



## **NVIDIA Maximus Success Story**

### **NVIDIA Maximus Makes “Design Clinic” A Success for CLEAT Inc.**

CLEAT Inc., located in Tokyo, Japan, specializes in the delivery of 3D computer graphics (3D CG) services. To meet growing client demands, the company realized it needed to dramatically reduce rendering times while preserving the quality of its graphics.

CLEAT Inc. was founded by Kensuke Yamashita in 1990, following his experience as a car designer at Honda R&D Co., Ltd. Over the last 21 years, the company has landed a multitude of top clients including: Giant, a world-class sports bicycle manufacturer; NIKE Japan, and; SQUARE (SQUARE ENIX).

CLEAT is a leader in creating and presenting 3D CG visual product images for marketing purposes. However, during the recent worldwide economic downturn, competitors went on the offensive in all areas, armed with large scale operations and low prices, creating more competitive challenges for CLEAT. It was in that environment that Kensuke Yamashita, President of CLEAT Inc., conceived “Design Clinic,” a company initiative using 3D CG.



*Kensuke Yamashita,  
President and CEO, CLEAT Inc.*

The initiative is offered as a supplement to a manufacturer’s product development process, something that is historically hard for major production companies and publishers to break into. However, as a former industrial designer, Mr. Yamashita had a lot of expertise and personal contacts in this area that helped ease CLEAT’s entry into engaging in it with clients.

“We provide customers with consultants who develop a methodology for better product design, which can be a competitive advantage,” said Yamashita. “This approach is easily understood by clients who are trying to rise above the competition. However, they couldn’t sacrifice the speed of delivery, even for an improved design methodology. As soon as our Design Clinic was presented, manufacturers then demanded more precision and speed.”

The recent emergence of HP Z800 workstations with [NVIDIA® Maximus™](#) technology gave CLEAT a golden opportunity to accelerate its Design Clinic approach.

## CHALLENGE

### Finding the Right Tools to Accelerate Turnaround

In 2000, CLEAT began receiving requests from manufacturers for advice on how to introduce 3D CAD into the field of industrial design. Mr. Yamashita initially responded to these requests for free; however, the demand grew into a specialized consulting business of its own. Today, it's a fundamental part of the company's operations.

"We transfer the images formed in our customers' minds into pictures, which we call 'image pictures,'" Yamashita said. "That is the core of our Design Clinic business."

Back in 2004, after hearing Mr. Yamashita speak at a public forum, CLEAT and its Design Clinic struck up an affiliation with Yamaha Motor Co., Ltd. At the time, Yamaha was looking for competitive advantages in the European market. Competition was growing, and CLEAT's Design Clinic idea sparked its interest. Yamashita surmised that customers seeking large motorcycles might have been compelled as much by the immediate attraction of the look of a product as they were to its quality.

"Previously, manufacturers concentrated on quality, cost and delivery. Today, as performance and quality are commoditized, emotion has become an essential factor in the purchase process," he said.

As Yamaha started to engage with CLEAT's Design Clinic service, the team at CLEAT faced a number of challenges in producing high quality 3D graphics that would evoke emotion and reflect features consumers found 'necessary' in market research. The single biggest challenge CLEAT faced in doing this for Yamaha was long rendering times, which made reviews nearly impossible. Yamaha would need to review the shape and color of the product in real time, and CLEAT would need to vary and change it in real time, and rotate the product image 360 degrees in order to review all sides. Unlike marketing/advertising work, which can be rendered as a back-room process, manufacturing work requires near-real time processing. "It was simple," said Yamashita. "We needed tools that would increase our work speed while preserving the quality of our work."



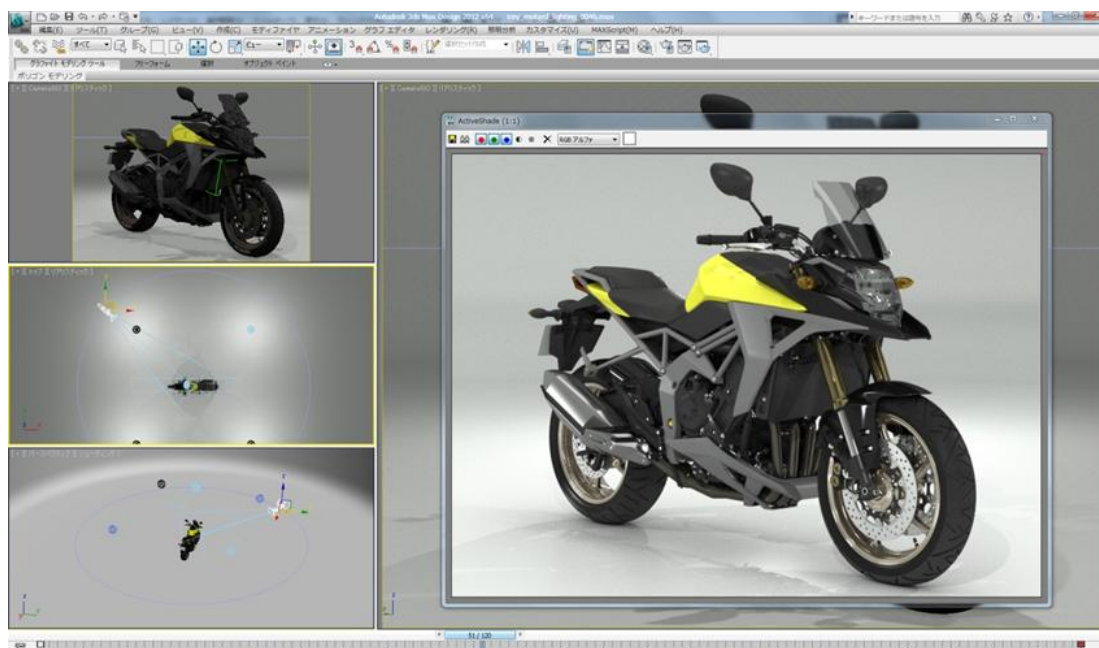
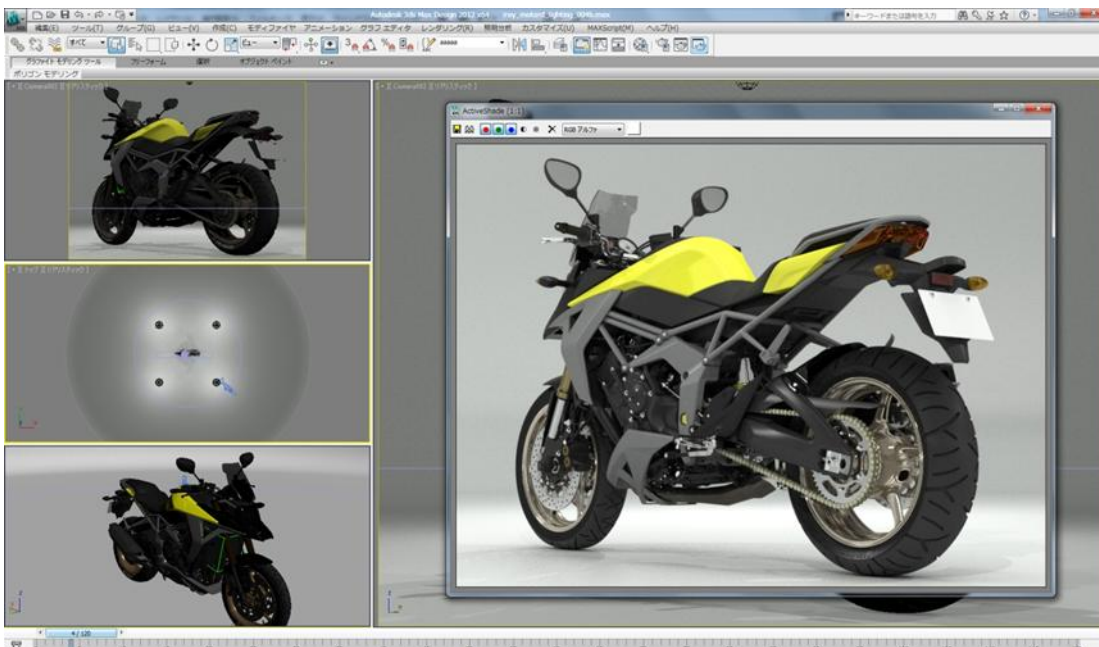
*Image courtesy of CLEAT, with 3D Design by Jiro Katayama;  
CGI Direction by Takuma Hashimoto (CLEAT); CGI design by Shunsuke Nakauchi (CLEAT)*

## SOLUTION

### Reducing rendering times and advancing image quality with NVIDIA Maximus

In October 2011, CLEAT installed an [NVIDIA® Maximus™](#)-powered HP Z800 workstation. The NVIDIA Maximus configuration in CLEAT's HP Z800 consists of an [NVIDIA Quadro® 6000®](#) ultra high-end professional graphics card and an [NVIDIA Tesla™ C2075](#) companion processor. They use Autodesk 3ds Max 2012 Subscription Advantage Pack software that includes the ActiveShade real-time rendering application featuring [NVIDIA iray®](#) rendering software. With these new tools, the company was able to provide high quality 3D graphics while also reducing rendering times from 10 minutes to 30 seconds.

“Our previous workstation took about ten minutes to change the color of a wheel. In the new NVIDIA Maximus environment, iray runs smoothly, and at a high speed – improving our workflow. It can complete rendering in about 30 seconds; the amount of speed increase is overwhelming,” noted Yamashita.



## IMPACT

“Before utilizing NVIDIA Maximus technology, producing and rendering a movie in which the product could be rotated 360 degrees was an overnight job,” added Yamashita. “Now we can complete the entire movie in 30 minutes.”

He continued, “The most important part of our work is to express the ‘ambience’ of the products. Our previous workstation technology allowed instant preview, but the quality was unsatisfactory and didn’t deliver the right ambience. NVIDIA Maximus technology has finally given us both the quality and speed to achieve this.”

NVIDIA Maximus technology has also helped CLEAT improve the experience of its other clients who use tablets to show images and movies of objects from various angles to test subjects in surveys. When rendering was performed on CLEAT’s previous workstation, it would take two to three minutes for an image to appear, compared to the 30 seconds it now takes utilizing NVIDIA Maximus technology. Also, since the workstation can now be used to perform other tasks while rendering, time can be used more effectively overall.

### **A stable, stress-free work environment**

Shunsuke Nakauchi is a creative artist at CLEAT who’s in charge of producing visual images for product advertising and market survey purposes. “I often am asked to start working on another job while my workstation is already rendering a project. With NVIDIA Maximus, the workstation can now render a job and prepare for the next job at the same time. This means I can work more quickly and efficiently than I was able to before. It’s great for me and ultimately for our clients.”



*Shunsuke Nakauchi, CLEAT Inc.*

Before CLEAT installed NVIDIA Maximus-powered HP Z800 workstations, Mr. Nakauchi worked on two workstations simultaneously via a server connection: one for the rendering scene and the other for editing the original data for the rendering. This use of two workstations required data sharing, meaning repeated uploading and downloading of data—a cumbersome and time-consuming process. CLEAT’s new NVIDIA Maximus systems have since eliminated this process because all work can be performed on a single workstation.

“The stress of working with two pieces of reference data at more than one gigabyte in size with a rendering scene going on at the same time has been eliminated, said Nakauchi. “The data read and write speeds have also improved immensely. Prior to working with the NVIDIA Maximus system, rendering speeds decreased noticeably when data exceeded one gigabyte in size, but that’s no longer a problem.”

Nakauchi concluded, “With the NVIDIA Maximus-powered HP Z800 workstation and Autodesk 3ds Max 2012 software with NVIDIA Iray, I can perform my work while displaying all the set textural quality – a task I simply couldn’t complete before without system errors. The time required for rendering has decreased so much that I can’t even imagine going back to using non-NVIDIA Maximus powered workstations now.”

### **A new and innovative idea, “communication CAD”**

CLEAT Inc. is now working to establish “communication CAD,” a new service that acts as a bridge linking engineering, design, and sales locations. It will enable CLEAT and its clients to view the same picture at the same time, with the ability to change colors and viewing angles. Their NVIDIA Maximus-powered HP Z800 workstations are playing an active role in this project.

Before embracing NVIDIA Maximus technology, design processes took many hours, and changing designs to improve their overall quality and satisfy CLEAT’s clients added even more time to project schedules – resulting in increased client costs. By establishing an NVIDIA Maximus-enabled production environment, CLEAT has improved its customer service and production capabilities, and the company now expects to expand its business.

Concluded Mr. Yamashita, “Since our NVIDIA Maximus-powered production environment now drastically reduces rendering times, our fees charged to clients can now be reduced. Lower fees enable our clients to place more orders and get the most accurate, best images that suit their needs faster than ever before.”

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