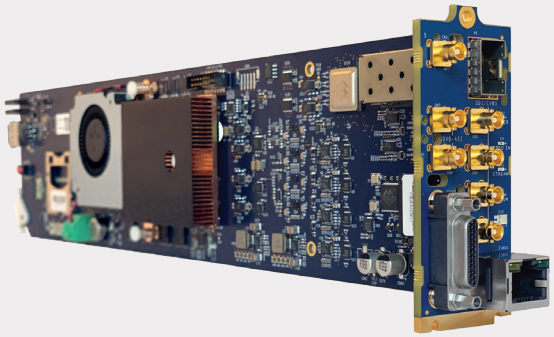
MGW Diamond OG Encoder

4K and Multi-Channel SD/HD HEVC Encoder



MGW Diamond OG is a quad channel HD or one channel 4K HEVC video encoder available as an openGear card. It features a powerful encoding engine with the ability to output up to eight streams simultaneously.

MGW Diamond OG is available as an openGear card for easy integration within production studios, broadcast facilities or corporate server rooms. It provides best-in-class video quality coupled with rich industry-standard audio/video connectivity.

MGW Diamond OG captures up to 4x 3G/HD/SD-SDI or Composite inputs and streams live up to 8 channels, addressing diverse applications within sports, enterprise and broadcast markets.

Featuring Ultra High Definition and High Dynamic Range (HDR) support, MGW Diamond OG can capture and stream 4K60p HDR10 or HLG video from either its 4x3G-SDI or 12G-SDI inputs.

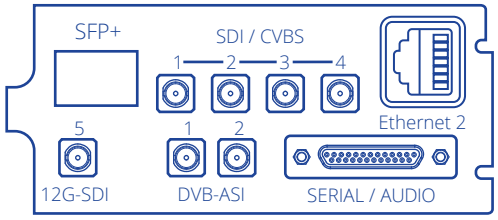
Features & Benefits

- Low latency streaming from 4x SDI/Composite sources simultaneously
- Support for Ultra High Definition (4K) and High Dynamic Range (HDR)
- Up to 8x output streams
- Next-generation HEVC (H.265) compression support to reduce network bandwidth utilization by up to 50% compared to H.264
- Stream protection for reliable video/audio and metadata transmission (Zixi, SRT, RIST and Pro-MPEG)

Applications

- Multi-site and/or Multi-channel IP Video contribution
- Dense IPTV distribution with up to x40 HD or x10 4K channels in a 2RU chasssis (openGear card)
- Remote contribution
- Streaming video to desktop/laptop, TV and mobile devices over bandwidth-constrained pipes

Rear Panel Interfaces



MGW Diamond OG rear module

* SFP+ & DVB-ASI connectors : Not in use

Technical Specification

Video Inputs

- SDI/Composite Inputs (HD-BNC)
- Supported standards:
  - 12G-SDI (SMPTE 2082-1)
  - 4x3G-SDI (SMPTE 425-5 Level A/Two-Sample Interleave)
  - 3G/HD/SD-SDI
    (SMPTE 259M-C, SMPTE 292M, SMPTE 274M, SMPTE 296M, SMPTE 424M, 425M Level A only)
- Analog Composite/RS-170 (NTSC, PAL, PAL-M)
- Quad channel mode in 3G-SDI, HD-SDI, SD-SDI and Composite

Input Resolutions/frame rates

- 4096x2160p @ 60, 59.94, 50, 30, 29.97, 25, 24, 23.98 Hz (4K DCI)
- 3840x2160p @ 60, 59.94, 50, 30, 29.97, 25, 24, 23.98 Hz (UHD)
- 2048x1080p @ 60, 59.94, 50, 30, 29.97, 25, 24, 23.98 Hz
- 1920x1080p @ 60, 59.94, 50, 30, 29.97, 25, 24, 23.98 Hz
- 1920x1080i @ 60, 59.94, 50 Hz
- 1280x720p @ 60, 59.94, 50, 30, 29.97, 25 Hz
- 720x480/576i @ 60, 59.94, 50 Hz (NTSC, PAL, PAL-M)
- Audio Inputs
- SDI Embedded audio (stereo and mono)
- 4x Analog unbalanced audio (Stereo and Mono)

Video Output

- Simultaneous HEVC and H.264 IP Video encoding of 4x independent channels (up to 1080p60 per channel)
- Up to 8 output streams with independent resolution (downscaling), frame rate and bit rate
- Up to 1x 4K60p output stream

HEVC (H.265) MPEG-H HEVC (ISO/IEC 23008-2)

- Main/Main 10 and Main 4:2:2 - up to 4:2:2 10-bits
- Level up to Level 5.2, Main and High Tier
- Selectable GOP structure and size:
  I, IP, IBP, IBBP, I(3)BP, I(4)BP
- Bit rate: 36Kbps to 80Mbps
  - Regulation modes: Constant (CBR), Variable (VBR)
- Frame rate: 1-60 fps. Configurable frame rate from 60 down to 1fps.
- Output resolutions: Configurable from CIF up to 3840x2160p60
- Encoding latency less than 55ms

H.264 (MPEG-4 AVC Part 10) - ISO\IEC 14496-10 MPEG-4 AVC – Rec. ITU-T H.264

- Modes:
  - Baseline Profile L3
  - Main Profile L3 and L4
  - High Profile L4 and L4.2
- Selectable GOP structure and size:
  I, IP, IBP, IBBP, I(3)BP, I(4)BP
- Bit rate: 64Kbps to 80Mbps
  - Regulation modes: Constant (CBR), Variable (VBR)
- Frame rate: 1-60 fps. Configurable frame rate from 60 down to 1fps.
- Output resolutions: Configurable from CIF up to 3840x2160p60
- Encoding latency less than 55ms

Audio Output

- Up to x32 audio encoding channels
- Codec: MPEG-4 AAC-LC (ISO/IEC 14496-3)
- Stereo and Mono modes
- Bit rate: 32Kbps - 256Kbps in Stereo,
  16Kbps - 128Kbps in Mono
- Sampling rate: 16 kHz - 48 kHz

Ancillary Data Support

- Timecode (SMPTE12M-2)
- Closed captions:
  - CEA-708/CEA-608
  - Transport: ANSI/SCTE 128, ATSC A/72
    [CC in HEVC user data]
- High Dynamic Range (HDR):
  - HDR10 (SMPTE ST 2084/ITU-R BT.2100)
  - HLG (ITU-R BT.2100) from SDI (SMPTE ST 2108)

Network Protocols

- UDP TS: MPEG Transport Stream over UDP
- RTP TS: MPEG Transport Stream over RTP
- RTP ES (RTSP): Elementary stream over RTP
- Zixi Stream protection:
  - Zixi P2P and Broadcaster modes
  - Zixi ABR streaming (Adaptive Bit Rate)
  - Zixi Low latency
- RTP TS with ProMPEG Forward Error Correction (SMPTE 2022)
- SRT Caller, Listener and RendezVous
- RIST Main and Simple profile
- SPRINT
- RTMP & RTMPS (H.264)
- Unicast and Multicast (IGMPv3) streaming
- HTTPS, SSH
- NTP, PTP v1 & v2 (IEEE 1588-2002, IEEE 1588-2008)

Encryption

- Real-time AES encryption for video, audio and metadata
- 128 and 256 bit encryption key support
- Interoperability with AES-compliant systems such as VITEC EZ TV and Avedia (ArtioCreate Portals/Signs) IPTV & Digital Signage Platforms

Network Interfaces

- 1x Gigabit Ethernet ports for streaming and/or management (10/100/1000 Base-T, Auto Detect, Half/Full Duplex)
- DHCP/Static IP address, IPv4 and IPv6 support

Peripherals

- 1x USB 2.0 port for easy configuration of system settings
- 1x Hardware system reset for factory reset or reboot

Management

- Secure Web based remote management interface (HTTPS), password protected
- Custom SSL certificate loading capability
- Customizable Notice and Consent login banner
- Zixi/SRT streaming statistics for easier configuration and enhanced Quality of Service
- Autostart mode recovers saved configuration after power cycle
- Remote firmware and software upgrade capability via command line or web-GUI
- System and channel event logging
- Easy to use HTTPS Rest API for control and status monitoring from 3rd party control software
- Status LEDs for power, network activity, temperature and fan errors, streaming and video source indications
- Recovery or initialization of Ethernet settings over USB memory stick
- System Discovery to retrieve encoder IP address on a network
- SSH/Telnet interface for management (status and control)

Advanced Features

- Multi-channel low latency HD/SD streaming from SDI and/or Composite sources with metadata
- Hardware-based resolution and frame rate scaling
- Highly flexible hardware-based resolution scaling (11 configurations) and frame rate sampling (1 to 60fps)
- Zixi, SRT, RIST and ProMPEG FEC error correction/packet recovery
- Time-synchronized playback: synchronize the playback of multiple independent streams when paired with MGW Ace Decoder
- On-the-fly bit rate change and Zixi ABR streaming for auto-adaptive bit rate based on network conditions (HEVC/H.264)
- KLV filtering to reduce the amount of KLV data captured per channel
- Latency monitoring when paired with MGW Ace Decoder
- Fast boot time, less than 20 seconds
- ONVIF Discovery support - limitations apply

Environmental/Regulation

- Operating Temperatures: 0º C to +40º C (23º F to +104º F)
- Relative Humidity: 5% to 95% (non-condensing)
- EMC Standards: FCC part 15/ICES-003 Class A and CE
- Power: 12VDC, 14W (Typical), 17W (Max)
- TAA-compliant

Physical

- Compatible with OGX and OG3 openGear frames
- Full Rear I/O Module (2 slots) for up to 10 cards within a 2RU openGear chassis

Ordering Information (P/N)

- 18281 - MGW Diamond OG - HEVC - 1x 4K
- 19039 - MGW Diamond OG - HEVC - 2x HD or 1x 4K
- 17643 - MGW Diamond OG - HEVC - 4x HD or 1x 4K
- 18280 - MGW Diamond OG - HEVC - TS - 4x HD or 1x 4K*
- 17239 - MGW Diamond Encoder Breakout cable (4x Unbalanced audio inputs, 4x Serial, 1x Talkback audio output)

*TS models have a streamlined feature set for local network streaming application; contact your VITEC representative for details