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**DOT.ORG: Introducing CEDA: An Organization for the CAD Community**

By **Rajesh K. Gupta**



Let me take this opportunity to introduce the mission and goals of the IEEE Council on Electronic Design Automation (CEDA). As a subject area, design automation has been spread across a number of technical activities within the IEEE. These activities range from monolithic circuits to large information-processing systems. Within the context of electronic systems, computer-aided design (CAD) was synonymous with circuit

simulation when it started as a discipline in the '60s. Now, CAD deals with a much broader set of concerns. Those issues continue to evolve with technological advances in materials, processing, devices, and circuits. Generally, they're put under the umbrella of electronic design automation (EDA).

On one side of the spectrum, the physical design of electronic circuits requires both deep knowledge and interaction with specialists on solid-state circuits and more broadly electronic devices. Yet the ubiquitous presence of programmable processor cores in integrated circuits has shifted much CAD work into the design of embedded software and hardware/software co-design--areas that are traditionally covered by computer scientists. By combining theory and practice, CAD is a key technology that boasts its own thriving industry. It also is a driver for the much larger semiconductor and electronic systems industry.

It was natural for such an activity to have a diversified footprint within the IEEE as a technical organization. The range of CAD activities enabled the IEEE to benefit from the significant cross-fertilization of ideas from various mathematical and engineering optimizations and practices. As an organized activity, however, it was much harder for the organization to serve its members with information on interrelated advances and publications. The recognition of major advances was often secondary to major society activities.

Among the major EDA-related forums are conferences, such as the Design

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Sometimes, the best way to understand an abstract phrase like ESL is to focus on understanding the constituent processes.

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As market forces continue to push more analog and RF functionality into digital

Automation Conference (DAC) and International Conference on Computer Aided Design (ICCAD). These forums also include publications like IEEE Transactions on CAD (TCAD) and Design and Test of Computers (D&T).

Though highly regarded, the forums were often considered secondary activities within the respective societies. This approach has made it harder to recognize volunteer achievements and initiate new activities, which demanded participation from contributors across different parts of the IEEE.

That situation is about to change with CEDA. In early 2004, a working group of EDA industry and academic leaders gathered to build a focal point to ensure IEEE responsiveness to a technical community of more than 5000 active members. This focal point, it was determined, would be instrumental in supporting a vision of growth and renewal within the IEEE and its Technical Activities Board.

Working with a broad set of partners, the working group polled and conferred with all interested societies and councils within the IEEE. Its goal was to build a consensus for an organization, which was officially approved--first as an ad-hoc committee--in June 2004. It was finally ratified as a council effective January 2006.

Enter the IEEE's CEDA. Within IEEE Technical Activities, a council like CEDA represents an organization with member societies. CEDA now has six member societies: Antennas and Propagation; Circuits and Systems; Computer; Electron Devices; Microwave Theory and Techniques; and Solid State Circuits. As with any IEEE technical activity, the ultimate goal is to advance the profession through a variety of technical activities from conferences and publications to standards. To serve members who are spread across various member societies, CEDA brings together several important resources. It sends its community of contributors to sponsored conferences and publications.

As of this writing, the co-sponsored conferences include DAC, ICCAD, and Design and Test in Europe (DATE). In addition, CEDA co-publishes IEEE TCAD and IEEE D&T. CEDA enjoys special relationships with focused technical activities, such as DATC and TTTC in the Computer Society and CANDE within the Circuits and Systems Society. The inaugural kickoff of IEEE CEDA was held at ICCAD in November 2005. The meeting included presentations and endorsements from founding societies within the IEEE as well as the ACM's Special Interest Group on Design Automation (SIGDA).

Clearly, we're pleased to receive such broad support and community momentum toward building this new council. We also are humbled by the challenges facing the community, which must match the pace of innovation by rapidly drawing new talent and entrepreneurship to the field. We need to engender technical activities that excite and challenge our audience and readership to new capabilities and opportunities.

With the diversity of contributor backgrounds, council processes must be sure to encourage consensus building. In the first few months, the council converged on areas of technical interest. The founding members unanimously adopted its constitution and bylaws. Now, CEDA has initiated a number of technical activities including sponsorship of the first IEEE Programming Challenge, which will be held at the International Workshop on Logic Synthesis. It also is participating in the DARPA/MTO activities in building the roadmap for electronic systems.

From this promising start, we hope to build years of exciting innovation and

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invention in electronic design automation. These activities are made possible only through the participation of our constituent membership. Get involved! Do you have an idea or a suggestion? Are you looking for a challenge like organizing a technical activity, workshop, symposium, publication, or standard? If so, we're here to help. Please look us up at [www.c-eda.org](http://www.c-eda.org). Remember to sign on as a friend of CEDA.

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 Rajesh K. Gupta is the Vice President of Publications for the IEEE Council on Electronic Design Automation (CEDA). Professor Gupta joined the University of California at San Diego (USCD) faculty in November 2002. Last May, he became the first occupant of the Qualcomm Endowed Chair in Embedded Microsystems. Gupta also is the Editor-in-Chief of IEEE Design and Test of Computers.



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