

# CERES

## Publications January 2005 – September 2007

\* = ISI indexed (journals and proceedings)

(\*) = Expected to appear in ISI

### **Doctoral Theses**

Fan, X., "Real-Time Services in Packet-Switched Networks for Embedded Applications," *Ph.D. Thesis, Chalmers University of Technology*, Göteborg, Sweden, June 2007.

Åhlander, A., "Efficient Parallel Architectures for Future Radar Signal Processing," *Ph.D. Thesis, Chalmers University of Technology*, Göteborg, Sweden, May 2007.

Hoang, H., "Enhancing the Performance of Distributed Real-Time Systems," *Ph.D. Thesis, Chalmers University of Technology*, Göteborg, Sweden, May 2007.

### **Licentiate Theses**

Bilstrup, U., "Design Space Exploration of Wireless Multihop Networks," *Licentiate Thesis, Chalmers University of Technology*, Göteborg, Sweden, June 2005.

Agelis, S., "Reconfigurable Optical Interconnection Networks for High-Performance Embedded Systems," *Licentiate Thesis, Chalmers University of Technology*, Göteborg, Sweden, Apr. 2005.

Bengtsson, J., "Efficient Implementation of Stream Applications on Processor Arrays," *Licentiate Thesis, Chalmers University of Technology*, Göteborg, Sweden, Mar. 2006.

### **Books and Book Chapters**

Hammerstrom, D., "Biologically Inspired Architectures," in book, *Information Technology*, Editor: Rainer Waser, Wiley-Series: Nanotechnology, 2006.

Gao, C. J. and D. Hammerstrom, "CMOL Based Cortical Models," in book, *Emerging Brain-Inspired Nano-Architectures*, Editor Valeriu Beiu, 2006.

Section Editor of: Section III – Real-Time Communication, in *ARTES – A network for Real-Time research and graduate Education in Sweden 1997-2006*, Editor: Hans Hansson, pp. 331-427, Mar. 2006, ISBN 91-506-1859-8.

Uhlemann E., L. K. Rasmussen, and P.-A. Wiberg, "Wireless real-time communication using deadline dependent coding," a chapter in *ARTES - A Network for Real-Time Research and Graduate Education in Sweden*, edited by H. Hansson, Uppsala University, Sweden, 2006, ISBN: 91-506-1859-8, pp. 397-415.

Jonsson, M., Section Introduction – Overview of Real-Time Communication Research Internationally, in *ARTES – A network for Real-Time research and graduate Education in Sweden 1997-2006*, Editor: Hans Hansson, pp. 333-351, Mar. 2006, ISBN 91-506-1859-8.

Bergenheim, C., and M. Jonsson, "A pipelined fiber-ribbon ring network with heterogeneous real-time support", in *ARTES – A network for Real-Time research and graduate Education in Sweden 1997-2006*, Editor: Hans Hansson, pp. 373-395, Mar. 2006, ISBN 91-506-1859-8.

Hoang, H., and M. Jonsson, "Real-time communication for industrial embedded systems using switched Ethernet", in *ARTES – A network for Real-Time research and graduate Education in Sweden 1997-2006*, Editor: Hans Hansson, pp. 417-427, Mar. 2006, ISBN 91-506-1859-8.

### **Full-paper Peer-reviewed Articles in Scientific Journals**

\* Agelis, S. and M. Jonsson, "Optoelectronic router with a reconfigurable shuffle network based on micro-optoelectromechanical systems," *Journal of Optical Networking*, Optical Society of America (OSA), vol. 4, no. 1, pp. 935-944, Jan. 2005.

\* Bahar, I., J. Harlow, D. Hammerstrom, W. Joyner, C. Lau, D. Marculescu, A. Orailoglu, and M. Pedram, "Architectures for silicon nanoelectronics and beyond," *IEEE Computer*, Volume 40, Issue 1, pp. 25 – 33, Jan. 2007.

\* Daniele Miorandi, Elisabeth Uhlemann, Stefano Vitturi and Andreas Willig, "Guest editorial: special section on wireless technologies in factory and industrial automation - part I," in *IEEE Transactions on Industrial Informatics*, vol. 3, no. 2, pp. 95 – 98, May 2007.

\* Daniele Miorandi, Elisabeth Uhlemann, Stefano Vitturi and Andreas Willig, "Guest editorial: special section on wireless technologies in factory and industrial automation - part II," in *IEEE Transactions on Industrial Informatics*, vol. 3, no. 3, pp. 189 – 190, August 2007.

### **Full-paper Peer-reviewed Articles in Proceedings of International Scientific Conferences**

\* Fan, X. and M. Jonsson, "Guaranteed real-time services over standard switched Ethernet," *Proc. of the 30th Annual IEEE Conference on Local Computer Networks (LCN'2005)*, Sydney, Australia, Nov. 15-17, 2005.

Åhlander, A., A. Åström, B. Svensson, and M. Taveniku, "Meeting engineer efficiency requirements in highly parallel signal processing by using platforms," *Proc. Parallel and Distributed Computing and Systems (PDCS2005)*, Phoenix, AZ, USA, Nov. 14-16, 2005. (8 pages)

Jonsson D., A. Åhlander., and Svensson B., "Analyzing the advantages of run-time reconfiguration in radar signal processing," *Proc. IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS 2005)*, Phoenix, Arizona, USA, Nov. 2005.

Agelis, S. and M. Jonsson, "Reconfigurable optical interconnection system supporting concurrent application-specific parallel computing," *Proc. of the 17th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD'05)*, Rio de Janeiro, Brazil, Oct. 24-27, 2005.

\* Uhlemann, E. and L. K. Rasmussen, "Analytical approach for maximizing the average code rate of incremental redundancy schemes", *Proc. Asia-Pacific Conference on Communications*, Perth, Australia, Oct. 2005, pp. 481-485.

Uhlemann, E. and Lars K. Rasmussen, "Incremental redundancy deadline dependent coding for efficient wireless real-time communications," *Proc. of IEEE International Conference on Emerging Technologies and Factory Automation*, Catania, Italy, Sept. 2005, vol. 2, pp. 417-424.

\* Larsson T., M. Taveniku, C. Wigren, P-A. Wiberg and B. Svensson, "T4 - Telematics for Totally Transparent Transports," *Proc. of the 8th International IEEE Conference on Intelligent Transportation Systems*, Vienna, Austria, Sep 13-16, 2005, pp. 467-472.

\* Zain-ul-Abdin, and B. Svensson, "Compiling stream-language applications to a reconfigurable array processor," *Proc. Engineering of Reconfigurable Systems and Algorithms Conference (ERSA'05)*, Las Vegas, USA, June 27-30, 2005.

\* Weckstén, M., M. Jonsson, and J. Vasell, "Derivation of implementation constraints – implementation simulation and treatment of multiple design choices," *Proc. 10th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS'2005)*, Shanghai, China, June 16-20, 2005, pp. 459 - 466.

Böhm, A., M. Jonsson, K. Kunert, and H. Hoang, "A fibre-optic AWG-based real-time network and its applicability to high-performance embedded computing," *Proc. Workshop on Parallel and Distributed Real-Time Systems (WPDRTS'2005) in conjunction with International Parallel and Distributed Processing Symposium (IPDPS'05)*, Denver, CO, USA, April 4-5, 2005. (8 pages)

\* Böhm, A., M. Jonsson, and K. Kunert, "AWG-based optoelectronic router with QoS support," *Proc. Second IFIP International Conference on Wireless and Optical Communications Networks (WOCN '2005)*, Dubai, United Arab Emirates, Mar. 6-8, 2005. (6 pages)

Yang Y. and Larsson T., "Distributed access framework for embedded device community," *Proc. of the IASTED International Conference on Parallel and Distributed Computing and Networks*, Innsbruck, Austria, Febr. 15-17, 2005, pp. 370-374.

Luk, C.-H., M. S. Zaveri, D. Hammerstrom, and R. J. Kerr, "Vision-based hazard detection," *ANNIE 2006*, Nov. 2006, St. Louis, MO, USA.

Nilsson, B., L. Bengtsson, U. Bilstrup, P-A. Wiberg, and B. Svensson, "Towards an energy-efficient protocol for Active RFID," *Proc. IEEE Symposium on Industrial Embedded Systems (IES 2006)*, Antibes Juan-les-Pins, France, Oct. 18-20, 2006.

(\*) Bilstrup, U., K. Bilstrup, B. Svensson, and P-A. Wiberg, "Using dual-radio nodes to enable quality of service in a clustered wireless mesh network," *Proc. 11th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA '06)*, Prague, Czech Republic, Sept. 2006.

(\*) Bilstrup, U. and P-A. Wiberg, "An implementation of 3-tier hierarchical wireless sensor network", *Proc. of the 4th International IEEE Conference on Industrial Informatics (INDIN'06)*, Singapore, Aug. 2006.

\* Hoang, H., G. Buttazzo, M. Jonsson, and S. Karlsson, "Computing the minimum EDF feasible deadline in periodic systems," *Proc. 12th International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA'06)*, Sydney, Australia, Aug. 16-18, 2006, pp. 125-134.

Bengtsson, J. and B. Svensson, "A configurable framework for stream programming exploration in baseband applications," *11th International Workshop on High-Level Parallel Programming Models and Supportive Environments in conjunction with IPDPS 2006*, Apr. 25-29, 2006, Rhode Island, Greece.

Uhlemann, E., L. K. Rasmussen, and F. Brännström, "Puncturing strategies for incremental redundancy schemes using rate compatible systematic serially concatenated codes," *Proc. International Symposium on Turbo Codes & Related Topics*, Munich, Germany, Apr. 2006. (6 pages)

\* Wang, B., M. Jonsson, and X. Fan, "Analysis of efficient TDMA schedules via the fat-tree network with real-time many-to-many communication," *Proc. of the 17th IASTED International Conference on Parallel and Distributed Computing and Networks (PDCN'2006)*, Innsbruck, Austria, Feb. 14-16, 2006, pp 192-197.

\* Rasmussen L. K., E. Uhlemann, and F. Brännström, "Concatenated systems and cross-layer design", *Proc. of Australian Communications Theory Workshop*, Perth, Australia, Feb. 2006, pp. 80-86.

(\*) Lidström K. and T. Larsson, "Cooperative communication disturbance detection in vehicle safety systems", *Proc. 10th IEEE International. Conf. on Intelligent Transportation Systems*, Seattle, Washington, USA, Sept.30 - Oct.3, 2007.

(\*) Larsson T., "Surveillance of mobile objects using coordinated wireless sensor nodes", *Proc. 12th IEEE International. Conf. on Emerging Technologies and Factory Automation*, Patras, Greece, Sept. 25 - 28, 2007.

(\*) Bilstrup, U., K. Bilstrup, B. Svensson and P-A Wiberg, "The use of clustered wireless multihop networks in industrial settings," to be presented at the *12th IEEE Conference on Emerging Technologies and Factory Automation*, Patras, Greece, Sept. 25-28, 2007.

(\*) Kunert, K., M. Weckstén, and M. Jonsson, "Algorithm for the choice of topology in reconfigurable on-chip networks with real-time support," *Proc. 2nd International Conference on Nano-Networks (Nano-Net 2007)*, Catania, Italy, Sept. 24-26, 2007.

(\*) Åhlander A., H. Hellsten, K. Lind, J. Lindgren, & B. Svensson, "Architectural challenges in memory-intensive, real-time image forming" *Proc. 36th Annual International Conference on Parallel Processing*, XiAn, China, Sept. 10-14, 2007, 10 pages.

Lerchbaumer, P., A. Ochoa, and E. Uhlemann, "Test environment design for wireless vehicle communications," *Proc. IEEE International Symposium on Wireless Vehicular Communications*, Baltimore, MD, September 2007.

(\*) Lidström K., T. Larsson & L. Strandén, "Safety considerations for cooperating vehicles using wireless communication", *Proc. IEEE Conference on Industrial Informatics*, Vienna, July 23-27, 2007.

Nilsson, B., L. Bengtsson & B. Svensson, "Protocols for active RFID - the energy consumption aspect" *SIES'2007 - IEEE Second International Symposium on Industrial Embedded Systems*, Lisbon, Portugal, July 4-6, 2007.

Hung, W. N. N., C. Gao, X. Song, and D. Hammerstrom, "A defect-tolerant CAD framework for the CMOL architecture via satisfiability," *Nanoelectronic Devices for Defense & Security Conference*, Crystal City, VA, USA, 18-21 June, 2007.

Hoang H., and C.G. Buttazzo, "Reducing delay and jitter in software control systems", *Proc. of the 15th International Conference on Real-Time and Network Systems (RTNS 2007)*, Nancy, France, March 29-30, 2007.

Zain Ul-Abdin and B. Svensson, "A study of design efficiency with a high-level language for FPGAs", *Proc. 14th Reconfigurable Architectures Workshop RAW 2007*, March 26-27, 2007, held in conjunction with the *IEEE International Parallel and Distributed Processing Symposium (IPDPS 2007)*, Long Beach California, USA.

### **Other Scientific Reports (National Conferences, Conferences without Peer-review, etc.)**

Kunert, K., M. Jonsson, and A. Böhm, "AWG-based optoelectronic router supporting both guaranteed and best-effort QoS traffic", *Proc. Swedish National Computer Networking Workshop (SNCNW'2005)*, Halmstad, Sweden, Nov. 23-24, 2005.

Fan, X. and M. Jonsson, "Admission control for switched real-time Ethernet – scheduling analysis versus network calculus," *Proc. of the 3rd Swedish National Computer Networking Workshop (SNCNW'2005)*, Nov. 23-24, 2005, Halmstad, Sweden.

Wang, B, M. Jonsson, and X. Fan, "TDMA scheduling via fat-tree network with real-time many-to-many communication," *Proc. of the 8th biennial SNART Conference on Real-Time Systems (Real-Time in Sweden – RTiS'05)*, Skövde, Sweden, Aug. 16-17, 2005.

Kunert, K., A. Böhm, and M. Jonsson, "Fibre-optic AWG-based real-time networks," *Proc. of the 8th biennial SNART Conference on Real-Time Systems (Real-Time in Sweden – RTiS'05)*, Skövde, Sweden, Aug. 16-17, 2005.

Svensson, B., D. Johnsson, A. Åhlander, K. Lind, and M. Weibull, "Stream processor architectures," *CEPA 2 Micro-electronics Workshop*, Brussels, Belgium, 15-16 Mar., 2005. (8 pages)

Bilstrup, K., E. Uhlemann, E. Ström, and U. Bilstrup, "Medium access control schemes intended for vehicle communication," *3rd COST 2100 Workshop*, Duisburg, Germany, Sept. 10-12, 2007.

Jerker Bengtsson, Verónica Gaspes and Bertil Svensson, "Machine Assisted Code Generation for Manycore Processors," *Proc. of the 9th biennial SNART Conference on Real-Time Systems (Real-Time in Sweden – RTiS'07)*, Västerås, Sweden, Aug. 21-22, 2007, pp. 164-172.

Hoang, H., G. Buttazzo, and M. Jonsson, "Reducing delay and jitter in software control systems," *Proc. of the 9th biennial SNART Conference on Real-Time Systems (Real-Time in Sweden – RTiS'07)*, Västerås, Sweden, Aug. 21-22, 2007, pp. 164-172. Selected for presentation in the Best paper session.

Weckstén, M., M. Jonsson, and J. Vasell, "Derivation of implementation constraints – implementation simulation and treatment of multiple design choices," *Proc. of the 9th biennial SNART Conference on Real-Time Systems (Real-Time in Sweden – RTiS'07)*, Västerås, Sweden, Aug. 21-22, 2007, pp. 21-28.

### **Accepted for Publication in Scientific Journals (after Full-paper Peer Review)**

Gao C. and D. Hammerstrom, "Cortical models onto CMOL and CMOS – Architectures and Performance/price," to be published in the *IEEE Transactions on Circuits and Systems – I: Regular Papers, a Special Issue, Nanoelectronic Circuits and Nanoarchitectures*.

### **Accepted for Publication in Proceedings of International Scientific Conferences (after Full-paper Peer Review)**

Bilstrup, K., A. Böhm, K. Lidström, M. Jonsson, T. Larsson, L. Strandén & H. Zakizadeh "Vehicle Alert System". *Proc. 14th World Congress on Intelligent Transport System (ITS)*, Beijing, China, Oct. 9-13, 2007.

Lidström K. and T. Larsson, "Cooperative communication disturbance detection in vehicle safety systems", *Proc. 10th IEEE International. Conf. on Intelligent Transportation Systems (ITSC'07)*, Seattle, Washington, USA, Sept.30 - Oct.3, 2007.

### **Technical Reports**

Bengtsson, J, "Baseband Processing in 3G UMTS Radio Base Stations", *Research Report IDE-0629, School of Information Science, Computer and Electrical Engineering (IDE)*, Halmstad University, Sweden, 2006.

Nilsson, B., "Selecting Back-Off Algorithm in Active RFID CSMA/CA Based Medium-Access Protocols," *Research Report IDE-0767, School of Information Science, Computer and Electrical Engineering (IDE)*, Halmstad University, Sweden, 2007.

Nilsson B., L. Bengtsson, P-A. Wiberg, and B. Svensson, "The Effect of Introducing Carrier Sense in an Active RFID Protocol," *Research Report IDE-0766, School of Information Science, Computer and Electrical Engineering (IDE)*, Halmstad University, Sweden, 2007.

Böhm, A., "State of the Art on Energy-Efficient and Latency-Constrained Networking Protocols for Wireless Sensor Networks", *Research Report IDE-0749, School of Information Science, Computer and Electrical Engineering (IDE)*, Halmstad University, Sweden, 2007.

Böhm, A., "State of the Art on Network Layer Aspects for Inter-Vehicle Communication", *Research Report IDE-0748, School of Information Science, Computer and Electrical Engineering (IDE)*, Halmstad University, Sweden, 2007.

Zain-ul-Abdin, "Evolution in Architectures and Programming Methodologies of Reconfigurable Computing," *Research Report IDE-0713, School of Information Science, Computer and Electrical Engineering (IDE)*, Halmstad University, Sweden, 2007.

Bilstrup, K., "A survey regarding wireless communication standards intended for a high-speed vehicle environmen," *Research Report IDE-0712, School of Information Science, Computer and Electrical Engineering (IDE)*, Halmstad University, Sweden, 2007.

Fan X., J. Jonsson, and M. Jonsson, "Guaranteed Real-Time Communication in Packet-Switched Net- works with FCFS queuing -- Analysis and Simulations ," *Research Report IDE-0701, School of Information Science, Computer and Electrical Engineering (IDE)*, Halmstad University, Sweden, 2007.