HYPERION RESEARCH

Quick Take

EU Creates New Collaboration Model to Drive Coordinated HPC Development and Acquisition

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ANNOUNCEMENT HIGHLIGHTS

A group of four leading European supercomputing centers have formed a buyers group to execute a coordinated multi-nation procurement plan for HPCs targeted for installations in the 2019-2020 timeframe that together will cover a broad spectrum of applications in HPC, high performance data analytics (HPDA) and artificial intelligence (AI).

- The centers participating in this initiative, called the Public Procurement of Innovative Solutions for High Performance Computing (PPI4HPC) (or directly at: https://ppi4hpc.eu/), represent some of the EU's leading HPC development centers scattered across four nations; the Barcelona Supercomputing Center in Spain, Cineca of Italy, the Juelich Supercomputer Center of Germany, and GENCI of France.
- These participants are founding members of PRACE, an international non-profit association that provides a persistent world-class high performance computing service for scientists and researchers from academia and industry in Europe, and they all have a significant experience in large procurements of HPC systems both at national/local levels and as partners in joint transnational procurements. Each currently hosts or influences some of the largest HPCs in Europe at so-called Tier-0 sites.

Total investments for this initiative is reported to $86 million supplied by the member nations with 35 percent coming from a contribution from the EU.

Planners for this program indicate that this joint initiative will have multiple benefits.

- More supercomputing resources will be efficiently exploitable for science and engineering applications in Europe. Relevant applications will play an important role in guiding this procurement and co-design process.
- R&D on HPC architectures and technologies in Europe will be strengthened for exascale technology development by this joint procurement process.
- The coordinated approach will give Europe a greater weight and more impact on the design of exascale solutions that address the needs of European scientists and engineers.
- Although the participants will work together on coordinated roadmaps for providing HPC resources optimized to the needs of European scientists and engineers, the final decision on which particular HPC designs and systems are procured will be made by the individual sites.

Additional highlights from the announcement, as reported by Datacenter Insider (www.datacenter-insider.de):

- The Public Procurement of Innovative Solutions for High Performance Computing (PPI4HPC) initiative aims to make more supercomputing resources available in Europe. Beyond that goal, the participating centers (BSC, Cineca, JSC, GENCI) plan to use PPI4HPC to increase their influence in making hardware solutions better fit the requirements of European scientists and engineers.
- The Juelich Research Center plans to use this process to acquire a new supercomputer that will be installed at the Juelich Supercomputer Center (JSC) toward the end of 2020 as a replacement for the "Jureca" system. According to JSC Director Prof. Thomas Lippert, "We applaud the European Commission for contributing to this pilot project to create an innovative HPC infrastructure for Europe."
- The DEEP-EST Project: Alongside compute-intensive simulations—the traditional work of scientific computing centers—new applications are emerging in areas such as big data analysis and advanced visualization that existing supercomputer architectures can't handle efficiently. "Our ability to optimize homogeneous systems is more or less exhausted," Prof. Lippert said. "Step by step, we're developing the prerequisites for a highly efficient, modular supercomputer architecture that can flexibly adapt to the varying demands of scientific applications." With the concept of the modular supercomputer, accelerators, and memory modules will no longer be linked to individual CPUs with expansion cards, but will instead be attached to independent modules, units called nodes that can be linked to each other as momentary requirements dictate. One of the new elements of the DEEP-EST project is a data analytics module for analyzing large data volumes.

HYPERION ANALYST OPINION

The formation of a joint coordinated HPC development and procurement effort by some of the leading and most experienced HPC centers across Europe offers the potential to help keep Europe at the forefront of HPC technology in the next few years. Like the US, China, and Japan, the EU is working hard to develop next generation exascale systems targeted for 2021 and beyond, but that task is becoming more expensive by the day and no single EU nation can afford to accomplish it alone.

Even with this collaborative effort, $86 million will not be nearly enough to address the many complex issues involved in developing exascale HPCs. Supplementary funding may be forthcoming in the next few years, and Hyperion Research will be monitoring other existing EU programs such as PRACE and ETP4HPC, from both a funding level and by how well they mesh with this new effort. It is, however, a positive sign that the EU has upped its participation to 35 percent, a significant increase over EU support for earlier HPC development efforts.

Finally, it will be interesting to see how this new arrangement affects existing cooperative efforts within and outside the EU such as the CEA/GENCI cooperative agreement stood up earlier this year with Japan's leading scientific research center and HPC users, Riken, to advance HPC technology generally and prepare for exascale computing with a particular emphasis on ARM processor technology.

About Hyperion Research, LLC

Hyperion Research, consisting of the former IDC high performance computing (HPC) analyst team, provides HPC information, analysis, and recommendations based on technology and market trends. Research includes market sizing and forecasting, share tracking, segmentation, technology and related trend analysis, and both user & vendor analysis for multi-user technical server technology used for HPC and HPDA (high performance data analysis). We provide thought leadership and practical guidance for users, vendors and other members of the HPC community by focusing on key market and technology trends across government, industry, commerce, and academia.

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