



NVIDIA Omniverse Opens Portals for Scientists to Explore Our Universe

3D Simulation and Collaboration Platform Now Supports NVIDIA A100 and H100 Systems; Ecosystem Expands Into HPC With Connections to NVIDIA Modulus, NeuralVDB, and IndeX and Kitware's ParaView to Accelerate Million-X Scale Discovery

SC22 -- NVIDIA today announced that [NVIDIA Omniverse™](#) — an open computing platform for building and operating [metaverse](#) applications — now connects to leading scientific computing visualization software and supports new batch-rendering workloads on systems powered by NVIDIA A100 and H100 Tensor Core GPUs.

NVIDIA also introduced fully real-time scientific and industrial [digital twins](#) for the high performance computing community, enabled by [NVIDIA OVX™](#), a computing system designed to power large-scale Omniverse digital twins, and [Omniverse Cloud](#), a software- and infrastructure-as-a-service offering.

Omniverse now supports batch workloads that AI and HPC researchers, scientists and engineers can run on their existing A100 or H100 systems — including rendering videos and images or generating [synthetic 3D data](#).

To foster more seamless, collaborative workflows for the HPC community, NVIDIA also unveiled connections to popular scientific computing tools such as [Kitware's ParaView](#), an application for visualization; [NVIDIA IndeX®](#) for volumetric rendering; [NVIDIA Modulus](#) for developing physics-ML models; and [NeuralVDB](#) for large-scale sparse volumetric data representation.

"Today's scientific computing workflows are extremely complex, involving enormous datasets that are impractical to move and large, global teams that use their own specialized tools," said Dion Harris, lead product manager of accelerated computing at NVIDIA. "With new support for Omniverse on A100 and H100 systems, HPC customers can finally start to unlock legacy data silos, achieve interoperability in their complex simulation and visualization pipelines, and generate compelling visuals for their batch-rendering workflows."

Using Omniverse and hybrid-cloud workloads, scientific computing customers can connect legacy simulation and visualization pipelines to achieve distributed, fully interactive, true real-time interaction with their models and datasets. NVIDIA customers such as Argonne National Laboratory, Lockheed Martin and Princeton Plasma Physics Laboratory are already seeing benefits of Omniverse for HPC workloads.

Global Scientific Leaders Support Omniverse

Argonne National Laboratory is using NVIDIA Omniverse on its A100-powered Polaris supercomputer to connect its legacy visualization tools as a first step to developing the foundations for future digital twins.

"Visualization workflows at Argonne National Laboratory are getting increasingly complex — ranging from handling terabytes of cosmology data to photorealistic renderings of engineered devices — and these collaborative projects involve teams of scientists, engineers and artists all using highly specialized tools," said Michael Papka, deputy associate laboratory director and director at Argonne Leadership Computing Facility. "Omniverse homogenizes such complex workflows, retains the expertise of established tools and opens the opportunity for entirely new workflows, including building digital twins."

Princeton Plasma Physics Laboratory (PPPL), the U.S. Department of Energy national laboratory for plasma physics and fusion science, is using Omniverse to connect and accelerate state-of-the-art, synthetic, real-time HPC simulators to model fusion devices and control systems, and ultimately improve the operation of the experiment toward a new commercially viable clean-energy source.

"Securing clean energy is a crucial goal for research scientists and engineers — as well as a major target for government organizations," said William Tang, principal research physicist at PPPL and affiliated faculty at Princeton University's Center for Statistics and Machine Learning. "A fully live, truly interactive scientific digital twin of a fusion device that enables real-time simulation workflows built on Omniverse will open doors to new abilities for generating clean power for a better future."

Aligning with NVIDIA's [Earth-2](#) initiative to accelerate climate research, aerospace leader Lockheed Martin recently began using NVIDIA Omniverse to provide the U.S. National Oceanic and Atmospheric Administration (NOAA) with better global environmental situational awareness and to develop an interactive climate research pipeline.

"At Lockheed Martin, we regularly use digital twins and artificial intelligence to provide our government customers with the clearest, current situational picture and actionable intelligence for their important missions," said Matt Ross, senior program manager at Lockheed Martin Space. "We're pleased that we can use our technology experience to collaborate with NVIDIA on this Earth Observation Digital Twin project, where we will fuse together a tremendous amount of satellite and ground-

based sensor data to provide NOAA a global visualization of their own important mission space.”

Availability

These new features are now supported in NVIDIA Omniverse, available for [developers](#) and [enterprises](#). To learn more about [Omniverse](#), watch the [SC22 special address](#).

About NVIDIA

Since its founding in 1993, [NVIDIA](#) (NASDAQ: NVDA) has been a pioneer in accelerated computing. The company’s invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined computer graphics, ignited the era of modern AI and is fueling the creation of the metaverse. NVIDIA is now a full-stack computing company with data-center-scale offerings that are reshaping industry. More information at <https://nvidianews.nvidia.com/>.

Certain statements in this press release including, but not limited to, statements as to: the benefits, impact, performance, features and availability of our products, partnerships and technologies, including NVIDIA Omniverse, NVIDIA A100 and H100 Tensor Core GPUs, NVIDIA OVX, NVIDIA IndeX, Omniverse Cloud, NVIDIA Modulus, NeuralVDB, and Earth-2; fostering more seamless, collaborative workflows for the HPC community through connections to scientific computing tools, HPC customers unlocking legacy data silos, achieving interoperability in complex simulation and visualization pipelines, and generating visuals for batch-rendering workflows; customers achieving distributed, fully interactive, true real-time interaction with models and datasets, Omniverse being used to develop the foundation for future digital twins; and Omniverse opening doors for clean power are forward-looking statements that are subject to risks and uncertainties that could cause results to be materially different than expectations. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our partners’ products; design, manufacturing or software defects; changes in consumer preferences or demands; changes in industry standards and interfaces; unexpected loss of performance of our products or technologies when integrated into systems; as well as other factors detailed from time to time in the most recent reports NVIDIA files with the Securities and Exchange Commission, or SEC, including, but not limited to, its annual report on Form 10-K and quarterly reports on Form 10-Q. Copies of reports filed with the SEC are posted on the company’s website and are available from NVIDIA without charge. These forward-looking statements are not guarantees of future performance and speak only as of the date hereof, and, except as required by law, NVIDIA disclaims any obligation to update these forward-looking statements to reflect future events or circumstances.

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