Jens Sparsø - DTU Orbit (19/02/2018)

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Department of Applied Mathematics and Computer Science - Professor
Embedded Systems Engineering

Publications:

A Controller for Dynamic Partial Reconfiguration in FPGA-Based Real-Time Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

A resource-efficient network interface supporting low latency reconfiguration of virtual circuits in time-division multiplexing networks-on-chip
Publication: Research - peer-review › Journal article – Annual report year: 2017

Can Real-Time Systems Benefit from Dynamic Partial Reconfiguration?
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

High-level synthesis for reduction of WCET in real-time systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Timing organization of a real-time multicore processor
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

An Area-Efficient TDM NoC Supporting Reconfiguration for Mode Changes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Argo: A Real-Time Network-on-Chip Architecture With an Efficient GALS Implementation
Publication: Research - peer-review › Journal article – Annual report year: 2015

Avionics Applications on a Time-Predictable Chip-Multiprocessor
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Clock domain crossing modules for OCP-style read/write interfaces
Publication: Research › Report – Annual report year: 2016
Reconfiguration in FPGA-Based Multi-Core Platforms for Hard Real-Time Applications
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

State-based Communication on Time-predictable Multicore Processors
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Time-Predictable Communication on a Time-Division Multiplexing Network-on-Chip Multicore
Publication: Research › Ph.D. thesis – Annual report year: 2016

Time-predictable Stack Caching
Publication: Research › Ph.D. thesis – Annual report year: 2016

An Asynchronous Time-Division-Multiplexed Network-on-Chip for Real-Time Systems
Publication: Research › Ph.D. thesis – Annual report year: 2015

Interfacing Hardware Accelerators to a Time-Division Multiplexing Network-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Message Passing on a Time-predictable Multicore Processor
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Models of Communication for Multicore Processors
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

T-CREST: Time-predictable multi-core architecture for embedded systems
Publication: Research - peer-review › Journal article – Annual report year: 2015

The Argo NOC: Combining TDM and GALS
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

A Loosely Synchronizing Asynchronous Router for TDM-Scheduled NOCs
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014
A Metaheuristic Scheduler for Time Division Multiplexed Network-on-Chip
Publication: Research › Report – Annual report year: 2014

A Metaheuristic Scheduler for Time Division Multiplexed Network-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Argo: A Time-Elastic Time-Division-Multiplexed NOC using Asynchronous Routers
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

A Time-predictable Memory Network-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Open Core Protocol (OCP) Clock Domain Crossing Interfaces
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Synthesis and Layout of an Asynchronous Network-on-Chip using Standard EDA Tools
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

A 65-nm CMOS Area Optimized De-synchronization Flow for sub-V_T Designs
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

An area-efficient network interface for a TDM-based Network-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Router Designs for an Asynchronous Time-Division-Multiplexed Network-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

A Light-Weight Statically Scheduled Network-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

A Statically Scheduled Time-Division-Multiplexed Network-on-Chip for Real-Time Systems
Analytical Derivation of Traffic Patterns in Shared Memory Architectures from Task Graphs
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Behavioral Synthesis of Asynchronous Circuits Using Syntax Directed Translation as Backend
Publication: Research - peer-review › Journal article – Annual report year: 2009

COMPARISON AND CLASSIFICATION OF DESIGN BUILD PROJECTS IN DIFFERENT ENGINEERING BACHELOR PROGRAMS
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Current Trends in High-Level Synthesis of Asynchronous Circuits
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Performance Analysis of a Hardware/Software-based Cache Coherence Protocol in Shared Memory MPSoCs
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Synthesis of Topology Configurations and Deadlock Free Routing Algorithms for ReNoC-based Systems-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

A Reactive and Cycle-True IP Emulator for MPSoC Exploration
Publication: Research - peer-review › Journal article – Annual report year: 2008

E-learning support for student's understanding of electronics
Publication: Research - peer-review › Article in proceedings – Annual report year: 2008

Network Traffic Generator Model for Fast Network-on-Chip Simulation
Publication: Research - peer-review › Journal article – Annual report year: 2008

ReNoC: A Network-on-Chip Architecture with Reconfigurable Topology
Publication: Research - peer-review › Article in proceedings – Annual report year: 2008

A Scalable, Timing-Safe, Network-on-Chip Architecture with an Integrated Clock Distribution Method
Publication: Research - peer-review › Article in proceedings – Annual report year: 2007

Asynchronous design of Networks-on-Chip
A Router Architecture for Connection-Oriented Service Guarantees in the MANGO Clockless Network-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005

A Scheduling Discipline for Latency and Bandwidth Guarantees in Asynchronous Network-on-Chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005

Behavioral synthesis of asynchronous circuits
Publication: Research › Ph.D. thesis – Annual report year: 2005

Modular SoC-Design using the MANGO clockless NoC (Invited talk)
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005

Realistically Rendering SoC Traffic Patterns with Interrupt Awareness
Angiolini, F., Mahadevan, S., Madsen, J., Benini, L. & Sparsø, J. 2005 IFIP International Conference on Very Large Scale Integration (VLSI-SoC).
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005

A Channel Library for Asynchronous Circuit Design Supporting Mixed-Mode Modelling
Publication: Research - peer-review › Article in proceedings – Annual report year: 2004

A Low-Power Heterogeneous Multiprocessor Architecture for Audio Signal Processing
Publication: Research - peer-review › Journal article – Annual report year: 2004

Future Networks-on-Chip; will they be Synchronous or Asynchronous? (Invited talk)
Sparsø, J. 2004 SSocCC’04 (Swedish System on Chip Conference, Bæstad).
Publication: Research - peer-review › Article in proceedings – Annual report year: 2004

Towards behavioral synthesis of asynchronous circuits - an implementation template targeting syntax directed compilation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2004

Virtual Channel Designs for Guaranteeing Bandwith in Asynchronous Network-on-chip
Bjerregaard, T. & Sparsø, J. 2004 22nd Norchip Conference. IEEE, p. 269-272
Publication: Research - peer-review › Article in proceedings – Annual report year: 2004

Compact beamforming in medical ultrasound scanners
Publication: Research › Ph.D. thesis – Annual report year: 2003

Low power digital signal processing
Paker, O. & Sparsø, J. Jan 2003
Publication: Research › Ph.D. thesis – Annual report year: 2003
An area-efficient path memory structure for VLSI Implementation of high speed Viterbi decoders
Paaske, E., Pedersen, S. & Sparsø, J. 1991 In : Integration, the VLSI journal. 12, 2, p. 79-91
Publication: Research - peer-review › Journal article – Annual report year: 1991

An area-efficient topology for VLSI implementation of Viterbi decoders and other shuffle-exchange type structures
Publication: Research - peer-review › Journal article – Annual report year: 1991

Design of a Fully Parallel Viterbi Decoder
Publication: Research - peer-review › Article in proceedings – Annual report year: 1991

Struktureret konstruktion af digitale ASIC's
Pedersen, S. & Sparsø, J. 1991
Publication: Education › Compendium/lecture notes – Annual report year: 1991

An Area-Efficient Topology for VLSI Implementation of Viterbi Decoders and other Shuffle-Exchange Type Structures
Publication: Research - peer-review › Report – Annual report year: 1990

Experiences from the design of a large VLSI chip
Publication: Research - peer-review › Article in proceedings – Annual report year: 1990

A Fully Parallel VLSI-implementation of the Viterbi Decoding Algorithm
Publication: Research - peer-review › Report – Annual report year: 1989

A Fully Parallel VLSI-implementation of the Viterbi Decoding Algorithm
Publication: Research - peer-review › Article in proceedings – Annual report year: 1989

Design and Implementation of a full-custom single chip Viterbi decoder
Publication: Research - peer-review › Article in proceedings – Annual report year: 1989

Hardware Architecture of a Node for the LAN-DTH High Speed Token Ring
Publication: Research - peer-review › Article in proceedings – Annual report year: 1987

A POLYNET to VME-bus Interface Unit - Block diagram and principles of operation
Sparsø, J. 1986 Department of Computer Science, Technical University of Denmark.
Publication: Research - peer-review › Report – Annual report year: 1986

Hardware Architecture of a Node for the LAN-DTH High Speed Token Ring
Sparsø, J. 1986
Publication: Research - peer-review › Report – Annual report year: 1986
LAN-DTH - A Hierarchical Local Area Network based on a High Speed Optic Token Ring
Publication: Research - peer-review › Article in proceedings – Annual report year: 1986

Projects:

**Real-Time Multi-Core Communication and Synchronization**
Strøm, T. B., Schoeberl, M. & Sparsø, J.
01/09/2017 → 31/08/2019
Project: PhD

**Real-Time Multicore Systems**
Baris, O., Schoeberl, M. & Sparsø, J.
15/08/2017 → 14/08/2020
Project: PhD

**Real-Time Multicore Systems**
Baris, O., Schoeberl, M. & Sparsø, J.
15/08/2017 → 14/08/2020
Project: PhD

**Dynamic Partial Reconfiguration in FPGA based Multi-core Real-time Embedded Systems**
Pezzarossa, L., Sparsø, J. & Schoeberl, M.
15/11/2014 → 17/03/2018
Project: PhD

**Hardware/Software tradeoffs in Real-Time Multiprocessor Platforms**
01/04/2013 → 26/10/2016
Project: PhD

**Time-predictable VLIW Processor**
Abbaspourseyedi, S., Schoeberl, M., Sparsø, J., Nannarelli, A., Kirner, R. & Pedersen, R. U.
15/01/2012 → 09/12/2015
Project: PhD

**Asynchronous Network-on-Chip for Time-Predictable Multi-Core Embedded Systems**
Kasapaki, E., Sparsø, J., Schoeberl, M., Nannarelli, A., Jantsch, A. & Yakovlev, A.
01/10/2011 → 19/06/2015
Project: PhD

**Multi-objective Design Space Exploration for (re)-configurable heterogeneous Multi-ASIP SoC platforms**
01/11/2010 → 23/01/2015
Project: PhD

**Adaptability and Autonomy in Embedded Systems**
Boesen, M. R., Madsen, J., Pop, P., Sparsø, J., Codinachs, D. M. & Tempesti, G.
01/06/2008 → 28/09/2011
Project: PhD

**Models and Analyses for Embedded Systems Design**
Breking, A. W., Hansen, M. R., Madsen, J., Sparsø, J., Ravn, A. P. & Vain, J.
01/04/2007 → 02/02/2011
Project: PhD
Network-on-chip: Applikationer og topologioptimering
Stuart, M. B., Sparsø, J., Nannarelli, A., Pop, P., Jantsch, A. & Pimentel, A. D.
01/10/2006 → 30/06/2010
Project: PhD

Systemarkitekturer baseret på Network-on-Chip
Rasmussen, M. S., Sparsø, J., Karlsson, S., Madsen, J., Probst, C. W., Grahn, H. & Nurmi, J. A.
01/10/2006 → 29/09/2010
Project: PhD

Asynkrone Network-on-Chip
Stensgaard, M. B. & Sparsø, J.
01/10/2005 → 31/07/2009
Project: PhD

High performance low cost digital controlled power conversion technology
01/10/2004 → 29/08/2008
Project: PhD

Chip Area Interconnection Networks
01/09/2002 → 18/04/2006
Project: PhD

Intra-Chip Communication
Bjerregaard, T., Sparsø, J., Nannarelli, A., Ginosar, R. & Goossens, K.
01/09/2002 → 10/02/2006
Project: PhD

High-Level Synthesis of Asynchronous
Nielsen, S. F., Sparsø, J., Madsen, J., Nannarelli, A., Lavagno, L. & Peeters, A.
01/08/2001 → 06/06/2005
Project: PhD

Integrated circuits in medical ultrasound
Tomov, B. G., Jensen, J. A., Bruun, E., Sparsø, J., Sørensen, H. B. D., Roth, O. & Öwall, V.
15/11/1999 → 22/08/2003
Project: PhD

Types for DSP Assembler Programs
Larsen, K., Sparsø, J., Sestoft, P., Nielsen, H. R., Hankin, C. & Morrisett, G.
01/04/1999 → 26/02/2004
Project: PhD

Low Power Digital Signal Processing
Paker, O., Sparsø, J., Madsen, J. & Piguet, C.
01/09/1998 → 21/01/2003
Project: PhD

PATMOS'98 workshop
Sparsø, J., Madsen, J. & Stassen, F.
01/01/1998 → 30/10/1998
Project
Center for Microinstruments (CfM)
Bouwstra, S., Hansen, O., Jonsmann, J., Vestergaard, R. K., Najafi, K., Ginnerup, M., Crary, S., Staunstrup, J. & Sparsø, J.
01/12/1997 → 01/01/2003
Project

Thomas B. Thrige Center for Microinstruments
01/04/1997 → 31/12/2003
Project

Graduate School in Microelectronics
01/01/1997 → 31/12/2001
Project

Teknologiudvikling for mikroakruaturer
Jonsmann, J., Bouwstra, S., Sigmund, O. & Sparsø, J.
01/07/1996 → 17/07/2000
Project: PhD

Integriert hardware/software kode-generering i Co-design
01/08/1995 → 07/02/2000
Project: PhD

High Speed Frame Synchronization and Viterbi Decoding
Larsen, K. J., Justesen, J., Andersen, J. D., Paaske, E., Garde, T., Bach, T. B., Pedersen, S. & Sparsø, J.
01/01/1995 → 31/10/1998
Project

Testing Techniques for Self-Timed Circuits
Jianwei, L. & Sparsø, J.
01/09/1994 → 23/09/1994
Project: PhD

Kredsløbsteknikker for Asynkrone Systemer
Nielsen, L. S., Sparsø, J., Skelboe, S. & Staunstrup, J.
01/02/1994 → 09/09/1997
Project: PhD

Designmetoder og tekniker for højhastigs VLSI-kredse
Midtgaaard, J., Olesen, O., Sparse, J. & Svensson, C.
01/02/1993 → 14/01/1997
Project: PhD

Asynchronous Circuit Design
Sparsø, J., Nielsen, S. F., Mahadevan, S., Bjerregaard, T. & Madsen, J.
01/01/1992 → 01/01/9999
Project