

IFIP WORKING GROUP 10.5

REPORT OF ACTIVITIES AUGUST 2002 - JULY 2003

1. Sponsored events

DIPES'2002 – Workshop on Distributed and Parallel Embedded Systems, sponsored by the WG and organized by SIG-ES, was held in August 2002, as a special track of the IFIP World Congress in Montreal, Canada.

Next sponsored events will be:

- VLSI-SoC'03 – 12th International Conference on Very Large Scale Integration, which is the flagship event of WG 10.5, to be held in Darmstadt, Germany, from December 1st to 3rd 2003; and
- CHARME'2003 – 12th Advanced Research Working Conference on Correct Hardware Design and Verification Methods, which is organized by SIG-CHARME, to be held in L'Aquila, Italy, from October 21st to 24th 2003.

2. In-cooperation events

FDL'2002 - Forum on Design Languages, was held in Marseille, France, from September 23rd to 27th 2002. It has been organized by ECSI and co-sponsored by WG 10.5. Papers have been published on a CD-ROM.

SBCCI'2002 - Symposium on Integrated Circuits and Systems Design, was held in Porto Alegre, Brazil, from September 9th to 13th 2002. It has been sponsored by SBC – Brazilian Computer Society and SBMICRO – Brazilian Microelectronics Society and co-sponsored by WG 10.5. The proceedings have been published by IEEE Computer Society Press.

IP-BASED DESIGN, the International Workshop on IP-based SoC Design, was held in Grenoble, France, from October 30th to 31th 2002. It has been organized by INPG and Design & Reuse and co-sponsored by WG 10.5. Proceedings have been published by the local organizers and distributed to the participants.

DATE'2003 - Design, Automation and Test in Europe, was held in Munich, Germany, from March 3rd to 7th 2003. It has been co-sponsored by the European Design and Automation Association, the EDA Consortium, the IEEE Computer Society - TTTC, ECSI, RAS and ACM SIGDA. Proceedings have been published by the IEEE Computer Society Press.

ACSD – International Conference on Application of Concurrency to System Design, was held in Guimarães, Portugal, from June 18th to 20th 2003. It has been co-sponsored by IFIP WG 10.5 and SIG-ES and OE/CEI - Colégio de Engenharia Informática da Ordem dos

Engenheiros Portuguesa. It has been held in cooperation with FME - Formal Methods Europe and EU ACiD-WG. Proceedings have been published by the IEEE Computer Society Press.

All these events have been co-sponsored by Working Group 10.5 without financial involvement.

Next in-cooperation events in 2003 will be:

- SBCCI, São Paulo, Brazil, September 8th to 11th 2003
- FDL, Frankfurt, Germany, September 23th to 26th 2003
- CODES-ISSS, Newport Beach, USA, October 1st to 3rd 2003 (with financial involvement)
- IP-BASED DESIGN, Grenoble, France, November 13th to 14th 2003

3. Meetings

Meetings have been held in Munich, on March 7th 2003, during the DATE conference, and in Irvine, on June 6th 2003, during the DAC conference. Next meeting is scheduled for Darmstadt, in December 2003, during the WG-owned VLSI-SoC conference.

4. Special Interest Groups

The Working Group has two Special Interest Groups attached to it: the Special Interest Group on "Embedded Systems" (SIG-ES) and the Special Interest Group on "Formal Design and Verification Methods for Correct Hardware-like Systems" (SIG-CHARME).

The creation of a Special Interest Group on "Embedded Systems" (SIG-ES) has been approved after consideration on previous regular meetings and subsequent electronic discussion. It will be responsible for the organization of the DIPES conference ("Distributed and Parallel Embedded Systems"). The creation of SIG-ES has been submitted to TC10 for consideration. The SIG chair is Bernd Kleinjohann, from C-Lab, Germany. Although formally attached to WG 10.5, SIG-ES will be jointly sponsored by Working Groups 10.3 and 10.4.

Reports from SIG-ES and SIG-CHARME are appended to this report.

5. Changes of membership

Tiziana Margaria, from the University of Dortmund (Germany), has been approved as new member during the regular meeting in Munich. Ganesh Gopalakrishnan, from the University of Utah (USA) resigned from the Working Group.

The WG has now 65 members, with the following distribution:

- North America - 21
- Europe - 33
- Asia / Pacific - 9
- South America - 2

6. Aims and scope

The WG meeting in Munich approved new Aims and Scope. The new text for the Aims is as follows:

Electronic system design demands a tight integration on a very large profile of knowledge and skills ranging from hardware and software system architecture to semiconductor physics.

Functionality of complex embedded or stand-alone systems, to be applied in areas such as general-purpose computing, telecommunications, automotive, entertainment, and multimedia, may be realized by various combinations of analog and digital hardware and software parts.

Systems can be implemented by single or multiple integrated circuits and software modules that can be either of special purpose, programmable or reconfigurable.

The working group aims at providing a forum amongst creative experts to explore problem areas and solutions for the design of such complex electronic systems and also disseminating the solutions to a broader industrial and educational sphere.

Text for the Scope is as follows:

The Working Group is interested in a broad range of topics related to the design and engineering of heterogeneous systems, containing hardware, software, and even mechanical parts.

- System Design Methods
- Embedded Systems
- Modeling and Specification
- Design Validation
- Formal Methods in Design
- Synthesis
- Design Environments
- Reconfigurable Computing
- VLSI Systems and Applications
- Physical Design
- Test and Testability
- Power-aware Design
- Analog and Mixed-Signal Systems
- Fundamental CAD Algorithms

7. New activities

A Working Group PhD forum will be organized for the first time at the next VLSI-SoC conference in Darmstadt, Germany, in December 2003. Funds are being requested from TC 10 and IFIP to support participation of PhD students from all continents.

WG members expressed interest in educational activities. Presentations from interested members in this topic have been offered during the regular meeting in Munich, in March 2003. A new Workshop in Education, in the context of electronic systems, is being proposed to be held as a special track of the next IFIP World Congress in Toulouse, chaired by Carlos Delgado-Kloos. Support and co-sponsorship from TC 3 will be asked for.

The WG also intends to launch a sequence of workshops entitled Frontiers. These will be very informal workshops on topics of future relevance, with invited speakers from academia and industry, to be held together with the WG regular meetings. Goal of these workshops will be to investigate future challenges in the field. The first workshop is planned for Darmstadt, in December 2003, and the subject shall be Automotive Electronics.

8. Officers

Officers have not changed in this period. Chair is Flávio R. Wagner (UFRGS, Brazil). Three vice-chairs represent the three continents – Nikil Dutt (Irvine, USA), Masaharu Imai (Osaka University, Japan), and Eugenio Villar (Univ. of Cantabria, Spain).

9. Home-page

The WG 10.5 home-page is located at
<http://www.inf.ufrgs.br/ifip10-5/real-index.html>

Appendix A. Report from SIG-ES – Special Interest Group on "Embedded Systems"

In 2003 the IFIP SIG-ES had one official meeting on May 14th in Hakodate, Japan, during ISORC 2003. At this meeting, Professor Guang Gao (University of Delaware, USA) and Professor Hermann Kopetz (TU Wien, Austria) were elected as vice chairmen for SIG-ES representing IFIP WG 10.3 and WG 10.4. They accepted their chairs. As chair, Dr. Bernd Kleinjohann (C-LAB/University of Paderborn, Germany) was confirmed. Furthermore some new members were affiliated.

SIG-ES is also involved in the IFIP WCC 2004 with the DIPES (Working Conference on Distributed and Parallel Embedded Systems), for which organization is starting now. Chair persons are: Bernd Kleinjohann (general chair), Guang Gao (PC co-chair), Hermann Kopetz (PC co-chair). A first call for paper can be downloaded from www.c-lab.de/dipes/.

Appendix B. Report from SIG-CHARME – Special Interest Group on "Formal Design and Verification Methods for Correct Hardware-like Systems"

* An ad hoc meeting of SIG-CHARME occurred at the FMCAD 2002 Conference in Portland Oregon on November 6, 2002. Attendance was not recorded, nor was there a formal agenda. Discussion topics included the pending issue of copyright for the CHARME conference proceedings, financial status, mission and membership.

* Tiziana Margaria was nominated and accepted for membership in WG10.5 at the March, 2003 meeting. She is now the primary SIG-CHARME delegate to the working group.

* Preparations are underway and on schedule for the CHARME 2003 conference, to be held at L'Aquila on 21-24 October. Paper selection is complete. Sixty-five papers were submitted. Twenty-four papers were accepted for regular presentation and an additional eight were accepted for abbreviated presentation. The submission count is higher than in 2001, are at the high end of the historical range. Quality remains high, and acceptance rates remain appropriate to the mission of ground breaking research. Sponsorship remains barely sufficient.

* SIG-CHARME has a number of ongoing discussions conducted via an electronic mail list. Unfortunately, much of the discussion activity in the last two years has been predominantly reactive, rather than proactive, leaving less energy and enthusiasm for forward-looking agenda items. In addition to paper reviewing, three business items demanded timely resolution:

- 1) Establishment of a charter in 2001-2002.
- 2) Relocating CHARME 2003, due to the situation in the Middle East
- 3) Resolving a copyright conflict between Springer LNCS and IFIP.

* Other, ongoing discussion threads include:

a) Education. There have been preliminary discussions about organizing a Summer or Winter School in verification and applied formal methods. One suggestion is to organize it in

the context of the Schloss Dagstuhl. There has also been mention of a one-day workshop on educational issues to be held in conjunction with a future CHARME Conference.

b) Dissemination. Copyright status for the CHARME 2003 proceedings was resolved but a long-term agreement is needed.

c) Mission, representation and membership. Generally, areas of historical interest for SIG-CHARME have expanded in practice, and the organization needs to adapt to these changes. In particular, a new generation of leaders is sought to drive these changes.

d) Traditional interactions with regular conferences, particularly FMCAD, require continued maintenance.

e) Finance. SIG-CHARME needs to establish a financial entity, if only to streamline its conference organization functions.

SIG-CHARME information and member list can be found at
<http://www.cs.indiana.edu/~sjohnson/sig-charme/>