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. No longer. Realistic models are fast becoming a necessity for designers and engineers for more accurate and faster decisions throughout the entire process.

Now, with rendering integrated directly within CATIA —powered by NVIDIA® Multi-GPU technology—provides an intuitive and interactive means for creating images that rival photographs, up to 10x faster.[1] NVIDIA Multi-GPU technology combines multiple NVIDIA graphics processors in a single workstation to provide simultaneous design and simulation. One GPU performs the heavy lifting of photorealistic rendering or engineering simulation computation, freeing the other to power rich, full-performance, interactive design.

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 can benefit multiple styling and engineering roles.
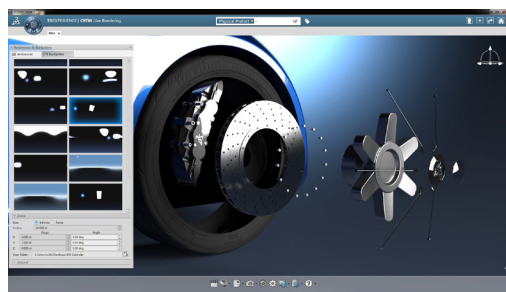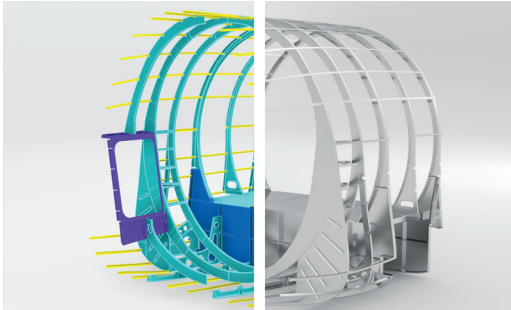

Design complex models, faster.

SEE HOW CATIA LIVE RENDERING CAN BENEFIT YOU.

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 update for management, next cube or around the world. An accurate picture is worth more than a thousand words.
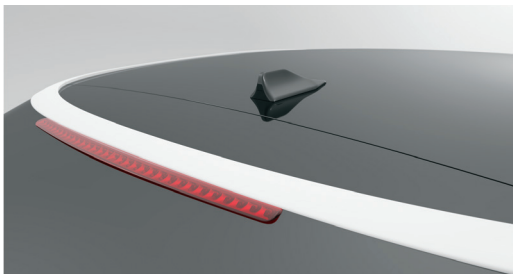
Perceived Quality Engineers

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 its 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 allows you to 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 dashboards 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 against the competition. Make design changes on the fly before thousands 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 if necessary.

And accelerate design workflows even more with NVIDIA® Quadro VCA, 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 guide 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 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.
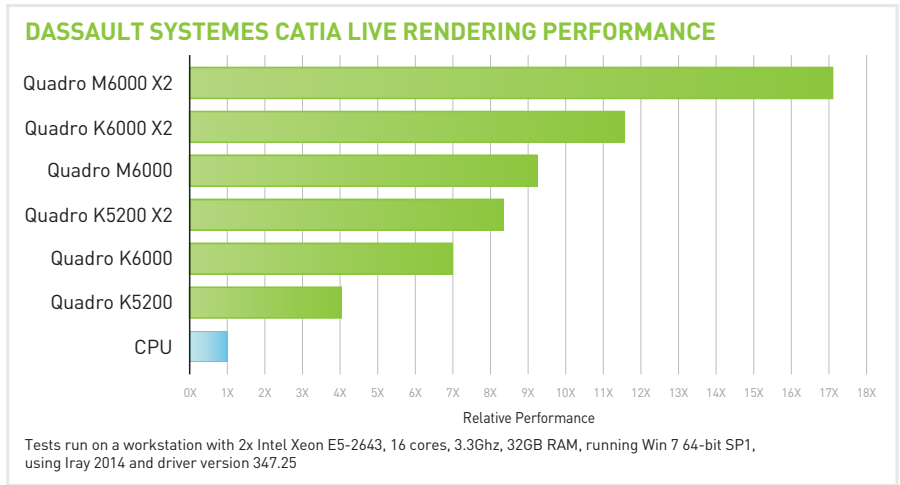
Master Surfacers

Traditional "zebra" analysis use 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 and improve surface connections for the perfect finish.

Performance for CATIA Live Rendering

You can see how fast Live Rendering can be with the power of NVIDIA Multi-GPU technology. No longer do you need to wait forever for beautiful, print-quality images. As you add NVIDIA GPUs, performance gets exponentially faster. So you actually get more than you pay for. Multi-GPU technology gives engineers, designers, and digital content creators the freedom to visualize and simulate at the same time on a single system.

Dassault Systèmes now supports CATIA Live Rendering 3DEXPERIENCE R2015x on the Quadro Visual Computing Appliance (VCA). This means you have access to the fastest way to interactive photorealistic digital 3D models. NVIDIA Quadro VCA is a powerful network-attached appliance that harnesses the power of the highest-performing NVIDIA GPUs. It's accessible to anyone on the network, easily integrated into design workflows and effortlessly scales to multiple VCAs to minimize the time to noiseless physically-based global illumination. This means you can now deliver photograph-quality images faster than ever before.

DASSAULT SYSTEMES CATIA LIVE RENDERING PERFORMANCE

Tests run on a workstation with 2x Intel Xeon E5-2643, 16 cores, 3.3Ghz, 32GB RAM, running Win 7 64-bit SP1, using Iray 2014 and driver version 347.25

RECOMMENDED GRAPHICS SOLUTIONS FOR CATIA LIVE RENDERING

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 data model sets
For Desktop Workstations	**Quadro K5200**	**Quadro M6000**	**Multi-GPU M6000 x 2**
CUDA CORES*	2,304	3,072	6,144
GPU MEMORY	8 GB GDDR5	12 GB GDDR5	24 GB GDDR5
REPLACES	Quadro K5000 or Quadro 5000	Quadro K6000 or Quadro 6000	Quadro K6000 or Quadro 6000
For Mobile Workstations	**Quadro K5100M**		
GPU MEMORY	8 GB GDDR5		
REPLACES	Quadro K5000M or Quadro 5010M		

*Used to compute photo realistic rendering

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

CATIA Live Rendering is available on all versions of CATIA 3DEXPERIENCE R2011x and above, with 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.

DS CATIA

Quadro professional graphics solutions are engineered, built, and tested by NVIDIA to provide the highest standards of quality for maximum system uptime. Nearly 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.

NVIDIA.