Supporting closer collaboration between academia and industry
through the power of supercomputing and deep learning

Hartree Centre
Science & Technology Facilities Council

AtoS

Working in partnership with the STFC Hartree Centre

The installation of the UK's first Bull Sequana X1000 supercomputer represents a major collaboration between the Science and Technology Facilities Council's (STFC) Hartree Centre and Atos. The partnership between the two organisations focuses on addressing the Government's Industrial Strategy, which encourages a closer working relationship between academia and industry. This is encapsulated through the development of High Performance Computing (HPC) and Deep Learning technologies combined with the SME Harbour North programme, which enables small and medium enterprises (SMEs) to get the most out of these technologies.

Delivering economic impact to the UK

The Hartree Centre is home to some of the UK's most advanced computing and data analytics technologies, alongside internationally recognised scientific expertise.

From SMEs to multi-national corporations, the Hartree Centre works with industry and the research community to address real life challenges, drive transformative gains in productivity and reduce time to market. The centre also collaborates with academic researchers, enabling access to the tools they need to push the boundaries of pioneering UK and international research.

World class supercomputing

The next generation Bull Sequana X1000 supercomputing solution, Scafell Pike, provides the perfect infrastructure platform to deliver transformative gains in performance. This is of particular importance at the Hartree Centre, equipping technologists and researchers with state of the art facilities which allow them to manage complex workflows which are prevalent across scientific reserch.

At approximately four PFlops/s peak, Scafell Pike has the capability of performing around four quadrillion calculations per second and is composed of Intel® Xeon® (Skylake) and many core Xeon Phi™(Knights Landing) processor technologies. It has been designed to accommodate blade systems for Deep Learning, GPU and ARM based computing.

The Hartree Centre is at the forefront of a drive to establish the UK as a global leader in energy efficient computing, contributing to sustainable and cost-effective research. Therefore, a key focus of the collaboration with Atos is deploying tools and techniques that can be used to reduce the energy footprint of large supercomputers. Bull Sequana's state-of-the-art packaging and cooling technology has been designed to accommodate exascale levels of performance whilst at the same time offering a reduced environmental footprint. The Scafell Pike supercomputer is listed high within the Green500 list of most energy efficient computers.

Innovation at your fingertips

The new system is designed to allow modelling and simulation of complex physical phenomena. Whether it is designing cleaner aircraft engines, simulating car crashes for safety analysis or modelling the properties of new drugs, Atos and the Hartree Centre are proud to, together, offer access to the most powerful HPC and deep learning technologies which are set to enable huge advances across many applications.

Extreme Factory HPC as a Service (HPCaaS)

Atos and STFC's HPCaaS is a dedicated service leveraging our unique combination of expertise and resources to accelerate the adoption of HPC, big data and cognitive technologies by UK industry and the research community. In addition to world-leading facilities, the service provides access to application consultancy, optimisation services and specialist expertise:

- Choice of public, private and hybrid cloud models depending on your need
- Only pay for what you use, no wasted assets, easily scalable and no CapEx requirements
- Ease of access through the Hartree Centre eXtreme Factory web-portal.

Image source from © STFC

SME Harbour North

Working with SMEs allows a differentiated approach to solving challenges and unleashes additional innovations. Atos' SME Harbour programme allows an effective model to harness this innovation, a simple and transparent method of partnership and improved services offered to clients.

The SME Harbour Programme has been extended to bring SME Harbour North to the Hartree Centre, where SMEs with experience in HPC, big data analytics and cognitive technologies can access state of the art facilities and are supported in creating innovation solutions in industry.

Extreme Factory Deep Learning as a Service (DLaaS)

Extreme Factory DLaaS is a collaboration between Atos, the Hartree Centre and University of Oxford, which combines the efforts of all three organisations to provide world-leading deep learning facilities:

- Pay-as-you-go access to industry leading Deep Learning Frameworks in a hosted environment, ideal for building proof of concepts and sandbox environments
- Ability to scale for the most complex architectures
- Choice of NVIDIA or Intel deep learning technology
- Lower system admin and data centre costs
- Leaves you able to focus on the science rather than the system.

About Atos

Atos is a global leader in digital transformation with approximately 100,000 employees in 72 countries and annual revenue of around € 12 billion. European number one in Big Data, Cybersecurity, High Performance Computing and Digital Workplace, the Group provides Cloud services, Infrastructure & Data Management, Business & Platform solutions, as well as transactional services through Worldline, the European leader in the payment industry. With its cutting-edge technologies, digital expertise and industry knowledge, Atos supports the digital transformation of its clients across various business sectors: Defense, Financial Services, Health, Manufacturing, Media, Energy & Utilities, Public sector, Retail, Telecommunications and Transportation. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and operates under the brands Atos, Atos Consulting, Atos Worldgrid, Bull, Canopy, Unify and Worldline. Atos SE (Societas Europaea) is listed on the CAC40 Paris stock index.

Find out more about us
uk.atos.net

Find out more about HPC
https://atos.net/en/products/high-performance-computing-hpc

To watch the Atos Working in Partnership with STFC Hartree Centre video
https://atos.net/en-gb/united-kingdom/atos-working-partnership-stfc-hartree-centre-video

Let's start a discussion together