

ViBE® EM2000

PREMIUM SD ENCODER



ViBE EM2000 is the reference for pristine SD video encoding at the lowest possible bitrate. Available in single and multi-channel versions, ViBE EM2000 is the perfect choice for broadcasters demanding the highest performance.

a Premium Video Compression

ViBE® EM2000 represents a unique approach to obtain the best possible performance in the most demanding configurations.

ViBE EM2000 combines a powerful pixel-based pre-processor for smart filtering and pre-analysis of video with a high-efficiency encoder. Pre-compressed sources, which show blocking artifacts or noise are cleaned, textures are encoded uniformly for better rendering, edges are kept sharp and perfect.

As a result it is possible to maintain full resolution encoding with lots of details at very low bitrates, making your SD content look great when compared to HD.

With ViBE EM2000, satellite operators can broadcast at least two additional channels per transponder, reducing the footprint of SDTV with a premium video quality.

a Flexible Solution

ViBE EM2000 is available in single or multi-channel versions where each channel can be individually configured for MPEG-2 or MPEG-4 encoding, extending the possibilities for hybrid applications.

This approach makes ViBE EM2000 the perfect solution for a reduced footprint and lower power consumption per channel.

a Unique Feature Set

ViBE EM2000 combines a premium video encoder with a unique feature set.

Effective audio loudness control, which meets recent ITU specifications is supported for regulation compliance.

Unique FlexService technology merging data and video in the same statistical multiplexing pool automatically optimizes bandwidth usage.

Robust DVB subtitle transcoder that features smart teletext auto-correction outperforms external solutions.

With this unique feature set and its premium video compression, ViBE EM2000 simplifies your operations and lets your customers enjoy a premium viewing experience.

World-Class Service and Support

Harmonic stands behind ViBE EM2000 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.

HIGHLIGHTS

- MPEG-4 AVC main and high profile at level 3
- MPEG-2 main profile at main level
- Adaptive field/frame encoding
- CBR and VBR with Flexstream
- ASI and Gigabit Ethernet interfaces
- SDI and analog video inputs
- AES and analog audio inputs
- Advanced filtering with dedicated pixel based motion estimator
- Custom slide support
- Control and monitoring by Web browser or XMS Management system
- Low power consumption
- LCD with keyboard
- Robust optional features, including:
 - Automatic loudness control
 - DVB subtitle transcoder
 - SD/HD decoder with professional de-jittering
 - MPEG-4 low latency compression delay
 - Logo Inserter
 - Fixed key scrambling

SPECIFICATIONS

Video and Audio Inputs	SDI and CVBS (PAL, NTSC, SECAM) video input Embedded, digital, and balanced analog audio inputs ASI input for data such as DVB subtitling injection Dedicated ASI and dual Gigabit Ethernet for transcoding applications FEC-1 (SMPTE2022) processing on IP input streams	Control and Monitoring	XMS Management System software (system option) Embedded Web server SNMP agent for alarm collection Interface with Sapphire for ingest solutions Insertion of digital cue-tones (SCTE 35) from GPI, Ethernet (SCTE 104), SDI (SMPTE 2010) Pre-defined set-ups and auto modes LCD front panel with 10-digit keypad for basic configuration
Outputs	Dual ASI and Gigabit Ethernet SPTS or MPTS format (built-in multiplexer) FEC generation (SMPTE 2022) on IP streams	Physical Characteristics	1 RU x 19" (44.5 mm high x 482.6 mm wide x 559 mm deep) Power consumption: 77 W to 188 W (configuration dependent) – Input voltage: 100 to 240 VAC continuous range – Frequency: 50 to 60 Hz Weight: 8.8 kg (19.4 lbs)
Video Processing	MPEG-4 AVC main and high profiles (MP at L3 and HP at L3) MPEG-2 MP at ML CBR, VBR, or capped VBR operation Full GOP adaptive Field/frame adaptive (PAFF and MBAFF) Multi-level hierarchical GOP structure (MPEG-4) PVR descriptor support Inverse telecine (3/2 pull down) 720, 704, 640, 544, 528, 480, 352 pixels per line Custom slide and logo insertion Expert modes for interoperability with legacy systems	Environmental conditions	Operating temperature: 5 to 40/50° C (41 to 104/122° F) Storage temperature: -25 to 70° C (-13 to 158° F) Maximum humidity: 95% at 35° C non-condensing
Video Advanced Pre-Processing	Noise Reduction with dedicated pixel-based motion estimator Smart adaptive 2D filters Block artifact reducer Mosquito noise reducer	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, FCC, ICES, VCCI, C-TICK Compatible with IPTV service platforms
Audio Processing	Audio Processing MPEG-1 Layer II encoding Dolby Digital 5.1/2.0 encoding Dolby Digital Plus 5.1/2.0 encoding Dolby E decoding Dolby Digital to Dolby Digital Plus transcoding (5.1/2.0) AAC (-LC & -HE, -HE v2) encoding AC3, E-AC3 pass-through Automatic Loudness Control (ITU BS. 1770-1/-2, EBU R. 128) Audio description support		
VBI Processing	CEEFAX B, WSS, VPS D/VITC, monochrome transparent lines AFD (SMPTE 2016 and RP 186) CC, XDS, DTVCC, EIA 608 to EIA 708 translation, NABTS, GEMSTAR, AMOL 1 and 2 DVB subtitling pass-through resynchronized with video DVB subtitling transcoding		

ORDERING INFORMATION

HARDWARE

Part Number	Description
EM2000-1U-1CH-1AC	premium, single-channel, MPEG-4/MPEG-2 SD chassis
EM2000-1U-2CH-1AC	premium, dual-channel, MPEG-4/MPEG-2 SD chassis
EM2000-1U-4CH-2AC	premium, multi-channel, MPEG-4/MPEG-2 SD chassis, dual AC power supply

ACCESSORIES

Part Number	Description
EM1K2K-CAB-AUD-ANA	break-out cable with 4 female XLR3 connectors at one end for 2 balanced stereo analogue audio
EM1K2K-CAB-AUD-DIG	break-out cable with 3 BNC connectors at one end for unbalanced digital audio signals and reference signal

SOFTWARE LICENSES

Part Number	Description
EM2000-SW-MP4SD	software license for MPEG-4 SD Encoding
EM2000-SW-MP4SD-LAT	software license for MPEG-4 SD Encoding for CBR low latency applications
EM2000-SW-MP2SD	software license for MPEG-2 SD encoding

HARDWARE OPTIONS

Part Number	Description
EM1K2K-HW-2AC	optional dual power supply
EM1K2K-HW-DECODER	optional multi audio and video decoder for compressed sources
EM2000-HW-DOLBY	optional Dolby module for Dolby E decoding, Dolby Digital 5.1 encoding, Dolby Digital Plus encoding and transcoding
EM2000-HW-PIP	option to enable picture-in-picture operation

SOFTWARE OPTIONS

Part Number	Description
EM2000-LIC-FLX	option to enable Flexstream integration on a unique site
EM2000-LIC-FLXREM	option to enable Flexstream integration between remote sites
EM2000-LIC-FLXSRV	option to insert non video components in Flexstream pools
EM2000-LIC-ENC-AAC	option to enable AAC audio encoding
EM2000-LIC-ENC-DD20	option to enable Dolby Digital audio encoding
EM2000-LIC-ENC-MPIL2	option to enable MPEG-1 layer II audio encoding
EM2000-LIC-ALC	option to enable automatic loudness control with Jünger technology
EM2000-LIC-DE	option to enable Dolby E decoding
EM2000-LIC-LOGO	option to enable baseband logo insertion before encoding
EM2000-LIC-SUB	option to enable DVB subtitling transcoding
EM2000-LIC-FEC	option to enable FEC generation
EM2000-LIC-SCR-BISS	option to enable fixed key scrambling
EM2000-LIC-DEC-HD	option to enable one HD decoding & downscaling to SD
EM2000-LIC-DEC-DD20	option to enable one Dolby Digital/Digital+ 2.0 decoding
EM2000-LIC-DEC-DD51	option to enable one Dolby Digital/Digital+ 5.1 decoding and downmixing

Notes: all software licenses can be simultaneously installed in the same chassis