NOVELSAT

Accelerate your connectivity

NOVELSAT Xstream

A Powerful Multi-Purpose Gateway

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PRODUCT SHEET

MULTI-PURPOSE GATEWAY FOR MULTIPLE APPLICATIONS

NOVELSAT Xstream Multi-Purpose Gateway is the ideal choice for multiple interfaces satellite networks requiring any-to-any high-speed connectivity solution. Addressing multiple applications including video delivery, Earth observation, SIGINT, Cloud and IoT, NOVELSAT Xstream delivers highly integrated, optimized, and efficient multi-interface solution.

HIGH AVAILABILITY AND FLEXIBILITY

NOVELSAT Xstream features modular design according to network needs, allowing for multiple configurations and service options. Designed to deliver highest levels of availability and flexibility, NOVELSAT Xstream presents comprehensive set of capabilities and features. Built on off-the-shelf servers with software-defined modular architecture and carrier grade management system, NOVELSAT Xstream delivers high availability operation and service continuity. Supporting multiple inputs and outputs of various types, NOVELSAT Xstream maximizes network flexibility and scalability, adapting to any network architecture and allowing future upgrades and expansions.

HIGH DENSITY AND RESILIENCY

NOVELSAT Xstream high density architecture utilizes a compact chassis to support multiple versatile inputs and outputs. NOVELSAT Xstream incorporates multiple satellite modulators and demodulators, supporting the most bandwidth-efficient waveform, NOVELSAT NS4™, as well as standard DVB-S2 and DVB-S2X. In addition, NOVELSAT Xstream integrates multiple independent ASI interfaces, multiple independent IP interfaces with port mirroring, high availability SMPTE 2022 FEC and hitless merge options.

POWERFUL SWITCHING, RE/MULTIPLEXING AND STREAM PROCESSING

NOVELSAT Xstream presents a powerful re/multiplexing system, supporting advanced PSI/SI and descriptor handling capabilities as well as program analysis, including program level bit rate measurements on both incoming and outgoing streams. Offering multiple modes of operation and comprehensive configuration, NOVELSAT Xstream incorporates powerful encoding / decoding / transcoding capabilities as well as supports any-to-any failover matrix, including IP to IP, ASI to IP, and ASI to ASI, together with stream and service redundancy based on any ETR 101 P1 triggers. NOVELSAT Xstream also supports 1:1 and N:1 interface redundancy with automatic failover, ensuring very high system and service availability.

BEST-IN-INDUSTRY CONTENT PROTECTION

Heightening content protection and security, NOVELSAT Xstream provides multi-layer content protection, securing service, transport, and payload. Utilizing NOVELSAT DRM with AES-256 encryption and BISS2-CA compliant scrambler / descrambler, together with highly flexible entitlement management system and automatic and dynamic key generation with over-the-air distribution, NOVELSAT Xstream provides superior content protection.

HIGHLIGHTS

- Any-to-any video gateway
- Future proof software defined processing
- Encoding, Decoding, Transcoding
- Service filtering & remux
- BISS 1/2/E/CA Descrambling
- DVB CAS Simulcrypt Decryption
- IP/TS/Service/PID level monitoring
- Any-to-any input failover matrix
- High scalability and redundancy options
- PID/Service redundancy based on any ETR 101-290 P1 triggers
- Seamless stream/port/packet level switching
- Carrier grade management functionalities
- Dual redundant power supply

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INTERFACES

IP INTERFACES

- 4xGbE / 10GbE (input / output)
- Optional SFP
- Up to 850Mbps per port TS rate
- Up to 200 services per port
- UDP / RTP, Unicast / Multicast support
- MPTS / SPTS
- VLAN support
- Service filtering
- MPEG-2 TS support
- Hitless merge SMPTE 2022-7
- IP de-jittering PCR / CBR

ASI INTERFACES

- EN50083-9
- 4 independent I/O ports
- SPTS / MPTS
- BNC (F) 75 Ohm
- 4 different Transport Streams
- 213.7Mbit/s per sort

SATELLITE MODOLATORS

- L-band output
- SMA (F) 50 Ohm
- Frequency range: 950–2150MHz (1Hz steps)
- Power level: -30 to 0 dBm in 0.1 dB steps (±0.5db stability @ temperature)
- Return Loss: >12dB
- Spurious: <-55dBc
- 10Mhz reference (managed)
- Up to 80Msps / 425Mbps
- DVB-S / DVB-S2 / DVB-S2X / NS4™
- QPSK, 8PSK, 8APSK, 16APSK, 32APSK, 64APSK
- All FEC supported
- Frame Length: 64800, 16200
- ROF: 2%, 5%, 10%, 15%, 20%, 25%, 35%
- Monitor interface

SATELLITE DEMODULATORS

- SMA (F) 50 Ohm
- Frequency range: 950–2450Mhz (20KHz Steps)
- Input Power level: -105/+10Log(F), F in Msps, -20dBm Max.
- Max input power: 0dbm
- Return loss: >12dB
- 10Mhz reference (Managed)
- DISEqC: 11.5V - 14V (Vert. Pol.), 16V – 19V (Horiz. Pol), 22Khz (±4Khz), 350mA
- Serial console via USB / UART
- Up to 80Msps
- DVB-S / DVB-S2 / DVB-S2X / NS4™
- QPSK, 8PSK, 8APSK, 16APSK, 32APSK, 64APSK
- All FEC supported
- Frame Length: 64800, 16200
- ROF: 2%, 5%, 10%, 15%, 20%, 25%, 35%
- Support for BBframe Raw Data with SNR indication

PROCESSING

SYSTEM CAPACITY

- Up to 850Mbps per physical port
- Up to 100 TS per input / output (total 200)
- Up to 500 services / 3Gbps per platform

RE/MUX AND STREAM PROCESSING

- PID filtering / Remapping / Pass through on each input
- PID tracking
- Service/PID sharing
- Service duplication
- Auxiliary PID synchronization with video
- Remultiplexing of services and components
- Modify, remove, rename, extract services
- Content routing from any input to any output
- Re-route complete transport streams or individual PID/services
- Create new TS Bouquets, MPTS and SPTS
- On-the-fly transformation or injection of content and signaling
- PSI/SI: extraction, injection, spooling, regeneration
- NIT table regeneration

MPEG TS STREAM ANALYSIS / REGENERATION

- Mirror input stream
- PCR jitter measurement
- ASI and TS over IP monitoring based on ETR 101/290P1-3

CONTENT PROTECTION & SECURITY

- BISS 1 / 2 / E / CA based on EBU TECH 3292-s1 standard
- DVB CAS Simulcrypt compliant
- AES-256 TS Decryption NOVELSAT Managed DRM NMS

SYSTEM

REDUNDANCY

- Redundant ASI port
- Redundant GbE port
- Redundancy with main TS over ASI and back-up TS over IP input
- Stream and Source redundancy on TS over IP inputs
- Unit level redundancy
- Input redundancy with TR 101 290 priority 1 parameters as switching criteria

RESILIENCY

- Modulator / Demodulator: 1+1 / 1+N redundancy

MANAGEMENT

- SSH CLI
- Web Based EMS
- User and Privilege support
- REST API
- Stream analysis and event logs
- User management
- Receiver input devices and streams with detail structure from TS Mux/Demux
- Management of TS Mux/Demuxe module
- Management of the I/O modules
- Monitor and alert notification of the system load
- Configuration channel
- SPTS and MPTS structures
- Configuration input and output profiles

PHYSICAL AND ENVIRONMENTAL

- COTS-based server
- 19" x 1RU / 2RU
- Management Interface
- 500W/800W/1600W power options
- Dual power supply
  - Active – Active
  - 100 – 240VAC
- Temperature
  - Operational: 10° to 35°C (50° to 95°F)
  - Storage: -30° to 60°C (-22° to 140°F)
- Humidity
  - Up to 90% non-condensing

CERTIFICATES

- CE, FCC, BIS, CCC
- Electrical safety EN60950-1, EN 62479
- Electromagnetic EN 55032, EN 55024
- ROHS compliant
- WEEE compliant

ENCODING

SYSTEM PROCESSING

- Single and multiservice processing
- ETSI Pro MPEG complaint (for jitter / delay)

VIDEO COMPRESSION

- MPEG-2: Simple, Main, and 422P profile, up to high level
- MPEG-4/H.264: Baseline, Main, and High Profile, High 10, and High 422
- HEVC/H.265: Main, Main 10, Main 420 10, Main 422 10
- 10 and 8 bits
- NDI
- JPEG2000 TR-01/07
- JPEG - XS TR-07
- SMPTE 2110

AUDIO COMPRESSION

- Uncompresses PCM - Multichannel (SMPTE 302M-2007)
- MPEG-1 layer 2
- MPEG-2 layer 3 (mp3)
- MPEG2/MPEG-4, AAC-LC, AAC-HE
- Dolby Digital E, AC-3 and passthrough
- Sampling Frequency: 32, 44.1, 48 KHz

RESOLUTIONS AND FRAME RATES

- Flexible - QCIF to HD 1080p60
- Mix and match resolutions, frame rates and bit rates - very flexible output configurations
- Common Resolutions:
  - o 240p, 288p, 480p, 576p @ 10, 12.5, 15, 20, 23.976, 29.97, 30, 50 and 59.94 and 60 Hz
  - o 576i and 480i x 720, 544 and 352 pixels @ 23.976, 24, 25, 29.97 and 30 Hz
  - o 1080i x 1920, 1440, 1280 and 960 pixels @ 23.976, 24, 25, 29.97 and 30 Hz
  - o 720p x 1280, 960 and 640 pixels @ 23.976, 24,29.97,30, 50, 59.94, and 60 Hz
  - o 1080p x 1920, 1440, 1280, and 960 pixels @ 23.976, 24,29.97,30, 50, 59.94, and 60 Hz
  - o 2160p x 3840, 4096 pixels @ 23.976, 24,29.97, 30, 50, 59.94, and 60 Hz
- Programmable to arbitrary output resolutions and frame rates

TRANSCODING

TRANSCODING

- Full decode/full re-encode mode
- Scene Change Detection and I-frame insertion
- Fixed and Dynamic GOP Structures
- VBI passthrough
- Single stream or multi-rate ABR

RATE CONTROL

- CBR, VBR, Capped VBR
- Single and Multi-pass modes
- Ultra low latency mode

OPTIONAL PROCESSING

- Frame rate conversion (Motion compensated)
- 4K modes for HEVC including HDR
- 4K HDR HLG BT-2020
- Format Conversion
- Cropping/Scaling (manual or AFD)
- Single in – multi-out
- Slate Insertion
- Progressive and Interlace
- GOP Structure: I only, IPPP, IBBB, hierarchical GOP (H.264, H.265)
- Fixed or Adaptive GOP with scene change detection
- Ultra low latency mode HEVC
- SRT FEC Decode
- Logo insertion
- Scrolling Text Insertion with Scheduling ability
- Audio Level Control
- Calm Processing
- Embedded VBI
- Multi-audio and audio slot mapping control

DECODING

PASSTHROUGH

- PID remapping and table recreation option
- Simultaneous passthrough with transcode and/or decode

ANCILLARY DATA

- EIA608 & EIA708 closed captioning
- SCTE35 passthrough (with IP input)

BITSTREAM FORMATS

- MPEG-TS over UDP/IP or ASI
- RTP/UDP/IP
- MPEG2-TS/RTP/UDP/IP

CONTAINERS

- UDP, RTP
- MPEG-2 TS, MPTS/SPTS
- VSF TR-01
- VSF TR-07
- RTMP / RTMPS
- SRT
- NDI (input & output)
- HLS
- Hitless Merge
- Hitless Switch

ADAPTIVE MULTI-STREAM TRANSPORT

- ABR encoding and transcoding
- DASH
- Apple – HTTP multi-rate streaming with TS or fMP4segmenting
- Microsoft Silverlight multi-rate streaming
- Synchronized native MPEG2-TS multi-rate streaming
- CMAF packaging
- Internal streaming server (option)
- Push to CDN

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For more information visit www.novelsat.com