DATASHEET

Synamedia

vDCM Encoder
Encoding and Transcoding of Live Video/
Audio for Broadcasters and Video Providers

Best-In-Class Encoding and Transcoding

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

Key Functionalities

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

- Features unified converged architecture to cater to broadcast/broadband players
- Supports MPEG-2, MPEG-4 AVC and HEVC with constant and variable bitrates, as well as statistical multiplexing
- Optimises compression efficiency based on Synamedia's stream video quality objective measure technology
- Offers ultra-HD HEVC capabilities with high dynamic range (HDR) support
- Harnesses 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
- Optimises density and reduces costs

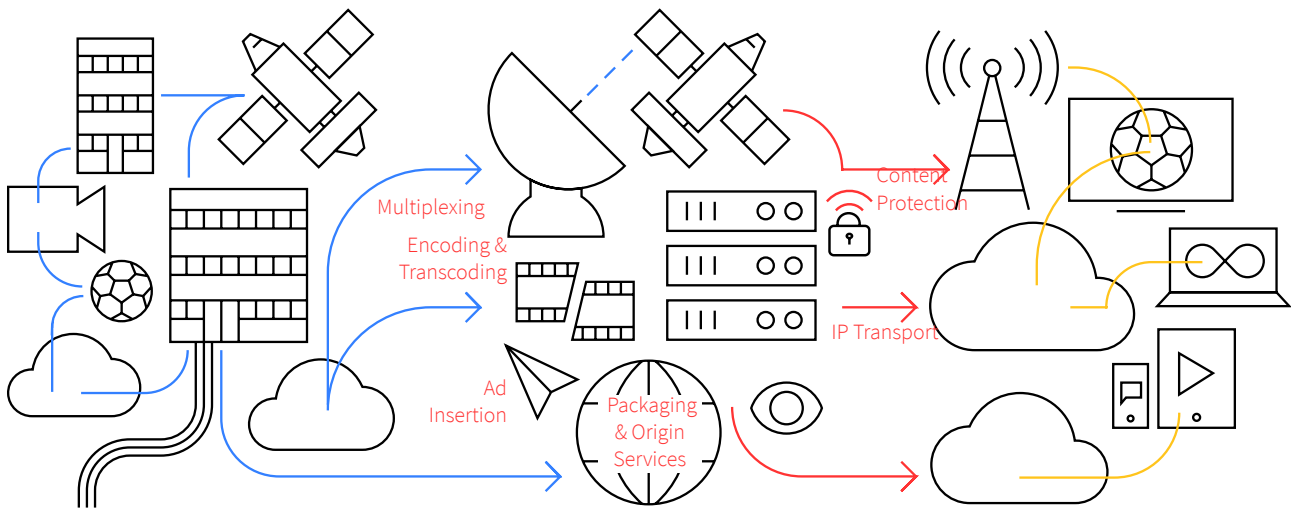**Advanced operational efficiency features**

- Utilises intuitive drag-and-drop UI for line-up configuration that can be enabled via XML files
- Includes per-channel graphics edition for logo insertion and banner animation
- Adjusts audio level and automated levelling 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, from broadcast to full IP
- 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 line-up configuration
- APIs for line-up configuration, splicing and switching management
- Rich monitoring toolset including open APIs

Video Network Chain

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

Video Codecs	• HEVC (H.265) 4:2:0 (8/10 bits) – up to ultra-HD
	    • 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 Full HD
	    • Up to MP @ HL

Video Resolutions	• 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	• MPEG-1 layer II • Advanced audio coding (HE-AAC-v1 and HE-AAC-v2) • 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 and HDR10

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 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 • Elastic Search, 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 modelling, and centralised monitoring • Fully documented open API allowing third-party component integration

Platform Support and Compatibility

Deployment	
Appliance	See details below
Private Cloud	Virtual machine, Docker container
Public Cloud	Multi-cloud supporting all major cloud providers

vDCM Appliance Chassis Specifications

Physical and Power	
Size	SFF chassis: 1.69 x 17.11 x 27.83 in, 4.29 x 43.46 x 70.7 cm
Weight	28.74 lb/13.04 kg minimum, 35.86 lb/16.78 kg maximum
Power Supply	AC input 100-240 VAC
Consumption	800W (power supply) – 500W (for VN-Node XS)

Environmental	
Operating Temperature	50-95°F (10-35°C)
Storage Temperature	-40-140°F (-40-60°C)
Cooling	Smart array controller and seven fans
Operating Humidity	8-90% (non-condensing)
Operating Altitude	0-3,050 m (0-10,000 ft)

Regulatory Compliance	
Compliance	CE Markings per directives 2004/108/EC and 2006/95/EC
Safety	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment -Safety -Part 1: General Requirements)
	CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment -Safety -Part 1: General Requirements)
EMC Compliance	EN 55032:2015/AC:2016
	EN 61000-3-2:2014
	EN 61000-3-3:2013
	EN 55024:2010 +A1:2015
	EN 61000-4-2:2009
	EN 61000-4-3:2006 +A1:2008 +A2:2010
	EN 61000-4-4:2012
	EN 61000-4-5:2014
	EN 61000-4-6:2014
	EN 61000-4-8:2010
	EN 61000-4-11:2004

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.

Learn more about Synamedia's video network distribution solutions.

For more information, contact your account manager or visit our site.

About Synamedia Video Network Solutions

Synamedia's video network solutions enable media, web and pay TV providers to deliver pristine-quality broadcast and broadband video securely over any network to any screen. Anchored by the industry's most comprehensive processing platform and built with high-quality standards, our solutions ensure outstanding performance and reliability for over 1,000 customers worldwide. Synamedia's solution portfolio covers the entire video network chain – from distribution, through processing, to delivery – enabling you to offer outstanding value-added and personalised experiences while saving costs.