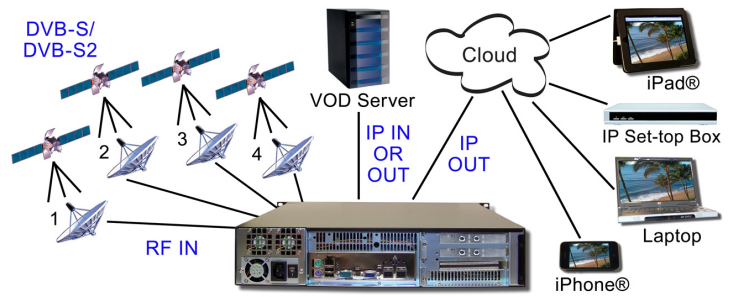


GEARBOX™ DVB-S-S2 4 Tuners/IP

Real Time, Professional, 2 RU, Quick Starting, Standards Compliant, Embedded Linux® Based, Remotely Manageable, Encoder, H.264/AVC or Optional H.265 Transcoder and Live Streamer with Four DVB-S/S2 Inputs and/or IP Input and Concurrent Multi Stream, Multi Resolution, Multiprotocol IP Output. Encodes DVB-S and/or DVB-S2 Video and Audio into a Compressed IP Transport Stream with Various “Wrappers”. Audio Support for AAC, MPEG-1 Layer II, Optional MP3, and/or Optional “SurCode for Dolby Digital” AC-3. Encodes at .1 to 15 Mbps. Ideal Satellite to IP Gateway for Streaming Video to Remote Sites, Content Delivery Networks (CDNs), or IPTV Compatible Appliances or Players. Stores Outgoing Content on Local 1 TB Hard Drive. Supports 4 Transponders. Supports 50 Simultaneous HLS Users. With Optional Atlas™ Add-on, Supports 1,000 RTMP, DASH, and/or HLS Users Natively.

Features

- Supports both HD and SD H.264/MPEG-4 AVC encoding with “virtual” stream replication
- Inputs: Four DVB-S or DVB-S2 inputs (option for decryption available), one GigE IP input
- Supports NewTek™ NDI® input
- Output: Multiple simultaneous IP streams through GigE port (RJ45) via V-DNA™
- Schedulable input
- IP output protocols: UDP, RTP, HTTP, HTTP Live (HLS), RTMP (Open Flash)
- Supports HLS (adaptive) for output to mobile devices
- Supports logo insertion, text overlay, and SCTE 35 compliant cue tone insertion (“ad markers”) on outputs
- Able to upconvert incoming SD streams to HD, and scale down
- Tested with leading CDNs (Verizon®, Akamai®, Octoshape™, Ustream®, etc.)
- Supports Octoshape™ and Verizon® upLynk natively
- Advanced PID filtering allows easy service selection
- Supports H.264 High Profile @ Level 4.0 (HP@L4)
- Supports 1080i, 1080p, 720p, 480i, 480p, CIF, QCIF, qHD, H.264up and many others, and custom resolutions
- Creates simultaneous High, Medium, and Low bitrate streams
- Supports 50 HLS users natively. Optional built-in server supports 1,000+ simultaneous HLS, DASH, and/or RTMP users.
- Audio Output: AAC, MPEG-1 Layer II, optional MP3, and/or optional “SurCode for Dolby Digital” AC-3
- Tested to work with Atlas™, Wowza®, and Adobe® Flash® media servers
- Tested compatible with major brands of IP devices including Amino™, Roku®, Telergy, Android™, and Apple iPad® and iPhone®
- Tested compatible with major brands of professional H.265, H.264, and MPEG-2 decoders and video servers
- SNMP, REST, SOAP support for remote management and monitoring
- Relies on Intel® Xeon® processor



Overview

The Gearbox™ DVB-S-S2 4 Tuners/IP is a highly affordable multi channel satellite to IP gateway and H.264 transcoder. It receives a mixture of DVB-S or DVB-S2 transport streams from one to four satellite transponders, simultaneously, then transcodes the DVB-S/S2 to the H.264 standard or optional H.265 and provides for choices for protocols, wrappers, and containers. The system streams the IP output to STBs, iPads, iPhones, content delivery networks, and remote video capture devices.

The Gearbox DVB-S-S2 4 Tuners/IP does the work of multiple integrated receiver decoders (IRDs), with one 2 RU system taking the rack space of several 4 RU systems. While some gateways require a separate transcoder system, our unit does both. And some competitors' systems transcode only SD or HD. We build one machine that transcodes any resolution.

The unit provides PID filtering of all unwanted traffic, increasing system performance and the number of channels which can be transmitted per unit.

This unit is designed to be affordable, scalable, and extendable. Modifications to video formats are easily created. Remote management and multi level security is built in.

Several rural telephone services use the Gearbox DVB-S-S2 4 Tuners/IP to receive satellite feeds and re-transmit them to cable TV via the Internet. The system is also useful for IPTV for hotels, ships, universities, etc.

Applications

- Streaming satellite TV from remote sites to HTTP, HLS, RTMP, etc. compatible appliances
- Live streaming at Religious Services, Festivals, Fairs, Lectures, Weddings, Funerals, etc.
- Occasional Live streaming by Broadcasters
- Backhaul/Monitoring for Broadcasters
- Digital News Gathering
- Centralcast



Computer Modules, Inc.

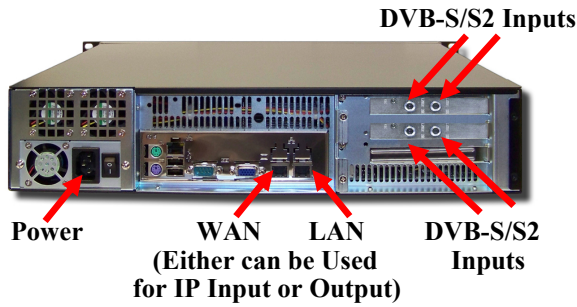
11409 West Bernardo Court

San Diego, CA 92127

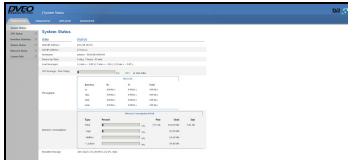
Tel: 858-613-1818 Fax: 858-613-1815

www.dveo.com

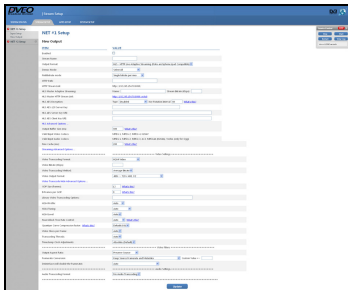
Inputs/Outputs



Sample of GUIs



Status Screen



IP Output Setup

Ports Utilized

Protocol	TCP Ports	UDP Ports
HTTP	80, 8000, 8001, 8080, 1-65535 (out)	
HTTPS	443	
RTSP (input only)	554, 7070	6970-7170, 5005
RTMP		1935
RTP		6970-6999, 16384-32767

Options

- Optional transcoding to H.265
- 4:2:2 10 bit encoding
- Optional DOZER™ Automated UDP Packet Recovery protocol, enabling error-free video delivery over UDP. DOZER ensures smooth MPEG-2, H.264, and optional H.265 delivery through DVEO patented algorithms for automated packet recovery and re-ordering of out-of-sequence packets.
- Optional built-in “Mini Atlas” server supports 1,000+ simultaneous HLS, DASH, and/or RTMP users

Ordering Information

Gearbox DVB-S-S2 4 Tuners/IP in 2 RU system
 Archiving Option: One terabyte of local storage (1 TB)

CDNs Tested With:

- | | | | |
|--------------|----------------|--------------|-------------------|
| 1. Akamai* | 4. Octoshape | 7. Highwinds | 10. Mirror Image |
| 2. Limelight | 5. CDNNetworks | 8. Verizon* | 11. Tulix* |
| 3. Tata | 6. Internap | 9. Ustream* | 12. More to come! |
- *Certified

Specifications

Supported Resolutions – Input and Output

1920 x 1080	720 x 480	480 x 480	qHD
1280 x 720	704 x 480	480 x 320	H.264up
720 x 576	640 x 480	320 x 240	

Also supports any custom resolution not listed here, including computer formats like 1280 x 1024, etc. Note: Lower resolution results in higher transcodes.

Note: Supports PAL TO NTSC conversion but not NTSC to PAL. Note: Supports closed captions.

H.265 output resolutions supported are 1080, 720, 576, 480.

H.265 576/480 resolutions only have 4:3 aspect ratio.

DVB-S/S2 Input

Modulation:	QPSK (DVB-S), 8PSK (DVB-S2), 16APSK (DVB-S2)
Inputs:	4 Inputs – L-Band, K-Band, Ku Band, etc.
Symbol rate:	1 to 45 MS/s
Frequency range:	950 to 2150 MHz, 70 to 1002 MHz
LNB control:	22 kHz, power H/V
Spectral inversion:	ON/OFF/AUTO
Maximum raw throughput:	400 mbps

IP Input

IP Input protocols, “wrappers”:	UDP, RTP, RTSP, HTTP, HTTP Live (HLS), RTMP (pushed from Flash server). Supports NewTek™ NDI® input.
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IP Output

Outputs:	Two 1080i/p streams, or one 1080 i/p and one 720p HD stream, at 6 Mbps; or eight SD streams at 2 Mbps
Audio Output:	AAC, MPEG-1 Layer II, optional MP3, and/or optional “SurCode for Dolby Digital” AC-3
Output “wrappers”:	UDP, RTP, RTMP (Open Flash), HTTP, with DLNA support
Type:	IP-multicast, IP-unicast with “wrappers”
Bit Rates:	Multiple H.264, MPEG-2, and/or optional H.265 video streams at different bit rates (.1 to 15 mbps)
Quality:	8 bit encoding with 4:2:0 color sampling; optional 4:2:2
Video:	NTSC or PAL
Latency:	About 1.2 seconds (fixed)

Administration

Access:	Web interface, SSH (Secure command line interface)
SNMP:	Monitoring and alerts
Scheduling:	On, Off support for timeslots

CPU and Operating System

CPU:	Intel® Xeon® processor
OS:	DVEO embedded Linux® on SSD
Hard Drive:	1 TB (Option)

Physical & Power

Size:	19” Rack mounted, 2 RU high, 13.6 inches deep
Voltage:	90 ~ 264Vac/ 47 ~ 63Hz, 350 Watts
Temperature:	0°C to 50°C (32°F to 122°F)
Non-operating Humidity:	5% to 95% Non-Condensing
Weight:	25 lbs. (11.34 kg)

Conformities:	UL, BSMI, CSA, FCC, CE, RoHS
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Security

Ports security scanned to MIL requirements prior to shipment
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Ad Insertion

SCTE Ad Marker insertion via RS232, USB, IP, Contact closures



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