Carry Out Best-In-Class Encoding and Transcoding

Synamedia's virtual Digital Content Manager (vDCM) Encoder is a software-based solution designed to encode or transcode live video and audio signals for traditional broadcast and IPTV as well as streaming video (adaptive bitrate HTTP). It supports a wide range of input and output formats and video/audio codecs. The highly flexible vDCM Encoder can run on-premises as a software-defined appliance or in a public or private cloud environment.

Key Functionalities

Extensive set of video/audio coding options for broadcast, IPTV and streaming distribution

- Uses unified converged architecture to cover both traditional transport stream video as well as streaming (adaptive bitrate) video
- Focuses on broadcast and broadband players
- Supports MPEG-2, MPEG-4 AVC, HEVC, AV-1, and VVC with constant and variable bitrates
- Supports statistical multiplexing
- Uses unique quality-controlled compression with variable bitrate
- Optimizes compression efficiency based on Synamedia's unique artificial intelligence compression algorithm
- Uses unique video quality objective measure technology (predictive VMAF)
- Offers extensive choice of high dynamic range (HDR) support
- Features low latency mode
- Matches video excellence and bandwidth efficiency to reduce delivery costs

Flexible deployment models

- Deploys either as a software appliance or in the cloud
- Uses the latest CPU to optimize density and reduce costs

Advanced operational efficiency features

- Utilizes intuitive drag-and-drop UI for lineup
- Features simplified user interface for fast setup (including for event setup)
- Enables configuration via XML files
- Includes per-channel graphics edition for logo insertion and banner animation
- Adjusts audio level and automated leveling between programs and across channels to comply with CALM act and EBU requirements
- Enables seamless ad insertion, local program insertion, and management of alternate channels

Technical Advantages

- Support of large range of inputs
- State-of-the-art set of video and audio codecs
- Advanced rate control algorithms for broadcast and streaming
- Support of ad and program insertion
- Simple GUI for lineup configuration
- APIs for lineup configuration, splicing and switching management
- Rich monitoring toolset, including open APIs

Product Specifications

Compression Features	
Video Input and Output	• Baseband (input only) • Baseband over IP • SMPTE2022-6 (input only) • SMPTE2110-10 / -20 / -21/ -30/ -40 • NDI® (Network Device Interface) - http://ndi.tv/ (input only) • Transport stream • Adaptive transport stream
Transport Protocols	• SRT • RIST • Zixi • RTMP • HLS • DASH • TS over HTTP
Video Codecs	• VVC • AV-1 • HEVC (H.265) 4:2:0 (8/10 bits) & 4:2:2 (8/10 bits) – up 8k • Up to ultra-HD: Main10, HT @ Level 5.1 • AVC (H.264) 4:2:0 (8 bits) & 4:2:2 (8/10 bits) – up to Full HD • Up to HP @ L4.0-L4.1 • MPEG-2 4:2:0 (8 bits) – up to HD • Up to MP @ HL
Video Resolutions	• 8k • 4320p @ 25, 29.97, 50, 59.94 • Ultra-HD • 2160p @ 25, 29.97, 50, 59.94 • HD • 1080p @ 50, 59.94 • 1080i @ 25, 29.97 • 720p @ 50, 59.94 • SD • 576i @ 25 • 480i @ 29.97 • ABR Resolutions • H.264/HEVC: ranging from 96x96 to 3840x2160 – from half to double of input frame rate
Audio Codecs	• Dolby Atmos • MPEG-1 layer II • MPEG-1 layer III (MP3) (input only) • Advanced audio coding (HE-AAC-v1, HE-AAC-v2 and ACC-LC) • Dolby-E (input only) • Dolby Digital (AC-3) • Dolby Digital Plus (EAC-3) • Dolby AC-4 • Support for mono-stereo multichannel
High Dynamic Range (HDR)	• SDR (BT.601/BT.709) conversion to SDR BT.2020, HLG DVB, HLG ATSC, HDR10, SL-HDR1, Dolby Vision

Specific Features	
Video Compression Processing	• GOP: Static, hierarchical, and dynamic • Filtering • Motion compensated temporal filtering (MCTF) • Prefiltering to remove noise and macro-blocking artifacts from video sources • Support for de-interlacing • Inverse telecine • Aspect ratio: 16:9 and 4:3, AFD and manual control • Down conversion
Metadata Processing	• Closed caption support: CEA-608 and CEA-708 conversion • SCTE 104/SCTE 35 processing • VBI/VANC formats: WST, DVB-WST, WSS, OP-47, OP42, SMPTE-2031, SMPTE-2038, SMPTE-2016
Statistical Multiplexing	• MPEG-2, H.264, HEVC • UHD, HD, SD
Multiplexing	• Advanced multiplexing capabilities (see vDCM Multiplexer datasheet)

Operations	
Redundancy	• 1:1 IP interface backup • IP port mirroring • Input service and transport stream redundancy • Hitless merge for MPEG-2 transport stream input and for SMPTE2022-6 input (SMPTE-2022-7) • User-configurable triggers • 1:1 and N:M node redundancy
Management	• Handled by the Video Network Service Management System (see VSM datasheet)
Monitoring	• Integrated Grafana dashboards • Elasticsearch, Logstash and Kibana (ELK) stack support • Alarm notifications, including SNMP traps • Syslog • Easily controlled local web GUI • VSM support for line-up configuration, resource pool redundancy for hybrid setups (mix of hardware DCM and software Synamedia DCM), capacity modeling, and centralized monitoring • Fully documented open API allowing third-party component integration

Platform Support and Compatibility

Deployment	
Appliance	• Different appliances available
Private Cloud	• Virtual machine and Docker container
Public Cloud	• Multi-cloud supporting all major cloud providers

Ordering Information

For ordering information, please contact your sales representative

Services & Support

Synamedia provides a broad portfolio of services and support to increase your network's business value and return on investment. We take a customer-centric approach, aligning our level of support to your technological requirements and network complexity. That way, you can successfully operate our products and solutions to ensure that you achieve optimal performance throughout your network's life cycle.

Warranty & Contact Information

Read our detailed warranty information.

About Synamedia

Synamedia delivers, enriches, and protects video. Our cloud-native and SaaS solutions empower customers to scale and monetize video services efficiently, ensuring low-latency delivery and exceptional image quality. Our Video Network portfolio includes video distribution, streaming, Edge CDN and multi-CDN management, monetization, ad insertion, cloud DVR (cDVR) and time-shift TV, video compression and processing, and cloud and IP transition.

Next Steps

To learn more or to book a demo, contact us.