



BRINGING HUMAN-LIKE INTELLIGENT VISION PROCESSING TO LOW-POWER EMBEDDED SYSTEMS

Programmable, Imaging and Computer Vision Processor IP offering the Best Performance and Power Efficiency in the market

Key Benefits

- **Supplies software flexibility** for imaging and vision algorithm development
- **Enables the most computation demanding algorithms** in low power consumption
- **Complete vision IP platform** to ease development cycle and accelerate time-to-market (TTM)
- **The most efficient vision processor** (best performance/mm² and performance/mW)
- **Enables OEM product differentiation**
- **Enables reuse** of same resources for multiple applications and products

Key Metrics

- 1.2 GHz max frequency @28nm
- 8-way VLIW
- 128 MACs per cycles
- 4096-bit processing per cycle, utilizing only 512-bit memory bandwidth to save on power consumption
- Combination of fixed- and floating-point math

Enabling sophisticated computer vision algorithms including:



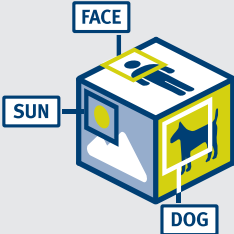
3D Vision

Real-Time 3D Depth Mapping and Point Cloud Generation



Computational Photography

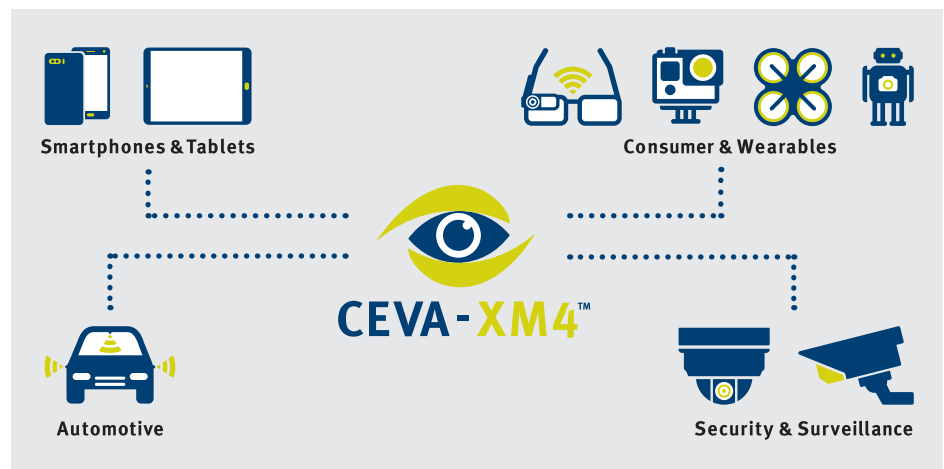
Computational Photography for Image Enhancement Algorithms



Visual Perception & Analytics

Deep Learning and Convolutional Neural Network (CNN) for Object Detection, Recognition and Context-Aware Algorithms

Target Markets



Architectural Highlights

- Fully programmable in high level languages
- Scalar and Vector units to handle a mix of control and parallel code efficiently
- Very Long Instruction Word (VLIW) and Single Instruction Multiple Data (SIMD) functionality
- Full memory sub-system for easy integration into SOCs, utilize multi-core and hardware accelerator connectivity using standard interfaces
- Automated traffic management from the system into local memories to achieve best performance and power efficiency
- 8/16/32/64-bit fixed-point and single precision floating point

CPU Offloading

Augmented by a robust software infrastructure and framework called Application Development Kit (ADK) – this is a full set of libraries, software modules and drivers which enable accessing the full optimized libraries directly from the CPU

Advantages of CEVA's ADK

- Dramatically reduces power consumption of the overall system
- Able to address even the most complex computer vision algorithms in real-time
- Enables algorithm developers and OEMs to achieve product differentiation
- Quick time-to-market (TTM) for algorithm development

CEVA-XM4, more than just a vision processor

Complete development platform including

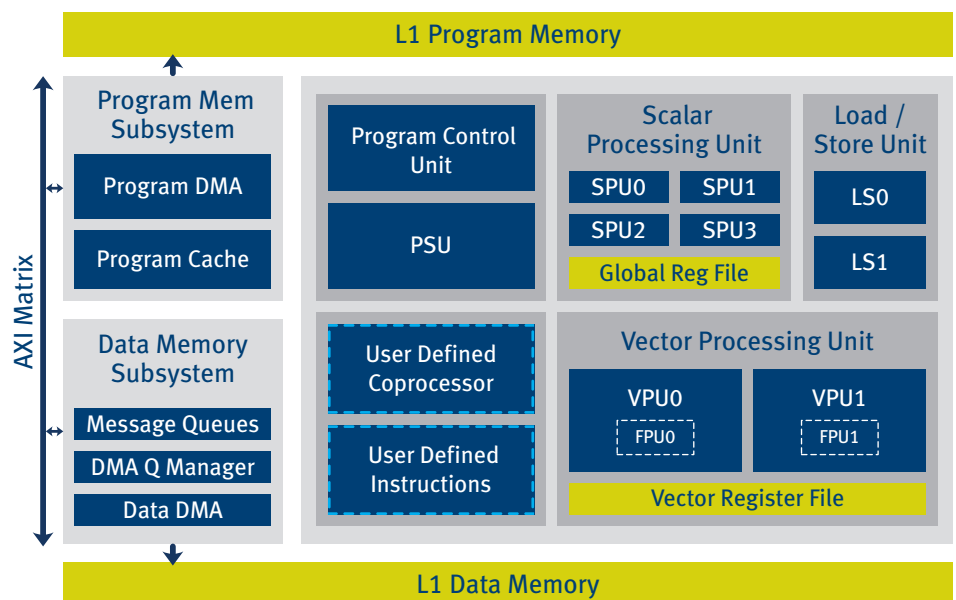
- Vision processor
- Extensive vision libraries accessible directly from the CPU for offloading the computer vision functions to achieve energy savings

- Robust software development tools and a software development framework
- Hardware development platform
- Developed by CEVA, complemented by partners

Target Applications



CEVA-XM4 block diagram



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