
DKRZ

Atos boosts supercomputing performance at German Climate Computing Centre (DKRZ) by 5 with new BullSequana

Facing the key challenge of obtaining more detailed simulations and thus deeper insights into climate events, DKRZ collaborates with Atos for a new BullSequana XH2000 supercomputer.

“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.”

Prof. Thomas Ludwig
CEO at DKRZ

“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 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.”

Damien Déclat
Group VP, Head of HPC, AI & Quantum Business Operations at Atos

The context

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. Therefore, any scientists conducting research in the field of climate and earth system science in Germany, and requiring HPC resources for their work may apply for resources at DKRZ. Finally, DKRZ also participates in national and international joint projects and cooperations with the aim of improving the infrastructure for climate modeling.

Atos, a global actor in digital transformation and #1 in HPC in Europe is a specialist in the provision of leading technologies for some of the world’s leading centers in the Weather Forecasting and Climate community, such as the European Centre for Medium-Range Weather Forecasts and the French Meteorological Service Météo-France. Through these collaborations, Atos

has worked closely together to optimize applications, explore and anticipate new technologies, and look for increased efficiency and reduced TCOS.

The challenges

Accelerate and deliver more precise forecasting

DKRZ needs to obtain more detailed simulations, and deeper insights into climate events. DKRZ needs a more powerful system to use 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.



The results

The solution

On June 2020, Atos has signed a new five-year contract with the German Climate Computing Centre (DKRZ) to supply a supercomputer based on its latest BullSequana XH2000 technology. The new systems will be available at the DKRZ from mid-2021.

The Atos solution is based on its BullSequana XH2000 supercomputer and is one of the first equipped with the latest 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 3000 computing nodes with a total peak performance of 16 PetaFlops, 800 Terabytes main memory and a 120 Petabytes storage system.

The new supercomputer which will be installed at DKRZ increases its computing power by 5, compared to the currently operating high-performance computer “Mistral” which was provided by Atos in 2015.

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.

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