



NVIDIA Quadro Professional Drivers ***Release 191 Notes***

Version 191.00

**For Windows Vista 32-bit
and Windows Vista 64-bit**

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CHAPTER

1

INTRODUCTION TO *RELEASE 191 NOTES*

This edition of *Release 191 Notes* describes the Release 191 Quadro Professional Drivers for Microsoft® Windows® Vista. 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 191 Driver Changes](#)” on [page 3](#) gives a summary of changes, and fixed and open issues in this version.
- “[The Release 191 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 191 Notes* for Windows Vista includes information about NVIDIA graphics driver version 191.00, and lists changes made to the driver since version 186.30. These changes are discussed beginning with the chapter “[Release 191 Driver Changes](#)” on [page 3](#).

CHAPTER

2

RELEASE 191 DRIVER CHANGES

This chapter describes open issues for version 191.00, and resolved issues and driver enhancements for versions of the Release 191 driver up to version 191.00. The chapter contains these sections:

- “Version 191.00 Highlights” on page 4
- “Changes in Version 191.00” on page 10
- “Changes in Version 190.38” on page 11
- “Open Issues in Version 191.00” on page 12
- “Not NVIDIA Issues” on page 13
- “Known Product Limitations” on page 18

Version 191.00 Highlights

This section provides highlights of version 191.00 of the NVIDIA Release 191 Driver for Windows Vista.

- [What's New in Release 191](#)
- [What's New in Version 191.00](#)
- [Limitations in This Release](#)
- [Special Instructional Notes for this Release](#)

What's New in Release 191

The section summarizes the following driver changes in Release 191:

- [NVIDIA Control Panel Updates](#)
- [Display Driver Updates](#)
- [CUDA Updates](#)
- [OpenGL Updates](#)

NVIDIA Control Panel Updates

Display Settings Pages

- The following pages have been revised to include TV settings controls:
 - **Adjust Desktop Color Settings**
Now includes controls to adjust TV color settings.
 - **Change Resolution**
Now includes controls to adjust TV and HDTV signal formats and resolution.
 - **Adjust Desktop Size and Position**
Now includes controls to adjust the TV screen size and position, and to resize the HDTV desktop.
- The following pages and links now appear in the Display category:
 - **HDCP Status** page
 - **Digital Audio** page
- After resizing the HDTV desktop, the new resolution created is now added to the list of available resolutions for that display, and also added to the resolution list within the game or application.

- The controls in the Manage Custom Resolutions page are now located in the **Change Resolution** page.

Video & Television Pages

- The following pages and controls have been moved to the Display category:
 - **Adjust Television Color Settings** page (see Display->Adjust Desktop Color Settings)
 - **Change the signal or HD format** page (see Display->Change Resolution)
 - **Select Digital color format** page (see Display->Change Resolution)
 - **Adjust screen size and position** page (see Display->Adjust Desktop Size and Position)
 - **Resize HDTV desktop** page (see Display->Adjust Desktop Size and Position)
 - **HDCP Status** page
 - **Digital Audio** page

3D Settings Pages

- **Preferred Refresh Rate** control lets you override the refresh rate limitations imposed by the 3D application for the indicated monitor.
- **Power Management mode**

Many NVIDIA graphics cards support multiple performance levels so that the PC can save power when full graphics performance is not required. To provide more control over these power management capabilities, NVIDIA has added the Power Management Mode control. The control consists of two settings—*Adaptive* and *Prefer Maximum Performance*.

Adaptive: This is the default setting in which the graphics card monitors GPU usage and seamlessly switches between modes based on the performance demands of the application. This allows the GPU to always use the minimum amount of power required to run a given application, and can allow even older 3D games to run in lower power modes if the game does not require full 3D performance. NVIDIA recommends this setting for best overall balance of power and performance.

Prefer Maximum Performance: This setting lets you maintain the card at its maximum performance level when 3D applications are running regardless of GPU usage. This option can be set Globally (for all 3D applications), or an application profile can be created under Program Settings to set the preference for a particular 3D application.

This feature is supported only on select GeForce 9 Series and later GPUs and applies only to DirectX and OpenGL-based applications.

Workstation Pages

The **View system topology** page is now available with Windows Vista drivers.

Display Driver Updates

- Added support for hardware overlays on both Clone mode displays.
Previously, the driver supported only one hardware overlay, so only one Clone mode display could present the video overlay.

CUDA Updates

- Added support for 64-bit video encoding.
- Added support to make all GPUs within an SLI group available for CUDA applications to use.

OpenGL Updates

- Added support for OpenGL 3.1

What's New in Version 191.00

- See [“Changes in Version 191.00”](#) on page 10 for the list of fixed issues.

Limitations in This Release

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

- **SDI**
This driver does not support the Serial Display Interface (a standard for driving high color depth displays).
- **Genlock/Frame Lock**
This driver does not support the ability to synchronize multiple display outputs with an external signal.
- **NVIDIA Control Panel Display Category**
The Graph tab on the Adjust Desktop Color Settings page is not available.
- **Workstation Category**
 - The **Synchronize Displays** page is not available with this driver version.

- The **Send graphics to SDI output** page is not available with this driver version.
- 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 .

Changes in Version 191.00

The following sections list the changes made and issues resolved since driver version 190.38.

- “Fixed Issues–Windows Vista 32-bit” on page 10
- “Fixed Issues–Windows Vista 64-bit” on page 10

Fixed Issues–Windows Vista 32-bit

Single-GPU Fixed Issues

- Quadro FX4800: GPU performance becomes slow when moving application windows.

Fixed Issues–Windows Vista 64-bit

Single-GPU Fixed Issues

- Monitor hot plug does not work.
- Quadro FX 3700: SoftImage–polygon internal edges are not updated when moved.

Changes in Version 190.38

The following sections list the changes made and issues resolved since driver version 186.30.

- “Fixed Issues–Windows Vista 32-bit” on page 11
- “Fixed Issues–Windows Vista 64-bit” on page 11

Fixed Issues–Windows Vista 32-bit

Single-GPU Fixed Issues

- Application profile created for BrainLAB applications.

Fixed Issues–Windows Vista 64-bit

Single-GPU Fixed Issues

- Application profile created for BrainLAB applications.
- Quadro FX 550/1100: The driver crashes when closing an OpenGL context when it is positioned over another OpenGL context.]

Open Issues in Version 191.00

As with every released driver, version 191.00 of the Release 191 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 32-bit Issues”](#) on page 12
- [“Windows Vista 64-bit Issues”](#) on page 12

Windows Vista 32-bit Issues

Single-GPU Issues

- In Dualview mode with each display running at different refresh rates, there is tearing in OpenGL windows, indicating that the driver is not sync'ing to V-blank.
- DirectX 9 depth_bias does not work when z+bias is greater than 1.
- 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.

Windows Vista 64-bit Issues

Single-GPU Issues

- Monitor information is incorrect in the NVIDIA Control Panel after hot-plugging a display.
- Animator4—the animation hangs when using unlit polygons.
- Quadro FX 3500: XOR drawing of marquee accumulates instead of clearing.
- Quadro CX: Photoshop CS4—instability with the application.

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 Vista Limitations” on page 13
- “Unsupported Features” on page 13
- “OpenGL Application Issues” on page 15
- “Application Issues” on page 16

Windows Vista Limitations

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.
- World of Warcraft – there is a 60% drop in performance when running the game in windowed mode with SLI or multi-GPU mode enabled.

This is due to a limitation of the Windows Vista operating system and affects all multi-GPU systems. NVIDIA is investigating a workaround for this performance problem.

Unsupported Features

The following are features and functionality that were available in driver releases supporting Windows XP, but are not 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.

Vista window manager features will provide new ways of accomplishing overlays, but will require application porting.

- **Overclocking**

GPU overclocking is no longer supported in the default GPU driver control panel. This feature is available in the NVIDIA nTune 5.05 software, which you can download from 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 nTune 5.05 software, which you can download from NVIDIA.com.

- **AGP Settings Adjustment**
- **Full-screen Video Mirror**
- **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.

- **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.

- **Edge Blending**
- **Run display optimization wizard**
- **Run multiple display wizard**
- **Run television setup wizard**
- **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

- **General Antialiasing Problem with Top Games**

We have found that some games running under Windows Vista enable 16x coverage sampling antialiasing (CSAA) when 4xAA is selected in the game menu, resulting in deflated performance on the latest NVIDIA Quadro FX cards.

The problem occurs with NVIDIA Vista drivers 100.54 and later.

Affected applications found to date include:

- Battlefield 2
- Battlefield 2142
- Sin Episodes
- Half-Life 2
- Half-Life 2 Lost Coast

To set standard 4xAA in these applications, please set 4xAA in the game, and also enable “Enhance the application” antialiasing mode with a 4x antialiasing setting in the NVIDIA graphics driver control panel.

We are working with developers to implement better in-game CSAA support. You can see CSAA menu selections in Half-Life 2: Episode One and Supreme Commander.

- 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 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:

- “1280x1024 @ 60 Hz not Available on BenQ FP241W Monitors” on page 18
- “Aero Must be Enabled for Windowed SLI AFR Mode Under Vista” on page 18
- “SLI Connector Requirement on NVIDIA Quadro SLI Cards” on page 18
- “Image Sharpening Control not Available with Quadro FX 4600 and later GPUs” on page 19
- “Driver Reports 256 MB Memory on NVIDIA Quadro FX 330 Cards” on page 19
- “Applying Workstation Application Profiles” on page 19
- “Gigabyte GA-6BX Motherboard” on page 20

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.

Aero Must be Enabled for Windowed SLI AFR Mode Under Vista

Windows Vista Aero-glass 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.

Image Sharpening Control not Available with Quadro FX 4600 and later GPUs

With Quadro FX 4600 and later graphics cards, the **Image sharpening** slider on the NVIDIA Control Panel-> Display->Adjust Desktop Color Settings page is grayed out.

This control is intentionally disabled because image sharpening is not supported on Quadro FX 4600 and later GPUs.

Driver Reports 256 MB Memory on NVIDIA Quadro FX 330 Cards

- **Problem**

When a 64 MB NVIDIA Quadro FX 330 card is installed, the driver reports that the card needs 256 MB, causing 256 MB of address space to be consumed.

- **Explanation**

This is not a bug but a product limitation.

The NVIDIA Quadro FX 330 GPU has some limitations that prevent the card from addressing less than 256 MB of system memory.

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.

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.

CHAPTER

3

THE RELEASE 191 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 191 driver, version 191.00, has been tested with Microsoft Windows® Vista RTM OS builds version 6000 or higher, 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

Table 3.1 and Table 3.2 lists the NVIDIA products supported by the Release 191 driver.

Table 3.1 Supported NVIDIA Workstation Products

Product	Windows Vista 32-bit	Windows Vista 64-bit
NVIDIA Quadro FX 5800	X	X
NVIDIA Quadro FX 5600	X	X
NVIDIA Quadro FX 5500	X	X
NVIDIA Quadro FX 4800	X	X
NVIDIA Quadro FX 4700 X2	X	X
NVIDIA Quadro FX 4600	X	X
NVIDIA Quadro FX 4500 X2	X	X
NVIDIA Quadro FX 4500	X	X
NVIDIA Quadro FX 4400	X	X
NVIDIA Quadro FX 4400G	X	X
NVIDIA Quadro FX 4000	X	X
NVIDIA Quadro FX 3800	X	X
NVIDIA Quadro FX 3700	X	X
NVIDIA Quadro FX 3500	X	X
NVIDIA Quadro FX 3450	X	X
NVIDIA Quadro FX 3400	X	X
NVIDIA Quadro FX 1800	X	X
NVIDIA Quadro FX 1700	X	X
NVIDIA Quadro FX 1500	X	X
NVIDIA Quadro FX 1400	X	X
NVIDIA Quadro FX 580	X	X
NVIDIA Quadro FX 570	X	X
NVIDIA Quadro FX 560	X	X
NVIDIA Quadro FX 550	X	X
NVIDIA Quadro FX 540	X	X
NVIDIA Quadro FX 470	X	X
NVIDIA Quadro FX 380	X	X
NVIDIA Quadro FX 370	X	X
NVIDIA Quadro FX 370 low profile	X	X
NVIDIA Quadro FX 350	X	X
NVIDIA Quadro VX 200	X	X
NVIDIA Quadro CX	X	X
NVIDIA Quadro NVS 450	X	X
NVIDIA Quadro NVS 440	X	X
NVIDIA Quadro NVS 420	X	X
NVIDIA Quadro NVS 295	X	X

Table 3.1 Supported NVIDIA Workstation Products (continued)

Product	Windows Vista 32-bit	Windows Vista 64-bit
NVIDIA Quadro NVS 290	X	X
NVIDIA Quadro NVS 285	X	X

Table 3.2 Supported NVIDIA Quadro Blade/Embedded Graphics Board Series

Product	Windows Vista 32-bit	Windows Vista 64-bit
NVIDIA Quadro FX 3600M	X	X
NVIDIA Quadro FX 1600M	X	X
NVIDIA Quadro FX 770M	X	X
NVIDIA Quadro FX 560M	X	X
NVIDIA Quadro FX 370M	X	X
NVIDIA Quadro NVS 120M	X	X

Supported Languages

The Release 191 Quadro Professional 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.
- 3 The license agreement dialog box appears.
- 4 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.
- 5 Extract the zip files to a temporary folder on your PC.
- 6 Open the NVIDIA driver installation .EXE file to launch the NVIDIA InstallShield Wizard.
- 7 Follow the instructions in the NVIDIA InstallShield Wizard to complete the installation.

Note: After the driver installation, Windows may default to 16-bpp color and disable the Desktop Window Manager (DWM). To work around this issue, set the color to 32-bpp and then reboot the PC.

APPENDIX



MODE SUPPORT FOR WINDOWS

This chapter details the Windows modes supported by the Release 191 driver for NVIDIA products. It contains these sections:

- “General Mode Support Information” on page 28
- “Default Modes Supported by GPU” on page 29
- “TV-Out 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	Hardware Requirements
HP LP3065 Flat Panel Monitor (Dual-link DVI)	2560×1600 @ 60 Hz	<ul style="list-style-type: none"> All high-end NVIDIA Quadro FX graphics solutions.
Apple 30" Cinema HD Display (Dual link DVI)	2560x1600 @ 60 Hz	<ul style="list-style-type: none"> All high-end NVIDIA Quadro FX graphic solutions.
Dell WFP 3007 (Dual Link DVI)	2560x1600 @ 60 Hz	<ul style="list-style-type: none"> All High-end NVIDIA Quadro FX graphic solutions.

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:

- “NVIDIA Quadro FX/CX/VX and Quadro NVS Family of 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.

Resolution	Color Depth	Refresh Rates

1024 x 768	32 60 70 72 75 85 100 120	140 144 150 170 200

Example entry: 1024 x 768 32 60 70 72 75 85 100 120 140 144 150 170 200

Meaning:	Resolution:	1024 x 768
	Color depth:	32 bpp
	Refresh rates:	60 Hz, 70 Hz, 72 Hz, 75 Hz, 85 Hz, 100 Hz, 120 Hz, 140 Hz, 144 Hz, 150 Hz, 170 Hz, and 200 Hz

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.

NVIDIA Quadro FX/CX/VX and Quadro NVS Family of GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the the products listed in [Table 3.1 on page 22](#) and [Table 3.2 on page 23](#).

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

TV-Out 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 6 Series, GeForce 7 Series, and GeForce 8 Series GPUs.
480p (EDTV)	
720p (HDTV)	
1080i (HDTV)	
576i (PAL)	
576p (PAL)	

The driver supports manual overscan correction for component and DVI outputs. See the *ForceWare Graphics Driver User's Guide* for instructions on how to use the overscan correction features in the control panel.