

FOI Release

Information released under the Freedom of Information Act

Title: BEIS (former BIS) investment into supercomputers since January 2015

Date of release: 18 July 2016

Information request

BIS has any plans, or made any investment, into super computers since 01/01/15 until time of writing.

Information released

The Department for Business, Innovation and Skills (BIS) (now the Department for Business, Energy & Industrial Strategy (BEIS) has invested in High Performance Computing (HPC) at the Met Office. This totalled £97m across 15/16 and 16/17. The Met Office HPC business case was based on benefits of £2 billion over 5 years to the economy from the investment, a return on investment of 14 to 1. This information was made public in 2014: <https://www.gov.uk/government/news/97-million-supercomputer-makes-uk-world-leader-in-weather-and-climate-science>

Information below provides an overview of Research Council investment in supercomputing facilities. It should be noted that Research Councils also provide funding for individual research projects across a range of disciplines to use these facilities.

Research Councils fund further facilities and networks which, whilst high performance, are not seen as Supercomputers.

ARCHER

The national supercomputing service, 'ARCHER' commenced service in 2013 and will run until 2018. It is a Cray XC30 machine, based on Intel IvyBridge technology and is used for academic research and software development across the engineering, physical, environmental and natural sciences. It represents a capital investment of £43m, including a £10m capital investment in the building to house the facility.

The recurrent operating costs are shared between EPSRC and NERC and include service provision, computational science and engineering support, maintenance, power and cooling etc. These aggregate charges are capped at £9.5m per year, and currently run at about £6m per year.

In June 2016, EPSRC announced plans to invest up to £20m capital in a refresh of tier 2 level (regional) high-powered compute infrastructure. Recurrent operating costs for this tier will be drawn from commercial or academic sources.

Further information at www.archer.ac.uk

HARTREE CENTRE

The Hartree Centre is planning to invest around £14 million in a general purpose machine which will be purchased to support Hartree's proof of technology and proof of concept research programme, in support of the Hartree mission to deliver competitive advantage to UK industry through accelerating the adoption of digital and cognitive technologies. Hartree is now compiling and finalising user requirements prior to going out to tender, a process which is expected to be completed by March 2017.

In 2015, the Hartree Centre installed the Panther system, the funding for which was part of the Hartree-IBM collaboration. This is a research system which incorporates both IBM Power 8 processors and NVIDIA K80 GPUs, which will enable the Hartree Centre and its academic and industry collaborators to optimise performance of OpenPOWER Systems for Modelling and Simulation and Big Data Analytics. The cost of Panther is £2,694,177 excl. VAT. [Note: Panther may not be seen by some as being a "supercomputer".]

Further information at <http://www.hartree.stfc.ac.uk/hartree/>

DiRAC

DiRAC (Distributed Research utilising Advanced Computing) is the integrated supercomputing facility for theoretical modelling and HPC-based research in particle physics, nuclear physics, astronomy and cosmology; it was funded as a result of investment of £12.32 million, from the UK Government's Large Facilities Capital Fund, together with investment from STFC and from universities. STFC expects to make some modest capital investment in 2016; it also continues to support steps to fund DiRAC-3 in the future.

MONSooN

MONSooN is a NERC/Met Office shared development platform; launched in 2009; located in Exeter. MONSooN is part of NERC's Joint Weather & Climate Research Programme (JWCRP) where NERC invested £600k to ensure, in areas of common interest to the Met Office, the UK maintains and strengthens its leading international position in climate science.

MONSooN allows NERC and the Met office to ensure the UK has access to internationally competitive tools for forecasting climate and its impacts. It also enables closer collaboration between Met Office and NERC scientists.

GridPP

GridPP is “A community of particle physicists and computer scientists based in the United Kingdom and at CERN. Drawing on expertise from nineteen UK institutions, our vision is to create, manage and oversee the evolution of the computing infrastructure needed to maintain the UK’s position as world leaders in particle physics. We do this by using and actively contributing to the development of open source software, applications and middleware needed to power large-scale distributed computing for particle physics and beyond.” STFC’s expenditure on GridPP is as follows:

	2015/16	FY 2016/17	FY 2017/18	FY 2018/19
Resource	5.3	4.3	4.3	4.0
Capital	3.2	2.1	2.4	2.1
Total	8.5	6.4	6.7	6.1

Further information at <http://www.stfc.ac.uk/research/science-roadmap/roadmap-projects/gridpp/>