

Technology On the Edge

William R. Tonti

FIEEE

IEEE Director of Future Directions
445 Hoes lane, Piscataway NY 08854

The semiconductor industry is poised to enter a new revolution where connectivity, applications, and the overall pervasive markets drive the need for high circuit density, at faster speeds, and at improved power dissipation. These issues are the backbone for some of the latest advances including the integration of low resistance conductors, an insulated substrate, and band-gap engineered devices that improve upon the above issues.

For example, take the revolution in the cell phone industry moving from analog or 1G phones to the new 3G digital space integrating both voice and data. This market requires at a minimum devices that can achieve a data rate of 10GB/s migrating to 40GB/s. In short, the devices that switch at this rate did not exist two years ago, but today are out of the research labs and in production. If we investigate the micro processor industry one would find the relative CMOS performance and power changes are emanating from lithographic advances, and by improving upon the parasitics that govern delays both intra and inter chip.

This talk will touch on these and other areas within the semiconductor industry.

William R. Tonti



Dr Tonti received the B.S.E.E. with honor (1978) from Northeastern University, an MSEE(1982) and a PhDEE(1988) from the University of Vermont. He holds an MBA(1983) from St. Michael's College. Currently Dr. Tonti is the Director of Future Directions at the IEEE. Retired from IBM he held the positions of IBM senior technical staff member , senior manager, and master inventor. . Dr. Tonti has authored numerous contributed, keynote , and invited papers, and holds over 250 U.S. patents. Dr. Tonti is a member of tau beta pi, eta kappa nu, a fellow of the IEEE, a former advisory board member of the IEEE Transactions on Device and Material Reliability, a recipient of the IEEE 3'rd millennium medal, the 2008 Reliability Engineer of year, and a former ABET engineering curriculum evaluator. He is a past IEEE Reliability Society President.