

Press release
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PRACE Prototype the Greenest Supercomputer on Earth

eQPACE, one of the advanced prototypes evaluated by PRACE (the Partnership for Advanced Computing in Europe), ranked at number 1 on the new Green500 list published at the Supercomputing09 conference in Portland, OR.

The purpose of the Green500 list is to provide a ranking of the most energy-efficient supercomputers in the world and serves as a complementary view to the conventional Top500 list.

eQPACE is a power efficient special-purpose architecture for lattice Quantum Chromodynamics (QCD) that has been developed in a collaborative effort between several academic institutions and the IBM development laboratory in Böblingen, Germany. The eQPACE prototype rack is embedded in a 4-rack system situated at Forschungszentrum Jülich, Germany. The new architecture features 25.6 TFlop/s peak performance per rack and is based on IBM PowerXCell 8i processors and a custom 3d-torus interconnect implemented within FPGAs supporting presently only nearest-neighbor communication. One of the main goals of the prototype is to extend the concept to general all-to-all communication.

The prototype is one of the PRACE prototypes dedicated to evaluate promising technologies for future Petaflop/s systems beyond 2010.

The Green500 list raises awareness to other performance metrics of interest, e.g., performance per watt and energy efficiency for improved reliability contrary to the conventional Top500 list which is focused on speed (as measured in flop/s, short for floating-point operations per second)

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About PRACE: The Partnership for Advanced Computing in Europe (PRACE) prepares the creation of a persistent pan-European HPC service, consisting of several tier-0 centres providing European researchers with access to capability computers and forming the top level of the European HPC ecosystem. PRACE is a project funded in part by the EU's 7th Framework Programme (FP7/2007-2013) under grant agreement n° RI-211528.