## **BIBLIOGRAPHY**

- [ABM<sup>+</sup>92] Jeanne C. Adams, Walter S. Brainerd, Jeanne T. Martin, Brian T. Smith, and Jerrold L. Wagener. *Fortran 90 Handbook*. McGraw-Hill, New York, NY, 1992.
- [AMPS00] Nawaaz Ahmed, Nikolay Mateev, Keshav Pingali, and Paul Stodghill. A framework for sparse matrix code synthesis from high-level specifications. In *Proceedings of the 2000 ACM/IEEE Supercomputing Conference on High Performance Networking and Computing (SC2000)*, November 2000.
- [ASS95] G. Agrawal, A. Sussman, and J. Saltz. An integrated runtime and compiletime approach for parallelizing structured and block structured applications. *IEEE Transactions on Parallel and Distributed Systems*, 6(7):747– 754, July 1995.
- [Bac98] John Backus. The history of Fortran I, II, and III. *IEEE Annals of the History of Computing*, 20(4):68–78, Oct–Dec 1998.
- [BB00] S. Booth and E. Bourao. Single sided MPI implementations for SUN MPI. In *Proceedings of the 2000 ACM/IEEE Supercomputing Conference on High Performance Networking and Computing (SC2000)*, November 2000.
- [BBB<sup>+</sup>94] D. Bailey, E. Barszcz, J. Barton, D. Browning, R. Carter, L. Dagum, R. Fatoohi, S. Fineberg, P. Fredrickson, T. Lasinski, R. Schreiber, and H. Simon. The NAS parallel benchmarks. Technical Report RNR-94-007, NASA Ames Research Center, March 1994.
- [BBC<sup>+</sup>94] R. Barrett, M. Berry, T. F. Chan, J. Demmel, J. Donato, J. Dongarra, V. Eijkhout, R. Pozo, C. Romine, and H. van der Vorst. *Templates for the Solution of Linear Systems: Building Blocks for Iterative Methods*. SIAM, Philadelphia, PA, second edition, 1994.
- [BBCR98] T. Brandes, F. Bregier, M. C. Counilh, and J. Roman. Contribution to better handling of irregular problems in HPF2. In *Proceedings of Europar '98*, volume 1470 of *LNCS*. Springer-Verlag, 1998.
- [BCC<sup>+</sup>97] L. S. Blackford, J. Choi, A. Cleary, E. D'Azevedo, J. Demmel, I. Dhillon, J. Dongarra, S. Hammarling, G. Henry, A. Petitet, K. Stanley, D. Walker, and R. C. Whaley. *ScaLAPACK Users' Guide*. SIAM, July 1997.
- [BCF<sup>+</sup>93] Zeki Bozkus, Alok Choudhary, Geoffrey Fox, Tomasz Haupt, and Sanjay Ranka. Fortran 90D/HPF compiler for distributed memory MIMD computers: Design, implementation, and performance results. In *Proceedings of Supercomputing '93*, November 1993.

- [BCG<sup>+</sup>95] P. Banerjee, J. A. Chandy, M. Gupta, E. W. Hodges IV, J. G. Holm, A. Lain, D. J. Palermo, S. Ramaswamy, and E. Su. The PARADIGM compiler for distributed-memory multicomputers. *IEEE Computer*, 28(10):37–47, October 1995.
- [BCH<sup>+</sup>94] Guy E. Blelloch, Siddhartha Chatterjee, Jonathan C. Hardwick, Jay Sipelstein, and Marco Zagha. Implementation of a portable nested data-parallel language. *Journal of Parallel and Distributed Computing*, 21(1):4–14, April 1994.
- [BCSvS01] S. B. Baden, P. Colella, D. Shalit, and B. van Straalen. Abstract KeLP. In Proceedings of the 10th SIAM Conference on Parallel Processing for Scientific Computing, March 2001.
- [BDG<sup>+</sup>91] A. Beguelin, J. Dongarra, A. Geist, R. Manchek, and V. Sunderam. A user's guide to PVM (parallel virtual machine). Technical Report ORN-L/TM 11826, Oak Ridge National Laboratories, July 1991.
- [BF95] Eric Barszcz and Paul Fredrickson. NAS MG 2.3 release notes, December 1995.
- [BF99] Scott B. Baden and Stephen J. Fink. The data mover: A machineindependent abstraction for managing customized data motion. In *Proceedings of Languages and Compilers for Parallel Computing 1999*, pages 333–349, 1999.
- [BFS01] Scott B. Baden, Richard Frost, and Daniel Shalit. KeLP user guide version 1.4. Technical report, Department of Computer Science and Engineering, University of California, San Diego, February 2001.
- [BH86] J. Barnes and P. Hut. A hierarchical  $O(N \log N)$  force-calculation algorithm. *Nature*, 324:446–449, December 1986.
- [BHS<sup>+</sup>95] David Bailey, Tim Harris, William Saphir, Rob van der Wijngaart, Alex Woo, and Maurice Yarrow. The NAS parallel benchmarks 2.0. Technical Report NAS-95-020, Nasa Ames Research Center, Moffet Field, CA, December 1995.
- [Bik96] A. J. C. Bik. *Compiler Support for Sparse Matrix Computations*. PhD thesis, Leiden University, 1996.
- [BK94] Ray Barriuso and Allan Knies. SHMEM user's guide for C. Technical report, Cray Research Inc., June 1994.
- [Ble95] Guy E. Blelloch. NESL: A nested data-parallel language (3.1). Technical Report CMU-CS-95-170, Carnegie Mellon School of Computer Science, September 1995.
- [Ble96] Guy E. Blelloch. Programming parallel algorithms. *Communications of the ACM*, 39(3), March 1996.

- [Bra77] A. Brandt. Multi-level adaptive solutions to boundary-value problems. *Mathematics of Computation*, 31:333–390, 1977.
- [Brä95] Thomas Bräunl. Parallaxis-III: A language for structured data-parallel programming. In *Proceedings of the IEEE First International Conference on Algorithms and Architectures for Parallel Processing*, pages 43–52. IEEE, April 1995.
- [BW93] A. J. C. Bik and H. A. G. Wijshoff. Compilation techniques for sparse matrix computations. In *Proceedings of the International Conference on Supercomputing*, pages 416–424, 1993.
- [CCL<sup>+</sup>96] Bradford Chamberlain, Sung-Eun Choi, E Christopher Lewis, Calvin Lin, Lawrence Snyder, and W. Derrick Weathersby. Factor-join: A unique approach to compiling array languages for parallel machines. In David Sehr, Uptal Banerjee, David Gelernter, Alexandru Nicolau, and David Padua, editors, *Languages and Compilers for Parallel Computing*, pages 481–500. Springer-Verlag, 1996.
- [CCL<sup>+</sup>98] Bradford L. Chamberlain, Sung-Eun Choi, E Christopher Lewis, Calvin Lin, Lawrence Snyder, and W. Derrick Weathersby. ZPL's WYSIWYG performance model. In *Proceedings of the Third International Workshop* on High-Level Programming Models and Supportive Environments, pages 50–61. IEEE Computer Society Press, March 1998.
- [CCS95] Kenneth Cameron, Lyndon J. Clarke, and A. Gordon Smith. CRI/EPCC MPI for CRAY T3D. In *1st European Cray T3D Workshop*, September 1995.
- [CCS97] Bradford L. Chamberlain, Sung-Eun Choi, and Lawrence Snyder. A compiler abstraction for machine independent communication generation. In *Languages and Compilers for Parallel Computing*, pages 261–76. Springer-Verlag, August 1997.
- [CDC<sup>+</sup>99] William W. Carlson, Jesse M. Draper, David E. Culler, Kathy Yelick, Eugene Brooks, and Karen Warren. Introduction to UPC and language specification. Technical Report CCS-TR-99-157, Center for Computing Sciences, Bowie, MD, May 1999.
- [CDG<sup>+</sup>93] David E. Culler, Andrea Dusseau, Seth Copen Goldstein, Arvind Krishnamurthy, Steven Lumetta, Thorsten von Eicken, and Katherine Yelick. Parallel programming in Split-C. In *Proceedings of Supercomputing '93*, pages 262–273, November 1993.
- [CDG<sup>+</sup>95] David E. Culler, Andrea Dusseau, Seth Copen Goldstein, Arvind Krishnamurthy, Steven Lumetta, Steve Luna, Thorsten von Eicken, and Katherine Yelick. *Introduction to Split-C (version 1.0)*. Computer Science Division — EECS, University of California, Berkeley, Berkeley, CA 94720, April 1995.

- [CDL<sup>+</sup>96] Bradford Chamberlain, Tony DeRose, Dani Lischinski, David Salesin, and John Snyder. Fast rendering of complex environments using a spatial hierarchy. In *Proceedings of the 22nd Annual Graphics Interface Conference*, pages 132–141, May 1996.
- [CDS99] Bradford L. Chamberlain, Steven Deitz, and Lawrence Snyder. Parallel language support for multigrid algorithms. Technical Report UW-CSE 99-11-03, University of Washington, November 1999.
- [CDS00] Bradford L. Chamberlain, Steven J. Deitz, and Lawrence Snyder. A comparative study of the NAS MG benchmark across parallel languages and architectures. In *Proceedings of the 2000 ACM/IEEE Supercomputing Conference on High Performance Networking and Computing (SC2000)*, November 2000.
- [Cha91] Siddhartha Chatterjee. Compiling Data-Parallel Programs for Efficient Execution on Shared-Memory Multiprocessors. PhD thesis, Carnegie Mellon University, School of Computer Science, October 1991.
- [Cha98] Bradford L. Chamberlain. Graph partitioning algorithms for distributing workloads of parallel computations. Technical Report UW-CSE-98-10-03, University of Washington, October 1998.
- [Cho99] Sung-Eun Choi. *Machine Independent Communication Optimization*. PhD thesis, University of Washington, Department of Computer Science and Engineering, March 1999.
- [CKP<sup>+</sup>93] David Culler, Richard Karp, David Patterson, Abhijit Sahay, Klaus Erik Schauser, Eunice Santos, Ramesh Subramonian, and Thorsten von Eicken. LogP: Towards a realistic model of parallel computation. In Proceedings of the Fourth Symposium on Principles and Practices of Parallel Programming, pages 1–12, May 1993.
- [CLLS99] Bradford L. Chamberlain, E Christopher Lewis, Calvin Lin, and Lawrence Snyder. Regions: An abstraction for expressing array computation. In ACM/SIGAPL International Conference on Array Programming Languages, pages 41–49, August 1999.
- [CLR92] Thomas H. Cormen, Charles E. Leiserson, and Ronald L. Rivest. *Introduction to Algorithms*. The MIT Press/McGraw-Hill, 1992.
- [CLS98] Bradford L. Chamberlain, E Christopher Lewis, and Lawrence Snyder. A region-based approach for sparse parallel computing. Technical Report UW-CSE-98-11-01, University of Washington, November 1998.
- [CLS99] Bradford L. Chamberlain, E Christopher Lewis, and Lawrence Snyder. Problem space promotion and its evaluation as a technique for efficient parallel computation. In *Proceedings of the 13th ACM International Conference on Supercomputing*, pages 311–318, June 1999.

- [CS97] Sung-Eun Choi and Lawrence Snyder. Quantifying the effect of communication optimizations. In *Proceedings of the International Conference on Parallel Processing*, pages 218–222, August 1997.
- [CS01] Bradford L. Chamberlain and Lawrence Snyder. Array language support for parallel sparse computation. In *Proceedings of the 2001 International Conference on Supercomputing*, pages 133–145. ACM SIGARCH, June 2001.
- [DCS01] Steven J. Deitz, Bradford L. Chamberlain, and Lawrence Snyder. Eliminating redundancies in sum-of-product array computations. In *Proceedings of the 2001 International Conference on Supercomputing*, pages 65–77. ACM SIGARCH, June 2001.
- [DiN96] David C. DiNucci. Cooperative data sharing: A layered approach to an architecture-independent message-passing interface. In *Proceedings of the Second MPI Developer's Conference*, pages 58–65, July 1996.
- [DiN97] David C. DiNucci. A simple and efficient process and communication abstraction for network operating systems. In *Proceedings of the Workshop on Communication and Architectural Support for Network-Based Computing*, volume 1199 of *LNCS*, pages 31–45. Springer-Verlag, February 1997.
- [DLMW95] Marios D. Dikaiakos, Calvin Lin, Daphne Manoussaki, and Diana E. Woodward. The portable parallel implementation of two novel mathematical biology algorithms in ZPL. In *Proceedings of the 9<sup>th</sup> International Conference on Supercomputing*, pages 365–374, 1995.
- [Dut97] Swaroop Vasudeva Dutta. Compilation and run-time techniques for dataparallel programs. Master's thesis, Louisiana State University and Agricultural and Mechanical College, Department of Electrical and Computer Engineering, December 1997.
- [ED95] M. A. Epton and B. Dembart. Multipole translation theory for the threedimensional Laplace and Helmholtz equations. *SIAM Journal on Scientific Computing*, 16(4):865–97, July 1995.
- [FHK<sup>+</sup>90] Geoffrey Fox, Seema Hiranandani, Ken Kennedy, Charles Koelbel, Ulrich Kremer, Chau-Wen Tseng, and Min-You Wu. Fortran D language specification. Technical Report CRPC-TR 90079, Rice University, Center for Research on Parallel Computation, December 1990.
- [FJY98] Michael Frumkin, Haoqiang Jin, and Jerry Yan. Implementation of NAS parallel benchmarks in High Performance Fortran. Technical Report NAS-98-009, Nasa Ames Research Center, Moffet Field, CA, September 1998.
- [FKB98] S. J. Fink, S. R. Kohn, and S. B. Baden. Efficient run-time support for irregular block-structured applications. *Journal of Parallel and Distributed Computing*, 50(1–2):61–82, April–May 1998.

- [FvDFH92] James D. Foley, Andries van Dam, Steven K. Feiner, and John F. Hughes. *Computer Graphics, Principles and Practices*. Addison-Wesley Publishing Company, second edition, November 1992.
- [FW78] Steven Fortune and James Wyllie. Parallelism in random access machines. In *Proceedings of the Tenth Annual ACM Symposium on Theory of Computing*, pages 114–118, 1978.
- [Geh96] Wilhelm Gehrke. *Fortran 95 Language Guide*. Springer Verlag, October 1996.
- [GKS99] Clemens Grelck, Dietmar Kreye, and Sven-Bodo Scholz. On code generation for multi-generator with-loops in SAC. In *Proceedings of the 11th International Workshop on Implementation of Functional Languages*, volume 1868 of *LNCS*, pages 77–94. Springer-Verlag, 1999.
- [GL00] Samuel Z. Guyer and Calvin Lin. Broadway: A software architecture for scientific computing. In *IFIPS Working Group 2.5: Working Conference on Software Architectures for Scientific Computing Applications*, October 2000.
- [GLDS96] William Gropp, Ewing Lusk, Nathan Doss, and Anthony Skjellum. A high performance, portable implementation of the MPI message passing interface standard. *Parallel Computing*, 22(6):789–828, 1996.
- [GMS92] John R. Gilbert, Cleve Moler, and Robert Schreiber. Sparse matrices in MATLAB: Design and implementation. *SIMAX*, 13(1):333–356, January 1992.
- [GMS<sup>+</sup>95] Manish Gupta, Sam Midkiff, Edith Schonberg, Ven Seshadri, David Shields, Ko-Yang Wang, Wai-Mee Ching, and Ton Ngo. An HPF compiler for the IBM SP2. In *Proceedings of Supercomputing* '95, December 1995.
- [Gre98] Clemens Grelck. Shared memory multiprocessor support for SAC. In *Proceedings of the 10th International Workshop on Implementation of Functional Languages*, volume 1595 of *LNCS*, pages 38–54. Springer-Verlag, 1998.
- [Gro01] William Gropp. MPI web page. http://www-unix.mcs.anl.gov/mpi/, (current October 24, 2001).
- [Gul00] Maria L. Gullickson. Optimizing loops in an array-based programming language. Qualifying Exam, University of Washington, Department of Computer Science and Engineering, June 2000.

[HAA <sup>+</sup> 96]	M. W. Hall, J. M. Anderson, S. P. Amarasinghe, B. R. Murphy, S. W. Liao,
	E. Bugnion, and M. S. Lam. Maximizing multiprocessor performance with
	the SUIF compiler. IEEE Computer, December 1996.

- [HC93] Paul N. Hilfinger and Phillip Colella. FIDIL reference manual. Technical Report UCB/CSD 93-759, University of California Berkeley, May 1993.
- [Hig94] High Performance Fortran Forum. *High Performance Fortran Specification Version 1.1*, November 1994.
- [Hig97] High Performance Fortran Forum. *High Performance Fortran Specification Version 2.0*, January 1997.
- [Ive62] Kenneth E. Iverson. *A Programming Language*. Wiley, New York, 1962.
- [Joi01] Joint Institute for Computational Science. Lecture notes in parallel computing for undergraduates. http://www-jics.cs.utk.edu/PCUE/, (current October 24, 2001).
- [JP95] Mark T. Jones and Paul E. Plassmann. *BlockSolve95 Users Manual: Scalable Library Software for the Parallel Solution of Sparse Linear Systems*. Argonne National Laboratory, December 1995. (revised June 1997).
- [KAI01] KAI Software. KAI web page. http://www.kai.com/, (current October 24, 2001).
- [KeL01] KeLP Research Group. KeLP web page. http://wwwcse.ucsd.edu/groups/hpcl/scg/kelp/, (current October 24, 2001).
- [KK96] George Karypis and Vipin Kumar. Parallel multilevel k-way partitioning scheme for irregular graphs. In *Supercomputing '96 Conference Proceedings*. ACM/IEEE, November 1996. (a more complete version is available at http://www-users.cs.umn.edu/~karypis/metis/publications/main.html).
- [KK98] George Karypis and Vipin Kumar. A fast and high quality multilevel scheme for partitioning irregular graphs. *SIAM Journal on Scientific Computing*, 20(1):359–392, 1998.
- [KLS94] Robert H. Kuhn, Bruce Leasure, and Sanjiv M. Shah. The KAP parallelizer for DEC Fortran and DEC C programs. *Digital Technical Journal*, 6(3), 1994.
- [Koh95] S. R. Kohn. A Parallel Software Infrastructure for Dynamic Block-Irregular Scientific Calculations. PhD thesis, University of California at San Diego, 1995.
- [KR88] Brian W. Kernighan and Dennis M. Ritchie. *The C Programming Language*. Prentice Hall, second edition, June 1988.

- [Kro98] A. R. Krommer. Parallel sparse matrix computations in the industrial strength PINEAPL library. In *Applied Parallel Computing: Proceedings of PARA'98*, volume 1541 of *LNCS*, pages 281–285. Springer-Verlag, 1998.
- [Lew00] E Christopher Lewis. Achieving Robust Performance in Parallel Programming Languages. PhD thesis, University of Washington, Department of Computer Science and Engineering, March 2000.
- [Lin92] Calvin Lin. *The Portability of Parallel Programs Across MIMD Computers*. PhD thesis, University of Washington, Department of Computer Science and Engineering, 1992.
- [Lit95] Vassily Litvinov. Design of graph ZPL: Extensions to ZPL to handle irregular and dynamic data structures. Qualifying Exam, University of Washington, Department of Computer Science and Engineering, October 1995.
- [LLS98] E Christopher Lewis, Calvin Lin, and Lawrence Snyder. The implementation and evaluation of fusion and contraction in array languages. In *Proceedings of the SIGPLAN Conference on Programming Language Design and Implementation*", pages 50–59, June 1998.
- [LLST95] E Christopher Lewis, Calvin Lin, Lawrence Snyder, and George Turkiyyah. A portable parallel n-body solver. In D. Bailey, P. Bjorstad, J. Gilbert, M. Mascagni, R. Schreiber, H. Simon, V. Torczon, and L. Watson, editors, *Proceedings of the Seventh SIAM Conference on Parallel Processing for Scientific Computing*, pages 331–336. SIAM, 1995.
- [LM90] R. Leveque and M. Merger. Adaptive mesh refinement for hyperbolic partial differential equations. In *Proceedings of the 3rd International Conference on Hyperbolic Problems*, Uppsala, Sweden, 1990.
- [Mac87] Bruce J. MacLennan. *Principles of Programming Languages*. Holt, Rinehart and Winston, second edition, 1987.
- [Mat93] Mathworks. *MATLAB User's Guide*, 1993.
- [Mes94] Message Passing Interface Forum. MPI: A message passing interface standard. *International Journal of Supercomputing Applications*, 8(3/4):169– 416, 1994.
- [Mes97] Message Passing Interface Forum. MPI-2: Extensions to the Message-Passing Interface, July 1997.
- [MPSK00] Nikolay Mateev, Keshav Pingali, Paul Stodghill, and Vladimir Kotlyar. Next-generation generic programming and its application to sparse matrix computations. In *Proceedings of the International Conference on Supercomputing*, May 2000.

- [MS96] K. J. Maschhoff and D. C. Sorensen. P\_ARPACK: An efficient portable large scale eigenvalue package for distributed memory parallel architectures. In *Applied Parallel Computing: Proceedings of PARA'96*, pages 478–486. Springer-Verlag, 1996.
- [NAG00] Numerical Algorithms Group. *Essential Introduction to the NAG Parallel Library (release 3)*, 2000.
- [NES01] NESL Research Group. NESL web page. http://www.cs.cmu.edu/ scandal/nesl.html, (current October 24, 2001).
- [Ngo97] Ton A. Ngo. *The Role of Performance Models in Parallel Programming and Languages*. PhD thesis, University of Washington, Department of Computer Science and Engineering, 1997.
- [NR98] R. W. Numrich and J. K. Reid. Co-Array Fortran for parallel programming. Technical Report RAL-TR-1998-060, Rutherford Appleton Laboratory, Oxon, UK, August 1998.
- [NRK98] Robert W. Numrich, John Reid, and Kieun Kim. Writing a multigrid solver using Co-Array Fortran. In *Proceedings of the Fourth International Workshop on Applied Parallel Computing*, Umea, Sweden, June 1998.
- [NSC97] Ton A. Ngo, Lawrence Snyder, and Bradford L. Chamberlain. Portable performance of data parallel languages. In *Proceedings of SC97: High Performance Networking and Computing*, November 1997.
- [Ohi96] Ohio Supercomputer Center, The Ohio State University. *MPI Primer / Developing with LAM*, November 1996.
- [Ope01] OpenMP Forum. OpenMP: A proposed standard API for shared memory programming. http://www.openmp.org/, (current October 24, 2001).
- [Pie93] Paul Pierce. The NX message passing interface. *Parallel Computing*, 1993.
- [Por99] Portland Group Technical Reporting Service. Personal communication, October 1999.
- [PVM01] PVM development group. PVM web page. http://www.epm.ornl.gov/pvm/, (current October 24, 2001).
- [RBS96] Wilkey Richardson, Mary Bailey, and William H. Sanders. Using ZPL to develop a parallel Chaos router simulator. In *Proceedings of the 1996 Winter Simulation Conference*, pages 806–16, December 1996.
- [Saa90] Y. Saad. SPARSKIT: A basic tool kit for sparse matrix computations. Technical Report 90-20, Research Institute for Advanced Computer Science, NASA Ames Research Center, Moffet Field, CA, 1990.

- [Sch94] S. B. Scholz. Single assignment C functional programming using imperative style. In *Proceedings of IFL '94*, Norwich, UK, 1994.
- [Sch98a] S. B. Scholz. A case study: Effects of WITH-loop-folding on the NAS benchmark MG in SAC. In *Proceedings of IFL '98*, London, 1998. Springer-Verlag.
- [Sch98b] Sven-Bodo Scholz. On defining application-specific high-level array operations by means of shape-invariant programming. In *Proceedings of the ACM-SIGAPL International Conference on Array Processing Languages*, pages 40–45, 1998.
- [Sec78] Secretariat, Computer and Business Equipment Manufacturers Association, editor. *American National Standard Programming Language FORTRAN*. American National Standards Institute, Inc., April 1978.
- [SH89] Luigi Semenzato and Paul Hilfinger. Arrays in FIDIL. In Robert Grossman, editor, *Symbolic Computation: Applications to Scientific Computing*, pages 155–169. SIAM, 1989.
- [SLY89] Z. Shen, Z. Li, and P. C. Yew. An empirical study on array subscripts and data dependences. In *Proceedings of the International Symposium on Shared Memory Multiprocessing*, 1989.
- [SM95] Y. Saad and A. Malevsky. PSPARSLIB: A portable library of distributed memory sparse iterative solvers. In V. E. Malyshkin et al., editor, *Proceedings of Parallel Computing Technologies (PaCT-95), 3rd international conference*, LNCS. Springer-Verlag, Sept. 1995.
- [Sny86] Lawrence Snyder. Type architecture, shared memory and the corollary of modest potential. *Annual Review of Computer Science*, pages 289–317, 1986.
- [Sny95] Lawrence Snyder. Experimental validation of models of parallel computation. In A. Hofmann and J. van Leeuwen, editors, *Lecture Notes in Computer Science, Special Volume 1000*, pages 78–100. Springer-Verlag, 1995.
- [Sny99] Lawrence Snyder. *The ZPL Programmer's Guide*. MIT Press, 1999.
- [SSO<sup>+</sup>95] T. Stricker, J. Subhlok, D. O'Hallaron, S. Hinrichsand, and T. Gross. Decoupling synchronization and data transfer in message passing systems of parallel computers. In 9<sup>th</sup> International Conference on Supercomputing, July 1995.

- [SvdWWY97] William Saphir, Rob van der Wijngaart, Alex Woo, and Maurice Yarrow. New implementations and results for the NAS parallel benchmarks 2. In 8th SIAM Conference on Parallel Processing for Scientific Computing, March 1997.
- [TD97] S. Tucker Taft and Robert A. Duff, editors. *Ada 95 Reference Manual: Language and Standard Libraries*, volume 1246 of *Lecture Notes in Computer Science*. Springer-Verlag, 1997.
- [Ter99] Tera Computer Company. *Tera Programming Guide*, 1999. http://www.npaci.edu/MTA/tera-doc/pg/html/Preface.html (current October 24, 2001.
- [THHS99] R. S. Tuminaro, M. Heroux, S. A. Hutchinson, and J. N. Shadid. *Official Aztec User's Guide: Version 2.1*. Sandia National Laboratories, December 1999.
- [Thi91] Thinking Machines Corporation, Cambridge, Massachusetts. *C\* Programming Guide, Version 6.0.2*, June 1991.
- [Tse93] Chau-Wen Tseng. An Optimizing Fortran D Compiler for MIMD Distributed-Memory Machines. PhD thesis, Rice University, January 1993.
- [UZCZ97] Manuel Ujaldon, Emilio L. Zapata, Barbara M. Chapman, and Hans P. Zima. Vienna-Fortran/HPF extensions for sparse and irregular problems and their compilation. *IEEE Transactions on Parallel and Distributed Systems*, 8(10), October 1997.
- [vdG97] Robert van de Geijn. *Using PLAPACK Parallel Linear Algebra Package*. The MIT Press, 1997.
- [vdGW95] Robert van de Geijn and Jerrell Watts. SUMMA: Scalable universal matrix multiplication algorithm. Technical Report TR-95-13, University of Texas, Austin, Texas, April 1995.
- [vdW00] Rob van der Wijngaart. *Personal communication*. MRJ Technology Solutions, April 2000.
- [vECGS96] T. von Eicken, D.E. Culler, S.C. Goldstein, and K.E. Schauser. Active Messages: A mechanism for integrated communication and computation. In *Proceedings of the 1996 IEEE/ACM Supercomputing Conference*, 1996.
- [vRDSP96] C. van Reeuwijk, W. Denissen, H. J. Sips, and E. M. Paalvast. An implementation framework for HPF distributed arrays on message passing computers. *IEEE Transactions on Parallel and Distributed Systems*, 7(9):897– 914, September 1996.
- [WA00] Greg Watson and David Abramson. Relative debugging for data-parallel programs: A ZPL case study. *IEEE Concurrency*, 8(4):42–52, October–December 2000.

- [Wal01] Alan Wallcraft. CAF web page. http://www.co-array.org/, (current October 24, 2001).
- [Wat00] Gregory R. Watson. *The Design and Implementation of a Parallel Relative Debugger*. PhD thesis, Monash University, School of Computer Science and Software Engineering, October 2000.
- [Wea99] W. Derrick Weathersby. *Machine-Independent Compiler Optimizations for Collective Communication*. PhD thesis, University of Washington, Department of Computer Science and Engineering, August 1999.
- [Wei99] Mark Allen Weiss. *Data Structures & Algorithm Analysis in C++*. Addison-Wesley, second edition, 1999.
- [Wes92] Pieter Wesseling. *An Introduction to Multigrid Methods*. John Wiley and Sons, 1992.
- [WGS00] A. J. Wagner, L. Giraud, and C. E. Scott. Simulation of a cusped bubble rising in a viscoelastic fluid with a new numerical method. *Computer Physics Communications*, 129(1–3):227–232, July 2000.
- [Wir83] Nicholas Wirth. *Programming in Modula-2*. Springer-Verlag, NY, second edition, 1983.
- [ZBC<sup>+</sup>92] H. Zima, P. Brezany, B. Chapman, P. Mehrotra, and A. Schwald. Vienna fortran a language specification version 1.1. Technical Report ACPC/TR 92-4, Austrian Center for Parallel Computation, March 1992.
- [ZPL01] ZPL Research Group. ZPL web page. http://www.cs.washington.edu/research/zpl/, (current October 24, 2001).