GLOBALFOUNDRIES Unveils Vision and Roadmap for Next-Generation 5G Applications

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Technology platforms are uniquely positioned to enable a new era of 'connected intelligence' with the transition to 5G

Santa Clara, Calif., September 20, 2017 -- GLOBALFOUNDRIES today announced its vision and roadmap for a sweeping range of technology platforms designed to help customers transition to next-generation 5G wireless networks. The company offers the industry's broadest set of technology solutions for a range of 5G applications, from integrated mmWave front end modules (FEMs), transceivers, and baseband chips to high-performance application processors for mobile and networking.

As the world becomes more reliant on digital information, connectivity is expected to drive an enormous amount of growth, with an estimated 8.4 billion connected devices by 2020. 5G will be a key enabler to help networks realize zero-distance connectivity between people and connected machines. The ubiquitous connectivity, incredible throughput, and blistering speeds of 5G will allow applications to take full advantage of the processing power of the cloud.

"At GF, we expect the transition from 4G to 5G to be as disruptive as the transition from voice to data," said GF CEO Sanjay Jha. "5G is set to transform all industries, and our customers are already gearing up for the future. That is why we continuously push the technology frontier by delivering a rich technology portfolio to meet the requirements for applications that enable connected intelligence for disrupting technologies such as 5G."

"The vision of 5G is to enable ultra-reliable communications with high data throughput, high user density, and less than 5ms of network latency," said Linley Gwennap, principal analyst of The Linley Group. "GF's broad portfolio and experience positions the company well to address the needs of these networks as they transition to support 5G, from the device all the way to the data center and everything in between."

GF boasts a number of market-differentiating solutions to meet the performance criteria of 5G applications. The company's technology roadmap includes offerings in RF-SOI, silicon germanium (SiGe), RF CMOS and advanced CMOS nodes, combined with a broad range of ASIC design services and IP.

GF's 5G End-to-End Solutions

GF's 5G solutions are part of the company's vision to develop and deliver the next wave of technology aimed at enabling connected intelligence for next-generation devices, networks and wired/wireless systems. These application-specific solutions address various customer approaches to 5G by supporting a vast range of capabilities, from ultra-low energy sensors, to ultra-fast devices with long-lasting battery life, to higher levels of integration that support on-chip memory.

- 5G mmWave Front End Modules: GF's RF-SOI and SiGe solutions (130nm-45nm) deliver an optimal combination of performance, integration and power efficiency for FEMs and integrated power amplifier (PA) applications. GF's mmWave solutions are designed to operate in between the mmWave and sub-6GHz frequency band, with additional mmWave bands on the company's roadmap. Customers can now start optimizing their chip designs to develop differentiated solutions for high performance in the RF front end of 5G and mmWave phased array applications.
- 5G mmWave Transceivers and Baseband Processing: GF's FDX technology (22nm and 12nm) provides the lowest power solution and smallest footprint for 5G transceivers with the integration of RF, ADC, digital baseband and memory on a single chip. Additional features include a unique back-gate bias capability that enables novel architectures and reconfigurable operation. These optimized solutions provide customers a flexible and cost-effective solution to integrate mmWave transceivers and baseband processing in 5G base stations, satellites, radar and other high-performance applications. FDX for mmWave will be available in 2018 through GF and its worldwide partners.
- Advanced Applications Processing: GF's advanced CMOS FinFET-based process technologies deliver an optimal combination of performance, integration and power efficiency for next-generation smartphone processors, low latency networks and massive MIMO networks. Advanced CMOS solutions are available today from GF.
- Custom Design for 5G Wireless Base Stations: The company's application-specific integrated circuit (ASIC) design systems (FX-14 and FX-7) enable optimized 5G solutions (functional modules) by supporting wireless infrastructure protocols on high-speed SerDes, solutions to integrate advanced packaging, monolithic, ADC/DAC and programmable logic. The 5G solution includes 32G BP and 32G SR SerDes to support CPRI, JESD204C standards. It also includes advanced packaging solutions such as 2.5D and MCM, with mmWave capable ADC/DAC data converters and digital front end (DFE). FX-14 is available to customers today while volume production is expected in 2019 for FX-7.

These 5G solutions are available through GF and its worldwide partners. GF is currently working with customers to help support prototyping systems for deployment trials over the next several years.

Unrivaled RF Leadership

With deep roots in both RF-SOI and SiGe processes, GF's manufacturing legacy and technical expertise in understanding next-generation RF communication architectures has resulted in more than 32 billion RF SOI and 5 billion SiGe chips shipped.

To meet accelerating global demand for 5G solutions, GF is expanding manufacturing capacity in its 300mm fab in East Fishkill as well as adding new capabilities to produce its industry-leading RF-SOI technology in its 200mm Singapore Fab.

Anokiwave

"A major challenge in the 5G mmW market is understanding methods to produce commercially viable phased array antennas. We believe that GF's RF SOI and SiGe technology leadership enables Anokiwave to develop differentiated millimeter wave solutions to embrace the industrialization of mmW 5G networks."
Robert Donahue, CEO, Anokiwave

Peregrine

"For nearly three decades, Peregrine's UltraCMOS® technology platform has been at the forefront of RF-SOI performance, and since 2013, our collaboration with GLOBALFOUNDRIES has further enabled Peregrine to advance RF-SOI technology. With 5G on the horizon, Peregrine is pleased to see GF committing to a 5G roadmap that will support Peregrine's highly integrated 5G solutions."
Jim Cable, CTO of Peregrine Semiconductor

Qualcomm

"Global Foundries has had a strong foundry relationship with Qualcomm Technologies for many years across a wide range of process nodes. We are excited to see what 5G can bring to the industry and are looking forward to watching it unfold."
Cristiano Amon, Executive Vice President, Qualcomm Technologies, Inc. and President, Qualcomm CDMA Technologies

Skyworks

"As our customers increasingly demand more from their mobile experiences, the need for a strong manufacturing partner is greater than ever. We are pleased to have a partner like GF who is focused on providing the technologies we can leverage to deliver powerful and future-ready RF solutions for 5G markets ranging from mobile connectivity and wireless infrastructure to the Internet of Things."
Peter Gammel, CTO at Skyworks Solutions, Inc.

About GF:

GLOBALFOUNDRIES is a leading full-service semiconductor foundry providing a unique combination of design, development, and fabrication services to some of the world's most inspired technology companies. With a global manufacturing footprint spanning three continents, GLOBALFOUNDRIES makes possible the technologies and systems that transform industries and give customers the power to shape their markets. GLOBALFOUNDRIES is owned by Mubadala Investment Company. For more information, visit http://www.globalfoundries.com.

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