

Cisco AnyRes Live 9500 UHD Encoder



Product Overview

The Cisco[®] AnyRes Live 9500 UHD Encoder represents a new generation of the Cisco AnyRes Live Family, with support for advanced encoding of live and ultra-high-definition (UHD) video. It is redefining the video experience with best-in-class quality for real-time media-delivery applications such as live sports, 24-hour programming, Internet Protocol television (IPTV), enterprise, education, and government video.

The Cisco AnyRes Live 9500 UHD Encoder delivers the highest-quality encoding using full-frame High Efficiency Video Codec (HEVC) encoding technology developed by Cisco.

The Cisco AnyRes Live 9500 UHD Encoder is a fully optimized solution on the Cisco Unified Computing System (Cisco UCS®) server platform including input interfacing for UHD baseband video.

Dual Cisco AnyRes Live 9500 Encoders support resolutions for high-motion content as live sports and other live events being transmitted with frames rates up to 60 frames per second (fps). In addition, a single Cisco AnyRes Live 9500 supports encoding of more theatrical-related material with frame rates of 24, 25, 29.97, or 30 fps. Combined with this wide range of frame rates, the Cisco AnyRes Live 9500 supports video resolutions of both 8 and 10 bits.

With its easy-to-use interface, Cisco AnyRes Live 9500 lets you either configure encoding of your UHD encoding or turn an HD-video source into multiple Internet-ready adaptive-bit-rate (ABR) streams, providing market-leading quality experiences.

This comprehensive, reliable platform has the flexibility to stream multiple formats to any device, including iPhones, iPads, smartphones, and PCs, as well as delivering pristine UHD video to televisions.

Product Specifications

Table 1 lists specifications for the Cisco AnyRes Live 9500 UHD Encoder.

 Table 1.
 Product Specifications

Inputs		
Physical SDI interface	• Input interfaces: 4 x DIN 1.0/2.3 BNC, 75-ohm, break-out cable to standard BNC included	
	• Input SDI format: SMPTE 424M Level-A or Level-B,1080p (up to 60 fps)	
	• Input HD-SDI format: SMPTE 292M,1080i or 720p (up to 60 fps)	
	• Input: SD-SDI format: SMPTE 259, 480i29.97 or 576i25 fps	

Ultra high definition	 UHD 3840 x 2160p Frame rates with single 9500: 24, 25, 29.97, and 30 fps Frame rates with dual 9500s: In addition to the single 9500: 50, 59.94, and 60 fps 		
High definition	 HD 1920 x 1080, or 1280 x 720 Frame rates with single 9500: 24, 25, 29.97, 30, 50, 59.94, and 60 fps 		
Standard definition	• SD 720 x 480i29.97 or 720 x 576i25		
Audio	Embedded audio: SMPTE 299M, up to four stereo pairs – PCM or precompressed		
IP interface: option	Input interfaces: quad GbE IP card in the mLOM (modular LAN-on-motherboard) slot		
Video codecs	 AVC or MPEG2 – 4:2:0 SD, HD, and full HD (1920 x 1080p50/59.94) AVC – 4:2:2, 8- or 10-bit: option: SD, HD, and full HD (1920 x 1080p50/59.94) 		
Audio formats	MPEG1-LII, AAC, AC3, and SMPTE 302M(PCM)		
Transport mode	MPEG2-Transport Stream (MPEG2-TS) over User Datagram Protocol (UDP)		
Output Codecs			
HEVC: option	 Up to 4Kp50/5994/60 (UHD) HEVC progressive output to TS, HLS, and MPEG-DASH SD and HD interlaced, 25- or 29.97-fps output to TS H.265 Main/Main-10 profiles Closed captions according to 608/708 		
AVC	 Up to 1080p50/59.94/60 AVC interlaced or progressive output to TS, HLS, Flash, HDS, HSS, and MPEG-DASH H.264 baseline, main, and high profiles Closed captions according to 608/708 		
VC-1	 Up to 1080i25/29.97 or 720p50/59.94 interlaced or progressive output to smooth streaming to Microsoft Internet Information Services (IIS) server VC-1: Simple, main, and advanced profiles Windows Media 9 Video: Simple and main profiles Windows Media Audio (WMA) and WMA Professional Closed captions according to 608/708 		
Audio	 AAC audio (low complexity, HE-AAC v1, and HE-AAC v2) output to TS, HLS, Flash, HDS, HSS, and MPEG-DASH AC-3 pass-through (can be 2.0 or 5.1) - output to TS DD encoding, DD+ encoding, or DD to DD+ transcoding, all in either 2.0 or 5.1: output to TS: option 		
Output Formats			
MPEG-2 Transport Stream	 Multicast streaming Standard or adaptive transport stream Ability to start or stop archive while encoder is running 		
MPEG DASH	 MPEG-DASH (ISO-BMFF) Multiple languages Teletext subtitles formatted to Web Video Text Tracks (WebVTT) or SMPTE-TT – from Teletext PIDs, VBI (SD-SDI), or OP47 (HD-SDI) 		
Apple HLS	 Full support for Apple HLS including WebVTT, PlayReady, and timed metadata Integrated iPhone segmenter: Streams transport-stream segments directly to web server Multiple languages Teletext subtitles transformed to WebVTT – from Teletext PIDs, VBI (SD-SDI), or OP47 (HD-SDI) 		
HSS	HTTP smooth streaming to IIS server Teletext subtitles transformed to TTML/DFXP – from Teletext PIDs, VBI (SD-SDI), or OP47 (HD-SDI)		
Flash streaming	 HTTP Dynamic Streaming (HDS) to Flash Media Server: option Real-Time Messaging Protocol (RTMP) stream over TCP to Flash Media Server 		
Third-Generation Partnership Project (3GPP)	 H264/AVC baseline with AAC audio (low complexity, HE-AAC v1, and HE-AAC v2) H.263 profile 0,3; Levels 10, 20, 30, and 45 with AMR-NB Audio Real-Time Transport Protocol (RTP) – either controlled through Real-Time Streaming Protocol (RTSP) or as raw RTP output 		

Baseband Video Processin	q
Ducobana viaco i recessir	Scaling
	• Cropping
	Advanced de-interlacing
	Inverse telecine
	Adaptive image filtering
	Slate insertion
	Logo insertion
	DVB subtitles (bitmapped) or SCTE-27 subtitles can optionally be burned in to the baseband video
Metadata Drassasina	- 575 subtities (Sittling ped) of 5012 27 subtities call optionally be bullied in to the baseband video
Metadata Processing	
	Automated ad insertion with playlists generated by playout servers
	Support for slate insertion to remove broadcast ads
	Ability to remonetize video with Internet ads for browser, mobile, and set-top box
	Ad avail blanking and black-out capability based on either SCTE-104 on SDI or SCTE-35 on IP
	Nielsen ID3 support
	SCTE-35 and SCTE-104 support
	Support for auxiliary data (EBIF, KLV, V-Chip, and CGMS-A)
Encryption and DRM	
	Comprehensive encryption and digital rights management (DRM) support
Redundancy	
	 A 1:1 redundancy scheme is supported through the use of the Cisco DCM D9901 or DCM D9902 Digital Content Manager equipped with a Gigabit Ethernet card
	On the DCM the redundancy is achieved through a very robust service backup mechanism that can be configured with various triggers. For further information please consult the DCM configuration guide.
	 An N:M redundancy with either IP (up to full HD) or with SDI (up to UHD) including SDI-router control is supported by the Cisco Video Service Manager (VSM)
Certifications	
Safety	 UL 60950-1:No. 21CFR1040 Second Edition CAN/CSA—C22.2 no. 60950-1 Second Edition IEC 60950-1 Second Edition EN 60950-1 Second Edition ASINZS 60950-1 GB4943 2001
EMC	FCC (CFR 47, Part 15) Class A AS/NZS CISPR22 Class A
	• CISPR2 2 Class A
	• EN55022 Class A
	• ICES003 Class A
	VCCI Class A
	• EN61000-3-2
	• EN61000-3-3
	• KN22 Class A
	• CNS 13438 Class A
Physical	
Physical and power	 Dimensions (H x W x D) 1.7 x 16.9 x 31 in. (4.32 x 43 x 78.7 cm) (1 rack unit [1RU])
riiysicai aliu powei	• 770W power supply (optional redundant power supply available)
	AC input voltage range 90 to 264 VAC (self-ranging, 100 to 240 VAC nominal)
	AC input frequency range: 47 to 63 Hz (single phase, 50 to 60 Hz nominal)
	AC line input current (typical) 5.50A at 100 VAC/2.64A at 208 VAC
	AC line input current (typical) 5.50A at 100 VAC/2.64A at 200 VAC AC line input current (maximum 100% CPU load) 6.16A at 100 VAC/2.96A at 208 VAC
	Connectivity: Two 1-Gbps Ethernet ports (10/100/1000BASE-T Ethernet)
Townset	
Temperature	Operating temperature: 41 to 95°F (5 to 35°C) Neproporting (sterogo): 40 to 140°F (40 to 65°C)
	• Nonoperating (storage): –40 to 149°F (–40 to 65°C)
Humidity	 Operating: 10 to 90% noncondensing

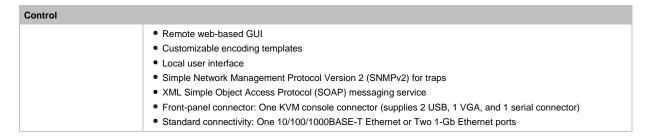
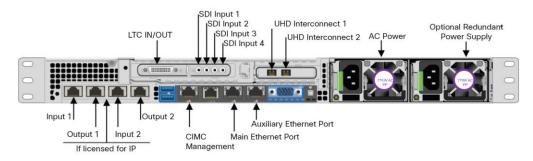


Figure 1. Rear View of Cisco AnyRes Live 9500 – with a quad GbE card mounted in the mLOM slot.



Cisco Integrated Management Controller (CIMC) interface is a standard feature on all Cisco AnyRes Live encoders

Warranty Information

Find warranty information on Cisco.com at the Product Warranties page.

Ordering Information

To place an order, visit the Cisco Ordering Home Page. To download software, visit the Cisco Software Center.

 Table 2.
 Ordering Information

Product Name	Part Number
Cisco AnyRes Live 9500 Platform Gen4 KONA4, 4 HD-SDI	SPN-9500-K9
The Cisco AnyRes Live 9500 comes standard with:	
• 2 multicore Intel Xeon processor E5-2600 v3 series CPUs	
• 64GB RAM	
Dual hot pluggable, sled mounted, 600GB HDD	
Dual port 10GBase-T adapter	
One Power Supply	
Quad 1GbE RJ45 in the mLOM-slot	
One Power Supply	
Optionally, the user can select to order the Cisco AnyRes Live 9500 equipped with extra HDD for archive purposes	
Optionally the Cisco AnyRes Live 9500 can be ordered with:	
• IP Input	LSPN-IP
 Broadcast decoder input, supporting AVC 4:2:2 8/10bit SD/HD/FHD 	LSPN-DEC-422
UHD Option - includes HEVC and support for all lower resolutions	LSPN-UHD
HEVC for ABR/SD/HD/FHD applications	LSPN-HEVC
HTTP Dynamic Streaming (HDS) to Flash Media Server	LSPN-HDS
DD or DD plus encoding, or DD to DD plus transcoding (1/stereo)	LSPN-DD-DDP-XC

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For More Information

For more information about the Cisco AnyRes Live 9500 UHD Encoder contact your local account representative.



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