High Performance Computing Leaders Unite to Develop Open Source Framework

Companies and HPC centers invest in open source framework for developers, system administrators and users of high performance computing environments.

The Linux Foundation , the nonprofit organization dedicated to accelerating the growth of Linux and collaborative development, today announced an intent to form the OpenHPC Collaborative Project. This project will provide a new, open source framework to support the world's most sophisticated High Performance Computing environments.

The new initiative includes support from Allinea Software, Altair, ANSYS, Argonne National Laboratory, Atos, Barcelona Supercomputing Center, The Center for Research in Extreme Scale Technologies at Indiana University, Cray, Dassault Systemes SIMULIA, Dell, Fujitsu Systems Europe, Hewlett Packard Enterprise, Intel Corporation, Jülich Supercomputing Centre, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Leibniz Supercomputing Centre, Lenovo, Los Alamos National Laboratory, MSC Software, NEC, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, ParTec, Penguin Computing, Pittsburgh Supercomputing Center, Sandia National Laboratories, SENAI CIMATEC, SUSE and Texas Advanced Computing Center.

For more than four decades, HPC has been used by universities and research centers for large-scale modeling and calculations required in meteorology, astronomy, engineering and nuclear physics, big data

science, among others. With unique application demands and parallel runtime requirements, software remains one of the biggest challenges for HPC user adoption (See IDC Worldwide HPC Server 2015–2019 Forecast). Open source and Linux-based software components have become a standard way to reliably test and maintain stable operating conditions while providing a cost-effective means for scaling with data growth.

OpenHPC will provide a new, open source framework for HPC environments. This will consist of upstream project components, tools, and interconnections to enable the software stack. The community will provide an integrated and validated collection of HPC components that can be used to provide a full-featured reference HPC software stack available to developers, system administrators and users. OpenHPC will provide flexibility for multiple configurations and scalability to meet a wide variety of user needs.

OpenHPC members plan to work together to:

- **Create a stable environment for testing and validation:** The community will benefit from a shared, continuous integration environment, which will feature a build environment and source control; bug tracking; user and developer forums; collaboration tools; and a validation environment.
- **Reduce Costs:** By providing an open source framework for HPC environments, the overall expense of implementing and operating HPC installations will be reduced.
- **Provide a robust and diverse open source software stack:** OpenHPC members will work together on the stability of the software stack, allowing for ongoing testing and validation across a diverse range of use cases.
- **Develop a flexible framework for configuration:** The OpenHPC stack will provide a group of stable and compatible software components that are continually tested for optimal performance. Developers and end users will be able to use any or all of these components depending on their performance needs, and may substitute their own preferred components to fit their own use cases.

“The use of open source software is central to HPC, but lack of a unified community across key stakeholders – academic institutions, workload management companies, software vendors, computing leaders – has caused duplication of effort and has increased the barrier to entry,” said Jim Zemlin, executive director, The Linux Foundation. “OpenHPC will provide a neutral forum to develop an open source framework that satisfies a diverse set of cluster environment use-cases.”

For more information about OpenHPC or to become a member, please visit www.openhpc.community.

Comments from Supporting Organizations

Allinea Software
"OpenHPC will accelerate the pace of innovation – enabling users and technology vendors to leverage its consistent software base to create, validate and deploy their own advances, faster and more easily than before."
David Lecomber, CEO, Allinea Software

ANSYS
“While our engineering simulation software is optimized for HPC performance, many of our engineering customers are still slow to adopt HPC. The OpenHPC initiative enables them to reduce risk and to save valuable time with specifying, deploying and managing HPC systems. Bottom line, I expect that this will enable our customers to boost engineering productivity and rapidly simulate complete virtual prototypes for

accelerated time to market."
Wim Slagter, Director HPC & Cloud Marketing, ANSYS

Argonne National Laboratory
"Argonne is encouraged to see the large investment of multiple companies into open source software for High Performance Computing. Argonne plans to contribute to this collaborative effort several packages it has developed, including its MPICH library."
Marc Snir, Director of the Mathematics and Computer Science Division, Argonne National Laboratory

Atos
"OpenHPC will create an ecosystem that enables collaboration between developers, system administrators and end users across a wide variety of industries. Organizations will benefit from comprehensive tested and validated HPC software stack software, a key asset to drive their own innovations forward on a stable and reliable foundation. Atos is excited to take an active part in this community for the benefit of its customers."
Jerome Stoller, CTO Big Data, Atos

The Center for Research in Extreme Scale Technologies at Indiana University
"The OpenHPC consortium will serve as an important medium for sharing of a diversity of software components across the HPC community. The opportunity to contribute our research via OpenHPC will greatly enhance its value and impact. OpenHPC will establish a new community standard and resource for software development and application."
Thomas Sterling, Chief Scientist, IU Center for Research in Extreme Scale Technologies

Cray
"Cray has a long history of collaborating with other technology companies and our customers to deliver supercomputing breakthroughs, and we see the OpenHPC project as a great example of this type of collaborative innovation. Cray plans on contributing some of our unique software to the OpenHPC software stack and using components of that stack in our systems to benefit our customers and their end-users."
Steve Scott, SVP and CTO, Cray

Dell
"Community investment in open source frameworks and open standards is the right way to ensure the right capabilities are available to a growing HPC community. The new OpenHPC effort will greatly accelerate HPC adoption, productive usage and innovation. As a long-time leader in democratizing HPC, Dell is proud to be a founding member of this effort."
Jim Ganthier, Vice President and General Manager, Engineered Solutions, Cloud and HPC, Dell

Fujitsu Systems Europe
"Fujitsu Systems Europe is excited to be part of the OpenHPC initiative which brings together a cross section of HPC users and a set of leading HPC vendors whom together will combine their experiences and influences to ensure the resulting software stack meets a broad spectrum of users needs."
David Papiah, CEO, Fujitsu Systems Europe

Hewlett Packard Enterprise
"As High Performance Computing becomes more pervasive across many new applications, enterprises and industry sectors, the HPC community must collectively ensure that the HPC software stack can leverage new technologies to deliver faster HPC performance and insights with more flexibility and efficiency. Hewlett Packard Enterprise has a rich history of contributions to the open source community and our participation in the OpenHPC Collaborative Project is yet another example of this commitment to enable our customers to drive HPC innovation with a stable and reliable HPC software framework."
Scott Misage, Vice President and General Manager of HPC, Hewlett Packard Enterprise

Intel Corporation

“OpenHPC was formed due to the need for a collaborative, open source environment in which software stacks could be quickly assembled and tested to enable stable operation and performance for HPC systems. This community offers many advantages to developers and end users, including faster access to integrated software and hardware innovation to utilize in their own HPC systems. The enthusiasm among the founding members is encouraging and signals the need in the ecosystem.”
Figen Ulgen, GM HPC Software and Cloud, Intel Corporation

Lawrence Berkeley National Laboratory
“The development of a standard software stack for HPC systems will be a welcome step forward in getting ready for the next generation of systems. NERSC encourages and supports the development of open software that enables extreme scalability and that is accessible by a broad range of users.”
Jay Srinivasan, Group Lead, Computational Systems, NERSC, Lawrence Berkeley National Laboratory

Lawrence Livermore National Laboratory
“The OpenHPC framework will help organizations to focus on effectively using their HPC systems to attain mission critical objectives and to drive innovation, rather than expending resources on stabilizing and continually testing their operating environment.”
Bronis R. de Supinski, CTO, Livermore Computing, Lawrence Livermore National Laboratory

Leibniz Supercomputing Centre
“The OpenHPC software stack will largely reduce our efforts in building and testing the common HPC software components of our HPC systems. We therefore strongly support this collaborative, open source community effort.”
Dr. Herbert Huber, Head of High Performance Systems Division, Leibniz Supercomputing Centre

Lenovo
“Lenovo’s enterprise strategy is built on delivering competitive value leveraging a flexible and open ecosystem. We are excited to be a founding member of this community and working through the Linux Foundation to help develop open-source software that will benefit High Performance Computing customers large and small.”
Scott Tease, Executive Director WW Hyperscale and HPC, Lenovo

Los Alamos National Laboratory
"We hope that the OpenHPC Collaborative Project will help the HPC community by providing validated system software solutions and lowering barriers to broader use of parallel HPC applications."
Josip Loncaric, HPC Technology Futures Lead, Los Alamos National Laboratory

ParTec
"I am very proud to have ParTec Cluster Competence Center as an early supporter of OpenHPC! ParTec provides ParaStation MPI, ParaStation Communication and ParaStation Process Management to the OpenHPC software stack. As the co-development partner of the Jülich Supercomputing Center, ParTec contributes with its ParaStation Software Suite to the best design of Supercomputers within the Intel Exacluster Lab located at the Forschungszentrum Jülich in Germany."
Hugo Falter, Chief Operating Officer, ParTec

Penguin Computing
"Penguin Computing looks forward to contributing to the OpenHPC framework for HPC environments. As a long standing proponent of open technologies, we believe that providing a framework like this will help remove obstacles for greater HPC adoption and reduce overall costs of ownership. The OpenHPC Collaborative Project is a powerful approach to accomplishing the development of this framework, and Penguin will contribute its expertise, time and technology to help making this collaboration successful."
Tom Coull, President and CEO, Penguin Computing

Pittsburgh Supercomputing Center

"The Pittsburgh Supercomputing Center is pleased to participate with the OpenHPC Collaborative Project to support and further the open software cause within HPC. The PSC partnership with OpenHPC will provide an avenue for this work to become generally available in the data science community."
J.Ray Scott, Director of Systems and Operations, Pittsburgh Supercomputing Center

SUSE
“SUSE has more than 23 years of experience in high performance Linux computing. We believe in working with partners and communities to advance enterprise technologies and create open standards. The OpenHPC project will create a new community of vendors and users focused on doing just that for HPC and by working together we will achieve more progress faster.”
Gerald Pfeifer, Senior Director of Product Management, SUSE

Linux Foundation Collaborative Projects are independently funded software projects that harness the power of collaborative development to fuel innovation across industries and ecosystems. By spreading the collaborative DNA of the largest collaborative software development project in history, The Linux Foundation provides the essential collaborative and organizational framework so project hosts can focus on innovation and results. Linux Foundation Collaborative Projects span the enterprise, mobile, embedded and life sciences markets and are backed by many of the largest names in technology. For more information about Linux Foundation Collaborative Projects, please visit: http://collabprojects.linuxfoundation.org/

About The Linux Foundation
The Linux Foundation is a nonprofit consortium dedicated to fostering the growth of Linux and collaborative software development. Founded in 2000, the organization sponsors the work of Linux creator Linus Torvalds and promotes, protects and advances the Linux operating system and collaborative software development by marshaling the resources of its members and the open source community. The Linux Foundation provides a neutral forum for collaboration and education by hosting Collaborative Projects, Linux conferences including LinuxCon, and generating original research and content that advances the understanding of Linux and collaborative software development. More information can be found at www.linuxfoundation.org .

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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