

## Porting DDalphaAMG solver to K computer

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We port Domain-Decomposed-alpha-AMG solver to K computer.

The system has 8 cores and 16 GB memory per node, of which theoretical peak is 128 GFlops (82,944 nodes in total). Its feature, as many as 256 registers per core and as large as 0.5 byte/Flop ratio, requires a different tuning from other machines.

In order to use more registers, we change some of the data structure and rewrite matrix-vector operations with intrinsics.

The improvement of the performance is more than factor two for twelve solves including the setup. The efficiency is still about 5% after the optimization, which is lower than a previously tuned mixed precision solver for K computer, 22%. The throughput is, however, almost three times more for a physical point configuration.

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