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**Implementation of the solver for systems of linear algebraic equations for heterogeneous computational systems**

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Nowadays graphics processing units (GPU) often used for building high-performance computational systems. Nevertheless, it is necessary to consider complex architecture of the device and use special programming technologies to develop programs for GPGPU. The other possibility is to use Intel Xeon Phi coprocessor. It allows us to use well-known technologies of parallel programming, such as OpenMP or MPI and reach better performance.

This paper considers using Intel Xeon Phi Coprocessor for solving systems of linear algebraic equations. Our goal in this paper is to examine essential features of Intel MIC architecture and implement the library containing algorithms for solving systems with tridiagonal and sparse matrices. Developed library uses SuperLU and PCR (Parallel Cyclic Reduction) algorithms for solving equations. Besides, library supports offload to coprocessor matrix operations, as addition or multiplication.