

MEDIA RELEASE

A*STAR IME CONSORTIUM TO DEVELOP ADVANCED PACKAGING SOLUTIONS FOR CU PILLARS, 3D-EMWLP AND POWER ELECTRONICS WITH LEADING SEMICONDUCTOR COMPANIES

1. Singapore, 9 July 2013 – Reliability and performance issues are technical challenges in packaging solutions for compact sized consumer electronics and high power electronics. To address these issues, the A*STAR Institute of Microelectronics (IME) and leading semiconductor companies have joined to form the 12th Electronics Packaging Research Consortium (EPRC12). By leveraging on the experience and knowledge of the members, the consortium aims to address the package design, materials and process integration challenges for improved packaging solutions.
2. EPRC12 consists of 11 members spanning the semiconductor supply chain of the industry from integrated device manufacturers, foundries, packaging houses, to equipment and material companies. Members include Ajinomoto, EV Group, GLOBALFOUNDRIES, Heraeus Materials, Henkel, Infineon Technologies, JSR Micro N.V., Linxens, Tokyo Ohka Kogyo, Academy of Public Security Technology (Hefei) and one other packaging company.
3. The consortium will focus on three projects to develop advanced technologies for (a) Copper (Cu) pillar interconnect, (b) embedded wafer level packaging (EMWLP) for 3D integrated devices and (c) high power electronics packaging solutions. The Cu pillar project will address the thermo-mechanical issue of the interconnect structure to provide an improved structural integrity for fine pitch interconnection in applications such as processors for consumer electronics. The 3D-EMWLP project will develop solutions to improve the electrical performance for Package-on-Package (PoP) application with medium to high through-mold

interconnections. The power electronics packaging project aims to develop a novel packaging solution for power module with junction temperature up to 220°C for wide bandgap applications in aerospace, green and renewable energy, as well as future automotives such as hybrid electric vehicles or electric vehicles.

4. “Supply chain alliances with intersections amongst tool suppliers, foundry, packaging companies, and the system designers, aided by consortia has proved to be a good working model in the fast-changing, highly complex world of advanced packaging,” said Prof. Dim-Lee Kwong, Executive Director of A*STAR IME. “With the launching of 12th EPRC, it is heartening to observe that the EPRC consortium, first launched in 1996, continues to serve as a strategic platform for our industry partners to leverage our extensive experience and cutting edge capabilities to develop timely solutions. Through the consortia, better chip performance and reliability, smaller form factor and increased functionalities have been achieved.”
5. “EVG’s extensive experience and integrated capability for thin wafer handling and processing of warped wafers on the state of the art “Gemini” platform will significantly contribute to ensure successful backside ViM processing utilizing TBDB technology,” said Frank Huysmans, Asia Pacific sales manager, EVG.
6. “Participating in the consortium is a real must for Linxens not only for the value it brings to all members but also as a member of the industrial community of Singapore. We are proud to contribute our knowledge and expertise to the future of IC design,” said Olivier Castaignede, strategy director in Linxens.

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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.

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

The Agency for Science, Technology and Research (A*STAR) is the lead agency for fostering world-class scientific research and talent for a vibrant knowledge-based and innovation-driven Singapore. A*STAR oversees 14 biomedical sciences, and physical sciences and engineering research institutes, and seven consortia & centre, which are located in Biopolis and Fusionopolis, as well as their immediate vicinity. A*STAR supports Singapore's key economic clusters by providing intellectual, human and industrial capital to its partners in industry. It also supports extramural research in the universities, hospitals, research centres, and with other local and international partners. Please visit www.a-star.edu.sg

About EV Group

EV Group (EVG) is a leading supplier of equipment and process solutions for the manufacture of semiconductors, microelectromechanical systems (MEMS), compound semiconductors, power devices, and nanotechnology devices. Key products include wafer bonding, thin-wafer processing, lithography/nanoimprint lithography (NIL) and metrology equipment, as well as photoresist coaters, cleaners and inspection systems. Founded in 1980, EV Group services and supports an elaborate network of global customers and partners all over the world. More information about EVG is available at www.EVGroup.com.

About GLOBALFOUNDRIES

GLOBALFOUNDRIES is the world's first full-service semiconductor foundry with a truly global footprint. Launched in March 2009, the company has quickly achieved scale as the second largest foundry in the world, providing a unique combination of advanced technology and manufacturing to more than 150 customers. With operations in Singapore, Germany and the United States, GLOBALFOUNDRIES is the only foundry that offers the flexibility and security of manufacturing centers spanning three continents. The company's three 300mm fabs and five 200mm fabs provide the full range of process technologies from mainstream to the leading edge. This global manufacturing footprint is supported by major facilities for research, development and design enablement located near hubs of semiconductor activity in the United States, Europe and Asia. GLOBALFOUNDRIES is owned by the Advanced Technology Investment Company (ATIC). For more information, visit www.globalfoundries.com.

About Henkel

Henkel operates worldwide with leading brands and technologies in three business areas: Laundry & Home Care, Cosmetics/Toiletries and Adhesive Technologies. Founded in 1876, Henkel holds globally leading market positions both in the consumer and industrial businesses with well-known brands such as Persil, Schwarzkopf and Loctite. Henkel employs about 47,000 people and reported sales of 15,605 million euros

and adjusted operating profit of 2,029 million euros in fiscal 2011. Henkel's preferred shares are listed in the German stock index DAX.

About Linxens

With 700 employees, Linxens is a pioneer and leading global manufacturer of flexible etched circuitry for data or power transmission. We put our unique know-how and passion for quality and innovation at the service of our customers, to deliver reliable and robust flexible circuits for use in multiple applications. Linxens has established unrivalled leadership in the field of smart cards where its circuits are being used every day by billions of people. For more information, visit www.linxens.com.