

# MultiStreamer Sat/IP™ (midi)

Real Time, 2 RU, Quick Starting, Embedded Linux® Based, Remotely Manageable, Encoder, H.264/AVC 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, Embedded Pass-through, Ogg Vorbis, Optional MP3, 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. Ships with HLS Streaming Enabled.



## Features

- Supports both HD and SD H.264/ MPEG-4 AVC encoding with auto detection and “virtual” stream replication
- Input: Four DVB-S or DVB-S2 inputs, one GigE IP input
- Output: Multiple simultaneous IP streams through GigE port (RJ45) via V-DNA™
- Schedulable input – option for time-delayed output
- IP Output protocols: HTTP Live (HLS), HTTP, UDP, RTP, RTSP, multicast and unicast with transport stream envelope, HTTP Smooth, HTTP Dynamic, FTP, RTMP (Open Flash), or WMV9 with HTTP/ASF
- Support for all 3 flavors of segmented streaming: Apple® HTTP live, Windows® HTTP smooth and Flash HTTP dynamic. These streams can be played by Apple® and Android devices as well as Silverlight and Flash Clients.
- Able to upconvert incoming SD streams to HD
- Can serve streams in RTMP protocol for direct playback using Flash players or for publishing to CDNs
- Can output WMV9/WMA streams in Windows® HTTP/ASF envelope for direct playback using Windows® Media Player
- Advanced PID filtering allows easy service selection
- Supports H.264 High Profile @ Level 4.0 (HP@L4)
- Supports 1080i, 1080p, 720i, 720p, 480i, CIF, QCIF, qHD, H.264up and many others, and custom resolutions
- Creates simultaneous High, Medium, and Low bitrate streams
- Built-in SSL VPN client for secure transport of streams across the internet or for traversing complicated networks. The tunnel is based on OpenVPN and it works for both multicast and unicast traffic.
- Audio Output: AAC, Embedded pass-through, Ogg Vorbis, optional MP3, or optional “SurCode for Dolby Digital” AC-3
- Tested compatible with major brands of IP devices including Amino™, Roku®, Atlanta DTH, and Apple iPad® and iPhone®
- Tested compatible with major brands of H.264 decoders
- Supports hundreds of IPTV clients (depends on bandwidth)
- Configure and operate via Remote GUI
- Can be used to store or time-delay incoming stream with optional storage add-on
- SNMP remote management with low power consumption due to Sandy Bridge Intel CPU
- Ships with one HLS streaming enabled – for instant QA of functionality

## Overview

The **MultiStreamer Sat/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 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 MultiStreamer Sat/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. We offer local store and forward as an option. Modifications to video formats are easily created. Remote management and multi level security is built in.

If you do not have a static IP address, to assist you for fast setup we have a preconfigured Cisco router available for \$300.00.

Several rural telephone services use the MultiStreamer Sat/IP to receive satellite feeds and re-transmit them to cable TV via the Internet. The MultiStreamer Sat/IP is also useful for IPTV for hotels, ships, universities, etc.

## Applications

- Streaming satellite TV from remote sites to HTTP, HLS, RTSP, etc. compatible appliances
- Backhaul/Monitoring for Broadcasters
- Military, Corporate Video, Church Services, Special Events

**DVEO**  
Broadcast Division

Computer Modules, Inc.

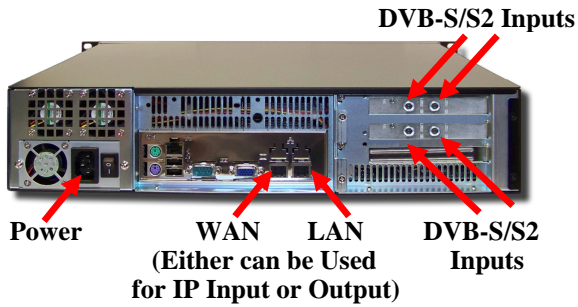
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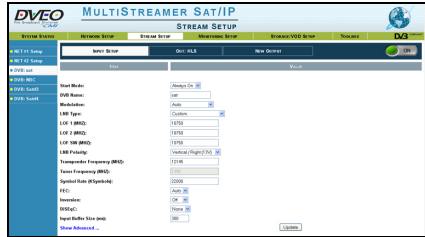
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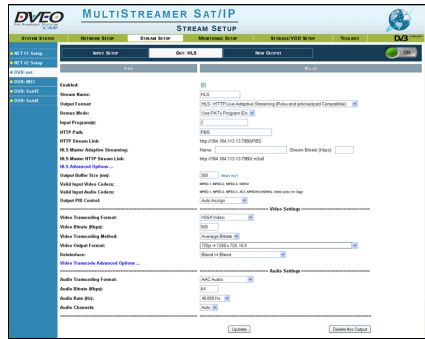
# Inputs/Outputs



# Sample of GUIs



Input Setup



Output Setup

# Ports Utilized

Protocol	TCP Ports	UDP Ports
HTTP	80, 8000, 8001, 8080, 1-65535 (out)	
HTTPS	443	
RTSP	554, 7070	6970-7170, 5004 (out) 5005 (in/out)
RTMP		1935
RTP		6970-6999, 16384-32767

# CDNs Tested With:

1. Akamai
2. Limelight
3. BitGravity
4. Octoshape
5. Highwinds
6. Edgecast
7. More to come!

# Ordering Information

MultiStreamer Sat/IP in 2 RU system  
 MultiStreamer Sat/IP/Delay (Store and Forward) in 2 RU system with real time store and forward (time delay) option  
 MultiStreamer Support – Two hours  
 CSCO – RTR: Optional pre-configured Cisco® 4 port Gigabit router  
 iPad®: Optional 16 MB iPad®

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# 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. Note: Supports closed captions.

## 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:	200 mbps

Note: Performance depends on RF and TS quality. We do not work with all streams.

## IP Input

IP Input protocols, "wrappers":	UDP, RTP, RTSP, HTTP, HTTP Live (HLS), FTP, RTMP (Open Flash), Windows® Media Video 9 with HTTP/ASF
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## IP Output

Outputs:	2 1080i/p or 4 720p HD streams at 6 Mbps or 7 SD streams at 2 Mbps with 4 Core
Audio Output:	AAC, Embedded pass-through, Ogg Vorbis, optional MP3, or optional "SurCode for Dolby Digital" AC-3
Output "wrappers":	UDP, RTP, RTSP, HTTP, HTTP Live (HLS), HTTP Smooth, HTTP Dynamic, FTP, RTMP (Open Flash), Windows® Media Video 9 with HTTP/ASF
Type:	IP-multicast, IP-unicast, IGMP
Bit Rates	Multiple H.264 and/or MPEG-2 video streams at different bit rates (.1 to 15 mbps)

## Administration

Access:	Web interface, ssh interface
SNMP:	Monitoring and alerts

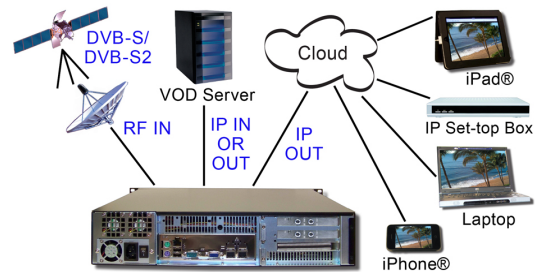
## CPU and Operating System

CPU:	Intel 4 core
OS:	DVEO embedded Linux® in Flash™

## 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
Conformities:	UL, CSA, CE, RoHS
Weight:	25 lbs. (11.34 kg)

# Block Diagram



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