

# ViBE EM3000

MPEG HD ENCODER



BASED ON THE LEADING ADVANCED VIDEO COMPRESSION ENGINE, THE ViBE PREMIUM MPEG-4/2 HD ENCODER IS THE BENCHMARK FOR HIGH-DEFINITION (HD) ENCODING, AND SERVES PERFECTLY SATELLITE AND TERRESTRIAL BROADCAST APPLICATIONS AS WELL AS FOR HIGH-END CABLE AND IPTV OPERATIONS.

Thomson Video Networks has a long tradition of making premium video encoder products. The ViBE encoder line is based on the world's first professional-grade MPEG-4 compression chipset. At the heart of this new encoder line is a dedicated application-specific integrated circuit (ASIC) from Thomson Video Networks with greatly increased processing power providing premium compression and true multi-pass MPEG-4 AVC encoding. Together, these technologies deliver MPEG-4 AVC compression at a greater-than 50 percent efficiency compared to MPEG-2 systems.

The ViBE line is well-suited for satellite and terrestrial broadcast applications and other kinds of content aggregation—as well as for telco operators looking to launch IPTV services over their existing voice/data networks.

## PERFECT FOR HD CONTENT AGGREGATION

Based on the most advanced video compression engine on the market today, the ViBE EM3000 encoder is the reference in HD encoding, for both video and audio compression. With the new ViBE encoder, you can take advantage of the full benefits of MPEG-4 AVC compression. With the ability to use all available compression toolsets, including true High Profile, the encoder lets you broadcast high-quality HD content at bit rates as low as 4 Mb/s.

Combining compression efficiency and advanced pre-processing, it delivers clearer pictures with increased depth and clarity. As a result, you can deliver video content across all networks in a way that sustains the viability of your business model—and lets your customers enjoy a premium viewing experience. It even offers high bit-rate compression, for near transparent quality at up to 50 Mb/s.

The audio encoding features of the ViBE EM3000 Encoder are equally impressive. With integrated Dolby Digital Plus 5.1 Surround Sound generation, you can deliver audio that matches the high quality of the HD video. In addition to Dolby Digital Plus, the ViBE EM3000 Encoder features the latest AAC audio compression for ultra-low bandwidth utilization.

HD MPEG-2 encoding as an option. This provides high-performance compression in MPEG-2 for broadcast.

The ViBE EM series of encoders have successfully passed the Microsoft Mediaroom conformance tests. Thanks to this conformance, the ViBE MPEG encoders are the perfect choice for any Microsoft Mediaroom IPTV deployments.

**NEW!** The ViBE EM3000 can process SMPTE2020 audio metadata and use it to encode PCM audio in AAC-LC/HE-AAC with metadata.

## KEY FEATURES

- › Superior HD video compression based on professional compression architecture
- › Advanced pre-processing, including motion-compensated filtering
- › Unmatched support for multi-channel audio compression
- › Dolby Digital, Dolby Digital Plus, and Dolby Pulse support
- › 1080p25 encoding delivering best movie quality on progressive displays
- › New generation HD MPEG-2 video encoding
- › ASI and IP streaming including forward error correction (FEC)
- › Simplifying headends with ancillary data support: AFD, closed caption, HD teletext subtitling (OP47)
- › Ad insertion: SCTE35/SCTE104
- › Low-latency version (approx. 600 ms) for contribution and distribution applications
- › Ingest applications with the Thomson Sapphire ingest server
- › Multiformat picture-in-picture stream
- › Local and remote statistical multiplexing via Thomson Flexstream™ statistical-multiplexing technology
- › Control, monitoring, and redundancy control via Thomson XMS™ Management System
- › NEW! SMPTE2020 audio metadata management

## SPECIFICATIONS

### Video Input

- › HD-SDI (SMPTE 292M) serial digital video featuring pseudo frame synchronizer to cope with unclean input switching

### ASI Input

- › ASI input for data, subtitle, or other component injection

### Audio Inputs

- › Up to eight embedded audio channels in HD-SDI
- › Six (optionally 12) AES/EBU or embedded channels
- › Three (optionally six) AES/EBU or embedded channels in AAC mode
- › Input rates of 32, 44.1, and 48 kHz

### Outputs

- › MPTS and multi SPTS (on IP output)
- › Two identical ASI outputs (188 or 204 bytes)
- › Two gigabit Ethernet ports

### Advanced Pre-Processing

- › Motion compensated noise reduction
- › Adaptive filtering with texture analysis
- › Cut, fade, and flash detection

### Video Encoding

- › MPEG-4 AVC:
  - High Profile@Level 4
  - Main Profile@Level 4
  - 3-level hierarchical GOP
  - Weighted predictions
  - PAFF/MBAFF/frame/field encoding modes
- › MPEG-2:
  - MP@HL
- › CBR, VBR, or capped VBR operation
- › 1 Mb/s to 20 Mb/s
- › Adaptive GOP
- › 3/2 pull down (1080i)
- › Redundant frame management (720p)
- › Video encoding formats:
  - 1080i@ 25 Hz, 29.97 Hz
  - 1080p@ 25 Hz
  - 720p@ 50 Hz, 59.94 Hz

### Audio (options)

- › MPEG-1 Layer II, 24 bits, 48 kHz processing; 32 to 384 kb/s
- › Modes: mono, stereo, joint stereo, dual mono
- › Dolby Digital 2.0: up to twelve stereo channels; 56 to 640 kb/s
- › Dolby Digital 5.1: up to two streams; 384 to 640 kb/s
- › Dolby Digital Plus 5.1: up to two streams; 192 to 448 kb/s
- › Dolby Pulse 2.0: up to two streams; 32 to 128 kb/s
- › Dolby Pulse 5.1: up to two streams; 96 to 320 kb/s
- › AAC-LC/HE-AAC/HE-AACv2 2.0 : up to 8 streams; 32 to 128 kb/s
- › AAC-LC/HE-AAC 5.1: up to two streams; 96 to 320 kb/s
- › Dolby E to Dolby Digital transcoding
- › Dolby E to Dolby Digital Plus transcoding
- › Dolby E to Dolby Pulse transcoding
- › Dolby E to AAC-LC/HE-AAC transcoding
- › Dolby Digital Pass-through with error masking
- › Autoswitch-out on Dolby E transcoding
- › Auto-sensing on Dolby Digital to Dolby Digital Plus transcoding
- › PCM Audio with SMPTE2020 to AAC-LC/HE-AAC encoding with metadata

### VBI Processing

- › AFD
- › HD teletext subtitling (OP47)
- › Closed captioning and extended data
- › VITC and D/VITC

### Control and Monitoring

- › Management via XMS system for N+P redundancy
- › Embedded Web server
- › SNMP agent
- › Interface with Sapphire Broadcast Server for ingest solutions
- › Digital Program Insertion compatible (SCTE35 SCTE104)

### Physical Characteristics

- › 1 RU x 19" (44.5 mm high x 445 mm wide x 675 mm deep)
- › 10.7 kg
- › Power consumption: 225W
- › 100-240V AC input voltage

### Environmental Conditions

- › Operating temperature: 5° to 40°C (41° to 104°F)
- › Storage temperature: -10° to 70°C (23° to 113°F)
- › Maximum humidity: 90% HR

### Compliance

- › CE marked in accordance with the 93/68/EEC (22/07/93) directive
- › Safety: IEC 60950 and EN 60950, UL 60950
- › EMC: EN 55022, EN 55024, EN61000-3-2
- › Microsoft Mediaroom Conformance tests passed

## ORDERING INFORMATION

### VIBE-EM3000

Premium, single-channel, MPEG-4 AVC/MPEG-2 HD chassis. Two free slots for audio boards

#### EM3000-SW-MPEG4

- › Software license for MPEG-4 AVC HD encoding

#### EM3000-SW-MPEG2

- › Software license for MPEG-2 HD encoding

#### EM3000-SW-LAT

- › Low-latency (approx. 600 ms) MPEG-4 AVC HD license for 4:2:0 contribution and distribution applications in CBR

#### EM3000-OPT-FLEXTRE

- › Option allowing statistical multiplexing of encoders located on the same local site

#### EM3000-OPT-FLEXALL

- › Option allowing statistical multiplexing of encoders located on the same and/or on distinct remote sites

#### EM3000-LIC-PIP

- › Option to enable picture-in-picture operation

#### EM3000-LIC-FEC

- › Forward error correction (FEC) on IP outputs. Compliant with SMPTE 2022

#### EM3000-OPT-STEREO

- › AUD\_ENC audio encoding board stereo/mono – 6 digital stereo inputs, MPEG-1 layer II encoding or 6 AC3 pass-through

#### EM3000-LIC-ST1-AAC

- › Audio AAC/HE-AAC encoding license for one AUD\_ENC board. Up to 3 stereo channels

#### EM3000-LIC-ST1-AC3

- › Audio Dolby AC3 encoding license for one AUD\_ENC board. Up to 6 stereo channels

#### EM3000-OPT-AUDSUR

- › AUD\_SUR Dolby Audio encoding board. Dolby Digital 2.0, 5.1 encoding or Dolby Digital Plus 2.0, 5.1 encoding

#### EM3000-OPT-SUR-PUL

- › AUD\_SUR Dolby Pulse Audio surround encoding board. Dolby Pulse/AAC/HE-AAC 2.0, 5.1 encoding

#### EM3000-LIC-SUR1-DE

- › Dolby E license for one AUD\_SUR Dolby or AUD\_SUR Dolby Pulse board. Allows decoding of one Dolby E stream

#### EM3000-LIC-D2DPLUS

- › Dolby Digital to Dolby Digital plus transcoding license for one AUD\_SUR Dolby board. Allows the transcoding of one Dolby Digital stream to Dolby Digital Plus.

Please contact your authorized

Thomson Video Networks representative for additional hardware and software options.

E-mail: sales@thomson-networks.com

## PROFESSIONAL SERVICES

Our professional services offerings ensure optimal system performance and maximize uptime. These services include call centers staffed around the clock; system planning, design, and commissioning; professional training courses; and technical maintenance programs and service agreements.