

LCEVC Encoder SDK

Higher compression efficiency, better quality and larger resolutions for MainConcept codecs

MPEG-5 Part 2 LCEVC (Low Complexity Enhancement Video Coding) was standardized by the MPEG and ISO consortiums and published as ISO/IEC 23094-2. The primary development and contributions to the LCEVC standard were led by V-Nova. LCEVC is an enhancement codec that works with codecs like AVC/H.264, HEVC/H.265 and VVC/H.266.

WHAT IS LCEVC?

LCEVC is the perfect match for live sports content and beyond using high resolutions and frame rates to allow efficient broadcasting on IP networks. It acts as an enhancement to existing and next-generation codecs. LCEVC works together with MainConcept AVC/H.264, HEVC/H.265 and VVC/H.266 video encoders as its base layers. The base layers are normally encoded at quarter resolutions. They are standards compliant and remain 100% compatible with non-LCEVC decoders within the device or software. The LCEVC data for the enhancement layer is carried as SEI messages within the base layer or as a separate stream (dual track). An LCEVC aware decoder uses the information to improve the base layer when scaling it back to its original resolution resulting in various benefits like lower cost encoding and reduced bitrates (average 20% of the total bitrate).

LCEVC IN THE MARKET TODAY

LCEVC's market penetration is constantly increasing, with more devices and software supporting MPEG-5 Part 2 playback. It is one solution for reducing network traffic for video delivery, not only in areas with weak or limited bandwidth conditions.

Chip manufacturers have started to add corresponding IP core to their SoC (System-on-a-Chip) processors for real-time LCEVC decoding that can be used in consumer electronics such as set-top boxes, TV sets, and mobile devices. The more CE-devices supporting LCEVC processing, the more viewers can benefit from the advantages of the enhancement layer.

For software playback, there are various reference players available for different platforms and operating systems. V-Nova offers a multi-platform LCEVC Decoder SDK for Android, iOS, Windows, macOS and HTML5. There are several reference player integrations that enable LCEVC playback, such as Shaka Player, ExoPlayer, VLCKit, HLS.js, dash.js and video.js, as well as commercial solutions like THEOplayer that enable LCEVC playback.

SYSTEM REQUIREMENTS

- Microsoft Windows 10, Windows 11 (64-bit)
- Enterprise Linux 8.9 (64-bit), Ubuntu 20.04 LTS – 22.04 LTS

REDUCING BANDWIDTH REQUIREMENTS BY 20-25%

BENEFITS

- LCEVC refines the typical trade-off between complexity vs compression
- Lower cost encoding and reduced bitrates
- World's only integration of LCEVC and base codec under a familiar API
- Backwards compatible enhancement by adding features (higher resolution, higher framerate, HDR and others)
- Playback even on legacy devices

KEY FEATURES

- Enhancement codec
- Multi-codec support for base layers, i.e. AVC, HEVC and VVC
- Standards compliant base layer encoded at quarter resolution
- Enhancement layer is typically 15%-20% of the total bitrate

OPTIMIZE WITH MAINCONCEPT PROFESSIONAL SERVICES

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FEATURES

- Standardized as MPEG-5 Part 2 LCEVC (Low Complexity Enhancement Video Coding)
- Enhancement codec integrated with MainConcept AVC/H.264, HEVC/H.265 and VVC/H.266
- Optimizes any base codec up to 45% in compression efficiency
- Lower cost encoding and reduced bitrates
- SEI messages carried within base layer or as separate dual track
- Standards compliant base layer encoded at quarter resolution
- Enhancement layer is typically 15%-20% of the total bitrate
- Suitable for VoD and live use-cases
- Supports several outputs for HLS (via SEI) and MPEG-DASH (via SEI & dual track) live streaming
- SBTVD TV 2.5 & DTV+ (TV 3.0) approved
- Playback even on legacy devices by means of base layer decoding
- 3rd party decoding options available as IP core for TVs, STBs, connected devices or as reference integrations for software playback on mobile and desktop platforms

PACKAGES

- **LCEVC AVC Encoder SDK**
Encoder to create MPEG-5 LCEVC enhancement layer with MainConcept AVC/H.264 as base layer with supported multiplexers and audio encoders.
- **LCEVC HEVC Encoder SDK**
Encoder to create MPEG-5 LCEVC enhancement layer with MainConcept HEVC/H.265 as base layer with supported multiplexers and audio encoders.
- **LCEVC VVC Encoder SDK**
Encoder to create MPEG-5 LCEVC enhancement layer with MainConcept VVC/H.266 as base layer with supported multiplexers and audio encoders.

ABOUT MAINCONCEPT

MainConcept provides audio and video codec solutions that fuel creativity and business across the globe—from professional video production, multimedia, broadcast, digital signage, and gaming to the medical and security verticals. Our software development kits, transcoding applications and plugins deliver the simplicity you need with the customer experience you deserve. Since 1993, MainConcept codecs have been used by hundreds of organizations including Adobe, Autodesk, Corel, Dalet, Encoding.com, Endeavor Streaming, Grass Valley, Intel, MAGIX, Nikon, PlayBox Neo and Soliton. For more information, visit www.mainconcept.com.

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