



NVIDIA AutoCAD 2009 Performance Driver *Release Notes*

OpenGL Software Version 17.2.1
Direct3D Software Version 17.2.0

For Windows XP 32/64 bit and Windows Vista 32/64-bit

NVIDIA Corporation
June 2008

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

Notice

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

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

Trademarks

NVIDIA, the NVIDIA logo, and Quadro are registered trademarks or trademarks of NVIDIA Corporation in the United States and/or other countries. AutoDesk, AutoCAD, AutoCAD Architectural Desktop, Mechanical Desktop, and WHIP! are trademarks or registered trademarks of Autodesk. Windows, Windows logo, Direct3D, and/or other Microsoft products referenced in this guide are either registered trademarks or trademarks of Microsoft Corporation in the U.S. and/or other countries. OpenGL is a registered trademark of Silicon Graphics Inc. Other company and product names may be trademarks or registered trademarks of the respective owners with which they are associated.

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

Copyright

© 2008 by NVIDIA Corporation. All rights reserved.



Table of Contents



1. Overview and System

Requirements

Driver Release History and System Requirements.	3
---	---

2. Installing the NVIDIA AutoCAD

Performance Driver

Stand-Alone Installation	5
Integrated Installation.	6

3. AutoCAD Configuration

Configuring Features	9
Key Features	10
Accelerated Performance	10
Smooth Lines Acceleration.	12
Turning Adaptive Degradation Off	15

4. Resolved AutoCAD Performance

Driver Issues

Issues Resolved in Version 17.2.0 & 17.2.1 for AutoCAD Performance Driver 2009	17
Issues Resolved in Version 15.09.08 for AutoCAD Performance Driver 2008	18



List of Tables



Table 1.1 NVIDIA AutoCAD Performance Driver Release History 4

CHAPTER

1

OVERVIEW AND SYSTEM REQUIREMENTS

The NVIDIA® AutoCAD® Performance Driver is an NVIDIA® Quadro® workstation feature. The NVIDIA AutoCAD Performance Driver (software) is seamlessly integrated into the AutoCAD environment and contains significant improvements over existing driver technology.

The AutoCAD Performance Driver supports the Autodesk AutoCAD software, including the most recent releases of 2007, 2008, and 2009. Developed in close collaboration with Autodesk®, the AutoCAD Performance Driver is a free, downloadable software driver capable of delivering dramatic performance improvements of up to 10 X on some tests, when coupled with NVIDIA Quadro FX professional graphics solutions.

Note: The AutoCAD Performance Driver 2009 delivers accelerated performance on *both* OpenGL and Direct3D.

Driver Release History and System Requirements

- For AutoCAD 2009, the NVIDIA AutoCAD Performance Driver supports both OpenGL® and Direct 3D® APIs on Windows XP - 32/64 bit and Direct 3D on Vista - 32/64 bit.
- For AutoCAD 2008, the NVIDIA AutoCAD Performance Driver supports OpenGL on Windows XP-32 bit but does not support Direct3D.

Table 1.1 provides detailed driver release history and supported operating systems.

Table 1.1 NVIDIA AutoCAD Performance Driver Release History

AutoCAD Version	Windows Operating System	Performance Driver Version	API	Release Date	File Size
AutoCAD 2009	XP 32 bit XP 64 bit	17.2.1	OpenGL	2008-04-28	3.36 MB
AutoCAD 2009	XP 32/64 bit Vista 32/64 bit	17.2.0	Direct3D	2008-04-28	3.36 MB
AutoCAD 2008	XP 32 bit	15.09.08	OpenGL	2008-04-23	1.87 MB
AutoCAD 2007	XP 32 bit	15.08.06	OpenGL	2007-02-01	1.43 MB
AutoCAD 2005-2006	XP 32 bit	15.07.03	OpenGL	2006-02-13	2.6 MB
AutoCAD 2004	XP 32 bit	15.07.01	OpenGL	2006-02-03	1.6 MB
AutoCAD 2000 - 2002	XP 32 bit XP 32 bit	15.06.06 15.05.13	OpenGL OpenGL	2003-01-11 2002-08-07	3.9 MB 10.2 MB

CHAPTER

2

INSTALLING THE NVIDIA AutoCAD PERFORMANCE DRIVER

The NVIDIA AutoCAD Performance Driver is designed to deliver the maximum performance benefit within AutoCAD. NVIDIA provides two ways to install the AutoCAD Performance Driver: stand-alone and integrated with the NVIDIA graphics driver:

- “Stand-Alone Installation” on page 5 or
- “Integrated Installation” on page 6

Stand-Alone Installation

You can download the standalone AutoCAD Performance Driver from the NVIDIA Web site:

http://www.nvidia.com/object/AutoCAD_PD_workstation.html

- 1 Select the AutoCAD Performance Driver that is supported by the AutoCAD version that is installed and running on your system.

Note: If you want, you can install more than one version of the NVIDIA AutoCAD Performance Driver, have multiple versions of AutoCAD running (for example both 2008 and 2009 versions) and then choose to run the matching driver to AutoCAD version based on the information provided in Table 1.1, “NVIDIA AutoCAD Performance Driver Release History” in Chapter 1.

- 2 Exit AutoCAD before installing the AutoCAD Performance driver.
The package is a self extracting executable.
- 3 Select **Run** and go through the prompts.
- 4 Restart AutoCAD to see an immediate performance advantage.

Integrated Installation

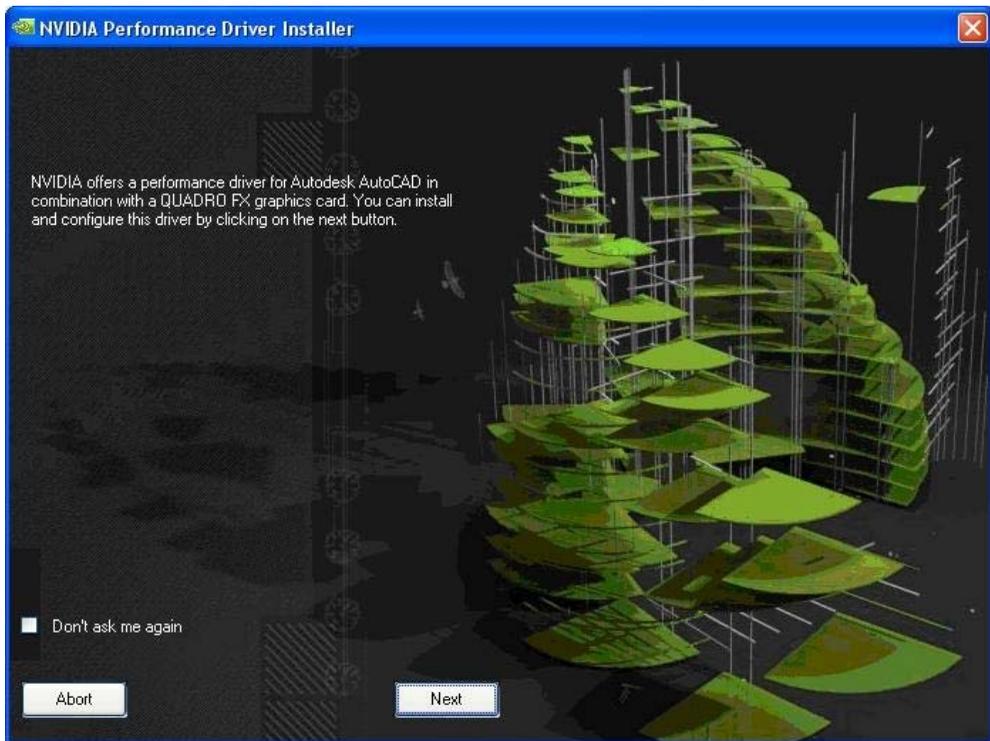
Note: This integrated installation is supported under AutoCAD 2007, AutoCAD 2008, and AutoCAD 2009 installation.

The NVIDIA AutoCAD Performance Driver is included with the release of the NVIDIA graphics driver 169.96 that is publicly available from the NVIDIA.com driver download page.

When you install the NVIDIA graphics driver 169.96, the AutoCAD Performance Driver is placed on your computer and auto-detection is set to recognize an initialization of AutoCAD.

Note: The NVIDIA AutoCAD Performance Driver is NOT installed during the installation of the NVIDIA graphics driver. When you launch AutoCAD for the first-time after the installation of the NVIDIA graphics driver, you are prompted to install the AutoCAD Performance Driver (Figure 2.1).

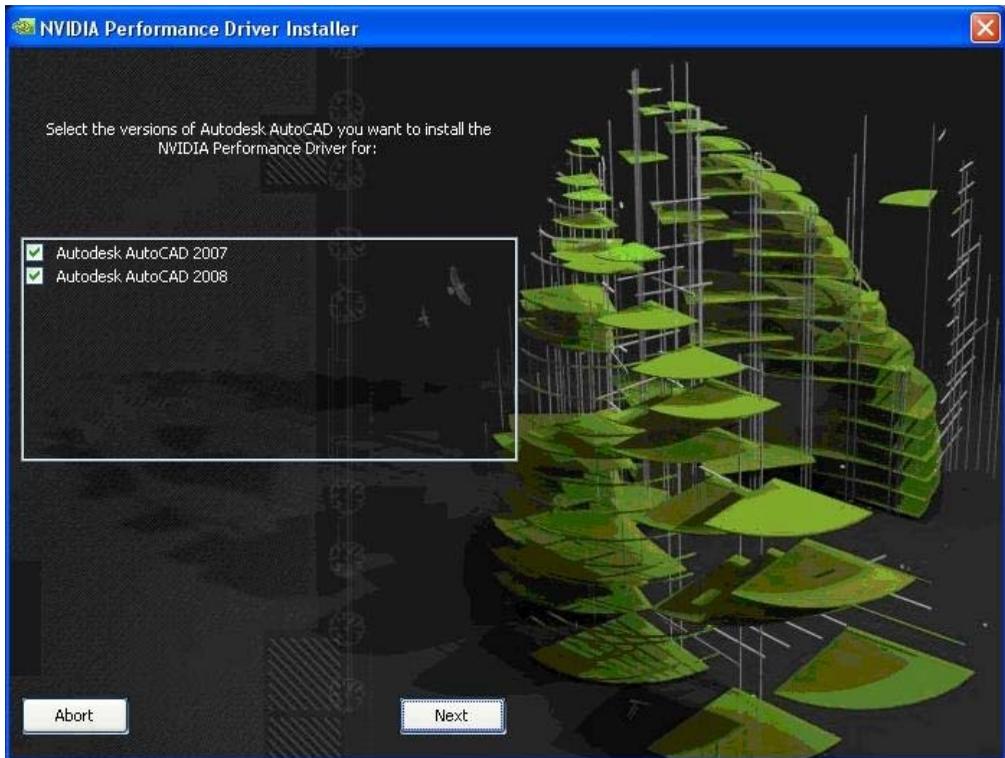
Figure 2.1 First Screen of the AutoCAD Performance Driver Integrated Driver Installation



- 1 To continue and install the AutoCAD Performance Driver, select **Next** (otherwise select **Abort**).
- 2 Select the version(s) of AutoCAD for which you want to install the NVIDIA AutoCAD Performance Driver (Figure 2.2).

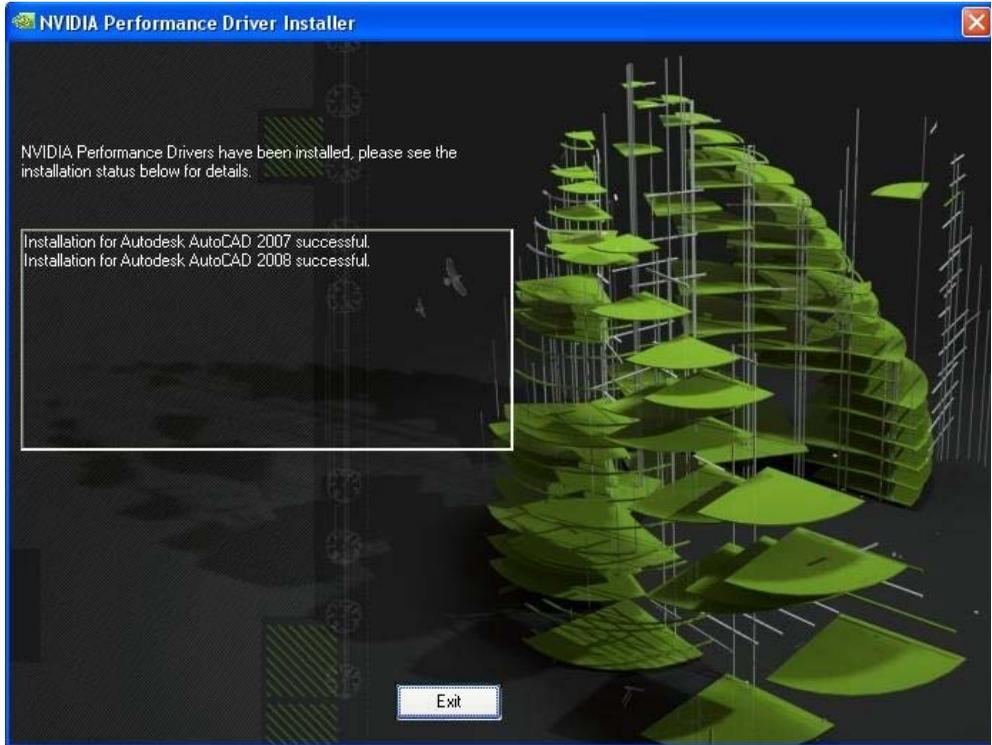
Note: Only those AutoCAD versions that are detected as installed on your system appear on the page. You can check one or more of the options.

Figure 2.2 Selecting the AutoCAD Version(s) Installed.



- 3 Select **Next** to install the selected AutoCAD versions of the Performance Driver.
- 4 The final status window for the installation shows the drivers that have been installed. Select **Exit** to close the window (Figure 2.3).
- 5 Restart AutoCAD.
- 6 If you are running AutoCAD 2009 under Windows XP, an additional screen will prompt you to select OpenGL or Direct 3D as the default driver as both options are available. This resets the options inside AutoCAD 2009.

Figure 2.3 Last Screen with Status of the Installation



CHAPTER

3

AUTOCAD CONFIGURATION

This chapter covers the following main topics:

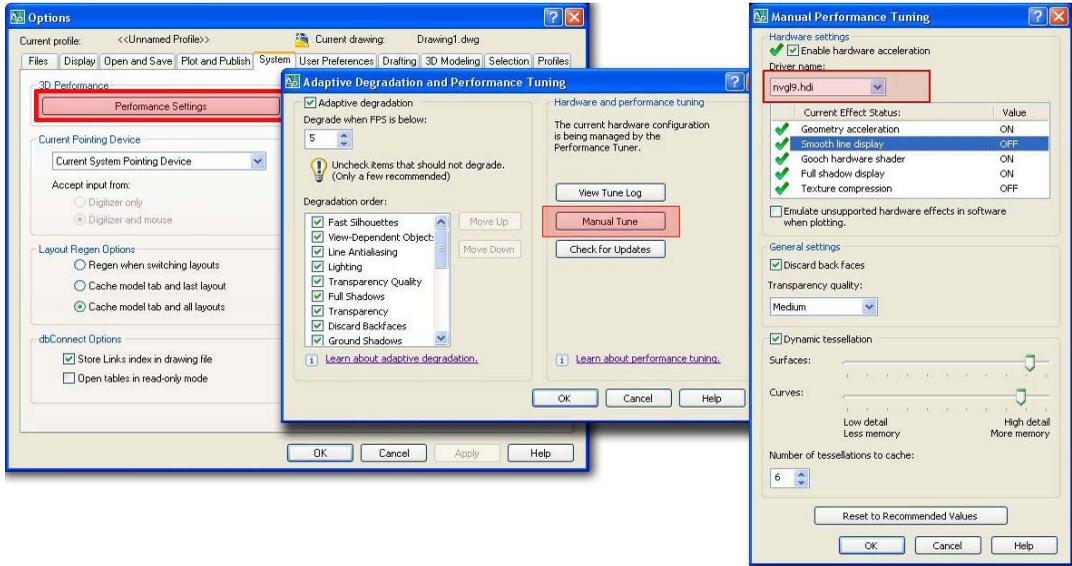
- “Configuring Features” on page 9
- “Key Features” on page 10

Configuring Features

Once you have completed the NVIDIA AutoCAD Performance Driver installation, the AutoCAD application selects the AutoCAD Performance Driver as the default.

At this point, you will notice the performance benefits. If you do not experience improved performance, you can manually check and select the correct settings using the steps below.

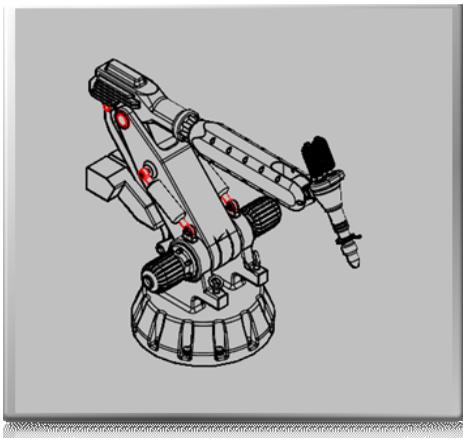
- 1 After starting the AutoCAD application, verify that the NVIDIA performance driver is active.
- 2 To bring up the Manual Performance Tuning dialog box, from the application menu bar, click **Tools > Options > System >> Performance Button > Manual Tune**. (Figure 3.1)
Note: In AutoCAD 2009, open the Menu Browser and select **Options > System > Performance Button > Manual Tune**.
- 3 In the **Driver Name** list, verify that the performance driver is selected.
 - In AutoCAD 2008, the driver name is `nvg19.hdi`
 - In AutoCAD 2009, the driver name will be `nvg19.hdi` or `nvd3d9.hdi`.

Figure 3.1 Manual Performance Tuning

Key Features

Accelerated Performance

With the AutoCAD Performance Driver, Quadro graphics boards deliver up to 10 times the performance, compared to consumer graphics, when using AutoCAD's 3D Hidden visual style and enables faster manipulation of models in the Conceptual and Realistic visual styles

Figure 3.2 3D Hidden Visual Style

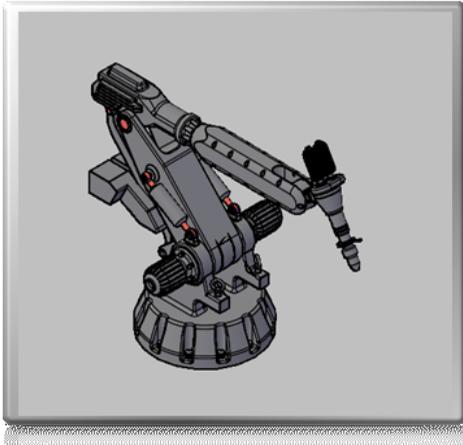
The 3D Hidden visual style essentially draws objects in a way that allows depth cues to be retained with minimal lighting effects.

Figure 3.2 shows a model displayed in 3D Hidden style and it is easy to get an instant perception of the shape and layout of the model.

In architectural workflows, frequently, there are large flat surfaces for which the lack of lighting effects yields clarity in the visual

representation, which facilitates very quick and intuitive understanding of shape and position.

Figure 3.3 Conceptual Visual Style



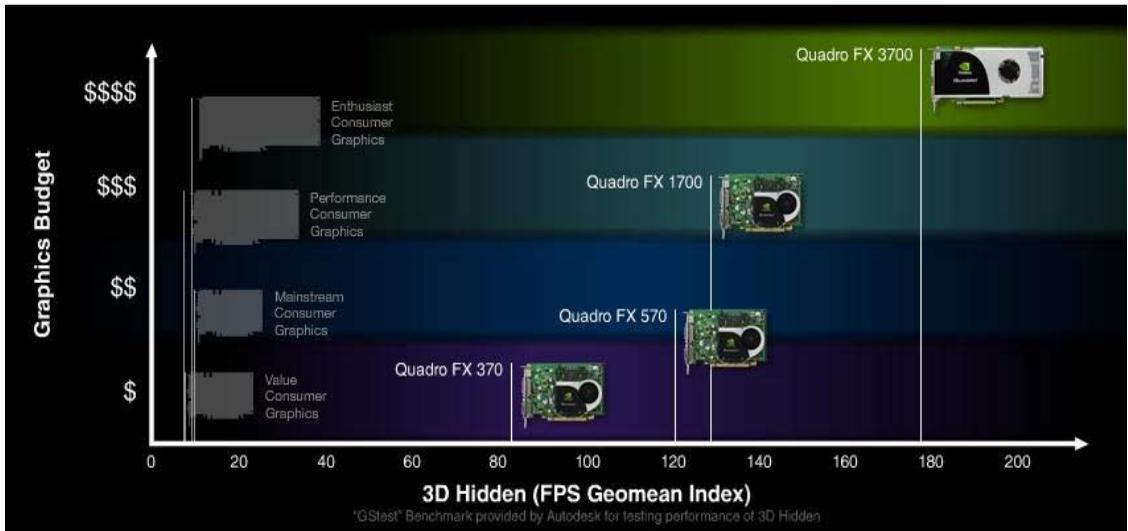
For components and assemblies comprising curved surfaces, minimal lighting effects is unable to allow the eye to pickup on the subtleties of shape. In these instances being able to perceive gradients and angles allows shape to be recognized significantly quicker. The conceptual visual style (Figure 3.3) employs a Gooch shader for just these kinds of visual cues. The Gooch shader is a non-photorealistic shader that changes the hue (i.e. the perceived color versus lightness or contrast) dependent on light and viewing angle. Because it is non-photorealistic, it essentially simplifies the appearance of an object so shape is more

instantly recognizable.

Both of these visual styles are accelerated with the use of the AutoCAD Performance Driver.

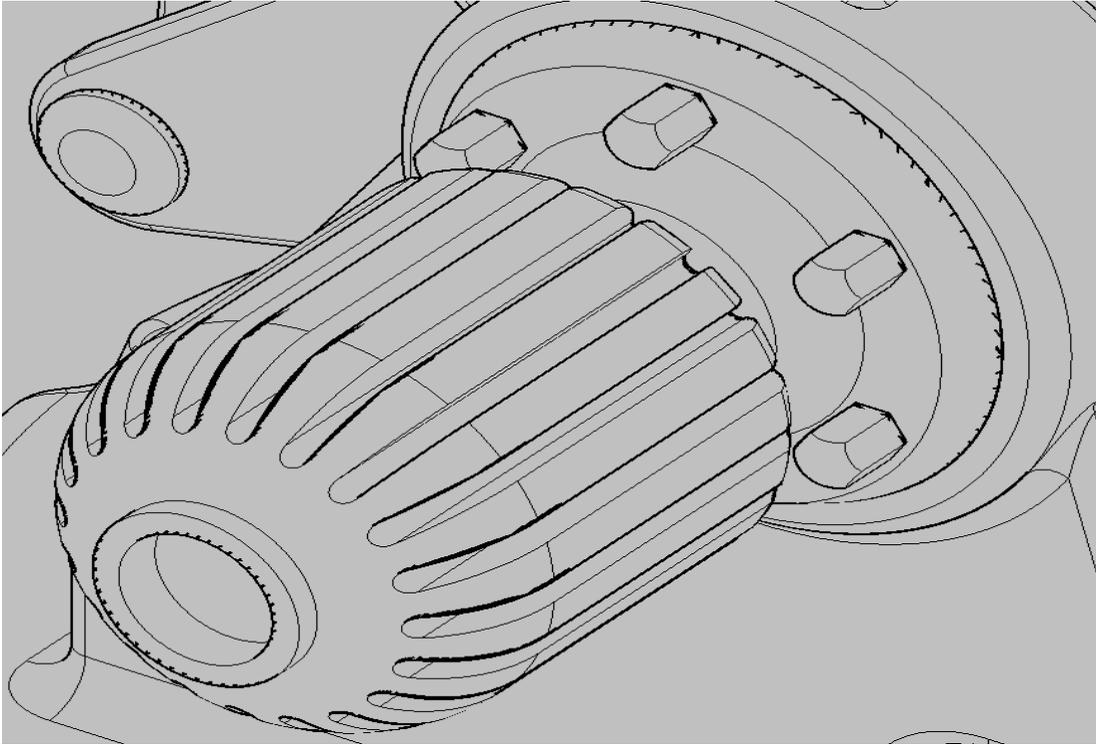
Figure 3.4 highlights the comparative differences between similarly priced consumer graphics cards and NVIDIA Quadro graphics cards with the AutoCAD Performance Driver. At comparable prices, AutoCAD performance of professional Quadro FX solutions are far superior to consumer-class hardware, e.g., 3D Hidden style rendering.

Figure 3.4 AutoCAD Performance of Professional Quadro FX Solutions



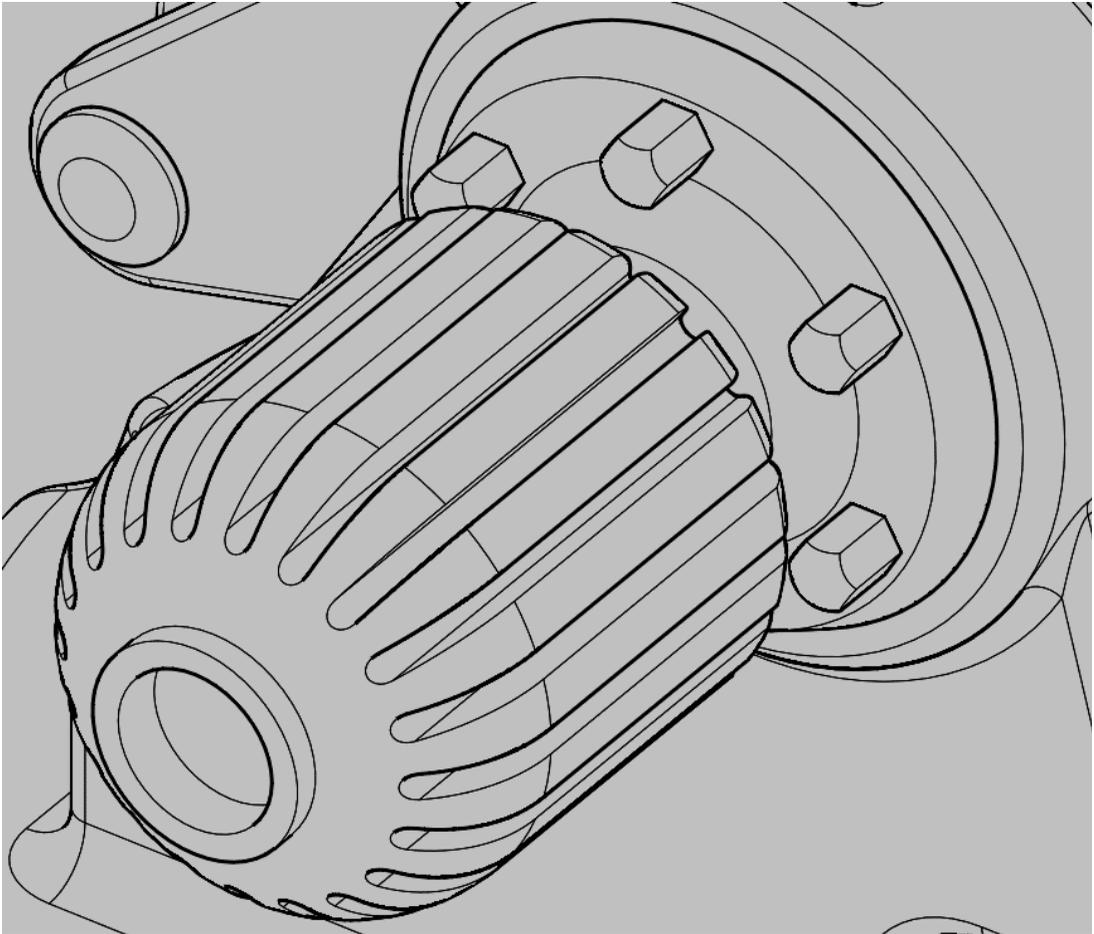
Smooth Lines Acceleration

Quadro provides significantly higher visual quality in all visual styles with “smooth lines” enabled. You can easily manipulate and orient the fully shaded model without compromising on performance.

Figure 3.5 AutoCAD Rendering with Smooth Lines Turned Off

With professional-class graphics cards such as NVIDIA Quadro FX, you have a fast hardware engine specifically designed to draw AutoCAD-style smooth lines, which results in aesthetic lines without the performance penalty.

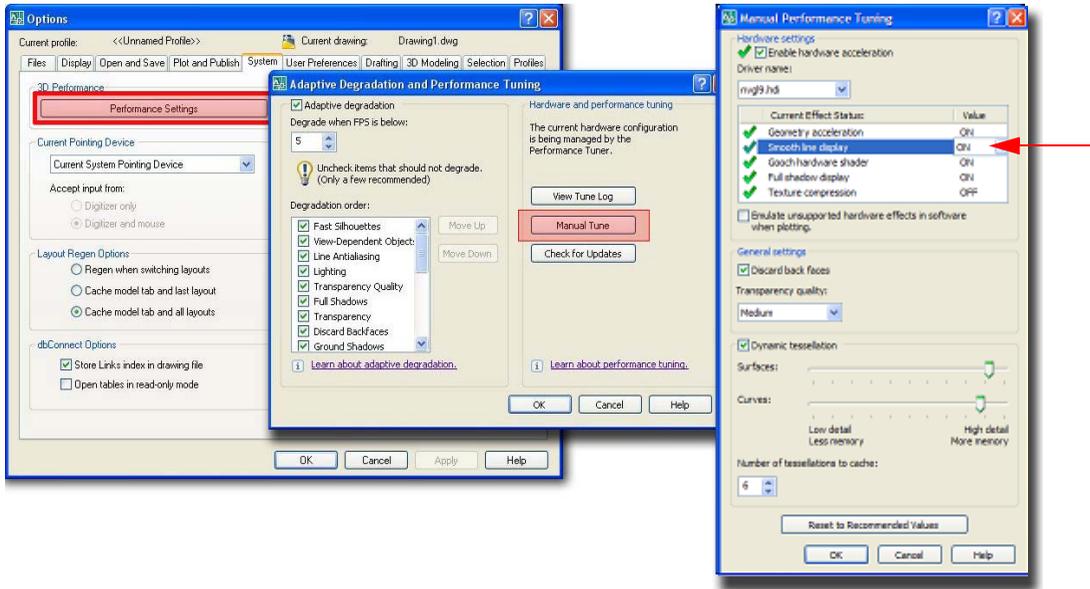
Figure 3.6 AutoCAD Smooth Lines Rendered on a Professional Quadro FX Graphics Card



To enable smooth lines display, follow these steps (Figure 3.7):

Note: Enabling **Smooth lines display** works only on Windows XP with the NVIDIA AutoCAD Performance Driver.

- 1 From the AutoCAD application, click **Tools > Options > System (tab) > Performance Settings > Manual Tune**.
- 2 Select `nvg19.hdi` for the driver name.
- 3 Select the **Smooth lines display** option and set to **On**.

Figure 3.7 Turning Smooth Line Display On

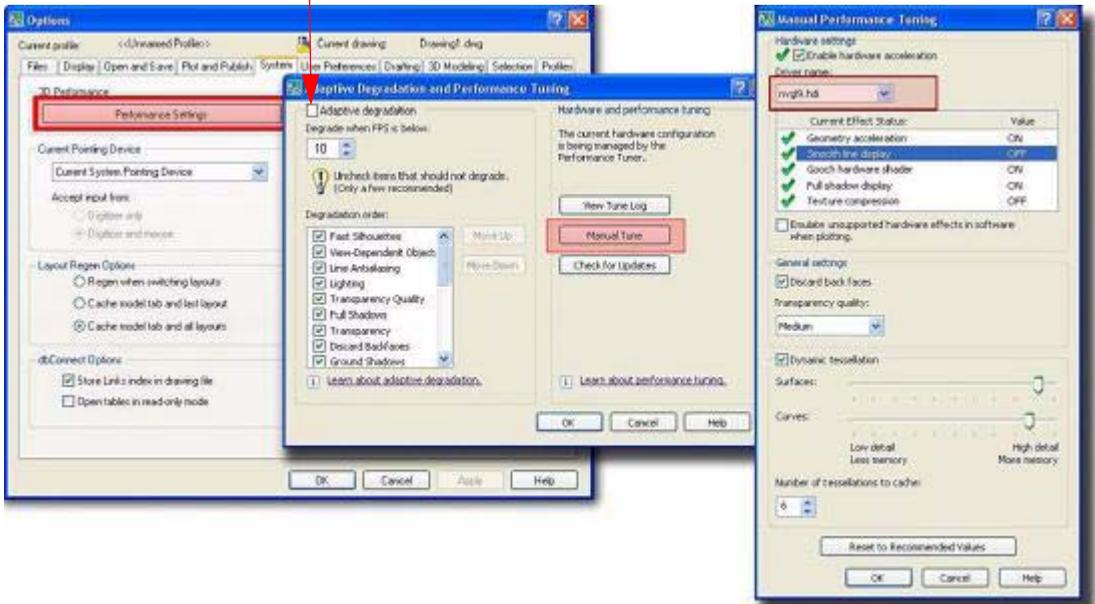
Turning Adaptive Degradation Off

With the addition of the added performance, you can turn off **Adaptive Degradation**, which is on by default. This option works to maintain a certain FPS (frames per second) by simplifying models, either dropping the visual style to Wire Frame or simplifying the geometry.

To turn this feature off, in the Adaptive Degradation and Performance Tuning dialog box, uncheck **Adaptive Degradation** if it is currently checked (Figure 3.8).

- 1 From the AutoCAD application, click **Tools > Options > System** (tab)
- 2 Click to uncheck **Adaptive Degradation**.
- 3 Set the FPS limit to **10**.

Figure 3.8 Turning Adaptive Degradation Off



CHAPTER

4

RESOLVED AUTOCAD PERFORMANCE DRIVER ISSUES

This section contains lists of resolved issues categorized by the NVIDIA AutoCAD Performance Driver version number.

Issues Resolved in Version 17.2.0 & 17.2.1 for AutoCAD Performance Driver 2009

- Direct3D (nvd3d9.hdi) is now supported for AutoCAD 2009 on Vista or XP.
- Windows Vista 32/64 bit and Windows XP 64 bit are now supported with AutoCAD Performance Driver 2009
- Smooth lines are not exposed with the certified drivers from Autodesk. This is a bug with the Autodesk XML database. Note that smooth lines are only supported on Windows XP. To workaround this do the following:

- 1 Locate AdskHwCertificationDatabase.xml in the following location:

Example:

```
<Documents and Settings\All Users\Application Data\  
Autodesk\AutoCAD 2009\R17.2\enu\PTSMML\  
AdskHwCertificationDatabase.xml
```

- 2 Make sure that you have an updated version from Autodesk.
- 3 Open the file in a Web browser and view the Source

- 4 Search for the NVIDIA Quadro-based graphics card that you are using. For example, it can be NVIDIA Quadro FX 370 or any other supported NVIDIA Quadro-based graphics card.
- 5 Under the section for the graphics card you located in step 4, locate the NVIDIA AutoCAD Driver 17.2 release and make the following change.

Change:

```
§ <effect name="AALines" status="1" driver="OGL" />
to:
§ <effect name="AALines" status="1" driver="ALL" />
```

Issues Resolved in Version 15.09.08 for AutoCAD Performance Driver 2008

- After installation, the AutoCAD Performance Driver “nvg19.hdi” is now the selected driver under **Tools > Options > System (tab) > Performance Settings > Manual Tune** by default.

Note: When switching to Direct3D or OpenGL and then back to nvg19.hdi, this default setting is active when returning to the Manual Tune menu.
- Hues are the same regardless of whether you are using the NVIDIA AutoCAD Performance Driver with OpenGL or Direct 3D.
- Smooth lines are not exposed with the certified drivers from Autodesk. This is a bug with the Autodesk XML database. To workaroud this problem, do the following:
 - 1 Locate AdskHwCertificationDatabase.xml in the following location:


```
<Autodesk application installation folder>\Drv\AdskHwCertificationDatabase.xml
```

 Example:


```
C:\Program Files\AutoCAD 2008\Drv\AdskHwCertificationDatabase.xml
```
 - 2 Make sure that you have an updated version from Autodesk.
 - 3 Open the file in a Web browser and view the source.
 - 4 Search for the NVIDIA Quadro-based graphics card that you are using. For example, it can be NVIDIA Quadro FX 370 or any other supported NVIDIA Quadro-based graphics card.

- 5 Under the section for the graphics card you located in step 4., locate the NVIDIA AutoCAD Driver 17.1 release and make the following change:

Change:

```
§ <effect name="AALines" status="1" driver="OGL" />
```

to

```
§ <effect name="AALines" status="1" driver="ALL" />
```