Plenary Session

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Business and Technical Test Challenges in the Gigahertz Age

While the technical press argues whether it might cost more to test a chip than to fabricate it, the face of component test is already going through fundamental structural change. Semiconductor manufacturers eager to achieve better scaling of manufacturing test costs are effectively re-using equipment across technology nodes and building in DFT and new test methods to enable the paradigm shift to low cost ATEs decoupled from device pincounts and absolute device speeds. As the industry moves to the “DFT tester”, several of which have been announced by ATE vendors in recent months, many business and technical challenges loom. On the technical side, we need new methods for screening latent reliability defects, integration of mixed device types (SOCs), and to keep up with the accelerating increase in I/O speeds and complexity across component types. Can the industry come up with the business models for distributed test, i.e. for low cost DFT testers for manufacturing and low volume GHz range “verification testers”? Can we come up the value propositions for vendors and customers to enable standardization of test software? Looking further into the future, the concept of a modular ATE might enable even greater flexibility and performance for future component test needs.

Jai Hakhu is a Vice President of Intel's Technology and Manufacturing Group, and General Manager of Technology Manufacturing Engineering. Hakhu is responsible for worldwide capital development and procurement, automation, training, strategic research, manufacturing and operational decision support. He also manages the Technology and Manufacturing Group in Japan. Hakhu joined Intel in 1997 as Director of Intel Tooling Operations, where his responsibilities included Intel Mask Operations and Intel Test Tooling Operations. Prior to joining Intel, Hakhu worked in the semiconductor industry for 18 years as a technical and business manager, most recently as Vice President of Rockwell International and Varian Associates. Hakhu has served on the faculty of the University of Roorkee, India; University of California, Irvine; and California State University, Long Beach. Hakhu earned a B.S. in Physics, Chemistry, Math and English from J&K University in India; a B.S. in Electronics Communication Engineering from the Indian Institute of Science; an M.S. in Solid State Electronics from the University of Roorkee in India; and a Ph.D. in Electrical Engineering from the University of California, Irvine. Born in Srinagar, Kashmir, India, Hakhu lives with his wife, Nalini, and two children, Nisha and Navneet.