

## FOREWORD

Welcome to the DATE 08 Conference Proceedings. DATE combines the world's favourite electronic systems design conference and Europe's leading international exhibition for electronic design, automation and test, from system level hardware and software implementation right down to integrated circuit design.

The DATE 08 event features a technical program with 77 sessions covering the latest developments in system design and embedded software, IC design/test methodologies and EDA tools, together with an exhibition with the leading EDA, silicon and IP providers showing their new products and services. Challenges that you all face or soon will face in your daily practice are the increasing design complexity of highly integrated systems, the introduction of reconfigurability and embedded software, and the control of power and variability in nanometer IC designs. All these issues will be addressed in this year's DATE event.

For the 11<sup>th</sup> successive year DATE has prepared an exciting technical programme, with the help of the more than 400 members of the Technical Programme Committee, who dedicated their time to thoroughly review the 839 submissions in 37 topics, ranging from system level down to circuit design and covering all the most relevant application domains. The submissions are organised in 4 major areas:

**D** – Design Methods, Tools, Algorithms and Languages  
**A** – Application Design  
**T** – Test Methods, Tools and Innovative Experiences  
**E** – Embedded Software

After a thorough review and selection process (with an average of 5 reviews per paper), finally 198 regular papers were selected for presentation at the conference. Additionally, there are 46 Interactive Presentations that are organised in 5 IP sessions. Together with the invited special sessions (panels, embedded tutorials and hot topic sessions), this has resulted in a **high-quality technical program**. The technical program provides a wide but high-quality coverage of design, design automation and test topics, from the system level to the integrated circuit level. Compared with previous years, submissions in the Embedded Software track has increased by 50%, showing a clear trend towards a comprehensive system design focus with integrated hardware and software solutions. DATE has established itself firmly as a true Electronic System Design Conference.

This year the conference is held in Germany, at the ICM in Munich and spans an entire working week from Monday March 10 to Friday March 14. On Monday, eleven **pre-conference tutorials** will be given. The three-full day tutorials cover topics of great interest for system design. The first tutorial deals with techniques to automatically realising embedded system from high-level functional models. The second tutorial addresses the different issues related to communication based design and architectures in automotive electronic systems. The third tutorial discusses several key concepts on system-level design and application mapping for wireless and multimedia MPSoC architectures. Furthermore, eight half-day tutorials are also given, which cover a wide spectrum of topics on specification, modelling, design and test.

The main conference opens on Tuesday March 11, with two very interesting and complementary **keynote speeches**. Dominique Vernay, Chief Technical Officer for Thales, will talk about the challenges of embedded systems design, and Giovanni de Micheli, Professor at EPFL, will present his views on designing micro/nano systems for a safer and healthier tomorrow. On the same day, the **Executive Track** offers a series of business panels with executives discussing hot topics in design: the perils of 45 nanometers, the changes in EDA strategies from IDM, to fablite to fabless, and embedded systems level design strategies.

DATE 08 will again offer two specific days related to special themes. On Wednesday March 12, a special full-day track is devoted to **Automotive Electronics—Software and Architecture**. This special-day track will focus on the challenges faced by the automotive supply chain with particular attention to system and software architecture design. It provides a comprehensive analysis of the evolution of automotive architectures, including ECUs, sensors and communication standards and discusses how new methods, tools and standards for interoperability and component-based design can deal with the increasing complexity of software systems and their need for reliability and guaranteed timely behaviour. In addition, it addresses to what degree existing standards, including AUTOSAR and FLEXRAY and model-based development, can support the development of safety and time-critical software.

On Thursday March 13, a second special full-day track focuses on **Dependable Embedded Systems**. This track will address both conceptual and applied issues for design, analysis and validation of dependable embedded systems. The utility of embedded systems and services is based, in large part, on our depending on their sustained functionality in spite of the encountered operational or malicious disruptions. As the number of transient and also permanent disruptions (given the decreasing device geometries, higher device density, lower voltage latching, faster clocks etc) is expected to

increase substantially, this will not only be a key issue for the hardware community but also the systems community in general. Solutions using a combination of hardware and software might be more effective than hardware-only or software-only solutions. This track focuses on both conceptual and applied issues for design, analysis and validation of dependable embedded systems.

Besides these special tracks, the main conference is organized in six parallel tracks of sessions, three devoted to design methods, tools, algorithms and languages, one to application design, one to test methods, tools and innovative experiences, and finally one to embedded software. The presentations of the selected regular papers in these parallel tracks are complemented by nine **Special Sessions** and two **Invited Industrial Sessions**. The special sessions are organized in the form of panels, hot topics, and embedded tutorials. The topics to be covered include quantitative evaluation for embedded systems design, design and manufacturing at 32 and 22nm, software for wireless networked embedded systems, test challenges for low power devices, quantitative productivity measurement in IC design, and 3D Integration. The two invited industrial sessions deal with industrial system designs in transportation and information technologies. To emphasise that DATE is the major event for the designers, DATE 08 features also invited sessions where Europe's famous consumer industry presents their best designs and design practices.

Friday March 14 is the day for the **DATE workshops**. DATE 08 offers workshops on current and emerging important issues in design, test, EDA and software to complement the regular conference. They provide a unique opportunity for the various research and design communities to spend a day discussing the latest and the best, sharing their experiences and visions. This year's workshop program includes eight workshop themes. Four workshops are related to software engineering, ranging from dependable software to modelling, analysis and development tools. Four other workshop themes cover a variety of topics such as the impact of process variations on design and test, the merging world of Nano-Electro-Mechanical Systems, new directions in high level synthesis, and heterogeneous reconfigurable hardware. Each workshop features presentations, invited or submitted, from highly distinguished academic and industrial researchers.

Finally, throughout the conference days, DATE offers a comprehensive overview of commercial design and verification tools in its large exhibition hall. Exhibitors include EDA vendors, silicon, FPGA and IP providers showing their new products and services. In addition, there is an **Exhibition Theatre** featuring talks from engineering managers of the leading electronic manufacturers on first-hand design experiences of commercial EDA tools.

New this year is the **European projects village** where different European and large government funded projects will be able to show their ongoing research and results to the design community and have the opportunity for internal meetings and discussions.

The DATE week will be also an opportunity for students and universities to show their research work, through the PhD Forum on Monday evening and the University Booth where hardware and software demonstrations will be shown by different universities on a rotation schedule.

The DATE 08 event's program will be particularly attractive to industrial designers, at analog, IC, FPGA and embedded system level, as well as software designers, to researchers and academics as well as to design managers, and an increasing attendance is expected.

We therefore invite you to take full advantage of the many opportunities offered to you by DATE 08, to extend your knowledge and/or business in electronic system's design and to exploit the abundant networking possibilities offered to socialise with colleagues, including fringe meetings and a memorable social party with bands and dancing. We hope that you will all enjoy the DATE 08 Conference and Exhibition.

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