

Simon Holmbacka. PhD – Publications

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THESIS

Simon Holmbacka: *Energy Aware Software for Many-Core Systems*, Faculty of Science and Engineering, Åbo Akademi University, 2015, Turku, Finland

PUBLICATIONS – JOURNALS (6)

Enida Sheme, Simon Holmbacka, Sébastien Lafond, Dražen Lučanin, Neki Frashëri *Feasibility of Using Renewable Energy to Supply Data Centers in 60 Degrees North Latitude*, Elsevier journal of Sustainable Computing, Elsevier, 2017

Simon Holmbacka, Dražen Lučanin, Ilia Pietri, Ivona Brandic, Johan Lilius, Rizos Sakellariou: *Performance-Based Pricing in Multi-Core Geo-Distributed Cloud Computing*, IEEE Transactions on Cloud Computing, IEEE 2016

Simon Holmbacka, Jörg Keller, Patrick Eitschberger, Johan Lilius: *Accurate Energy Modeling for Many-Core Static Schedules with Streaming Applications*, Microprocessors and Microsystems, Elsevier, 2016

Simon Holmbacka, Erwan Nogues, Maxime Pelcat, Sébastien Lafond, Daniel Menard, Johan Lilius: *Energy-Awareness and Performance Management with Parallel Dataflow Applications*, The Journal Signal Processing Systems. Springer US, 2015

Jose-Luis Gutiérrez-Rivas, Simon Holmbacka, Miguel Míndez-Macías, Wictor Lund, Sébastien Lafond, Johan Lilius, Javier Díaz-Alonso: *Safe Motor Controller in a Mixed-Critical Environment with Runtime Updating Capabilities*, Journal of Universal Computer Science, 2015

Simon Holmbacka, Mohammad Fattah, Wictor Lund, Amir-Mohammad Rahmani, Sébastien Lafond, Johan Lilius: *A Task Migration Mechanism for Distributed Many-Core Operating Systems*, The Journal of Supercomputing. Springer US, 2014

PUBLICATIONS –
PROCEEDINGS (24) Patrick Eitschberger, Simon Holmbacka, Jörg Keller *Trade-off between Performance, Fault Tolerance and Energy Consumption in Duplication-based Taskgraph Scheduling*, 31st International Conference on Architecture of Computing Systems, 2018, Braunschweig, Germany

Enida Sheme, Sébastien Lafond, Dorian Minarolli, Elinda Kajo Mece, Simon Holmbacka *Battery Size Impact in Green Coverage of Datacenters Powered by Renewable Energy: A Latitude Comparison*, The 6th International Conference on Emerging Internet, Data & Web Technologies, 2018, Tirana, Albania

Simon Holmbacka, Jörg Keller *Workload Type-Aware Scheduling on big.LITTLE Platforms*, Proceedings of the 17th International Conference on Algorithms and Architectures on Parallel Processing, 2017, Helsinki, Finland

Jörg Keller, Patrick Eitschberger, Simon Holmbacka *Hardware and Software support for transposition or bit matrices in high-speed encryption* Proceedings of the 17th International Conference on Algorithms and Architectures on Parallel Processing, 2017, Helsinki, Finland

Simon Holmbacka, Robert Müller: *epEBench: True Energy Benchmark*, 25th Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2016, St Petersburg, Russia

Hergys Rexha, Simon Holmbacka, Sébastien Lafond: *Core Level Utilization for Achieving Energy Efficiency in Heterogeneous Systems*, 25th Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2016, St Petersburg, Russia

Georgios Georgakarakos, Simon Holmbacka and Johan Lilius: *Analysis on Scalability and Energy Efficiency of HEVC Decoding Using Task-Based Programming Model* The 2016 Conference on Design & Architectures for Signal & Image Processing, 2016, Rennes, France

Enida Sheme, Neki Frashëri, Simon Holmbacka, Sébastien Lafond, Dražen Lučanin: *Datacenters Powered by Renewable Energy: A Case Study for 60 Degrees Latitude North* Seventh symposium on green networking and computing (SGCN 2016), 2016, Split, Croatia

Simon Holmbacka, Jörg Keller, Patrick Eitschberger, Johan Lilius: *Accurate Energy Modelling for Many-Core Static Schedules* Proceedings of the 23rd International Euromicro Conference on Parallel, Distributed and Network-based Processing, 2015, Turku, Finland

Simon Holmbacka, Johan Lilius: *Fitness: A Metric Describing the Efficiency of Microarchitectural Utilization*, Eight Nordic Workshop on Multicore Computing, 2015, Copenhagen, Denmark

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Performance Monitor Based Power Management for big.LITTLE Platforms* HiPEAC Workshop on Energy Efficiency with Heterogeneous Computing, 2015, Amsterdam, Netherlands

Simon Holmbacka, Erwan Nogues, Maxime Pelcat, Sébastien Lafond, Johan Lilius: *Energy Efficiency and Performance Management of Parallel Dataflow Applications* [BEST PAPER] The 2014 Conference on Design & Architectures for Signal & Image Processing, 2014, Madrid, Spain

Erwan Nogues, Simon Holmbacka, Maxime Pelcat, Daniel Menard, Johan Lilius: *Power-Aware HEVC Decoding with Tunable Image Quality* 2014 IEEE Workshop on Signal Processing Systems, 2014, Belfast, UK

Simon Holmbacka, Johan Lilius: *Evaluation of CPU Hotplug Latency on Multi-Core ARM Chips*, Seventh Swedish Workshop on Multicore Computing, 2014, Lund, Sweden

Fredric Hällis, Simon Holmbacka, Wictor Lund, Robert Slotte, Sébastien Lafond and Johan Lilius: *Thermal Influence on the Energy Efficiency of Workload Consolidation in Many-Core Architecture*, Proceedings of the 24th Tyrrhenian International Workshop on Digital Communications, 2013, Genoa, Italy

Simon Holmbacka, Wictor Lund, Sébastien Lafond, Johan Lilius: *Lightweight Framework for Runtime Updating of C-Based Software in Embedded Systems*, 5th Workshop on Hot Topics in Software Upgrades, 2013, San Jose, US

Simon Holmbacka, Wictor Lund, Sébastien Lafond, Johan Lilius: *QoS Manager for Energy Efficient Many-Core Operating Systems*, 21st Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2013, Belfast, UK

Simon Holmbacka, Dag Ågren, Sébastien Lafond, Johan Lilius: *Task Migration for Dynamic Power and Performance Characteristics on Many-Core Distributed Operating Systems*, 21st Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2013, Belfast, UK

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Power Optimized Many-Cores with User Centric Notion of Parallelism*, Sixth Swedish Workshop on Multicore Computing, 2013, Halmstad, Sweden

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Towards Increasing Energy Scalability in Many-Core Systems*, 1st ASPLOS Doctoral Workshop, 2012, London, UK

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *A PID-Controlled Power Manager for Energy Efficient Web Clusters*, International Conference on Cloud and Green Computing, 2011, Sydney, Australia

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Power Proportional Characteristics of an Energy Manager for Web Clusters*, 11:th International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation, 2011, Samos, Greece

Simon Holmbacka, Jens Smeds, Sébastien Lafond, Johan Lilius: *System Level Power Management for Many-Core Systems*, uPM2SoC workshop, DATE '11 Conference, 2011, Grenoble, France

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Generic QoS Manager for Many-Core Service-Based Operating Systems*, Fourth Swedish Workshop on Multicore Computing, 2011, Linköping Sweden

PUBLICATIONS – Simon Holmbacka Fredric Hällis, Wictor Lund, Sébastien Lafond and Johan Lilius: *Energy and Power Management, Measurement and Analysis for Multi-Core Processors TUCS Technical Reports 1117*, 2014, Turku
NON-PEER- Centre for Computer Science
REVIEWED

REGISTERED Simon Holmbacka (100%): *Power management with performance monitoring for computer systems*
INVENTIONS Coordinator: Olle Lagerroos, June 2015, Åbo Akademi University

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