

(((MultiStreamer))) T+T2/ IP™ (mini)

Real Time, 1 RU, Quick Starting, Embedded Linux® Based, Remotely Manageable, DVB-T and DVB-T2 to IP Gateway and Live Multi-Streamer with Multiprotocol and Multiresolution Support. Transcodes Incoming MPEG-2 Digital Video and Audio into H.264 Compressed IP Transport Streams 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 RF 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: One DVB-T/DVB-T2 input, one GigE IP input
- Output: Multiple simultaneous IP streams through GigE port (RJ45)
- 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
- Supports M3u8 playlist files (standalone and through HTTP live)
- 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

Inexpensive high volume hardware platforms combined with highly enhanced open source Linux® based software offer great value to all willing to embrace the future. Furthermore, Intel’s “Sandy Bridge” architecture is highly tuned to encoding and transcoding tasks. We offer high performance streaming solutions that are based on open source libraries. We enhance the libraries by rewriting critical sections to obtain outstanding reliability and throughput.

The **MultiStreamer T+T2/IP™** is a highly affordable 4 core based multi channel RF to IP gateway and H.264 encoder and transcoder designed for capturing DVB-T or DVB-T2 content and streaming this content to iPads, iPhones, content delivery networks, and remote video capture devices.

The MultiStreamer T+T2/IP is designed to be an affordable platform to ingest video from terrestrial broadcast stations, transcode the MPEG-2 to the H.264 standard, and provide for choices for resolutions, protocols, wrappers, and containers. This is easy to do since we are using Linux® and these outputs are well supported by the Linux® environment.

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.

Applications

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



Computer Modules, Inc.

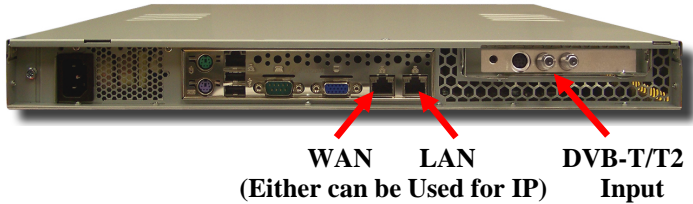
11409 West Bernardo Court

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

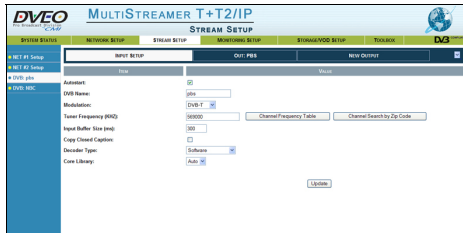
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Inputs/Outputs



WAN LAN DVB-T/T2
(Either can be Used for IP) Input

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 T+T2/IP in 1 RU system
- MultiStreamer T+T2/IP /Delay (Store and Forward) in 1 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 H.264up |
| 1280 x 720 | 704 x 480 | 480 x 320 | |
| 720 x 576 | 640 x 480 | 320 x 240 | |

Also supports any custom resolution not listed here. Note: Supports closed captions.

DVB-T or DVB-T2 Input

| | |
|-------------------------|-----------------------------|
| Modulation | DVB-T or DVB-T2 (one RF in) |
| Inputs | RF from antenna |
| Frequency Range | 54 to 860 MHz |
| 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 |
|---------------------------------|---|

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 protocols, “wrappers”: | UDP, RTP, RTSP, HTTP, HTTP Live, HTTP Smooth, HTTP Dynamic, FTP, RTMP (Open Flash), Windows® Media Video 9 with HTTP/ASF |
| Type: | IP-multicast, IP-unicast, IGMP |
| H.264 bit rates: | Multiple H.264 video streams at different bit rates, resolutions, and protocols, wrappers, and containers |

Administration

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

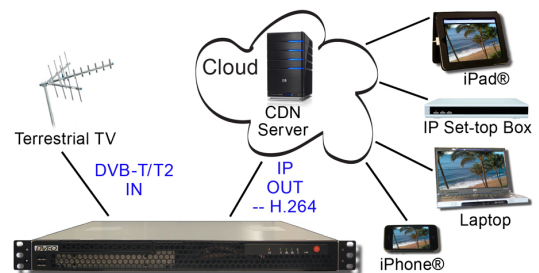
CPU and Operating System

| | |
|------|--------------------------------|
| CPU: | Intel Multicore Xeon 4 Core |
| OS: | DVEO embedded Linux® in Flash™ |

Physical & Power

| | |
|-------------------------|-------------------------------------|
| Size: | 19” rack mounted, 1 RU high |
| Voltage: | 100-240V, 4-2A, 60-50 Hz, 220 watts |
| Operating Temperature: | 10°C to 35°C |
| Non-operating Humidity: | 20% to 90% non-condensing |
| Conformities: | UL, BSMI, CSA, FCC, CE, RoHs |
| Weight: | 15 lbs. |

Block Diagram



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