



UNH Students Win National Semiconductor Research Corporation Design Challenge

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[Durham NH - Semiconductor Research Corporation \(SRC\), the world's leading university research consortium for semiconductors and related technologies, named three University of New Hampshire graduate students as winners in the SRC/Semiconductor Industry Association \(SIA\) Integrated Circuits Design Challenge held March 19, 2008 at Research Triangle Park, N.C. The UNH team's winning design was for a serializer/deserializer \(SERDES\) that converts the low-rate parallel data into high-rate serial data or vice versa. The UNH team was one of eight winning teams selected from more than 40 universities and 120 engineering students who competed to design circuits with potential future electronic applications.](#)

[The UNH team - electrical and computer engineering graduate students James Brandt, Gang Chen, and Yifei Luo -- was awarded fabrication with the Jazz Semiconductor 180nm SiGe BiCMOS technology \(worth approximately \\$56,000\).](#)

["Thanks to the hard work of my three students, we are fortunate to be one of eight teams selected for Phase II," said Kuan Zhou, UNH assistant professor of electrical and computer engineering and faculty advisor to the students.](#)

["This is a great opportunity for the industry as SRC and SIA member companies cultivate future designers for the semiconductor business," said SRC's Dale Edwards, an Advanced Micro Devices, Inc., assignee and contest organizer.](#)

[The Design Challenge theme was "Performance at the Limits" and the UNH team's winning design exemplifies this theme, pushing the data link rate to 40Gb/s and possibly even 60Gb/s. The SERDES design presented by Zhou and his students exhibits many advantages compared to existing technologies. The bandwidth of circuit blocks is extended and the power consumption is reduced. Several unique circuit technologies were used in the SERDES design. SERDES can be used in many applications such as biological imaging, radio astronomy, upper atmosphere study, plasma diagnostics, and future terahertz broadband communication systems.](#)

[The first objective of this SRC/SIA High Performance Design Challenge is to create designs that can overcome the existing bottlenecks. The second objective is to stimulate greater interest in IC \(integrated circuit\) design careers among students, both at the undergraduate and graduate levels.](#)

[In addition to receiving free fabrication in Jazz SBC18, these finalists have qualified to](#)

[compete in the final phase of the Design Challenge where they will fabricate these designs in Jazz Semiconductor's SBC18 180nm SiGe technology. All eight teams will present posters at SRC's TECHCON 2008 in Austin, Tex. September 15-16. The eight finalists will vie for \\$50,000 in cash prizes, to be announced in December.](#)

[Design Challenge sponsors include Advanced Micro Devices, Inc., Analog Devices, Inc., Cadence Design Systems, Freescale Semiconductor, Inc., IBM Corporation, Intel Corporation, Intersil Corporation, Jazz Semiconductor, LSI Corporation, Mentor Graphics Corporation, National Semiconductor Corporation, NVIDIA Corporation, Quik-Pak Division of Delphon Industries, Texas Instruments Incorporated, SRC and SIA. Jazz Semiconductor donated the fabrication support.](#)

[Celebrating 26 years of collaborative research for the semiconductor industry, SRC defines industry needs, invests in and manages the research that gives its members a competitive advantage in the dynamic global marketplace. Awarded the National Medal of Technology, America's highest recognition for contributions to technology, SRC expands the industry knowledge base and attracts premier students to help innovate and transfer semiconductor technology. For more information, visit <http://www.src.org/Default.asp> .](#)

The SIA is the leading voice for the semiconductor industry and has represented U.S. semiconductor companies since 1977 and SIA member companies comprise more than 85% of the U.S. semiconductor industry. Collectively, the chip industry employs a domestic workforce of 232,000 people. More information about the SIA can be found at <http://www.sia-online.org/home.cfm>

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Photograph available to download:

<http://www.ceps.unh.edu/images/zhou.jpg>

Caption: (L-R) UNH electrical and computer engineering Ph.D. candidates Gang Chen and Yifei Luo, along with their faculty advisor Kuan Zhou (standing), will vie for \$50,000 in cash prizes during SRC's TECHCON 2008 in Austin, Tex. September 15-16.

Credit: Kuan Zhou.

