



Release 185 Graphics Drivers ***Release Notes***

Version 185.66

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

**NVIDIA Corporation
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CHAPTER

1

INTRODUCTION TO *RELEASE NOTES*

This edition of *Release Notes* describes the Release 185 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 185 Driver Changes](#)” on page 3 gives a summary of changes, and fixed and open issues in this version.
- “[The Release 185 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 21 lists the default resolutions supported by the driver.

Changes in this Edition

This edition of the *Release Notes* for Windows Vista includes information about NVIDIA graphics driver version 185.66, and lists changes made to the driver since version 182.50. These changes are discussed beginning with the chapter “[Release 185 Driver Changes](#)” on page 3.

CHAPTER

2

RELEASE 185 DRIVER CHANGES

This chapter describes open issues for version 185.66, and resolved issues and driver enhancements for versions of the Release 185 driver up to version 185.66. The chapter contains these sections:

- “Version 185.66 Highlights” on page 4
- “Changes in Version 185.66” on page 6
- “Open Issues in Version 185.66” on page 7
- “Not NVIDIA Issues” on page 9
- “Known Product Limitations” on page 16

Version 185.66 Highlights

This section provides highlights of version 185.66 of the NVIDIA Release 185 Driver for Windows Vista.

- [What's New in Release 185](#)
- [What's New in Version 185.66](#)
- [Limitations in This Release](#)

What's New in Release 185

New Product Support

Added support for the NVIDIA GeForce GTX 275.

NVIDIA Control Panel

- New **HDCP Status Reporting** page
- New Ambient Occlusion control in the **Manage 3D Settings** page
Ambient Occlusion adds realism to scenes by reducing the intensity of ambient lights on surfaces blocked by surrounding objects. It enhances depth perception by providing a soft shadow effect for objects based on their placement in the scene. This feature is not supported for all applications; refer to the Program Settings under Manage 3D Settings in the NVIDIA Control Panel to view per-application support.
- SLI Antialiasing support
- Update to SLI multimonitor controls
- Update to **Adjust Desktop Color Settings** and **Adjust Television Color Settings** pages

Display

Update to display hot plug and persistence

CUDA

Support for CUDA 2.2

OpenGL

Support for OpenGL 3.0

What's New in Version 185.66

- Added support for the NVIDIA GeForce GTX 275.
- This driver version includes support for NVIDIA PhysX acceleration on all GeForce 8-series, 9-series and 200-series GPUs with a minimum of 256MB dedicated graphics memory (this driver package installs NVIDIA PhysX System Software v9.09.0203).
- See [“Changes in Version 185.66”](#) on page 6 for a list of resolved issues.

Limitations in This Release

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

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

Changes in Version 185.66

The following sections list the changes made and issues resolved since driver version 182.50.

The NVIDIA bug number is provided for reference.

Fixed Issues—Windows Vista 32-bit

Single GPU Resolved Issues

- Far Cry 2 –Override Antialiasing from the NVIDIA Control Panel is not getting applied to the game. [486104]
- The TV format is not set properly from the NVIDIA Control Panel->Change signal or HD format page. [373501]

Multi-GPU Resolved Issues

- [SLI], GeForce GTX 280/260: Mass Effect—antialiasing levels fall back whenever the in-game resolution is switched to a lower resolution.[477335]
- nForce 760i SLI, GeForce 8400 GS: PhysX gets disabled after performing an INF install over a previous driver version. [510754]

Windows Vista 64-bit Issues

Single GPU Resolved Issues

- The TV format is not set properly from the NVIDIA Control Panel->Change signal or HD format page. [373501]
- 3xGeForce 9800 GTX: Saved profile does not load properly. [477263]
- GeForce 9600 GT: There is green/blue corruption when playing an H.264 formatted Blu-ray disk using Power DVD 8. [524145]

Multi-GPU Issues

- [Hybrid SLI], GeForce GTX 260/280+nForce 760/780a SLI: Fraps does not run if set to run at Windows launch in Hybrid SLI performance or save power modes. [443794]

Open Issues in Version 185.66

As with every released driver, version 185.66 of the Release 185 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 7
- [“Windows Vista 64-bit Issues”](#) on page 8

Windows Vista 32-bit Issues

Single GPU Issues

All GPUs

- Half Life 2: Episode 2—the in-game brightness is greatly reduced if Enhanced or Override AA is enabled from the NVIDIA Control Panel. [429254]

GeForce 200 Series

- GeForce GTX 295: Crysis Warhead Patch 1.1.1.710 (DirectX 10)—the game screen shrinks and shifts to the left corner of display when the resolution is changed to lower value than the native resolution. [528355]

GeForce 9 Series

- GeForce 9800 GT: With Dualview mode enabled, the GPU runs at the highest performance level even when no video or 3D applications are running. [531538]
- GeForce 9600 GT: Age of Cannon:Hyborian Adventures—black dots appear on the trees. [533130]

Multi-GPU Issues

GeForce 200 Series GPUs

- [3-way SLI], GeForce GTX 280/260: 3DMark06—the TV screen (component or S-Video) goes blank after launching the benchmark with SLI mode enabled. [491193]
- [SLI], GeForce GTX 280/260: At 2560x1600 resolution, the GPU clock speeds do not change when switching from single-display to Dualview display mode.

GeForce 9 Series GPUs

- [3-way SLI], GeForce 9800 GTX/nForce 750/780a SLI: Portal —there are white lines at the borders of the textures when the game is launched with default settings. [441377]

- [SLI], GeForce 9800 GTX: Mass Effect—there is a band of corruption on the edge of the screen when switching from a high resolution to a lower resolution. [433929]
- [SLI], GeForce 9600 GT: Tomb Raider: Underworld—the game pauses continuously when SLI is enabled. [533193]

Windows Vista 64-bit Issues

Single GPU Issues

- NVIDIA Control Panel: Adding a custom profile with an open bracket in the name results in an error. [437056]
- Half Life 2: Episode 2—the in-game brightness is greatly reduced if Enhanced or Override AA is enabled from the NVIDIA Control Panel. [429254]

GeForce 200 Series

- GeForce 200 Series: When entering custom resolution values from the Manage Custom Resolutions page, the values are not validated. [524691]
- GeForce GTX 295: Settings on the "Adjust desktop color settings" page are at 0% for the secondary Clone or Dualview mode display. [514218]

GeForce 9 Series

- GeForce 9800 GT: Lineage 2—the game world is extremely dark. [531486]

Multi-GPU Issues

- [3-way SLI]: The driver fails to install correctly when installing the driver over a previous version. [459180/470203]

You must first uninstall the previous NVIDIA graphics driver from the Windows control panel under Programs (uninstall a program).

GeForce 200 Series

- [3-way SLI], GeForce GTX 280: FarCry2—there are black patches of corruption with SLI enabled at 2560x1600 resolution. [535524]

GeForce 9 Series

- [3-way SLI], GeForce 9800 GTX: Crysis (64-bit) (DirectX 9)— there is a lengthy pause or the system freezes when firing a weapon.

This issue does not occur with the DirectX 10 version of the game, which is recommended.

- [SLI], GeForce 9800 GTX: Call of Duty:World at War—there is geometric corruption after applying Ambient Occlusion from the NVIDIA Control Panel. [526733]
- [SLI], GeForce 9600 GT: Changes made from the Resize HDTV Settings page are not saved after after enabling SLI mode. [529759]

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 10
- “OpenGL Application Issues” on page 12
- “Application Issues” on page 13
- “Operating System Issues” on page 15

Windows Vista Limitations

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

- **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>.

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.

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 System Tools 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 System Tools software, which you can download from NVIDIA.com.

- **AGP Settings Adjustment**

- **Video Zoom**

- **Pan & Scan** - the process of panning across the desktop in order to display a desktop on a monitor with lower resolution

- **Per-display Desktop Color Setting Adjustments**

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

- **Per-display Video Color Setting Adjustments**

For Dualview mode, the video color setting adjustments through the NVIDIA Control Panel can only be made across all displays in a system, and not on a per-display basis.

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

- **Run television setup wizard**
- **nView Horizontal and Vertical Span Modes**

Due to architectural changes in the new Windows Vista Window Display Driver Model (WDDM), span mode cannot be supported in NVIDIA graphics drivers. NVIDIA recommends using the built-in Windows Vista multi-display modes.

- **Display/Connection Wizard** (such as was provided with Windows Media Center Edition)
- **DVD/MPEG Extensions** (such as was provided with Windows Media Center Edition)
- **Audio Extensions** (such as was provided with Windows Media Center Edition)
- **Windowed quad-buffered stereo**
This is an operating system limitation.
- **NVIDIA nView Desktop Manager**

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

OpenGL Application Issues

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

- Mixed GDI and OpenGL rendering does not work.

A number of applications use GDI to render UI components and object highlighting. This is not supported in the Windows Vista driver model.

NVIDIA recommends converting GDI rendering to OpenGL.

The following are some applications that are known to have this issue:

- Maya 7.01
- 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

- Counter Strike—the application crashes to the desktop if the resolution or bit-depth is changed from the in-game video options menu. [416582]

This is an application issue, but the problem does not occur if you change the resolution or bit-depth from the game's main menu and not while in a game.

- Star Wars: Knights Of The Old Republic 2—the game fails to launch, and an “application has stopped working” error message appears. [420115]

This occurs because the application is not able to interpret the driver version correctly.

- Tiger Woods PGA Tour 2007—Fly-by shot before each hole blacks-out textures. [274697]

NVIDIA is working with the developer to resolve this issue.

- City of Heroes—The mouse cursor does not display. [259256]

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. [272477]

This occurs because of an incorrect driver version check in the application.

NVIDIA has worked around this issue in the operating system by changing the way the driver version is reported to this application.

- Warhammer 40k Dawn of War (all versions) does not run with Release 100 drivers. [273154]

This occurs because of an incorrect driver version check in the application.

NVIDIA has worked around this issue in the operating system by changing the way the driver version is reported to this application.

- Need for Speed Carbon—After upgrading with patch 1.3, the game crashes when launched. [290506]

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

- Nascar Simracing—the game crashes when launched. [270792]

This is an issue with the application under Windows Vista.

- Call of Duty 2—Only solid colors render during game play when 4xAA is enabled. [257454]

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. [258036]
- Flight Simulator X—pressing Alt+Tab to switch to the desktop does not work. [293729]
- Everquest 2— with NVIDIA driver versions 100.xx, the following error message appears: [273346]

"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 game play. 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.

- Windows Vista 64-bit, [PhysX]: TheGameCreators PhysX Screen Saver doesn't get installed properly. [491613]

*This is not an NVIDIA issue, but a bug in Vista 64-bit OS that affects the installation of many screen savers. To work around, locate the corresponding .scr file for the screen saver, then right-click and select **Install**.*

Note: *PhysXscreensaver.scr is located in \windows\SysWOW64.*

- GeForce 9800 GTX: Flight Simulator Acceleration (DirectX 10) - the sky box does not render correctly when zoomed all the way out. [436158]
This is not an NVIDIA bug, but rather an application issue.
- GeForce 9800 GTX: Flight Simulator Acceleration (DirectX 10) - there is no antialiasing preview window. [436156]
- GeForce 9800 GX2: Fury (DirectX 10)—the character names flicker. [384917]
This is not an NVIDIA bug, but rather an application issue.
- GeForce 9600 GT, GeForce 9800 GX2, GeForce 8800 GTX/Ultra/GTS/GT: Assassin's Creed: Directors Cut - the shadow flickers. [400541]
This is not an NVIDIA bug, but rather an application issue.
- GeForce 9600 GT: Crysis (DirectX 9) - there is corruption in the game. [399261]
This is not an NVIDIA bug, but rather an issue with the application issue. To avoid this issue, use the DirectX 10 option of the game.

Application Issues Under SLI Mode

- [SLI]: NVIDIA SLI scaling on some applications under Windows Vista may not be as much as under Windows XP. Some applications include "S.T.A.L.K.E.R., Half-Life 2: Lost Coast, Company of Heroes, Battlefield 2142, Call of Duty 2, Hitman: Blood Money, and Far Cry. [302534 290803]

This is an application issue which has been resolved with the latest Steam patch.

- [SLI], GeForce 9800 GX2: The Witcher—a blooming light shines through objects with SLI mode enabled. [396736]

This is not an NVIDIA bug, but rather an application issue.

- [Quad SLI], GeForce 9800 GX2: Test Driver Unlimited—there is pausing/hitching during the cut scene transitions. [395207]

Operating System Issues

- World of Warcraft – there is a 60% drop in performance when running the game in windowed mode with SLI or multi-GPU mode enabled. [289427]

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.

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:

- “GeForce GTX 295 Fan Control and NVIDIA Control Panel Performance Group version 6.03.06.00” on page 16
- “1280x1024 @ 60 Hz not Available on BenQ FP241W Monitors” on page 16
- “Image Sharpening Control not Available with GeForce 8 Series and later GPUs” on page 16
- “Gigabyte GA-6BX Motherboard” on page 16

GeForce GTX 295 Fan Control and NVIDIA Control Panel Performance Group version 6.03.06.00

The GeForce GTX 295 fan control does not function properly when using the NVIDIA Control Panel Performance Group version 6.03.06.00. For proper fan control, use version 6.03.12.00 or later.

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.

Image Sharpening Control not Available with GeForce 8 Series and later GPUs

With GeForce 8 Series 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 GeForce 8 series and later GPUs.

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 185 DRIVER

This chapter covers the following main topics:

- “Hardware and Software Support” on page 17
- “Driver Installation” on page 19

Hardware and Software Support

Supported Operating Systems

The Release 185 driver, version 185.66, 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 185 driver, version 185.66

Table 3.1 Supported NVIDIA Products

Consumer Products

GeForce GTX 295
 GeForce GTX 285
 GeForce GTX 280
 GeForce GTX 275
 GeForce GTX 260
 GeForce GTS 250
 GeForce GT 140
 GeForce GT 130
 GeForce GT 120
 GeForce 9800 GX2
 GeForce 9800 GTX+
 GeForce 9800 GTX
 GeForce 9800 GT
 GeForce 9600 GT
 GeForce 9600 GS
 GeForce 9600 GSO
 GeForce 9500 GT
 GeForce 9500 GS
 GeForce 9400 GT
 GeForce 9400
 GeForce 9300 GS
 GeForce 9300 GE
 GeForce 9300
 GeForce 9200

Supported Languages

The Release 185 Graphics Drivers supports the following languages in the main driver Control Panel:

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

Driver Installation

Minimum Hard Disk Space

The hard disk space requirement for 32-bit is minimum 120 MB for English-only, and 185 MB for International.

The hard disk space requirement for 64-bit is minimum 170 MB for English-only, and 230 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 185 driver for NVIDIA products. It contains these sections:

- “General Mode Support Information” on page 22
- “Default Modes Supported by GPU” on page 23
- “Modes Supported by TV Encoders” on page 33

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 23.

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:

- “GeForce 9 Series GPUs” on page 24
- “GeForce 200 Series of GPUs” on page 27
- “GeForce 9400/9300/9200 Series” on page 30

Understanding the Mode Format

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

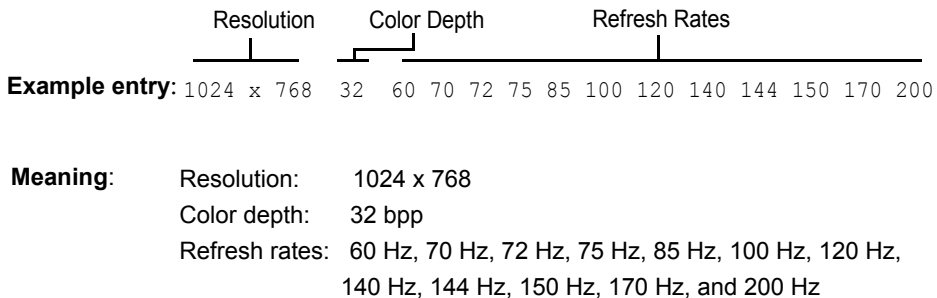


Figure A.1 Mode Format

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.

GeForce 9 Series GPUs

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

- GeForce 9800 GTX+
- GeForce 9800 GTX
- GeForce 9800 GX2
- GeForce 9800 GT
- GeForce 9600 GT
- GeForce 9600 GSO
- GeForce 9500 GT
- GeForce 9400 GT
- GeForce 9300 GS
- GeForce 9300 GE

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	70	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					
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 70 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
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 70 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
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 70 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
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
-----

```

GeForce 200 Series of GPUs

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

- NVIDIA GeForce GTS 250
- NVIDIA GeForce GTX 295
- NVIDIA GeForce GTX 285
- NVIDIA GeForce GTX 280
- NVIDIA GeForce GTX 275
- NVIDIA GeForce GTX 260

Standard Modes

640 x 480	8	60
800 x 600	8	60 70 75 85 100
848 x 480	8	60 70 75 85 100
960 x 600	8	60 70 75 85 100
1024 x 768	8	60 70 75 85 100
1152 x 864	8	60 70 75 85 100
1280 x 768	8	60
1280 x 800	8	60
1280 x 960	8	60 70 75 85 100
1280 x 1024	8	60 70 75 85 100
1360 x 768	8	60
1600 x 1200	8	60 70 75 85 100
1680 x 1050	8	60
1920 x 1200	8	60
1920 x 1440	8	60 70 75 85 100
2048 x 1536	8	60 70 75 85 100

640 x 480	16	60
800 x 600	16	60 70 75 85 100
848 x 480	16	60 70 75 85 100
960 x 600	16	60 70 75 85 100
1024 x 768	16	60 70 75 85 100
1152 x 864	16	60 70 75 85 100
1280 x 768	16	60

1280 x 800	16	60
1280 x 960	16	60 70 75 85 100
1280 x 1024	16	60 70 75 85 100
1360 x 768	16	60
1600 x 1200	16	60 70 75 85 100
1680 x 1050	16	60
1920 x 1200	16	60
1920 x 1440	16	60 70 75 85 100
2048 x 1536	16	60 70 75 85 100

640 x 480	32	60
800 x 600	32	60 70 75 85 100
848 x 480	32	60 70 75 85 100
960 x 600	32	60 70 75 85 100
1024 x 768	32	60 70 75 85 100
1152 x 864	32	60 70 75 85 100
1280 x 768	32	60
1280 x 800	32	60
1280 x 960	32	60 70 75 85 100
1280 x 1024	32	60 70 75 85 100
1360 x 768	32	60
1600 x 1200	32	60 70 75 85 100
1680 x 1050	32	60
1920 x 1200	32	60
1920 x 1440	32	60 70 75 85 100
2048 x 1536	32	60 70 75 85 100

640 x 480	64	60
800 x 600	64	60 70 75 85 100
848 x 480	64	60 70 75 85 100
960 x 600	64	60 70 75 85 100
1024 x 768	64	60 70 75 85 100
1152 x 864	64	60 70 75 85 100
1280 x 768	64	60
1280 x 800	64	60
1280 x 960	64	60 70 75 85 100
1280 x 1024	64	60 70 75 85 100
1360 x 768	64	60
1600 x 1200	64	60 70 75 85 100

1680 x 1050	64	60							
1920 x 1200	64	60							
1920 x 1440	64	60	70	75	85	100			
2048 x 1536	64	60	70	75	85	100			

GeForce 9400/9300/9200 Series

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

- GeForce 9400
- GeForce 9300
- GeForce 9200
- nForce 760i SLI

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 85 100 120 140 144 150 170 200
1280 x 1024	8		70
1440 x 900	8		60
1600 x 1200	8		70
1680 x 1050	8		60
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 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 85 100 120 140 144 150 170 200

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 and GeForce 7 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.