Objectives

Abstract: Large-scale systems of linear equations appear in many fundamental numerical simulations and also in recent methods for data analytics. Hierarchical matrices (H-matrices) lie in-between dense and sparse scenarios, and provide an efficient numerical tool to store an $n \times n$ dense matrix in compressed form achieving logarithmic costs in terms of storage and computations. Task-parallelism has been exposed as an efficient approach for the solution of dense and sparse linear algebra problems. Therefore, it is natural to target linear algebra problems that involve H-matrices. After having investigated the multithreaded parallelization of the LU factorization of hierarchical matrices using the OpenMP and OmpSs task-parallel programming model and runtime, now it is time to focus on exploiting the functionalities of the recently released OmpSs new version.
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