

(((MultiStreamer))) IP/IP (Brutus)TM

Broadcast Quality, Highly Reliable Multichannel, Real Time, Multi Definition, IP Transcoder and or Streamer (up to 1080p/i), and MPEG-2 to H.264 or H.264 to MPEG-2 that Operates Simultaneously on Different Streams. Based on 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. Will Transcode and Process Multiple Streams up to CPU Limitations. Typical Dedicated Transcodes are up to 200 SD Streams, 120 720p Streams, and 60 1080p/i Streams. Supports RTMP, HTTP, Smooth, Live, and Dynamic Streaming and Works with Wowza®, Adobe® Flash® and RealNetworks® Servers. A Single Blade System will Allow You to Transcode Six HD (1080i/p) Streams.

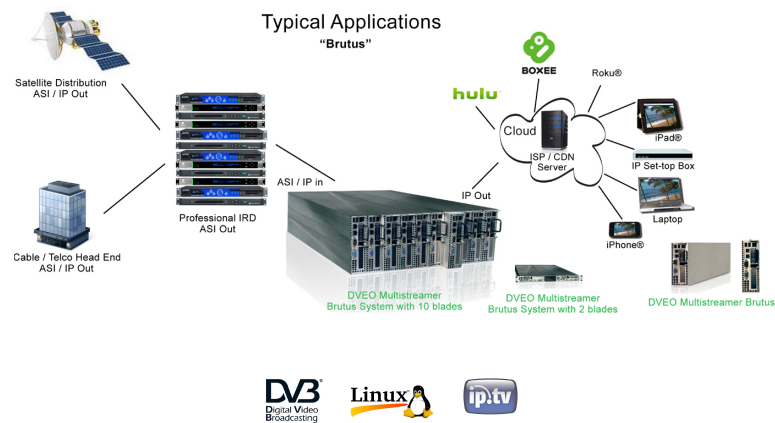
Features

- Input or output format can be MPEG-2 or H.264 or a mixture of both
- Can sit in the cloud as a Cloud Encoder
- Supports HTTP adaptive Smooth, Live, and Dynamic Flash streaming protocol for output to mobile devices
- Capable of near real time FTP output of segmented TS streams with I-Frame boundaries
- Input: IP (H.264, MPEG-2, or VC-1)
 - Optional inputs: DVB-ASI, DVB-S/S2, QAM, DVB-C, 8VSB, DVB-T, SDI/HD-SDI
- Output: IP (MPEG-2, H.264, HLS, UDP, RTMP, and others)
- Supports M3u8 playlist files (standalone and through HTTP live)
- Transcoding bit rates: .1 to 15 Mbps
- Resolutions: qHD, H.264up, SQVGA, QVGA, SIF, VGA, or any custom size up to 1080i/p
- Transcodes up to 12 720p HD streams, 6 1080i/p HD streams, or 20 SD streams from MPEG-2 to H.264 or vice-versa in each module
- Creates simultaneous High, Medium, and Low bitrate streams
- Able to upconvert incoming SD streams to HD
- SNMP support
- Tested to work with Wowza®, Adobe® Flash®, and RealNetworks® Helix® servers
- Tested compatible with major brands of IP devices including Amino™, Roku®, Atlanta DTH, and Apple iPad® and iPhone®
- Audio support: AAC, Embedded pass-through, Ogg Vorbis, optional MP3, or optional "SurCode for Dolby Digital" AC-3
- Settings are remembered when power cycled
- Based on embedded Linux® (via flashdisk)

Note: This system is typically deployed in "closed" systems where bandwidth is dedicated and is used for this purpose only. It is not guaranteed to work over the public internet. Performance depends on available bandwidth.

Applications

- IPTV Unicasting, Multicasting, Streaming
- Telco TV
- Rendering and Encoding Farms
- Digital Media Distribution



Overview

The MultiStreamer IP/IP (Brutus)TM is a real time multichannel streamer that is able to transcode streams that are best suited for customers. 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 Dual Intel 6 Core CPU as an accelerator. We have also optimized the transcode engine to get reliable operation.

The MultiStreamer IP/IP (Brutus) 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, and outputs them to an IP network. Resulting streams can be viewed with standard IP capable set-top boxes, streaming video, smart phones, or software clients such as VLC or MPlayer. The MultiStreamer IP/IP (Brutus) receives transport streams, demultiplexes the requested channels and streams these channels using UDP, RTP, RTSP, 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, and MPEG-2 streams up to a maximum of 15 Mbps.

Depending on the configuration, it forwards selected programs via IP datacasting; PAT, PMT, video PID, audio PID(s) and PCR information are transmitted. The MultiStreamer IP/IP (Brutus) 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 RTSP, HTTP, HTTP Live, HTTP Smooth, RTMP, or HTTP Dynamic.

The MultiStreamer IP/IP (Brutus) is a very powerful multi-channel transcoder designed for large scale enterprise level deployments.

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IP Input and Output

IP Input

Input protocols:	HTTP Live (HLS), UDP, RTP, RTSP, HTTP, FTP, RTMP (Open Flash), Windows® Media Video 9 with HTTP/ASF
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IP Output

Ethernet:	Up to 2 x 1 GigE
Output protocols:	HTTP Live (HLS), UDP, RTP, RTSP, HTTP, HTTP Smooth, HTTP Dynamic, FTP, RTMP (Open Flash), Windows® Media Video 9 with HTTP/ASF
Type:	IP-multicast, IP-unicast, IGMP

Benchmarks – Per Blade

MPEG-2 In	H.264 Out
SD in at 6 Mbps 480i	SD out at 2 Mbps 480i – Up to 20 streams
720p inputs at 12 Mbps 720p	720p outputs at 4 Mbps 720p – Up to 12 streams
1080i inputs at 15 Mbps 1080i	1080 Outputs 6 Mbps 1080i – Up to 6 streams
1080p	1080p – Up to 6 Streams
H.264 In	MPEG-2 Out
SD input 480i in at 6 Mbps	SD MPEG-2 out at 6 Mbps Up to 20 streams
HD inputs 720p in at 12 Mbps	HD outputs 720p at 12 Mbps – Up to 12 streams
1080i in at 15 Mbps	1080i at 15 Mbps – Up to 6 streams
1080p in at 15 Mbps	1080p at 15 Mbps – Up to 6 streams

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 IP/IP (Brutus): IP-IP
- MultiStreamer IP/IP (Brutus)/10 channel system with 10 modules
- MultiStreamer ASI/IP (Brutus): IP/ASI
- MultiStreamer DIG/IP (Brutus): SDI/IP
- 4 RU Chassis Brutus Enclosure (Holds 10 Blades)
- 1 RU Chassis Brutus Enclosure (Holds 2 Blades)
- MultiStreamer Support – Two hours

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Specifications

Supported Resolutions – Input and Output

1920 x 1080	720 x 480	480 x 480	qHD
1280 x 720	704 x 480	480 x 320	H.264up
720 x 576	640 x 480	320 x 240	

Also supports any custom resolution not listed here.

Note: Lower resolution results in higher transcodes.

Note: Supports closed captions.

Optional SDI, HD-SDI Input – Per Blade

Input:	Single SDI (SMPTE 279M), HD-SDI (SMPTE 292M) stream
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Optional DVB-ASI Input – Per Blade

Input/Output:	Up to 20 DVB-ASI streams, 200 Mbps per port
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Output Bit Rates

Bit Rates:	Multiple H.264 and/or MPEG-2 video streams at different bit rates (.1 to 15 mbps)
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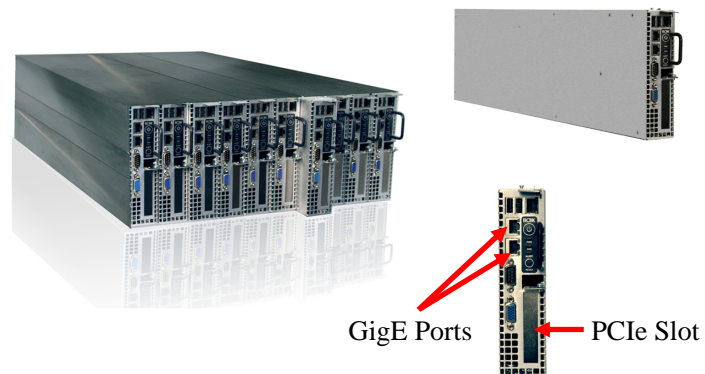
Administration

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

Physical & Power

Size:	7.0" h x 1.7" w x 29.1 d" (178 x 43 x 739 mm)
Voltage:	400 Watt Power Supply (80 Plus Rated)
Temperature:	0°C to 50°C
Humidity:	5% to 95% non-condensing
Conformities:	UL, CSA, CE, RoHS
Weight:	15 lbs.
Warranty:	3 years

Product Views



GigE Ports PCIe Slot



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