A new dimension in wireless processing

Overview
The QorIQ Qonverge BSC9131 processor is a highly integrated device that targets evolving femto and enterprise femto applications. The BSC9131 combines Power Architecture® e500 and StarCore SC3850 core technologies with MAPLE-B2F baseband acceleration processing, addressing the need for a high-performance, cost-effective, integrated solution that handles all the digital baseband processing required for femtocells.

The programmable BSC9131 device, targeted at LTE/FDD/TDD, WCDMA (HSPA+) and CDMA2K, supports multiple air interface standards and can support two concurrent standards.

Target Applications
Femtocell: Home or small office cellular base stations supporting the following standards:
- LTE-FDD/TDD
- WCDMA (HSPA+)
- CDMA2K
- TD-SCDMA

QorIQ Qonverge Platform
QorIQ Qonverge BSC9131 for Femtocell Base Station Solutions

QorIQ Qonverge BSC9131 Processor

QorIQ Qonverge BSC9130 and BSC9131 Processors
StarCore SC3850 DSP Core
- 512 KB L2 Cache
- 32 KB L1 I-Cache
- 32 KB L1 D-Cache
- 4x eSPI
- 2x DUART
- 2x IIC
- GPIO
- USIM
- IFC
- eSDHC
- 2x PWM
- Clocks/Reset

e500 Core Built on Power Architecture®
- 32-bit DDR3/3L Memory Controller
- 32 KB I-Cache
- 32 KB D-Cache
- Coherency Module
- 256 KB L2 Cache
- 4x eSPI
- 2x DUART
- 2x IIC
- GPIO
- USIM
- IFC
- eSDHC
- 2x PWM
- Clocks/Reset

MAPLE-B2F Baseband Accelerator
- LTE/UMTS/CDMA2K
- RF Interface (JESD207/ADI) and MaxPHY

Multicore Fabric
- DMA
- Security Engine V4.4
- USB 2.0
- Ethernet IEEE® 1588
- 1x GE
- 1x GE

Target Applications
Femtocell: Home or small office cellular base stations supporting the following standards:
- LTE-FDD/TDD
- WCDMA (HSPA+)
- CDMA2K
- TD-SCDMA
Freescale will provide commercial L1 and transport software. L2, L3 will be provided through our partner stack vendors:

- LTE-FDD/TDD and WCDMA (HSPA+) L1 software--licensed by Freescale
- L2/L3 software for LTE-FDD/TDD and WCDMA (HSPA+)--via partners
- Development tools and operating system software through Freescale and its ecosystem partners

**QorIQ Qonverge Features**

The BSC9131 is a highly integrated device combining Power, StarCore and MAPLE architectures. The device includes the following features:

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<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tr>
<td><strong>Core</strong></td>
<td>• Power Architecture® subsystem including one e500 processor and 256 KB shared L2 cache</td>
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<td><strong>DSP</strong></td>
<td>• StarCore SC3850 DSP subsystem including 512 KB private L2 cache</td>
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<td><strong>Baseband Acceleration</strong></td>
<td>• MAPLE-B2F multiaccelerator platform engine supports functions that enable LTE-FDD/TDD, WCDMA (HSPA+) and CDMA2K wireless standards</td>
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<td><strong>Memory</strong></td>
<td>• DDR3 memory interface with 32-bit data width (40 bits including ECC), up to 800 MHz data rate</td>
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<td>• Integrated flash controller for NOR, NAND and FPGA support</td>
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<td><strong>Security</strong></td>
<td>• Dedicated security engine featuring trusted boot</td>
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<td><strong>RF Interface</strong></td>
<td>• Antenna interface controller supporting three industry standard JESD207/three custom ADI RF interfaces (two dual port and one single port)</td>
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<td>• Two pulse width modulators (PWM) for control of external components</td>
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<td>• Three MAXIMs MaxPhy serial interfaces</td>
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<td><strong>Connectivity</strong></td>
<td>• Two triple-speed Gigabit-Ethernet controllers featuring network acceleration including IEEE® Std 1588v2™ hardware support</td>
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<td>• USB 2.0 host and device controller</td>
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<td>• DMA controller with four bidirectional channels that serves both Power Architecture cores and DSP domains</td>
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<td>• UART, SPI, eSDHC, USIM and I²C controllers</td>
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<td>• GPIO, 16 32-bit timers</td>
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For more information about the QorIQ Qonverge BSC913x family, visit freescale.com/QorIQQonverge