Release 185 Graphics Drivers for Notebooks
Release Notes

Version 185.85

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

**NVIDIA Corporation
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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.

**This is a reference driver that can be installed on supported NVIDIA GeForce,
Quadro NVS, and Quadro FX notebook GPUs.** However, please note that your
notebook original equipment manufacturer (OEM) provides certified drivers for your
specific notebook on their website. NVIDIA recommends that you check with your
notebook OEM about recommended software updates for your notebook. OEMs may
not provide technical support for issues that arise from the use of this driver.

Structure of the Document

This document is organized in the following sections:

- "Release 185 Driver Changes" on page 2 gives a summary of changes, and fixed and
  open issues in this version.

- "The Release 185 Driver" on page 15 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 185.85, and lists changes made to the driver since
version 179.48. These changes are discussed beginning with the chapter "Release 185
Driver Changes" on page 2.

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RELEASE 185 DRIVER CHANGES

This chapter describes open issues for version 185.85, and resolved issues and driver enhancements for versions of the Release 185 driver up to version 185.85. The chapter contains these sections:

Version 185.85 Highlights

This section provides highlights of version 185.85 of the NVIDIA Release 185 Driver for Windows Vista.

- What's New in Release 185

- What's New in Version 185.85

- Limitations in This Release

What's New in Release 185

- This is a reference driver for Quadro FX, Quadro NVS series, GeForce 8M, 9M, 100M, and 200M series notebook GPUs.

  Some notebooks are not supported by this release. Refer to the "Supported NVIDIA Products" on page 16 for the list of supported GPUs and notebooks.

NVIDIA Control Panel Updates

3D Settings

- **Ambient Occlusion** setting (*new* in the Manage 3D Settings page for Windows Vista)

  Ambient occlusion enhances depth perception and adds realism to 3D scenes by providing a soft shadow effect to objects based on their placement in the scene.

- **SLI Antialiasing** (*new* in the Manage 3D Settings page for Windows Vista)

  Now available under Windows Vista as well as Windows XP.

- **Workstation/Quad-buffered 3D Stereo** (*new* Stereo-Display mode settings in the Manage 3D Settings page)

  Added support for the following stereoscopic 3D hardware and modes:

  - GeForce 3D Vision hardware–generic active stereo, via on-board DIN connector, passive (Clone mode) modes, and 3D DLP display

  - Generic active stereo

  - Horizontal interlaced stereo displays

  - Sub-field stereo displays

  - Side-field stereo displays

  - SeeFront Autostereoscopic LCD

  - Texas Instruments 3D Ready DLP® (Digital Light Processing technology) displays

  - Tridelity Multi-View and Single-Viewer displays

- Planar StereoMirror^{TM} displays

Display

- **Set up Multiple Displays** (*revised* under Windows Vista)

  In Release 185, when SLI mode is enabled, users can now select a display from different GPUs as long as the GPUs are in the same SLI group.

  - Displays must still be connected to the same GPU under Clone mode.

  - Quad SLI: When using GeForce X2, Quadro X2, or the GeForce GTX 295 graphics cards, only GPUs that have two display connectors can be used to drive displays. Typically, display connectors lined up on the same slot position are connected to the same GPU.

  - NVIDIA recommends connecting displays to the same GPU to shorten the driver reload time on the initial setup.

- **Adjust Desktop Color Settings** page (*revised* under Windows Vista)

  Applications now have the option of controlling the desktop color settings.

Video & Television

- **HDCP Status**

  New page for verifying whether the system is HDCP-capable

- **Adjust TV Color Settings** page (*revised* under Windows Vista)

  Applications now have the option of controlling the TV color settings.

Display Driver Updates

Device Support

Added support for EDID-like devices.

Hotplug Behavior

When hotplugging or hot-unplugging a digital display, the driver detects the display and then configures the multi-display mode and display resolution based on the recent record of the displays connected. If no record exists, then the driver applies default settings. A popup message appears at the system notification tray to alert the user of the change.

The automatic display configuration also occurs upon powering on the computer and booting into Windows Vista if the driver detects a change in display connections since the last Windows session.

Notebook-Specific Updates

NVIDIA Display Power Saving technology option appears in the Windows Vista Power Options->Advanced settings tab .

Video Updates

- Compute-based DVD upscaling
- CUDA Video Encoder 1.1: Added support for CUDA-enabled GPUs with less than 32 cores to the NVIDIA Video Encoding library.

CUDA Updates

- CUDA 2.2
- CUDA Video Encoder V1.1: Added support for CUDA-enabled GPUs with less than 32 cores to the NVIDIA Video Encoding library.

OpenGL Updates

- Support for OpenGL 3.0
- Implemented NVX_shader_buffer_load (OpenGL Shading Language).

What's New in Version 185.85

- Supports NVIDIA PhysX hardware acceleration on GeForce 8M and 9M GPUs with a minimum of 256MB dedicated graphics memory (this driver package installs NVIDIA PhysX System Software v9.09.0408).

  Note: The NVIDIA Control Panel erroneously reports the PhysX software version as 9.09.0203. If you have installed graphics driver version 185.85, then the NVIDIA PhysX software installed is version 9.09.0408.

- rSee 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 features that are Not Yet Available

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.

Changes in Version 185.85

The following sections list the changes made and issues resolved since driver version 185.81.

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

Fixed Issues—Windows Vista 32-bit

Single- GPU Issues

- Company of Heroes DirectX 10– scrolling the camera side to side causes hitching despite a high frame rate when stationary. [538673]

Changes in Version 185.81

The following sections list the changes made and issues resolved since driver version 179.48.

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

Fixed Issues—Windows Vista 32-bit

Single- GPU Issues

- GeForce 9500M/9400M: The multi-display mode switches from Dualview to single-display mode after changing the resolution and scaling option for the secondary display. [510300]

- GeForce 8800M GTX: External HDMI TV cannot be set to single-display mode, and cannot be set as the primary Clone mode or Dualview mode display.[470434]

Multi- GPU Issues

- [SLI], GeForce8800M GTX: Bioshock–the game hangs with a blank screen when toggling to the full-screen mode using Alt+Tab at 1920x1200. [486274]

Fixed Issues—Windows Vista 64-bit

Single- GPU Issues

- GeForce 8800M GTX: With HDTV connected to component-out and enabled in single-display mode, the display switches to the LVDS upon resume from Sleep or Hibernate mode. [457620]

Open Issues in Version 185.85

As with every released driver, version 185.85 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. ***Many of these issues are system-specific and may not be seen on your particular notebook.***

- "Windows Vista 32-bit Issues" on page 8
- "Windows Vista 64-bit Issues" on page 9

Windows Vista 32-bit Issues

Single GPU Issues

Quadro FX Series
- Quadro FX 3700M: When resuming from lid-close activated Sleep mode, keyboard and mouse response is very sluggish. [521241]
- Quadro FX 2700M:The NVIDIA Control Panel shows an extra display on the "Set up multiple displays" page. [540993]

GeForce 9M Series
- GeForce 9700M GTS: The system does not resume from Standby/Sleep mode. [542034]
- GeForce 9600M GT: The shortcut keys for selecting the color option in the NVIDIA Control Panel 'Adjust video color setting' page do not work. [515450]
- GeForce 9600M GT: With Clone mode enabled and the LVDS set to "Do not scale", the LVDS resolution cannot be changed.[469380]
- GeForce 9600M GT: Hot keys (keyboard shortcut) for selecting the 'color' option in the 'Adjust video color setting' page do not work.[515450]
- GeForce 9400M G: The settings on the "Change Flat Panel Scaling" page are not updated properly after resizing the desktop and then restoring the default settings. [510854]
- GeForce 9400M G: Under Clone mode, each display has different video color settings from the NVIDIA Control Panel "Adjust Video Color Settings" page. [505275]

GeForce 8M Series
- GeForce 8700M GT: VGA hotplug/unplug is not detected without refreshing the NVIDIA Control Panel or the Device Manager. [461613]

- GeForce 8600M GS: When a display is connected via component-out and Clone mode is enabled, the system switches to Dualview mode upon resume from Hibernate [490576]

Multi-GPU Issues

- [SLI], GeForce 8800M GTX: The PhysX option is disabled by default after driver installation.   [544945]

- [SLI], GeForce 8800M GTX: Far Cry 2 (DirectX 10)–sky textures show flickering corruption when changing the in-game resolution during gameplay. [492934]

- [SLI], GeForce 8800M GTX: The display list on the Set SLI Configuration page is not updated properly when hot-plugging or hot-unplugging a display. [478691]

Windows Vista 64-bit Issues

Single GPU Issues

- GeForce 9600M GT: The shortcut keys for selecting the color option in the NVIDIA Control Panel 'Adjust video color setting' page do not work. [515450]

- GeForce 9400M G: The settings on the "Change Flat Panel Scaling" page are not updated properly after resizing the desktop and then restoring the default settings. [510854]

Multi-GPU Issues

- [SLI], GeForce 8800M GTX: Multi-display mode is not preserved between users after performing a Fast User Switch. [541252]

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

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)

- **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

- GeForce 8600M GT: Warmonger 2.1–the game intermittently stops responding after changing in-game resolution. [482889]

- GeForce 8600M GT: Dead Space - a "your graphics card does not meet Dead Space minimum requirement" error message appears after launching the game. [491410]

  This is a limitation of the application, and only occurs if your monitor does not support 60 Hz refresh rate.

- GeForce 8600M GT: MPEG1 and MPEG2 playback using iTunes is choppy. [537550]

  The application does not use hardware acceleration.

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:

- "Image Sharpening Control not Available with GeForce 8 Series and later GPUs" on page 14

- "Gigabyte GA-6BX Motherboard" on page 14

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.

C H A P T E R

3

THE RELEASE 185 DRIVER

This chapter covers the following main topics:

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-

Hardware and Software Support

Supported Operating Systems

The Release 185 driver, version 185.85, 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

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Supported GeForce GPUs

Table 3.1 lists the NVIDIA products supported by the Release 185 driver, version 185.85

Table 3.1   Supported NVIDIA GeForce GPUs

Consumer Products
GeForce GTX 280M
GeForce GTX 260M
GeForce GTS 160M
GeForce GT 130M
GeForce GT 120M
GeForce G 102M
GeForce G 110M
GeForce G 107M
GeForce G 105M
GeForce G 103M
GeForce 9800M GTX
GeForce 9800M GTS
GeForce 9800M GT
GeForce 9800M GS
GeForce 9700M GTS
GeForce 9700M GT
GeForce 9650M GT
GeForce 9650M GS
GeForce 9600M GT
GeForce 9600M GS
GeForce 9500M GS
GeForce 9500M G
GeForce 9400M G
GeForce 9400M
GeForce 9300M GS
GeForce 9300M G
GeForce 9200M GS
GeForce 9200M GE
GeForce 9100M G
GeForce 8800M GTX
GeForce 8800M GTS
GeForce 8800M GS
GeForce 8700M GT

Table 3.1   Supported NVIDIA GeForce GPUs

Consumer Products
GeForce 8600M GT
GeForce 8600M GS
GeForce 8400M GT
GeForce 8400M GS
GeForce 8400M G
GeForce 8200M G

The driver supports notebooks based on the GPUs listed in Table 3.1. However, the following notebooks are *not* supported in this release:

- Hybrid SLI notebooks:
  - Acer Aspire 7530
  - BenQ Joybook S42
  - Fujitsu Siemens Amilo Xi 3650
  - MSI EX630
  - Qosmio X305-Q706
  - Qosmio X305-Q708

- **Fujitsu** notebooks (please contact the notebook OEM for driver support for these notebooks)

- **Lenovo ThinkPad** notebooks (please contact the notebook OEM for driver support for these notebooks)

- **Sony VAIO** notebooks (please contact the notebook OEM for driver support for these notebooks)

- Any notebook that is launched after the release of this driver version.

Supported NVIDIA Quadro NVS GPUs

Table 3.2 lists the NVIDIA products supported by the Release 185 driver, version 185.85

Table 3.2   Supported NVIDIA Quadro NVS GPUs

Consumer Products
Quadro NVS 320
Quadro NVS 160M
Quadro NVS 150M
Quadro NVS 140M

Table 3.2   Supported NVIDIA Quadro NVS GPUs

Consumer Products
Quadro NVS 135M
Quadro NVS 130M

The driver supports notebooks based on the GPUs listed in Table 3.2. However, the following notebooks are *not* supported in this release:

- **Lenovo ThinkPad** notebooks (please contact the notebook OEM for driver support for these notebooks)

- Any notebook that is launched after the release of this driver version.

Supported NVIDIA Quadro FX GPUs

Table 3.3 lists the NVIDIA products supported by the Release 185 driver, version 185.85

Table 3.3   Supported NVIDIA Quadro NVS GPUs

Consumer Products
Quadro FX 3700M
Quadro FX 3600M
Quadro FX 2700M
Quadro FX 1700M
Quadro FX 1600M
Quadro FX 770M
Quadro FX 570M
Quadro FX 370M
Quadro FX 360M

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 is minimum 200 MB.

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.

- Check to make sure that your notebook has a supported GPU and is not listed in the exclusion list (see "Supported NVIDIA Products" on page 16).

- It is recommended that you back up your current system configuration.

- If you own a Dell Inspiron 1420, Dell XPS M1330, or Dell XPS M1530, Dell LatitudeD630 or D630c, it is highly recommended that you first install this Dell software update.

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.

A

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

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	Hardware Requirements
Apple 30″ Cinema HD Display (Dual link DVI)	2560x1600 @ 60 Hz	• All GeForce 7 series GPUs and later
Dell WFP 3007 (Dual Link DVI)	2560x1600 @ 60 Hz	• GeForce 6800 Ultra 512
HP LP3065 dual-link DVI flat panel	2560x1600 @ 60Hz.	• GeForce 6800 with 512 MB

Table A.2   Non-standard Modes Supported

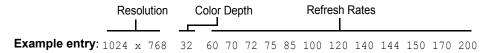| Resolution |
|------------|
| 1680 x 1050 |
| 1366 x 768 |

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 9M, 8M, 100M, 200M and Quadro NVS and Quadro FX Notebook GPUs" on page 24

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

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.

GeForce 9M, 8M, 100M, 200M and Quadro NVS and Quadro FX Notebook GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the products listed in Table 3.1, Table 3.2, and Table 3.3.

Standard Modes

```
 640 x  480    8    60 70 72 75 85 100 120 140 144 150 170 200 240
 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
1088 x  612    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
 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
1088 x  612   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
 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 85 100 120 140 144 150 170 200 240
1088 x  612  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
-----------------------------------------------------------------
 640 x  480  64    60 70 72 75 85 100 120 140 144 150 170 200 240
 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 70 72 75 85 100 120 140 144 150 170 200 240
1088 x   612   64    60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x   864   64    60 70 72 75 85 100 120 140 144 150 170 200
1280 x   720   64    60
1280 x   768   64    60 70 72 75 85 100 120 140 144 150 170
1280 x   800   64    60 70 72 75 85 100 120 140 144 150 170
1280 x   960   64    60 70 72 75 85 100 120 140 144 150 170
1280 x 1024   64    60 70 72 75 85 100 120 140 144 150 170
1360 x   768   64    60 70 72 75 85 100 120 140 144 150 170
1600 x   900   64    60 70 72 75 85 100 120 140 144 150
1600 x 1024   64    60 70 72 75 85 100 120
1600 x 1200   64    60 70 72 75 85 100 120
1680 x 1050   64    60
1920 x 1080   64    60
1920 x 1200   64    60 70 72 75 85 100
1920 x 1440   64    60 70 72 75 85
2048 x 1536   64    60
```

Modes Supported by TV Encoders

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

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

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

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

Resolution	Comments
480i (SDTV)	Supported on graphics boards with Conexant 875 or Philips 7108 TV encoders and compatible connectors, and compatible GeForce 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.