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PREFACE: BASIC LINEAR ALGEBRA SUBPROGRAMS TECHNICAL (BLAST) FORUM STANDARD

Jack Dongarra

The Basic Linear Algebra Subprograms (BLAS) Technical Forum effort began in November 1995 at the BLAS Technical Workshop hosted by the University of Tennessee and organized by Jack Dongarra, Iain Duff, and Mike Heroux, with support in part by the National Science Foundation Science and Technology Center CRPC. The workshop stimulated thought, discussion, and comment on the future development of a set of standards for basic matrix data structures, both dense and sparse. The new "standards" are needed to complement and supplement the existing ones for sparse and parallel computation. One of the major aims of the Forum was to generate a standard that will enable linear algebra libraries (both public domain and commercial) to interoperate efficiently and easily. From that workshop a series of meetings were held approximately every four months over the course of the next four years. The BLAST Standard was completed in late 2000. The BLAST effort involved about 50 people from 35 organizations, mainly from the United States and Europe. Most of the major vendors of high-performance computer systems were involved in effort, along with researchers from universities, government laboratories, and industry.

This effort defines the syntax and semantics of a core set of linear algebra library routines useful to a wide range of users writing portable scientific programs in Fortran 95, Fortran 77, and C. The BLAST Forum was conducted in a similar spirit to the MPI standards activity.

The BLAST standard provides hardware and software vendors with a clearly defined base set of routines that can be efficiently implemented. As a result, hardware and software vendors can build upon this collection of standard low-level routines to create higher-level routines for scientific computing. BLAST provides a simple to use portable interface for the basic user, yet is powerful enough to allow programmers to use high performance computers and achieve high rates of execution.

The BLAST effort received no direct funding. It operated by the donation of time and energy of the community.

The BLAS Technical Forum Standard is available in electronic form over the Internet. To retrieve a copy of this standard visit http://www.netlib.org/blas/blast-forum/