

NVIDIA Quadro, PNY, and RSA Cosmos Transport Brno Observatory/Planetarium Visitors to the End of the Galaxy

Modern observatories and planetariums are places of wonder and exploration, with facilities for professional astronomers as well as kids and adults of all ages. RSA Cosmos, a global leader in designing and installing planetarium multi-media systems, is constantly pushing technology to create ever-better immersive experiences for visitors and researchers alike. At the Brno Observatory and Planetarium in the Czech Republic, RSA Cosmos has created a multi-sensory planetarium experience involving synchronized high-resolution projectors, seats programmed to enhance the visual experience, and simulated travels to the outer reaches of the galaxy, as well as to the past or future.

The Project

Created in 1954, the Brno Observatory and Planetarium in the Czech Republic was completely rebuilt in the last few years to become a multi-visual center that combines science, education, and art. RSA Cosmos, chosen to design the multi-sensory experience, turned to the professional graphics industry experts at PNY to choose, deliver, and support the right graphics boards to power the cutting-edge technology. One of the largest centers of its kind in Europe, Brno has a new observatory filled with telescopes and a large planetarium with an 18' diameter dome capable of projecting 9,000 stars. The site receives more than 100,000 visitors a year.



RSA Cosmos relied on the pre- and post-technical sales expertise that PNY provided to choose the powerful NVIDIA Quadro GPUs to drive their advanced projection technologies for the Brno Planetarium. The Planetarium treats visitors to everything



from a surprisingly true model of outer space or an underwater scene to simulated travels inside a human body, into the near future, down to the microworld, and out to the macrocosm.

RSA Cosmos has established a strong relationship with PNY, relying on PNY's expertise not only for the specific challenges of the Brno project, but also to enable RSA Cosmos to continue expanding its technological capabilities on behalf of planetariums located across the globe.

“PNY’s professional graphics technology expertise was invaluable in steering us toward the best graphics cards for our systems .And the technical stability of the solutions they provide, in addition to their post-sales support, will enhance our continued development in the future.”

— Damien Pelisse, CTO, RSA Cosmos

Challenges

- During the design phase for a new planetarium in Brno, Czech Republic, the site managers knew they wanted the ability to project high-resolution 3D motion graphics onto large screens and inside domes with quality able to satisfy stargazing purists.

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- To create an immersive experience for visitors, the graphics system had to be able to render complex objects precisely, from the infinitely small to the infinitely large.
- The system needed to be extremely stable and reliable, even with frequent use.

The Solution

- The RSA Cosmos system combines an optical simulator and a digital simulator. The optical projection is performed by two JVC SH-7 projectors with a resolution of 4096 x 2400; the digital image is divided into four equal parts, each powered by an [NVIDIA Quadro K5000 graphics card](#) coupled with a [Quadro Sync card](#) (which synchronizes the various parts of the projected image).
- Equipped with 4GB of DDR5 memory, the NVIDIA Quadro GPUs can store digital terrain models, such as the overview of a planetary surface, with fine-grained texture and heightened realism.
- Real-time 3D software developed by RSA Cosmos, designed with researchers in astronomy projection, provides terrestrial simulations and marries perfectly with the Quadro graphics cards.

“The NVIDIA Quadro GPUs enable our immersive planetarium projection systems to deliver all the features we need, yet with enough simplicity that an untrained operator can use the system with ease.”

— Damien Pelisse, CTO, RSA Cosmos

The Results

- Visitors to the Brno Observatory and Planetarium can experience realistic flight into space, look into the microworld, and travel into the past and future of the galaxy—all from the comfort of their seats in the planetarium.
- The power and interconnection of the NVIDIA Quadro graphics cards ensures perfect synchronization of the images projected onto the planetarium dome, creating fully immersive simulations that include traveling through space and past planets, observed as if spectators were peering out of the cockpit of a spaceship; visualizing the motion of comets; or transporting Brno visitors back in time to observe the galaxy's early development.

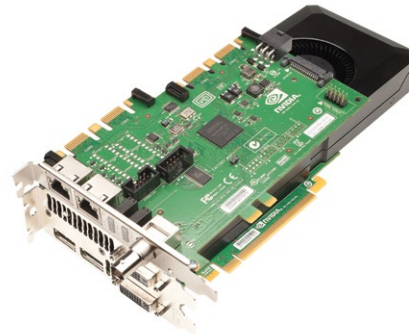
- By providing graphics card selection, installation, and support, PNY enabled RSA Cosmos to create a state-of-the-art observatory and planetarium system for Brno, as well as to confidently plan for future planetarium installations worldwide.

“Thanks to the support and responsiveness of PNY, RSA Cosmos has successfully installed more than a dozen systems worldwide that are similar to the one at the Brno Observatory/Planetarium.”

— Damien Pelisse, CTO, RSA Cosmos

PNY Professional Graphics solutions, like the ones used at Brno Observatory, are available from leading resellers. Read the online version at www.pny.com/BrnoObservatory.

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NVIDIA Quadro K5000 Sync
PNY Part #: VCQK5000SYNC-PB



RSA COSMOS

RSA Cosmos (www.rsacosmos.com), founded in 1985 and based near St. Etienne, France, is one of the world's leading providers of integrated optical solutions, digital 3D domes, and other technologies for planetariums. RSA Cosmos has installed 150 planetariums worldwide, including 50 large facilities measuring more than 8 meters in diameter.

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Offering pre-and post-sales assistance, three-year standard warranty, toll-free professional technical support, and an unwavering commitment to customer satisfaction, PNY partners and customers experience first-hand why PNY is considered a market leader in the professional graphics industry. (www.pny.com/quadro)