The **Gearbox™ PB DVB-T+T2 4 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 transcoding engine for reliability, efficiency, and flexibility.

The **Gearbox PB DVB-T+T2 4 Tuners/IP 52ch** is an MPEG-2 to H.264 transcoder or transcoder. 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 PB DVB-T+T2 4 Tuners/IP 52ch** selects all required PID's and demultiplexes 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

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**Features**

- **Inputs:** Simultaneously receives one to four 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® VCASTM**
- **Performs AES-128 encryption**
- **Supports 50 HLS users natively. Optional built-in server supports 1,000+ simultaneous HLS, DASH, and/or RTMP users.**
- **Supports NTSC or PAL**
- **Transcoding bit rates:** .1 to 15 Mbps
- **Creates simultaneous High, Medium, and Low bitrate streams**
- **Supports 1080i, 1080p, 720p, 576i, 480i, and 480p and any other broadcast or video format**
- **Simultaneous demodulation, transcoding, encapsulation, optional time delay, and optional multiplexing**
- **Transcodes up to 20 720p60 HD streams, or 13 1080p HD streams, or 52 SD streams from MPEG-2 to H.264, or vice-versa**
- **Optional H.265 transcodes are up to 5 720p HD streams, or 3 1080i HD streams, or 20 SD streams from MPEG-2 or H.264 to H.265, or vice-versa**
- **SNMP, REST, SOAP support for remote management and monitoring**
- **Support for Variable Bit Rate (VBR) encoding maximizes adaptive streaming video quality and bandwidth efficiency**
- **Tested to work with Atlas™, Wowza®, and Adobe® Flash® media servers**
- **Tested to work with Akamai, Tulix, Verizon, etc. CDN's**
- **Tested compatible with major brands of IP devices including Amino™, Roku®, Telygo, Android™, and Apple iPad® and iPhone®**
- **Tested compatible with major brands of professional H.265, H.264, and MPEG-2 decoders and video servers**
- **Audio support:** AAC, optional MP3, MPEG-1 Layer II, and/or optional “SurCode for Dolby Digital” AC-3
- **Settings are remembered when power cycled**
- **Remote GUI includes some scheduling**
- **Optional redundant power supply**
**Input/Outputs**

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.

**Specifications**

**Supported Resolutions – Input and Output**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>GPU-1080</th>
<th>GPU-720</th>
<th>GPU-576</th>
<th>GPU-320</th>
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Also supports any custom resolution not listed here, including computer formats like 1280 x 1024, etc. Note: Lower resolution results in higher transcodes.

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

- **Modulation:** DVB-T or DVB-T2 (4 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 “SurfCode for Dolby Digital” AC-3
- **Ethernet:** Two 10 GigE Base-T ports
- **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 and Power**

- **Size:** 1.7” h x 17.2” w x 25.6”d (43 x 437 x 650 mm)
- **Power Supply:** Single 600W power supply with PMBus
- **Voltage:** 100-240Vac, 50-60 Hz, 6.1-2.6A, 500 watts
- **Operating Temperature:** 10° to 35° C (50° to 95°F)
- **Non-Operating Temperature:** -40° to 60° C (-40° to 140°F)
- **Operating Humidity:** 8% to 90% (non-condensing)
- **Non-Operating Humidity:** 5% to 95% (non-condensing)
- **Fans:** 5 Counter-rotation 40x56 mm PWM fans
- **Weight:** 24 lbs (10.89 kg)
- **Conformities:** UL, CSA, CE, RoHS

**Security**

- **Ports security scanned to MIL requirements prior to shipment**

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**Input/Outputs**

**DVB-T/T2 Inputs – 4 per port**

**Management**

(Either can be used for IP Input or Output)

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**GUI’s**

**CDNs Tested With:**

2. Limelight 5. CDNetworks 8. Verizon* 11. Tulix*

*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 PB DVB-T+T2 4 Tuners/IP 52ch