Reading supercomputer tackles climate change

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The University of Reading now has the most powerful academic supercomputer in the UK, following a substantial upgrade to its blade-based system. Reading now has the fastest hardware of any British university, ahead of former front-runner Cambridge University.

Reading is using the system to support its research into air pollution, climate change, financial modelling, drug discovery, computational biology and meteorology.

However, with the upgrade, Reading says it now also leads the academic field in computational science. The university has upgraded its IBM BladeCenter with 700 JS21 blades, equipped with 3,040 IBM PowerPC 970 processor cores, each running at a 2.3GHz clock speed.

The configuration delivers a theoretical peak performance of 27.97 teraflops (trillions of calculations per second). Linked via a Myrinet interconnect platform, the system can reach a measured performance of 19.04 teraflops using the industry's Linpack benchmark. The supercomputer ranks 36th in the latest *Top500* list of the biggest supercomputers in the world. Cambridge University is ranked 44th.

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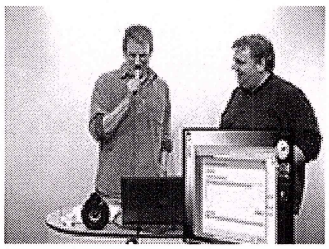

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Chris Guy, head of the school of systems engineering at Reading University, said: "This powerful supercomputer will vastly improve the capability of the university's scientists and others to model many aspects of our world, including climate change, novel drugs and financial markets."

"More accurate predictions in each of these areas, as a result of better modelling, will enable us to make real changes to people's lives," he added. "For instance, using the new system, we can show where flood defences should be built or speed up the development of life-saving drugs."

The new system is located at Reading's Centre for Advanced Computing and Emerging Technologies (ACET). The Reading system is the UK's number-two supercomputer overall, second only to the £20m supercomputer at the nearby Atomic Weapons Establishment (AWE) near Aldermaston.

AWE is using its supercomputer to help design a new Trident nuclear warhead system. AWE's Cray XT3 supercomputer — known as "Redwood" — delivers three-dimensional modelling and simulation to support the establishment's physics, engineering and materials teams.

Redwood is number 24 in the *Top500* supercomputer list. To match the power of Redwood, the world's population would each need to perform 7,000 calculations per second, according to AWE.

The world's most powerful supercomputer is the IBM Blue Gene/L system developed for the US Department of Energy's National Nuclear Security Administration. This

machine has recorded a Linpack benchmark performance of 280.6 teraflops per second.