The Gearbox™ IP/IP is a real time multichannel streamer and transcoder designed to receive IP transport streams 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 to get reliable operation.

The Gearbox IP/IP is an MPEG-2 to H.264 transcoder or transcoder. It receives multiple IP 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 bit rate of 15 Mbps.

Gearbox IP/IP 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, Cruise Lines, Universities, Resorts feeds
- Streaming to designated VideoLAN VLC or similar clients, or to Roku®, Amino™, or other set-top boxes
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

- 1920 x 1080
- 1280 x 720
- 720 x 576
- 640 x 480
- 480 x 480
- qHD
- H.264up

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

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

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

Input

- IP In or Out
- PS 1
- PS 2

Input protocols:
- UDP
- RTP
- RTSP
- HTTP
- HTTP Live
- RTMP (pushed from Flash server)

Supports NewTek™ NDI® 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
- 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 & Operating System

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

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

Ordering Information

Gearbox IP/IP

Other versions available: MF (Multifunction), ASI 2ch/ASI 2ch, ASI 4ch/ASI 4ch, 12 Port ASI/IP, 8VSB 8 Tuners/IP, DVB-S-S2 8 Tuners/IP, DVB-S-S2 8 Tuners+DECR/IP, DVB-S-S2 4 Tuners/IP, DVB-T+T2 8 Tuners/IP, QAM 8Ch/IP, ISDB-Tb 8 Tuners/IP

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!

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

GUI’s

Status Screen

IP Output Setup

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