

Freescale introduces industry's first multimode wireless base station processor family that scales from small to large cells

New QorIQ Qonverge portfolio integrates leading DSP and communications processor technologies to realize true “base station-on-chip”

BARCELONA, Spain (Mobile World Congress 2011) – Feb. 14, 2011 – Freescale Semiconductor – the communications processing leader and provider of industry-leading DSP technology – is transforming the future of wireless infrastructure equipment with the introduction of a highly integrated base station-on-chip portfolio built on advanced heterogeneous multicore technology. Freescale’s new QorIQ Qonverge series is the first scalable family of products sharing the same architecture to address multi-standard requirements spanning from small to large cells.

The explosion of smart connected devices with increasing data and video content has created a mobile data tsunami, requiring OEMs and carriers to dramatically boost network performance while controlling capital expenditure costs, increasing power efficiency and supporting the emergence of 4G technologies.

The QorIQ Qonverge portfolio of base station-on-chip products is based on a common architecture and integrates communications processing, digital signal processing and wireless acceleration technologies into a single system-on-chip in various configurations optimized for next-generation femtocell, picocell, metrocell and macrocell base stations. Advanced process technology and exceptional integration allow the convergence of multiple functions traditionally performed on separate FPGAs, ASICs, DSPs and processors to be incorporated on a single device. This integration lowers part counts and delivers significant power, cost and footprint reductions for base stations. The common architecture spanning from femto cells to macro cells optimizes R&D investments and software reuse.

“The current explosion in mobile data traffic worldwide provides unique challenges and opportunities for wireless infrastructure equipment providers as they race to increase capacity and capability,” said Lisa Su, senior vice president and general manager of Freescale’s Networking and Multimedia Group. “Freescale’s highly integrated QorIQ Qonverge portfolio enables base station manufacturers to provide a dramatic, step-function improvement in performance, power and cost in a single, flexible architecture.”

QorIQ Qonverge technology can deliver 4x cost reduction and 3x power reduction for LTE + WCDMA macro base stations, and 4x cost and power

reductions for LTE + WCDMA pico base stations when compared to wireless infrastructure equipment powered by discrete silicon products.

“By integrating multiple industry-leading technologies into one scalable product line, Freescale’s QorIQ Qonverge portfolio delivers significant innovation that advances the state of wireless networking at this pivotal time for the industry,” said Will Strauss, president and principal analyst of Forward Concepts. “The QorIQ Qonverge portfolio presents a unique solution and strengthens Freescale’s position as a processing technology leader in the wireless infrastructure space.”

Freescale leveraged its broad R&D scale, deep application knowledge of the wireless space and extensive IP portfolio to develop the new product family. QorIQ Qonverge processors combine multiple Power Architecture® cores and high-performance StarCore DSPs with a MAPLE multimode baseband accelerator, packet processing acceleration engines, interconnect fabric and next-node process technology. The portfolio’s products support multiple standards, including GSM, LTE – FDD & TDD, LTE-Advanced, HSPA+, TD-SCDMA and WiMAX. In addition, the family’s flexible architecture allows support for evolving standards with software upgrades.

“Freescale’s innovative QorIQ Qonverge platform provides the integration, performance, energy efficiency and unmatched scalability that our new lightRadio™ product portfolio requires,” said Wim Sweldens, president of Alcatel-Lucent’s Wireless Division. “Game-changing products like lightRadio disaggregate the base station between the network and the wideband active antenna, produce dramatic cost savings and need components that provide giant leaps forward such as Freescale’s new QorIQ Qonverge technology.”

“Freescale’s QorIQ Qonverge product line gives us the flexibility to cost-effectively address the widest possible small cell market by providing a common architecture and multimode capabilities, along with the programmability for us to incorporate our own advancements,” said Michael Clark, Airvana’s general manager for femtocell business. “We look forward to working with Freescale to help accelerate the deployment of small cells in next-generation wireless networks.”

According to analyst firm Infonetics, radio access network base station spending is projected to be \$197 billion worldwide over the next four years.

Complete solutions

Customers can develop best-of-breed solutions with ease by combining their own differentiated IP with off-the-shelf components from Freescale and ecosystem partners. Freescale has assembled a rich ecosystem of technology leaders focused on wireless applications. Products and services from these partners can be combined with third party tools, as well as Freescale’s CodeWarrior

technologies and VortiQa application software. This ecosystem can provide ODMs and OEMs Layer 1 – 4 software, transport and security stacks, RF technologies, test and measurement capabilities and ODM solutions.

A development platform based on the P2020-MSC8156 AMC bundled with partner software and RF solutions is available immediately for rapid software development. In addition, Freescale offers a wide portfolio of GaAs MMICs and LDMOS RF solutions for consumer and enterprise pico and femto cells.

QorIQ Qonverge products

The QorIQ Qonverge portfolio includes four distinct products optimized for small cell (femto and pico) and large cell (metro and macro) applications. It also supports remote radio head and emerging cloud-based radio access network (C-RAN) configurations.

The first products in Freescale's QorIQ Qonverge multicore portfolio are built in 45-nm process technology and planned for availability in the second half of 2011. The products are the PSC9130/PSC9131 femto SoCs and PSC9132 picocell/enterprise femto SoC devices. Freescale plans to introduce portfolio members targeting larger cell (metro and macro) base stations built in 28-nm process technology later this year.

PSC9130/31 Femto SoC

- 8-16 users (WCDMA, LTE, CDMA2K) and simultaneous multimode
- 2x2 MiMO
- 1x e500 and 1x SC3850
- MAPLE-B2F acceleration

PSC9132 Pico/Enterprise Femto SoC

- 32-64 users (WCDMA, LTE) and simultaneous multimode
- 2x4 MiMO
- 2x e500 and 2x SC3850
- MAPLE-B2P acceleration

About Freescale Semiconductor

Freescale Semiconductor is a global leader in the design and manufacture of embedded semiconductors for the automotive, consumer, industrial and networking markets. The privately held company is based in Austin, Texas, and has design, research and development, manufacturing and sales operations around the world. www.freescale.com.

Supporting Partner Quotes Follow

Enea

"Enea currently provides a breadth of leading software solutions to support Freescale's extensive portfolio of networking IP," said Marcus Hjortsberg, vice

president of Marketing for Enea. “We look forward to playing a role in unleashing the innovative capabilities of Freescale’s new QorIQ Qonverge hybrid multicore portfolio.”

Green Hills

“With a long history of optimized support for Freescale’s multicore and multiprocessor platforms, we are excited to see Freescale’s next-generation wireless base station solution,” said Dan Mender, vice president of Business Development, Green Hills Software. “QorIQ customers use our multicore development tools and scalable real-time operating systems, MULTI and INTEGRITY, to conquer today’s multicore challenges and we look forward to supporting them as they adopt the QorIQ Qonverge portfolio.”

Mentor Graphics

“The integration of StarCore DSP technology with Power Architecture cores in the new Freescale QorIQ Qonverge portfolio is a major advancement for the wireless industry. We see great potential for this class of heterogeneous multi-core designs,” said Glenn Perry, general manager of the Mentor Graphics Embedded Software Division. “The Mentor Embedded Linux platform for Freescale devices combined with CodeSourcery software development tools will enable our mutual customers to develop advanced, innovative and scalable systems with increased performance and power efficiency.”

Aricent

“We are thrilled to be partnering with Freescale to accelerate development of new best-in-class solutions in the wireless infrastructure market,” said C.P. Murali, executive vice president and general manager at Aricent. “Our comprehensive suite of software frameworks and product engineering services enable customers to rapidly introduce innovative solutions based on Qonverge technology.”

Continuous Computing

“We are proud to be a member of Freescale’s technology partner program and for Freescale to be a member of the Continuous Computing Network,” said Todd Mersch, director of Product Line Management at Continuous Computing. “Together we offer customers a complete range of femto to macro base station solutions consisting of Trillium wireless software and the latest advances in the QorIQ Qonverge portfolio of processors.”

CriticalBlue

“Freescale’s QorIQ Qonverge platform is architecturally very innovative. Meeting next-generation network speed requirements will require software developers to make knowledgeable choices in application partitioning and task allocation to the different types of cores on these platforms,” said David Stewart, chief executive officer of CriticalBlue. “The development program we have ongoing with Freescale will ensure that our Prism tool has all the capabilities needed to

support a smart methodology for software developers, enabling them to get the maximum benefit from targeting the QorIQ Qonverge platform.”

L&T Infotech

“L&T Infotech is excited to collaborate and build world-class wireless solutions based on Freescale’s QorIQ Qonverge portfolio,” said Sudip Banerjee, chief executive officer for L&T Infotech. “Our end-to-end telecom proficiency spans the entire wireless domain, with proven expertise on LTE/WiMAX, multicore technologies, network security and optical transport networks, ultimately enabling accelerated time-to-market for our client’s products.”

Signalion

“We are pleased to support Freescale’s QorIQ Qonverge portfolio with our world-class wireless test technologies to ensure high-performance equipment, service and end-user experiences,” said Tim Hentschel, managing director for Signalion GmbH. “Freescale is charting new territory with the QorIQ Qonverge hybrid portfolio that promises to transform the future of wireless infrastructure equipment.”

Tata-Elxsi

“The introduction of the QorIQ Qonverge portfolio means OEMs now have a single-architecture, compatible family of products to address all their base station design needs,” said Shyam Ananthnarayan, head of the Communications Business Unit at Tata Elxsi. “As a key member of Freescale’s rich ecosystem, Tata Elxsi will offer market-leading LTE eNodeB software stacks optimized to ease customers’ development of best-of-breed solutions based on Qonverge technology.”

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