

MUMPS: MULTifrontal Massively Parallel Solver for the direct solution of sparse linear equations

Mumps Technologies, France

Abstract

The scientific library MUMPS (for MULTifrontal Massively Parallel Solver) solves large systems of sparse linear equations in a robust and effective way on high performance computers (distributed and shared memory machines, CPU and GPU). It is distributed under the CeCILL C licence and can be downloaded from <http://mumps-solver.org>. We will present the library and more particularly how we exploit data sparsity to reduce the memory footprint and increase the performance on modern computers, highlighting the challenges for reaching these results.