

Official signing - A new Supercomputer for Climate Research

Hamburg/Paris: On November 18, 2020, the DKRZ and Atos¹ have officially signed the five-year contract for the delivery of a new supercomputer.

The contract has been signed for Atos by Dr. Martin Matzke, Director Big Data und Security for Atos Central Europe, and Thomas Theissen, Director MCS for Atos in Germany, as well as for the DKRZ by its director Prof. Thomas Ludwig. Atos was further represented by Thomas Weselowski, Director Extreme Computing, Big Data and Security, and - connected via video conference - by Agnès Boudot, Senior Vice President HPC & Quantum, and Philippe Miltin, Senior Vice President Global Head of Sales Big Data Security.

The new, fourth high-performance computer for Earth system research (HLRE-4), based on the BullSequana XH2000 technology, increases the computing power of the DKRZ fivefold compared to the currently operated high-performance computer "Mistral", which Atos provided in 2015/2016.

Technical specifications

The Atos solution is based on its BullSequana XH2000 supercomputer and will be one of the first equipped with the next generation of AMD EPYC x86 processors. The interconnect uses NVIDIA Mellanox InfiniBand HDR 200G technology and the data storage solution relies on DDN equipment. The final system will consist of around 3,000 computing nodes with a total peak performance of 16 PetaFlops, 800 Terabytes main memory and a 120 Petabytes storage system.

Just as a new, more powerful telescope provides more detailed images from space, a more powerful supercomputer allows for more detailed simulations and thus deeper insights into climate events. This significant increase in computing power will enable researchers at DKRZ to use regionally more detailed climate and earth system models in future, to include more processes in calculations, to simulate longer time periods, or to more accurately capture natural climate variability using ensemble calculations and thus reduce uncertainties. This is accompanied by a strong increase in the data that is calculated and then stored and evaluated. The BullSequana is an efficient computing and data management solution, essential for climate modelling and the resulting data volumes, to promote environmental research and deliver more reliable, detailed results.

Prof. Thomas Ludwig, CEO at DKRZ says: *" Our high-performance computer is the heart around which our services for science are grouped. We're really happy to be working with Atos again. With the new system, our users will be able to gain new insights into the climate system and deliver even more detailed results. This concerns basic research, but also more applied fields of research such as improved current climate projections. This way, we help gain fundamental insights for climate change adaptation."*

Damien Déclat, Group VP, Head of HPC, AI & Quantum Business Operations at Atos, explains: *" With our strong expertise and experience we have been able to successfully design the DKRZ solution integrating it efficiently with the BullSequana XH2000 system's best-of-breed components to optimize*

¹ Legal entity: Bull GmbH

DKRZ's production workloads. We look forward to continuing this joint effort to anticipate the next phases as well as to adapt applications and requirements to the next processor generation and other accelerating components. "

In January 2021, reconstruction work of the data center infrastructure will start in preparation for the setup of HLRE-4. The launch of HLRE-4 is planned in two phases: The first configuration level will start its operation in August 2021, the final phase of the new computing system will be completed in January 2022.

Although it will take some time until the new system is installed; a name for the new supercomputer system has been already found: Based on an online vote, "Levante" prevailed over the other eight suggestions with over a quarter of the more than 300 votes cast. The name is also being used for a warm wind of strength 3 to 5, which often follows the French wind Mistral.

Financing

The new system is worth 32.5 million euros, which is provided by the Helmholtz Association of German Research Centres, the Max Planck Society and the Free and Hanseatic City of Hamburg.

About DKRZ

The German Climate Computing Center (Deutsches Klimarechenzentrum, DKRZ) is a central service center for German climate and earth system research. Its high performance computers, data storage and services form the central research infrastructure for simulation-based climate science in Germany. Apart from providing computing power, data storage capacity and technical support for models and simulations in climate research, DKRZ offers its scientific users an extensive portfolio of tailor-made services. DKRZ has been founded on November 11, 1987 and took up its services on January 1, 1988. It is a non-profit and non-commercial limited company with four shareholders: The Max Planck Society, the Freie und Hansestadt Hamburg, represented by the University of Hamburg, the Alfred Wegener Institute - Helmholtz Centre for Polar and Marine Research and the Helmholtz Zentrum Geesthacht - Centre for Materials and Coastal Research (HZG). Moreover, DKRZ is sponsored by the Helmholtz Association of German Research Centres.

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About Atos

Atos is a global leader in digital transformation with 110,000 employees in 73 countries and annual revenue of € 12 billion. European number one in Cloud, Cybersecurity and High-Performance Computing, the Group provides end-to-end Orchestrated Hybrid Cloud, Big Data, Business Applications and Digital Workplace solutions. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and operates under the brands Atos, Atos|Syntel, and Unify. Atos is a SE (Societas Europaea), listed on the CAC40 Paris stock index.

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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