Power Integrity Effects on Signal Integrity in FPGA Systems – Measurements and Analysis Using an FPGA Configured Vector Network Analyzer

Speaker: Dr. Cosmin Iorga, piscanner.com

October 11, 2018 at 6:30 PM

Location: Skyworks Solutions, Newbury Park, CA

Power integrity issues may create intermittent failures and signal integrity degradation in FPGA systems. This talk starts with fundamental concepts of power integrity and signal integrity and presents a novel method for power integrity analysis in FPGA systems by configuring the FPGA to function as a Vector Network Analyzer (VNA) test instrument for its own power delivery network (PDN). This VNA measures the impedance profile of the PDN as seen by the logic circuits on the FPGA die and extracts an S-parameter model of the FPGA PDN, that includes the PDN elements on the FPGA die, FPGA package, and PCB. The S-parameter model is then used in circuit simulations to evaluate the power supply noise in the FPGA and the signal integrity in the FPGA I/O serial data links.

Dr. Cosmin Iorga has earned his PhD in Electrical Engineering from Stanford University. He has accumulated over 20 years of experience in high-speed analog and mixed-signal circuit design and troubleshooting at system, board, and integrated circuit levels, with emphasis on signal integrity, power integrity, and noise coupling reduction. Cosmin has 10 patents covering innovative solutions in noise coupling reduction and signal integrity. Cosmin is the author of the book "Noise Coupling in Integrated Circuits: A Practical Approach to Analysis, Modeling, and Suppression", and he teaches courses in analog circuit design, data converters, and power integrity at UCLA Extension.

Location

Skyworks Solutions

649 Lawrence Drive, Newbury Park, CA 91320

Intersection of West Hillcrest Drive and Lawrence Drive

(NOTthe main building, please use link below to arrow that pinpoints building)

http://maps.google.com/maps?q=34.187542,-118.930994&num=1&t=h&vpsrc=0&ie=UTF8&z=18&iwloc=A

Directions

From Los Angeles

Highway 101 North
Take exit 47A for Rancho Conejo Blvd
Use the left lane to turn right onto Rancho Conejo Blvd
Turn left onto W Hillcrest Dr.
Destination will be on the right

From Ventura

Highway 101 South
Take exit 47B for Wendy Dr. toward Newbury Park
Turn right onto N Wendy Drive
Continue onto Camino Dos Rios
Turn right onto W Hillcrest Drive
Destination will be on the left.