Features

- Next generation version of our popular MultiStreamer™ encoder, with up to four 1080p streams out
- Inputs: 1, 2, or 4 SDI or HD-SDI inputs, and GigE IP port
- Supports NewTek™ NDI® input
- Optional two HDMI inputs instead of SDI/HD-SDI inputs
- Now includes stream archiving (400 GB)
- Outputs: Multiple simultaneous IP streams through GigE port (RJ45), SDI or HD-SDI video loop through
- IP output protocols: UDP, RTP, HTTP, HTTP Live (HLS), RTMP (Open Flash)
- Certified by Akamai®
- Supports HLS (adaptive) for output to mobile devices and MPEG-DASH
- Supports logo insertion, text overlay, and SCTE 35 compliant cue tone insertion (“ad markers”) on outputs
- Able to upconvert incoming SD streams to HD, and scale down
- Tested with leading CDNs (Verizon®, Akamai®, Tulix™, Ustream®, etc.)
- Supports Octoshape™ and Verizon® upLynk natively
- Supports H.264 High Profile @ Level 4.0 (HP@L4)
- Supports 1080i, 1080p, 720p, 576i, 480i, 480p, CIF, QCIF, qHD, H.264up and many others, and custom resolutions
- Supports 50 HLS users natively. Optional built-in server supports 1,000+ simultaneous HLS, DASH, and/or RTMP users.
- Expects embedded SDI audio
- Audio Output: AAC, MPEG-1 Layer II, optional MP3, and/or optional “SurCode for Dolby Digital” AC-3
- 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 compatible with major brands of IP devices including Amino™, Roku®, Telergy, Android™, and Apple iPad® and iPhone®
- Tested compatible with major brands of professional H.265, H.264, and MPEG-2 decoders and video servers
- Remote GUI includes some scheduling
- SNMP, REST or SOAP remote management
- Redundant (dual) power supplies

Real time, highly reliable, 1 RU, quick starting, standards compliant, embedded Linux® based, remotely manageable, one to four channel SD or HD (SDI), H.264/AVC or optional H.265/HEVC TS Encoder. Incorporates a "minimal" Linux® kernel (residing on an SSD) yielding a highly reliable encoder.

Supports most industry standard "protocols" like UDP or RTP with unicast or multicast, and “Wrappers” such as HLS, RTMP, DASH, etc. Audio output is AAC, MPEG-1 Layer II, optional MP3, and/or optional “SurCode for Dolby Digital” AC-3. Supports closed captioning and teletext with overlay.

Encodes both streams with multiple resolutions at .1 to 15 Mbps at popular GOP sizes, frame rates, refresh rates, or aspect ratios. Simultaneously creates high, medium, and low bitrate ABR streams to hand off to your content delivery networks (CDNs) with required authentication, for "One to Many" distribution. Software is scanned for vulnerabilities and open ports. Supports 50 simultaneous HLS users. With optional ATLAS™ add-on, supports 1,000 RTMP, DASH, and/or HLS users natively.

Applications

- 24x7 Unattended Streaming to CDN’s and Media Servers
- Streaming video to CDNs and web sites like Ustream®, Akamai®, Octoshape™, Verizon®, etc.
- Backhaul/Monitoring for Broadcasters
- DLNA output to smart TV’s
- Military, Corporate Video, Religious Services, Special Events
- Origin Encoder for Grooming Servers
- Event streaming via ISPs or CDNs
- Event streaming with optional 1,000+ users server

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Overview

The MultiStreamer DIG/IP 1-4ch: TELCO is the latest version of our flagship cost effective origin encoder. The original MultiStreamer has been in production for five years and we have shipped over 2,500 units. It is designed as a general purpose workhorse, able to stream several simultaneous streams at different resolutions with any streaming protocols.

The MultiStreamer DIG/IP 1-4ch: TELCO is designed for mission critical applications and features dual power supplies.

Inexpensive high volume hardware platforms combined with highly enhanced open source Linux® based software offer great value to all willing to embrace the future. We offer high performance streaming solutions that are based on open source libraries. We enhance the libraries by rewriting critical sections to obtain outstanding reliability and throughput.

This unit is designed to be affordable, scalable, and extendable. Modifications to video formats are easily created. Remote management and multi level security is built in. Recent options include 4:2:2 with 10 bit color space support.

Inputs and Outputs

Dual Power Supplies  LAN  WAN
(Either can be Used for IP)  SDI/HD-SDI Inputs (2 per port)
### Ports Utilized

<table>
<thead>
<tr>
<th>Protocol</th>
<th>TCP Ports</th>
<th>UDP Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP</td>
<td>80, 8000, 8001, 8080, 1-65535 (out)</td>
<td></td>
</tr>
<tr>
<td>HTTPS</td>
<td>443</td>
<td></td>
</tr>
<tr>
<td>RTSP</td>
<td>554, 7070</td>
<td>6970-7170, 5005</td>
</tr>
<tr>
<td>RTMP</td>
<td></td>
<td>1935</td>
</tr>
<tr>
<td>RTP</td>
<td></td>
<td>6970-6999, 16384-32767</td>
</tr>
</tbody>
</table>

### Supported Resolutions

#### Supported Resolutions – Input and Output

<table>
<thead>
<tr>
<th>Supported Resolutions – Input and Output</th>
<th>1920 x 1080</th>
<th>1280 x 720</th>
<th>720 x 576</th>
<th>qHD</th>
<th>H.264up</th>
</tr>
</thead>
<tbody>
<tr>
<td>720 x 480</td>
<td>480 x 480</td>
<td>480 x 320</td>
<td>320 x 240</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Also supports any custom resolution not listed here.

Note: Does not support 608 closed captioning for SDI input. Only 708 is supported.

Note: Does not support closed captioning for HDMI inputs.

Note: Supports PAL TO NTSC conversion but not NTSC to PAL.

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

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

### 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
- Two HDMI inputs: Available as an option instead of four SDI/HD-SDI inputs
- Optional built-in “Mini ATLAS” server supports 1,000+ simultaneous HLS, DASH, and/or RTMP users
- 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.

### Specifications

#### Inputs

- Video – SDI/HD-SDI: 1, 2, or 4 SDI or HD-SDI inputs
- Optional two HDMI inputs instead of SDI/HD-SDI inputs
- Video – IP: H.264, MPEG-2, VC-1, or optional H.265.
- Supports NewTek™ NDI® input.
- IP Input protocols: UDP, RTP, RTSP, HTTP, HTTP Live (HLS), RTMP (pushed from Flash server)
- Audio: SDI Embedded with two channels

#### SDI or HD-SDI Output

- Video Output: SDI or HD-SDI loop through for input monitoring

#### IP Output

- Outputs: MPEG-2/H.264: Four 1080i/p streams, or one 1080i/p and one 720p HD stream, at 6 Mbps; or six 720p60 HD streams at 4 Mbps, or eight SD streams at 2 Mbps.
- Optional H.265: One 1080i/p stream, or two 720p60 HD streams, or six SD streams at average bit rates
- Audio Output: AAC, MPEG-1 Layer II, optional MP3, and/or optional “SurCode for Dolby Digital” AC-3, 4 audio pairs
- 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: AAC, MPEG-2, H.264, H.265
- Encoding Latency: HD-SDI or SDI input: 1.2 seconds (fixed)

#### Administration

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

#### CPU and Operating System

- CPU: Single 16 Core Xeon®
- OS: DVEO embedded Linux® on SSD
- Hard Drive: .5 TB SSD Default

#### Physical & Power

- Size – 1 RU high: 17.2 x 25.6 x 1.7 inches (W x D x H)
- 437 x 25.6 x 43 mm (W x D x H)
- Power Supply: 500W redundant power supplies with PMBus
- Voltage: 100-240Vac, 50-60 Hz, 6.1-2.6A, 500 watts
- Operating Temp.: 10° to 35° C (50° to 95°F)
- Non-Operating Temp.: -40° to 60° C (-40° to 140° F)
- Operating Humidity: 20% to 90% (non-condensing)
- Non-operating Humidity: 8% to 90% (non-condensing)
- Fans: 5 Counter-rotation 46x56 mm PWM fans
- Weight: 24 lbs (10.89 kg)
- Conformities: UL, CSA, 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

- MultiStreamer DIG/IP 1-4ch: TELCO in 1 RU system
- MultiStreamer HDMI/IP 1-2ch: TELCO – HDMI In, 1 RU system
- Gearbox II 2-16 Port HD-SDI/IP – 16 inputs, 3 RU

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