

ZIXI TRANSCODER

LEVERAGE ZIXI FOR LIVE VIDEO TRANSCODING AND MEDIA SERVICES

The Zixi Transcoder adds high quality and high-density live video transcoding to the Zixi platform, which flawlessly delivers broadcast-quality video over unmanaged and managed IP networks, at lower cost, at scale, and with sub-second transcoding and delivery latencies. With the live transcoding feature, the Zixi Broadcaster provides a single solution for the universal origination and distribution of high quality, adaptive live broadcast content to OTT workflows, digital MVPDs, MSOs, hotels, cinemas, iPhone and Android player apps as well as other destinations. It is a complete transcoding solution including decode, encode, packaging and delivery to origin layered on top of the Zixi Broadcaster's support of various IP ingest formats and IP distribution formats, including low latency HLS and DASH. The Zixi Transcoder supports H.265/HEVC, H.264/AVC, MPEG2, and NDI video codecs as well as a variety of audio codecs most commonly used for live broadcast and OTT workflows.

Using NVIDIA and Intel Quick Sync GPUs, the Zixi Transcoder provides high density SD to UHD transcoding to multiple stream renditions for adaptive delivery. NVIDIA GPUs are available in PCIe boards for bare-metal installations and on cloud providers such as AWS, Google Cloud Platform, and Azure. Intel Quick Sync GPUs are available on bare-metal motherboards. The Zixi Transcoder also supports a software only solution using the X264 codec for lower density applications.

The Zixi Transcoder is managed via the Zixi Broadcaster's Web User Interface, REST API or via Zixi's ZEN Master orchestration, management, and monitoring control plane. ZEN Master makes it easy to manage inputs and outputs for hundreds of live video streams at scale. With just a few clicks, and with automatic configuration details for network resources and distribution targets, users can create new live channels and spin up required streams on the fly.

Typical workflows for the Zixi transcoder include:

- **Broadcast backhaul** – Compress high bitrate live mezzanine MPEG2 to lower bitrate H264 or H265, at the same quality level, to reduce bandwidth requirements for video uplink. When uplink bandwidth is scarce or cost is at a premium, compression of live content can make possible an otherwise impractical workflow.
- **Over the Top (OTT)** – Deliver live mezzanine video transcoded into multiple renditions of H264 or H265 and packaged into HLS or DASH formats to laptops, mobile devices and set top boxes via Content Delivery Networks, YouTube Live or similar services. Adaptive streams can also be delivered via the Zixi protocol to Zixi enabled endpoints.
- **Bitrate reduction and packaging for Social Media** – Deliver live mezzanine video transcoded to lower bitrate H264 and packaged into RTMP or HLS to Social Media sites such as Facebook Live, YouTube Live, and Twitch.

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Zixi Transcoder Specifications

Inputs

Zixi, NDI, RIST, SRT, HLS, RTMP, RTP, UDP, and more

Outputs

Zixi, NDI, RIST, SRT, HLS, RTMP, RTP, UDP, WebRTC, and more

Ad Insertion

SCTE-35 passthrough to Zixi TS
 SCTE-35 converted to CUE-OUT/CUE-IN in HLS
 SCTE-35 converted to Splice Events in DASH
 SCTE-35 converted to OnCuePoint in RTMP
 API Injection with output to SCTE-35 in Zixi TS
 API Injection with output to CUE-OUT/CUE-IN in HLS
 API Injection with output to Splice Events in DASH
 API Injection with output to OnCuePoint in RTMP

Captions

ATSC 608/708 ES passthrough to Zixi TS, HLS, DASH, and RTMP
 DVB track passthrough to Zixi TS
 WebVTT generation from ATSC 708 Elementary Stream

Audio Processing

Transcode first two audio tracks
 Passthrough of all audio tracks
 Passthrough of unsupported codecs such as E-AC3
 PID mapping and pass-thru
 Audio Sample Rate Conversion - 44.1KHz to/from 48KHz

Audio Decode

AAC Low Complexity, High Efficiency V1, High Efficiency V2
 AC3 (Dolby Digital)
 MP2 (MPEG-2 Audio Layer II)
 MP1 (MPEG-1 Audio Layer II)
 Opus

Audio Encode

AAC Low Complexity, High Efficiency V1, High Efficiency V2
 Opus

Video Processing

MPTS De-multiplexing
 Passthrough
 10-bit to 8-bit color downscaling
 Thumbnail extraction as HLS playlist
 Deinterlacing (non-telecine) on all input codecs
 Interlaced output (only with X264 S/W encoder and NDI)
 PID mapping and pass-thru
 Black bar insertion
 Cropping
 Smooth framerate conversion – up and down
 Image Overlay/Logo Insertion

NVIDIA Hardware Encoder Codec and Color Support

	Codec	Chroma Subsampling	Color Depth
Video Decode	MPEG-2	4:2:0	8-bit
	H.264/AVC	4:2:0	8-bit
	H.265/HEVC	4:2:0, 4:4:4	8-bit, 10-bit
Video Encode	H.264/AVC	4:2:0, 4:4:4	8-bit
	H.265/HEVC	4:2:0, 4:4:4	8-bit, 10-bit

Intel Quick Sync Hardware Encoder Codec and Color Support

	Codec	Chroma Subsampling	Color Depth
Video Decode	MPEG-2	4:2:0	8-bit
	H.264/AVC	4:2:0	8-bit
	H.265/HEVC	4:2:0	8-bit
Video Encode	MPEG-2	4:2:0	8-bit
	H.264/AVC	4:2:0	8-bit
	H.265/HEVC	4:2:0	8-bit

X264 Software Encoder Codec and Color Support

	Codec	Chroma Subsampling	Color Depth
Video Decode	MPEG-2	4:2:0	8-bit
	H.264/AVC	4:2:0	8-bit, 10-bit
Video Encode	H.264/AVC	4:2:0, 4:2:2, 4:4:4	8-bit, 10-bit

NDI Software Library Codec and Color Support

	Codec	Chroma Subsampling	Color Depth
Video Decode	NDI*	4:2:0, 4:2:2, 4:2:2	8-bit, 10-bit
Video Encode	NDI*	4:2:0, 4:2:2, 4:4:4	8-bit, 10-bit

* NDI v4 original format, not NDI|HX

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