APPLICATION OVERVIEW

The VS901 provides the highest quality JPEG 2000 compressed SD/HD video and transport over IP. The low latency and high visual quality is the ideal solution for interactive or any delay sensitive applications. In addition, the VS901 guarantees the highest possible visual quality with absolute minimal degradation through multiple encode/decode cycles. This provides optimum source content for final encoding via MPEG-2/H.264 and distribution to the home. In a complete video transport chain, this maximizes quality or bandwidth for gains in cost efficiency and increased customer satisfaction.

KEY FEATURES

- Artifact-free JPEG 2000 compression of HD-SDI/SD-SDI – no blocking, tiling or motion dependence
- Visually lossless compression at a 6.5:1 compression ratio for HD video and near-mathematically lossless compression for SD video (as low as 1.35:1)
- Supports all SD and HD video framing formats at 270Mbps, 1485Mbps and 1483.52Mbps with automatic signal detection and compression
- Configurable packet buffer for tolerance of network specific packet delay variation
**FEATURES**

- Transport stream to IP mapping and fully configurable FEC as per SMPTE 2022-1/2022-2 (Pro MPEG CoP 3)

- Dual boot image for encode or decode function simplifying sparing

- Constant encode/decode delay, including audio and data processing, of less than 3 fields or 1.5 frames

- JPEG 2000 compressed video encapsulated into MPEG-2 Transport Streams

- Transparent transport of up to 4 groups of pre-embedded audio from the HD and SD signals – including Dolby-E and AC-3 carriage – and of ancillary data – configurable by user – to accommodate bandwidth availability

- Configurable transport stream bit rate with automatic video rate optimization based on audio and ancillary data to be carried, 10 – 213Mbps with 1Mbps resolution

- On board test pattern generators for all SD-SDI and HD-SDI rates

- Adaptive fast clock recovery at the decoder for enhanced network switching recovery

- 1000 Base-T Ethernet network interface for copper (RJ45) and 1000 Base-LX interface for fiber (SFP), providing easy connection to IP networks, GigE switches, and other IP compliant equipment

- Remote software upgrade through AEMS the ventura shelf element manager

- NEBS level 3 certified for reliable performance in harsh environments
**SPEcIFICATIONS**

**VIDEO FORMATS**

**Input formats**
- SMPTE 259 (525i/59.94, 625i/50)
- SMPTE 292M
- SMPTE 274M (1080i/29, 1080i/50, 1080i/60, 1080i/59.94, 1080p/25, 1080p/23.98, 1080p/24)

**Audio and ancillary data formats**
- Audio formats: SD-SMPTE 272 (4 audio groups), HD-SMPTE 299M (4 audio groups), Dolby-E and AC-3
- Ancillary data: SMPTE 291M, user configurable
- Delay: Zero, All data reinserted in exact location as extraction

**ENCODER VIDEO INTERFACES**

**Input BNC**
- SD-SDI, HD-SDI
**Monitor BNC**
- Buffered version of input – front panel

**DECODER VIDEO INTERFACES**

**Output BNC (2)**
- SD-SDI, HD-SDI dual
**Monitor BNC**
- Buffered version of output – front panel

**ENCODER/DECODER NETWORK INTERFACES**

**RJ-45**
- 1000 Base-T, 802.3ab
**SFP**
- 1000 Base-LX, 802.3z

**VIDEO ENCODING/DECODING AND PAYLOAD STRUCTURE**

**Encoding**
- JPEG 2000 (ISO 15444-1)
**Compressed video rate**
- HD: 19 – 190Mbits
- SD: 9 – 156Mbits
**Structuring**
- MPEG-2 transport stream* (ISO 13818-1)
**Encapsulation**
- TS/RTP/UDP/IP conforming to SMPTE 2022-2 (CoP 3)
**TS bit rate**
- User configurable, video optimized based on audio and ancillary data settings, 10 – 213Mbps with 1Mbps resolution
**IP bit rate**
- Variable application dependent
**Forward error correction**
- FEC/RTP/UDP/IP conforming to SMPTE 2022-1 (CoP 3)
**IP packet buffer**
- User configurable, 0 – 500msec at 1msec resolution

**FRONT PANEL LED INDICATORS**

**Name**
- Encoder
- AES 1 Group 1 Present
- AES 2 Group 2 Present
- AES 3 Group 3 Present
- AES 4 Group 4 Present
**VID**
- SD-SDI/HD-SDI input valid
- IP input valid
- SD-SDI/HD-SDI output valid
**Video Err**
- HD-SDI: CRC input errors
- Ethernet input packet error
**Optic Err**
- Laser fault
**Network Err**
- Signal loss on input BNC connector
- Signal loss on electrical PHY
**Link**
- Ethernet link good

*Final standards under development at standards body, VS901-IED-GE will be capable of remote upgrade to final standard once available.

**EXTERNAL ALARMS**

- Normally open relay contacts. Closed for major and minor alarm signals.

**ELEMENT MANAGEMENT**

The Venta AEMS shell element managers, FCS183-AEMS and FCS101-AEMS, provide a comprehensive set of status, control and alarm variables through a Web interface. The AEMS is a powerful Linux based embedded management system that also supports SNMP and XML. It also acts as an agent for card upgrades, storing multiple images for each card in the VS103 or VS101 chassis. Users can apply these images to install upgrades from a remote location.

**PHYSICAL AND ENVIRONMENTAL**

- Resides in a single slot of a VS101 or VS103 Venta series chassis
- Power consumption: 12W max
- Operating temperature: 0˚C to 50˚C chassis ambient
- Storage temperature: -40˚C to 85˚C ambient
- Relative humidity: 5% to 85%
- Compliance: NEBS level 3, UL, CSA, CE, FCC (Part 15, Class A), C-Tick, RoHS

**ORDERING OPTIONS**

**VS901-IED-GE**
- Dual mode JPEG2000 encoder/decoder over IP, SD-SDI and HD-SDI compression over 1000 Base-T Ethernet (GigE) with FEC over RTP/UDP/IP. Carriage of up to four pre-embedded AES groups and horizontal and vertical ancillary data (time codes, closed caption, etc).

**VS901-IED-GE-LX**
- Dual mode JPEG2000 encoder/decoder over IP, SD-SDI and HD-SDI compression over 1000 Base-T Ethernet (GigE) with FEC over RTP/UDP/IP. Carriage of up to four pre-embedded AES groups and horizontal and vertical ancillary data (time codes, closed caption, etc). Fitted with SFP cage. SFP optics not included. (Use TR1) Ventura

**VS901-IED-GE-SX**
- Same as VS901-IED-GE-LX except for optics which are configured for multimode fiber. Contact factory for multimode fiber options

**SFP-TR1-1310-APD-SD**
- 1Gbps, TRX, non-CWDM
**SFP-TR1-1550-APD-SD**
- 1Gbps, TRX, non-CWDM
**SFP-TR1-1470-APD-C**
- 1Gbps, TRX, CWDM
**SFP-TR1-1490-APD-C**
- 1Gbps, TRX, CWDM
**SFP-TR1-1510-APD-C**
- 1Gbps, TRX, CWDM
**SFP-TR1-1530-APD-C**
- 1Gbps, TRX, CWDM
**SFP-TR1-1550-APD-C**
- 1Gbps, TRX, CWDM
**SFP-TR1-1570-APD-C**
- 1Gbps, TRX, CWDM
**SFP-TR1-1590-APD-C**
- 1Gbps, TRX, CWDM
**SFP-TR1-1610-APD-C**
- 1Gbps, TRX, CWDM

Contact factory for DWDM options.

**R1002**

nevion.com

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