

DE1/EN1 series using advanced wavelet compression enables 1080p production using HD-SDI contribution links and infrastructure.

In collaboration with BBC Research & Innovation, NuMedia has developed DIRAC Pro products. Further collaboration with Chromatec has resulted in the DE1/EN1, which enables DIRAC Pro products to be integrated within the openGear modular rack system. 1080p production can now be conveniently distributed using an HD-SDI (1.5Gbit/s) infrastructure.

Distribution of high frame-rate progressive images such as 1080p50/59.94 requires twice the bandwidth of conventional HD-SDI, such as 1080i50/59.94. SMPTE has already approved 424M, specifying a digital format running at twice the normal rate. However, this is not backwards compatible with existing active HD-SDI distribution equipment, such as switchers or routers. The EN1 solves this problem by compressing the high frame rate progressive images into the same bandwidth used currently for HD-SDI.

Using Dirac Pro 1.5 by NuMedia technology, the DE1/EN1 employs

multi-level wavelet transforms to achieve excellent all-round video performance, with less than 6 lines of delay.

Also unique to all Dirac Pro products, the encoded bit-stream is recognisable if viewed as an HD-SDI signal, because a coarsely quantised, interlaced version of the picture is encoded in the most-significant bits of the compressed signal. The encoded bit-stream is fully compatible with existing HD-SDI equipment because the compressed data only utilises the active lines in the HD-SDI signal. All metadata from the 1080p source is preserved without compression, including up to 16 channels of embedded AES audio.

The DE1/EN1 series has been designed to comply with the proposed SMPTE VC-2 specification. As an Open Technology, Dirac Pro by NuMedia removes licensing costs for hardware, software and content flow and ensures future-proof file interchange.

These cards are for openGear frames

Features

- Ultra-Low end-to-end delay.
- Excellent all-round performance using multi-level wavelets.
- 10-bit 1080p resolution.
- Encoded bit-stream can be viewed as an HD-SDI image.
- Fully compatible with existing HD-SDI equipment.
- Rack mount and portable solutions.
- Low power consumption.
- Best-in-class return loss and jitter performance.
- Embedded AES audio and data transparency.
- Dual-Link/3Gbit/s SDI.
- Proposed SMPTE VC-2 compliant.
- Open Technology supporting future-proof file interchange.

Applications

The DE1/EN1 series is suitable for contribution or distribution of high-frame rate 1080p50/59.94 progressive signals using existing HD-SDI infrastructure. The DE1/EN1 series facilitates the re-use of existing equipment that was originally developed for single-link 1080i/720p signals. The end-to-end delay of less than 6 video lines makes it particularly suitable for live production and wireless applications.

The DP DE1/EN1 series increases the distribution cable run-length when compared to up-sampling to 3Gbit/sec using SMPTE 424M.

Specifications

EN1 (Encoder)

Input

1-off Dual-Link/2-off 3Gbit/s SDI
SMPTE 372M/424M auto detection

Outputs

2-off HD-SDI with compatible picture
SMPTE 292M

Formats

1080p50/59.94

Power Requirement

10W Max

Audio

AES Embedded, Dolby E

Video Processing

10-bit YCbCr

Algorithm

Dirac Pro 1.5 (Proposed SMPTE VC-2)

Delay

End-to-end delay <6 lines

Control/Monitoring

openGear Dashboard™

DE1 (Decoder)

Input

2-off HD-SDI
SMPTE 292M auto detection

Outputs

1-off Dual-Link/2-off 3Gbit/s SDI

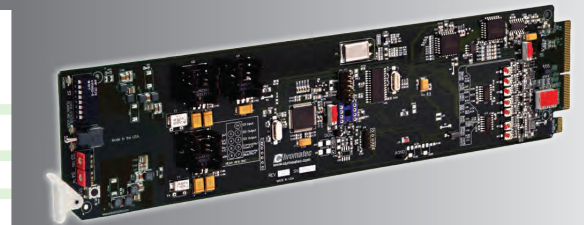
SMPTE 372M/424M

Formats

1080p50/59.94

Power Requirement

10W Max



Features and specifications subject to change without notice

EN1 Encoder & DE1 Decoder - Block Diagram



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