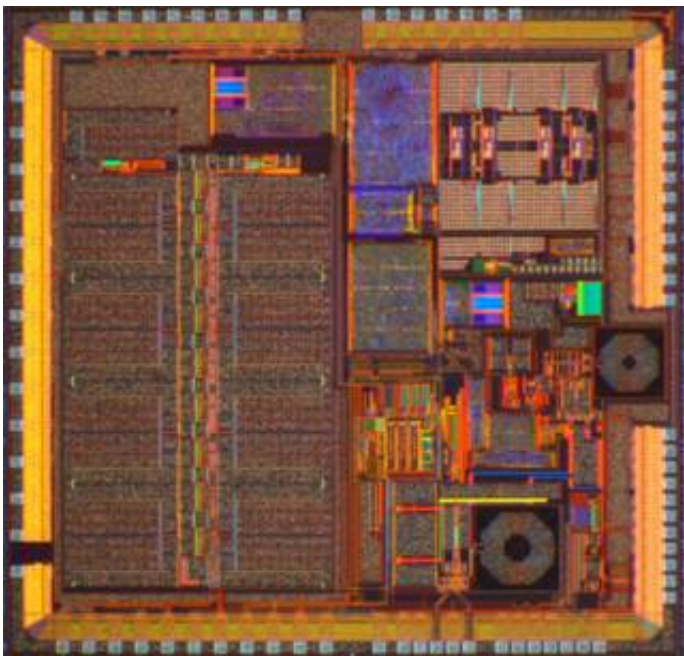


Low power, high performance RF transceiver for wireless smart energy management and remote industrial monitoring

February 26 2014



400MHz Low power Wireless Transceiver

A*STAR Institute of Microelectronics (IME) and Cubic Micro today announce that they have developed and demonstrated a 400 MHz radio frequency (RF) transceiver with the highest power efficiency and leading performance reported to deliver high quality signals over industry's widest coverage in wireless sensor network applications. The transceiver is integrated with a highly configurable baseband, which

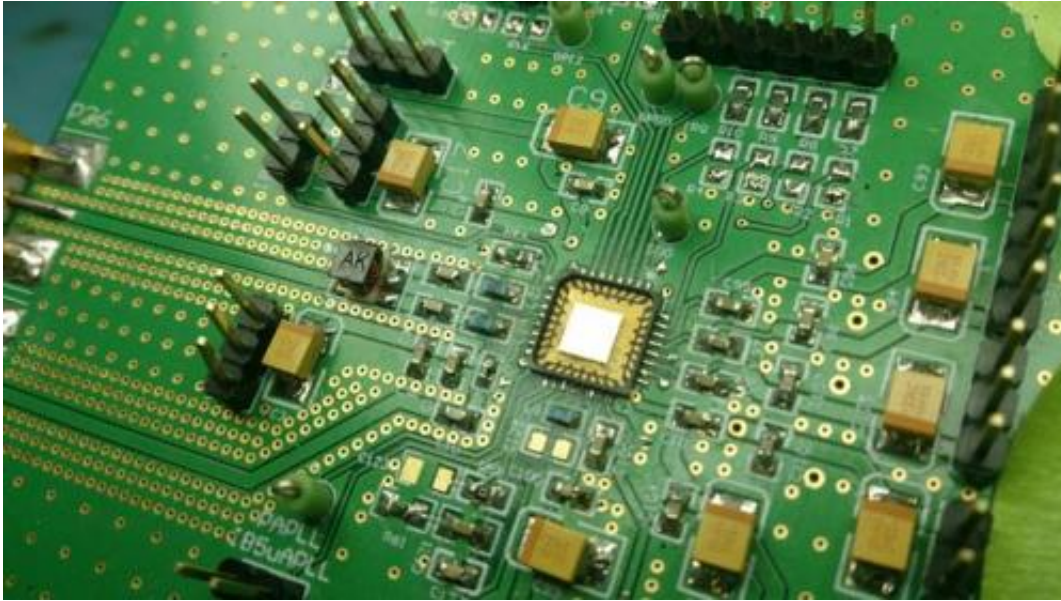
allows users to customize transceiver performance for specific applications ranging from wireless smart energy management and security control in homes and buildings to long-range remote industrial monitoring.

To achieve [low power consumption](#) in RF transceiver, performance is typically sacrificed, resulting in degradations of sensitivity, channel selectivity and interference immunity during the [wireless](#) signal communication process.

To address the performance and [power consumption](#) dilemma, the IME team has employed a low-power low-noise linear RF chain and a 75-dB-dynamic-range band-pass analogue-to-digital converter (ADC) so that channel filtering is conducted in the low-power digital circuits. This strategy cuts energy consumption by up to 55% while providing unprecedented wireless communication range that supports highest reported sensitivity along with excellent selectivity compared to commercially available transceiver chips. These features translate into fewer sensor nodes to achieve similar network coverage in a [wireless sensor network](#), further reducing costs and power consumption.

The design is amenable to mass production and is compatible with both Japanese standards[1], while also meeting the emission limits of Europe and US.

"IME's commitment to continually demonstrate strong R&D capabilities in CMOS RF design has attracted partners who look forward to developing next-generation smart energy metering solutions," said Professor Dim-Lee Kwong, Executive Director of IME. "We look forward to strengthening customer adoption to benefit the community with a wider range of innovative applications."



Evaluation board for the Transceiver IC.

"We are glad to have developed the lowest power and high performance RFIC in Asia together with IME," said Mr Yutaka Kumagai, Managing Director of Cubic Micro. "This kind of joint developments will be needed for high diversity business environment, and we believe IME will be one of the best technology partners in the area of wireless solution to create new product and technologies."

Provided by ResearchSEA

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