Electra XT

XTREAM™ HIGH-DENSITY TRANSCODER



Possessing the highest real-time transcoding density on the market and any-to-any format support, the Harmonic Electra™ XT Xtream™ transcoder (formerly ViBE® XT1000) delivers significant CAPEX and OPEX savings and accelerates time to market for operators faced with fast channel lineup growth and a rise in multiscreen applications.

Now more than ever, digital TV delivery is changing at a rapid pace, with an increasing number of channels to broadcast, more formats to support and an explosion in the range of multiscreen devices such as tablets, smartphones and connected TVs. Service providers have to tackle these challenges while continuing to increase their subscriber base, develop new web TV business and sustain average revenue per user. The Harmonic Electra XT transcoder helps operators succeed in this new paradigm.

A cost-effective appliance for live content transcoding, the Electra XT provides high-density and scalability for traditional broadcast over cable, IPTV, DTH and DTTV, as well as for multiscreen applications.

Any-To-Any Format Support

The Electra XT receives compressed video over IP streams and can transcode audio and video content from any format to any other format. For video, the device supports MPEG-2, MPEG-4 AVC and HEVC decoding and encoding in SD and HD resolutions. A wide range of audio codecs is also addressed, including MPEG-1 Layer II, Dolby® Digital (AC-3), Dolby Digital Plus (E-AC-3), AAC-LC and HE-AAC v1/v2 in mono, stereo and surround modes.

Highest Density & Scalability

Leveraging extensive experience and innovation in video compression algorithms, the Electra XT provides best-in-class transcoding density with up to 250 channels per platform, depending on codec and resolution. It is designed with efficiency in mind, and supports operator business growth with a modular architecture that accommodates up to nine hot-swappable audio/video processing modules. Each module can transcode a mix of channels independent of their codec (MPEG-2, MPEG-4 AVC or HEVC), resolution (HD, SD and low resolution) and frame rate (up to 60 fps) through per-channel software licensing.

The high-density benefits of the transcoder significantly reduce rack space and minimize power consumption. A flexible web-based graphical user interface facilitates the configuration and supervision of hundreds of simultaneous transcode channels.

Beyond Transcoding

The Electra XT is much more than a basic high-density transcoder. To bring added value to workflows, the unit embeds efficient and advanced features, including user-defined text and logo insertion, and manual and automatic loudness control on transcoded audio channels.

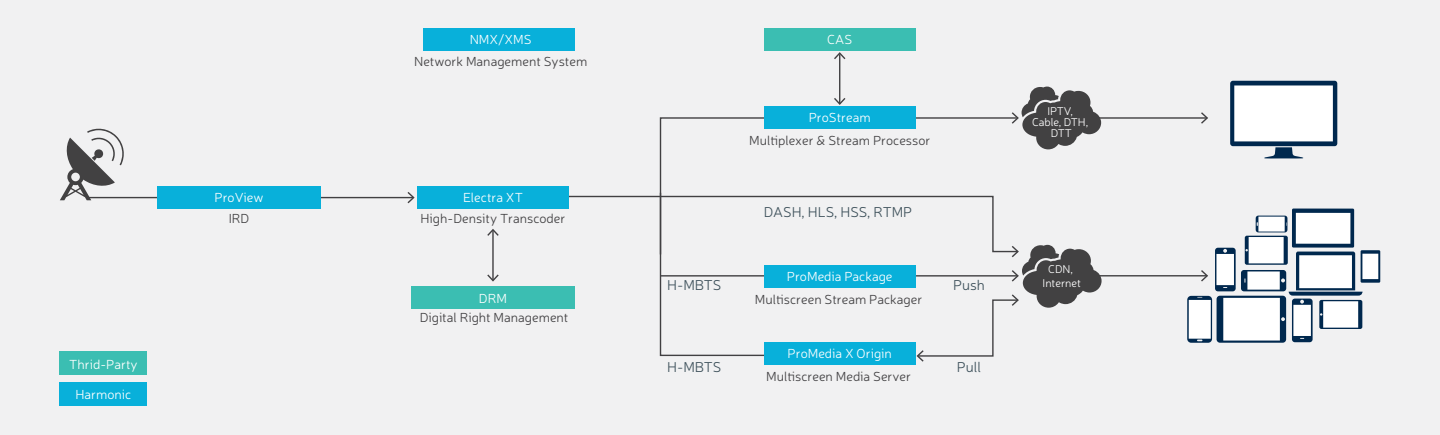
For satellite, terrestrial and cable applications, the Electra XT supports internal statistical multiplexing to meet end-user demand for video quality while optimizing bandwidth. For multiscreen applications, adaptive bitrate encoding is supported. Video can be delivered to an external packager, or it can be internally scrambled and packaged in the Apple® HLS, Microsoft® Smooth Streaming and MPEG-DASH formats.

HIGHLIGHTS

- Scalable high-density live transcoding: up to 250 channels
- Any-to-any video: MPEG-2 (SD/HD), MPEG-4 AVC and HEVC (SD/HD and low-res)
- CBR, VBR, statistical multiplexing and ABR
- SD/HD up/down-conversion
- Logo and text insertion
- Any-to-any audio
- Audio down-mixing
- Automatic loudness control
- MPEG transport stream input/output
- RTMP, HLS, HSS and MPEG-DASH outputs
- High resiliency
  - Internal failover powered by Harmonic VOS Flex video OS
  - Redundant components (PSU, fans, etc.)
  - Hot-swappable components
  - Field upgradability
- Low power footprint

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Electra XT Worflow (Broadcast, IPTV and Multiscreen)

Designed for Reliability

The Electra XT is built on a highly resilient 2-RU platform equipped with hot-swappable redundant components (PSU, fans and IP switch), minimizing service downtime in the event of a module replacement or firmware upgrade. It is powered by the Harmonic VOS™ Flex video operating system, and provides load balancing and internal failover capabilities.

World-Class Service and Support

Harmonic stands behind the Electra XT platform with comprehensive service and support programs, including system design, service deployment, technical support and network maintenance. World-class service plans and a global network of flexible and responsive support professionals help ensure your ability to deliver outstanding “anytime, anywhere, any-device” customer experiences.

SPECIFICATIONS

VIDEO INPUT/OUTPUT

Live Inputs	MPEG-2 TS over IP (RTP or UDP) Unicast and multicast IGMP v2 and v3 MPTS and SPTS CBR and VBR Adobe RTMP input
Broadcast Live Outputs	MPEG-2 TS over IP (RTP or UDP) Unicast and multicast MPTS and SPTS CBR and VBR Internal statistical multiplexing
Multiscreen Live Outputs	ABR encoding support MPEG-2 TS over IP (with EBP) Adobe RTMP Apple HLS Microsoft Smooth Streaming MPEG-DASH
Physical Interface	Integrated redundant IP switch with: 1+1 GigE ports for supervision 2+2 10GigE optical ports for media 4+4 GigE ports for media

AUDIO PROCESSING

Features	Any-to-any audio transcoding Stereo and multichannel support Audio passthrough support
Encoding Profiles	MPEG-1 Layer II AAC-LC/HE-AAC v1/v2 AC-3 E-AC-3
Decoding Profiles	MPEG-1 Layer II AAC-LC/HE-AAC v1/v2 AC-3 E-AC-3
Automatic Loudness Control	EBU R128 A-weighting
Processing Capabilities	Resampling (8-48 kHz) Stereo/mono conversion Surround down-mixing Static gain adjustment Delay adjustment

Electra™ XT XTREAM™ HIGH-DENSITY TRANSCODER

SPECIFICATIONS

VIDEO PROCESSING

Features	Any-to-any video transcoding Up to 250 channels
Encoding Profiles	
MPEG-2	MP @ ML MP @ HL
MPEG-4 AVC	BP @ L3 MP @ L3 HP @ L4
HEVC	Main
Decoding Profiles	
MPEG-2	MP @ ML MP @ HL
MPEG-4 AVC	MP @ L3 HP @ L4
HEVC	Main
Resolutions and Frame Rates	Up to 1920x1080p @ 50/60 fps Up to 1920x1080i @ 25/30 fps
Minimum Resolution	64x64 pixels
Resolution Adjustment Steps	2x2 pixels
Frame Rate Adjustment	5-60 fps
Processing Capabilities	Picture resizing (up/down) Picture cropping/clipping Aspect ratio conversion Smart deinterlacing Logo overlays Crawling text overlays
Broadcast Subtitles	DVB subtitle passthrough and burn-in Teletext passthrough Closed-caption passthrough
Multiscreen Subtitles	WebVTT DFXP SMPTE-TT
Ad Insertion	SCTE 35 passthrough ESAM compliant
Multiscreen Content Protection	AES scrambling Apple HLS encryption Microsoft PlayReady® DRM

PHYSICAL

Dimensions (H x W x D)	3.5 in x 19 in x 22.8 in (2 RU) 8.8 cm x 48.3 cm x 58 cm
Weight	46.2 lbs/21 kg
Hot-Swappable Components	Dual AC power supplies Fans A/V processing modules IP switches

ENVIRONMENTAL

Operating Temperature	41° to 104° F 5° to 40° C
Relative Operating Humidity	5-93% non-condensing
Storage Temperature	-40° to 185° F -40° to 85° C
Relative Storage Humidity	5-93% non-condensing

ORDERING INFORMATION

BASE SYSTEM

Part Number	Description
ELC-XT-2U-2AC-G2	Electra XT platform with dual PSU, IP input/output, support for up to nine A/V processing modules

HARDWARE OPTION

Part Number	Description
ELC-XT-OPT-AVP-SKL	Audio/video processing module, supports broadcast/multiscreen transcoding for MPEG-2, MPEG-4 and HEVC (SD and HD)

VIDEO SOFTWARE LICENSES

Part Number	Description
ELC-XT-LIC-DEC-HD	One HD decoding channel (all codecs)
ELC-XT-LIC-DEC-SD	One SD decoding channel (all codecs)
ELC-XT-LIC-ENC-HD	One HD channel encoding (MPEG-2 & AVC)
ELC-XT-LIC-ENC-SD	One SD encoding channel (MPEG-2 & AVC)
ELC-XT-LIC-ENC-LR	One low-res channel encoding (AVC)
ELC-XT-LIC-ENC-HD-HEVC	One HD channel encoding (all codecs)
ELC-XT-LIC-ENC-SD-HEVC	One SD channel encoding (all codecs)
ELC-XT-LIC-ENC-LR-HEVC	One low-res channel encoding (AVC & HEVC)

AUDIO SOFTWARE LICENSES

Part Number	Description
ELC-XT-LIC-DEC-AUD20	One MPEG-1 Layer II/AAC stereo decoding channel
ELC-XT-LIC-DEC-DD20	One AC-3 or E-AC-3 stereo decoding channel
ELC-XT-LIC-DEC-AAC51	One AAC 5.1 surround decoding channel
ELC-XT-LIC-DEC-DD51	One AC-3 or E-AC-3 5.1 surround decoding channel
ELC-XT-LIC-ENC-AUD20	One MPEG-1 Layer II/AAC stereo encoding channel
ELC-XT-LIC-ENC-DD20	One AC-3 or E-AC-3 stereo encoding channel
ELC-XT-LIC-ENC-AAC51	One AAC 5.1 surround encoding channel
ELC-XT-LIC-ENC-DD51	One AC-3 or E-AC-3 5.1 surround encoding channel

FEATURE SOFTWARE LICENSES

Part Number	Description
ELC-XT-LIC-ALC20	Automatic loudness control for one audio stereo channel
ELC-XT-LIC-ALC51	Automatic loudness control for one audio surround channel
ELC-XT-LIC-FLX	Internal statistical multiplexing for one video output
ELC-XT-LIC-SCR-OTT	OTT encryption for one multiscreen output (HLS, HSS, MPEG-DASH)

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