

PRESS RELEASE

DEVELOPING DIGITAL RF TECHNOLOGY FOR GREATER NETWORK COVERAGE

A*STAR's Institute of Microelectronics collaborates with CM Engineering to develop prototype WLAN RF transceiver for extended WiFi standards

1. **Singapore, 23 Dec 2013** – A*STAR's Institute of Microelectronics (IME), a research leader in semiconductor technology, will embark on a second collaboration with Japanese Engineering Firm, CM Engineering Co. Ltd (CME), this time to refine modern standards in digital radio frequency (RF) technology. The joint effort will potentially bring forth stronger network coverage performances, which will benefit businesses and public alike, especially telecommunications manufacturers and Wi-Fi users.
2. With the aim to bolster network parameters, IME and CME will focus on the development of digital RF technology for greater network coverage in telecommunications devices such as laptops, mobile phones and tablets.
3. Design limitations in conventional technologies result in cost and performance issues, which render them ineffective in meeting the increasing demand for data consumption. Digital RF technology displays ease of technology scaling, as well as flexibility in re-configuration, allowing it to support multi-standards wireless systems with high performance yield at low cost. The development of digital RF technology will support the production of devices that meet the channel bandwidths and frequency bands requirements for next generation wireless standards, enabling users to enjoy affordable and better network coverage over long distances and in remote areas.

4. The success of this research collaboration will lead to the development of a functional prototype of WLAN digital-RF transceiver for extended wi-fi standards with higher frequency bands and service coverage, i.e., IEEE 802.11 af. IME and CME have previously partnered on the development of a low power RF integrated circuit (IC) and the success of the partnership provides a strong basis for continued collaboration.
5. The collaboration leverages on the respective knowledge and expertise of the two organisations, including CME's very-large-scale-integration (VLSI) and system design capabilities and IME's capabilities in RF and mixed-signal IC design and wireless systems.
6. "With increasing demands in usage and data consumption, it has become unavoidable for the release of unutilized radio spectrum to augment the existing spectrum for unlicensed wireless broadband," noted Professor Dim-Lee Kwong, Executive Director of IME. "Industry collaborations such as this research project with CME enable IME to develop relevant and cutting-edge technologies for use in future mobile devices, allowing them to meet the requirements of these new communication standards without compromising cost and form factor."
7. "Digital RF is one of the break-through technologies to realize Cognitive-Radio and Software-Defined-Radio that will bring about next generation wireless communication oriented systems such as Internet of Things, Big Data and Cloud Computing. CME believes this collaboration will be definitely a seed project for producing further rich information society," commented Mr Atsushi Kawai, Managing Director of CM Engineering.

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About the 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 <https://www.ime.a-star.edu.sg>.

About the 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 18 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.

Please visit www.a-star.edu.sg

About CM Engineering Co., Ltd

CM Engineering Co., Ltd. (CME) is a semiconductor and IT system design services company in Tokyo, Japan. CME is providing unique engineering services in advanced Chip & System design market, such as multi-core based system LSI or network-on-chip (NOC) system LSI. The other unique services are wireless communication developments and their relating products businesses. From RFIC design to medium scale network system development, from system specification to actual chip development, CME is providing full turnkey services. Also, CME is providing various kinds of unique products, such as Verification libraries, FPGA development and evaluation kit, Wireless communication modules and development kit as well as IP licensing. For more information about CME, please visit <http://cmengineering.co.jp/>