spin enc
live

Spin Digital Live Encoder

HEVC/H.265 real-time software encoder optimized for high-end live applications in broadcasting and Internet streaming.

Product Highlights

- State-of-the-art CPU-based HEVC encoder
- High-end real-time encoding: 4Kp120, 8Kp60, 12Kp30
- Compression and quality comparable to best-in-class offline encoders
- High-efficiency and low-latency encoding modes
- Designed for live workflows
- SDI input capture: 3G and 12G
- Broadcast streaming: RTP and UDP
- Internet streaming: HLS
- Cloud streaming support

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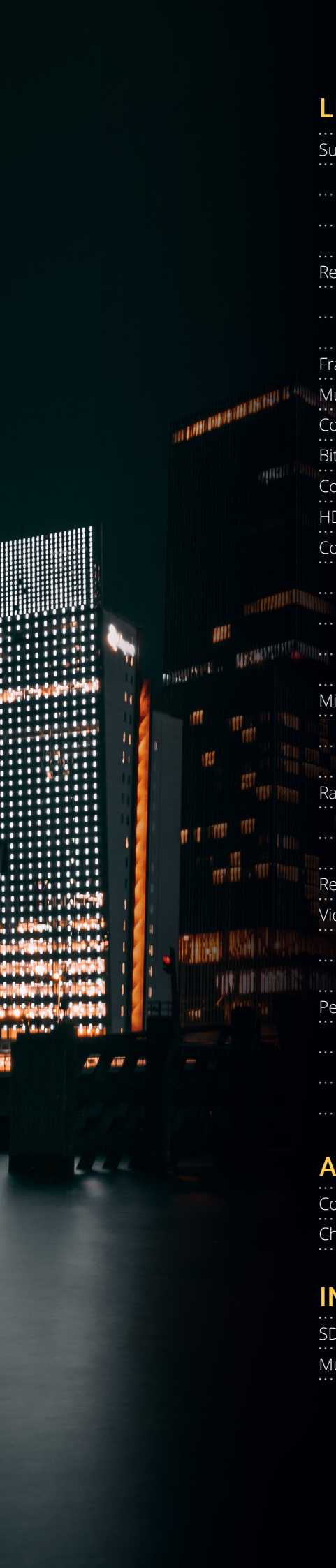

LIVE HEVC ENCODER

- 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 (pixels):
  - 1920x1080 (1080p), 3840x2160 (4K), 7680x4320 (8K)
  - Custom resolutions
- Frame rates (fps): 25, 30, 50, 59.94, 60, 100, 119.88, 120
- Multi-resolution live encoding for Adaptive Bit Rate (ABR)
- 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
- Video pre-processing filters:
  - Scaling, format and color conversion, cropping/padding, overlays
  - Automatic filter chain generation
- Performance optimizations:
  - Highly optimized for recent CPUs
  - Advanced multithreading
  - SIMD processing: SSE 4.1, AVX2, AVX-512, VNNI

AUDIO

- Codec: AAC
- Channel formats: 2.0, 5.1, up to 22.2

INPUT CAPTURE

- SDI input capture: 3G, 12G
- Multi-channel tiled capture for flexible input layouts

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STREAMING OUTPUT

Broadcast and contribution MPEG2-TS over IP:

- RTP with optional FEC, UDP
- SRT, RIST, Zixi (in proxy mode)

HTTP live streaming: HLS

Live stream recording: HEVC+AAC in MPEG2-TS

CLOUD STREAMING AND DELIVERY

RTP/UDP streaming: compatible with AWS MediaConnect

HLS streaming: AWS S3, AWS Elemental MediaStore, Cloudfront

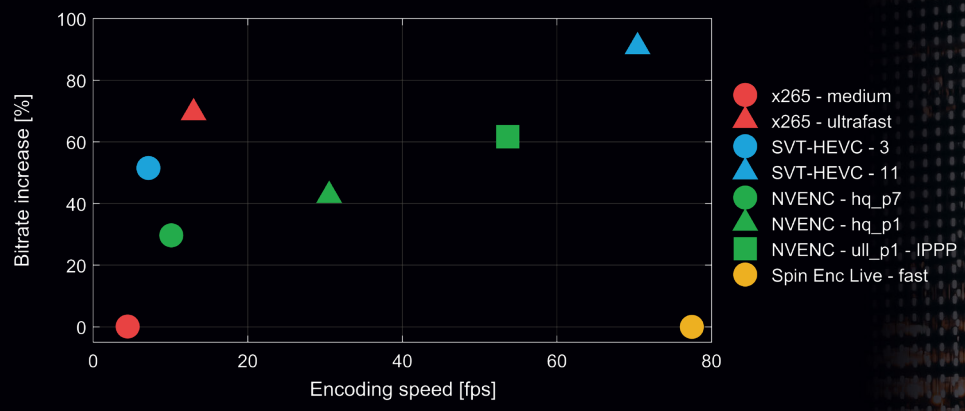
COMPRESSION AND PERFORMANCE FOR REAL-TIME 8K

Key performance indicators:

- Similar quality to offline encoders at significantly higher encoding speeds
- Higher quality than real-time software and hardware-accelerated encoders

Bitrate increase for the same quality (PSNR) referred to Spin Enc Live

Encoding speed for 8K video on a 76-core server



TEST SETUP

Encoders:

- Spin Enc Live v1.1 - preset: fast
- x265 v3.5 - presets: medium, ultrafast
- SVT-HEVC v1.5.1 - presets: 3, 11
- NVENC-HEVC v11.1 - presets: high quality P7, high quality P1, ultra-low latency P1

Encoding settings:

- Tuned for live content distribution: CBR, 1-s buffer, 1-s intra period, long GOP
- Eight 8K (7680x4320, 4:2:0 10-bit) videos

Encoding system:

- CPU: 2x Intel Xeon Platinum 8368 (76 cores)
- GPU: GeForce RTX 3070 (for NVENC)

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USE CASES AND PLATFORM REQUIREMENTS

Use case	Format	Max bitrate	Platform
4K distribution	4Kp60 4:2:0 10 bit	80 Mbps	CPU: Intel Xeon W-3265 (24 cores) Memory: 48 GB (6x 8 GB, DDR4-2933)
4K contribution	4Kp60 4:2:2 10-bit	100 Mbps	CPU: 2x Intel Xeon Platinum 8260 (2x 24 cores) Memory: 96 GB (12x 8 GB, DDR4-2933)
4K HFR	4Kp120 4:2:0 10-bit	100 Mbps	CPU: 2x Intel Xeon Gold 6240 (2x 18 cores) Memory: 96 GB (12x 8 GB, DDR4-2933)
8K distribution	8Kp60 4:2:0 10-bit	120 Mbps	CPU: 2x Intel Xeon Platinum 8368 (2x 38 cores) Memory: 256 GB (16x 16 GB DDR4-3200)

ENCODER PACKAGE

- Real-time encoder
- Web-based graphical user interface
- Product documentation

PLATFORM SUPPORT

OS:	Red Hat Linux 7/8, Ubuntu Linux 18.04/20.04
CPU:	X86_64. SIMD instructions: SSE 4.1, AVX2, AVX512, VNNI
SDI:	12G (AJA Kona 5, AJA Corvid 44), 3G (AJA Corvid 88)