

MEDIA RELEASE

COLLABORATION BETWEEN A*STAR INSTITUTE OF MICROELECTRONICS, GLOBALFOUNDRIES AND ALCATEL-LUCENT TO BRING ADVANCED PHOTONICS CHIPS TO MARKET

Singapore, 28 November 2011 – The Institute of Microelectronics (IME), a research institute of the Agency for Science, Technology and Research (A*STAR), has announced plans to commercialize key innovations in silicon chips designed to support high speed, high bandwidth optical communications. These chips were developed as part of IME's Silicon Photonics research platform.

Further enhancements to the chips were enabled, through strategic collaboration with Alcatel-Lucent Bell Laboratories - one of the world's leading optical communications innovators.

Working with a global semiconductor foundry, GLOBALFOUNDRIES, IME and Alcatel-Lucent plan to bring innovative silicon component designs from research to commercial fabrication readiness within the next few years.

These scalable and cost-effective silicon building blocks will be made accessible to photonics developers to create new products and propagate the benefits of dramatically increased data rate and processing power, at a reduced cost to the industry.

The collaboration leverages Bell Labs' extensive design experience and leading-edge research capability with the development expertise of IME to create a library of silicon photonics devices with the requisite process control monitors (PCMs) and process design kits (PDKs). These photonic devices, ranging from next-generation high-speed optical modulators, germanium photo-detectors, waveguides and other common photonic circuits found in networking equipment will be offered as a result of this collaboration.

"This milestone reflects the rapidly growing commercial significance of silicon photonics," cited Prof. Dim-Lee Kwong, the Executive Director of IME. "IME will continue to enhance our Silicon Photonics technology platform and work with our strategic partners to bring the benefits of silicon photonics to the industry worldwide."

"I'm delighted that IME and GLOBALFOUNDRIES are working with Bell Labs to accelerate the development of the exciting silicon photonics technology, which holds such promise for use in communication systems," said, Alice White, Chief Scientist, Alcatel-Lucent Bell Labs. "Bell Labs has been actively engaging leading microelectronics research institutes in silicon photonics research - it is exciting to see these efforts moving forward into the commercial realm."

“GLOBALFOUNDRIES is excited to partner with IME to deliver photonics solutions to customers such as Alcatel-Lucent. Through innovative design kits and advanced materials fabrication techniques, the GLOBALFOUNDRIES – IME team intends to expand the photonics design and manufacturing portfolio to our existing and future customers who are looking for reliable high-volume manufacturing service,” said Raj Kumar, Senior Vice President for GLOBALFOUNDRIES’ 200mm Business Unit and General Manager for Singapore.

About IME’s Nano-Photonics Programme

IME’s Nano-Photonics Programme focuses on silicon photonics, an area of research which has attracted substantial industry interest. Silicon photonics enables manufacturers to integrate optical functions in silicon wafers, just as electronic devices are today, thus enabling them to take advantage of the infrastructure and R&D know-how of silicon manufacturing accrued over the past 40 years. The result is a 10 to 100 times reduction in cost, surmounting the main obstacle that has hindered the widespread adoption of photonics.

By leveraging the advanced silicon micro- and nano-fabrication technologies in IME, researchers under the programme have made significant progress in developing CMOS platform-based silicon photonic devices with applications in high-speed optical interconnects and light-emitters. Their achievements include having demonstrated low loss light coupling, transmission and wavelength-division-multiplexing as well as fast electro-optical modulation, photo-detection and light emission in silicon — which are the important building blocks towards realising high performance photonic integrated circuits in silicon.

About 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 circuit design, advanced packaging, bioelectronics and medical devices, MEMS, nano-electronics, and photonics.

For more information, visit IME on the Internet: <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 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 six consortia & centres, 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, and with other local and international partners.

For more information about A*STAR, please visit www.a-star.edu.sg.

About GLOBALFOUNDRIES

GLOBALFOUNDRIES is the world's first full-service semiconductor foundry with a truly global manufacturing and technology footprint. Launched in March 2009 through a partnership between AMD [NYSE: AMD] and the Advanced Technology Investment Company (ATIC), GLOBALFOUNDRIES provides a unique combination of advanced technology, manufacturing excellence and global operations. With the integration of Chartered Semiconductor in January 2010, GLOBALFOUNDRIES significantly expanded its capacity and ability to provide best-in-class foundry services from mainstream to the leading edge. GLOBALFOUNDRIES is headquartered in Silicon Valley with manufacturing operations in Singapore, Germany, and a new leading-edge fab under construction in Saratoga County, New York. These sites are supported by a global network of R&D, design enablement, and customer support in Singapore, China, Taiwan, Japan, the United States, Germany, and the United Kingdom.

For more information on GLOBALFOUNDRIES, visit <http://www.globalfoundries.com>.

About Alcatel-Lucent (Euronext Paris and NYSE: ALU)

The long-trusted partner of service providers, enterprises, strategic industries and governments around the world, Alcatel-Lucent is a leader in mobile, fixed, IP and Optics technologies, and a pioneer in applications and services. Alcatel-Lucent includes Bell Labs, one of the world's foremost centres of research and innovation in communications technology.

With operations in more than 130 countries and one of the most experienced global services organizations in the industry, Alcatel-Lucent is a local partner with global reach. The Company achieved revenues of Euro 16 billion in 2010 and is incorporated in France and headquartered in Paris.



For more information, visit Alcatel-Lucent on: <http://www.alcatel-lucent.com>, read the latest posts on the Alcatel-Lucent blog <http://www.alcatel-lucent.com/blog> and follow the Company on Twitter: http://twitter.com/Alcatel_Lucent.

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