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More computing power for Austria's science: LEONARDO goes live

The new Italian-based supercomputer LEONARDO is one of the fastest in the world, and a share of its computing resources is reserved for Austrian users. After the official opening on 24 November, LEONARDO will go into regular operation in early 2023.

Staying at the forefront of scientific excellence and dealing with increasingly complex problems in science, engineering, economy, and society requires top-quality high-performance computing (HPC) infrastructure. To provide the needed computing resources in Europe, EuroHPC Joint Undertaking is procuring a new generation of world-class supercomputers.

The latest addition to the EuroHPC fleet is the supercomputer LEONARDO, whose performance lies in the pre-exascale range of 1017 Flop/s. When fully operational, it should be capable of executing more than 248 PFlop/s, which is more than 248 million billion calculations per second. In November 2022, it ranked fourth fastest supercomputer in the world and the second fastest in Europe. Offering maximum performance for simulations, data processing, high-performance data analytics, and artificial intelligence, LEONARDO will help tackle current and future challenges in climate research, agriculture, healthcare, and more.

Austria is part of the LEONARDO consortium

Operated by the data center CINECA in Bologna, Italy, LEONARDO is a product of successful international collaboration — its consortium unites six European countries, and Austria is one of them. Due to the partnership agreement, a certain amount of the enormous computing resources of LEONARDO is reserved for Austrian users. This means that scientists and researchers working in Austria will be granted access to the system according to Austria's national criteria — similar to those valid for the flagship Austrian supercomputer Vienna Scientific Cluster (VSC).

Support of the Vienna Scientific Cluster

On 24 November 2022, LEONARDO was officially inaugurated at the Bologna Technopole. The event was attended by the Austrian partners of the consortium — the project lead, Professor Christoph Dellago (University of Vienna), and the members of the EuroHPC Governing Board from the Austrian Federal Ministry for Education, Science and Research (BMBWF) and the Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK).

The Ministry for Education, Science and Research supports national participation in the LEONARDO project with 1 Million EUR. These funds help set up the High-Level Support Team at the VSC Research Center. The team will assist users in obtaining access to the LEONARDO cluster and provide support on how to transfer data, set up a proper working environment, and run code most efficiently.

With VSC and LEONARDO, the goal is to help HPC users benefit from the world-class infrastructure suited to various intensity levels of computing workloads. *"Leonardo provides the Austrian scientific community with a fantastic research tool that will open up new research opportunities in many areas of science, especially in natural science and engineering. It is a great addition to the Vienna Scientific Cluster for performing particularly complex calculations,"* says Christoph Dellago.

What's next?

LEONARDO is expected to go into regular operation in early 2023. More information on the status and access conditions will be announced soon. Meanwhile, researchers can apply to the LEONARDO Early Access Program and Extreme Scale Access and take advantage of the full computational power of its GPU-based booster module. The VSC team will be happy to answer any questions regarding the calls: service@vsc.ac.at.

As with all EuroHPC systems, LEONARDO is also be open for commercial use. Austrian companies can apply for computing time within the "Industry Track" reserved for small, medium, and large enterprises. For information about the industry access to Austrian and European supercomputers, contact EuroCC Austria: info@eurocc-austria.at.