Transcoder and or Streamer (up to 1080p/i), with Ability to Transcode Xeon® CPU Based Real Time, Multi Definition, Multichannel IP Telco Quality, Highly Reliable, 1 RU, 19 Inch Wide, 2 x 16 Core Intel® Brutus III IP/IP: TELCO

104 SD Streams from MPEG-2 to H.264 or H.264 to MPEG-2. With Embedded Linux®, It Boots Quickly from Flash Drive and Remembers all Settings. Easy to Use GUI Allows Full Config of Each Stream and via SNMP. Can Report its Status to Remote Network Operations. Typical Real Time Transcodes Benchmarks Include 104 SD Streams, or 40 Each 720p Streams, or 26 Each 1080p/i Streams. Ships with 2 Onboard Gigabit Ethernet Ports. Supports Flash, HLS, RTMP, HTTP, and Live Streaming and Works Well with Atlas™, Wowza®, and Adobe® Flash® Servers. It is an MPEG-2 to H.264, or H.264 to MPEG-2 transcoder or scaler. It receives transport streams several ways and transcodes them to MPEG-2 or 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 Brutus III IP/IP: TELCO receives transport streams, demultiplexes the requested channels and streams these channels 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 or MPEG-2 format up to a maximum individual bitrate of 15 Mbps.

The Brutus™ III IP/IP: TELCO is an real time multichannel streamer that is able to transcode streams into bit rates and protocols that are best suited for the targeted viewing devices. It is designed to be scalable, easily adaptable, customizable, and field upgradeable to meet the needs of broadband network operators who are now more than comfortable with embedded Linux® based appliances. It relies on a 2 x 16 Core Intel® Xeon® CPU for acceleration. We have also optimized the transcode engine to get the best possible efficiency from each core.

The Brutus III IP/IP: TELCO selects all required PIDs and multiplexes the demultiplexed transport stream packets into IP packets.

Depending on the configuration, it forwards selected programs via IP datacasting; PAT, PMT, video PID, audio PID(s) and PCR information are transmitted. The Brutus III IP/IP: TELCO supports the most widely used transport protocols that are best suited for the targeted viewing devices. It is a real time multichannel streamer that is able to transcode streams into bit rates and protocols that are best suited for the targeted viewing devices. It is designed to be scalable, easily adaptable, customizable, and field upgradeable to meet the needs of broadband network operators who are now more than comfortable with embedded Linux® based appliances. It relies on a 2 x 16 Core Intel® Xeon® CPU for acceleration. We have also optimized the transcode engine to get the best possible efficiency from each core.

The Brutus™ III IP/IP: TELCO is an MPEG-2 to H.264, or H.264 to MPEG-2 transcoder or scaler. It receives transport streams several ways and transcodes them to MPEG-2 or 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 Brutus III IP/IP: TELCO receives transport streams, demultiplexes the requested channels and streams these channels 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 or MPEG-2 format up to a maximum individual bitrate of 15 Mbps.

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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.

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Applications

- Small To Mid Size Headends for Multiple System Operators
- IPTV Grooming for differentiated services at different rates
- Grooming for OTT and Mobile
- Digital Turnaround for SD and HD combined services
- Perfect for Resizing and Reformatting IP camera inputs arriving via RTSP push
- Telco Grooming for 3G and 4G with 3GPP
- Adapting MPEG-2 streams to H.264 for Hotels, Cruise Lines, Universities, Resorts
- Ideal for Cloud based Encoding Farms
- Digital Media Distribution of content in right formats
- Adaptive Multirate Cloud Transcoding
- Will work with audio IP streams for digital music services

Inputs/Outputs

- PS 1     PS 2            WAN      LAN
- (Two 10 GigE Ports – Either can be used for IP Input or Output)

Reliability Points

- No hard drives
- Lots of spare fans
- Remote MIBS
- Server Class MB
- Quick swap redundant power supply
- Boots up in 40 seconds
- Supermicro IPMI management

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

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### Benchmark Input and Output

**IP Input**
- **Input protocols:** HTTP Live (HLS), UDP, RTP, RTSP, HTTP, RTMP (pushed from Flash server).
- Supports NewTek™ NDI® input.

**IP Output**
- **Ethernet:** Two 10 GigE ports
- **Output protocols:** UDP, RTP, RTMP (Open Flash), HTTP, with DLNA support
- **Type:** IP-multicast, IP-unicast
- **Video:** NTSC or PAL
- **Latency:** 1.2 seconds (fixed)

### Benchmarks – Optional H.265

**MPEG-2 In**
- SD in at 4 Mbps, 480i
- 720p inputs at 12 Mbps
- 1080i/p inputs at 15 Mbps

**H.264 In**
- SD in at 6 Mbps, 480i
- 720p in at 12 Mbps
- 1080i/p in at 15 Mbps

**MPEG-2 Out**
- SD out at 2 Mbps, 480i – Up to 104 streams
- 720p outputs at 4 Mbps – Up to 40 streams
- 1080i/p outputs at 6 Mbps – Up to 26 streams

**H.264 Out**
- SD out at 6 Mbps, 480i – Up to 104 streams
- 720p at 12 Mbps – Up to 40 streams
- 1 1080i/p at 15 Mbps – Up to 26 streams

### Specifications

**Some Supported Resolutions – Input and Output**

<table>
<thead>
<tr>
<th>Input/Output</th>
<th>1920 x 1080</th>
<th>1280 x 720</th>
<th>720 x 576</th>
<th>480 x 480</th>
<th>480 x 320</th>
<th>320 x 240</th>
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</thead>
<tbody>
<tr>
<td>SD in</td>
<td>720 x 480</td>
<td>704 x 480</td>
<td>640 x 480</td>
<td>480 x 480</td>
<td>320 x 240</td>
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<td>720p</td>
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<tr>
<td>1080i/p</td>
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<tr>
<td>SD out</td>
<td>1080 x 720</td>
<td>720 x 480</td>
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</table>

H.264 output resolutions supported are 1080, 720, 576, 480.
H.265 576/480 resolutions only have 4:3 aspect ratio.

### Output Bit Rates

- **Bit Rates:** Multiple H.264, MPEG-2, and/or optional H.265 video streams at different bit rates (.1 to 15 mbps)
- **Quality:** 8 bit encoding with 4:2:0 color sampling; optional 4:2:2

### Options

- Optional transcoding to H.265
- DVEO SILVER or GOLD CARE™ – Extended Warranty with Priority Tech Support
- Optional DOZER™ Automated UDP Packet Recovery protocol, enabling error-free video delivery over UDP.
- 4:2:2 10 bit encoding
- Fiber Optic Interface with SFP interfaces
- Optional built-in “Mini Atlas” server supports 1,000+ simultaneous HLS, DASH, and/or RTMP users
- "Cloud" version available

### Ordering Information

Brutus III IP/IP: TELCO
- Tech Support – One year support and updates, included
  - Option 1: H.265 Transcoding
  - Option 2: DVEO GOLD CARE™
  - Option 3: DOZER™ Automated UDP Packet Recovery
  - Option 4: 4:2:2 10 bit encoding
  - Option 5: SPF Fiber Interfaces
  - Option 6: Built-in “Mini Atlas” server

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