

## ***NEWS RELEASE***



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### **EDA Industry to Recognize Dr. Chenming Hu with the Phil Kaufman Award at DAC 2013**

Honored For Major Contributions to Transistor Modeling  
Enabling the Generation of FinFET Based Design

**SAN JOSE, California – April 3, 2013** – Dr. Chenming Hu, TSMC Distinguished Professor of the Graduate School at the University of California, Berkeley, has been selected by the EDA Consortium (EDAC) and the IEEE Council of EDA (CEDA) as recipient of the 2013 Phil Kaufman Award for Distinguished Contributions to Electronic Design Automation (EDA). He will receive this award at the opening ceremony of the largest EDA event, the Design Automation Conference (DAC) on June 2, 2013 in Austin, Texas. Dr. Hu is being recognized for his contributions in device physics, device modeling, and device reliability through BSIM and BERT models that have transformed the semiconductor manufacturing and electronic design automation industries. Dr. Hu's team invented the revolutionary 3D FinFET transistor structure that simultaneously achieves size and power reduction to enable continued scaling of the microelectronic chips.

In a professional career spanning four decades, including over thirty years as a professor of electrical engineering and computer science at UC Berkeley, Dr. Hu has advanced semiconductor technologies through his nearly one thousand research publications including four

books, led or helped build leading companies in the industry, and trained hundreds of graduate students. His students occupy leadership positions in industry and academia. Dr. Hu received a bachelor degree from National Taiwan University, masters and PhD degrees from UC Berkeley. He has served on the faculty of MIT and UC Berkeley as well as the chief technology officer for TSMC, the world's largest semiconductor foundry. He is a distinguished alumnus and currently also an honorary chair professor of National Taiwan University. He founded Celestry Design Technologies, an EDA company that was later acquired by Cadence Design Systems. He was elected to the US National Academy of Engineering in 1997, the Academia Sinica in 2004, and the Chinese Academy of Sciences in 2007. He received the IEEE Andrew S. Grove Award, the Don Pederson Award and the Jun-Ichi Nishizawa Medal for his contributions to MOSFET device, technology and circuit design. Among his many other awards is UC Berkeley's highest honor for teaching, the Berkeley Distinguished Teaching Award. Dr. Hu served as a board chairman of the nonprofit East Bay Chinese School and currently serves on the board of the nonprofit Friends of Children with Special Needs.

In recommending Professor Chenming Hu for the Phil Kaufman Award, the nominator noted a tremendous career of creativity and innovation that fueled the past four decades of the semiconductor industry including the recent adoption of FinFETs by major semiconductor manufacturers, which will propel the industry to its next decade. His students recall him as a great mentor and role model.

“The Kaufman Award celebrates Chenming's contributions to the EDA industry for the BSIM compact models widely used to design all types of integrated circuits, spanning logic, memory, analog and RF products. His technical contributions have profoundly affected directions in device technology as with the FinFET, all aspects of device reliability, and non-volatile memory

technology. His graduates serve in senior leadership positions in industry and academia globally. Chenming has served in key leadership positions at TSMC and SanDisk. With this award, the semiconductor industry collectively applauds Chenming's monumental impact,” added this year’s award presenter Klaus Schuegraf, Group Vice President of EUV Product Development at Cymer, Inc.

Aart J. de Geus, Chairman and co-CEO of Synopsys, Inc. and EDAC Chairman of the Phil Kaufman Award Selection Committee said, “Recognizing Chenming Hu the very year in which the entire EDA, IP, and Semiconductor industry is unleashing the next decade of IC design through the 16/14nm FinFET generation is not a coincidence, but illustrates how a great contributor can impact an entire industry!”

“Professor Hu’s work and life stands as an example of tremendous contributions to science, technology, and society that would make Phil Kaufman proud. IEEE CEDA is a proud partner to EDAC in honoring such a luminary,” said Donatella Sciuto, president of CEDA.

### **Accolades for Chenming Hu**

“Professor Chenming Hu’s impact on the semiconductor business has been wide and deep,” notes Eli Harari, retired founder, Chairman and CEO of SanDisk. “He has been actively engaged with key companies in the semiconductor industry, including National Semiconductor, TSMC and San Disk. He is a distinguished device physics researcher and a highly acclaimed educator and role model at UC Berkeley. His considerable technical contributions in MOS device reliability, device modeling, scaling, and FinFET transistors have had a sweeping impact on the semiconductor industry.”

“Professor Hu has pioneered the research on the CMOS device reliability physics, modeling and circuit simulation. Prof. Hu and his BSIM group developed the world’s first and leading industry standard MOSFET compact models, BSIM3 and BSIM4. Since 1997, BSIM has been used by all foundries, EDA firms, fabless design houses/IP companies and most of the integrated device manufacturing companies from 0.25 micron down to 20nm, in addition to 16/14nm FinFET, all together ten technology nodes. Due to the open, accurate and efficient BSIM models, foundries, fabless companies and EDA providers can efficiently develop and enhance device models for each new generation of process nodes,” adds Chi-Foon Chan, President and co-CEO, Synopsys Inc.

"Professor Chenming Hu has made some major contributions to the integrated circuit industry, including developing the BSIM compact model and early research on FinFET transistors," concurs Mark Bohr, Intel Senior Fellow. "I'm very pleased to see him receive this recognition."

Dado Banatao, Tallwood Venture Capital said, "Chenming is one of the best in microelectronic devices with significant impact in transistor modeling, devices and device physics."

John Y. Chen, VP Technology, NVIDIA Corporation remarks, "Professor Chenming Hu has contributed immensely to EDA tools and FinFET and truly deserves the recognition of the Phil Kaufman Award."

"Under the leadership of Professor Chenming Hu, his group at UC Berkeley developed the BSIM3 and BSIM4 models for use in MOSFET integrated circuit design, made the models public domain and available to the entire world, provided technical support for the models, and continued the development of these models to accommodate many of the non-idealities of MOSFET devices as design rules shrank," shares Laurence (Larry) Nagel, Author of Spice.

“Without the tireless efforts of Chenming's group, the adoption of advanced CMOS technology nodes would have been slower and more arduous and the pace of MOSFET IC development would have been markedly slower. I think it is fair to say that more SPICE simulations have employed the BSIM3 and BSIM4 models than all other semiconductor device models combined.”

“SPICE models lie at the root of all electronic circuit design, and as Director of the Group that provided the industry with BSIM3 and BSIM4, Prof. Hu has contributed to the design of more integrated circuits than any other individual” concludes Colin McAndrew, Director of Modeling at Freescale.

### **About the Phil Kaufman Award**

The Phil Kaufman Award honors individuals who have had demonstrable impact on the field of EDA through technology innovations, education/mentoring, business or industry leaderships. The award was established as a tribute to Phil Kaufman, the late industry pioneer who turned innovative technologies into commercial businesses that have benefited electronic designers. Last year's recipient was C. L. (David) Liu, former president of the National Tsing Hua University for his contributions to algorithmic EDA.

### **About the EDA Consortium**

The EDA Consortium is the international association of companies that provide design tools and services that enable engineers to create the world's electronic products used for communications, computer, space technology, medical, automotive, industrial equipment, and consumer electronics markets among others. For more information about the EDA Consortium, visit [www.edac.org](http://www.edac.org).

## **About the IEEE Council on EDA**

The IEEE Council on Electronic Design Automation (CEDA) provides a focal point for EDA activities spread across six IEEE societies (Antennas and Propagation; Circuits and Systems; Computer; Electron Devices; Microwave Theory and Techniques; and Solid State Circuits). It sponsors more than 12 conferences, including the Design Automation Conference (DAC), International Conference in CAD (ICCAD) and Design Automation and Test in Europe (DATE). CEDA publishes IEEE Transactions on CAD, IEEE Design and Test, and the IEEE Embedded Systems Letters. CEDA is increasingly involved in recognizing its leaders via the A. Richard Newton Award, Early Career Award and Phil Kaufmann Award. CEDA welcomes volunteers and local chapters. For more information, go to: [www.c-eda.org](http://www.c-eda.org).

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