

3480TXE Platform

Software Defined Accelerated Encoding Platform



Software Defined Accelerated Platform

The TXE platform's flexible architecture utilizes both software and hardware acceleration to allow for superior video quality and density, while maintaining flexibility. The compression engine supports both CBR and VBR (statmux mode as well as capped VBR) and has been fine tuned to provide superior video quality. The TXE platform provides the highest encoding/transcoding density and lower power consumption resulting in reduced OPEX.

A True Converged Platform

One platform is used for many applications. Specifically the TXE platform supports distribution encoding/transcoding, multiscreen encoding/transcoding, contribution encoding as well as other features such as Muxing, Statmuxing and audio IntelliGain. The TXE platform also supports a comprehensive list of inputs including HD-SDI, IP (both compressed and uncompressed) and file inputs.

Superior Control System

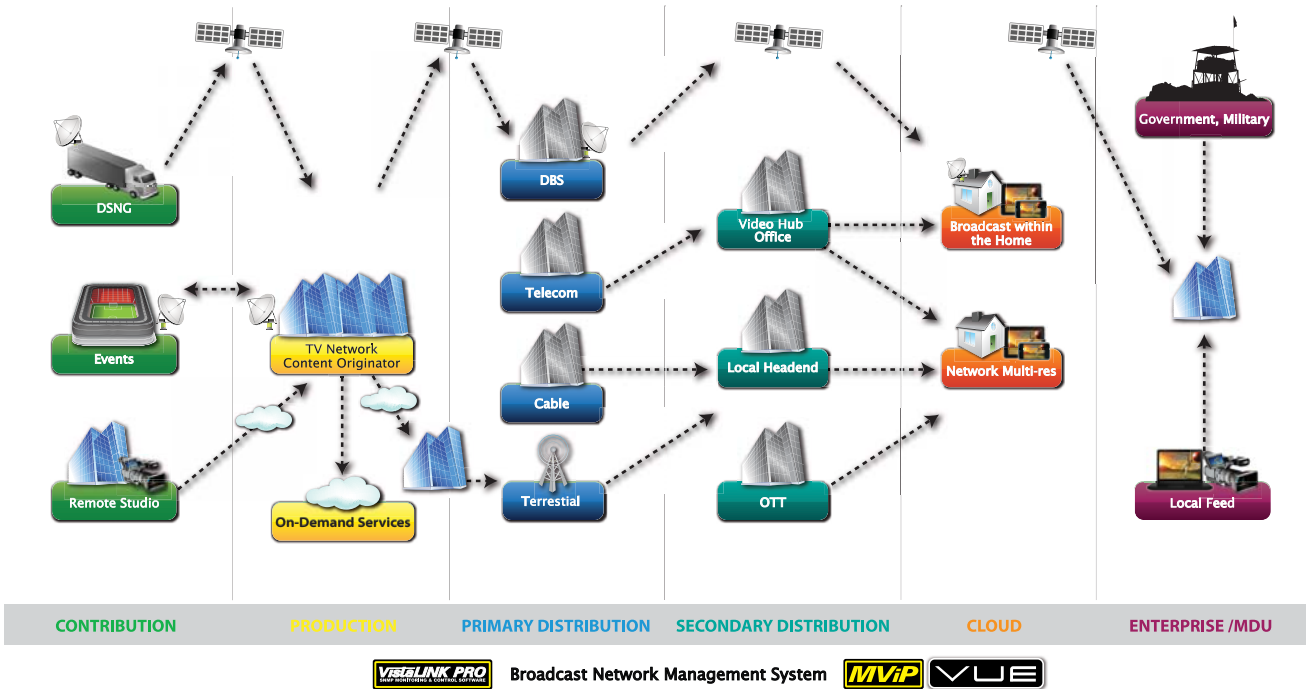
The TXE platform can be controlled using a web interface as well as Vistalink CSM — Compression System Manager. This is a complete compression network provisioning, monitoring and management solution for configuring Evertz's full range of headend and broadcast digital video compression products. VistaLINK® CSM provides a service oriented view of the network coupled with a rich toolset in order to provide easy and intuitive management of compressed digital audio video services and networks.

► Features & Benefits

- Superior video quality at lower bitrate
- Industry leading video pre-processing and pre-analysis
- Main screen encoder/transcoder
- ABR transcoder (multi-screen)
- Live and file inputs
- Multi-path processing: single input can be encoded to different formats and resolutions
- Advanced configurability: bitrate, GOP structure, noise filters, output resolutions
- Support for CBR and VBR applications
- Seamless integration with Evertz end-to-end solution, simplifies monitoring and control
- In-band metadata on private pid
- High resilience with dual power supply
- Easily managed with web interface or VistaLINK® CSM Compression System Manager
- Provides both adaptive bitrate outputs plus high quality mezzanine output (for distribution and archive)
- Capable of commercial insertion switching based on detection of SCTE35/104 triggers
- Integrates with YouTube Live to enable the streaming of live events
- Future-proof support for HEVC, UltraHD
- Advanced software system integration: MAGNUM, DreamCatcher, VistaLINK CSM, Mediator and VUE

► Typical Applications

- High density contribution encoding of up to 16 SDI signals per box for getting signals from remote sites at a high bitrate, low latency and high video quality encode
- IPTV, multicast to the home, typically utilizing H.264 codecs with constant bit rate (CBR) or capped variable bit rate (VBR) and IP multicast networks. Includes Picture in Picture (PIP) generation as a software option
- DTH Satellite with stat muxed streams, including hybrid SD/HD, MPEG-2/H.264 stat mux pools
- Cable IPTV over broadband, bonded RF carriers. Typically H.264 multicast, and stat muxed
- Cable or satellite DTH networks with MPEG-2 delivery to a mixed population of legacy set top boxes and modern ones
- HD-SDI, IP, file or combined inputs transcoded into GOP aligned adaptive output profiles which are packaged into HLS, LSS, RTMP, MPEG DASH and delivered to the CDN or local origin server. Various DRMs are supported as well the insertion of SCTE-35 messages into the output manifest files
- Terrestrial ATSC Encoder: High VQ MPEG2 SD/HD Statistical Multiplexed encodes up to 2x HD-SDI and 4x SD-SDI simultaneously (future-proofed for H.264)



Specifications

Function:	Distribution Encoder, Multiscreen Encoder/Transcoder, Mainscreen Transcoder, Contribution Encoder	Attributes:	Inputs & Outputs: Up to 16x HD-SDI (Mini-DIN) Inputs 4x GigE ports (I/O)	Physical:	Dimensions: 19"W x 1.75"H x 18.75"D Weight: 17lbs (7.7kg) Input Voltage: Auto ranging 100-240 VAC Power: Up to 500W EMI/RFI: Complies with FCC regulations for class-A devices. Complies with EU EMC directive
		Management Interfaces:	<ul style="list-style-type: none"> Two Ethernet connectors 1000Base-Tx Main and redundant connector RJ-45 		

Ordering Information

3480TXE-1PM2B:	1RU 3480TXE Platform, includes chassis, 1 PM2B processing modules, capable of main and multi-screen encoding/decoding/transcoding. Main and redundant AC power supplies.
3480TXE-2PM2B:	1RU 3480TXE Platform, includes chassis, 2 PM2B processing modules, capable of main and multi-screen encoding/decoding/transcoding. Main and redundant AC power supplies.

3480TXE-3PM2B:	1RU 3480TXE Platform, includes chassis, 3 PM2B processing modules, capable of main and multi screen encoding/decoding/transcoding. Main and redundant AC power supplies.
3480TXE-4PM2B:	1RU 3480TXE Platform, includes chassis, 4 PM2B processing modules, capable of main and multi screen encoding/decoding/transcoding. Main and redundant AC power supplies.

Note: The following pages will outline different channel keys for your specific application needs (contribution, distribution, mainscreen or multiscreen).

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Contribution Encoding Channel Key

The Contribution Channel Key offers both MPEG-2 and H.264 (MPEG-4 Part 10) user configurable video compression at up to 10-Bit 4:2:2 resolution concurrently, with compression latencies as low as 500ms end-to-end.

The 3480TXE Platform supports audio encoding of up to 16 channels per video path using a wide variety of audio compression cores including, but not limited to, MPEG1L2, Dolby-E/AC-3, AAC encoding and audio pass-through.

Features & Benefits

- MPEG-2 and MPEG-4 AVC SD/HD 4:2:0/4:2:2 with up to 8/10-bit encoding
- Low latency mode contribution
- Full 16 channels of audio encoding
- Integrated multiplexing MPTS creation and onboard Forward Error Correction (FEC)
- In-field upgradable design for "Pay As You Grow" Scalability
- User friendly front panel control interface

Specifications

Function:	High VQ Contribution Encoder	MPEG-4 AVC 4:2:2 SD 8-bit	Dolby-E
Video Specifications:		MPEG-4 AVC 4:2:0 HD	AAC-LC, HE-AAC v1, v2
Standard:	SMPTE 292M/259M	MPEG-4 AVC 4:2:2 HD 8/10-bit	System, Ancillary:
	1.485Gb/s, 270Mb/s	MPEG-2 MP@ML	DPI:
Video Resolution:	1920x1080 @ 25, 29.97, 30Hz	MPEG-2 M@HL	Generation:
	1280x720 @ 50, 59.94 and 60Hz	MPEG-4 AVC MP@L4.0	VANC:
	720x576 @ 25Hz (ITU-R BT.656-4)	Hi422P@L4.1	CEA 608 from Line 21
	720x480i @ 29.97Hz (SMPTE 125M)		SMPTE 334-1
	480i: 720x480	Audio Specifications:	Closed Captions (SCTE-20, SCTE-21, SCTE-128), CEA 708
Video Compression:	MPEG-2 SD 4:2:0	Number of Channels:	SMPTE 2016-3 AFD and Bar Data
	MPEG-2 SD 4:2:2	Compression Formats:	SMPTE 2031 Teletext
	MPEG-2 HD 4:2:0	Passthrough:	OP47 Teletext subtitles
	MPEG-2 HD 4:2:2	Encoding:	TIMECODE
	MPEG-4 AVC 4:2:0 SD	Optional:	

Ordering Information

3480TXE-CK-8B422:	Channel Key for MPEG-2/H.264 Contribution encoder 8-bit only	<i>Bulk Channel Keys available</i>
3480TXE-CK-10B422:	Channel Key for MPEG-2/H.264 Contribution encoder (H.264 up to 10-bit)	

Mainscreen Transcoding Channel Key

Channel Key provides high-quality, high-density H.264/MPEG-2 conversions. One Channel Key supports up to 8SD or 2HD high quality transport stream transcodes.

Features & Benefits

- MPEG-2 and MPEG-4 AVC SD/HD 4:2:0
- Comprehensive audio/data support
- Integrated multiplexing MPTS creation
- In-field upgradable design for "Pay As You Grow" Scalability

Specifications

Inputs and Outputs	Audio Transcoding	Video Pre-processing
<ul style="list-style-type: none"> • 2 Independent IP inputs and outputs • MPEG format: 188 and 204 bits per TS • MPEG TS: SPTS, MPTS • Transmission methods: Unicast and Multicast • Management: IGMP v1, 2, 3 	<ul style="list-style-type: none"> • Pass-through of pre-encoded Dolby® Digital, or Dolby-E® or Linear PCM up to eight streams • Standard MPEG-1 Layer II transcoding up to 4 stereo channel processing • Optional Dolby® Digital (AC-3), Dolby-E®, AAC Audio, Dolby® Digital Pulse, Dolby® Digital Plus 	<ul style="list-style-type: none"> • Up/Down conversion • Frame rate conversion • Input filtering: De-interlacing, De-Blocking, Others
Video Transcoding	Up/Down conversion	VBI and VANC Data
<ul style="list-style-type: none"> • MPEG-2 to H.264 MP/HP @ Level 4.2 • H.264 MP/HP to MPEG-2 Video MP@ML and MP@HL • Optional PIP and low res encode formats • Aspect ratio: 4:3 and 16:9 	<ul style="list-style-type: none"> • Input filtering: De-interlacing, De-Blocking, Others 	<ul style="list-style-type: none"> • VBI PES Pass-through • SMPTE 2016-3 AFD and Bar Data (pass-through, cropping, scaling and shifting) • SMPTE 12-2 Time code extraction and carriage (ETSITS101 154) • SMPTE 2038 Generic VANC data extraction

SD Resolutions/ Frame Rates		HD Resolutions/ Frame Rates			
625 PAL@25	525 NTSC@29.97, 30	720p@50	720p@59.94	1080i@25	1080i@29.97, 30
720x576/25	720x480/29.97,30	1280x720/50, 25	1280x720/59.94, 29.97	1920x1080/25	1920x1080/29.97, 30
704x576/25	704x480/29.97,30	960x720/50, 25	960x720/59.94, 29.97	1440x1080/25	1440x1080/29.97, 30
640x576/25	640x480/29.97,30	640x720/50, 25	640x720/59.94, 29.97	1280x1080/25	1280x1080/29.97, 30
544x576/25	544x480/29.97,30			960x1080/25	960x1080/29.97, 30
528x576/25	528x480/29.97,30				
480x576/25	480x480/29.97,30				
352x576/25	352x480/29.97,30				

Ordering Information

3480TXE-CK-H264-A:	Transcoding Channel Key for 8x SD MPEG-2 or H.264 Inputs and 8x H.264 SD outputs	3480TXE-CK-MP2-A:	Transcoding Channel Key for 8x SD MPEG-2 or H.264 Inputs and 8x MPEG-2 SD outputs
3480TXE-CK-H264-B:	Transcoding Channel Key for 6x SD MPEG-2 or H.264 inputs and 6x (SD H.264 + PIP) outputs	3480TXE-CK-MP2-B:	Transcoding Channel Key for 6x SD MPEG-2 or H.264 inputs and 6x (SDMPEG-2 + PIP) outputs
3480TXE-CK-H264-C:	Transcoding Channel Key for 2x Inputs of HD MPEG-2/H.264 and 2x outputs of HD H.264 + 2PIP	3480TXE-CK-MP2-C:	Transcoding Channel Key for 2x Inputs of HD MPEG-2/H.264 and 2x outputs of HD MPEG-2 + 2PIP

The Complete Solution Provider



►Distribution Encoding Channel Key

The Distribution Encoding Channel Keys offer the highest Quality MPEG-2 and H.264 video compression with advanced pre-processing/pre-analysis and compression tools options suitable for various CBR and VBR distribution applications.

The TXE platform supports superior audio encoding using a variety of audio codecs including, but not limited to, MPEG1L2, Dolby AC-3, AAC encoding and audio pass-through integrated with industry leading Evertz IntelliGain Loudness Control Algorithm.

►Features & Benefits

- Highest video quality enabled by advanced pre-processing/pre-analysis, compression tools and stat mux algorithms
- High availability with N+M service-level redundancy support via the proven VistaLINK® Compression System Manager from Evertz®
- Works in conjunction with the Evertz® IP-based stat mux controller for

variable bitrate (VBR) stream generation to maximize video quality within constrained bandwidth delivery networks. Includes stream prioritization to reflect business requirements

- Enhanced Table insertion: External or Internal, Spooling or Injection, ATSC PSIP, DVB PSI, DVB SI

►Specifications

Function:	High Density High VQ Distribution Encoder	Audio Input:	Embedded (SMPTE ST 299-1), up to 4 groups (16 channels) PCM or Dolby® Digital or –E 48kHz sample frequency, 20-bit resolution	Generation:	SCTE-35 CEA 608 from Line 21
Video (CBR/VBR)		Channels:	Up to 3 stereo pairs and one 5.1 audio per video service.	VANC:	SMPTE 334-1 Closed Captions (SCTE-20, SCTE-21, SCTE-128), CEA 708 SMPTE 2016-3 AFD and Bar Data
Encoding:		Encoding Support:	AAC-LC HE-AAC MPEG-1 Layer II, mono, stereo Dolby® Digital (AC-3) Dolby® E encoder, various modes Dolby® Pulse (AAC-based) Dolby® Digital Plus (upcoming, contact Evertz®) PCM, AC3 and Dolby-E pass-through	Transport Stream (MPEG2 TS)	
H.264 Profile:	Main / High, up to Level 4.2 (SD and HD)			ATSC PSIP Spooling:	PAT, PMT, MGT, TVCT and more
H.264 PIP:	Baseline/Main, Up to Level 2.0			ATSC PSIP Injection:	Integrated with 3rd party Table Spoolers
MPEG-2:	Main Profile @ Main Level (SD), Main Profile @ High Level (HD)			DVB SI, PSI Table Spooling:	PAT, PMT, SDT, NIT, TDT/TOT
Chroma:	4:2:0 (H264 and MPEG-2)	Sampling:	48 kHz (contact Evertz® for additional rates)		
Video Processing:	Adaptive GOP, Motion Compensated Temporal Filter (MCTF), Input deblocking filter, Scene change detection, Fade detection	System, Ancillary:			
HD Resolutions:	1920, 1440, 1280x1080i 25/29.97 1280, 960, 640x720p 50/59.94	DPI:	SCTE-104 via VBI		
SD Resolutions:	720, 704, 640, 544, 528,480, 352x480i 29.97/576i 25				
PIP Resolutions:	416x240, 352x288, 352x240, 192x192, 128x128, 128x96, 96x96				
Aspect Ratio:	4:3, 16:9, AFD and WSS Signaling				

►Ordering Information

3480TXE-CK-H264HD	Encoding Channel key to unlock 1 channel of 4:2:0 8-Bit H.264 HD encode
3480TXE-CK-H264SD	Encoding Channel key to unlock 1 channel of 4:2:0 8-Bit H.264 SD encode
3480TXE-CK-MP2HD	Encoding Channel key to unlock 1 channel of 4:2:0 8-Bit MPEG-2 HD encode
3480TXE-CK-MP2SD	Encoding Channel key to unlock 1 channel of 4:2:0 8-Bit MPEG-2 HD encode

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► Multiscreen Transcoding Channel Key

The Multiscreen Channel Key offers a high quality video and audio transcoding for live streaming to various media platforms.

Channel Key provides high quality, high density H.264/MPEG-2 conversions. OTT channel key supports up to two input video PIDs (services) and provides up to 12 profiles.

► Features & Benefits

- MPEG-4 AVC SD/HD
- Multiple profiles per input are IDR aligned
- SCTE35 triggers and pass-through supported
- Comprehensive audio/data support
- Integrated multiplexing MPTS creation
- In-field upgradable design for "Pay As You Grow" Scalability
- Logo Insertion
- Mezzanine encoder output

► Specifications

Inputs and Outputs

- IP/HD-SDI inputs
- MPEG format: 188 and 204 bits per TS
- MPEG TS: SPTS, MPTS
- Transmission methods: Unicast and Multicast
- Management :IGMPv1,2,3

Video Transcoding

- MPEG2 to H.264 MP/HP @ Level 4.2
- IDR alignment for ABR transcoding
- Optional PIP and low res encode formats
- Aspect ratio: 4:3 and 16:9

Up/Down conversion

- Input filtering: De-interlacing, De-Blocking, Others

Video Pre-processing

- Up/Down conversion
- Frame rate conversion
- Input filtering: De-interlacing, De-Blocking, Others

Audio Transcoding

- Pass-through of pre-encoded Dolby® Digital, or Dolby-E® or Linear PCM up to eight streams
- Standard MPEG-1 Layer II transcoding up to 4 stereo channel processing
- Optional Dolby® Digital (AC-3), Dolby-E®, AAC Audio, Dolby® Digital Pulse, Dolby® Digital Plus

VBI and VANC Data

- VBI PES pass-through
- SMPTE 2016-3 AFD and Bar Data (pass-through, cropping, scaling and shifting)
- SMPTE 12-2 Time code extraction and carriage (ETSITS101 154)
- SMPTE 2038 Generic VANC data extraction
- SCTE 35
- SCTE 104 to SCTE 35 conversion

SD Resolutions/ Frame Rates		HD Resolutions/ Frame Rates		ABR Horizontal	ABR Vertical Resolutions
625 PAL@25	525 NTSC@29.97, 30	720p@50	1080i@25	1920, 1440, 1280,1080,	1080, 720, 640, 600, 576,
720x576/25	720x480/29.97,30	1280x720/50, 25	1920x1080/25	1024, 960, 864, 854, 800,	544, 540, 486, 480, 432,
704x576/25	704x480/29.97,30	960x720/50, 25	1440x1080/25	768, 720, 640, 544, 528,	384, 360, 320, 288, 272,
640x576/25	640x480/29.97,30	640x720/50, 25	1280x1080/25	512, 480, 416, 400, 360,	270, 240, 224, 192, 180, 160,
544x576/25	544x480/29.97,30		960x1080/25	352, 320, 240, 208, 192,	144, 120, 96
528x576/25	528x480/29.97,30			176, 160, 128, 96	
480x576/25	480x480/29.97,30	720p@59.94	1080i@29.97, 30		
352x576/25	352x480/29.97,30	1280x720/59.94, 29.97	1920x1080/29.97, 30		
		960x720/59.94, 29.97	1440x1080/29.97, 30		
		640x720/59.94, 29.97	1280x1080/29.97, 30		
			960x1080/29.97, 30		

► Ordering Information

3480TXE-CK-ABR-GEN:

Dual Input ABR Transcoder with fully configurable resolution support

3480TXE-CK-ABR-HD:

Dual Input ABR Transcoder with HD or lower output resolutions only

3480TXE-CK-ABR-SD:

Dual Input ABR Transcoder with SD or lower output resolutions only

3480TXE-CK-SDI-ABR-GEN:

Requires 2 VPUs. SDI input ABR transcoder with fully configurable resolution support.

► Additional Ordering Options

Audio Feature Keys

3480TXE-FK-AC3E: Feature Key for Dolby Digital (AC-3) audio codec up to 5.1 (3/2L)

3480TXE-FK-AC3E20: TXE Feature Key for one instance of Dolby Digital (AC-3) Audio Codec 2.0

3480TXE-FK-AACE: Feature Key for AAC codec up to 5.1 (3/2L)

3480TXE-FK-AACE20: TXE Feature Key for one instance of AAC 2.0

3480TXE-FK-DEE: Dolby-E Encoding Feature Key up to 7.1

3480TXE-FK-IG: Up to 2.0 and 5.1 of IntelliGain

TS Feature keys

3480TXE-FK-FEC-TS: SPTS Forward Error Correction Insertion Per Pro MPEG-2 Code Of Practice #3

MUX/STC Feature Keys

3480TXE-FK-STM-TS: Feature key to Enable Multiplexer and Statmux Controller for 1 output MPTS.

Logo Feature Keys

3480TXE-FK-LGA: Feature key to enable logo insertion on 1 VPU