

TOYOTA TAKES AUTO MANUFACTURING TO NEW HEIGHTS WITH VR THANKS TO NVIDIA® QUADRO® GPUs AND SILVERDRAFT WORKSTATION

Toyota Motor Corporation is known for quality and reliability in the automotive industry. Continuous improvement is one of the core principles of the organization. Always looking for ways to improve and innovate its processes, Toyota wanted to make the new model development process more efficient and cost-effective. Engineers wanted more flexibility, easier collaboration, and the freedom to test new ideas without having to resort to expensive and time-consuming Rapid Prototyping (RP) whenever more data was required. A number of possibilities were explored until they discovered Silverdraft, a full solutions company, who implemented the use of Extended Reality (XR) environments as part of Toyota's new workflow. A key component of Toyota's solution was Silverdraft's DemonVR workstation equipped with two high performance NVIDIA Quadro RTX 6000 GPUs.



Toyota's DemonVR system with two RTX 6000 GPUs

Silverdraft's solution added a fully immersive VR environment to Toyota's workflow, providing a photorealistic interactive visualization of design and assembly processes. "With the right solution, VR not only was creatively attractive; it made total business sense. VR allowed us to improve New Model Development Cost by reducing travel and RP expenses; we achieved better lead times by identifying issues early on and starting trials earlier. There were quality and safety benefits as well, thanks to more training options, information digitization, and so on," said Mark Kuzniarski, Digital Engineering Planning and Development Analyst for Toyota.

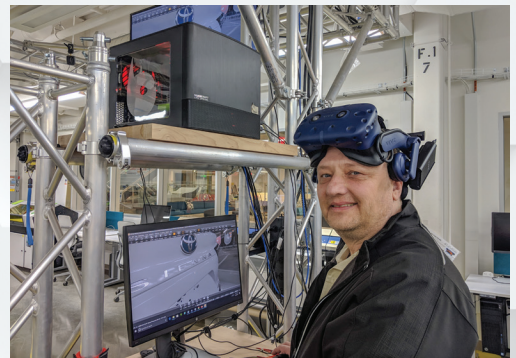
// VR technology will play a significant role in reducing cost,
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Mark Kuzniarski – Digital Engineering Planning and Development Analyst for Toyota

According to Kuzniarski, "Autodesk VRED was selected for its photorealism capability and once we discovered the VR possibilities, we saw the potential for creating a powerful addition to our development workflow."

Silverdraft's solutions include custom tuned DemonVR's workstations paired with the wireless HTC VIVE Pro and additional tools for users to interact with models in a variety of ways, such as animating parts, picking and placing parts, measuring tolerances, and collaborating remotely within a multi-user setup. This makes it possible for users to do interactive visualization of processes in VR using Autodesk VRED, including a complex model of a complete product rendered at a seamless frame rate.

Silverdraft uses NVIDIA Quadro RTX 6000 graphics boards to ensure the realism of the VR experience, combined with the DemonVR system. It's Turing Architecture GPU, GDDR6 memory, and DisplayPort 1.4 support synergistically delivered the best overall single precision FP32 performance. Supporting multiple 8k resolution displays, the use of multiple NVIDIA Quadro cards dramatically increased the rendering potential for demanding workloads. Utilizing the card's VR-specific GPU hardware, the RTX 6000 was ideal for working with the wireless HTC VIVE Pro (HMD) technology chosen for Toyota's DemonVR solution.



The DemonVR solution powered with Quadro GPUs, allows clients to integrate VR into their development workflow, enabling on demand creativity, avoiding unnecessary Rapid Prototype time delays and expenses, and reducing travel costs by creating new opportunities for collaboration.

// With two Quadro RTX 6000 GPUs powering it's new DemonVR solution, Toyota was free to integrate VR into their development workflow. //

"Toyota recognizes the need for all of us to reinvent the way we do business. We must change to survive, and we feel VR technology will play a significant role in reducing cost, improving quality, time to market, building ever better cars and putting smiles on our customers faces," concluded Mark Kuzniarski.



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Established in 1985, PNY Technologies®, Inc. is NVIDIA's Authorized Channel Partner for NVIDIA Quadro professional graphics boards. The company also offers a full line of NVIDIA and PNY GeForce graphics cards, PNY Solid State Drives, USB flash drives and flash peripherals.

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ABOUT SILVERDRAFT COMPUTING

Silverdraft focuses on the use of progressive technology solutions to solve workload and visualization challenges. With customers in various different industries, the team specializes in understanding the barriers and bottlenecks, and then curating and designing solutions that reduce overhead and costs and accelerate time to market.

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PNY Technologies, Inc. 100 Jefferson Road, Parsippany, NJ 07054 | Tel 973-515-9700 | Fax 973-560-5590 | WWW.PNY.COM/PNYPRO

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