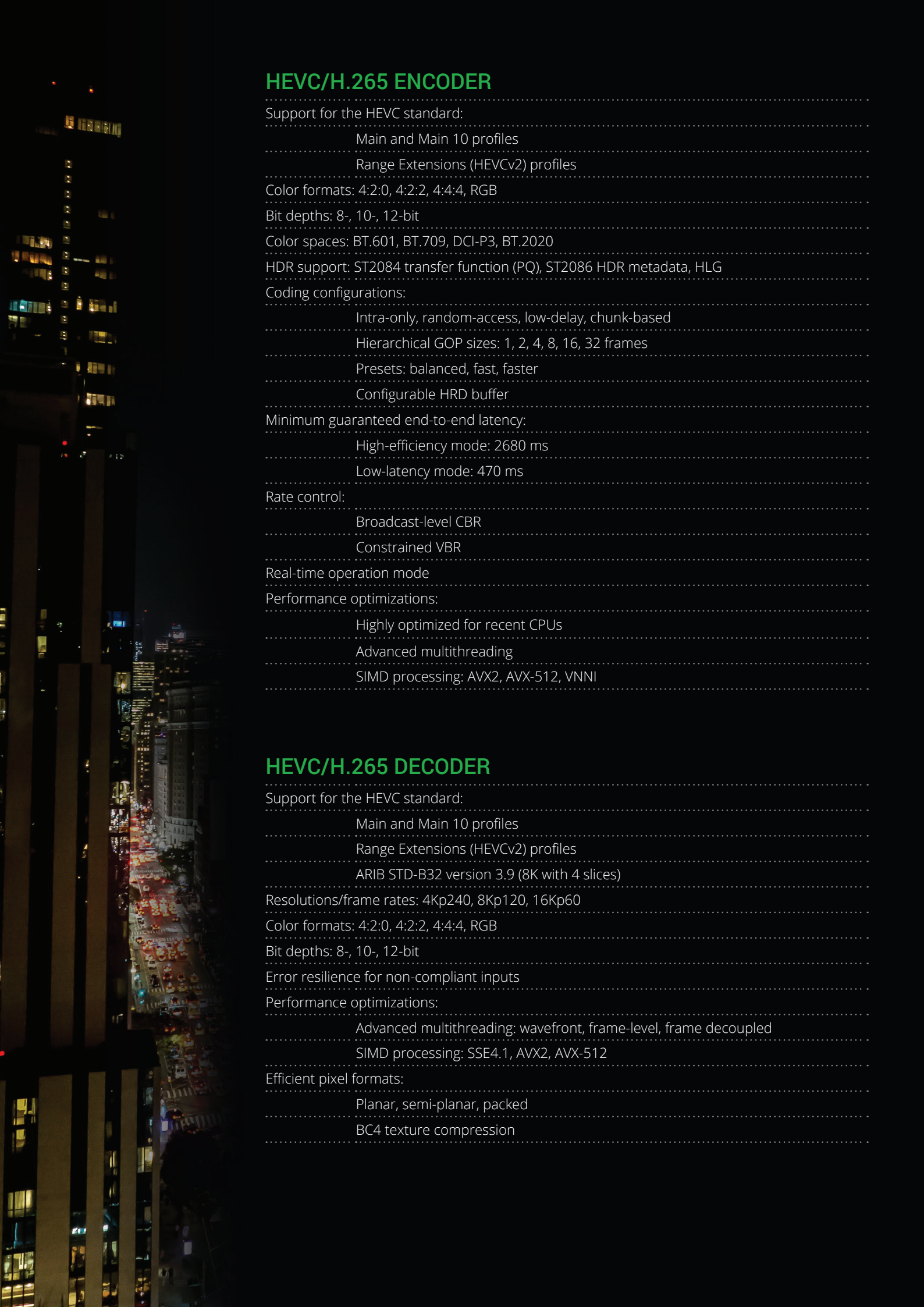


Spin Digital SDK

Optimized video and audio encoding, decoding, processing, and rendering libraries that simplify the creation of innovative and demanding media solutions.

Product Highlights

- Powerful and efficient API for Windows and Linux
 - Real-time 8Kp60 HEVC encoding
 - Real-time 16Kp60 HEVC decoding
 - Flexible I/O for GPU and SDI devices
 - Low-latency RTP streaming
 - High-precision video processing filters
 - Low-latency audio rendering
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A vertical photograph of a city at night, showing illuminated buildings and a street with traffic lights and cars. The image is dark, with the city lights providing a contrast.

HEVC/H.265 ENCODER

Support for the HEVC standard:

Main and Main 10 profiles

Range Extensions (HEVCv2) profiles

Color formats: 4:2:0, 4:2:2, 4:4:4, RGB

Bit depths: 8-, 10-, 12-bit

Color spaces: BT.601, BT.709, DCI-P3, BT.2020

HDR support: ST2084 transfer function (PQ), ST2086 HDR metadata, HLG

Coding configurations:

Intra-only, random-access, low-delay, chunk-based

Hierarchical GOP sizes: 1, 2, 4, 8, 16, 32 frames

Presets: balanced, fast, faster

Configurable HRD buffer

Minimum guaranteed end-to-end latency:

High-efficiency mode: 2680 ms

Low-latency mode: 470 ms

Rate control:

Broadcast-level CBR

Constrained VBR

Real-time operation mode

Performance optimizations:

Highly optimized for recent CPUs

Advanced multithreading

SIMD processing: AVX2, AVX-512, VNNI

HEVC/H.265 DECODER

Support for the HEVC standard:

Main and Main 10 profiles

Range Extensions (HEVCv2) profiles

ARIB STD-B32 version 3.9 (8K with 4 slices)

Resolutions/frame rates: 4Kp240, 8Kp120, 16Kp60

Color formats: 4:2:0, 4:2:2, 4:4:4, RGB

Bit depths: 8-, 10-, 12-bit

Error resilience for non-compliant inputs

Performance optimizations:

Advanced multithreading: wavefront, frame-level, frame decoupled

SIMD processing: SSE4.1, AVX2, AVX-512

Efficient pixel formats:

Planar, semi-planar, packed

BC4 texture compression

VIDEO RENDER ENGINE

High-performance render engine:

GPU rendering based on DirectX 12

CPU rendering for professional SDI output

Color spaces: BT.601, BT.709, DCI-P3, BT.2020, full and limited range

Input video formats:

Color formats: 4:2:0, 4:2:2, 4:4:4, RGB

Bit depths: 8-, 10-, 12-bit

Pixel formats: planar, semi-planar, packed, bitpacked

Input transfer functions: SDR, PQ (ST2084), HLG (BT.2100)

Render format: RGB 10-bit (GPU), 4:2:2 10-bit (SDI)

Support for 360° rendering:

Input projections: equirectangular, cubemap

Output projections: rectilinear for flat screens, cylindrical for curved screens

Multi-device interaction

Seamless resolution and format switching

Multi-device rendering: tiled, clone, alternate, with genlock synchronization

AUDIO RENDER ENGINE

Low-latency audio rendering

Output devices: WASAPI, 3G and 12G SDI (AJA)

Sample formats: 16-bit, 32-bit, float

Multi-device rendering

Internal and external clock support



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VIDEO PROCESSING FILTERS

Video conversion filters:

- Format conversion: chroma formats, bit depths, pixel layouts
- Resolution scaling: nearest, bilinear, bicubic, lanczos
- Color conversion: RGB/YUV, color space, SDR/HDR, custom LUT conversions
- Cropping, padding
- Overlay: blends an overlay into each image
- Orientation: flip, rotate, mirror
- Geometry conversion: equirectangular, cubemap, cylinder, viewport extraction
- Texture compression: compresses or decompresses BC4 textures

Filter chain:

- Filters can be used individually or combined for complex conversions
- Automatic filter chain generation based on desired target format

Highly optimized for CPUs: memory locality, SIMD, multithreading

I/O MODULE

SDI capture: 3G and 12G (AJA)

File capture: uncompressed YUV

Exports capture clock

STREAMING MODULE

Send and receive

Exports stream clock

MPEG2-TS over IP: UDP and RTP (optional FEC)

Dektec and Socket API

SDK COMPONENTS

C/C++ libraries:

SpinEnc:	HEVC encoder
SpinDec:	HEVC decoder
SpinRender:	Video render engine
SpinAudRen:	Audio render engine
SpinFilter:	Video processing filters
SpinLibAV	Muxing, demuxing, audio decoding
SpinRawIO:	SDI and raw video file capture
SpinStream	Stream input and output

Command line toolbox:

<i>streamenc:</i>	Real-time encoder
<i>streamplay:</i>	Stream player
<i>spindex:</i>	HEVC decoder
<i>spinfilter:</i>	High-precision video processing filters
<i>spinrender:</i>	Raw file renderer (DirectX-12 and SDI)

API reference documentation (HTML, PDF)

Application code examples

PLATFORM SUPPORT

Modules	Windows 8.1	Windows 10	Red Hat 7/8	Ubuntu 18.04
HEVC encoder	✓	✓	✓	✓
HEVC decoder	✓	✓	✓	✓
Video render engine - DX12	x	✓	x	x
Video render engine - SDI	✓	✓	✓	✓
Audio render engine - WASAPI	✓	✓	x	x
Audio render engine - SDI	✓	✓	✓	✓
Video processing filters	✓	✓	✓	✓
Raw capture	✓	✓	✓	✓
Streaming	✓	✓	✓	✓

MINIMUM REQUIREMENTS

CPU:	X86_64 with SSE 4.1
GPU:	NVIDIA Quadro Maxwell and Pascal, AMD Radeon Pro
SDI:	AJA Kona 5 (12G), AJA Corvid 44 (12G), AJA Corvid 88 (3G)
ASI/IP:	Dektec DTA 2160, Dektec DTA 2162, standard ethernet ports



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