180 nm Ultra CMOS Process

Peregrine Semiconductor Corporation has entered in an exclusive agreement with IBM for the development and manufacture of future generations of Peregrine's patented UltraCMOS™ silicon-on-sapphire (SOS) process technology, the industry's highest-performance radio frequency complementary metal-oxide semiconductor (RF CMOS) process. When fully qualified, the next-generation UltraCMOS RF ICs will be manufactured by IBM for Peregrine in the jointly-developed 180 nanometer process at IBM's 200 mm semiconductor manufacturing facility in Burlington, Vermont. Peregrine's UltraCMOS technology delivers excellent levels of RF performance and monolithic integration for high-growth applications such as the RF front-end of mobile phones and multi-mode, multi-band mobile wireless devices; broadband communications including 4G LTE equipment and base stations; mobile DTV/CATV RF signal conditioning; and space satellite systems. IBM, a global leader in microelectronics, adds Peregrine's UltraCMOS technology to its advanced semiconductor processing capability. This development marks the first commercial use of 200 mm (8-inch) wafer processing for silicon-on-sapphire process - a patented variation of silicon-on-insulator (SOI) technology that incorporates an ultra-thin layer of silicon on a highly insulating sapphire substrate - a milestone which will drive the next decade of UltraCMOS engineering. "We are pleased to be working with Peregrine to enable the next generation of RF circuits on sapphire and extend our leadership in insulating substrates by adding the 180 nm UltraCMOS process to our world-class portfolio of RFSOI technologies," said Regina Darmoni, director of IBM's Analog/Mixed-Signal and Digital Foundry business. Migration to 200 mm wafers facilitates the evolution of the process to advanced 180 nm, 130 nm and 90 nm nodes. It also provides access to advanced manufacturing toolsets and enables significantly expanded digital integration capability. Further, the agreement with IBM provides, through its world-class Technology Alliance partners, unprecedented levels of manufacturing capacity and a robust supply chain. "We are extremely proud to be developing future generations of UltraCMOS with one of the global leaders in semiconductor process technology," stated Jim Cable, president and C.E.O. of Peregrine Semiconductor. "Our company has long been committed to driving technological change in RF by bringing our silicon-on-sapphire RF process into the global mainstream. By combining the strengths of our two companies, we are continuing to deliver the promise of Moore's Law for high-performance RF CMOS." Collaboration between the two companies began in 2008 as the ability to use CMOS for RF designs emerged as a viable alternative to compound semiconductor processes such as gallium arsenide (GaAs). The benefits of CMOS include reliability, cost-effectiveness, high yields, portability, scalability and integration, all of which UltraCMOS demonstrates. "The realization of our 180 nm UltraCMOS process on 200 mm sapphire wafers is a very important phase of our long-term process development strategy," commented Mark Miscione, vice-president and chief strategist for technology solutions at Peregrine Semiconductor. "Throughout the last several years, we have invested significant capital and effort with our partners to strengthen the overall SOS supply chain and improve the economics of the base sapphire substrate material. This has been accomplished by

the global acceptance of SOS technology, as evidenced by the more than 600 million UltraCMOS RF ICs shipped from our foundries within the past few years. These improvements have also been fueled by the tremendous volume of sapphire now being used by the rapidly expanding LED lighting industry." The first 180 nm UltraCMOS RFICs have sampled to a key customer and commercial production release is expected in 2011. Initial product roadmaps include configurable RF cellular front ends in the form of high-power RF switches, tunable components, and power amplifiers.

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