IEEE DATC Newsletter

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Message from the Chair

As the second quarter of 2008 ensues, we look forward to a sustained level of activity and visibility this year. Our online newsletter includes unique summaries of emerging conferences around the world, "first-view" opinion in emerging and / or technology-market topics, and summaries of our own meetings and events. Our collaboration with our Society and Council remains strong, including helping our CEDA Council with a new worldwide chip design certification program and emerging online activities. Finally our web site keeps improving thanks to our Online Chair Joe Damora.

Please see more details below in our online newsletter, with instructions at the end if you want to submit contributions. We look forward to a 2008 year full of growth and excitement.

Summary of Electronic Design Processes Workshop 2008

By *Patrick Madden*

The Electronic Design Processes workshop was held in Monterey on April 17/18, at the traditional site, the Beach Resort Hotel. There were a total of 27 invited talks, on topics ranging from software development for multi-core applications, to ESL and next-generation EDA tools.

The opening session on multi-core attracted considerable attention, featuring talks from Intel, Tensilica, MIPS, and ARM. Press coverage of the event was good, with both Richard Goering from SCDSource, and Gabe Moretti from Gabe on EDA in attendance. Goering said in his weekly news letter, "Of these, EDP is probably the least familiar to engineering audiences – and it's by far the smallest in terms of attendance. But if you want to hear about the latest in design automation technology in an interactive, informal setting, it's the place to be. This year's EDP workshop had a strong focus on the challenges of multicore development and programming, and two articles below cover some insightful and provocative sessions on that topic."

The keynote talk, "Parallel Computing: Can We Please Do it Right?" by Tim Mattson, was quite spirited. Mattson, and a handful of colleagues at Intel, are approaching the switch to multi-core with a great deal of caution. This talk raised eyebrows, with Mattson noting that there are more than three hundred failed parallel programming languages, as well as scores of failed parallel architectures. The central theme was that the industry should learn from past experience, and not repeat the same mistakes. A variation of this talk will be presented at DAC later this year.

The dinner talk at EDP featured a panel discussion on the state of the EDP press, with Richard Goering, Gabe Moretti, and Steve Leibson, and was moderated by Patrick Groeneveld. There was spirited debate, and the general consensus was that this was interesting and entertaining.

Attendance was about 30 paid attendees, plus the press. We hope to raise the visibility of the workshop for next year, in order to increase attendance and to attract paper submissions to complement the set of strong invited speakers.

Summary of EDA Standards Session at EDPS'2008

By *John Darringer*

At our flagship event, the Electronic Design Processes Workshop in Monterey, CA, a special panel session was held on "The Future of EDA Standards". A summary of this session ensues for our DATC newsletter readers.

It seems that EDA standards are in the news more frequently these days, sometimes enabling a step forward in the design process and sometimes as a point of contention between competitors. At the Electronic Design Processes Symposium, April 17-18 in Monterey, California, there was considerable discussion over the roles of the IEEE and the many independent consortiums in developing today's EDA standards. At the Panel on "The Future of EDA Standards", everyone applauded the openness and inclusiveness of the well established IEEE process, while some panelists pointed out the need for smaller more focused groups to get standards started and develop supporting infrastructure. While each group had specific reasons for their approach, there was still plenty of room for inter-group and inter-standard cooperation

John Darringer from IBM Research and President of the IEEE Council on EDA chaired the panel session. He explained that the Council is looking for ways to improve the process of creating effective EDA standards and that the input from the session would be used to guide the Council's next steps.

Gary Delp, Distinguished Engineer at LSI and VP and Technical Director of SPIRIT Consortium, talked abut the focus of SPIRIT and it 100 members on creating standards to enable repeatable design flows and automated use of third-party IP blocks. Their process includes transferring working standards, such as IP-XACT to the IEEE for final approval and dissemination.

Jake Buurma, VP of West Coast operations at Si2, talked about the lessons learned at Si2 in working with companies to develop standards that have impact. He sited the demonstration at the recent OpenAccess conference of tools from different companies working together to build a 1B transistor quad core microprocessor chip. Jake said "Creating standards is hard; not having them is harder. Standards are hard to do right, but they remain essential drivers of business and innovation". He recommended that any standards development group be clear about their business objectives not ignore the consequences of failure.

Victor Berman, CEO of Improv and chair of the IEEE Design Automation Standards Committee, contrasted the Promise and Reality of IP-based design and stated that further standard development is needed to close this gap. He stated that creating functional standards such as 802.11 seems to work well, but there is a need to improve methodology standard development. "We need more industrial participation in establishing a roadmap and prioritization to guide development".

Rohit Kapur, a scientist at Synopsys and chair of Test Technology Standards Committee, described how standards are created in the test area and the need for close ties with the test community to understand their issues and promote the new solutions enabled by emerging test standards. Rohit emphasized the need for active management. He gave several examples of problems that came up in his 4 years with the TTSC and explained the steps

taken to correct them.

John Darrigner invited the audience to contact him with further ideas for improving the EDA standards process and for ways to get more involved. More detail on the panel session is available at the EDPS website (http://www.eda.org/edps/).

Article: The Broad Arena of Standards

By *Ron Waxman*

In the process of designing an entity (a circuit, a chip, a system) one passes through many design steps. We use mathematical models, analysis tools, etc. Within the overall process, data passes from one step to another. In order to minimize the design complexity, we utilize tables of constants to define the many parameters of the design. These constants are developed through experience levels for various technologies used in the design process. The process combines methodology and technological parameters.

There is another view one may take of standards technology development. That view deals with "enterprise interoperability." Enterprise Interoperability development can be looked at as a "standards development motivator." IFIP – The International Federation for Information processing - is mainly known well in Europe. They do not develop standards, but their technical activities are oriented towards design and business interaction methods. IFIP TC10 deals largely with Computer Systems Technology. IFIP TC5 deals largely with Information Technology Applications. Enterprise Interoperability, Enterprise Integration, Infrastructure for Virtual Enterprises, and the Product Realization Process, are just some of the technical activities of TC5. My thesis is that taking an orthogonal view of IP and EDA, the process of enterprise collaboration could be viewed as orthogonal to technical methodologies. Such an orthogonal approach might help advance the IP work already underway.

The technological arena could take advantage of the interdisciplinary work being presented at its many conferences to motivate new standards. To take an example from IFIP, there was a workshop held in Portugal in September 2007 on "Virtual Enterprises." I was privileged to act as the session chair for one of the sessions, "Trust Aspects in Collaboration." The papers dealt with the establishment of trust relationships among organizations in Virtual Business Establishments. It is a field that was new to me. I discovered by listening to the speakers, that there are many parameters to be defined in establishing such relationships among participating business entities. Such relationships are of course, much broader than EDA standards, which have a scope reflecting only technology data. In the arena of Virtual Enterprises, the following quote from one paper "Towards Establishing Trust Relationships Among Organizations in Virtual Organization Breeding Environments (VBES)1," best exemplifies the complexities involved in the establishment of trust relationships.

"Organizations compete in acquiring competitive resources, knowledge, and competencies. However, in the current market, when an opportunity is brokered, organizations need to collaborate, more than competing, by sharing the acquired resources, knowledge, and competencies to respond to the opportunity which none of them could handle otherwise. This means organizational strategies must now adapt to the notion of collaboration with others. One important organizational strategy necessary in the virtual organization breeding environment (VBE) is focused on the organizational preparedness that is required to enhance the chances of participating in virtual organizations (VOs). A crucial aspect of preparedness is the establishment of trust relationships with other member organizations to

smoothen the sharing of resources, knowledge, and competence, and in turn facilitate the organizations' collaboration. In this paper we address approaches and mechanisms for establishment of trust relationships among member organizations in VBEs."

The lesson I learned from observing the presentations in the session was that one could formalize the many parameters involved in the process of working among enterprises, and come up with a set of pseudo standards enabling enterprise communications. I recognize that the efforts of many of the existing industry standards efforts address such topics. I leave it here as food for thought.

1. "Towards Establishing Trust Relationships Among Organizations In VBES" by Simon Samwel Msanjila and Hamideh Afsarmanesh University Of Amsterdam, Netherlands Msanjila@Science.Uva.Nl, Hamideh@Science.Uva.Nl; from the Proceedings of the Eighth IFIP Working Conference on Virtual Enterprises, September 10-12, 2007.

Contribution Opportunities

The IEEE DATC welcomes proposals for contributions to this newsletter. Contributions should shed light on non-obvious key EDA trends. Educational contributions in emerging areas such as ESL and DFM are especially welcome. The ideal length of a contribution is a half a page in the form of a short fact-based essay with data or references backing the stated position, but longer contributions may be considered. Publication of important graphics and data tables might be possible by request. Please send proposals in the form of a 2-paragragh abstract to the editors at jantonio@ieee.org.