NVIDIA AND CATIA
GETTING THE MOST OUT OF PHOTOREALISTIC RENDERING

Interacting with photorealistic models has tangible benefits for engineers and designers. Complex add-on programs and long wait times used to mean that photorealistic rendering was reserved just for the styling and marketing departments. Today, realistic models are fast becoming a necessity for designers and engineers for more accurate and faster decisions throughout the entire process.

With NVIDIA Iray® technology natively integrated into CATIA Live Rendering, product designers can visualize predictable digital prototypes at speeds never before possible. Now, designers and engineers who didn't previously use rendering during their design process can photorealistically visualize their models interactively while they work.

You can easily use materials and lights that correspond to and react like those in the physical world, quickly bringing your models to life. Assemblies of every size can now be interactively rendered directly within CATIA with a remarkably simple user interface.

Read on to find out how CATIA Live Rendering with NVIDIA Multi-GPU technology can help a variety of styling and engineering roles.
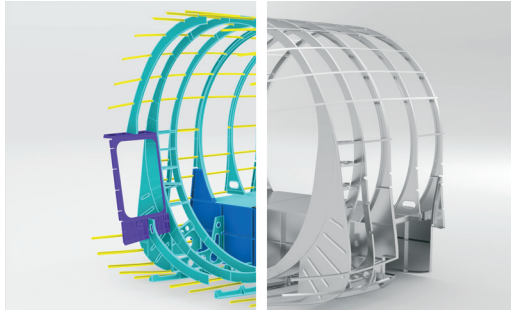
Design complex models, faster.

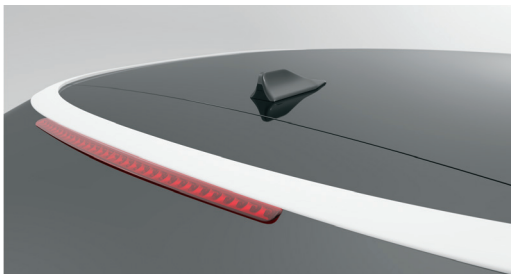# SEE HOW YOU CAN BENEFIT FROM CATIA LIVE RENDERING.

Engineering

3D Modelers

Easily turn your CATIA models into compelling photorealistic rendering to clearly communicate your vision and progress. With the material and environment libraries pre-loaded in CATIA Live Rendering, pushing a button is all you need to turn your traditional CAD models into an exquisite picture. At any stage of the design, you and your colleagues can see how the product will look in real life. Use the final images to create compelling project updates for management, a colleague in the next cube or around the world. An accurate picture is worth more than a thousand words.

Perceived Quality Engineers

Perform extensive gap analysis or fit and flush functionality tests to quickly and accurately see real-world examples of your design. Choose and place physically accurate lights that cast perfect shadows on your model so you can analyze them from countless points of view. Not only will this help evaluate perceived design quality, but could also help you catch fitting errors before it's too late—and without creating costly physical models.

Ergonomic Engineers

Easily modify models and study reflections across windshields and mirrors early in a car design without prototyping. For example, CATIA Live Rendering allows optimal windshield curvature and dashboard light placement for daylight or nighttime environment. The interactive experience also lets you quickly adjust side mirror angle of vision to minimize blind spots.

Light Engineers

See complex light designs in various environments from car headlights, blinkers, and dashboard gauges to diodes and screen reflections on consumer electronic devices.

Packaging Engineers

Place the "final" product on a supermarket shelf or an intimate boutique setting to see how it will look in a real-world environment compared to the competition. Make design changes on the fly before thousands of units are made and shipped.

Styling and Marketing

Design Review

The integration of NVIDIA® Iray® within CATIA means designers and engineers can now engage in interactive, photorealistic team reviews for quick and accurate decision making. With the power of NVIDIA Quadro GPUs you can seamlessly walk through photorealistic scale models and modify them on the fly as needed.

And accelerate design workflows even more with NVIDIA® Quadro VCA, a network-attached visual computing appliance that provides the fastest way to interactive photorealistic 3D digital models.

Color and Trim Experts

Review and change materials interactively using lifelike material libraries. This allows you to see how different materials will look and interact with one another before materials are ordered and prototypes are built. Visualize reflections and refraction effects to create a rare wood feel or to view light through a designer perfume bottle.

Marketing

Waiting for physical prototypes and setting up expensive and lengthy photo shoots delay time to market and consume budgets. With CATIA Live Rendering stunningly accurate images are ready for prime time as soon as the design is done. Go right from the 3D model to the photorealistic representation of the product for use, as-is, in marketing or training materials. Save weeks and get to market faster!

Industrial Design

Make the right decisions very early in the concept design phase with models imported straight from CATIA. Choose the right shape language and evaluate proportions, the global form, and product attitude. Test out new ideas and see them in a real life environment to find the perfect design.
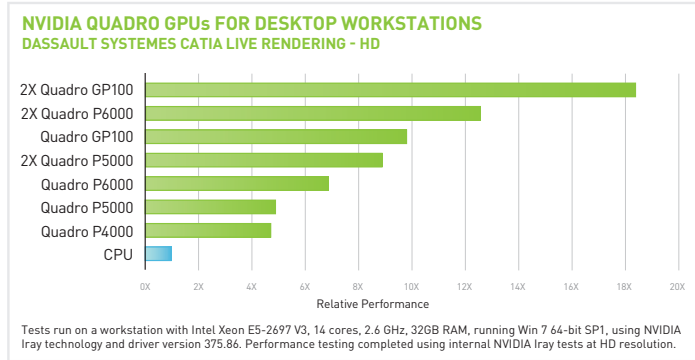
Master Surfacers

Traditional "zebra" analysis uses approximations to evaluate the final surfaces. With the neon room environment available in CATIA Live Rendering you can directly interact with the final photorealistic model. You can move the model and study how the physically accurate light reflects in order to improve surface connections for the perfect finish.
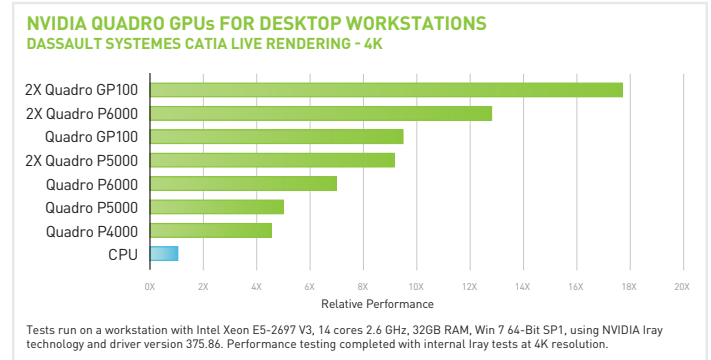
Performance for CATIA Live Rendering

The latest NVIDIA® Quadro® graphics cards provide exceptional performance for CATIA Live Rendering users. And NVIDIA Multi-GPU technology further accelerates CATIA Live Rendering to reduce the time needed to get beautiful, print-ready images. Multi-GPU technology gives engineers, designers, and digital content creators the freedom to visualize and simulate at the same time on a single system.

Support for NVIDIA Quadro Visual Computing Appliance (VCA) hardware was introduced in CATIA 3DEXPERIENCE R2015x. Quadro VCA is the fastest way to create photorealistic images. CATIA Live Rendering users can leverage this network-attached appliance (or multiple daisy-chained VCAs) to massively accelerate the time to noiseless physically based global illumination. This means you can now deliver photograph-quality images faster than ever before.

NVIDIA QUADRO GPUs FOR DESKTOP WORKSTATIONS
DASSAULT SYSTEMES CATIA LIVE RENDERING – HD

Tests run on a workstation with Intel Xeon E5-2697 V3, 14 cores, 2.6 GHz, 32GB RAM, running Win 7 64-bit SP1, using NVIDIA Iray technology and driver version 375.86. Performance testing completed using internal NVIDIA Iray tests at HD resolution.

NVIDIA QUADRO GPUs FOR DESKTOP WORKSTATIONS
DASSAULT SYSTEMES CATIA LIVE RENDERING – 4K

Tests run on a workstation with Intel Xeon E5-2697 V3, 14 cores 2.6 GHz, 32GB RAM, Win 7 64-Bit SP1, using NVIDIA Iray technology and driver version 375.86. Performance testing completed with internal Iray tests at 4K resolution.

RECOMMENDED GRAPHICS SOLUTIONS FOR CATIA LIVE RENDERING USE

USERS	CAD Modelers	Creative Designers	Visualization Experts
USAGE	Create photorealistic images to quickly communicate project progress and direction	Review and change materials interactively to fine tune material library and produce high resolution images	Render production images with complex materials and huge model data sets
For Desktop Workstations	**Quadro P5000[1]**	**Quadro P6000[1]**	**Multi-GPU Quadro P6000[1]**
CUDA CORES*	2,560	3,840	Varies
GPU MEMORY	16 GB GDDR5X	24 GB GDDR5X	Varies
REPLACES	Quadro M5000	Quadro M6000 24GB	Multi-GPU Quadro M6000 24GB
For Mobile Workstations	**Quadro P5000[1]**		
GPU MEMORY	16 GB GDDR5		
REPLACES	Quadro M5000M		
For remote rendering workflows		**NVIDIA Quadro Visual Computing Appliance (VCA)**	
SPECIFICATIONS		8 NVIDIA high-end GPUs with 12 GB memory per GPU (24,576 CUDA cores)	

* Used to compute photorealistic rendering
1 Please contact your software provider for the latest information on application certifications and support.

To learn more, visit **www.nvidia.com/catia**

CATIA Live Rendering is available on all versions of CATIA 3DEXPERIENCE R2011x and above, with NVIDIA Quadro VCA compatibility on R2015x and above. For the best experience, NVIDIA recommends running CATIA Live Rendering on a CATIA-certified platform with the latest generation Quadro and Dassault Systèmes certified driver.

Quadro professional graphics solutions are engineered, built, and tested by NVIDIA to provide the highest standards of quality for maximum system uptime. For the latest updates on software certifications and support, please visit the Dassault Systèmes platform support website. Over a decade of technical collaboration with NVIDIA has resulted in unprecedented performance and driver stability that more than 90% of Dassault Systèmes customers trust for their mission-critical CAD workflows.