Press Release

For Immediate Release

Q.ANT Debuts First Interactive Live Demonstration and New Benchmarks for Analog Photonic Computing at ISC 2025

- *For the first time, ISC attendees can experience analog photonic computing in action*
- *Q.ANT's Native Processing Server (NPS) can deliver breakthrough levels of performance and energy savings*
- *Q.ANT showcases new benchmarks in high precision and efficiency for complex AI and scientific workloads*

Stuttgart, Germany – June 4, 2025 – Q.ANT, today announced it will showcase live demonstrations of its photonic Native Processing Server (NPS) at ISC 2025, a leading global conference for high-performance computing (HPC). For the first time, attendees will be able to interact directly with functional photonic computing, witnessing how light can drive breakthroughs in energy and computational efficiency for AI, Physics Simulations, and other complex scientific workloads.

Built on Q.ANT's Light Empowered Native Arithmetic's (LENA) architecture, the NPS promises to deliver up to 30 times the energy efficiency of conventional technologies and will set new performance benchmarks and functionality milestones for AI in HPC-systems including:

- 16-bit floating point precision with 99.7% accuracy for all computational operations on the chip
- 40–50% fewer operations required for equivalent output
- No active cooling infrastructure required, saving cost and energy

The Q.ANT system's core is a proprietary, thin-film lithium niobate (TFLN) photonic chip that executes complex, nonlinear mathematical operations directly in the optical domain. This computing breakthrough will enable high-speed, low-loss optical modulation without thermal crosstalk, reducing the need for energy-intensive cooling and allowing up to 100x greater compute density per rack in a data center framework while achieving up to 90x lower power consumption per application.

"Q.ANT is attacking two of the biggest challenges in photonic computing: integration and precision – while addressing the promise of computational and energy efficiency," said Bob Sorensen, Senior VP for Research and Chief Analyst for Quantum Computing at Hyperion Research. "Q.ANT is offering an innovative alternative to digital processors with an analog counterpart that can excel at nonlinear and mathematical operations, particularly in AI inference operations, physics simulations, and image analysis, all while demonstrating 99.7% accuracy on the photonic chip across complex computational tasks—proving that analog computing can be accurate, performant and deployable."

Analog processing integrates seamlessly with digital infrastructure

Q.ANT's photonic architecture is designed to complement existing computing models. Its analog processors excel at nonlinear and mathematical operations that digital systems struggle with, particularly in AI inference operations, physics simulations, and image analysis. The NPS integrates via standard PCI Express and supports industry-standard frameworks including TensorFlow, PyTorch, and Keras—enabling seamless plug-and-play adoption in HPC and data center environments. This

makes it easy for early adopters of AI and HPC to start working with Q.ANT's NPS, helping them to stay ahead of the curve in understanding the capabilities of photonic computing.

"Photonics fundamentally shifts the economics of High-Performance Computing, especially for increasingly complex AI, physics simulations and scientific workloads," said Dr. Michael Förtsch, CEO of Q.ANT. "We've eliminated the overhead of digital abstraction by performing mathematical transformations natively with light, opening a path to more computationally efficient computing which is also scalable and more sustainable."

Designed for Next-Generation AI and Scientific Workloads
Q.ANT's photonic NPS is ideally suited for complex, data-intensive applications, including:

- Physics and scientific simulations (e.g., material design, molecular dynamics, computational fluid dynamics)
- Advanced image processing
- AI inference and model training at scale

By computing nonlinear functions and Fourier transforms directly with light, the NPS reduces the number of parameters required in AI models, simplifying architectures and lowering overall system demand.

Experience Q.ANT's technology in action at Hall H, Booth G12 at ISC 2025, taking place June 10–12 in Hamburg, Germany.

About Q.ANT
Q.ANT is a deep-tech company pioneering photonic computing. Founded in 2018, Q.ANT develops processors that compute natively with light—delivering scalable, energy-efficient performance for next-generation AI and HPC applications. The company operates a dedicated photonic chip pilot line in Stuttgart and is currently shipping its Native Processing Server to selected partners.

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Images and captions *** Please note higher resolution images and headshots are available by request* or can be downloaded from here: Q.ANT Press Images ISC 2025

Figure 1 Early adopters can work with Q.ANT's NPS for AI and HPC use cases.

Figure 2 The Q.ANT NPS is suited for complex, data-intensive applications, including physics simulations, advanced image processing, AI inference and model training at scale.

Figure 3 The Q.ANT NPS integrates seamlessly with current datacenter infrastructure.

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