MainConcept Live Encoder

Real-Time Video Encoding for every Screen Size

Live streaming at a professional level doesn't have to be complicated. MainConcept® Live Encoder is a powerful all-in-one encoding engine that simplifies broadcast and OTT video workflows. With renowned MainConcept MPEG-2, VVC, HEVC and AVC codecs plus enhanced LCEVC (MPEG-5 Part 2) built in, our intuitive user interface allows you to package content for multiscreen delivery using common input sources in real time. In addition to media, broadcasting and entertainment, the MainConcept Live Encoder is widely used for distance learning and to deliver live sporting events.

COMPATIBILITY & SIMPLICITY BUILT IN

With MainConcept Live Encoder, you can set up a live workflow to ingest, prepare, and stream audio/visual content that is compatible with every type of consumer device. It doesn't matter if you are delivering video directly to a CDN or to an online video platform via RTMP, MainConcept Live Encoder ensures your content is delivered reliably with the highest possible quality. The latest version comes with SRT (Secure Reliable Transport) and Zixi (incl. Zixi ZEN Master) protocol support for live ingest and output.

IMMERSIVE AUDIO FORMAT SUPPORT

The MainConcept Live Encoder offers MPEG-H 3D Audio creation featuring output for Zixi, SRT, TS over UDP/HTTP, HLS, MPEG-DASH and MP4 archiving files. Supporting live SDI and NDI ingest for up to 16 PCM channels with a separate Control Track, it generates content with immersive, object-based MPEG-H audio. The Control Track includes all information required to enable the advanced features of MPEG-H 3D Audio, such as mixing or choosing different audio objects, defining or changing objects' spatial position, adjusting dialogue or commentator's volume, selecting different language tracks, and more. MPEG-H can be used in both contribution and distribution encoding workflows.

MOST COST-EFFICIENT 8K LIVE ENCODING SOLUTION

READY FOR NEXT-GEN BROADCAST & OTT VIDEO

LCEVC enhancement codec for lower cost encoding and reduced bitrates that works with MainConcept's AVC, HEVC and VVC as base layers. The standards compliant base layers remain compatible with non-LCEVC decoders.

FLEXIBLE DEPLOYMENT VIA WEB UI & REST API

Flexible management through an intuitive web interface or an XML-based public REST API for an easy integration into existing workflows.

LIVE ADAPTIVE BITRATE STREAMING

Live encoding to Apple HLS, DASH-264 (8-bit) or DASH-265 (8-bit/10-bit) compliant streams in up to 8K 10-bit resolution & HDR-10 support.

KEY FEATURES

- Live archiving to disk or cloud
- Built-in A/V processing
- Common SDI and IP input sources
- Real-time input source preview
- MPEG-2-based DVB presets
- Hybrid HEVC encoding with NVIDIA NVENC & MainConcept software encoding modes
- Immersive, object-based MPEG-H 3D Audio encoding
- NDI, Zixi and SRT protocol support

OPTIMIZE WITH MAINCONCEPT PROFESSIONAL SERVICES

SOFTWARE REQUIREMENTS

Operating System

- Microsoft Windows Server 2022
- Microsoft Windows 10
- Rocky Linux 8 or RHEL 8
- Amazon Linux 2023

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HARDWARE RECOMMENDATIONS

AVC/H.264 HD

- 2x Intel Xeon E5-2640v3 2.6 GHz (8 cores/16 threads per CPU), 20M Cache, 8.00 GT/s QPI, Turbo, HT, 8C/16T (90W) Max Mem (or similar AMD CPUs)
- 1866MHz; 64 GB RDIMM, 2133MT/s, Dual Rank, x4 Data Width
- Deltacast Delta-3G-elp-d 8c (Windows), AJA Kona 4, AJA Kona 5 or Blackmagic Design DeckLink Duo SDI capture board

AVC or HEVC 4K

- 2x Intel Xeon E5-2699v4 2.2 GHz (22-cores/44 threads per CPU), 55M Cache (115W); 64 GB RDIMM, 2400 MT/s, Dual Rank, x8 Data Width (or similar AMD CPUs)
- Deltacast Delta-3G-elp-d 8c (Windows), Blackmagic Design DeckLink 4K, AJA Kona 4 SDI capture board

HEVC 8K in AWS EC2

- AWS EC2 g4dn.12xlarge instance (48 CPUs)
- 4 GPUs (NVIDIA T4)
- 192 GB RAM
- 3 Layers: 8K, 4K, 1080p

HEVC 8K

- 2x Intel Xeon Gold 6230 (20 cores/40 threads per CPU) 2.1 GHz, 27.5M Cache, HT, 115W, Max Mem 2933 MHz; 128 GB DDR4-2933 RAM
- 2x AMD EPYC 7542 (32 cores/64 threads per CPU) 2.90 GHz, 128MB Cache, 225W
- 128 GB DDR4-2933 RAM
- 3x GPUs: 1x NVIDIA RTX 2070, 2x NVIDIA RTX 2070 SUPER boards
- AJA Kona 5, Blackmagic Design DeckLink 8K Pro SDI capture board

VVC OR VVC+LCEVC 4K

- AMD EPYC 7713P (64 cores/128 threads), 2.0 GHz, 256 MB L3 Cache, 225W, Max Mem 3200 MHz
- 256 GB RAM
- Blackmagic Design DeckLink 8K Pro, AJA Kona 5 SDI capture board

VVC 8K IN AWS EC2

- AWS EC2 c6a.32xlarge: AMD EPYC 7R13, 128 vCPUs, 4 NUMA Nodes, or
- AWS EC2 c6i.32xlarge: Intel Xeon Scalable 8375C 3rd Gen, 128 vCPU, 3.5 GHz, Ice Lake
- 256 GB RAM
- Network Bandwidth: 50 Gbps

PRODUCT SPECIFICATIONS

Input

- SDI capturing
- IP streams: UDP (MPEG-2/H.264 in MPEG TS), HTTP, RTMP, authenticated RTSP (in TS), SRT, Zixi, NDI
- Video: AVC/H.264, HEVC/H.265, MPEG-2, VC-1
- Audio: AAC, MPEG Audio Layer 1/2, MP3
- Hardware AVC/H.264 and HEVC/H.265 decoding for IP ingest using Intel Quick Sync Video for dedicated Intel Core Processors, Intel ARC discrete GPUs (Windows only) or NVIDIA NVDEC technology
- Real-time preview of the input source attached to the encoding job

Configuration

- User Rights Management for administration and monitoring
- REST API
- SNMP Traps API
- Redundancy Management (1+1, N+M)
- Configure multiple servers in parallel with settings propagation
- Redundant license server usage
- Automatic compression of rotated log files to save disk space

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Processing

- Closed Caption (EIA-608 & EIA-708)
- Ad-Insertion passthrough (SCTE-35 & SCTE-104)
- SCTE-104/35 conversion for Decklink capture cards
- SCTE-35 signaling for TS over IP protocols (HTTP, UDP, SRT and Zixi)
- SCTE-35 signaling for HLS and MPEG-DASH playlists
- AMF data insertion into RTMP and ID3 tag insertion for HLS outputs via REST API
- Logo and Slate insertion
- Signaling Advanced HDR by Technicolor (SL-HDR1), Hybrid Log Gamma (ITU-R BT.2100-1), PQ-10 (BT.2100 / SMPTE ST 2084) and HDR-10 (SMPTE ST.2086) for both HEVC and AVC
- Loudness normalization (CALM-Act/EBU R128)
- Audio/Video Processing Tools
- Deinterlacing, framerate conversion, scaling
- Channel mapping
- Input source audio can be passed unmodified through the encoder to an output stream

Output

- Archive live streams to disk as MP4 or to Amazon S3 file storage
- IP streams: HLS, MPEG-DASH, RTMP, UDP, RTP, RTSP, HTTP, SRT, Zixi
- Program/Service Name, ID and Provider when outputting TS over UDP and TS over HTTP
- Delivery service support: Akamai CDN, Amazon CloudFront CDN and WebDAV server
- WebDAV upload to both Nginx and Apache servers
- Apple HLS AES-128 common encryption, plus custom HLS encryption key file import
- Flexible configuration of date & time placeholders for HLS & DASH media segment file names
- Custom names for HLS media playlists using placeholder variables
- Custom descriptions for output streams
- Enhanced RTMP streaming using HEVC/H.265

Encoding

- Powered by industry-leading MainConcept MPEG-2, VVC/H.266, AVC/H.264 and HEVC/H.265 software video encoding technology
- MPEG-H 3D, AAC and MPEG audio encoding, including audio passthrough for unsupported audio formats
- Enhanced LCEVC (MPEG-5 Part 2) encoding add-ons with AVC, HEVC and VVC base layers
- Ready-to-use presets compatible with next generation Brazilian Fórum SBTVD TV 2.5 and TV 3.0
- MPEG-2-based DVB broadcast presets for immediate deployment
- NVIDIA NVENC, Intel Quick Sync Video and Intel ARC hardware encoding for both AVC and HEVC
- Live encoding to:
    - HLS (AVC/HEVC/AAC or MPEG-H) up to 8K, incl. playlist & packaging
    - DASH-264/DASH-265 (AVC/HEVC/AAC or MPEG-H) up to 8K, incl. MPD and packaging
- HEVC 8K60 live encoding using on-premises hardware or in AWS EC2 instances
- MPEG-H Audio encoding with output for Zixi, SRT, TS over UDP/HTTP, HLS, MPEG-DASH & MP4
- Interlaced AVC/H.264 encoding for broadcast workflow
- Multi-audio encoding for Zixi, SRT, RTSP, RTMP, HLS, TS over UDP/HTTP and MP4 archiving output

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