



Release 197 Graphics Drivers for Windows - Version 197.41

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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® XP. 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:

- ▶ [“Changes in the Release 197 Driver for Windows XP” on page 2](#) gives a summary of changes, and fixed and open issues in this version.
- ▶ [“The Release 197 Driver for Windows XP” on page 13](#) 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 XP includes information about NVIDIA graphics driver version 197.41. These changes are discussed beginning with the chapter [“Changes in the Release 197 Driver for Windows XP” on page 2](#).

02 CHANGES IN THE RELEASE 197 DRIVER FOR WINDOWS XP

This chapter describes open issues for version 197.41, and resolved issues and driver enhancements for versions of the Release 197 driver up to version 197.41. The chapter contains these sections:

- ▶ [“Version 197.41 Highlights”](#) on page 2
- ▶ [“Open Windows XP Issues in Version 197.41”](#) on page 4
- ▶ [“Known Product Limitations”](#) on page 5

Version 197.41 Highlights

This section provides highlights of version 197.41 of the NVIDIA Release 197 Driver.

- ▶ [What’s New in Version 197.41](#)
- ▶ [Special Instructional Notes](#)

What’s New in Version 197.41

- ▶ 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.
- ▶ This driver adds support for the following products:
 - GeForce GTX 480
 - GeForce GTX 470

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.



Sharp HDMI




Dell 3007WFPHC

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

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

Resize Desktop

 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 Windows XP Issues in Version 197.41

As with every released driver, version 197.41 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.

- ▶ “NVIDIA Recommendations” on page 4
- ▶ “Windows XP 32-bit Issues” on page 4

NVIDIA Recommendations

- ▶ Single display modes such as TV-only, DFP/LCD-only, or CRT-only provide the best performance and quality from Windows Media Center Edition.
Dual display modes such as Dualview and nView Clone and Span modes are not recommended when using the Windows Media Center.

Windows XP 32-bit Issues

NVIDIA Issues—Single-GPU

GeForce 400 Series

- ▶ GeForce 400 Series: Starcraft II Wings of Liberty—with antialiasing forced on from the NVIDIA Control Panel, a blue-screen crash occurs after loading a game level. [669476]

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 6
- ▶ “Using HDMI/DisplayPort Displays that do not Support Audio” on page 6
- ▶ “Using HDMI/DisplayPort Audio in Dualview or Clone Mode Configurations” on page 7
- ▶ “GPU Runs at a High Performance Level (full clock speeds) in Multi-display Modes” on page 7
- ▶ “1280x1024 @ 60 Hz not Available on BenQ FP241W Monitors” on page 8
- ▶ “Image Sharpening Control not Available with GeForce 8 Series and Later GPUs” on page 8
- ▶ “Display Output Selection not Available on “Bridgeless” SLI” on page 8
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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.

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.

Display Output Selection not Available on “Bridgeless” SLI

On graphics cards that can operate in SLI mode without the SLI connector (such as the GeForce 6600), you cannot select which monitor to display the output. On the SLI display property page, the option box to select the output display is not available.

More Monitors are Listed in the Windows Device Manager than are Actually Connected

► Problem

Many monitors are listed in the Windows Device Manager hardware tree even when only a few are actually connected or enabled.

► Explanation

NVIDIA chooses to expose all potential monitors even though they are not yet connected. Such an implementation makes multiple device handling easier in certain situations, such as when a user unplugs a monitor and plugs another one in at a different port.

The only impact is a cosmetic in the plug-and-play manager. There is no functional impact at all and the GDI is not aware of the multiple monitor listing.

DirectX Fails When Detaching/Reattaching Displays in Dualview Mode

This problem can be duplicated as follows:

- 1 Enable both displays in Dualview mode.
- 2 Detach monitor 2 and apply settings.
- 3 Reattach monitor 2 and apply settings.

DirectX runtime fails on monitor 1.

This is not an NVIDIA bug, but a limitation in the operating system where DirectX does not enumerate the second device. DirectX can be restored to both displays by rebooting the system

OpenGL Viewport Scaling Problem in Horizontal Span Mode

With nView Horizontal Span mode enabled, when opening an OpenGL model in a viewport, the model image is scaled too large to fit in the viewport. The problem occurs with such applications as Maya 5.0 and 3D Studio MAX 4.26.

This is not an NVIDIA bug, but a limitation in the application's ability to properly maintain the aspect ratio in Horizontal Span mode.

Video Playback in nView Clone and Span Modes

► Problem

With nView Clone or Span mode enabled, video playback appears on only one display under the following conditions:

- Under nView Clone mode, when full-screen video mirror is not used.
- Under nView Span mode, when full-screen video mirror is not used and the video is positioned to span across both monitors.

► Explanation

With applications that render using the hardware overlay—such as DirectX applications—the default driver behavior is to enable the hardware overlay when nView Clone or Span mode is enabled.

Because the driver supports only one hardware overlay, the video appears on only one display.

No Antialiasing of 3DMark03 Image Quality Screen Captures

► Problem

After enabling antialiasing from the NVIDIA Properties page, 3DMark03 screen captures—obtained using the application’s screen capture function—might not be antialiased.

► Explanation

This is not an NVIDIA bug, but rather a result of different methods used to render antialiased images.

Depending on a combination of factors, the driver may take advantage of the NVIDIA hardware’s ability to bypass the front buffer while rendering an antialiased image. In this case, the front buffer does not contain antialiased data, so if an application takes data from the front buffer—as is the case with 3DMark03’s Image Quality screen captures—then the resulting image is not antialiased.

To accommodate applications that request use of the front buffer, the NVIDIA software can provide the antialiased data in a buffer to the application. Since this negates the advantages of the NVIDIA hardware capability, this support is enabled only when antialiasing is enabled within the application, and not from the NVIDIA control panel.

In all cases when antialiasing is enabled, screen images as well as screen captures obtained using the Print Screen key are always antialiased.

Medal of Honor Under Windows XP / Windows 2000

► Problem

The Electronic Arts game Medal of Honor uses a hard coded buffer to parse the OpenGL extension string. This can cause a system crash under Windows XP and Windows 2000.

► Workaround

NVIDIA has implemented Medal of Honor application detection to work around this extension string crash.

Windows XP/2000 Issue with Settings Tab Monitor Positioning

► Problem

In the Windows **Display Properties** > **Settings** tab, the secondary monitors cannot be positioned directly above monitor #1 without snapping horizontally to a position diagonal to monitor #1.

► When the Problem Occurs

The problem occurs when four monitors are connected to the graphics adapter card, but only two of them are enabled.

► Cause and Workaround

This is a Microsoft—not an NVIDIA—bug, and there is no workaround to correct the positioning of the monitor icons. However, the actual positioning of the displays on the desktop can be corrected using the nView Desktop Manager window as follows:

- a Under the Tools tab in the Desktop Manager windows, make sure Automatically Align Displays is checked.
- b In the Settings tab, position the appropriate monitor icon above monitor #1, then click **Apply**.

The mouse cursor movement between monitor desktops will correspond to a vertical orientation of the monitors, even though the monitor icons in the Settings tab are diagonal to each other.



Note: This will be the case even if the monitor icons are deliberately positioned diagonal to each other.

Antialiasing Problems With Certain Applications

Antialiasing in the NVIDIA Direct3D driver requires each new frame to be rendered from scratch. This requirement adversely affects applications that render only that portion of the content that has changed since the last frame. A common symptom of this problem is geometric structures that incorrectly disappear and re-appear as the scene shifts.

Poor Quality S-Video Output on Some TVs

NVIDIA drivers differentiate an S-video TV from a composite TV by searching for 75-Ohm loads on the chrominance and luminance lines. If the driver detects only one such load, it assumes that it has a composite TV and drives both chroma and luma onto that line. This approach allows both types of TV to display in color.

Unfortunately, some S-video TVs do not apply the correct load to both lines, causing the driver to detect an S-video TV as a composite. The driver, in turn, sends the lower quality signal to the S-video TV. To work around this problem, use the Control Panel to override the **Auto-select** feature. This can be done following these steps:

- 1 In the **Settings** tab of the **Display Properties** Control Panel, click **Advanced**.
- 2 In the **nView** tab, click **Device Settings** and click **Select Output Device**.
- 3 In the **Device Selection** tab, click the **TV** option.
- 4 Change the **Video output format** to **S-video**.

AGP and PCI-E Programs May Hang With AMD K7 and K8 Processors

► Issue

Microsoft® Windows® 2000 and Windows XP systems using AMD K7 and K8 processors can hang when an AGP or PCI-E program is used.

► Root Cause

There is a known problem with Microsoft® Windows® 2000 and Windows XP systems using AMD K7 and K8 CPUs that results in the Microsoft operating system allocating overlapping 4M cached pages with 4k write-combined pages. This condition results in undefined behavior and data corruption, and is explicitly disallowed by the AMD CPU manual.

This problem can affect any device driver in the system that allocates write-combined system memory, but is usually most easily reproduced with graphics drivers since graphics drivers generally make heavy use of write-combined system memory for performance reasons.

► Resolution

Microsoft has a knowledge base article on the issue, the text of which is unfortunately quite outdated. While the article only mentions Windows 2000, AGP, and K7, both the root cause and resolution also apply to Windows 2000 or Windows XP, AGP or PCI-E, and AMD K7 or K8. The article can be found at <http://support.microsoft.com/?id=270715>.

The issue is resolved by applying an operating system registry key as described in the referenced article that instructs the Microsoft operating system to not use the 4M pages, thus avoiding the conflict.

The registry key is automatically applied by installation of the latest NVIDIA nForce platform driver package (including 4.57 SMBUS or later). It is imperative for the package to be installed or for the registry key to be applied before the NVIDIA graphics driver or any other device drivers are installed. The registry key takes effect only after an operating system reboot.

Desktop Manager Does Not Re-Center Logon Screen

On Windows XP multi-display systems that are set to nView Span mode, the Windows logon screen is centered on the extended desktop. This usually causes it to be split across two displays, which users may find annoying. Although users can normally use the Desktop Manager to restrict a window's appearance to one display, security restrictions in the operating systems prevent this in the case of the logon screen.

03 THE RELEASE 197 DRIVER FOR WINDOWS XP

This chapter covers the following main topics:

- ▶ “Hardware and Software Support” on page 13
- ▶ “Driver Installation” on page 15

Hardware and Software Support

Supported Operating Systems

This Release 197 driver includes drivers designed for the following Microsoft® operating systems:

- ▶ Microsoft Windows® XP
 - Windows XP Media Center Edition 2005 Update Rollup2
 - Windows XP Media Center Edition 2005
 - Windows XP Media Center Edition 2004
 - Windows XP Professional
 - Windows XP Home Edition
 - Windows XP Professional x64 Edition

Supported NVIDIA Products

Table 3.1 lists the NVIDIA GPUs supported by this Release 197 driver.

Table 3.1 Supported NVIDIA Consumer Products

Product	Windows XP 32-bit	Windows XP Professional x64
GeForce GTX 480	X	X
GeForce GTX 470	X	X

Supported Languages

The Release 197 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

System Requirements

The hard disk space requirement for 32 bit is minimum 120 MB for English-only, and 172 MB for International.

The hard disk space requirement for 64 bit is minimum 140 MB for English-only, and 186 MB for International.

Installation Instructions

Before You Begin

► If NVIDIA nTune is already installed

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 nTune.

- If you do not have System Administrator access privileges, it is assumed that the appropriate person with System Administrator access in your organization will set up and install the NVIDIA graphics driver software on your computer.
- The installation process copies all necessary files for operation into the appropriate directories.
- The nView system files are copied to your **Windows\System** directory.
- nView Desktop Manager Profile files (*.tvp) are saved in the **Windows\Nview** directory.

Depending on the version of the NVIDIA driver previously installed, profiles may also be located in the **Documents and Settings\All Users\Application Data\nView_Profiles** directory.

- As part of the install process, an uninstall is registered in your system.
- Under Windows XP, the NVIDIA driver is installed in “Dualview mode” display. However, note that the second display is not activated by default, but must be enabled.

Preserving Settings Before Upgrading Your Software

Before uninstalling or installing software, you can preserve your nView Desktop Manager and/or NVIDIA Display settings by using the nView Desktop Manager Profiles features.

Note: Follow the steps below and/or refer to the *NVIDIA nView Desktop Manager User's Guide* for details. Under Windows XP/2000 and Windows NT 4.0, you must have, at least, **Power User** access privileges in order to create or save a profile. (Refer to Windows Help if you need an explanation of Power User access rights.)

Follow the steps below and/or refer to the *NVIDIA nView Desktop Manager User's Guide* for details.

- 1 Open the nView Desktop Manager Profiles page (Figure 4.1).
- 2 To preserve your current settings, you can use either the **Save** or the **New** option from the nView Desktop Manager Profiles page:
 - If you want to overwrite the currently loaded profile with your changed settings, use the **Save** option. Notice that a warning message indicates that you are about to overwrite the selected profile.
 - If you want to retain the currently loaded profile and want to save your changed settings to a new file, click the **New** option. Enter a name and description of the profile in the New Profile dialog box. For example, you can name this profile **My Settings**.
- 3 If you are an “advanced” user and want to customize certain settings in the saved profile, click **Advanced** << to expand the dialog box (Figure 4.2).
- 4 To customize the settings, you can select or clear any of the settings check boxes.
- 5 Click **Save** to return to the main Profiles page.

If you created a new profile, you will see the name of the newly created profile in the profiles list.

If you overwrote a current profile, the same profile name is retained in the list.

Note: nView Desktop Manager profile (.tvp) files are saved in the **Windows\nView** directory. Depending on the version of the NVIDIA driver previously installed, profiles may also be saved in the **Documents and Settings\All Users\Application Data\ nView_Profiles** directory.

- 6 Now you can uninstall your current driver for a driver upgrade.
- 7 After you restart your computer following an NVIDIA new driver install, you can easily load the saved profile from the Profiles page of nView Desktop Manager.

About Using Saved Profiles in Another Computer

You can easily use any saved profile (.tvp file in the **Windows\nView** directory) from one computer and use it in another computer, if you want. You'll need to copy it to the **Windows\nView** directory of a computer that has the NVIDIA ForceWare graphics display driver, etc. installed properly. Then this profile can be loaded from another computer from the nView Desktop Manager Profiles page just as it can from your original computer.

Uninstalling the NVIDIA Display Driver Software

Note: It is highly recommended that you follow the steps in this section to completely uninstall the NVIDIA Display Driver software before updating to a new version of the software.

To uninstall the nView software, follow these steps:

- 1 From the Windows taskbar, click **Start > Settings > Control Panel** to open the Control Panel window.
- 2 Double-click the **Add/Remove Programs** item.
- 3 Click the **NVIDIA Display Driver** item from the list.
- 4 Click **Change/Remove**.
- 5 Click **Yes** to continue.

A prompt appears asking whether you want to delete all of the saved nView profiles.

- If you click **Yes**, all of the nView software and all of your saved profiles will be deleted.
- If you click **No**, the nView software is removed, but the profile files are saved in the **Windows\nView** directory on your hard disk.

Your system now restarts.

Installing the NVIDIA Graphics Drivers

- 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.

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 for Windows XP” on page 20
- ▶ “Modes Supported by TV Encoders” on page 26

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 for Windows XP” 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 for Windows XP

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.

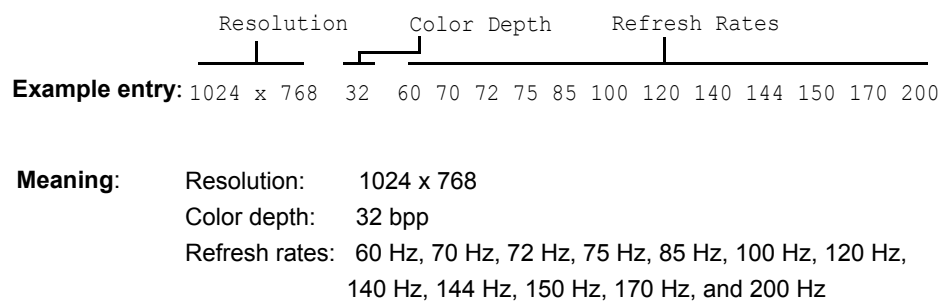


Figure A.1 Mode Format

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 products listed in [Table 3.1 on page 14](#).

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
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 60
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 60
 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

```

Horizontal Spanning Modes

```

1280 x  480  8      60 70 72 75 85 100 120 140 144 150 170 200 240
1600 x  600  8      60 70 72 75 85 100 120 140 144 150 170 200 240
2048 x  768  8      60 70 72 75 85 100 120 140 144 150 170 200 240
2304 x  864  8      60 70 72 75 85 100 120 140 144 150 170 200
2560 x  720  8      60
2560 x  768  8      60 70 72 75 85 100 120 140 144 150 170
2560 x  800  8      60 70 72 75 85 100 120 140 144 150 170
2560 x  960  8      60 70 72 75 85 100 120 140 144 150 170
2560 x 1024  8      60 70 72 75 85 100 120 140 144 150 170
2720 x  768  8      60 70 72 75 85 100 120 140 144 150 170
3200 x  900  8      60 70 72 75 85 100 120 140 144 150
3200 x 1024  8      60 70 72 75 85 100 120
3200 x 1200  8      60 70 72 75 85 100 120
3360 x 1050  8      60
3840 x 1080  8      60
3840 x 1200  8      60 70 72 75 85 100
3840 x 1440  8      60 70 72 75 85
4096 x 1536  8      60

```

```

-----
1280 x 480 16      60 70 72 75 85 100 120 140 144 150 170 200 240
1600 x 600 16      60 70 72 75 85 100 120 140 144 150 170 200 240
2048 x 768 16      60 70 72 75 85 100 120 140 144 150 170 200 240
2304 x 864 16      60 70 72 75 85 100 120 140 144 150 170 200
2560 x 720 16      60
2560 x 768 16      60 70 72 75 85 100 120 140 144 150 170
2560 x 800 16      60 70 72 75 85 100 120 140 144 150 170
2560 x 960 16      60 70 72 75 85 100 120 140 144 150 170
2560 x 1024 16     60 70 72 75 85 100 120 140 144 150 170
2720 x 768 16      60 70 72 75 85 100 120 140 144 150 170
3200 x 900 16      60 70 72 75 85 100 120 140 144 150
3200 x 1024 16     60 70 72 75 85 100 120
3200 x 1200 16     60 70 72 75 85 100 120
3360 x 1050 16     60
3840 x 1080 16     60
3840 x 1200 16     60 70 72 75 85 100
3840 x 1440 16     60 70 72 75 85
4096 x 1536 16     60
-----

```

```

-----
1280 x 480 32      60 70 72 75 85 100 120 140 144 150 170 200 240
1600 x 600 32      60 70 72 75 85 100 120 140 144 150 170 200 240
2048 x 768 32      60 70 72 75 85 100 120 140 144 150 170 200 240
2304 x 864 32      60 70 72 75 85 100 120 140 144 150 170 200
2560 x 720 32      60
2560 x 768 32      60 70 72 75 85 100 120 140 144 150 170
2560 x 800 32      60 70 72 75 85 100 120 140 144 150 170
2560 x 960 32      60 70 72 75 85 100 120 140 144 150 170
2560 x 1024 32     60 70 72 75 85 100 120 140 144 150 170
2720 x 768 32      60 70 72 75 85 100 120 140 144 150 170
3200 x 900 32      60 70 72 75 85 100 120 140 144 150
3200 x 1024 32     60 70 72 75 85 100 120
3200 x 1200 32     60 70 72 75 85 100 120
3360 x 1050 32     60
3840 x 1080 32     60
3840 x 1200 32     60 70 72 75 85 100
3840 x 1440 32     60 70 72 75 85
4096 x 1536 32     60
-----

```

Vertical Spanning Modes

```

640 x 960 8        60 70 72 75 85 100 120 140 144 150 170 200 240
800 x 1200 8       60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x 1536 8      60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x 1728 8      60 70 72 75 85 100 120 140 144 150 170 200

```

1280 x 1440	8	60
1280 x 1536	8	60 70 72 75 85 100 120 140 144 150 170
1280 x 1600	8	60 70 72 75 85 100 120 140 144 150 170
1280 x 1920	8	60 70 72 75 85 100 120 140 144 150 170
1280 x 2048	8	60 70 72 75 85 100 120 140 144 150 170
1360 x 1536	8	60 70 72 75 85 100 120 140 144 150 170
1600 x 1800	8	60 70 72 75 85 100 120 140 144 150
1600 x 2048	8	60 70 72 75 85 100 120
1600 x 2400	8	60 70 72 75 85 100 120
1680 x 2100	8	60
1920 x 2160	8	60
1920 x 2400	8	60 70 72 75 85 100
1920 x 2880	8	60 70 72 75 85
2048 x 3072	8	60

640 x 960	16	60 70 72 75 85 100 120 140 144 150 170 200 240
800 x 1200	16	60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x 1536	16	60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x 1728	16	60 70 72 75 85 100 120 140 144 150 170 200
1280 x 1440	16	60
1280 x 1536	16	60 70 72 75 85 100 120 140 144 150 170
1280 x 1600	16	60 70 72 75 85 100 120 140 144 150 170
1280 x 1920	16	60 70 72 75 85 100 120 140 144 150 170
1280 x 2048	16	60 70 72 75 85 100 120 140 144 150 170
1360 x 1536	16	60 70 72 75 85 100 120 140 144 150 170
1600 x 1800	16	60 70 72 75 85 100 120 140 144 150
1600 x 2048	16	60 70 72 75 85 100 120
1600 x 2400	16	60 70 72 75 85 100 120
1680 x 2100	16	60
1920 x 2160	16	60
1920 x 2400	16	60 70 72 75 85 100
1920 x 2880	16	60 70 72 75 85
2048 x 3072	16	60

640 x 960	32	60 70 72 75 85 100 120 140 144 150 170 200 240
800 x 1200	32	60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x 1536	32	60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x 1728	32	60 70 72 75 85 100 120 140 144 150 170 200
1280 x 1440	32	60
1280 x 1536	32	60 70 72 75 85 100 120 140 144 150 170
1280 x 1600	32	60 70 72 75 85 100 120 140 144 150 170
1280 x 1920	32	60 70 72 75 85 100 120 140 144 150 170
1280 x 2048	32	60 70 72 75 85 100 120 140 144 150 170
1360 x 1536	32	60 70 72 75 85 100 120 140 144 150 170
1600 x 1800	32	60 70 72 75 85 100 120 140 144 150
1600 x 2048	32	60 70 72 75 85 100 120

1600 x 2400	32	60 70 72 75 85 100 120
1680 x 2100	32	60
1920 x 2160	32	60
1920 x 2400	32	60 70 72 75 85 100
1920 x 2880	32	60 70 72 75 85
2048 x 3072	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 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.