MPLAPACK version 1.0.0 user manual

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Abstract

The MPLAPACK is a multiple precision version of LAPACK (`https://www.netlib.org/lapack/`). MPLAPACK version 1.0.0 is based on LAPACK version 3.9.1 and translated from Fortran 90 to C++ using FABLE Fortran to C++ source-to-source conversion tool (https://github.com/cctbx/cctbx_project/tree MPLAPACK version 1.0.0 provides a multiple precision version of for solving systems of simultaneous linear equations, least-squares solutions of linear systems of equations, eigenvalue problems, and singular value problems and related matrix factorizations; supports all LAPACK features except for rectangular full packed matrix form and complex. The API is similar to the LAPACK, therefore it is easy to port legacy C++ numerical codes using MPLAPACK. MPLAPACK supports binary64, binary128, 80 bit extended double, MPFR, GMP, and QD libraries (double-double and quad-double). Users can choose MPFR and GMP versions for arbitrary accurate calculations or double-double for fast 32 deciamal digits. MPLAPACK is available at GitHub (`https://github.com/nakatamaho/mplapack`) under 2-clause BSD license.

1 Introduction

Multiple precision arithmetics is

2 Installation

For the impatient, the MPLAPACK package can be set up and run using Docker[1].

3 acknowledgement

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References

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