

RSC scalable and energy efficient HPC solutions:  
applications in solving computational physics problems

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RSC Group specializes in high-density liquid cooling design for HPC, "RSC Tornado" architecture based on commodity components. The existing "RSC Tornado" can deliver up to 200 TFlops per 80cm 80 cm 42U rack or 156 TFLOPS/m<sup>3</sup>, with the newest Intel Xeon Phi coprocessor 7120X, de-facto record density for x86-based systems. RSC has proven it's technology in a track record of projects, including Europe's largest Xeon Phi based computer at Russian Academy of Sciences.

The RSC projects include (but not limited to):

- MVS-10P supercomputer at Joint Supercomputing Centre of Russian Academy of Sciences. The machine holds 72<sup>nd</sup> position in the Top 500 list of the most powerful supercomputers. The MVS-10P is the most energy efficient supercomputer in Russia according to the Green 500 list.
- RSC Tornado machine at South Ural State University, that has more than 700 compute nodes with direct liquid cooling.
- Roshydromet, Russian weather monitoring agency, which uses RSC computer for weather forecast and climate research.

The talk will describe example of complex physics problems that are solved with the help of RSC machines in the field of molecular simulations, weather forecast and engineering problems.