



# NVIDIA & VMWARE TEST DRIVE

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**Application Note**



## DOCUMENT CHANGE HISTORY

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# INTRODUCTION

VMware and NVIDIA are excited to give everyone the opportunity to see how NVIDIA® virtual GPU (vGPU) solutions elevate the end user experience for remote desktops and drives performance for today's graphics processing unit (GPU) intensive applications. NVIDIA's virtual GPU products include three products designed to meet the challenges of today's digital workplace, the NVIDIA Quadro® Virtual Data Center Workstation (Quadro vDWS), the NVIDIA GRID® Virtual PC (GRID vPC) and NVIDIA GRID Virtual Applications (GRID vApps). GRID vPC and GRID vApps are virtualization solutions that deliver a user experience that's nearly indistinguishable from a native PC. On the other hand, with Quadro vDWS software, you can deliver the most powerful virtual workstation from the data center. The NVIDIA & VMware Test Drive is a unique way for anyone to experience firsthand the power of NVIDIA vGPU solutions. In just a few minutes you can be up and running with your own personal virtual desktop with all the power of a high-end graphics workstation, and all you need is an internet connection.

A virtualized desktop can be a great desktop, and now anyone can see for themselves with the NVIDIA & VMware Test Drive. As more and more companies migrate their user desktops to VDI solutions many face the challenge of knowledge workers complaining about not getting the fluid desktop experience they want. On the other hand, there are users running graphics-intensive applications, such as designers, architects, and engineers who are not getting the performance they need. NVIDIA Quadro vDWS is the answer to these issues, and now end users can experience this power and performance for themselves.

The NVIDIA & VMware Test Drive is not a commercially available product. It is a technology demonstration developed by NVIDIA and VMware to showcase the benefits of adding vGPU based graphics acceleration to power an interactive experience in a virtual environment.

Take 24 hours to test drive a high performance virtual desktop experience. You will see how vGPU technology delivers GPU acceleration to power remote desktops and applications. It can run graphics-rich applications in a virtualized environment, and can handle complex graphics files, ultra-high-resolution images and fluid HD video.

# GETTING STARTED WITH NVIDIA & VMWARE TEST DRIVE

Your personal virtual machine (VM) has been preconfigured with applications and demos which showcase the benefits of a GPU accelerated virtual machine. These applications are categorized by type and found on the **Start Menu** of the desktop.

To run any of these demo applications, simply click on any of the icons in the **Start Menu**.

The applications are divided into the following categories:

- ▶ Rich Web Experience
- ▶ Office Productivity
- ▶ Design and Engineering
- ▶ Ultimate 3D Graphics

NVIDIA offers different software editions to best meet the needs of different use cases. GRID vPC and GRID vApps are recommended for knowledge workers who need the best experience using rich web content and office productivity applications. For professional graphics users with the need to run design and engineering applications, Quadro vDWS is recommended.

# TESTING THE NVIDIA & VMWARE TEST DRIVE

## RICH WEB EXPERIENCE

GPU-enabled VMs can utilize the full potential of rich web-based content, whether that content is fluid High Definition video playback in YouTube or 3D web content enabled by WebGL as part of HTML5.

## OFFICE PRODUCTIVITY

Office productivity tools are now leveraging GPU acceleration in new and exciting ways, 3D-enabled PDF files, 3D mapping in Google Earth, and Microsoft Office applications that are used every day by millions of users.

## DESIGN AND ENGINEERING

Design and engineering workflows are a key area that benefits from the power of GPU acceleration. The applications included here represent some of the most popular 3D CAD applications in the world: Dassault Systèmes SOLIDWORKS and eDrawings, Siemens NX 10 and Teamcenter, Esri ArcGIS PRO and Autodesk AutoCAD.



## ULTIMATE 3D GRAPHICS

NVIDIA technology demos, FaceWorks Digital Ira and A New Dawn, represent the state of cutting edge graphics realism when utilizing the performance of a modern high-end GPU.

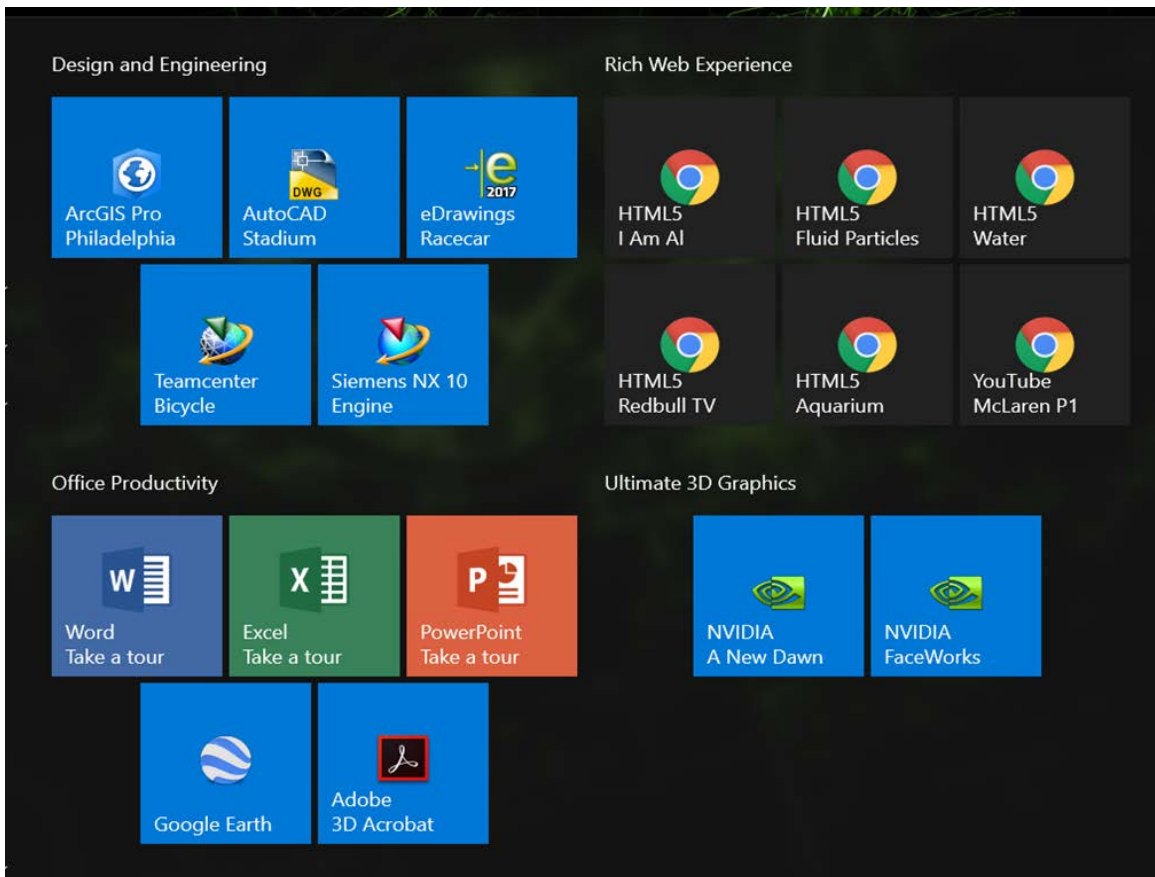


Figure 1. NVIDIA & VMware Test Drive Demos

# RUNNING THE NVIDIA & VMWARE TEST DRIVE DEMOS

This section describes how to test the following list of various pre-installed demos in the NVIDIA & VMware Test Drive.

- ▶ Rich Web Experience
  - HTML5 Water
  - YouTube
  - Fluid Particles
- ▶ Office Productivity
  - Microsoft Office
  - Adobe® Acrobat® Reader
  - Google Earth™
- ▶ Design and Engineering
  - Esri ArcGIS Pro
  - Dassault Systèmes SOLIDWORKS eDrawings
  - Siemens Teamcenter
  - Siemens NX 10
  - Autodesk AutoCAD
- ▶ Ultimate 3D Graphics
  - NVIDIA FaceWorks Digital Ira
  - NVIDIA A New Dawn

## RICH WEB EXPERIENCE

The section goes through the listed rich web experience demos.

### HTML5 Water

This demo uses WebGL to demonstrate a water simulation.

To interact with the demo, you can use the mouse to “draw” on the water to create water ripples. Click the mouse on the sphere to drag the sphere through the water. Moving the sphere out of and back into the water creates realistic interactions with the water surface. Clicking on the black background allows you to rotate the entire scene.

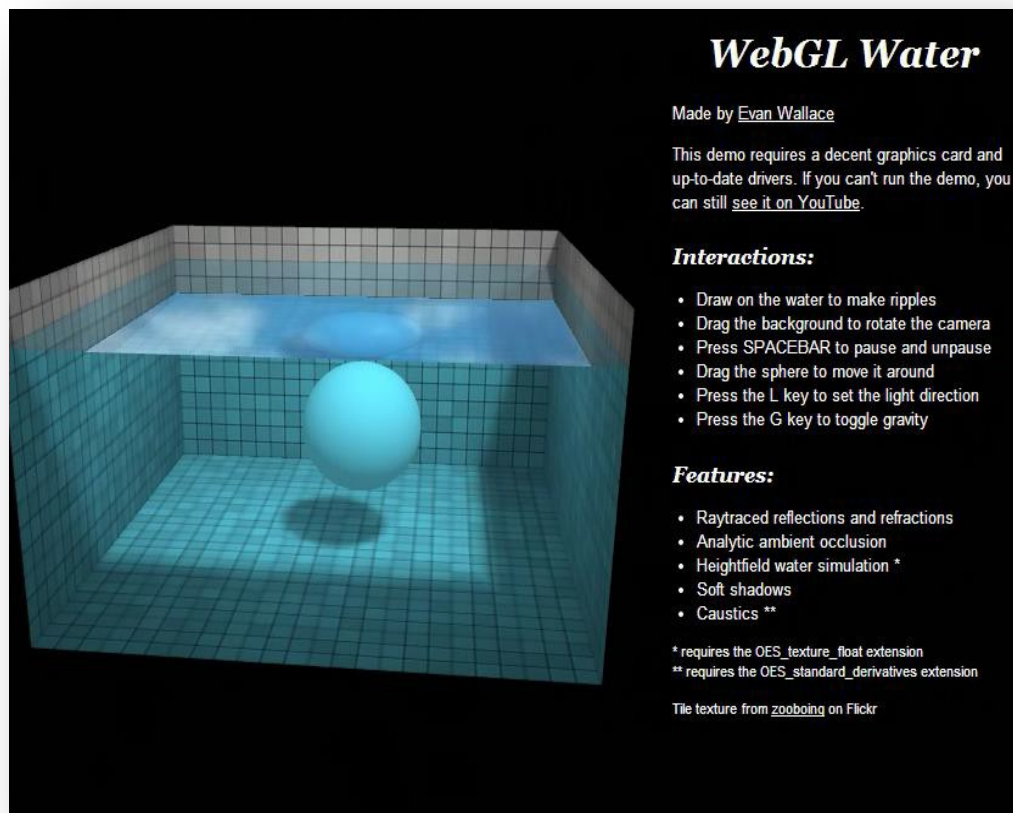


Figure 2. WebGL Water Demo

## YouTube

YouTube is the most popular video streaming website. Three hundred hours of videos are uploaded to YouTube every minute and almost 5 billion videos are watched on YouTube every single day. As more and more content is delivered via online streaming video, being able to smoothly watch streamed online video is an important part of the end user experience. To test YouTube performance, click the YouTube icon in the **Start Menu**. Playing back the video is smooth and flawless. YouTube videos are available with “I am AI” and “McLaren P1” on the **Start Menu**.

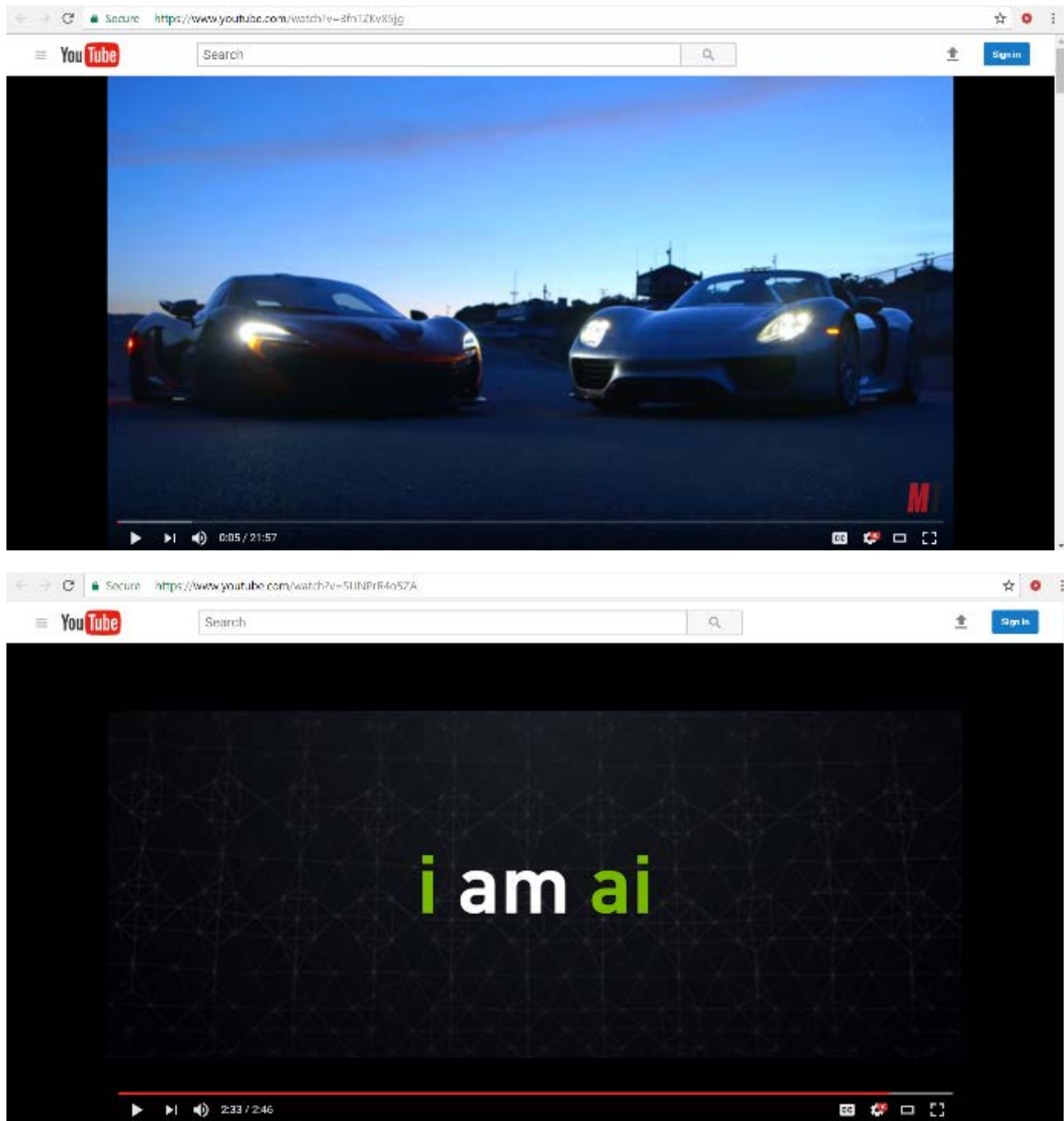


Figure 3. YouTube Demo

## Fluid Particles

Fluid Particles is one of the Google Chrome Experiments. Google Chrome Experiments is an online showroom of web browser-based experiments, interactive programs, and artistic projects. Fluid Particles uses Real-time particle-based 3D fluid simulation and rendering using WebGL which is capable only with a GPU in the system. Play around with particles and their liquid-like motion, move your mouse through them, occasionally click or hold down the mouse button.

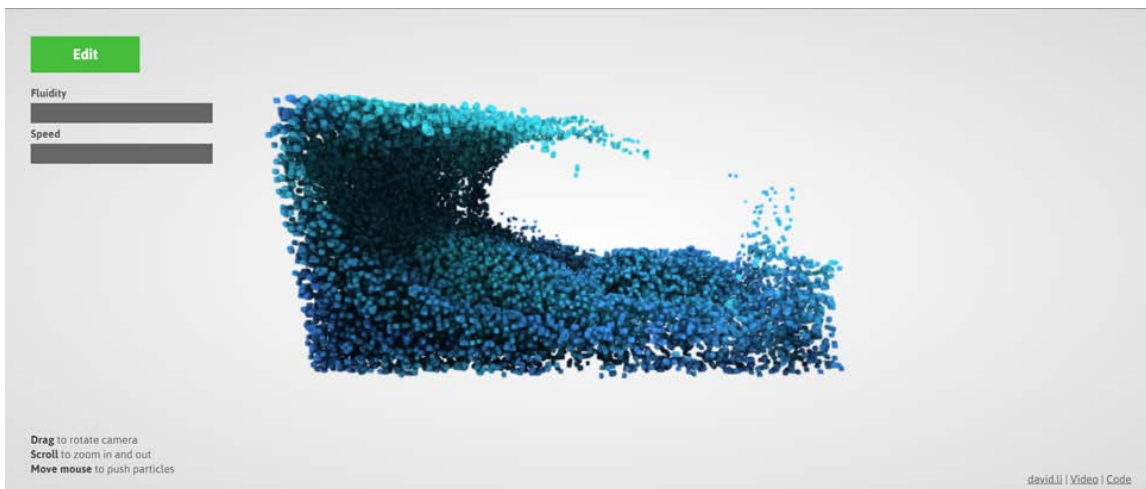


Figure 4. Fluid Particle Demo

## OFFICE PRODUCTIVITY

The section goes through the listed office productivity demos.

### Microsoft Office

The most widely used office productivity applications suite today is Microsoft Office. With the take a tour option in the **Start Menu**, you can learn the tricks on how to use these productivity applications effectively.

You'll notice that the GPU-accelerated VM will be able to handle any large data set or presentations.

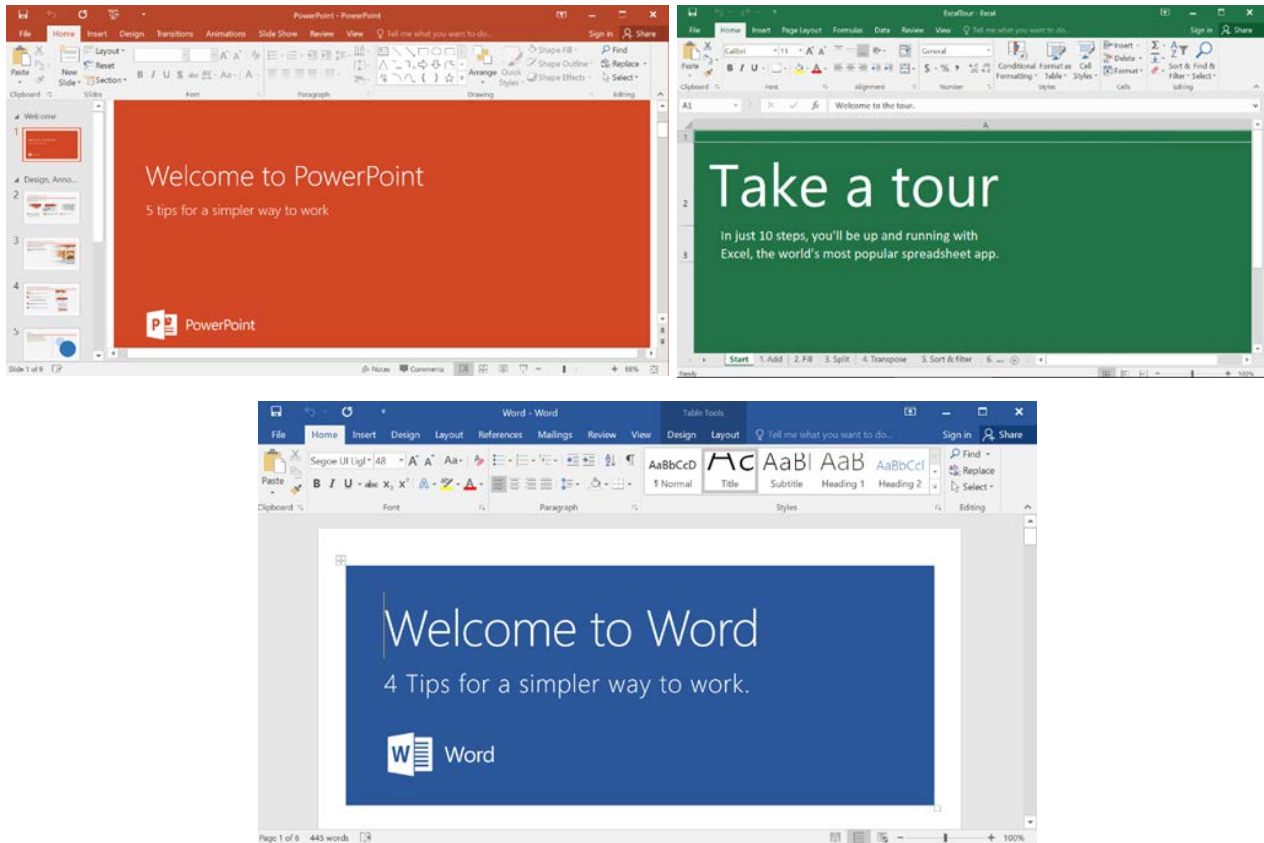


Figure 5. Microsoft Office Demo

## Adobe Acrobat Reader

PDF 3D allows users to embed 3D models within a PDF document. The model is contained within its own viewing environment, allowing the recipient to fully manipulate the 3D object. The example showcased in the NVIDIA & VMware Test Drive shows embedded medical data, allowing medical offices to transfer detailed 3D medical data simply and easily. Clicking within the model viewport allows you to fluidly spin and manipulate the 3D model. Other advanced 3D features that can be shown include the ability to change the model shading method, adjust lighting style, and create a 3D slice plane to cut into the 3D model.

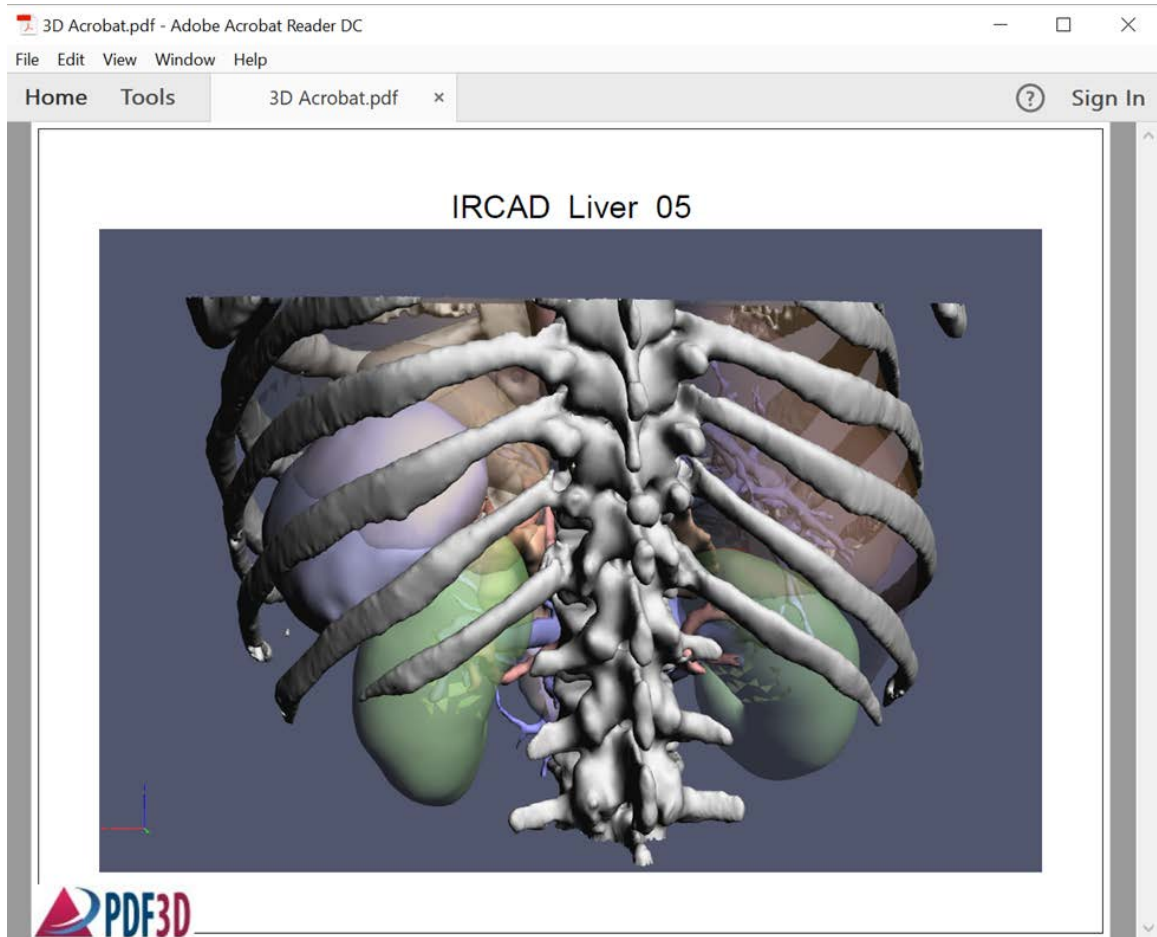


Figure 6. Adobe Acrobat Reader Demo

## Google Earth

Clicking the Google Earth icon launches Google Earth. To demonstrate the high performance you can expect using a GPU-accelerated VM, look at a well-known landmark like the Eiffel Tower in Paris. When you click on the of the destinations available, you can see the responsiveness as Google Earth quickly delivers us a bird's eye view of this famous tower complete with 3D trees and buildings. We can navigate within the viewport by clicking and dragging. We can also use the navigation controls on the right-hand side of the viewport to look around, rotate, move and zoom the viewport window.

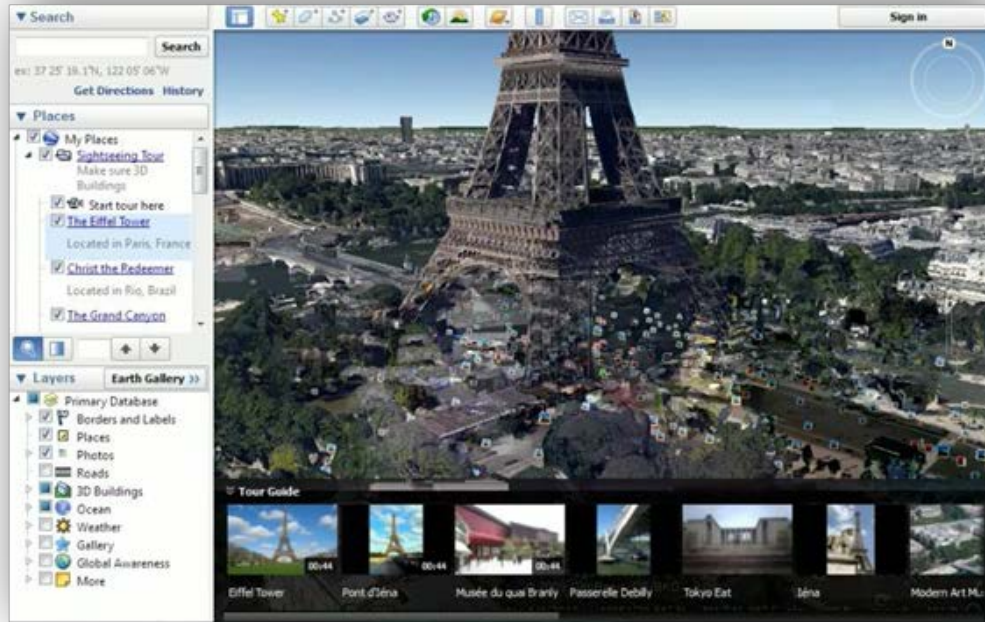


Figure 7. Google Earth Demo

## DESIGN AND ENGINEERING

The section goes through the listed design and engineering demos.

### Esri ArcGIS Pro

ArcGIS Pro is the premier professional desktop GIS application from Esri. With ArcGIS Pro, you can visualize, edit, and analyze your geographic data in both 2D and 3D. The model available for NVIDIA & VMware Test Drive users is a city tour of Philadelphia. By clicking on any of the buildings, you can get information about the building. Options available for demos are zooming in and out and moving across the map by the middle mouse button or mouse wheel. Different bookmarks can be accessed by clicking on the bookmarks option in the toolbar.



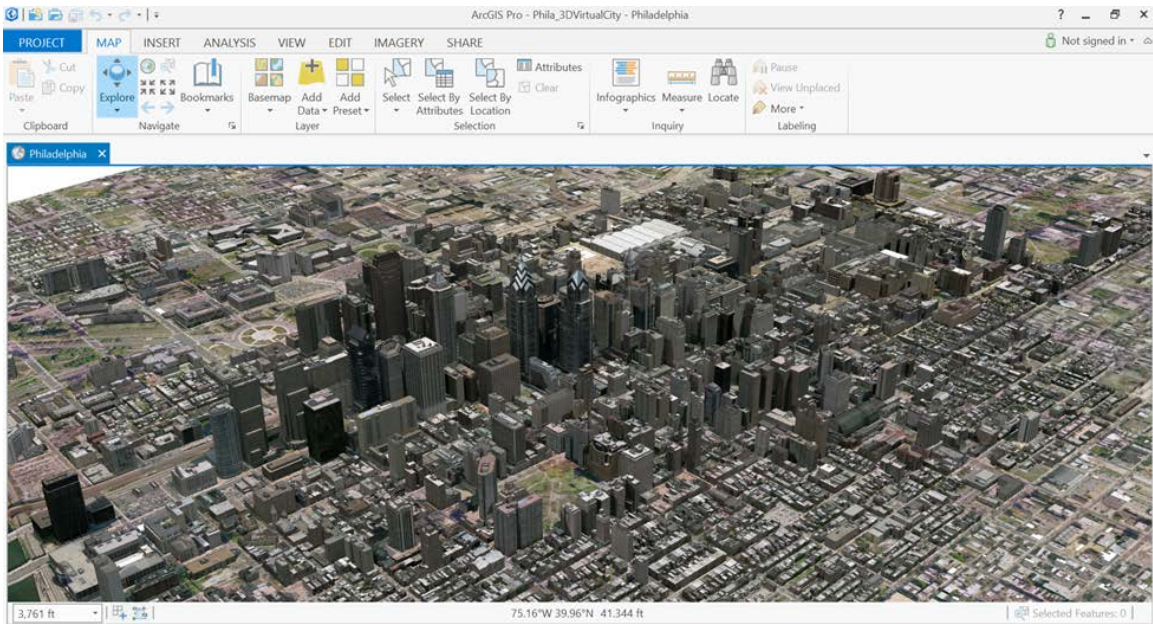


Figure 8. Esri ArcGIS Pro Demo

## Dassault Systèmes SOLIDWORKS eDrawings

Dassault's eDrawings is a model viewer for the popular SOLIDWORKS CAD application. Clicking on the eDrawings icon on the desktop will launch the viewer and display the SOLIDWORKS model of a high-tech concept car. The rotate button from the top row will help the user to rotate the car quickly. Clicking and dragging within the viewport will now allow you to rotate the model within the viewport. When rotating the model's shadow, the reflection is visible on the floor beneath the car.



Figure 9. Dassault Systèmes SOLIDWORKS eDrawings Demo

## Siemens Teamcenter

Teamcenter is a viewer for Siemens PLM application. Clicking on the Teamcenter bicycle icon on the desktop will launch the viewer and load a Siemens PLM model of a bicycle. This model can be manipulated in the viewport.

The left mouse button rotates the model, while the middle mouse button pans the object, and the mouse wheel can be used to zoom in or out of the model.

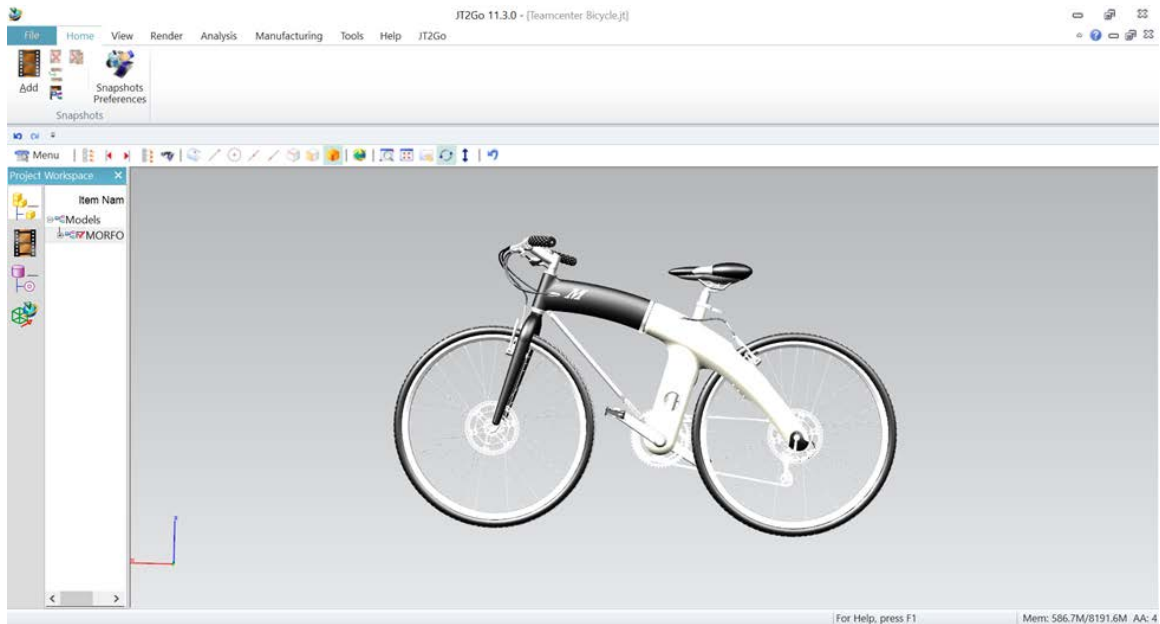


Figure 10. Siemens Teamcenter Demo

## Siemens NX 10

Siemens NX 10 software is an integrated product design, engineering, and manufacturing solution that helps you deliver better products faster and more efficiently. A model of an engine is available which can be used to demonstrate the performance of a GPU. By holding down the mouse wheel and rotating the mouse, you can see the smooth performance of the VM.

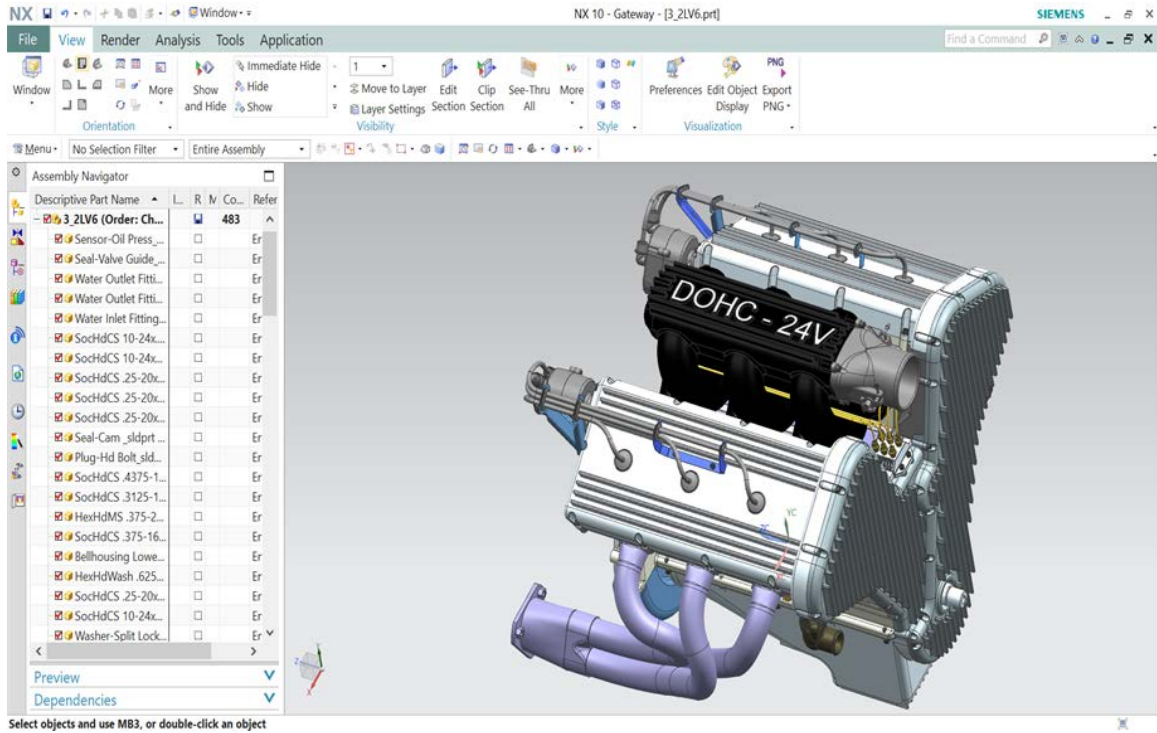


Figure 11. Siemens NX 10 Demo

## Autodesk AutoCAD

AutoCAD is the world's leading CAD software. Used to create everything from skyscrapers to ballpoint pens, it's a mainstay application of designers and engineers the world over. Click the AutoCAD Stadium icon to launch AutoCAD and load the soccer stadium model. The model is displayed using the Conceptual View style. This view style allows for advanced visual features such as object transparency as shown on the Stadium model. To rotate a model in the viewport, hold down the shift key on your keyboard while pressing the middle mouse button. To pan, just hold the middle mouse button down, and use the mouse wheel to zoom in and out.

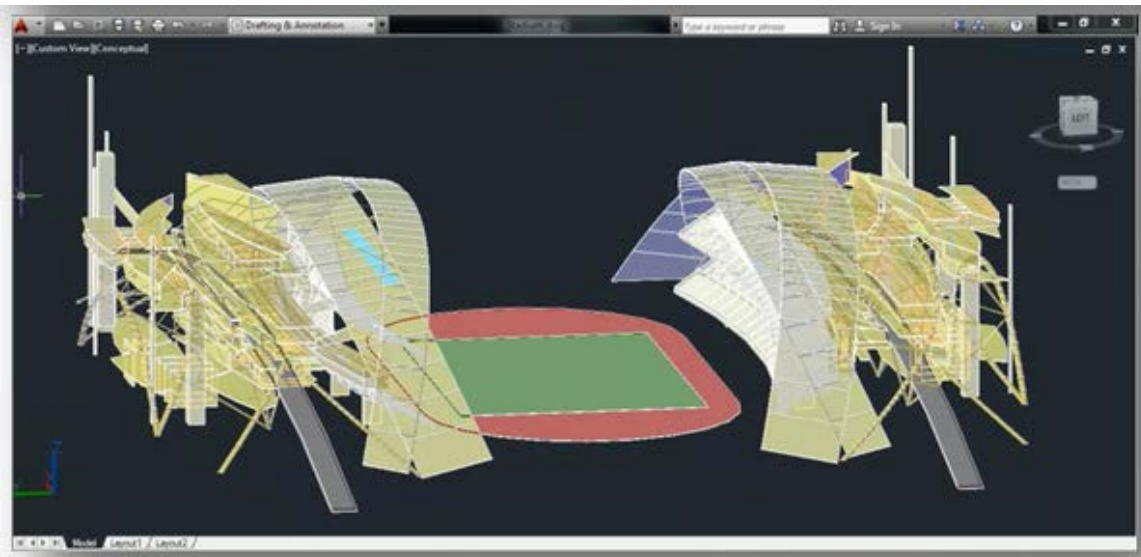


Figure 12. Autodesk AutoCAD Demo

## ULTIMATE 3D GRAPHICS

The section goes through the listed Ultimate 3D graphics demos.

### NVIDIA FaceWorks Digital Ira

Digital Ira is an NVIDIA demo application developed using the FaceWorks library. Designed to create the most realistic real-time facial animation, FaceWorks supports advanced GPU-accelerated features like High Quality Skin Shaders, including skin subsurface scattering and deep scattering (light transmission through thin membranes). As Digital Ira is a complex demo, it is normal for it to take a while to completely load.

Ira's head can be rotated by clicking and moving the mouse within the viewport. Additionally, many options can be changed by clicking on the ">" icon in the upper left-hand corner of the viewport.



Figure 13. NVIDIA FaceWorks Digital Ira Demo

## NVIDIA A New Dawn

NVIDIA released a demo called Dawn to demonstrate the power and programmability of NVIDIA® GeForce® FX. “A New Dawn” is designed to showcase the graphical possibilities on the latest generation of GPUs. Dawn is now seen in her home among the trees, and over 4 million polygons are used to model her environment. Her head features 40,000 individually tessellated strands of hair. You can move within the viewport by clicking and dragging to rotate or use the middle mouse button to pan. Clicking on the “>” icon in the upper left-hand corner of the viewport exposes the many options which can be change.



Figure 14. NVIDIA A New Dawn Demo

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