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High-Speed Signal Integrity Challenges and Opportunities for Next Generation Technologies

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ABSTRACT:

The challenges associated with high-speed signal integrity (SI) are becoming exponentially complex with the doubling of signal speeds every generation. In this presentation, high-speed server design is used as an example to demonstrate the next generation SI challenges and potential opportunities to overcome these challenges. The presentation covers basics of SI, high-speed interconnects, analog and digital equalization and high-speed challenges beyond 25 Gbps.

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DISTINGUISHED LECTURER:

Dr. Bhyrav Mutnury

Dr. Bhyrav Mutnury is a Senior Distinguished Engineer and Global Team Lead at Enterprise Signal Integrity group at Dell EMC in Austin, Texas, where he is responsible for storage, network, rack and blade server designs. He is the electrical interface expert on GbE, XAUI, FC, IB, USB, PCIe, UPI, XGMI, DDR and SAS with more than 18 years of experience in system design with a strong focus on electrical modeling, analysis and optimization of complex high-speed servers. The research pioneered by Dr. Mutnury not only has resulted in faster design spins of complex servers, but also resulted in cost savings in designs without trading off signal integrity robustness. Dr. Mutnury was involved in numerous research projects with Georgia Institute of Technology, Missouri Institute of Science and Technology, Penn State University, Indian Institute of Sciences (IISc) and National Taiwan University (NTU). He received his Master of Science degree in Electrical Engineering in 2002 and Doctor of Philosophy degree in Electrical Engineering in 2005 from the Georgia Institute of Technology, Atlanta, GA. Dr. Mutnury has authored and co-authored more than 75 refereed publications in various IEEE and non-IEEE conferences. He has 122 issued patents and another 60 more filed in the fields of electrical cable design, package and printed circuit board design and optimization, and electrical design space exploration using evolutionary techniques. He is currently a Senior Member of the IEEE.