CASE STUDY | FRANCOIS QUENTIN LUXURY WATCH DESIGNER

TURNING A LUXURY WATCH 3D DESIGN MODEL INTO A PHOTOREALISTIC INTERACTIVE SHOWCASE

Leveraging Dassault Systèmes 3DEXPERIENCE Platform and NVIDIA® Quadro® VCA to achieve ultra fast performance over the Internet.

NVIDIA | FashionLab® by Dassault Systèmes

NVIDIA Quadro VCA delivers unique compute time for photorealistic renderings—remotely, over a single Internet connection.

AT A GLANCE

CUSTOMER PROFILE

Company: Designer François Quentin and FashionLab by Dassault Systèmes

Industry: Fashion

SUMMARY

- Reference luxury watch designer wanted to reveal the complexity of its watch mechanism using transparent material
- Sapphire transparency brings complex light computation to the 3D model
- Successfully achieved the design review in almost real time using a single Quadro VCA
- Achieved live interactive showcase from Basel, Switzerland connected to a Paris data center-based Quadro VCA

SOFTWARE

Package: Dassault Systèmes 3DEXPERIENCE platform R2015x

Key Application: CATIA Live Rendering

HARDWARE

Workstation: Standard laptop

Rendering Appliance: NVIDIA Quadro VCA

As part of its incubation programs, the FashionLab—Dassault Systèmes' innovation laboratory dedicated to fashion and luxury products— has renewed its collaboration with well-known designer François Quentin for his 4N Brand. The goal was to introduce a new 3D experience during BaselWorld 2015.

This season, François Quentin wanted to reveal a new design of the MTV 4N-01 watch with a new Sapphire case. The product concept was to enhance the movement of this exceptional timepiece with transparency.

CHALLENGE

"I wanted to create a new Sapphire case to magnify the three-dimensional movement of the watch. The idea was to highlight the mechanism. Transparency was the key of this new project." explains François Quentin.

The new case had to be digitally designed with the new Sapphire material to evaluate its impact on the overall shape of the watch. In addition, the desired transparency needed to be simulated as accurately as possible to minimize rendering times. This would enable the design review to be achieved in time to produce the final watch before the BaselWorld event, using all angle views as if it were a real life physical prototype.

"With the Sapphire being almost as complex as Diamond, it was essential to digitally replicate the design before investing in manufacturing it. Modelling and managing complex 3D transparency calculation represents a real challenge that typically requires hundreds of hours of image processing," said François Quentin.

Above: Actual watch photographs of the back side showing the mechanism.

REASONS FOR QUADRO VCA

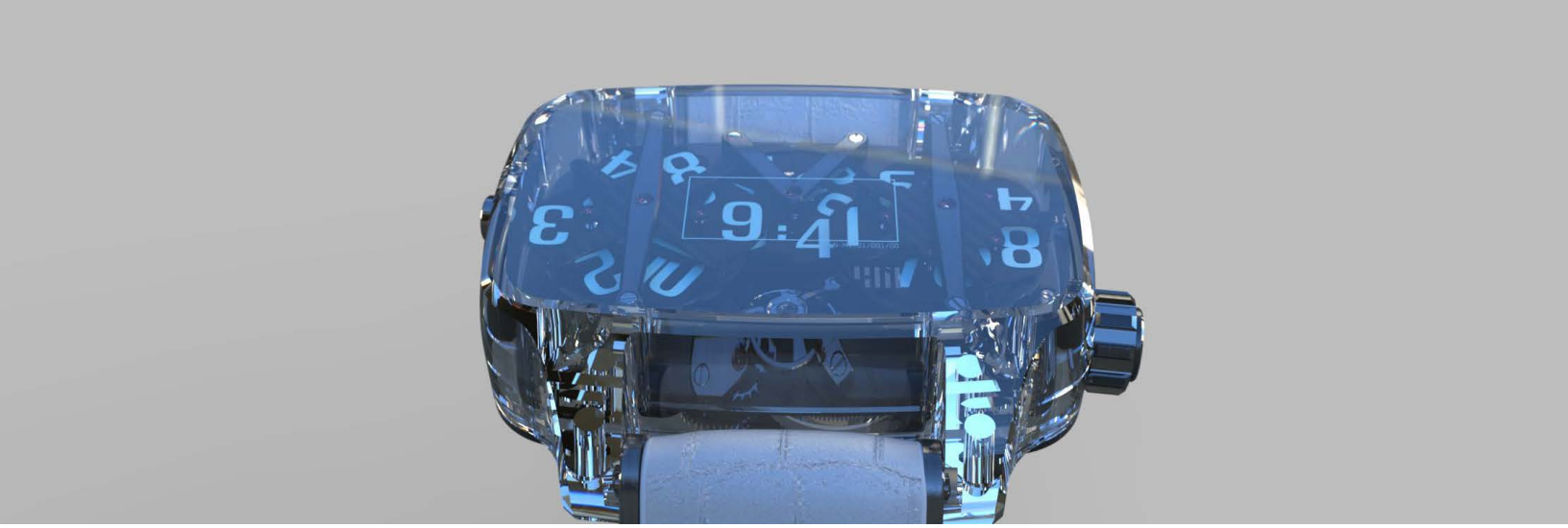
- 9 minute render time instead of 90 minutes with 3x GPU workstationPredictably low monthly cost per user.
- Use any device running the Dassault Systèmes platform remotely connected through the internet to the VCA.

SOLUTION

François Quentin worked closely with the FashionLab, using the Dassault Systèmes 3DEXPERIENCE platform on the cloud, to imagine, design, and build this new version of the watch. The offer "My Product Portfolio on Cloud" provided him with fast deployment and a fully integrated 3D digital continuity to cover all stages of development of the watch.

To render the transparency with photorealistic quality in the shortest possible time, François Quentin used the NVIDIA Quadro Visual Computing Appliance (VCA). This GPU rendering appliance dramatically accelerates the work of NVIDA Iray, a photorealistic renderer integrated into Dassault Systèmes' CATIA 3D design software. This enabled the designers to interact and view the computer models seamlessly with incredibly high visual fidelity.

Thierry Rouf, 3D Expert at the Dassault Systèmes FashionLab explains: "We installed the Quadro VCA in our data center near Paris. During BaselWorld, we could demonstrate how we access through a simple internet connection to remotely and dynamically view, with photorealistic quality, all components of this new watch."



RESULTS

To obtain 1,200 image rendering iterations needed for a good picture quality, compute time was 1 hour and 30 minutes with a workstation equipped with 3x GPU (1x NVIDIA Quadro K6000 + 2x NVIDIA Tesla® K20). Using NVIDIA Quadro VCA, this turned into nine minutes, minimizing 3D design conception and review while also allowing an interactive showcase.

"The rendering is so fast that someone not familiar with 3D realistic rendering would just not notice the technological breakthrough, thinking he is looking at 3D pre-rendered images or at least not understanding that this rendering time was never achievable in the past", said Thierry Rouf. "This is really the only bad thing about this appliance; it basically hides how complicated our job used to be."

All of this was achieved with a single VCA. Connecting to a cluster of VCAs would almost linearly reduce the rendering time, turning Dassault Systèmes software into a real-time 3D photorealistic showcase software.

To learn more about Quadro VCA visit **www.nvidia.com/vca**

To learn more about Dassault Systèmes CATIA visit **www.nvidia.com/catia**

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