Eviden leads the charge in high-performance computing with new AI-ready scale-out networking offering

Paris, France – November 14, 2024 – Eviden, the Atos Group business leading in advanced computing, today announces the launch of **BXI v3**, the third generation of the only European scale-out networking technology, specifically designed for Artificial Intelligence (AI) and high-performance computing (HPC) workloads, set to be available in the second half 2025.

AI and HPC domains are witnessing an exponential increase in compute power with exascale[1] workloads, trillion parameters large language models being developed. In contrast scale-out networking - the backbone of the system – has not seen the same performance improvements, which represents a networking wall for advancing AI & HPC science and requires a radically different approach.

To address this challenge, Eviden has developed the third generation of its patented **BullSequana eXascale Interconnect (BXI v3)** in partnership with the French CEA (Atomic Energy Commission and Alternative Energies). This advancement makes breakthroughs in SmartNIC (Smart Network Interface Card) and application protocol offloading a reality for AI and HPC applications.

While the number of GPUs in computing systems rapidly increases, especially for AI applications, many existing scale-out networking solutions are struggling to enhance the performance of these powerful processors. A key feature of the BXI v3 is its ability to offload application communications - typically managed by the processor - to a specialized component on the NIC. This unique approach optimizes distributed communications at scale, thus handling them much more effectively than current methods, optimizing CPU and GPU resource allocation. This is ultimately resulting in faster application execution up to 35% and lower TCO (Total Cost of Ownership).

With the BXI v3, Eviden has embraced **Ethernet as the base communication protocol,** enhancing it with features that are typically reserved for high-end scale-out networking, such as Infiniband. The BXI v3 delivers exceptionally low latencies (less than 200 ns port-to-port), high bandwidth, in order packet delivery, advanced congestion management and remarkable scalability.

Adopting Ethernet as the base protocol and enhancing its capabilities marks a significant milestone on the BXI Scale-Out networking roadmap allowing Eviden to deliver a solution in 2025 that already aligns with the Ultra Ethernet Consortium (UEC)'s ambitions. As the only European founding member in the UEC, Eviden collaborates with industry giants to expand Ultra-Ethernet Consortium, with the aim to enable a broader ecosystem of

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[1] Exascale is a measure of supercomputing performance, it refers to computing systems able to achieve one trillion calculations per second.

components and markets, extending Ethernet for AI and HPC workloads with application ready SmartNIC capabilities.

Earl Joseph, CEO of Hyperion Research said "*The launch of Eviden's newest BXI marks a significant milestone in the HPC market, one that speaks to the growing demand for innovative network technologies designed to unlock the full potential of HPC and Artificial Intelligence. As the appetite for AI-ready scalable infrastructures continues to grow, Eviden's unique approach offers a strong perspective, combining seamless plug-and-play capabilities with a deep understanding of market needs. By embracing the most widely used protocol in the market, while extending it with the unique features of application protocol offload to the NIC, Eviden brings to the market a real SmartNIC Network with Plug&Play capabilities for both OpenMPI (HPC) and NCCL/RCCL (AI) highly demanding workloads. This solution is designed to become an essential tool for organizations aiming to enhance the potential of their CPU and GPU power while improving TCO and ease of integration.*"

Jacques-Charles Lafoucrière, Program Director at CEA's Military Applications Directorate said "*We've seen firsthand the power of Eviden's BullSequana eXascale Interconnect in our EXA1 HE supercomputer, delivered earlier this year and ranked #17 in the TOP500 (May 2024). We fully support this new version; as AI workloads grow increasingly demanding, a robust interconnect is essential and having a 'made in France' solution is strategic for our sovereignty.*"

Emmanuel Le Roux, SVP, Global Head of Big Data and Security, at Eviden, Atos Group, said "*As technological demands continue to grow and evolve, we are uniquely equipped to meet these challenges. As the European leader in Advanced Computing, we are committed to offering sovereign and innovative technology solutions. This positions us at the forefront of the industry, empowering our customers to shape the future of AI and high-performance computing.*"

For a deeper understanding of the solution and its context, please refer to the dedicated white paper available here.

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About Eviden[2]

Eviden is a next-gen technology leader in data-driven, trusted and sustainable digital transformation with a strong portfolio of patented technologies. With worldwide leading positions in advanced computing, security, AI, cloud and digital platforms, it provides deep expertise for all industries in more than 47 countries. Bringing together 41,000 world-class talents, Eviden expands the possibilities of data and technology across the digital continuum, now and for generations to come. Eviden is an Atos Group company with an annual revenue of c. € 5 billion.

About Atos

Atos is a global leader in digital transformation with c. 82,000 employees and annual revenue of c. € 10 billion. European number one in cybersecurity, cloud and high-performance computing, the Group provides tailored end-to-end solutions for all industries in 69 countries. A pioneer in decarbonization services and products, Atos is committed to a secure and decarbonized digital for its clients. Atos is a SE (Societas Europaea) and listed on Euronext Paris.

The purpose of Atos is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

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