**Features**

- **Inputs:** Simultaneously receives one to eight DVB-T or DVB-T2 inputs – terrestrial digital
- **Supports multiple PLP**
- **Based on embedded Linux®**
- **IP input (H.264, MPEG-2, or VC-1):** UDP, RTP, RTSP, HTTP, HTTP Live, RTMP (pushed from Flash server)
- **IP output protocols:** UDP, RTP, RTMP (Open Flash), HTTP, with DLNA support
- **Supports HLS (adaptive) and DASH for output to mobile devices**
- **Supports logo insertion, text overlay, and SCTE 35 compliant cue tone insertion ("ad markers") on outputs**
- **Supports rotating key servers like Verimatrix® VCAS™**
- **Supports 1,000+ simultaneous HLS, DASH, and/or RTMP users.** With Optional Atlas™ Add-on, Supports 1,000 RTMP, DASH, Flash® Servers. Supports 50 Simultaneous HLS Users. Optional H.265 Available. Supports 50 HLS users natively. Optional built-in server transcode engine for reliability, efficiency, and flexibility.

**Overview**

The Gearbox™ DVB-T+T2 8 Tuners/IP 52ch is a real time multichannel streamer, integrated RF receiver, and transcoder designed to receive DVB-T or DVB-T2 signals and transform them into streams that are best suited for customers. It is designed to be scalable, easily adaptable, and field upgradeable to meet the needs of cable and IP network operators who are very comfortable with embedded Linux® based appliances. It relies on an Intel® 16 Core CPU as an accelerator. We have also optimized the transcode engine for reliability, efficiency, and flexibility.

The Gearbox DVB-T+T2 8 Tuners/IP 52ch is an MPEG-2 to H.264 transcoder or scaler. It receives multiple DVB-T or DVB-T2 transport streams, transcodes them to H.264 or optional H.265, and outputs them to an IP network. Resulting streams can be viewed with standard transport stream compatible set-top boxes, streaming video, smart phones, or software clients such as VLC or JW Player. The system receives transport streams, demultiplexes the requested services and streams these services using UDP, RTP, RTMP, Adaptive, or HTTP via IP networks as either IP multicast or IP unicast streams. The system transcodes individual streams into H.264 format up to a maximum individual bitrate of 15 Mbps.

The Gearbox DVB-T+T2 8 Tuners/IP 52ch selects all required PIDs and multiplexes the demultiplexed transport stream packets into IP packets. The unit provides PID filtering of all unwanted traffic, increasing system performance and the number of channels which can be transmitted per unit.

Programs typically are forwarded (pushed) as transport stream packets via UDP or as RTP (real-time protocol) payload (RFC 2250). Pushing can be either unicast or multicast. In addition to push, programs can be forwarded on request (pulled) using HTTP, HTTP Live, RTMP, DASH, etc.

**Applications**

- **IPTV Unicasting, Multicasting, Streaming**
- **Telco TV ingest**
- **Hotels, Ships, Universities, Resorts feeds**
- **Streaming to designated VideoLAN VLC or similar clients, or to Roku®, Amino™, or other set-top boxes**
- **Streaming to designated VideoLAN VLC or similar clients, or to Roku®, Amino™, or other set-top boxes**

**Contact Information**

Computer Modules, Inc.
11409 West Bernardo Court
San Diego, CA 92127
Tel: 858-613-1818 Fax: 858-613-1815
www.dveo.com
**Input/Outputs**

**DVB-T/T2 Inputs – 4 per port**

Transcodes up to 52 SD streams, or 20 720p60 streams, or 13 1080i or 1080p HD streams from MPEG-2 to H.264, or vice-versa.

**GUI’s**

**Status Screen**

**IP Output Setup**

**CDNs Tested With:**

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

*Certified

**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-T+T2 8 Tuners/IP 52ch

Other versions available: MF (Multifunction), ASI 2ch/ASI 2ch, ASI 4ch/ASI 4ch, 12 Port ASI/IP, 8VSB 8 Tuners/IP, IP/IP, DVB-S-S2 8 Tuners/IP, DVB-S-S2 8 Tuners+DECR/IP, QAM 8Ch/IP, ISDB-Tb 8 Tuners/IP.

**Specifications**

**Supported Resolutions – Input and Output**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>1920 x 1080</th>
<th>1280 x 720</th>
<th>720 x 576</th>
<th>640 x 480</th>
<th>480 x 380</th>
<th>320 x 240</th>
</tr>
</thead>
<tbody>
<tr>
<td>qHD</td>
<td>720 x 480</td>
<td>704 x 480</td>
<td>640 x 480</td>
<td>480 x 320</td>
<td>320 x 240</td>
<td></td>
</tr>
<tr>
<td>H.264up</td>
<td></td>
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</table>

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

Supports PAL TO NTSC conversion but not NTSC to PAL. Supports closed captioning.

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

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

**DVB-T or DVB-T2 Input**

- Modulation: DVB-T or DVB-T2 (up to 8 inputs) – terrestrial digital
- Inputs: RF from antenna
- Frequency Range: 54 to 860 MHz
- Maximum raw throughput: 200 mbps

**IP Input**


**IP Output**

- Audio Output: AAC, optional MP3, MPEG-1 Layer II, and/or optional “SurCode for Dolby Digital” AC-3
- Ethernet: Two GigE, optional 10 Gige
- Output “wrappers”: UDP, RTP, RTMP (Open Flash), HTTP, with DLNA support
- Type: IP-multicast, IP-unicast with “wrappers”
- Bit Rates: Multiple H.264 video streams at different bit rates (1 to 15 mbps), resolutions, and protocols, wrappers, and containers
- Optional H.265: H.265 average bit rate supported. No constant or variable.
- Quality: 8 bit encoding with 4:2:0 color sampling; optional 4:2:2
- Video: NTSC or PAL
- Encoding Latency: About 1.2 seconds (fixed)
- Optional Multiplexing: Multiplexes transport streams

**CPU and Operating System**

- CPU: Intel® Xeon® 16 Core
- OS: DVEO embedded Linux® on SSD

**Administration**

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

**Physical & Power**

- Size: 3 RU high (W x H x D): 19 x 5.25 x 25.2 inches (48.26 x 13.34 x 64 cm)
- Power Supply: 3U 760W – Redundant
- Temperature Range: Operating: 0°C ~ +50°C on Full Load Storage & Shipping: -20°C ~ +70°C
- Non-operating Humidity: 5% to 95% non-condensing
- Weight: 39 lbs. (17.69 kg)
- Conformities: UL, BSMI, CSA, FCC, CE, RoHS

**Security**

- Ports security scanned to MIL requirements prior to shipment

**Ad Insertion**

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