Seminario
Managing Power Integrity: Status, Challenges and Opportunities

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Abstract:

Since the mid-1990s, designers have been developing sophisticated methods for managing power integrity in packages and printed circuit boards which has had a direct impact on the signal integrity of systems. These have included items such as developing design parameters such as target impedance, developing repeatable frequency domain characterization methods, pushing the EDA vendors to improve the capability of the design tools, developing new devices such as EBGs to improve isolation, developing embedded capacitance layers to name a few. However, the designers are continuing to face challenges where the noise on the power distribution is beginning to over shadow the signals in fast switching environments arising in high speed computing systems. These challenges are often times opportunities for university research that can lead to interesting and often times innovative solutions.
This talk will cover a review of the past developments in this area and will focus on the present challenges and potential solutions specifically addressing EDA tools and design methods for power delivery.

Biography:

Madhavan Swaminathan is the Joseph M. Pettit Professor of Electronics in the School of Electrical and Computer Engineering and Director of the Interconnect and Packaging Center, Georgia Tech. He is the co-founder of Jacket Micro Devices, a company that specializes in integrated RF modules and substrates for wireless applications (acquired by AVX Corporation) and the founder of E-System Design, a company focusing on the development of CAD tools for achieving signal and power integrity in integrated 3D micro and nano-systems, where he serves as the CTO. He was formerly the Deputy Director of the Microsystems Packaging Research Center at Georgia Tech. Prior to joining Georgia Tech, he was with IBM working on packaging for supercomputers. He is the author of more than 325 journal and conference publications, holds 22 patents, is the author of 3 book chapters and is the primary author of the book entitled “Power Integrity

Modeling and Design for Semiconductors and Systems", Prentice Hall, Nov 2007 and co-editor of "Introduction to System on Package", McGraw Hill, Mar. 2008. He has been honored as an IEEE Fellow for his work on power delivery for digital and mixed signal systems and has been recognized for his work through several awards. He received his M.S and PhD in Electrical Engineering from Syracuse University in 1989 and 1991, respectively.