



NVIDIA Quadro Professional Drivers ***Release 175 Notes***

Version 175.51

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

**NVIDIA Corporation
April 29, 2008**

Published by
NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050

Notice

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS, AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY, OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE.

Information furnished is believed to be accurate and reliable. However, NVIDIA Corporation assumes no responsibility for the consequences of use of such information or for any infringement of patents or other rights of third parties that may result from its use. No license is granted by implication or otherwise under any patent or patent rights of NVIDIA Corporation. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. NVIDIA Corporation products are not authorized for use as critical components in life support devices or systems without express written approval of NVIDIA Corporation.

Trademarks

NVIDIA, the NVIDIA logo, 3DFX, 3DFX INTERACTIVE, the 3dfx Logo, STB, STB Systems and Design, the STB Logo, the StarBox Logo, NVIDIA nForce, GeForce, NVIDIA Quadro, NVDVD, NVIDIA Personal Cinema, NVIDIA Soundstorm, Vanta, TNT2, TNT, RIVA, RIVA TNT, VOODOO, VOODOO GRAPHICS, WAVEBAY, Accuvie Antialiasing, the Audio & Nth Superscript Design Logo, CineFX, the Communications & Nth Superscript Design Logo, Detonator, Digital Vibrance Control, DualNet, FlowFX, ForceWare, GIGADUDE, Glide, GOFORCE, the Graphics & Nth Superscript Design Logo, Intellisample, M-BUFFER, nfiniteFX, NV, NVChess, nView, NVKeystone, NVOptimizer, NVPinball, NVRotate, NVSensor, NVSync, the Platform & Nth Superscript Design Logo, PowerMizer, Quincunx Antialiasing, Sceneshare, See What You've Been Missing, StreamThru, SuperStability, T-BUFFER, The Way It's Meant to be Played Logo, TwinBank, TwinView and the Video & Nth Superscript Design Logo are registered trademarks or trademarks of NVIDIA Corporation in the United States and/or other countries. Other company and product names may be trademarks or registered trademarks of the respective owners with which they are associated.

Intel, Indeo, and Pentium are registered trademarks of Intel Corporation. Microsoft, Windows, Windows NT, Windows Vista, Direct3D, DirectDraw, and DirectX are trademarks or registered trademarks of Microsoft Corporation. OpenGL is a registered trademark of Silicon Graphics Inc. PCI Express, PCI-SIG, and the PCI-SIG design marks are registered trademarks and/or service marks of PCI-SIG.

Other company and product names may be trademarks or registered trademarks of the respective owners with which they are associated.

Copyright

© 2008 by NVIDIA Corporation. All rights reserved.



Table of Contents



1. Introduction to Release 175

Notes

Structure of the Document 1
 Changes in this Edition 1

2. Release 175 Driver Changes

Version 175.51 Highlights 4
 What's New in Release 175 4
 What's New in Version 175.51 4
 Limitations in This Release. 5
 Special Instructional Notes for this Release . . 6
 NVIDIA Application Configuration Engine (ACE)
 6
 Changes in Version 175.51 7
 Fixed Issues—Windows Vista 32-bit 7
 Open Issues in Version 175.51 8
 Windows Vista 32-bit Issues 8
 Windows Vista 64-bit Issues 8
 Not NVIDIA Issues 9
 Windows Vista Limitations 9
 Unsupported Features 9
 OpenGL Application Issues 11
 Application Issues 12
 Known Product Limitations 14
 SLI Connector Requirement on NVIDIA Quadro
 SLI Cards. 14
 Image Sharpening Control not Available with
 Quadro FX 4600 and later GPUs. 14
 Driver Reports 256 MB Memory on NVIDIA
 Quadro FX 330 Cards 14
 Applying Workstation Application Profiles . . 16
 Gigabyte GA-6BX Motherboard 16

3. The Release 175 Driver

Hardware and Software Support 17
 Supported Operating Systems 17
 Supported NVIDIA Products 18
 Supported Languages 19
 Driver Installation 20
 Minimum Hard Disk Space 20
 Before You Begin. 20
 Installation Instructions. 20
 NVIDIA Driver History 21

General Mode Support Information 24
 Default Modes Supported by GPU 25
 Understanding the Mode Format 25
 NVIDIA Quadro FX Family of High End GPUs 26
 NVIDIA Quadro FX 5600, FX 4700 X2, and FX
 4600 GPUs. 29
 Other NVIDIA Quadro FX GPUs. 32
 TV-Out Modes Supported by TV Encoders . . . 35

A. Mode Support for Windows



List of Tables



Table 3.1	Supported NVIDIA Workstation Products	18
Table 3.1	NVIDIA Drivers for Windows Vista	21
Table A.1	Modes Supported for High Resolution Displays	24
Table A.2	Non-standard Modes Supported	24
Table A.3	Mode Support for S-Video and Composite Out	35
Table A.4	Mode Support for Component YPrPb Out and DVI Out	35

CHAPTER

1

INTRODUCTION TO *RELEASE 175 NOTES*

This edition of *Release 175 Notes* describes the Release 175 ForceWare Graphics 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 175 Driver Changes](#)” on page 3 gives a summary of changes, and fixed and open issues in this version.
- “[The Release 175 Driver](#)” on page 17 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 23 lists the default resolutions supported by the driver.

Changes in this Edition

This edition of the *Release 175 Notes* for Windows Vista includes information about NVIDIA ForceWare graphics driver version 175.51, and lists changes made to the driver since version 169.61. These changes are discussed beginning with the chapter “[Release 175 Driver Changes](#)” on page 3.

CHAPTER

2

RELEASE 175 DRIVER CHANGES

This chapter describes open issues for version 175.51, and resolved issues and driver enhancements for versions of the Release 175 driver up to version 175.51. The chapter contains these sections:

- “Version 175.51 Highlights” on page 4
- “Changes in Version 175.51” on page 7
- “Open Issues in Version 175.51” on page 8
- “Not NVIDIA Issues” on page 9
- “Known Product Limitations” on page 14

Version 175.51 Highlights

This section provides highlights of version 175.51 of the NVIDIA Release 175 Driver for Windows Vista.

- [What's New in Release 175](#)
- [What's New in Version 175.51](#)
- [Limitations in This Release](#)
- [Special Instructional Notes for this Release](#)

What's New in Release 175

- Added support for the following NVIDIA products:
 - NVIDIA Quadro FX 4700 X2
- Added the following pages to the NVIDIA Control Panel:
 - Manage Custom Resolutions
 - Adjust Television Color Settings
 - Adjust Screen Size and Position
 - Move CRT Position
 - Adjust Video Image Settings
- NVIDIA Control Panel *Adjust Video Color Settings* page: Moved the Edge Enhancement, Noise Reduction, and Inverse Telecine controls to the new *Adjust Video Image Settings* page.

What's New in Version 175.51

Resolved Issues for Windows Vista

See “Changes in Version 175.51” on page 7 for a list of resolved issues under Windows Vista.

Limitations in This Release

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

- **NVIDIA SLI Antialiasing**

This driver does not support NVIDIA SLI antialiasing.

- **INF Support for Restricted Timings**

This driver version does not support the use of Restricted Timing settings (R&T strings) in the INF to control mode validation and/or mode setting for custom mode/adaptor/monitor combinations. This capability is planned for a later 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 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>.

- **NVIDIA nView Desktop Manager**

The nView Desktop Manager is not included in this driver. The following nView Desktop Manager features will be included in a future driver version:

- Gridlines
- Virtual Desktops
- Window/Dialog Repositioning
- nView Profiles

Features Not Yet Available in the NVIDIA Control Panel

Support for the following control panel features is under development and not yet available under Windows Vista:

- **Display Category**
 - The Graph tab on the Adjust Desktop Color Settings page is not available.
- **Workstation Category**

The Workstation category 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 enable Advanced View.
- 2 In the 3D Settings Category, click Manage 3D Settings.
- 3 From the Global presets pulldown menu, select **Custom** and then click **Apply**.
- 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.

Changes in Version 175.51

The following sections list the changes made and issues resolved since driver version 169.61.

- “Fixed Issues–Windows Vista 32-bit” on page 7

The NVIDIA bug number and driver module are provided for reference.

Fixed Issues–Windows Vista 32-bit

Single-GPU Fixed Issues

- Adobe Photoshop–opening and closing a folder of images eventually causes the application to freeze when OpenGL features are turned on. [404293]

Open Issues in Version 175.51

As with every released driver, version 175.51 of the Release 175 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 8
- [“Windows Vista 64-bit Issues”](#) on page 8

Windows Vista 32-bit Issues

- Dual Quadro FX 4500: `wglEnumGpusNV()` enumerates only one GPU.

Windows Vista 64-bit Issues

- Dual Quadro FX 4500: `wglEnumGpusNV()` enumerates only one GPU.

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 9
- “Unsupported Features” on page 9
- “OpenGL Application Issues” on page 11
- “Application Issues” on page 12

Windows Vista Limitations

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

- 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)
- **Windowed quad-buffered stereo**

This is an operating system limitation.

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
- OneSpace Designer Modeling
- 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.

The same effect will occur in future "Release 100" Windows XP drivers.

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.

- City of Heroes—The mouse cursor does not display.

This is an application issue that can be worked around in full-screen mode by adding "compatibleursors 1" to the City of Heroes desktop shortcut.

NVIDIA is pursuing a fix with the application developer.

- Sims 2—"Smooth Edges (AA)" option is not available with Release 100 drivers.

This occurs because of an incorrect driver version check in the application. Using a previous Release 95 driver (xx.xx format) will allow the option to be visible.

NVIDIA is pursuing a fix with the application developer.

- Warhammer 40k Dawn of War (all versions) does not run with Release 100 drivers.

This occurs because of an incorrect driver version check in the application. Using a previous Release 95 driver (xx.xx format) will allow the option to be visible.

NVIDIA is pursuing a fix with the application developer.

- Tiger Woods PGA Tour 2007—Fly-by shot before each hole blacks-out textures.

NVIDIA is working with the developer to resolve this issue.

- Need for Speed Carbon—After upgrading with patch 1.3, the game crashes when launched.

This is an issue with the application patch under Windows Vista.

- Nascar Simracing—the game crashes when launched.

This is an issue with the application under Windows Vista.

- Call of Duty 2—Only solid colors render during gameplay when 4xAA is enabled.

The application is not applying antialiasing properly. Please try selecting 2x AA, disabling antialiasing, or using NVIDIA Enhanced application or Override antialiasing modes.

NVIDIA is pursuing a fix with the application developer

- Age of Empires III—the game has rendering artifacts, such as textured squares for smoke.
- Flight Simulator X—pressing Alt+Tab to switch to the desktop does not work.
- Everquest 2— with NVIDIA driver versions 100.xx, the following error message appears:

"You currently have a (7.15.11.120) video card installed. We recommend that you download version 7772 drivers before playing Everquest."

This occurs because the application is not checking the driver version correctly, but this does not affect gameplay. Please select "Continue Anyway" to launch the game. The problem does not occur with a previous Release 95 driver (xx.xx format).

NVIDIA is pursuing a fix with the application developer.

- MediaComposer video playback does not update properly.

This is not an NVIDIA Bug, but rather an issue with the application.

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:

- “SLI Connector Requirement on NVIDIA Quadro SLI Cards” on page 14
- “Image Sharpening Control not Available with Quadro FX 4600 and later GPUs” on page 14
- “Driver Reports 256 MB Memory on NVIDIA Quadro FX 330 Cards” on page 14
- “Applying Workstation Application Profiles” on page 16
- “Gigabyte GA-6BX Motherboard” on page 16

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 175 DRIVER

This chapter covers the following main topics:

- “Hardware and Software Support” on page 17
- “Driver Installation” on page 20
- “NVIDIA Driver History” on page 21

Hardware and Software Support

Supported Operating Systems

The Release 175 driver, version 175.51, 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 lists the NVIDIA products supported by the Release 175 driver.

Table 3.1 Supported NVIDIA Workstation Products

Product	Windows XP 32-bit Windows 2000	Windows XP Professional x64
NVIDIA Quadro FX 5600	X	X
NVIDIA Quadro FX 5500	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 3700	X	X
NVIDIA Quadro FX 3500	X	X
NVIDIA Quadro FX 3450	X	X
NVIDIA Quadro FX 3400	X	X
NVIDIA Quadro FX 1700	X	X
NVIDIA Quadro FX 1500	X	X
NVIDIA Quadro FX 1400	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 370	X	X
NVIDIA Quadro FX 350	X	X
NVIDIA Quadro NVS 440	X	X
NVIDIA Quadro NVS 290	X	X
NVIDIA Quadro NVS 285 PCI-E	X	X

Supported Languages

The Release 175 ForceWare 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 is minimum 56.4 MB for English-only, and 83.9 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.

NVIDIA Driver History

Release 175 is the latest NVIDIA Quadro Professional driver available. [Table 3.1](#) contains a summary of some previous driver releases and the versions associated with them. Some versions listed may not have been released outside of NVIDIA.

Table 3.1 NVIDIA Drivers for Windows Vista

Windows Vista Build	NVIDIA ForceWare Driver
RTM OS Builds 6000 or higher	175.51
RTM OS Builds 6000 or higher	169.61
RTM OS Builds 6000 or higher	162.50, 162.62, 162.65, 162.67
RTM OS Builds 6000 or higher	160.02
RTM OS Builds 6000 or higher	Release 100: Version 100.53, 100.54, 100.59, 100.64, 100.65, 100.75, Release 95: Version 97.46
RC2 OS Builds 5744 or higher	Release 95: Version 96.85
RC1 OS Builds 5520.RC1_16384.060812-2235 or higher	Release 95: Version 96.33
Build 5472.WinMain_idx01_5.060713-1900 or higher	Release 95: Versions 95.60–96.00
Windows Vista Beta2	NVIDIA Driver version 88.61
February 06 CTP build 5308.FebCTP_Final.060217-2200 or higher	NVIDIA Drivers 87.15, 87.45
July 05 Vista Beta1	NVIDIA Driver included 'in the box'.
December 05 CTP build 5270.Winmain.051214-1910	NVIDIA Driver included 'in the box'.

APPENDIX



MODE SUPPORT FOR WINDOWS

This chapter details the Windows modes supported by the Release 175 driver for NVIDIA products. It contains these sections:

- “General Mode Support Information” on page 24
- “Default Modes Supported by GPU” on page 25
- “TV-Out Modes Supported by TV Encoders” on page 35

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 25.

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)	2560×1600 @ 60 Hz	<ul style="list-style-type: none"> All high-end NVIDIA Quadro FX graphic solutions.
Dell WFP 3007 (Dual Link DVI)	2560×1600 @ 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 Family of High End GPUs” on page 26
- “NVIDIA Quadro FX 5600, FX 4700 X2, and FX 4600 GPUs” on page 29
- “Other NVIDIA Quadro FX GPUs” on page 32

Understanding the Mode Format

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

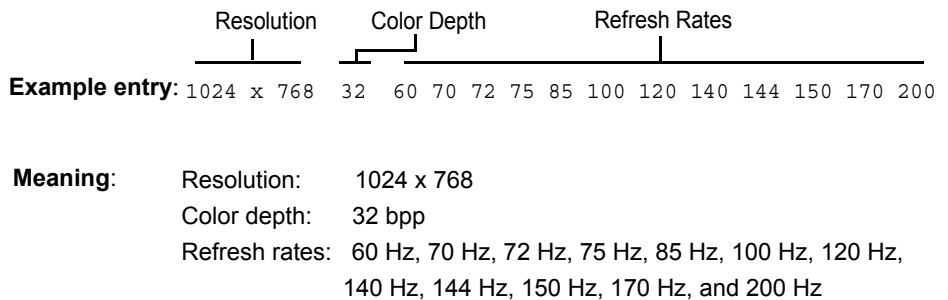


Figure A.1 Mode Format

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.

NVIDIA Quadro FX Family of High End GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the following products:

- NVIDIA Quadro FX 5500
- NVIDIA Quadro FX 4500 X2
- NVIDIA Quadro FX 4500
- NVIDIA Quadro FX 3400 / Quadro FX 4400
- NVIDIA Quadro FX 4400G
- NVIDIA Quadro FX 4000
- NVIDIA Quadro FX 3700
- NVIDIA Quadro FX 3500
- NVIDIA Quadro FX 3450 / Quadro FX 4000 SDI
- NVIDIA Quadro FX 1500
- NVIDIA Quadro FX 1400
- NVIDIA Quadro FX 560
- NVIDIA Quadro FX 550
- NVIDIA Quadro FX 540
- NVIDIA Quadro NVS 440
- NVIDIA Quadro NVS 285

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 60
800 x 600	8	60 70 72 75 85 100 120 140 144 150 170 200 240
848 x 480	8	60 70 72 75 85 100 120 140 144 150 170 200 240
960 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 70 72 75 85 100 120 140 144 150 170
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
1440 x 900	8		60 70 72 75 85 100 120 140 144 150 170 200
1600 x 1200	8		60 70 72 75 85 100 120
1680 x 1050	8		60
1920 x 1080	8	30i	60 70 72 75 85 100
1920 x 1200	8		60 70 72 75 85 100
1920 x 1440	8		60 70 72 75 85
2048 x 1536	8		60 70 72 75 85

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	60
800 x 600	16		60 70 72 75 85 100 120 140 144 150 170 200 240
848 x 480	16		60 70 72 75 85 100 120 140 144 150 170 200 240
960 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 70 72 75 85 100 120 140 144 150 170
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
1440 x 900	16		60 70 72 75 85 100 120 140 144 150 170 200
1600 x 1200	16		60 70 72 75 85 100 120
1680 x 1050	16		60
1920 x 1080	16	30i	60 70 72 75 85 100
1920 x 1200	16		60 70 72 75 85 100
1920 x 1440	16		60 70 72 75 85
2048 x 1536	16		60 70 72 75 85

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	60
800 x 600	32		60 70 72 75 85 100 120 140 144 150 170 200 240
848 x 480	32		60 70 72 75 85 100 120 140 144 150 170 200 240
960 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

1152 x 864	32		60 70 72 75 85 100 120 140 144 150 170 200
1280 x 720	32		60 70 72 75 85 100 120 140 144 150
1280 x 768	32		60 70 72 75 85 100 120 140 144 150
1280 x 800	32		60 70 72 75 85 100 120 140 144 150
1280 x 960	32		60 70 72 75 85 100 120 140 144 150
1280 x 1024	32		60 70 72 75 85 100 120 140 144 150
1360 x 768	32		60 70 72 75 85 100 120 140 144 150
1440 x 900	32		60 70 72 75 85 100 120 140 144 150 170 200
1600 x 1200	32		60 70 72 75 85 100
1680 x 1050	32		60
1920 x 1080	32	30i	60 70 72 75 85
1920 x 1200	32		60 70 72 75 85
1920 x 1440	32		60 70 72 75 85
2048 x 1536	32		60 70 72 75 85

NVIDIA Quadro FX 5600, FX 4700 X2, and FX 4600 GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the following products:

- NVIDIA Quadro FX 5600
- NVIDIA Quadro FX 4700 X2
- NVIDIA Quadro FX 4600

Standard Modes

640 x 480	8		60	72	75	85	100													
720 x 480	8		60																	
720 x 576	8		50	60																
800 x 600	8		60		72	75	85	100												
1024 x 768	8		60	70	72	75	85	100												
1152 x 864	8		60	70	72	75	85	100	120	140	144	150	170	200						
1280 x 720	8		60	70	72	75	85	100												
1280 x 768	8		60		72	75	85	100												
1280 x 800	8		60	70	72	75	85	100												
1280 x 960	8		60	70	72	75	85	100												
1280 x 1024	8		60	70	72	75	85	100												
1360 x 768	8		60	70	72	75	85	100												
1440 x 900	8		60	70	72	75	85	100	120	140	144	150	170	200						
1600 x 1200	8		60	70	72	75	85	100												
1680 x 1050	8		60																	
1920 x 1080	8		30i																	
1920 x 1200	8		60		72	75	85	100												
1920 x 1440	8		60	70	72	75	85	100												
2048 x 1536	8		60	70	72	75	85	100												

640 x 480	16		60		72	75	85	100												
720 x 480	16		60																	
720 x 576	16		50	60																
800 x 600	16		60		72	75	85	100												
1024 x 768	16		60	70	72	75	85	100												
1152 x 864	16		60	70	72	75	85	100	120	140	144	150	170	200						
1280 x 720	16		60	70	72	75	85	100												

1280 x 768	16		60	72	75	85	100													
1280 x 800	16		60	70	72	75	85	100												
1280 x 960	16		60	70	72	75	85	100												
1280 x 1024	16		60	70	72	75	85	100												
1360 x 768	16		60	70	72	75	85	100												
1440 x 900	16		60	70	72	75	85	100	120	140	144	150	170	200						
1600 x 1200	16		60	70	72	75	85	100												
1680 x 1050	16		60																	
1920 x 1080	16	30i																		
1920 x 1200	16		60	72	75	85	100													
1920 x 1440	16		60	70	72	75	85	100												
2048 x 1536	16		60	70	72	75	85	100												

640 x 480	32		60	72	75	85	100													
720 x 480	32		60																	
720 x 576	32	50	60																	
800 x 600	32		60	72	75	85	100													
1024 x 768	32		60	70	72	75	85	100												
1152 x 864	32		60	70	72	75	85	100	120	140	144	150	170	200						
1280 x 720	32		60	70	72	75	85	100												
1280 x 768	32		60	72	75	85	100													
1280 x 800	32		60	70	72	75	85	100												
1280 x 960	32		60	70	72	75	85	100												
1280 x 1024	32		60	70	72	75	85	100												
1360 x 768	32		60	70	72	75	85	100												
1440 x 900	32		60	70	72	75	85	100	120	140	144	150	170	200						
1600 x 1200	32		60	70	72	75	85	100												
1680 x 1050	32		60																	
1920 x 1080	32	30i																		
1920 x 1200	32		60	72	75	85														
1920 x 1440	32		60	70	75	85	100													
2048 x 1536	32		60	70	75	85	100													

640 x 480	64		60	72	75	85	100													
720 x 480	64		60																	
720 x 576	64	50	60																	
800 x 600	64		60	72	75	85	100													
1024 x 768	64		60	70	72	75	85	100												
1152 x 864	64		60	70	72	75	85	100	120	140	144	150	170	200						

1280 x 720	64		60	70	72	75	85	100										
1280 x 768	64		60		72	75	85	100										
1280 x 800	64		60	70	72	75	85	100										
1280 x 960	64		60	70	72	75	85	100										
1280 x 1024	64		60	70	72	75	85	100										
1360 x 768	64		60	70	72	75	85	100										
1440 x 900	64		60	70	72	75	85	100	120	140	144	150	170	200				
1600 x 1200	64		60	70	72	75	85	100										
1680 x 1050	64		60															
1920 x 1080	64	30i																
1920 x 1440	64							100										
2048 x 1536	64							100										

Other NVIDIA Quadro FX GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the following products:

- NVIDIA Quadro FX 3700
- NVIDIA Quadro FX 370
- NVIDIA Quadro FX 570
- NVIDIA Quadro FX 1700
- NVIDIA Quadro NVS 290

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	60
800 x 600	8		60 70 72 75 85 100 120 140 144 150 170 200 240
848 x 480	8		60 70 72 75 85 100 120 140 144 150 170 200 240
960 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 70 72 75 85 100 120 140 144 150 170
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
1440 x 900	8		60 70 72 75 85 100 120 140 144 150 170 200
1600 x 1200	8		60 70 72 75 85 100 120
1680 x 1050	8		60
1920 x 1080	8	30i	60 70 72 75 85 100
1920 x 1200	8		60 70 72 75 85 100
1920 x 1440	8		60 70 72 75 85
2048 x 1536	8		60 70 72 75 85

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	60
800 x 600	16		60 70 72 75 85 100 120 140 144 150 170 200 240

848 x 480	16		60 70 72 75 85 100 120 140 144 150 170 200 240
960 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 70 72 75 85 100 120 140 144 150 170
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
1440 x 900	16		60 70 72 75 85 100 120 140 144 150 170 200
1600 x 1200	16		60 70 72 75 85 100 120
1680 x 1050	16		60
1920 x 1080	16	30i	60 70 72 75 85 100
1920 x 1200	16		60 70 72 75 85 100
1920 x 1440	16		60 70 72 75 85
2048 x 1536	16		60 70 72 75 85

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	60
800 x 600	32		60 70 72 75 85 100 120 140 144 150 170 200 240
848 x 480	32		60 70 72 75 85 100 120 140 144 150 170 200 240
960 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
1152 x 864	32		60 70 72 75 85 100 120 140 144 150 170 200
1280 x 720	32		60 70 72 75 85 100 120 140 144 150
1280 x 768	32		60 70 72 75 85 100 120 140 144 150
1280 x 800	32		60 70 72 75 85 100 120 140 144 150
1280 x 960	32		60 70 72 75 85 100 120 140 144 150
1280 x 1024	32		60 70 72 75 85 100 120 140 144 150
1360 x 768	32		60 70 72 75 85 100 120 140 144 150
1440 x 900	32		60 70 72 75 85 100 120 140 144 150 170 200
1600 x 1200	32		60 70 72 75 85 100
1680 x 1050	32		60
1920 x 1080	32	30i	60 70 72 75 85
1920 x 1200	32		60 70 72 75 85
1920 x 1440	32		60 70 72 75 85
2048 x 1536	32		60 70 72 75 85

640 x 480	64		60 70 72 75 85 100 120 140 144 150 170 200 240
720 x 480	64		60
720 x 576	64	50	60
800 x 600	64		60 70 72 75 85 100 120 140 144 150 170 200 240
848 x 480	64		60 70 72 75 85 100 120 140 144 150 170 200 240
960 x 600	64		60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x 768	64		60 72 75 85 100
1152 x 864	64		60 70 72 75 85 100 120 140 144 150 170 200
1280 x 768	64		60 72 75 85 100
1280 x 1024	64		60 72 75 85 100
1440 x 900	64		60 70 72 75 85 100 120 140 144 150 170 200
1600 x 1200	64		60 72 75 85 100
1680 x 1050	64		60
1920 x 1080	64	30i	
1920 x 1200	64		70
1920 x 1440	64		60 70 72 75 85
2048 x 1536	64		60 70 72 75 85

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.