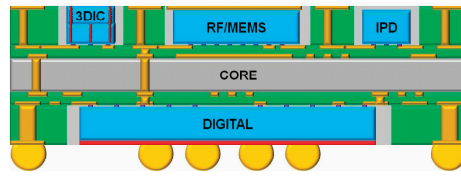


Chip-Last Embedded MEMS, Actives and Passives With Chip-First Benefits



Georgia Tech 3D Systems Packaging Research Center (PRC) invites companies to join its Global Industry Consortium in ultra-miniaturized mixed-signal Embedded MEMS, Actives and Passives (EMAP) thin film modules by chip-last interconnections with chip-first benefits for 1-110 GHz Systems.



What

- Ultra thin modules with ultra-thin substrates, ultra thin ICs and 3D ICs and ultra-miniaturized interconnections

Why

- Current approach of chip-first addresses this need but poses several major problems including reparability, testability, yield and infrastructure incompatibility

Georgia Tech PRC Proposal

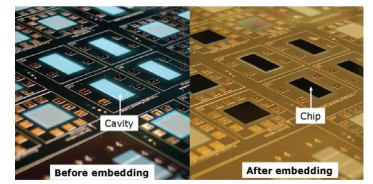
- Georgia Tech proposes EMAP with chip-last interconnections without the above problems to demonstrate functional modules

The Unique Features of this Global Consortium Include:

- Integration of multiple embedded dies and thin-film passive components for Digital, Analog, RF, and MEMS
- Smallest volumetric form factor (<0.3mm package profile)
- Focus on high interconnection reliability and high yield
- Compatible processes with existing manufacturing infrastructure and business model
- Complimentary alternative to wafer-level fan-out and chip-first approaches
- Clear path to commercialization through key IDM and supply chain partners

Research Focus

- Thin Substrates and thin ICs
- Low profile high density chip-last interconnections
- Precision cavities for embedded actives
- Embedded passives for digital and RF
- Thermal technologies



EMAP Research Tasks and Team

Mr. Nitesh Kumbhat (Program Manager)

- Thin Substrates and Cavities – Dr. Fuhun Liu, Mr. Hunter Chan, Mr. Jason Bishop
- Thin IC Embedding and Chip-Last Interconnections – Mr. Nitesh Kumbhat, Dr. Raj Pulugurtha, Mr. Abhishek Choudhury, Prof. C. P. Wong, Dr. Jack Moon, Mr. Rongwei Zhang, Dr. Raghu Pucha
- Embedded Passives – Prof. Madhavan Swaminathan, Mr. Eddy Hwang, Mr. Vivek Sridharan, Dr. Raj Pulugurtha
- Thermal Management – Prof. Yogendra Joshi
- Functional Demonstrator – Prof. Madhavan Swaminathan, Prof. S. K. Lim, Ms. Nithya Sankaran, Mr. Gokul Kumar, Mr. Eddy Hwang, Mr. Vivek Sridharan, Dr. Venky Sundaram, Mr. Nitesh Kumbhat, Dr. Fuhun Liu
- Industry Liaison and Memberships – Mr. Dean Sutter, Director of Operations
- Professor Rao Tummala (PRC Director), Dr. Venky Sundaram (Research Director)

Phase I/II Sponsors: AT&S, Atotech, Bosch, Brewer Science, Disco, Draper Labs, DuPont, Endicott Interconnect, EPCOS, Ibiden, Infineon, Intel, Mitsubishi Gas Chemical, NXP, Oak-Mitsui, Qualcomm, Rogers Corp., SAMEER, Sony Chemical, Starfire Systems, Triquint Semiconductor, and Texas Instruments.

Phase II
November 2009 - October 2011

Website:
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