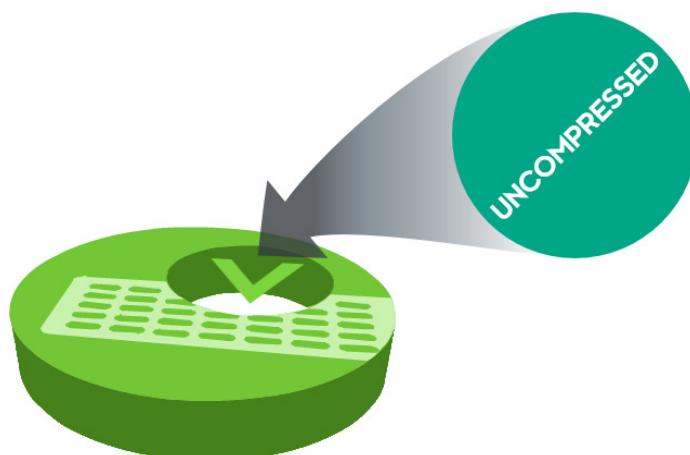




datasheet

Virtuoso
Media Function

nevion



Nevision Virtuoso

Uncompressed Video over IP

The Virtuoso Uncompressed Video over IP Media Function enables reliable adaptation and transport of SD, HD and 3G-SDI signals over IP without any quality degradation.

The software supports adaptation of baseband SDI signals to IP formats, using SMPTE 2022-6 for wide-area contribution applications. For adaptation in IP-based MCR or production environments, the software supports VSF TR-04 and TR-03 Studio Video over IP, with the intention of supporting the future SMPTE 2110 standards through software updates.

The Media Function runs on the Virtuoso High Bit Rate Media Accelerator and supports both SDI streams via video SFPs and uncompressed video/audio IP streams via 10GE. In addition to Nevision's proven dual port video SFPs, Nevision has developed a quad port video SFP that provides two electrical outputs and two electrical inputs making the Virtuoso platform the high-density choice for uncompressed video and audio adaptation.

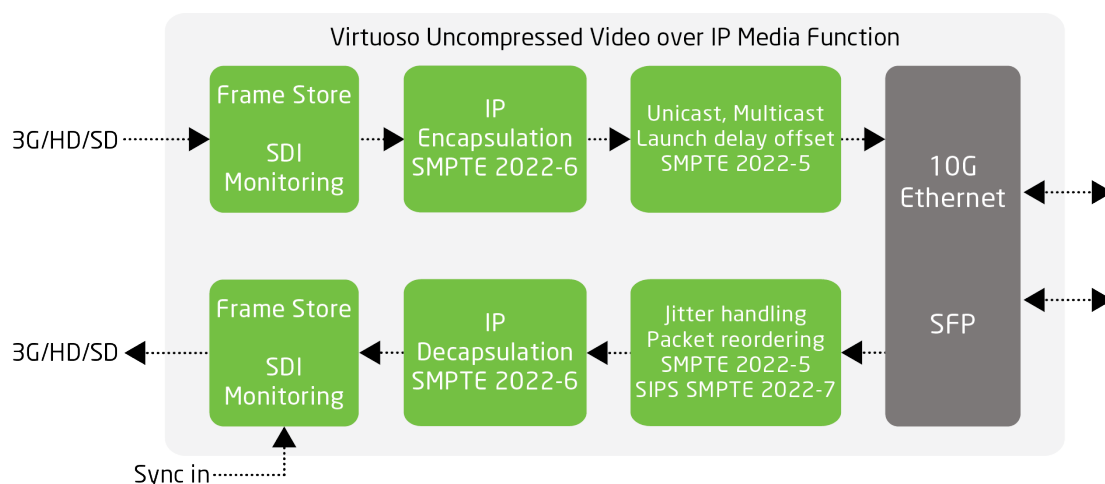
For applications that require high availability, dual hand-off on 10GE and SMPTE 2022-7 is supported for network redundancy. In a SMPTE 2022-7 Seamless IP Protection Switching (SIPS) configuration, each module can perform IP adaptation of up to 4 HD/3G signals in each direction, providing, for example, 16 input and 16 output HD/3G signals per 1RU on the 4 slot Virtuoso Appliance.

Applications

- Professional broadcast contribution
- Live sports and event contribution
- Managed video services over IP
- Adaptation in IP-based production

Key features

- Multi standard connectivity
 - 3G/HD/SD-SDI via video SFPs
 - Uncompressed video over IP/10GE
 - Any-to-any conversion
 - VSF TR03 and TR04.
- PTP timing and sync (IEEE 1588v2, ST 2059)
- Video/Audio processing
 - Built-in frame synchronizer
 - PTP-based synchronization and alignment of audio, video and metadata streams
 - Audio and video delay
- Stream protection
 - Supports FEC, SIPS / SMPTE 2022-7 and Launch Delay Offset (LDO) IP protection mechanisms
- Monitoring
 - Thumbnails of input and output video
 - In-depth service monitoring incl. video freeze/black and audio silence



Uncompressed video over IP

The Uncompressed Video over IP Media Function supports adaptation of up to 4 channels in each direction between SD/HD/3G-SDI, SMPTE 2022-6 and the future SMPTE 2110 (based on VSF TR-03/04), with IP transport on one or two 10G Ethernet ports.

Flexible interfacing via 10G/video SFPs

The Uncompressed video over IP Media Function runs on a High Bit Rate Media Accelerator that has four (4) SFP cages. When used for SDI-IP, the module is deployed with one or two 10G SFPs, whereas the remaining SFP slots can be used for video SFP.

Audio and video processing

The software supports de-glitching of input SDI signals, and various types of processing of video and audio, such as embedding, de-embedding, automatic alignment based on PTP and RTP timestamps, as well as manual delay configuration of individual components.

Reliability and IP protection

The software includes a number of features to ensure robust operation and graceful degradation in the presence of IP transport impairments; buffering for IP jitter compensation, packet reordering, error correction and highly efficient error concealment. For network redundancy, SMPTE 2022-7 is supported.

Seamless IP protection switching (SIPS)

Transmitting the same RTP/IP stream across dual, fully diverse network links enables receivers/decoders to utilize SMPTE 2022-7 Seamless IP Protection Switching (SIPS), which gives perfectly error-free transport even in the case of severe packet loss or link outages as long as a packet arrives on either of the two network links.

Test image transmission

An encoder can be configured to transmit an internally generated test image with configurable text overlays and moving patterns, to allow efficient testing of contribution links prior to a live event.

Video formats

SD-SDI	SMPTE-259-C 625i25, 525i29.97
HD-SDI	SMPTE-292 720p50/59.94/60 1080i25/29.97/30 1080psf23.98/24/25/29.97 1080p23.98/24/25/29.97/30
3G-SDI	SMPTE 424 (Level A) 1080p48/50/59.94/60

Audio and ancillary data formats

Embedded audio	16 channels (8 stereo pairs) Linear PCM 24 bit audio (48kHz) Pass-through of AES3 non-PCM audio.
Ancillary data	Fully transparent

SDI interfaces

SDI interfaces	Video SFP (non-MSA) with options for: <ul style="list-style-type: none"> - Dual channel SDI RX (input) - Dual channel SDI TX (output) - Single channel SDI RX + SDI TX (bidirectional) - Dual channel SDI RX + SDI TX (bidirectional) All video SFPs support SD/HD/3G-SDI
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IP/Ethernet networking

Ethernet ports	2 x 10GBase-R SFP+ (10 Gigabit Ethernet)
Protocols	RTP, UDP, IP, ICMP, ARP, IGMPv2/v3, Diffserv/TOS, 802.1Q (VLAN tag), 802.1P (VLAN priority)

Video and audio over IP transport

SDI over IP	SMPTE 2022-6 SDI payload over RTP/UDP/IP VSF TR-03/04 Studio Video over IP
Network redundancy	Seamless IP protection Switching (SIPS) compliant to SMPTE ST 2022-7:2013

Timing and synchronization

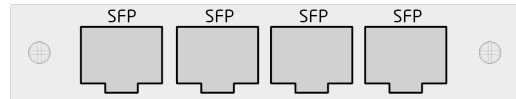
Sync input format	PTP (IEEE 1588v2:2008) Analog bi/tri-level sync via Virtuoso Appliance
PTP profile support	PTP default and media profile SMPTE 2059-2 PTP profile
Media alignment point	SMPTE 2059-1 (phase offset configurable)

Monitoring

Thumbnails of video input and output	
In-depth service monitoring incl Video freeze/black, Audio silence	

High Bit Rate Accelerator

Number of ports	4
Connector type	SFP+ cages
Interface type	10GE with PTP or video SFP
Power consumption	Maximum 40W





Nevion Virtuoso

Nevion Virtuoso is our latest generation of Media Node platform fulfilling the highest requirements of broadcasters and service providers. Virtuoso is designed to meet the challenges of an IP-based live production environment where the distinction between facilities and contribution is blurring, and where virtualization will play an increasing role, leading to faster time-to-production and greater cost-effectiveness.

Nevion Virtuoso is a comprehensive, flexible and scalable platform for real-time adaptation, transport and processing of live media content (video, audio and data) that provides tools for broadcasters and service providers to implement and operate state of the art media production systems. IP adaption, compression, protection, monitoring and aggregation are functionalities provided by Nevion Virtuoso. As an example, the platform is ideal for processing high quality media streams in a reliable manner with very low latency over network infrastructures with very high or constrained bandwidth capacity.

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