QorIQ Qonverge Wireless Base Station Processor Portfolio

Freescale Semiconductor is now sampling the first “base station-on-chip” products built on its innovative QorIQ Qonverge multimode platform. The new QorIQ Qonverge PSC9132 system-on-chip (SoC) for picocell and PSC9130/31 SoCs for femtocell base stations share a single, scalable architecture that simultaneously supports multiple air interfaces, providing operators and OEMs highly integrated heterogeneous solutions that help minimize power consumption, cost and design time.

The QorIQ Qonverge portfolio offers a scalable line of processors built on the same architecture that spans from small- to large-cell base stations.The platform allows OEMs to reuse software regardless of cell size. Customers can leverage common hardware, software architecture and tools to minimize capital expenditure and benefit from a comprehensive solution that helps speed time to market.

Freescale’s first available QorIQ Qonverge processors are the PSC9130/31 femtocell SoCs (for eight to 16 simultaneous users) and PSC9132 picocell/enterprise SoC devices (for up to 64 simultaneous users). The processors support a range of air interfaces, including LTE (FDD/TDD), WCDMA (HSPA+) WiMAX UMTS and CDMA. The devices also incorporate glueless RFIC communication and antennae interfaces, eliminating the need for additional chips (such as FPGAs) and ultimately reducing board space and cost. The ultra-integrated PSC913x family also provides support for GPS synchronization and 2G/3G sniffing in a single device.

“Availability of the first QorIQ Qonverge products is a milestone for the wireless industry, which is in dire need of innovative new solutions to address challenging power requirements and exploding demand for additional bandwidth,” said Scott Aylor, director and general manager of Freescale’s Wireless Access Division. “Freescale’s QorIQ Qonverge portfolio offers unprecedented scalability and software compatibility, giving customers flexibility, reduced cost and design-time savings as they move up to larger capacity systems.”

Freescale leveraged its tremendous R&D scale, deep knowledge of the wireless market and extensive IP portfolio to develop the new SoCs. Built on market-tested Power Architecture® cores, programmable StarCore digital signal processor (DSP) technology and powerful baseband hardware acceleration engines already deployed in multiple LTE macrocell base stations around the world, the QorIQ Qonverge processors exemplify Freescale’s signature intelligent integration capabilities. Leveraging world-class StarCore SC3850 DSP and Power Architecture e500 MPU cores, the new QorIQ Qonverge SoCs are distinguished by offloading Layer 2 processing and above to MPU cores instead of DSP cores, delivering significant efficiency advantages.

PSC9130/31 femto SoC specifications
• Eight to 16 users (WCDMA, LTE, CDMA2K) and simultaneous multimode
• 2x2 MiMO
• 1x e500 core and 1x SC3850 core
• MAPLE-B2F acceleration

PSC9132 pico/enterprise femto SoC specifications
• 32-64 users (WCDMA, LTE) and simultaneous multimode
• 2x4 MiMO
• 2x e500 cores and 2x SC3850 cores
• MAPLE-B2P acceleration

Complementary RF power femto solutions
Freescale offers comprehensive multimode RF solutions to complement its QorIQ Qonverge PSC9130/PSC9131 products for femtocell applications. Designed to operate in all UMTS frequency bands (I – XIV), the highly efficient MMZ09312B, MMA20312B and MMA25312B power amplifiers are based on InGaP heterojunction bipolar transistor (HBT) technology and are configured in 3x3 mm MicroLeadFrame (MLF) surface mount plastic packages.
In addition, Freescale's MML09211H and MML20211H low-noise amplifiers provide extremely low noise figure and high linearity for femtocell receiver applications.

Enablement tools and software
A rich ecosystem of products and services from Freescale and its partners is planned to support the PSC913x family. The PSC9131 reference design board, planned for availability in Q4 2011, incorporates the processors, memory interfaces and most peripheral functions. The PSC9132 QorIQ Qonverge development system, planned for availability in Q4 2011, offers a high-performance computing evaluation, development and test platform. To help customers reach optimized performance, software migration tools and CodeWarrior software development tools, including a new Eclipse IDE, trace and profile, SmartDSP OS, debugger and C/C++ compiler are also available.

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