Free Webinar:

Test and Reliability of 2.5D / 3D ICs

October 29, 2015

8:00 - 9:00 a.m. PDT

Abstract

Despite the numerous benefits offered by 3D integration, testing remains a major obstacle that hinders its widespread adoption. Concerns related to test cost, yield and reliability continue to derail the commercial exploitation of 2.5D and 3D ICs. The increased density and performance they provide can also lead to high current densities and increased local heat, which in turn can lead to
interconnect degradation and manifestation of latent defects.

In this talk, the first speaker will examine the hype, myths, and realities of 2.5D and 3D ICs; he will present a number of testing and DFT challenges, and provide an overview of some of the most recent solutions being advocated for these challenges. The presentation will cover in more detail DFT techniques for pre-bond testing and diagnosis of TSVs, and a BIST control technique for stacked ICs.

The second speaker will also present new techniques for testing and monitoring the performance of high density vertical interconnects that are beyond the reach of conventional test hardware. New methods are needed to bring these interconnect technologies into common usage in high-value systems.

During the webinar you will learn about the solutions Ridgetop Group offers for monitoring and qualifying interconnect reliability in 2.5D and 3D assembly and packaging technologies. These solutions can detect intermittencies beyond permanent failures, and can be used during qualification as well as for lifetime monitoring.

Learning Objectives

- Learn about the current state of the art in advanced stacked die packaging techniques.
- Understand key tradeoffs to consider when choosing an advanced packaging strategy.
- See innovative solutions that can detect problems in internal interconnections, including intermittencies, and warn of impending failure before it occurs.

Speakers

Krishnendu Chakrabarty, Ph.D., is the William H. Younger Distinguished Professor of Engineering in the Department of Electrical and Computer Engineering and Professor of Computer Science at Duke University. He also serves as Director of Graduate Studies for Electrical and Computer Engineering. Prof. Chakrabarty is a recipient of numerous awards. Prof. Chakrabarty's
current research projects include: testing and design-for-testability of integrated circuits; digital microfluidics, biochips, and cyberphysical systems; optimization of enterprise systems; and smart manufacturing. He has authored 17 books on these topics; published over 550 papers in journals and refereed conference proceedings; given over 250 invited, keynote, and plenary talks; and presented 40 tutorials at major international conferences. Prof. Chakrabarty is a Fellow of ACM, a Fellow of IEEE, and a Golden Core Member of the IEEE Computer Society. He holds six US patents, with several patents pending. He received the B. Tech. degree from the Indian Institute of Technology, Kharagpur, in 1990, and the M.S.E. and Ph.D. degrees from the University of Michigan, Ann Arbor.

**Hans Manhaeve, Ph.D.,** is president and CEO of Ridgetop Europe, which provides unique, cost-effective, highly reliable solutions for IC and electronic circuits and systems testing to global semiconductor companies. Dr. Manhaeve has significant experience in the semiconductor industry and has worked with a wide variety of electronic product manufacturers within IC, automotive, medical control, telecommunications, networking devices, sensors & transducers, and consumer products from well-known Fortune 100 to smaller companies. His Ph.D. is in Electronics Engineering.

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