       |    |  |
| 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   |
| -----       |    |  |

## 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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