GLOBALFOUNDRIES Details 14nm-XM FinFET Technology Performance, Power and Area Efficiency with a Dual-Core Cortex-A9 Processor Implementation

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Company expects 14nm-XM to deliver more than twice the energy efficiency of 28nm-SLP at only half the chip area

Santa Clara, Calif., February 5, 2013 —At today's Common Platform Technology Forum, GLOBALFOUNDRIES announced results from the industry's first implementation of a dual-core ARM® Cortex™-A9 processor using three-dimensional 14nm-XM FinFET transistors. Based on the industry standard design implementation flows and sign-off simulations using real process data, GF expects that a dual-core ARM Cortex-A9 processor manufactured on GF's 14nm-XM technology will deliver more than twice the energy efficiency of a similar 28nm-SLP technology based design, while requiring only half the chip area.

GF used technical specifications from its 14nm-XM process design kit (PDK) combined with ARM Artisan® standard-cell libraries and memories to release a Graphic Database System (GDS) file that has been used to calculate expected performance, power and area metrics. The results were compared to a silicon implementation of a dual-core ARM Cortex-A9 processor manufactured on GF's 28nm-SLP technology.

The implementation clearly demonstrates the value proposition of the 14nm-XM FinFET technology for tomorrow's mobile applications. Some of the salient aspects ascertained through the simulation are:

- High-performance, energy-efficient ARM processors implemented on 28nm-SLP typically use 12-track libraries. However at 14nm-XM FinFET technology, much higher performance and more energy-efficient ARM processors can be implemented using 9-track libraries resulting in further die-size reductions.
- At constant power, the frequency achieved with 14nm-XM technology based implementation (using 9-track libraries) is expected to be 61% faster than the frequency achieved with 28nm-SLP technology based implementation (using 12-track libraries).
- At constant frequency, the power consumed by 14nm-XM technology based implementation is expected to be 62% lower than the power consumed by 28nm-SLP technology based implementation.
- The performance-power efficiency of 14nm-XM technology based implementation (expressed as DMIPs/milliwatts) is anticipated to be more than twice that of the 28nm-SLP technology based implementation, while using half the silicon area.

"Our deep collaboration with ARM is continuing to pay off as we work together to optimize ARM IP for our leading-edge process technology," said Mike Noonen, executive vice president of marketing , sales, design and quality at GF. "Our 14nm-XM FinFET technology is designed for the next generation of mobile devices, making it a perfect fit for ARM's energy-efficient processor technology. Our mutual customers will benefit extensively from this partnership as they design a range of products for the mobile, tablet and computing applications of tomorrow."

"These preliminary results illustrate the potential benefits of FinFET technology applied to an ARM processor-based system-on-chip (SoC)," said Dr. Dipesh Patel, executive vice president and general manager, Physical IP Division at ARM. "Early collaboration on manufacturing process technologies allows GF and ARM to identify and address SoC design challenges and reduce risks to adoption by our mutual customers."

ABOUT GF

GF 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 160 customers. With operations in Singapore, Germany and the United States, GF 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. GF is owned by the Advanced Technology Investment Company (ATIC). For more information, visit http://www.globalfoundries.com.