



# Release 197 Graphics Drivers for Windows - Version 197.75

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## Release Notes



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# 01 INTRODUCTION TO RELEASE NOTES

This edition of *Release Notes* describes the Release 197 Graphics Drivers for Microsoft® Windows® Vista/Windows 7. 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 197 Driver Changes](#)” on page 2 gives a summary of changes, and fixed and open issues in this version.
- ▶ “[The Release 197 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 18 lists the default resolutions supported by the driver.

## Changes in this Edition

This edition of the *Release Notes* for Windows Vista/Windows 7 includes information about NVIDIA graphics driver version 197.75. These changes are discussed beginning with the chapter “[Release 197 Driver Changes](#)” on page 2.

## 02 RELEASE 197 DRIVER CHANGES

This chapter describes open issues for version 197.75, and resolved issues and driver enhancements for versions of the Release 197 driver up to version 197.75. The chapter contains these sections:

- ▶ “Version 197.75 Highlights” on page 3
- ▶ “Open Issues in Version 197.75” on page 5
- ▶ “Not NVIDIA Issues” on page 7
- ▶ “Known Product Limitations” on page 11

## Version 197.75 Highlights

This section provides highlights of version 197.75 of the NVIDIA Release 197 Driver for Windows Vista/Windows 7.

- ▶ [What's New in Version 197.75](#)
- ▶ [Limitations in This Release](#)
- ▶ [Special Instructional Notes](#)

## What's New in Version 197.75

- ▶ This driver version is a WHQL-certified update for the following products:
  - GeForce GTX 480
  - GeForce GTX 470
- ▶ Added 4-way SLI support for GeForce GTX 480.
- ▶ This driver package installs NVIDIA PhysX System Software v9.10.0129.  
NVIDIA PhysX acceleration is available on all GeForce 8-series, 9-series, 100-series, and 200-series GPUs with a minimum of 256MB dedicated graphics memory and a minimum of 32 processor cores.
- ▶ This driver package installs the HD audio driver, version 1.0.9.1.

## 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.

## Special Instructional Notes

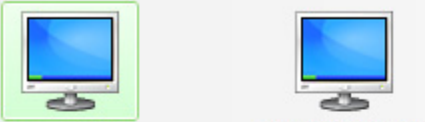
### Help for Resizing Your HDTV Desktop

After resizing the HDTV desktop, the new custom resolution created is now added to the list of available resolutions for that display, and also added to the resolution list within the game or application.

In Release 190 and later drivers, the method for resizing the HDTV desktop has changed to provide better image quality when applying underscan. This method results in a new custom resolution being created which needs to be selected from games or applications to apply the resizing.

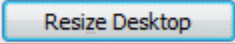
In the example displayed in the following screen shot, the underscan has created a new resolution (1216x682). Although this resolution looks different, it is still in HD format. Remember to select this resolution in your game or other application in order to take advantage of it.


**1. Select the display you would like to change.**



**2. When the desktop is displayed on my HDTV...**

To adjust the size of your desktop, click the Resize Desktop button.



 New resolution 720p, 1216 × 682 applied and added to the [Change resolution](#) screen.  
Select this resolution from your application to achieve the most desired viewing



**Note:** Some games or applications may not support the new resolution.

## Open Issues in Version 197.75

As with every released driver, version 197.75 of the Release 197 driver has open issues and enhancement requests associated with it. This section includes lists of issues that are either not fixed or not implemented in this version. Some problems listed may not have been thoroughly investigated and, in fact, may not be NVIDIA issues. Others may have workaround solutions.

- ▶ “Windows Vista/Windows 7 32-bit Issues” on page 5
- ▶ “Windows Vista/Windows 7 64-bit Issues” on page 5

## Windows Vista/Windows 7 32-bit Issues

### Single GPU Issues

#### All GPUs

- ▶ 3D Vision—the 3D Vision installation screen reads "Windows Vista" when installed on a Windows 7 system. [652401]
- ▶ After creating a custom resolution with refresh rate of 59 Hz, the new resolution appears in the Add Resolutions page at 60 Hz and the corresponding check box is not checked. [571459]

#### GeForce 400 Series

- ▶ GeForce 400 Series: Aliens vs. Predator 3—frame rate sometimes drops to 4 fps when switching to windowed mode and then back to full-screen mode. [658089]

### Multi-GPU Issues

#### GeForce 400 Series GPUs

- ▶ [SLI], GeForce 400 Series: Age of Conan—some objects flicker after switching modes when SLI mode is enabled. [672158]

## Windows Vista/Windows 7 64-bit Issues

### Single GPU Issues

#### GeForce 400 Series

- ▶ GeForce 400 Series: Arma2—there is corruption in the game, along with a drop in performance. [667575]
- ▶ GeForce 400 Series: With Dualview or Clone mode enabled and the display resolution set to 1920x1080 or 1280x730, the primary display cannot be switched. [671719]

## Multi-GPU Issues

### GeForce 400 Series

- ▶ [SLI], GeForce 400 Series: When switching primary displays where each display is connected to a different GPU, it takes a long time for the switch to complete. [680642]
- ▶ [SLI], GeForce 400 Series: Heaven Benchmark 2.0—the system hangs with a black screen with resolution set to 2560x1600. [669738]
- ▶ [SLI], GeForce 400 Series: With SLI mode enabled across GPUs and both displays set to 1920x1080 or 1280x72, the displays switch to single-display after enabling SLI mode. [663628]

## 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 Considerations” on page 7
- ▶ “Windows 7 Considerations” on page 7
- ▶ “Unsupported Features” on page 8
- ▶ “OpenGL Application Issues” on page 9
- ▶ “Application Issues” on page 10

## Windows Vista Considerations

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>.

## Windows 7 Considerations

### Hotplug Action

Unlike the hotplug activity under Windows Vista, the default settings are not applied when a new display is hotplugged, and there is no message balloon alert stating that a new display was detected. Under Windows 7, all display connection and detection events are handled through the Windows 7 Connecting and Configuring Displays (CCD) mechanism.

### NVIDIA Control Panel Rotate Display Page

The rotation radio button labels are changed slightly under Windows 7 to be consistent with the Microsoft panel

**Table 2.1** NVIDIA Control Panel Rotation Page Radio Buttons

| Clockwise Rotation | Windows 7 Label | Windows Vista Label     |
|--------------------|-----------------|-------------------------|
| 0 degrees          | Landscape       | No rotation (Landscape) |

**Table 2.1** NVIDIA Control Panel Rotation Page Radio Buttons

| Clockwise Rotation | Windows 7 Label     | Windows Vista Label                         |
|--------------------|---------------------|---|
| 90 degrees         | Portrait            | 90 degrees to the right (Inverted Portrait) |
| 180 degrees        | Landscape (flipped) | 180 degree rotation (Inverted landscape)    |
| 270 degrees        | Portrait (flipped)  | 90 degrees to the left (Portrait)           |

## Limitation

- ▶ When switching the refresh rate from 59 Hz to 60Hz, the refresh rate remains at 59 Hz.  
See the Microsoft KB article KB2006076 at <http://support.microsoft.com/kb/2006076>.

## Unsupported Features

The following are features and functionality that were available in driver releases supporting Windows XP, but are not—and will not be—available in driver releases for Windows Vista:

- ▶ **High resolution scaling desktop (HRSD)**
- ▶ **MultiView Display Mode** (for NVIDIA Quadro NVS graphics cards)
- ▶ **NVKeystone**
- ▶ **Unified back buffer (UBB) controls**
- ▶ **OpenGL Video Overlays**  
This is an operating system limitation.  
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](http://NVIDIA.com).
- ▶ **GPU Temperature Monitoring**  
Temperature monitoring is no longer supported in the default GPU driver control panel. This feature is available in the NVIDIA System Tools software, which you can download from [NVIDIA.com](http://NVIDIA.com).
- ▶ **AGP Settings Adjustment**
- ▶ **Video Zoom**
- ▶ **Pan & Scan** - the process of panning across the desktop in order to display a desktop on a monitor with lower resolution

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

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

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

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

► **Edge Blending**

► **Run display optimization wizard**

► **Run multiple display wizard**

► **Run television setup wizard**

► **nView Horizontal and Vertical Span Modes**

Due to architectural changes in the new Windows Vista Window Display Driver Model (WDDM), span mode 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

► **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

The following are not NVIDIA bugs, but are due to issues in the application itself.

- ▶ GeForce 400 Series: Dirt 2—the game does not show any 3D-rendered objects when multisample antialiasing is increased to 16xCSAA or higher. [644651]
- ▶ GeForce 400 Series: Aliens vs Predator (DirectX 11)—there is ghosting in the sky textures.[660817]
- ▶ GeForce 400 Series: S.T.A.L.K.E.R Clear Sky—there is flickering in the background when Sun Shadow is enabled. [667627]

- ▶ Dirt2—distant terrain is clipped. [644821]

- ▶ Dark Void—if you experience issues playing Dark Void, NVIDIA recommends the following steps:

- a Install all game patches.

Retail box owners can get the patch here: [http://download.nvidia.com/downloads/nZone/patches/DarkVoid\\_PhysX\\_Update\\_Patch.exe](http://download.nvidia.com/downloads/nZone/patches/DarkVoid_PhysX_Update_Patch.exe)

- b From the Windows Control Panel->Add/Remove programs, uninstall **NVIDIA Game System Software 2.8.1**.

- c From the Windows Control Panel->Add/Remove programs, right-click **NVIDIA PhysX** and then click **Repair**.

If you still experience problems after performing these steps, then either enable V-Sync or skip the cut-scenes by pressing **[Enter]** twice at the cut-scene.

- ▶ Operation Flashpoint:Dragon Rising—the game crashes to the desktop when it starts to load.

*This is an issue in the application—the problem does not occur if you disconnect your internet cable.*

- ▶ World of Warcraft—if you have run the 3D Vision setup wizard, then the game automatically enables 3D stereo even after you disable it.

*To work around this issue, you must uninstall the 3D Vision driver.*

## Application Issues Under SLI Mode

- ▶ [SLI]: BioShock 2—artifacts appear in the game when SLI mode is enabled and V-Sync disabled. [653303]

## 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:

- ▶ “Using HDMI/DisplayPort Audio with Displays that have a High Native Resolution” on page 11
- ▶ “Using HDMI/DisplayPort Displays that do not Support Audio” on page 11
- ▶ “Using HDMI/DisplayPort Audio in Dualview or Clone Mode Configurations” on page 12
- ▶ “Flat Panel Scaling Controls are Non-functional for Some TV Modes for Some Displays” on page 13
- ▶ “GPU Runs at a High Performance Level (full clock speeds) in Multi-display Modes” on page 13
- ▶ “1280x1024 @ 60 Hz not Available on BenQ FP241W Monitors” on page 13
- ▶ “Image Sharpening Control not Available with GeForce 8 Series and later GPUs” on page 13
- ▶ “Gigabyte GA-6BX Motherboard” on page 14

### Using HDMI/DisplayPort Audio with Displays that have a High Native Resolution

*To use HDMI/DisplayPort audio with some displays that have a native resolution higher than 1920x1080, you must set the display to a lower HD resolution.*

Some HDMI TV's have a native resolution that exceeds the maximum supported HD mode. For example, TVs with a native resolution of 1920x1200 exceed the maximum supported HD mode of 1920x1080.

Applying this native mode results in display overscan which cannot be resized using the NVIDIA Control Panel since the mode is not an HD mode.

To avoid this situation and provide a better user experience, the driver treats certain TVs—such as the Viewsonic VX2835wm and the Westinghouse LVM-37w3—as a DVI monitor when applying the native mode. Because the driver does not treat the TV as an HDMI in this case, the HDMI audio is not used.

### Using HDMI/DisplayPort Displays that do not Support Audio

*Some HDMI/DisplayPort displays do not support audio, or have issues with current NVIDIA graphics cards.*

The NVIDIA driver attempts to identify such displays and automatically disables the audio. For example, the NVIDIA driver disables HDMI audio for all Philips HDMI TVs, as these have been identified as having issues with current NVIDIA graphics cards.

There may be cases where either the driver disables audio even though there is no problem, or does not disable the audio when in fact the audio does not work. The following sections describe these situations and provides guidance for handling them.

## Corrupted video and no audio

The driver has not disabled audio and the display's audio signal is incompatible with the graphics card, causing video corruption.

With a different display connected in order to establish video, disable audio for the HDMI display using the NVIDIA Control Panel->Change Resolution page. From the connector list, select **HDMI-HDTV (Audio Disabled)**.

## Video but no audio

- ▶ Check the connector list on the NVIDIA Control Panel->Change Resolution page.
- ▶ If **HDMI-HDTV (Audio Disabled)** is selected and you want to test whether your HDMI audio does, in fact, work, then select **HDMI-HDTV (Audio Enabled)** and the driver will prompt you with instructions for testing HDMI audio with the display.
- ▶ If **HDMI-HDTV (Audio Enabled)** is selected, then the driver has not successfully detected that an incompatible display is connected.  
*Future drive versions will properly identify such displays and disable audio.*
- ▶ If there is no HDMI connector option in the NVIDIA Control Panel->Change Resolution page, the display does not support audio and has properly reported this to the NVIDIA driver.

## Using HDMI/DisplayPort Audio in Dualview or Clone Mode Configurations

### Two Audio-enabled Ports

In a multi-display configuration where both HDMI/DisplayPort audio ports are enabled, only the primary display will provide the audio.

### One Audio-enabled Port

In a multi-display configuration where only one audio port is enabled, such as when one display is a DVI display, then the HDMI/DisplayPort display can provide the audio whether is it the primary or secondary display.

## Flat Panel Scaling Controls are Non-functional for Some TV Modes for Some Displays

The NVIDIA Control Panel flat panel scaling controls on the "Adjust Desktop Size & Position" page are not intended to be used for TV modes, and normally the controls are not available for TV or HDTV displays.

However, Microsoft requires that certain TV/HDTV modes be available for all digital displays, including DVI and HDMI, even if they are not HDTV.

While the NVIDIA flat panel scaling controls are available for those displays, they will not be functional for the TV modes that appear in compliance with the Microsoft requirements. The affected modes are as follows:

- ▶ 1920x1080i @50/59.94/60 Hz
- ▶ 1280x720p @50/59.94/60 Hz
- ▶ 720x480p @ 59.94/60 Hz
- ▶ 720x576p @ 50 Hz

## GPU Runs at a High Performance Level (full clock speeds) in Multi-display Modes

This is a hardware limitation and not a software bug. Even when no 3D programs are running, the driver will operate the GPU at a high performance level in order to efficiently drive multiple displays. In the case of SLI or multi-GPU PCs, the second GPU will always operate with full clock speeds; again, in order to efficiently drive multiple displays. Today, all hardware from all GPU vendors have this limitation.

## 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.

## 03 THE RELEASE 197 DRIVER

This chapter covers the following main topics:

- ▶ “Hardware and Software Support” on page 15
- ▶ “Driver Installation” on page 17

### Hardware and Software Support

#### Supported Operating Systems

The Release 197 driver, version 197.75, has been tested with

- ▶ Microsoft Windows® 7, and supports both 32-bit and 64-bit versions.
- ▶ Microsoft Windows® Vista, 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 this Release 197 driver, version 197.75

Table 3.1 Supported NVIDIA Products

| Consumer Products |
|-------------------|
| GeForce GTX 480   |
| GeForce GTX 470   |

## Supported Languages

The Release 197 Graphics Drivers supports the following languages in the main driver Control Panel:

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

# Driver Installation

## Minimum Hard Disk Space

The hard disk space requirement for 32-bit is minimum 105 MB for English-only, and 142 MB for International.

The hard disk space requirement for 64-bit is minimum 135 MB for English-only, and 170 MB for International.

## Before You Begin

If you have previously installed NVIDIA nTune, NVIDIA recommends that you uninstall nTune before installing this driver. After the driver install is complete, you can reinstall NVIDIA nTune.

## Installation Instructions

- 1 Follow the instructions on the NVIDIA .com Web site driver download page to locate the appropriate driver to download, based on your hardware and operating system.
- 2 Click the driver download link.  
The license agreement dialog box appears.
- 3 Click **Accept** if you accept the terms of the agreement, then either open the file or save the file to your PC and open it later.
- 4 Open the NVIDIA driver installation .EXE file to launch the NVIDIA InstallShield Wizard.
- 5 Follow the instructions in the NVIDIA InstallShield Wizard to complete the installation.



**Note:** 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 A MODE SUPPORT FOR WINDOWS

This chapter details the Windows modes supported by the Release 197 driver for NVIDIA products. It contains these sections:

- ▶ “General Mode Support Information” on page 19
- ▶ “Default Modes Supported by GPU” on page 20
- ▶ “Modes Supported by TV Encoders” on page 23

## 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 20.

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 400 Series GPUs” on page 21

## Understanding the Mode Format

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

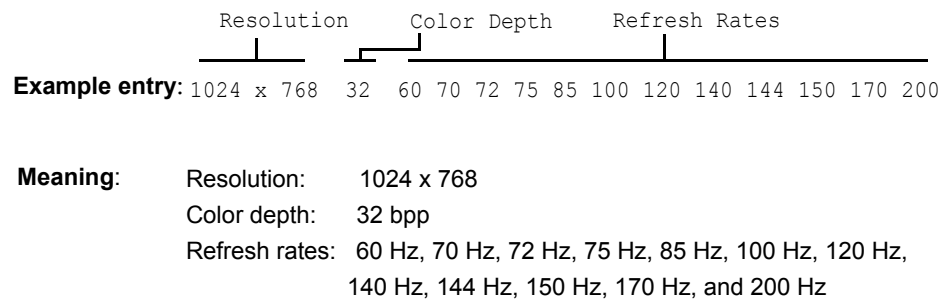


Figure A.1 Mode Format

### 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 400 Series GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the the products listed in [Table 3.1 on page 16](#).

### Standard Modes

|             |    |  |
|-------------|----|--|
| 640 x 480   | 8  | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 720 x 480   | 8  | 60   |
| 720 x 576   | 8  | 50   |
| 800 x 600   | 8  | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 1024 x 768  | 8  | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 1152 x 864  | 8  | 60 70 72 75 85 100 120 140 144 150 170 200     |
| 1280 x 720  | 8  | 60   |
| 1280 x 768  | 8  | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 800  | 8  | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 960  | 8  | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 1024 | 8  | 60 70 72 75 85 100 120 140 144 150 170         |
| 1360 x 768  | 8  | 60 70 72 75 85 100 120 140 144 150 170         |
| 1600 x 900  | 8  | 60 70 72 75 85 100 120 140 144 150             |
| 1600 x 1024 | 8  | 60 70 72 75 85 100 120                         |
| 1600 x 1200 | 8  | 60 70 72 75 85 100 120                         |
| 1680 x 1050 | 8  | 60   |
| 1920 x 1080 | 8  | 60   |
| 1920 x 1200 | 8  | 60 70 72 75 85 100                             |
| 1920 x 1440 | 8  | 60 70 72 75 85                                 |
| 2048 x 1536 | 8  | 60   |
| -----       |    |  |
| 640 x 480   | 16 | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 720 x 480   | 16 | 60   |
| 720 x 576   | 16 | 50   |
| 800 x 600   | 16 | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 1024 x 768  | 16 | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 1152 x 864  | 16 | 60 70 72 75 85 100 120 140 144 150 170 200     |
| 1280 x 720  | 16 | 60   |
| 1280 x 768  | 16 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 800  | 16 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 960  | 16 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 1024 | 16 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1360 x 768  | 16 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1600 x 900  | 16 | 60 70 72 75 85 100 120 140 144 150             |
| 1600 x 1024 | 16 | 60 70 72 75 85 100 120                         |
| 1600 x 1200 | 16 | 60 70 72 75 85 100 120                         |
| 1680 x 1050 | 16 | 60   |
| 1920 x 1080 | 16 | 60   |
| 1920 x 1200 | 16 | 60 70 72 75 85 100                             |

|             |    |  |
|-------------|----|--|
| 1920 x 1440 | 16 | 60 70 72 75 85                                 |
| 2048 x 1536 | 16 | 60   |
| -----       |    |  |
| 640 x 480   | 32 | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 720 x 480   | 32 | 60   |
| 720 x 576   | 32 | 50   |
| 800 x 600   | 32 | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 1024 x 768  | 32 | 60 70 72 75 85 100 120 140 144 150 170 200 240 |
| 1152 x 864  | 32 | 60 70 72 75 85 100 120 140 144 150 170 200     |
| 1280 x 720  | 32 | 60   |
| 1280 x 768  | 32 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 800  | 32 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 960  | 32 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1280 x 1024 | 32 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1360 x 768  | 32 | 60 70 72 75 85 100 120 140 144 150 170         |
| 1600 x 900  | 32 | 60 70 72 75 85 100 120 140 144 150             |
| 1600 x 1024 | 32 | 60 70 72 75 85 100 120                         |
| 1600 x 1200 | 32 | 60 70 72 75 85 100 120                         |
| 1680 x 1050 | 32 | 60   |
| 1920 x 1080 | 32 | 60   |
| 1920 x 1200 | 32 | 60 70 72 75 85 100                             |
| 1920 x 1440 | 32 | 60 70 72 75 85                                 |
| 2048 x 1536 | 32 | 60   |
| -----       |    |  |

## Modes Supported by TV Encoders

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

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

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

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

| Resolution   | Comments  |
|--------------|---|
| 480i (SDTV)  | Supported on graphics boards with Conexant 875 or Philips 7108 TV encoders and compatible connectors, and compatible GeForce 8 Series and later GPUs. |
| 480p (EDTV)  |   |
| 720p (HDTV)  |   |
| 1080i (HDTV) |   |
| 576i (PAL)   |   |
| 576p (PAL)   |   |

The driver supports manual overscan correction for component and DVI outputs. See the online NVIDIA Control Panel Help for instructions on how to use the overscan correction features.

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