v-MP4280HDX

Full HD/UHD Video and Vision Integrated Platform Solution

The videantis v-MP4280HDX is a unified video & vision platform integrating both full-HD/UHD multi-standard video codecs and embedded vision acceleration on a single silicon footprint with minimum load on the host CPU. The dual integrated multi-standard stream processing unit supports high bitrates for encoding and decoding of multiple streams, e.g., for simultaneous codec operation or multi-standard transcoding.

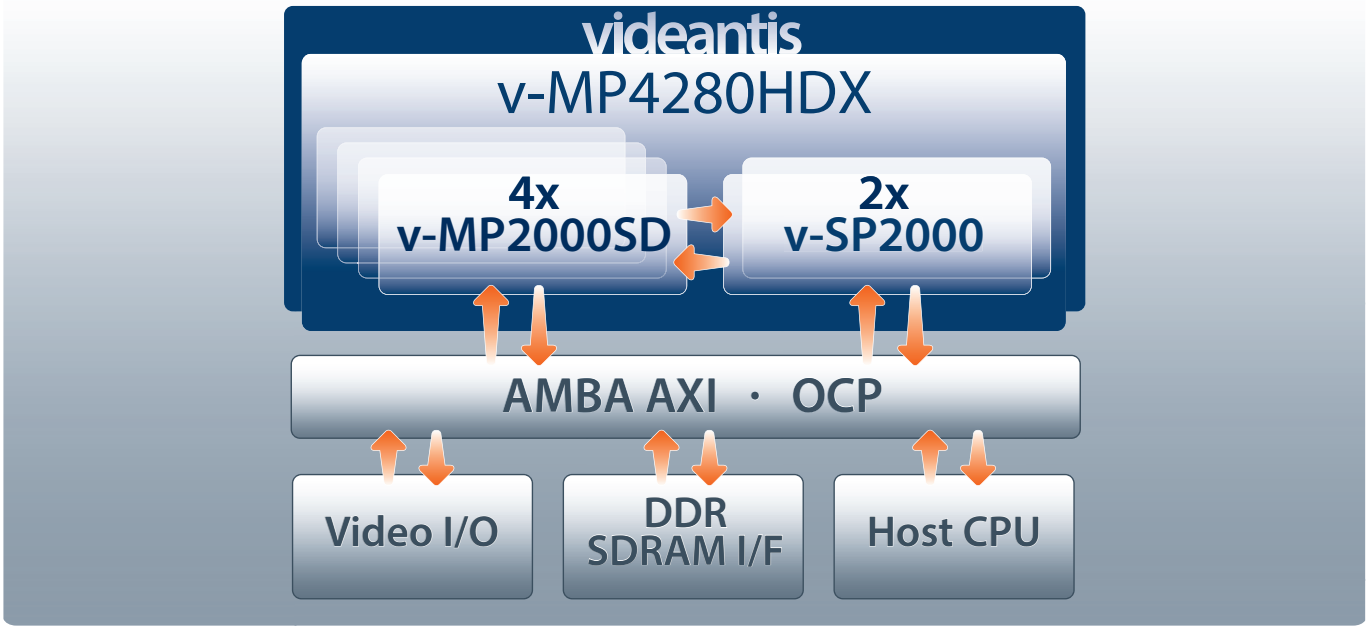
Multi-standard video decoding in full HD resolutions and scalability up to UHD is supported for all relevant video standards like H.264/AVC, MVC, WMV9/VC-1, and Google VP8 / WebM Project with upgradeability to future upcoming standards on the same device, e.g., H.265/HEVC. Multi-standard HD video encoding is supported with an enhanced set of compression tools and a wide range of customization options, e.g., for low latency or high dynamic range encoding applications.

The v-MP4280HDX further operates as a high-performance embedded vision accelerator, enabling natural user interface (NUI) or advanced automotive driver assistance functions in a truely embedded low power, size-constrained environment. The optimized OpenCV vision library available for the v-MP4280HDX unlocks the potential of a worldwide vision developer community for a wide range of vision applications being accelerated on the videantis platform.

The v-MP4280HDX is available as a drop-in solution proven in real system environments and optimized to tolerate long memory access latencies of real-world systems. Extensive conformance testing has been performed to assure high product quality and full customer satisfaction. Through its field upgradeability in silicon, the v-MP4280HDX provides a future-proof solution for extended product lifetimes through the addition of further codecs, embedded vision functions and value-add features simply by firmware update.

KEY ADVANTAGES

- Highest performance video & vision
- Significant cost savings through unified platform
- Field-upgradeable codecs and features
- Embedded vision acceleration for natural user interface, driver assistance
- Flexible video transcoding and multi-stream operation



Features and Benefits

Unified platform solution
> Quad v-MP2000SD video engine + dual v-SP2000 multi-standard stream unit
> Scalable multi-core design for video & vision
> Complete pre-verified and optimized subsystem
> Optimized multi-core task allocation for low power and high performance

Multi-standard video codecs
> H.264/AVC, MVC
> MPEG-4, DivX, XviD, H.263, Flash (Sorenson)
> WMV-9/VC-1, RealVideo 8/9/10
> Google VP8 / WebM Project, On2 VP6
> MPEG-2, MPEG-1, JPEG
> Extensible to further standards on same silicon, e.g., H.265/HEVC

Embedded vision acceleration
> Accelerated OpenCV vision library orders of magnitude faster than on host CPU
> Up to sixty-four 16-bit pixels processed per cycle
> For natural user interface (NUI) functions, e.g., face recognition, gesture control
> For automotive driver assistance, e.g., lane detection, pedestrian detection, cruise control

Value-add image processing features
> Rotation, scaling, color conversions
> Graphic overlays, blending, picture in picture
> Deinterlacing, denoising, deblocking
> Can be performed in parallel to en-/decoding

Advanced application-specific video processing
> Multi-format video transcoding
> High-end frame rate conversion
> Robust video stabilization

Very small silicon area footprint
> 4.28mm² silicon area in 40nm technology incl. sync. bus interfaces & all memories
> Target technologies: 90nm…22nm

APPLICATIONS

- High-end feature phone
- HD set-top box
- Car infotainment
- Automotive driver assistance
- Home entertainment
- Streaming video
- Video transcoding in-the-cloud

Ultra low power consumption
> Special low-power instruction set
> Reduced memory activity through selective read
> Fine-grain clock gating
> Only 32mW for H.264/AVC HP 1080p decoding in 40nm technology

Easy system integration
> SoC bus interface options: 32/64/128 bit, synchronous/asynchronous interfaces
> OCP, AMBA AXI
> OpenMAX IL 1.1 / GStreamer plugin support for seamless codec integration

Short time to market & future proofness
> Reliable subsystem, pre-verified in silicon
> Extensive conformance testing
> Various FPGA prototyping platforms
> Field-upgradeable features, codecs and applications by firmware download

Complete solution
> Comprehensive applications suite, fully optimized for performance and resource usage
> Fully documented API in C source code for codecs and features
> Example integration in application framework
> One-stop offer including full integration support options

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