

EE 677

Fall 2008

Reading List

1 Reconfigurable Computing

- [1] A. DeHon and J. Wawrzynek, “Reconfigurable computing: What, why, and design automation requirements?” in *Proceedings of the 1999 Design Automation Conference*, June 1999.
- [2] A. DeHon, “The Density Advantage of Configurable Computing,” in *Computer*, Volume 33, Issue 4, April 2000.
- [3] R. Hartenstein, “A decade of reconfigurable computing: a visionary retrospective,” in *International Conference on Design Automation and Testing in Europe - and Exhibit*, Munich, Germany, March 2001.
- [4] K. Compton and S. Hauck, “Reconfigurable computing: a survey of systems and software,” in *ACM Computing Surveys (CSUR)*, Volume 34, Issue 2, 2002, pp. 171–210.
- [5] K. Bondalapati and V. K. Prasanna, “Reconfigurable computing systems,” in *Proceedings of the IEEE*, Volume 90, Issue 7, July 2002. pp.1201–1217.
- [6] *Reconfigurable Computing: Accelerating Computation with Field-Programmable Gate Arrays*, by Maya Gokhale, Paul S. Graham, Springer, February 2006.

2 Field Programmable Gate Arrays

- [1] S. Trimberger, “A reprogrammable gate array and applications,” in *Proceedings of the IEEE*, Volume 81, Issue 7, July 1993; pp.1030 – 1041.
- [2] B.K. Fawcett, “SRAM-based FPGA architectures address new applications” in *WESCON/95. Conference record. 'Microelectronics Communications Technology Producing Quality Products Mobile and Portable Power Emerging Technologies'*, 7-9 Nov. 1995.
- [3] S. Brown and J. Rose, “Architecture of FPGAs and CPLDs: A Tutorial,” in *IEEE Design and Test of Computers*, Volume 13, No. 2, pp. 42-57, 1996.
- [4] S. Brown, “FPGA architectural research: a survey,” in *IEEE Design & Test of Computers*, Volume 13, Issue 4, winter 1996.
- [5] T. Todman, G. Constantinides, S. Wilton, P. Cheung, W. Luk, and O. Mencer, “Reconfigurable Computing: Architectures and Design Methods,” in *IEE Proc.-Comput. Digit. Tech.*, Volume 152, No. 2, March 2005.

- [6] The FPGA as a Computing Platform, by Scott Thibault, David Pellerin, Prentice Hall, May 2005. <http://www.phptr.com/articles/article.asp?p=382614&rl=1>.

3 Design Flow for Reconfigurable Computing

- [1] M. B. Gokhale, J. M. Stone and E. Gomersall, "Co-Synthesis to a Hybrid RISC/FPGA Architecture," in *Journal of VLSI Signal Processing Systems (Special issue on VLSI on custom computing technology)*, Volume 24, Issue 2-3, March 2000, pp. 165–180.
- [2] V. Srinivasan, S. Govindarajan, and R. Vemuri, "Fine-grained and coarse-grained behavioral partitioning with effective utilization of memory and design space exploration for multi-FPGA architectures," in *IEEE Transactions on Very Large Scale Integration Systems*, Volume 9, Issue 1, Feb. 2001, pp.140–158.
- [3] FPGA-Based System Design, by Wayne Wolf, Prentice Hall, 2004.
- [4] J. Park, P. Diniz and K. R. Shesha Raghunathan, "Performance and Area Modeling of Complete FPGA Designs in the Presence of Loop Transformations," in *IEEE Transactions on Computers (Special Issue on Field-Programmable Logic)*, Volume 53, No. 11, Nov. 2004, pp. 1420-1435.
- [5] D. Caliga, V. Kindratenko, and D. Pointer, "High-Performance Reconfigurable Computing Application Programming in C," White Paper, January 10, 2006. https://netfiles.uiuc.edu/dpointer/www/whitepapers/hprc_v1_0.pdf
- [6] E. Anderson, J. Agron, W. Peck, J. Stevens, F. Baijot, E. Komp, R. Sass and D. Andrews, "Enabling a Uniform Programming Model Across the Software/Hardware Boundary," in *Proceedings of the 14th IEEE Symposium on Field-Programmable Custom Computing Machines*, April 2006.

4 Embedded Computing Using Reconfigurable Devices

- [1] R. P. Sidhu, A. Mei, and V. K. Prasanna, "String Matching on Multicontext FPGAs using Self-Reconfiguration," in *Proceeding of the ACM/SIGDA International Symposium on Field-Programmable Gate Arrays*, February 1999.
- [2] R. Tessier and W. Burleson, "Reconfigurable Computing for Digital Signal Processing: A Survey" in *Journal of VLSI Signal Processing Systems*, Volume 28, Issue 1-2, May-June 2001.
- [3] M. Baleani, F. Gennari, Y. Jiang, Y. Patel, R. K. Brayton, and A. Sangiovanni-Vincentelli, "HW/SW partitioning and code generation of embedded control applications on a reconfigurable architecture platform," In *Proceedings of the International Symposium on Hardware/Software Co-Design*, May 2002.
- [4] S. Choi, R. Scrofano, V. K. Prasanna and J-W. Jang, "Energy-efficient signal processing using FPGAs," in *Proceedings of the ACM/SIGDA International Symposium on Field Programmable Gate Arrays*, February 2003.

- [5] J. Ou, S. Choi and V. K. Prasanna, "Performance Modeling of Reconfigurable SoC Architectures and Energy-Efficient Mapping of a Class of Applications" in *Proceedings of IEEE Symposium on Field-Programmable Custom Computing Machines*, April 2003
- [6] G. Brebner and D. Levi, "Networking on chip with platform FPGAs" in *Proceedings of IEEE International Conference on Field-Programmable Technology*, December 2003, pp. 13–20.
- [7] Z. K. Baker and V. K. Prasanna, "Automatic Synthesis of Efficient Intrusion Detection Systems on FPGAs," in *International Conference on Field-Programmable Logic and its Applications*, September 2004.
- [8] H. Le, W. Jiang and V. K. Prasanna, "A SRAM-based Architecture for Trie-based IP Lookup Using FPGA," in *Proceedings of the Sixteenth Annual IEEE Symposium on Field Programmable Custom Computing Machines*, April 2008.

5 Scientific Computing Using Reconfigurable Devices

- [1] K. D. Underwood and K. S. Hemmert, "Closing the gap: CPU and FPGA Trends in sustainable floating-point BLAS performance," in *IEEE Symposium on Field Programmable Custom Computing Machines*, April 2004.
- [2] L. Zhuo and V. K. Prasanna, "High Performance Linear Algebra Operations on Reconfigurable Systems," in *Proceedings of SuperComputing 2005*, November 2005.
- [3] V. Kindratenko and D. Pointer, "A case study in porting a production scientific supercomputing application to a reconfigurable computer," in *Proceedings of IEEE Symposium on Field Programmable Custom Computing Machine*, April 2006.
- [4] R. Scrofano, M. Gokhale, F. Trouw, and V. K. Prasanna, "A Hardware/Software Approach to Molecular Dynamics on Reconfigurable Computers," in *Proceedings of IEEE Symposium on Field Programmable Custom Computing Machine*, April 2006.
- [5] "Petaflop Computing Using Direct Execution Logic", White Paper, SRC Computers Inc., <http://www.srccomp.com/WhitePapers.htm>; available on email request.
- [6] Cray XD-1 Architecture, <http://www.cray.com/products/xd1/index.htm>
- [7] DRC Reconfigurable Processor Units, <http://www.drcomputer.com/pages/modules.html>
- [8] SGI RASC Technology, <http://www.sgi.com/products/rasc/>
- [9] A. Dellson, G. Sandberg and S. Mohl, "Turning FPGAs Into Supercomputers," White Paper, Mitronics, http://www.mitronics.com/press/Debunking_the_Myths.pdf

6 Conferences

- [1] Symposium on Field-Programmable Custom Computing Machines (FCCM), <http://www.fccm.org/>.
- [2] International Symposium on Field-Programmable Gate Arrays (FPGA), <http://www.ece.wisc.edu/~kati/isfpga/>
- [3] International Conference on Field-Programmable Logic, Reconfigurable Computing, and Applications (FPL), www.kip.uni-heidelberg.de/fpl08/
- [4] Reconfigurable Architectures Workshop (RAW), <http://www.ece.lsu.edu/vaidy/raw/>
- [5] International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA), <http://webest.uk.com/ersaco/>
- [6] IEEE International Conference on Field-Programmable Technology (FPT), <http://www.icfpt.org/>

7 Online Resources

- [1] <http://support.xilinx.com>
- [2] FPGA Journal, <http://www.fpgajournal.com>
- [3] FPGA wiki, <http://en.wikipedia.org/wiki/FPGA>
- [4] VHDL and FPGA Resources on the Web, <http://equipe.nce.ufrj.br/gabriel/vhdlfpga.html>
- [5] OpenFPGA, <http://www.openfpga.org>
- [6] NetFPGA, <http://netfpga.org/>