

# 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 common broadcast and OTT video workflows. With renowned MainConcept HEVC and AVC codecs 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 now offers MPEG-H 3D Audio creation featuring output for Zixi, SRT, TS over UDP/HTTP, MPEG-DASH and MP4 archiving files. Supporting live SDI 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.

## 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
- 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
- Deltacast Delta-3G-elp-d 8c (Windows), Blackmagic Design DeckLink 4K, AJA Kona 4 SDI capture board

### 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
- 3x GPUs: 1x NVIDIA RTX 2070, 2x NVIDIA RTX 2070 SUPER boards
- AJA Kona 5, Blackmagic Design DeckLink 8K Pro 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

## MOST COST-EFFICIENT 8K LIVE ENCODING SOLUTION

### SIMPLIFY BROADCAST & OTT VIDEO WORKFLOWS

Intuitive interface for real-time multiscreen encoding, packaging and playlist generation

### 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 AV processing
- Common SDI and IP input sources
- Hybrid HEVC encoding with NVIDIA NVENC & MainConcept software encoding modes
- Immersive, object-based MPEG-H 3D Audio encoding
- Zixi and SRT protocol support

### OPTIMIZE WITH MAINCONCEPT PROFESSIONAL SERVICES

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## SOFTWARE REQUIREMENTS

### Operating System

- Microsoft Windows Server 2012
- Microsoft Windows 10
- Linux CentOS 7.9

### Browsers

- Mozilla Firefox 102.6.x ESR (Linux) and 108.0 (Windows) or newer
- Google Chrome v109.0.x or newer
- Microsoft Edge v108.0.x or newer

## PRODUCT SPECIFICATIONS

### Input

- SDI capturing
- IP streams: UDP (MPEG-2/H.264 in MPEG TS), HTTP, RTMP, authenticated RTSP (in TS), SRT, Zixi
- Video: AVC/H.264, HEVC/H.265, MPEG-2, VC-1
- Audio: AAC, MPEG Audio Layer 1/2, MP3

### Encoding

- Powered by industry-leading MainConcept AVC/H.264 and HEVC/H.265 software encoding technology
- NVIDIA NVENC and Intel Quick Sync Video hardware encoding for both AVC and HEVC
- Live encoding to:
  - HLS (AVC/AAC) up to 1080p (8-bit), incl. playlist and packaging
  - HLS (HEVC/AAC) up to 8K (8-bit/10-bit), incl. playlist & packaging
  - DASH-264 (AVC/AAC or MPEG-H) up to 1080p (8-bit), incl. MPD and packaging
  - DASH-265 (HEVC/AAC or MPEG-H) up to 8K (8-bit/10-bit), incl. MPD and packaging
- HEVC 8K60 live encoding using on-premise hardware or in AWS EC2 instances

- Simultaneous encoding of 8 MPEG-DASH or HLS quality layers
- MPEG-H 3D Audio encoding with output for Zixi, SRT, TS over UDP/HTTP, MPEG-DASH and MP4
- Interlaced AVC/H.264 encoding for broadcast workflow

### Processing

- Closed Caption (EIA-608 & EIA-708)
- Ad-Insertion passthrough (SCTE-35 & SCTE-104)
- AMF data insertion into RTMP and ID3 tag insertion for HLS outputs via REST API
- Logo and Slate insertion
- Signaling SL-HDR1, Hybrid Log Gamma (ITU-R BT.2100-1), PQ-10 (BT.2100 / SMPTE ST 2084) and HDR-10 (SMPTE ST.2086) encoding in HD, 4K, and 8K for both HEVC and AVC
- Loudness normalization (CALM-Act/EBU R128)
- Audio/Video Processing Tools
- Deinterlacing, framerate conversion, scaling
- Channel mapping
- Multi-audio encoding for Zixi, SRT, RTSP, RTMP, TS over UDP/HTTP and MP4 archiving output

### Output

- Archive live streams to disk as MP4 or to Amazon S3 file storage
- IP streams: 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
- Apple HLS AES-128 common encryption, plus custom HLS encryption key file import

### 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

## CONTACT

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## MORE INFORMATION

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