

## OCTEON Fusion: Industry's Most Powerful "Base Station-on-a-Chip" Family

Cavium unveiled the OCTEON Fusion Family, the industry's most powerful, small cell "Base Station-on-a-chip" family specifically designed for LTE & 3G small cell base stations, including picocell and micro base stations. OCTEON Fusion processors combine OCTEON's widely successful MIPS64 based multi-core architecture along with purpose-built Baseband DSP cores, extensive LTE/3G hardware accelerators and digital front end (DFE) functionality into a single chip, slashing the BOM cost and power envelope of small cell base stations. This product family consists of multiple SoCs (system-on-a-chip) that enable small cells ranging from 32 users to 300+ users and up to dual 20MHz carriers, delivering industry-leading scalability. OCTEON Fusion is accompanied by FusionStack software, a comprehensive, interoperability tested (IOT), carrier-class L1 to L3 software suite for rapid time to market. OCTEON Fusion and FusionStack™ Software have been developed in close partnership with a Tier-1 Telecom Equipment Manufacturer (TEM) and have been designed into their next gen LTE small cell base stations. Additionally, OCTEON Fusion CPU cores are fully compatible with OCTEON multi-core processors enabling TEMs to seamlessly leverage their Cavium OCTEON-based macrocell L2-L7 software into lower cost, lower power and reduced footprint OCTEON Fusion-based small cell designs.

Cavium will be demonstrating the OCTEON Fusion technology at the 4G World Conference in Chicago on October 25 - 27, in its private meeting room. This demonstration will include eight simultaneous connections including streaming of five HD videos between a commercially available 4G/LTE client and an OCTEON Fusion technology enabled eNodeB base station design. To setup an appointment, please contact [marketing@cavium.com](mailto:marketing@cavium.com) [1].

Rapid adoption of smartphones, tablets and media rich wireless devices, coupled with social networking, IP video and internet applications are driving the doubling of mobile data traffic every year. At the same time, the average revenue per user (ARPU) to service providers is relatively stable. This exponential trend in data traffic growth cannot be supported by existing 3G/4G network topology on either an economic or technical basis. Existing macro base station only networks cannot support the increasing demand for bandwidth since throughput degrades significantly over distance. Solving the mobile broadband capacity crunch and delivering 4G data throughput in a cost effective manner makes it essential to augment the macrocell network with a very large number of small cell base stations. In order for carriers to effectively deploy and manage such a large and distributed radio access infrastructure, base stations need to be compact, inexpensive, easily manageable, energy efficient and reliable. Most of the TEMs and carriers are working to implement small cell based network topology. According to industry analysts, the small cell base station semiconductor market is expected to reach over \$1 Billion by 2016.

"There is no question that carrier-deployed small cells are critical for LTE network expansion. We expect a dozen or so of these carrier-class small cells to accompany each macrocell deployment," said Will Strauss, Principal Analyst at Forward Concepts. "Cavium is in a unique position with its breadth of multi-core, DSP and software assets and has the potential to be a major player in this market space."

The OCTEON Fusion processors combine OCTEON's proven and scalable L2-L7 multi-core technology, already adopted in multiple tier-1 macro wireless equipment, along with purpose-built, highly programmable baseband DSP cores and extensive 3G/4G hardware accelerators along with digital front end (DFE) functionality into a single chip. Combining 2x to 6x 64 bit cnMIPS cores operating at up to 2GHz with up to 8x highly optimized baseband DSP's operating up to 1GHz and several carefully designed hardware accelerator blocks that interact through a very high performance interconnect enable deterministic and low-latency data processing between protocol layers. The OCTEON Fusion family consists of two software compatible product lines: CNF71XX, CNF72XX, delivering industry leading performance and low power to enable small cell base stations supporting from 32 to 300+ users on both LTE and 3G platforms.

"Cavium's OCTEON Fusion provides a complete base station solution with a validated software suite that will take customers to market rapidly," said Joseph Byrne, Senior Analyst at the Linley Group. "The powerful combination of high-performance hardware, production-ready software and a leading position in the macro base station market instantly puts Cavium on the map as a formidable supplier of baseband processors for small cell cellular base stations."

OCTEON Fusion includes FusionStack, a comprehensive software suite that is ready to be deployed in a Tier 1 LTE network, as a result of thorough inter-operability radio conformance testing with multiple user equipment. PHY (L1) layer software includes complete user-plane and control plane components for FDD-LTE, TDD-LTE and 3G, along with protocol processing libraries that take advantage of the in-built hardware acceleration. The comprehensive deployment ready suite includes Layer 2 /3 libraries, network side control and timing synchronization, along with diagnostic tools.

"TEM's require small cell solutions with unprecedented levels of scalability, performance, security and manageability with the ability to offer differentiating capabilities such as QoS, interference mitigation and Self-Optimizing Networks (SON). We are delighted that our OCTEON Fusion family is able to provide industry-leading processing power to enable wireless TEM's to implement sophisticated macro class capabilities in a very compact and low cost footprint", said Syed Ali, President and CEO, at Cavium. "Cavium has already built a strong position in the wireless infrastructure market by establishing an excellent foothold in 3G/4G macro BTS/Core Network and the innovative OCTEON Fusion product line will enable us to further expand our market position in one of the highest growth areas of the infrastructure market."

First samples of CNF71XX and the FusionStack software will be available in Q1, 2012; the CNF72XX will be available subsequently.

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### **About OCTEON Family**

The Cavium OCTEON processor family includes the industry's broadest and highest performance multi-core MIPS64 processors, deployed across a range of wireless infrastructure systems including base stations, radio and EPC core network controllers. With price points that address application performance ranging from 1Gbps to over 40 Gbps in a single chip, the OCTEON processor family provides unprecedented scalability with 1 to 32 high-performance cores in a single chip with integrated networking interfaces and industry leading hardware acceleration for packet processing, quality of service, TCP, Security, compression / decompression and DPI. The OCTEON Processor has been chosen by all major tier-1 TEMs for Mobile Infrastructure Platforms due to superior 3G, and WiMAX, LTE Layer 2 to Layer 7 capabilities. OCTEON Fusion extends the scalability and feature richness to the wireless baseband layer as well.

For more information, please visit: [www.cavium.com](http://www.cavium.com) [2]

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### **Links:**

[1] <mailto:marketing@cavium.com>

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