Innovative computational systems Immers: advances in solving the problems of computer modeling

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Abstract: Problems of applied mathematics often require high-performance computer calculations. Especially high demand for such calculations occur during the computer simulation. Modern challenges in science and engineering require not only high-quality mathematical calculations, but the the short time for their implementation. Therefore, researchers are forced to turn to third-party operators of high-performance calculators, because normal local workstations can not provide the required performance and more powerful equipment requires significant infrastructure. The innovative patented development of the Immers company based on the use of an immersion liquid cooling [1]. Feature of the technology is that on the one hand it provides quiet, safe and highly reliable operation of computing power up to 200Tflops, on the other hand the equipment has a form factor close to normal personal workstation. This allows you to set a complete HPC server directly in the laboratory, office or even in transport during the expedition and makes possible to solve problems of applied mathematics and computer simulations in previously inaccessible conditions and with a high efficiency. In the current article, we show the possibilities and applications of Immers servers and present experience in the use of this equipment in solving practical problems of applied mathematics.

Keywords: computer modeling, high-perfomance calculation

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