


References

- [1] Amani A AlOnazi. *Design and optimization of openfoam-based CFD applications for modern hybrid and heterogeneous HPC platforms*. PhD thesis, 2014.
- [2] Hrvoje Jasak, Aleksandar Jemcov, Zeljko Tukovic, et al. Openfoam: A c++ library for complex physics simulations. In *International workshop on coupled methods in numerical dynamics*, volume 1000, pages 1–20. IUC Dubrovnik, Croatia, 2007.
- [3] J Cohen and M Jeroen Molemaker. A fast double precision cfd code using cuda. *Parallel Computational Fluid Dynamics: Recent Advances and Future Directions*, pages 414–429, 2009.
- [4] Julien C Thibault and Inanc Senocak. Cuda implementation of a navier-stokes solver on multi-gpu desktop platforms for incompressible flows. In *Proceedings of the 47th AIAA aerospace sciences meeting*, pages 2009–758, 2009.  www.lib.mrt.ac.lk
- [5] Amani AlOnazi, David Keyes, Alexey Lastovetsky, and Vladimir Rychkov. Design and optimization of openfoam-based cfd applications for hybrid and heterogeneous hpc platforms. *arXiv preprint arXiv:1505.07630*, 2015.
- [6] Jack Dongarra and Alexey L Lastovetsky. *High performance heterogeneous computing*, volume 78. John Wiley & Sons, 2009.
- [7] Alexey Lastovetsky, Vladimir Rychkov, and Maureen O’Flynn. Accurate heterogeneous communication models and a software tool for their efficient estimation. *International Journal of High Performance Computing Applications*, 2010.
- [8] David Clarke, Ziming Zhong, Vladimir Rychkov, and Alexey Lastovetsky. Fupermod: a software tool for the optimization of data-parallel applications

- on heterogeneous platforms. *The Journal of Supercomputing*, 69(1):61–69, 2014.
- [9] David Clarke, Aleksandar Ilic, Alexey Lastovetsky, and Leonel Sousa. Hierarchical partitioning algorithm for scientific computing on highly heterogeneous cpu+ gpu clusters. In *European Conference on Parallel Processing*, pages 489–501. Springer, 2012.
- [10] George Karypis and Vipin Kumar. Metis – unstructured graph partitioning and sparse matrix ordering system, version 2.0. Technical report, 1995.
- [11] Cédric Chevalier and François Pellegrini. Pt-scotch: A tool for efficient parallel graph ordering. *Parallel computing*, 34(6):318–331, 2008.
- [12] Pieter Ghysels and Wim Vanroose. Hiding global synchronization latency in the preconditioned conjugate gradient algorithm. *Parallel Computing*, 40(7):224–238, 2014.
- [13] OW GEAR. A step iterative methods for symmetric linear systems. *Journal of Computational and Applied Mathematics*, 25:153–163, 1939.
- [14] Qingyun He, Hongli Chen, and Jingchao Feng. Acceleration of the openfoam-based mhd solver using graphics processing units. *Fusion Engineering and Design*, 101:88–93, 2015.
- [15] DP Combest and J Day. Cufflink: a library for linking numerical methods based on cuda c/c++ with openfoam. URL: <http://cufflink-library.googlecode.com>, 2011.
- [16] Vratis. Speedlt plugin for openfoam. URL: <http://speedit.vratis.com/index.php/products> (retrieved: 04-Jul-2016).
- [17] Symscape. ofgpu: Gpu linear solvers for openfoam. URL: <http://www.symscape.com/gpu-1-1-openfoam> (retrieved: 04-Jul-2016).
- [18] CUDA Nvidia. Cublas library. *NVIDIA Corporation, Santa Clara, California*, 15:27, 2008.

- [19] Zahra Jamshidi and Farshad Khunjush. Optimization of openfoam's linear solvers on emerging multi-core platforms. In *Communications, Computers and Signal Processing (PacRim), 2011 IEEE Pacific Rim Conference on*, pages 824–829. IEEE, 2011.
- [20] NVIDIA CUSPARSE. Cublas libraries.
- [21] Jared Hoberock and Nathan Bell. Thrust: A parallel template library. *Online at <http://thrust.googlecode.com>*, 42:43, 2010.
- [22] simFlow. Rapidcfd: Openfoam running on gpu. *URL: <https://sim-flow.com/rapid-cfd-gpu/> (retrieved: 04-Jul-2016)*.
- [23] Dimitar Lukarski and Nico Trost. Paralution project. *URL <http://www.paralution.com>. Accessed: December, 2014*.
- [24] NVIDIA. Amgx. *URL: <https://developer.nvidia.com/amgx> (retrieved: 04-Jul-2016)*.
- [25] Maxim Naumov, Marat Arsaev, Patrice Castonguay, Jonathan Cohen, Julien Demouth, Joe Eaton, Simon Layton, Nikolay Markovskiy, Nikolai Sakharnykh, Robert Strzodka, et al. Amgx: Scalability and performance on massively parallel platforms. In *SIAM workshop on exascale applied mathematics challenges and opportunities*. SIAM, 2014.
- [26] Nicholas Nethercote and Julian Seward. Valgrind: a framework for heavy-weight dynamic binary instrumentation. In *ACM Sigplan notices*, volume 42, pages 89–100. ACM, 2007.
- [27] Lorena A. Barba Pi-Yueh Chuang. Using amgx to accelerate petsc-based cfd codes. *GPU Technology Conference*.
- [28] CFD online community. ldumatrix. *URL: <http://www.cfd-online.com/Forums/openfoam-programming-development/67452-ldumatrix.html> (retrieved: 04-Jul-2016)*.

- [29] openfoamwiki. Matrices in openfoam. *URL:*
https://openfoamwiki.net/index.php/OpenFOAM_guide/Matrices_in_OpenFOAM
(retrieved: 04-Jul-2016).
- [30] Jack Dongarra. Compressed row storage (crs). *URL:*
http://netlib.org/linalg/html_templates/node90.html *(retrieved: 04-Jul-*
2016).



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk