

## **MEDIA RELEASE**

### **NEW CONSORTIUM FOR 2.5D THROUGH-SILICON INTERPOSER TECHNOLOGY TO BENEFIT COMPUTER AND CONSUMER ELECTRONICS INDUSTRIES**

***A\*STAR Institute of Microelectronics and Leading Semiconductor Partners combine research and market expertise to address industry challenges***

1. Singapore, 24 June 2013 – A\*STAR Institute of Microelectronics (IME) has launched the 2.5D Through-Silicon Interposer (TSI) Consortium to accelerate market adoption of TSI technology, which is driven by strong demands in computer infrastructure and consumer electronics. Members of the consortium include key industry players across the manufacturing ecosystem: eSilicon Corporation, EV Group (EVG), KMG Ultra Pure Chemicals Pte. Ltd., Synopsys International Ltd., Tezzaron Semiconductor Corporation, United Microelectronics Corporation (Singapore Branch) and United Test and Assembly Center Ltd (UTAC).
2. The consortium aims to deliver a high-performance functional 2.5D IC test vehicle to demonstrate and optimize integration of logic and 3D-memory, integrated passive devices (IPD) and dense interconnects on TSI. It targets low power and high performance requirements of networking, graphics and mobile application processors. At the same time, the fabrication and assembly of the interposers on 300mm wafers will support volume production at low cost.
3. The consortium brings members of the supply chain together to address challenges such as heat management, reliability analysis and packaging. IME will provide its onsite 300mm wafer fabrication resources and assembly process

capability while consortium members will bring their market expertise on performance, design and manufacturing requirements.

4. Heterogeneous integration on silicon interposers provides a viable solution to the demand in the computer and consumer electronics markets for higher processing speed, lower power and increased functionalities. Yole Développement analysts expect that over 2 million 300mm wafers will be produced in 2017 and the 2.5D interposer substrate will impact more than 16% of the traditionally 'organic-made' IC package substrate business by 2017, with almost \$1.6B revenues generated by then.<sup>1</sup> Notwithstanding the expected ramp-up, the infrastructure for 2.5D/3D interposers on 300mm today remains weak. By addressing the 2.5D IC manufacturing and cost challenges using 300mm wafer fabrication, IME believes that the execution of the project will bring considerable value to the semiconductor manufacturing ecosystem.
5. "Continued development and optimization of through-silicon interposer technology is a necessary next step in the semiconductor industry in order to generate market growth for 2.5D ICs," said Prof. Dim-Lee Kwong, Executive Director of A\*STAR IME. "The strategic alliance between fabless companies, technology and EDA providers, foundry, assembly and test providers, materials and equipment vendors, in which each represents a vital segment of the manufacturing ecosystem, will advance the market adoption of 2.5D integration for a wide range of applications."
6. "We are very enthusiastic about this consortium and its practical, industry-driven focus," said Bob Patti, CTO of Tezzaron. "IME has invaluable experience with silicon interposers and vast expertise in semiconductor technology development. The consortium members are key industry participants, keenly aware of cost, throughput, and performance requirements. Tezzaron's participation is sure to reduce our own development costs and improve time-to-market."

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<sup>1</sup> Source: Yole Développement – September 2012.

7. “Integrating 2.5D systems with TSI technology offers many potential benefits to electronics companies, such as higher performance and lower power,” said John Chilton, Senior Vice President of Marketing and Strategic Development at Synopsys. “Along with IME and other members of the 2.5D TSI Consortium, we are aiming to accelerate the design, as well as improve the cost and reliability, of 2.5D integrated systems. We look forward to jointly delivering practical research results that can enable designers to rapidly create innovative 2.5D systems using TSI technology.”
8. “As leading equipment supplier for thin wafer handling, lithography and wafer bonding we are proud to be part of the team to support the 2.5D TSI process development at IME,” said Mr. Paul Lindner, Chief Technology Officer, EV Group (EVG).
9. “We are pleased to join the IME 2.5D TSI Consortium,” said S.C. Chien, Vice President of Advanced Technology Development in UMC. “This provides us a great opportunity to work with other members and contribute based on UMC’s own 2.5D TSI capabilities. As 2.5D chip stacking evolves from homogeneous to heterogeneous, the complexity among electrical, mechanical and thermal interactions between IC and packaging is expected to increase. We consistently believe that an open ecosystem approach is the best way to explore and deliver upon technology development targets such as 2.5D TSI.”
10. “This alliance is highly strategic for us and the ASIC industry as a whole and hopefully will accelerate the adoption of this important technology,” said Gino Skulick, eSilicon’s VP and GM of SDMS Solutions. “The knowledge gained in this consortium will be vital in proving the manufacturability and reliability of chip systems built in this manner. eSilicon’s “integrator” role, coupled with our innovative packaging design capability, enables collaborative projects such as this one.”

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## **About A\*STAR Institute of Microelectronics (IME)**

The Institute of Microelectronics (IME) is a research institute of the Science and Engineering Research Council of the Agency for Science, Technology and Research (A\*STAR). Positioned to bridge the R&D between academia and industry, IME's mission is to add value to Singapore's semiconductor industry by developing strategic competencies, innovative technologies and intellectual property; enabling enterprises to be technologically competitive; and cultivating a technology talent pool to inject new knowledge to the industry. Its key research areas are in integrated circuits design, advanced packaging, bioelectronics and medical devices, MEMS, nanoelectronics, and photonics. For more information about IME, please visit [www.ime.a-star.edu.sg](http://www.ime.a-star.edu.sg).

## **About Agency for Science, Technology and Research (A\*STAR)**

The Agency for Science, Technology and Research (A\*STAR) is Singapore's lead public sector agency that fosters world-class scientific research and talent to drive economic growth and transform Singapore into a vibrant knowledge-based and innovation driven economy.

In line with its mission-oriented mandate, A\*STAR spearheads research and development in fields that are essential to growing Singapore's manufacturing sector and catalysing new growth industries. A\*STAR supports these economic clusters by providing intellectual, human and industrial capital to its partners in industry.

A\*STAR oversees 20 biomedical sciences and physical sciences and engineering research entities, located in Biopolis and Fusionopolis as well as their vicinity. These two R&D hubs house a bustling and diverse community of local and international research scientists and engineers from A\*STAR's research entities as well as a growing number of corporate laboratories.

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**Media Contact:**

**For A\*STAR IME:**

Chua Yi Fen

DID: +65 6770 5378

Email: [chuayif@ime.a-star.edu.sg](mailto:chuayif@ime.a-star.edu.sg)