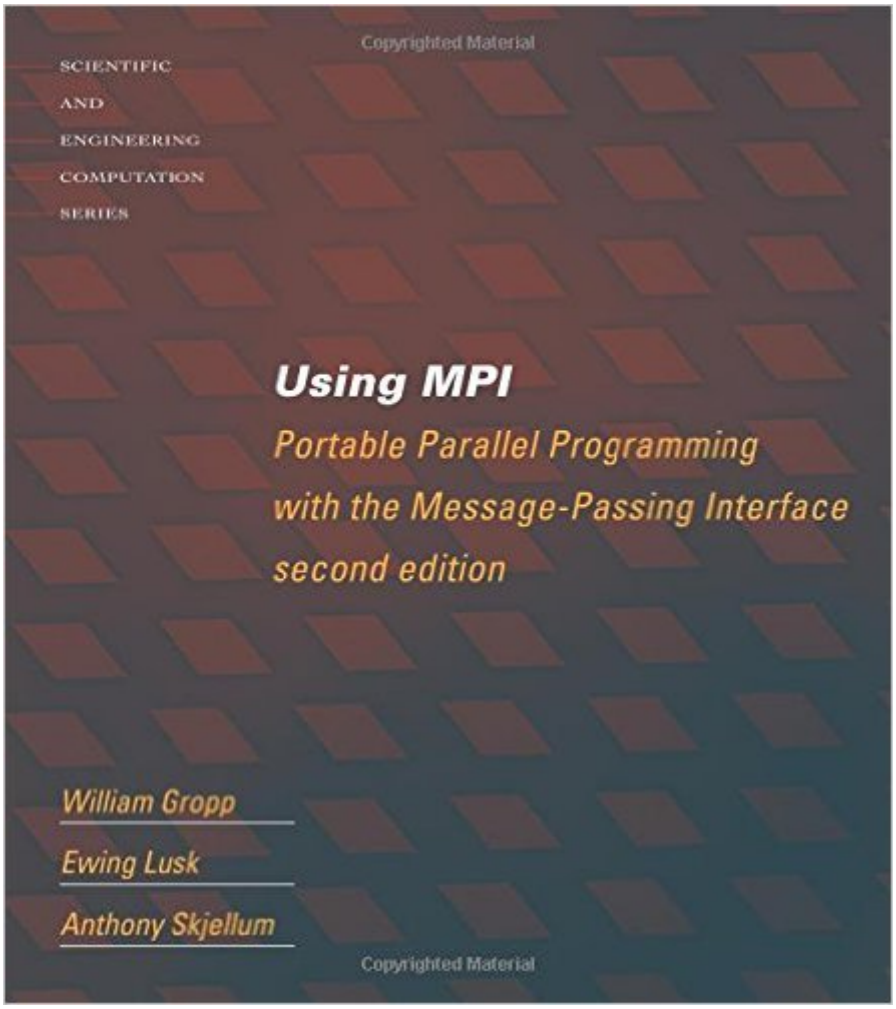
Using MPI - 2nd Edition: Portable Parallel Programming With The Message Passing Interface (Scientific And Engineering Computation)



Synopsis

The Message Passing Interface (MPI) specification is widely used for solving significant scientific and engineering problems on parallel computers. There exist more than a dozen implementations on computer platforms ranging from IBM SP-2 supercomputers to clusters of PCs running Windows NT or Linux ("Beowulf" machines). The initial MPI Standard document, MPI-1, was recently updated by the MPI Forum. The new version, MPI-2, contains both significant enhancements to the existing MPI core and new features.Using MPI is a completely up-to-date version of the authors' 1994 introduction to the core functions of MPI. It adds material on the new C++ and Fortran 90 bindings for MPI throughout the book. It contains greater discussion of datatype extents, the most frequently misunderstood feature of MPI-1, as well as material on the new extensions to basic MPI functionality added by the MPI-2 Forum in the area of MPI datatypes and collective operations.Using MPI-2 covers the new extensions to basic MPI. These include parallel I/O, remote memory access operations, and dynamic process management. The volume also includes material on tuning MPI applications for high performance on modern MPI implementations.

Book Information

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Customer Reviews

This book is an excellent introduction to programming with the MPI. It gradually introduces concepts from the simple to the complex. This is done with examples that illustrate the use of different techniques. The examples include the code to implement them. The programming examples

alternate between Fortran 90, C, and C++. However, after giving the example in one language, the bindings for the MPI functions in the other two languages are presented. In addition, the programming examples in either language are easily understood. Although my first choice of programming language is Fortran (and I have very basic knowledge or C), I was able to follow the examples in C and C++ and to write their equivalents in Fortran so I could test them on our computers.

I think this is a great book. I think it really helps to read a book like this when learning MPI. I've found I'm taking a few approaches that are not emphasized in the book - for example using the 'v' functions like Scatterv, Gatherv, although they are mentioned in the book, I could use examples that make use of them, and other functions that are mentioned. Also some MPI 3.0 functions are not mentioned, and my understanding is the C++ MPI bindings, which the book uses a substantial amount of space to cover, have been deprecated, so yes, I really like it, but I would update it, or get the MPI 3.0 standard doc for $25 as well, or the free pdf that the committee makes, to get a more complete MPI reference.

I bought this book for a course on Parallel Computing for which we did some basic MPI programming. This book was useful to a great extent in describing the syntax of the MPI routines as well as in providing ample examples. To my knowledge, it doesn't contain advanced MPI concepts but it is good in explaining the basics of MPI if you are a beginner.

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