

ARTES

Inbjuder till ett endagsseminarium i Linköping den 23 augusti 1999

Dependable Real-Time Systems and Parallel Computer Architectures

med 2 ledande professorer Hermann Kopetz från Wien och Erik Hagersten från Uppsala

Missa inte detta tillfälle att träffa två tongivande forskare!
Seminariet vänder sig till såväl industri som högskola.

Hermann Kopetz

**Design of Dependable Real-Time Systems in
the Time-Triggered Architecture.**

Outline

Hard real-time versus soft real-time;
composability;
the role of the communication system;
the time-triggered architecture;
the TTP/C system bus and
the TTP/A sensor bus;
temporal firewalls;
a two level design methodology;
fault hypothesis;
fault-tolerance strategies;
importance of replica determinism;
system validation;
issues in certification.

Abstract

The cost-effective development of flexible dependable automation systems based on commercial off-the-shelf (COTS) mass-produced hardware and software components is a great challenge in the industrial automation and embedded system market. For dependable embedded real-time systems the available components, the systems-on-a-chip (SOCs), will be determined by the mass-market of dependable automotive electronics. In 1999 the world's leading semiconductor manufacturer of automotive chips, Motorola, has decided to develop and mass-produce SOCs for high-dependability real-time applications in cars according to the time-triggered architecture (TTA). This seminar will focus on the systematic design of dependable real-time systems in the time-triggered architecture.

Erik Hagersten

Parallel architectures today and tomorrow.

Outline

Multiprocessor (MP) application areas;
Overview of memory models;
Overview of cache coherence techniques;
Classification of different MP architectures;
Servers -- more than just performance: RAS;
Overview of commercially available architectures
Case studies: small SMP, large SMP, self-optimizing COMA/NUMA, multi-facial;
The market/economics of MP technologies.

Abstract

Multiprocessor architecture is a classic research topic. New innovative architectures have been proposed over the past 40 years. Up until seven years ago small "start-up" companies, such as Thinking Machines, Kendall Square Research, Meiko, and Sequent, tried to make a living in the fragile and technology-savvy MP market. About five years ago, new application areas made multiprocessors very attractive in the commercial marketplace. Today, large companies like IBM, HP and Sun Microsystems are thriving in this market while the "start-ups" all have disappeared.

This lecture will give an in-depth overview of several important MP techniques developed over the years. We will show pros and cons of the techniques and make a rough categorization of some existing commercial products. We will also take a snap-shot of todays research topics and trends. Finally, we will analyze what happened in the market and try to predict where multiprocessor research and products are heading in the future.

Vänd på bladet för mer info

ARTES is a national Swedish strategic research initiative in Real-Time Systems supported by the Swedish Foundation for Strategic Research (SSF). ARTES forms a network of academic and industrial groups, with the ambition to strengthen the Real-Time Systems competence nationwide. The main focus of ARTES is on graduate education and cooperation between industry and academia. ARTES is organised as a research program at Uppsala University.

This seminar is a part of the Real-Time Week in Linköping August 23-27 1999. More info about ARTES and the Real-Time Week can be found at <http://www.docs.uu.se/artes/>

Hermann Kopetz

is professor for Real-Time Systems at the Vienna University of Technology, Austria. Dr. Kopetz' research interests focus at the intersection of real-time systems, fault-tolerant systems, and distributed systems. He is the chief architect of the Time-Triggered Protocol (TTP) for distributed fault-tolerant real-time systems. In the last few years, Dr. Kopetz and his research group work in the field of automotive electronics. He is presently involved in two large European ESPRIT projects where his pioneering work on time-triggered architectures is being transferred to the automotive industry. Dr. Kopetz has published more than 100 papers and patents in the fields real-time computing, distributed computing and fault tolerance. Dr. Kopetz is a Fellow of the IEEE and a member of Austrian Academy of Science.

Kostnad:

2000 kr/person (doktorander
1000 kr) inklusive lunch, kaffe
och dokumentation.
Middag ingår i priset.
Alla priser är exkl moms.

Tider:

9.30 samling ,
10.00 - 14.00 Hermann Kopetz
14.00 - 17.30 Erik Hagersten.
18.00 Middag

Anmälan:

Senast 13 augusti 1999,
via internet: (www.docs.uu.se/artes/),
e-post (artes@docs.uu.se),
fax 018-550 225, telefon 018-471 6847 eller
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Välkomna önskar
Hans Hansson och Roland Grönroos



Sänd till Fax 018-550 225 eller ARTES, Box 325, 751 05 Uppsala. senast 99-08-13.

Jag anmäler mig till: **Real-Time Systems in small and big applications** 99-08-23 i Linköping.
Kostnad 2000 kr, 1000 kr (jag är doktorand) för seminariet. Jag vill även delta i middagen .

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