VLSID 2025 (January 4-8): Catalyzing AI-Driven VLSI and Semiconductor Innovation in India, Bangalore, India

VLSID is an annual conference that serves as a platform for professionals, researchers, and students to present their work, learn about the latest trends, and network with peers in the field of VLSI and embedded systems. It reflects India's dedication to becoming a leader in semiconductor technology and its applications.

The 38th International Conference on VLSI Design & 24th International Conference on Embedded Systems (VLSID 2025) a premier event under the VLSI Society of India (VSI) banner, concluded with resounding success, showcasing the forefront of AI-driven VLSI and semiconductor advancements. The conference was attended by more than **2700 participants** and solidified India's growing influence in the global semiconductor landscape, bringing together industry leaders, academicians, and researchers to foster innovation and collaboration.

The event commenced with an inspiring fireside chat between **Prof. Chris Miller**, esteemed author of *Chip War: The Fight for the World's Most Critical Technology* and **Dr. Satya Gupta, President VLSI Society of India**. The discussion delved into the intricate geopolitical and economic challenges of global semiconductor supply chains, emphasizing the critical role semiconductors play in shaping technological progress and national security. India's semiconductor design and manufacturing with focus on semiconductor design and technology by both the leaders, set a compelling tone for the conference.

VLSID 2025 featured an impressive lineup of over **25 keynotes, fireside chats, women in engineering (WIE) and panel discussions**, engaging participants in deep dives into cutting-edge topics around the theme of **"Silicon Meets AI: Sustainable Innovations in Accelerated Computing, Secure Connectivity, and Intelligent Mobility."** Experts from academia and industry explored a diverse range of subjects, including:

· **AI-Powered Chip Design**: Discussions centered on leveraging artificial intelligence to enhance chip performance, optimize design processes, and reduce time-to-market.

· **Quantum Computing**: Panels examined the latest breakthroughs in quantum technologies, exploring their potential to revolutionize computing power and solve complex problems.

· **Semiconductor Security**: Sessions highlighted the importance of security in semiconductor devices, discussing strategies to protect against vulnerabilities and cyber threats.

· **Next-Generation Computing Architectures**: Thought leaders shared visions for future architectures that could significantly improve efficiency and capabilities.

The **Industry Forum and Academic Panels** hosted **13 insightful sessions**, fostering robust dialogue on key trends in **AI**, **5G**, **Internet of Things (IoT)**, and advanced semiconductor design.

These sessions aimed to bridge the gap between theoretical research and practical applications, encouraging collaboration between research institutions and technology leaders. By facilitating knowledge exchange, the conference promoted innovation that aligns with both academic pursuits and industry needs. IEEE Computer Society President (2024) **Jyotika Athavale** addressed the women in engineering (WIE) panel.

Showcasing the event's strong emphasis on research excellence, VLSID 2025 presented **68 peer-reviewed research papers** and **30 posters** selected from **383 submissions** across **11 specialized tracks**. The papers highlighted groundbreaking work in areas such as:

· **Hardware Security**: Innovative approaches to protecting hardware against tampering and ensuring data integrity.

· **Neuromorphic Computing**: Advances in brain-inspired computing systems that promise significant improvements in efficiency and adaptability.

· **Energy-Efficient Designs**: Novel techniques to reduce power consumption in electronic devices, addressing global energy concerns.

It was a great privilege for India's VLSI Design and Semiconductor community to honor **Prof. Arogyaswami Paulraj of Stanford University** with the VLSI Society of India's Lifetime Achievement award for his seminal work in development of Sonar and MIMO technology at VLSID-2025. During the award ceremony, the VSI Women Achiever was presented to **Ms. Chitra Hariharan** for her contributions towards development of VLSI Design and Semiconductor technology ecosystem in India.

The VLSI Society of India (VSI) under the leadership of President Dr. Satya Gupta underscored the conference's pivotal role in strengthening India's semiconductor ecosystem. By bringing together diverse stakeholders, VLSID 2025 aimed to drive future research and development, encourage international collaborations, and position India as a hub for semiconductor innovation. Liaison partners such as **IEEE**, **ACM SIGDA**, **India Electronics and Semiconductor Association (IESA)**, and other key industry bodies were instrumental in expanding the conference's global reach and impact.

Expressing their appreciation for the collaborative spirit of the event, the General Chairs **Navin Bishnoi** (Marvell India), **Rajeev Srivastava** (NXP Semiconductors), and **Srikanth Settikere** (Microchip Technology) — remarked:

"VLSID 2025 has been instrumental in fostering industry-academia collaboration and pushing the boundaries of semiconductor innovation. The convergence of ideas and expertise here has ignited new possibilities for the future of technology."

As the conference drew to a close, participants re-affirmed VLSID's role as a global hub for advancements in semiconductors and embedded systems. The event not only highlighted current technological achievements but also charted a course for future innovations in AI-powered hardware, secure connectivity, and cutting-edge chip design.

Looking Ahead

The momentum generated by VLSID 2025 is expected to catalyze continued progress in the semiconductor field. With a strong foundation of collaboration and shared vision, India is poised to make significant contributions to global technology advancements. The VSI and its partners are committed to nurturing this ecosystem, encouraging ongoing dialogue, and supporting initiatives that drive innovation.

Navin Bishnoi, Rajeev Srivastava and Srikanth Settikere – VLSI Design Conference General Chairs and Neelish Reddy VLSI Design Conference Program Management Chair.