HYP_Link

NET4EXA EuroHPC JU Project Seeks to Advance European Interconnect for HPC and AI

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RECENT DEVELOPMENT

Formed in September of 2024, the EuroHPC Joint Undertaking (JU) NET4EXA research and innovation project, funded for €71 million through 2027, aims to develop and deploy innovative interconnect technologies for exascale and post-exascale infrastructures. The project is coordinated by the French Alternative Energies and Atomic Energy Commission (CEA), with participants including two vendors, Eviden and Numascale, as well as academic and government user sites and will build upon two previous generations of the Eviden BullSequana eXascale Interconnect (BXI). Goals of the project include:

- Deliver greater efficiency, capacity, and adaptability for future supercomputing requirements
- Deploy a BXIv3-based pilot system for integration into exascale and post-exascale infrastructures
- Address high-bandwidth, low-latency communication, and efficient CPU/GPU integration challenges
- Identify a roadmap to BXIv4 to further enhance system performance and energy usage for AI and HPC

ANALYST COMMENT

AI workloads in general, and generative AI training and inferencing workloads in particular, continue to expose the criticality of system interconnect high-bandwidth and low-latency capabilities to deliver required system performance. If system interconnect performance is inadequate, expensive GPU infrastructure may sit underutilized, extending the time to train models and derive revenue from them.

The unique requirements of AI and leadership HPC are driving substantial investment in the area of system interconnects. NVIDIA continues to advance its InfiniBand, Ethernet, and NVLink solutions, HPE is evolving its Slingshot interconnect, and Cornelis Networks continues to develop OmniPath. Additionally, there is strong support in both the Ultra Ethernet Consortium (UEC) and UltraAccelerator Link (UAL) ecosystem standards. Broad industry adoption of emerging interconnect technologies, including NET4EXA, may depend on how well vendors can balance providing differentiated features with user requirements of choice and interoperability.

NET4EXA is a follow-on to the completed JU RED-SEA network interconnect for exascale systems project and as such appears to extend a JU priority to develop sovereign EU technology. EuroHPC JU program planners should be mindful to prevent the perception thatNET4EXA is primarily an Eviden or EU standard.