Performance Evaluation of a Parallel Iterative Method Library using OpenMP

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Abstract

The present paper discusses scalable implementations of sparse matrix-vector products using OpenMP to execute the iterative method on the SGI Altix3700, the IBM eServer p5 595 and the Sun SunFire15K. Three storage formats (CRS, BSR and DIA) for sparse matrices are evaluated. The present implementation provides satisfactory scalabilities. In some cases, an optimal storage format with data conversion should be used. In addition, the influence of the cache/memory bus architectures on the optimum choice of the storage format is examined.