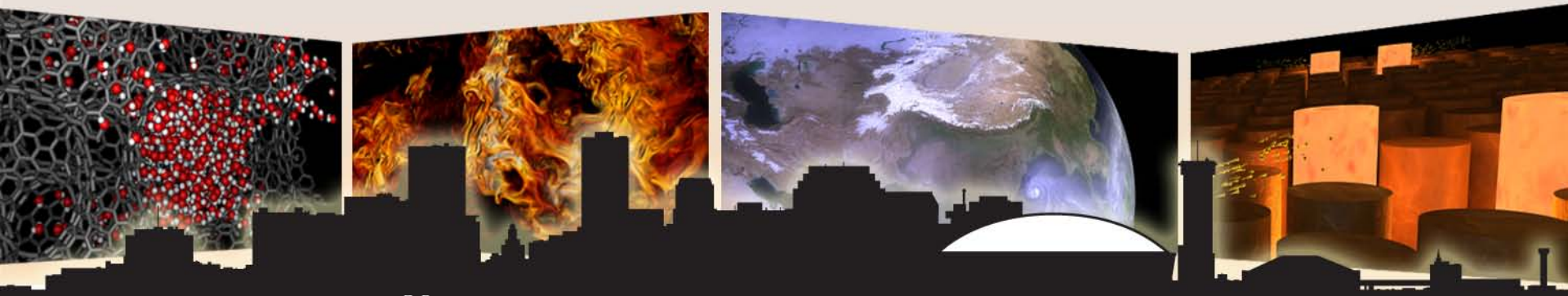
PLASMA
Parallel Linear Algebra Software for Multicore Architectures

Presented by

Innovative Computing Laboratory
University of Tennessee
and
University of California–Berkeley
University of Colorado–Denver



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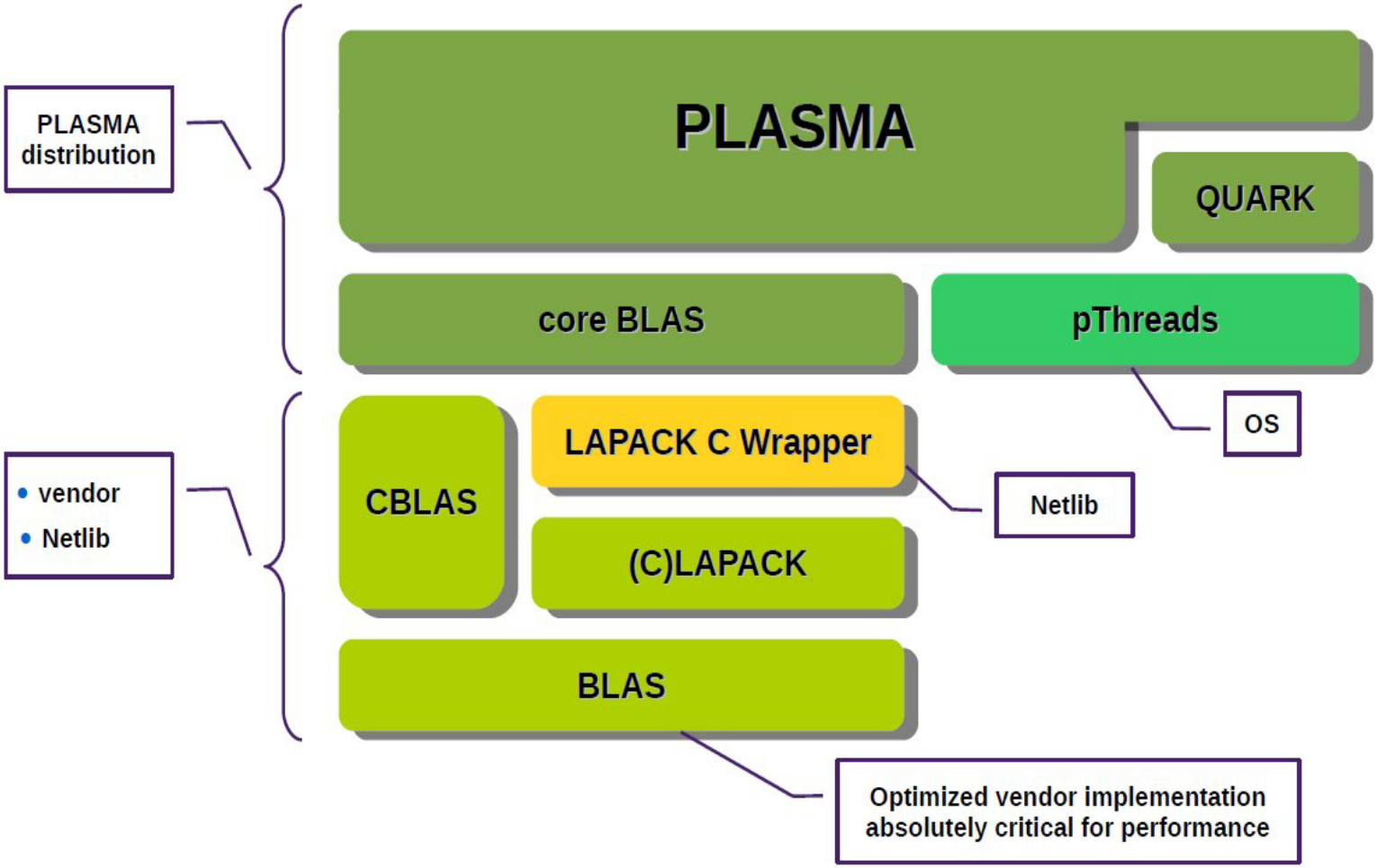
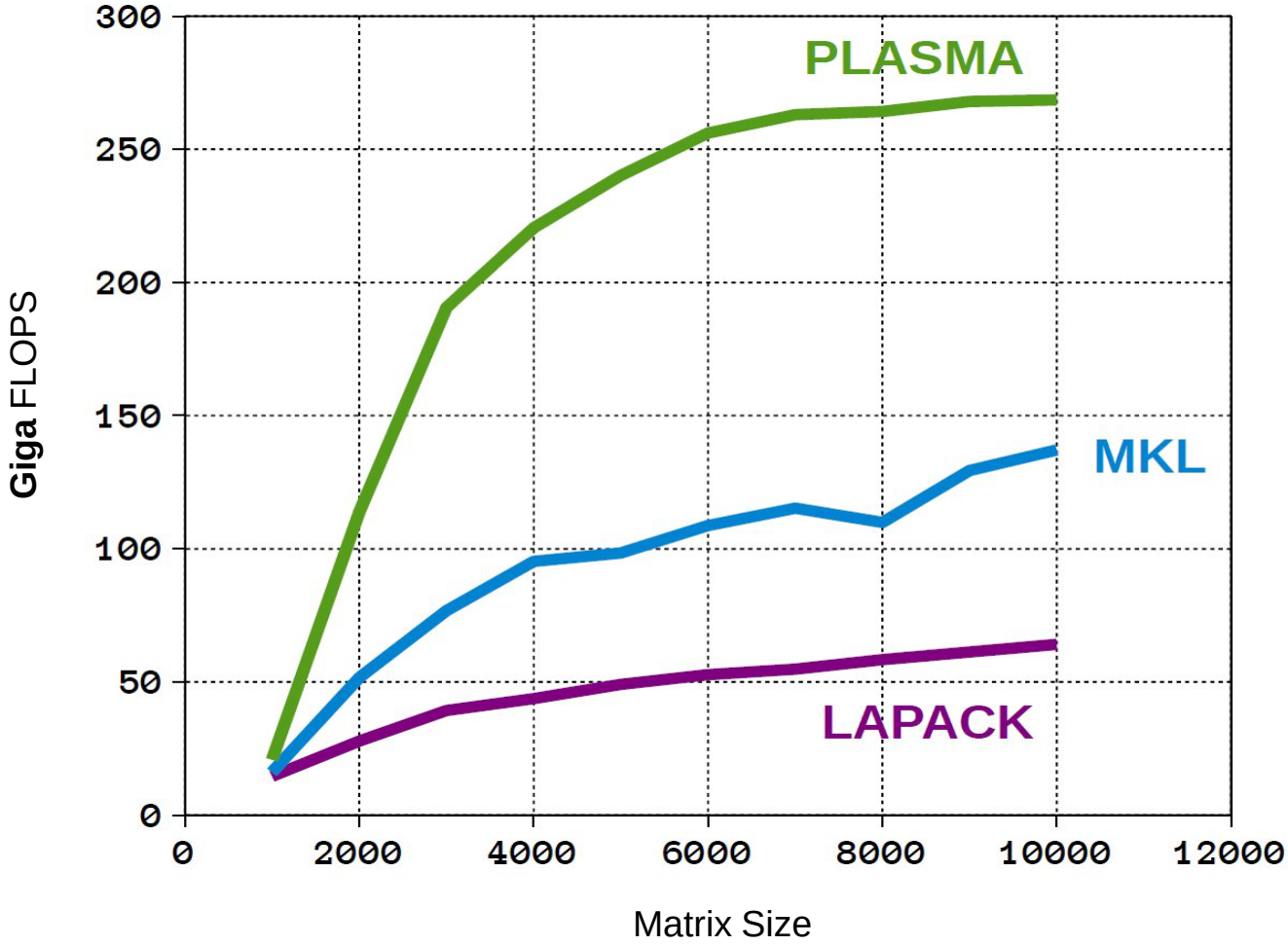
Modern multithreaded design



The highest multicore performance



QR factorization in double precision
48 core, 2.8 GHz AMD (Istanbul) System

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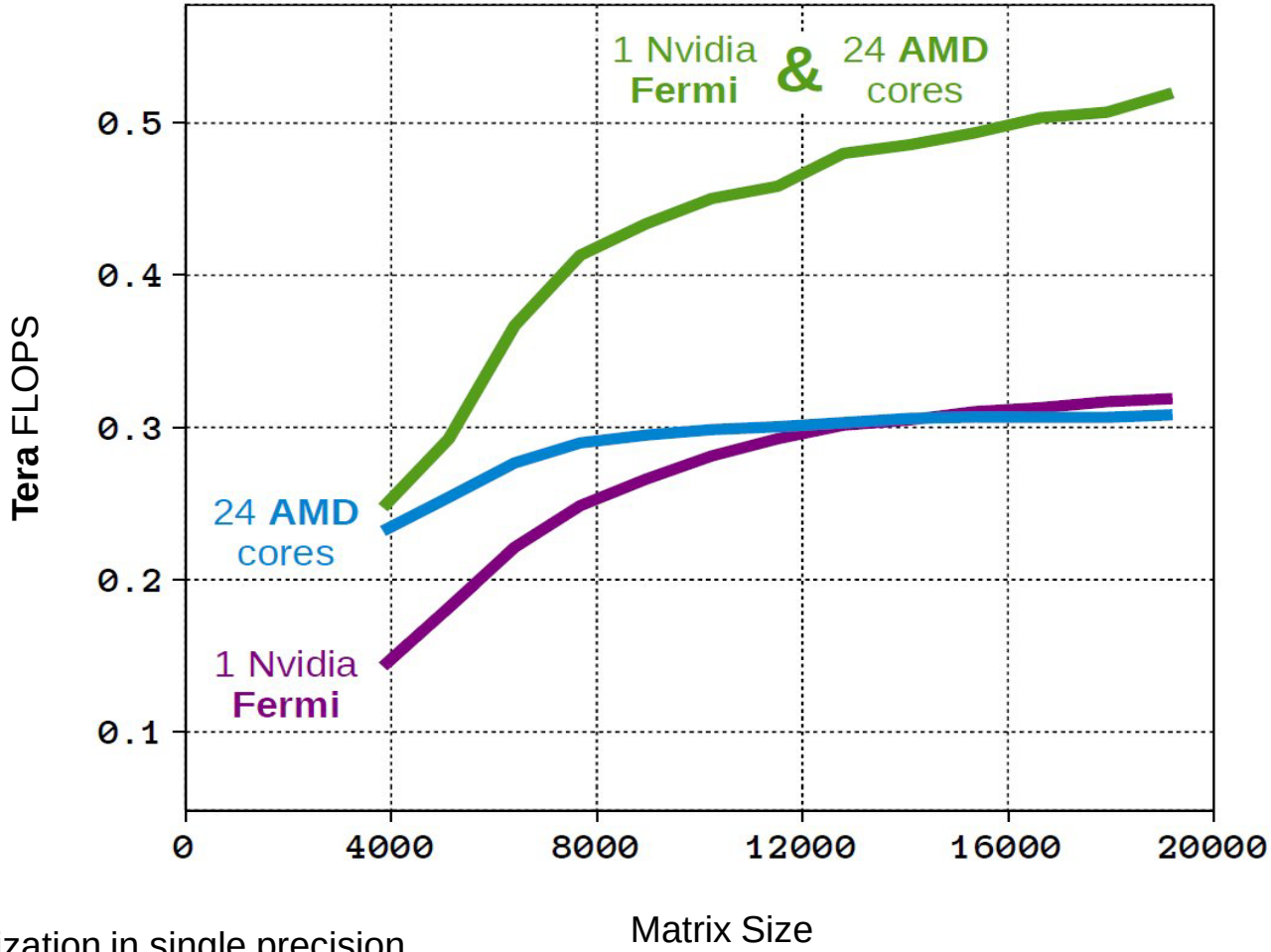
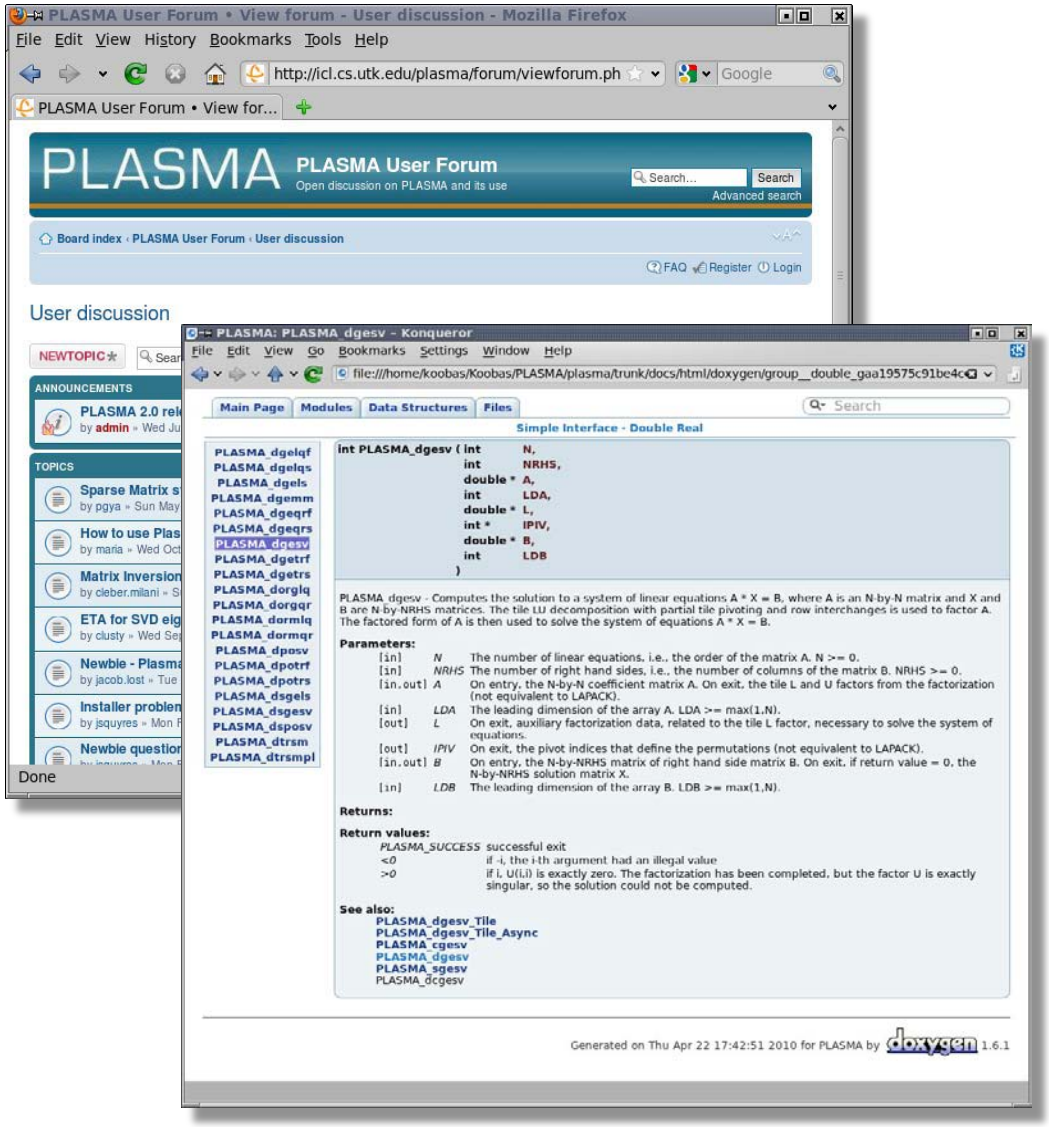
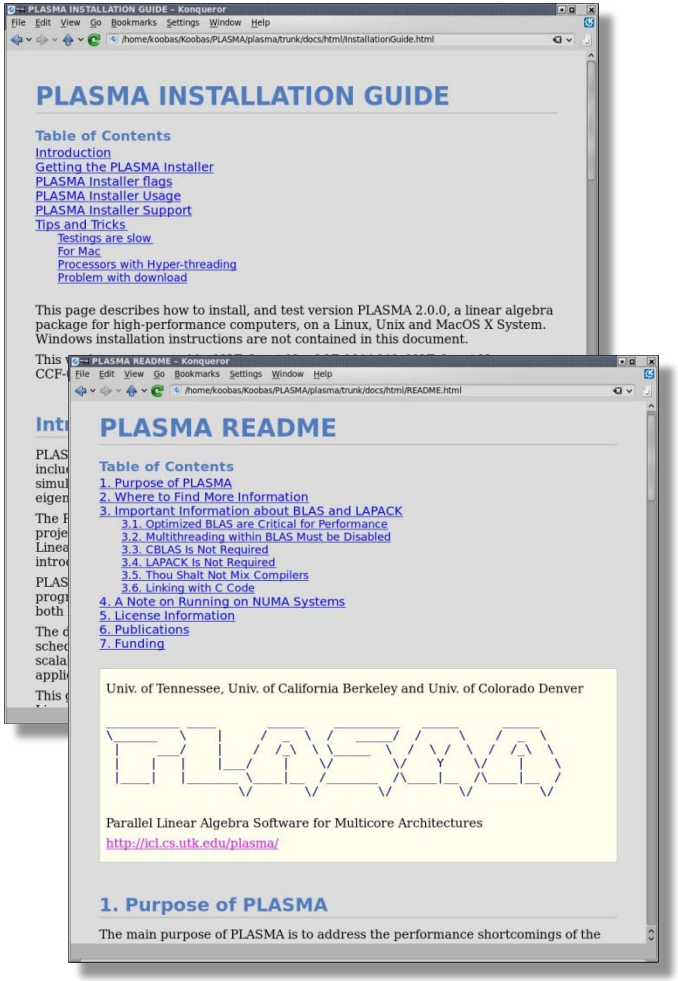
The highest multicore performance (cont.)



QR factorization in single precision
24 core, 2.8 GHz AMD (Istanbul) System
15 SM, 1.4 GHz Nvidia (Fermi) GPU

Online resources: Search “ICL PLASMA”





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Publications

Jakub Kurzak, Rajib Nath, Peng Du, and Jack Dongarra
An Implementation of the Tile QR Factorization for a GPU and Multiple CPUs In *Proceedings of PARA 2010*
http://www.gestamottakan.is/para2010/home.html

Emmanuel Agullo, Bilel Hadri, Hatem Ltaief, and Jack Dongarra
Comparative Study of One-Sided Factorizations with Multiple Software Packages on Multi-Core Hardware In *Proceedings of Supercomputing 2009*
http://www.netlib.org/lapack/lawnspdf/lawn217.pdf

Jakub Kurzak, Hatem Ltaief, Jack Dongarra, and Rosa M. Badia
Scheduling Linear Algebra Operations on Multicore Processors
In *Concurrency and Computation: Practice and Experience*
http://www.netlib.org/lapack/lawnspdf/lawn213.pdf