# Vector DSP for Software Defined Radio Platforms Targets 4G Wireless Infrastructure Applications

CEVA, Inc. today introduced the CEVA-XC323™, the industry's first high performance vector DSP for 4G wireless infrastructure applications. The CEVA-XC323 delivers up to 4x performance improvement in wireless infrastructure applications compared to incumbent infrastructure VLIW DSPs, such as those offered by Texas Instruments, and lowers the overall bill-of-materials by significantly reducing the number of processors and hardware accelerators required.

The CEVA-XC323 is already in design with a wireless infrastructure vendor for 4G Software Defined Radio (SDR) base-station applications.

The CEVA-XC323 is scalable to address the complete range of cell site solutions required by network operators, including femtocells, picocells, microcells and macrocells. Its flexible architecture provides efficient support for both legacy and next-generation wireless standards such as WCDMA, HSPA, WiMAX, LTE and LTE-A. The architecture leverages the widely-adopted CEVA-X DSP engine which has shipped in more than 100 million devices to date, including advanced wireless infrastructure equipment and wireless handsets from the world's leading OEMs.

The CEVA-XC323 integrates two high-precision vector communication units specifically designed to cope with the heavy processing load found in base-stations and supports homogenous multi-core designs commonly used in modern infrastructure architectures. In addition, the core incorporates extensive support for wireless infrastructure control plane processing, typically handled by separate processors.

Complemented with CEVA-XCnet software partners, CEVA-XC323 offers a full 3G/4G PHY solution, dramatically shortening the development time of multi-mode wireless infrastructure designs.

"The CEVA-XC323 DSP is a game changer in the 4G wireless infrastructure space and represents an important milestone in CEVA's evolutionary growth strategy beyond our stronghold of the wireless terminal market," said Gideon Wertheizer, CEO of CEVA.

"Incumbent infrastructure DSP vendors have relied upon an inefficient combination of traditional VLIW DSP architectures and hardware blocks to compensate for the lack of DSP performance. This results in complicated software design, limited platform reuse across different products, and essentially locks the OEM to the DSP supplier. With the introduction of the CEVA-XC323 DSP, our customers can apply software defined radio technologies to improve performance, flexibility and time-to-market for their infrastructure processor designs. For the OEM, the inherent benefits

of our IP licensing model include the ability to source chips from multiple vendors and the option to license the CEVA-XC323 DSP directly and manufacture chips at any foundry."

The CEVA-XC323 core combines conventional DSP capabilities with advanced vector processing units to offer higher instruction-level parallelism (ILP) including: 8-way VLIW, 512-bit SIMD operations, 32 MAC operations per cycle and native support for complex arithmetic. CEVA-XC323 also offers strong support for non-vectorized operations, control plane functions and system code, and full software compatibility with the CEVA-X DSP.

Specifically targeting wireless infrastructure applications, the CEVA-XC323 provides extensive instruction set support covering the most time-critical PHY transceiver parts, including: DFT, high-precision FFT, channel estimation, MIMO detectors, interleaver/de-interleaver and inherent support for Viterbi decoding in software.

Utilizing an innovative scalable and modular architecture, the CEVA-XC323 addresses the precise requirements of any 4G wireless infrastructure application. It allows full support for multi-core system design, enabling licensees to reuse the same architecture for a wide range of products with the ability to precisely scale chip performance up and down, and maintain software compatibility and portability.

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