spin enc file

Spin Digital
File Encoder

Professional HEVC/H.265 software encoder enabling ultra-high-quality video with the highest compression level. Spin Enc File is tailored to offline media workflows for broadcast, VoD, and creative studios.

Product Highlights

— Fast offline transcoding software solution
— Significantly better compression and quality than competing encoders
— Higher transcoding speed than hardware-accelerated solutions
— Optimized HEVC-to-HEVC transcoding workflow
— Support for WCG and HDR with up to 12-bit video
— Preserves color resolution with 4:2:2, 4:4:4, and RGB formats
— Versatile high-precision pre-processing filters

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ENCODER FEATURES

Support for the HEVC standard:

    Main and Main 10 profiles

    Range Extensions (HEVCv2) profiles

    ARIB STD-B32 version 3.9

Resolutions: 4K, 8K, and beyond

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 (HDR10), HLG

Coding configurations:

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

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

    Presets: slow, balanced, fast, faster

Rate control:

    Broadcast-level CBR

    Constrained VBR

    Constant QP

Advanced Audio Coding (AAC):

    Multichannel: 2.0, 5.1, 7.1, 22.2 ch.

Performance optimizations:

    Advanced multithreading: wavefront, tiles, frame-level parallelism

    SIMD processing: SSE 4.1, AVX2, AVX-512, VNNI

Input formats: DPX, TIFF, PNG, ProRes, DNxHD, CineForm

Output formats: MP4, MPEG2-TS, MKV, HLS, DASH

HIGH-PRECISION VIDEO PRE-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
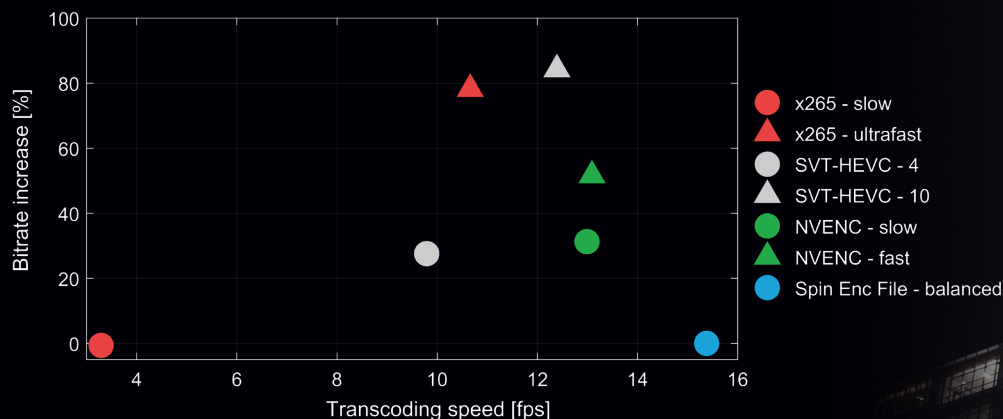
COMPRESSION AND PERFORMANCE FOR 8K TRANSCODING

Key performance indicators:

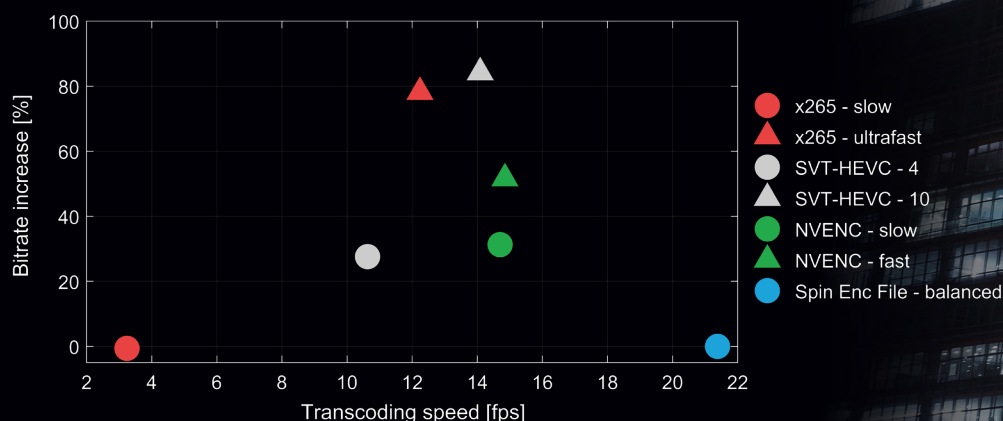Similar quality to software solutions at significantly higher transcoding speeds

Higher quality than hardware-accelerated solutions at higher transcoding speeds

Input: ProRes 8K 4:4:4 12-bit - Output: HEVC 8K 4:2:0 10-bit

- ● x265 - slow
- ▲ x265 - ultrafast
- ○ SVT-HEVC - 4
- △ SVT-HEVC - 10
- ● NVENC - slow
- ▲ NVENC - fast
- ● Spin Enc File - balanced

Input: HEVC 8K 4:4:4 10-bit - Output: HEVC 8K 4:2:0 10-bit

- ● x265 - slow
- ▲ x265 - ultrafast
- ○ SVT-HEVC - 4
- △ SVT-HEVC - 10
- ● NVENC - slow
- ▲ NVENC - fast
- ● Spin Enc File - balanced

TEST SETUP

Transcoding framework: FFmpeg - version: 4.3.1

ProRes decoder	HEVC decoder	HEVC encoder
FFmpeg	Spin Digital HEVC	Spin Enc File - v2.0
FFmpeg	FFmpeg (OpenHEVC)	x265 - v3.4
FFmpeg	FFmpeg (OpenHEVC)	SVT-HEVC - v1.5.0
FFmpeg	FFmpeg (OpenHEVC)	Nvidia NVENC - GeForce RTX 3070

Encoding settings:

Tuned for Video-on-Demand: VBR, long GOP, 2-s intra period

Seven 8K (7680x4320 pixels) videos

Encoding system:

AMD Ryzen Threadripper 3990X (64 cores)

Metrics:

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

Transcoding speed for 8K video on a 64-core workstation

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PLATFORM REQUIREMENTS FOR FAST 8K TRANSCODING

Processor:

AMD Ryzen Threadripper 3990X (64 cores), or

2x Intel Xeon Gold 6248R (2x24 cores)

RAM: 64 GB

OS:

Ubuntu 20.04 (64-bit), or

RedHat 8.1 (64-bit)

MINIMUM REQUIREMENTS

Processor:

64-bit x86 CPU

With support for SSE4.1 (minimum), AVX2 (recommended)

RAM: 8 GB

OS:

Linux: Ubuntu 20.04 (64-bit), or RedHat 8.1 (64-bit)

Windows 10 (64-bit)

TRANSCODER PACKAGE

spinffmpeg - FFmpeg with Spin Digital's optimized modules:

HEVC/H.265 decoder

Video processing filters

HEVC/H.265 encoder

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