MainConcept AVC SDK

Fast, High-Quality, Reliable AVC Encoding and Decoding

MainConcept AVC SDK is proven to encode faster than open source and comes packed with features, including 4:2:2 10-bit pro format support and HDR support for HLG and PQ/HDR-10. That's why MainConcept AVC remains the top choice of professionals.

FLEXIBLE AVC/H.264 ENCODING

MainConcept's AVC/H.264 video encoder unifies hardware and software encoding under one, familiar API. Whether ultra-fast encoding on Intel Quick Sync Video (IQSV), Intel ARC discrete GPUs or NVIDIA hardware is required, or ultimate quality software encoding is desired, all can be done with one, universal API and one encoder library.

2X PERFORMANCE (SINGLE PASS VS. 2-PASS)

Getting the bitrate "right" is one of the most challenging tasks for any video encoder. MainConcept AVC/H.264 video encoding is optimized to meet the target bitrate for any video application – live streaming, VOD or production formats – in the first encoding pass with very little tolerance. A second pass is rarely required, meaning half the compute power and encoding time is needed to reach optimal results.

ANY CPU, ANY SYSTEM

CPUs come in different shapes and sizes as well as a variety of configurations. No matter the number of available cores, whether UMA or NUMA multi-socket configurations are used, the encoder features granular configuration settings to optimize performance for any target system.

PROFESSIONAL PRODUCTION FORMAT COMPLIANCE

Many AVC-based formats have matured into production standards. Whether it is Sony XAVC, Panasonic AVC-ULTRA or AVC-Intra, the MainConcept AVC SDK offers presets for guaranteed compliance with any of the standardized formats. MXF, MPEG-2 TS and MP4 multiplexing components are included for spec-compliant wrapping of audiovisual content for seamless material interchange between facilities and devices.

PROFESSIONAL ENCODING AT ITS BEST

BENEFITS

- Up to 20% overall encoding speed improvement
- Additional 20% encoding speed increase on ARM-based devices*
- 10% decoding speed increase; improved multi-instance behavior
- One API for software or hardware (Intel Quick Sync Video, Intel ARC, NVIDIA NVENC) encoding

KEY FEATURES

- NVIDIA NVENC, Intel Quick Sync Video and Intel ARC discrete GPUs hardware decoding or encoding
- Precise bitrate adherence (+/-2%) for encoding to on-demand video targets
- HDR support for HLG and PQ/HDR-10 encoding
- Unrivalled range of encoding presets
- Professional camera support for Sony XAVC & Panasonic AVC-ULTRA 4:2:2 & 4:2:0
- Frame-accurate smart rendering for AVC Intra and other pro formats
- Improved threading mechanisms of video encoders and decoders to work on the next generation of Intel® Core™ processors (Meteor Lake) with low-power efficiency cores

OPTIMIZE WITH MAINCONCEPT PROFESSIONAL SERVICES

OPERATING SYSTEM

- Microsoft Windows10 (64-bit, x86 and ARM)
- Apple macOS 10.11 and newer (64-bit x86), macOS 11 and newer (Apple Silicon)
- Linux Ubuntu 14.04 LTS, CentOS 7.9 (64-bit, x86), Ubuntu 18.04 (64-bit, ARM)

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ENCODER FEATURES

- ISO/IEC 14496-10 compliant
- Baseline, Main & High Profile up to 4:2:2 10-bit*
- Maximum resolution 8192x4320 @ 60 fps (Level 6.2)
- SVR360 to encode VR spheres beyond the AVC resolution limit*
- Smart Rendering modes: Smart Copy and Re-Encode*
- Strict HRD compliance
- Advanced compression algorithms
- Parameter compatibility validation
- Target Quality Mode (TQM) support
- CBR/VBR, 1-pass & 2-pass encoding
- Low Delay flag (no latency) and rate-distortion optimization
- Pyramid GOP coding
- Direct access to NVIDIA NVENC HW Encoding if supported by system
- Intel Quick Sync Video and Intel ARC hardware encoding support through MainConcept API

* 4:2:2 10-bit encoding, Smart Rendering, and SVR360 are optional features which can be purchased as an add-on to your existing AVC/H.264 encoder license.

DECODER FEATURES

- Baseline, Main, High, High 4:2:2 / 4:4:4 profile support*
- Optimized for most efficient CPU usage
- 8-bit / 10-bit / 12-bit support*
- Low Delay flag (no latency)
- Symmetric multi-processing, optimized for Hyper Threading processors and multi-CPU platforms
- Color space conversion
- PQ/HDR-10 and HLG conversion support including PQ to SDR *
- Chroma upsampling
- Double rate (generating a progressive frame from every field)
- Hardware video decoding for Intel Quick Sync Video, Intel ARC discrete GPUs and NVIDIA NVDEC
- DXVA Hardware acceleration
- Stream-Analyzing API (VESA)

* 4:2:2/4:4:4 as well as 10- and 12-bit decoding and HDR conversion are optional features which can be purchased as an add-on to your existing AVC/H.264 decoder license.

STREAM TYPES & FORMATS

Elementary Stream: Generic AVC/H.264 ES up to 4:2:2 10-bit (up to 4:4:4 12-bit in decoder), Apple HLS, DASH-264

Program Stream: Generic AVC/H.264 Program Streams

Transport Streams: Blu-ray Disc, HD DVD, HDTV, Digital TV, AVCHD 1.0 / 2.0, Sony NXCAM, 1Seg

MP4: Sony XAVC-S, Sony XAVC 2.2, Sony PS3 / PS4, Sony PSP, Apple iPod / iPhone / iPad / TV, Adobe Flash (F4V), HTML, Microsoft Silverlight

3GP: Suitable for older generation cell phones and tablets

MXF (BROADCAST ONLY): Sony XAVC, Sony XAVC 2.2, Panasonic P2 AVC LongG, Panasonic P2 AVC-ULTRA (AVC-Intra Class 200), P2 AVC-Intra Class 50/100 (Specialized Operational Pattern "Atom" SMPTE 390M), Panasonic AVC-Intra LT-4K and LT-2K, RP 2027 AVC-Intra 50, 100 and 200 into OP-Atom (MXF)

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PACKAGES

- **AVC/H.264 Encoder SDK**
  Create AVC-based media in 4:2:0 color space with 8-bit-depth, including NVIDIA NVENC, Intel ARC and Intel QSV hardware encoding plus related audio and multiplexing components

- **AVC/H.264 Encoder SDK Broadcast**
  Add-on package for AVC Encoder SDK supporting up to 4:2:2 10-bit (plus 4:2:0 8-bit Software, NVENC, Intel ARC and Intel QSV) plus related audio and multiplexing components

- **AVC/H.264 Decoder SDK**
  AVC Decoder SDK with support for up to 4:2:0 8-bit video, including NVIDIA NVDEC and Intel QSV hardware decoding plus related audio and demultiplexing components

- **AVC/H.264 Decoder SDK Broadcast**
  AVC Video Decoder package that supports up to 4:4:4 12-bit video (including NVIDIA NVDEC, Intel ARC and Intel QSV hardware decoding) in unlimited resolution and HDR conversion, with audio and demultiplexing components for formats that use MPEG-2 Transport Stream, MP4/MOV, and MXF like Sony XAVC, Panasonic P2 and more

- **AVC/H.264 Smart Rendering**
  Optional package providing AVC/H.264 Smart Rendering functionality for editing, cutting and smart copy at any frame position to speed up conversion of AVC/H.264 source content.

- **SVR360 For AVC/H.264 Encoder Broadcast**
  Add-on feature license to AVC Encoder SDK Broadcast allowing encoding in virtually unlimited resolution, designed to meet the needs of 360/VR applications

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.