**Features**

- Thousands in use worldwide
- Inputs: One HDMI input, one GigE IP input
- Supports NewTek™ NDI® input
- Optional SDI/HD-SDI input instead of HDMI input
- Optional stream archiving
- Outputs: Multiple simultaneous IP streams through GigE port (RJ45), HDMI 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
- Web GUI is manageable from anywhere – includes some scheduling
- 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.
- 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
- SNMP, REST, SOAP support for remote management and monitoring
- Relies on Intel® Xeon® processor

**Applications**

- Digital Signage from computer with HDMI out
- Streaming video to CDNs and web sites like Ustream®, Akamai®, Octoshape™, Verizon®, etc.
- Live streaming at Religious Services, Festivals, Fairs, Lectures, Weddings, Funerals, etc.
- Occasional Live streaming by Broadcasters
- Backhaul/Monitoring for Broadcasters
- Digital News Gathering
- Law Enforcement (surveillance, etc.)
- Centralcast
- Telemedicine
- On Line learning

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Real time, professional grade, 1 RU, quick starting, standards compliant, embedded Linux® based, remotely manageable, SD or HD (SDI), H.264/AVC or optional H.265 TS Encoder relying on a HDMI input card. Incorporates a "minimal" Linux® kernel (residing on an SSD) yielding a highly reliable encoder manageable from anywhere via web GUI.

Supports most industry standard "protocols" like UDP or RTP with unicast or multicast, and “Wrappers” such as HLS, RTMP, 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 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.
Overview

The MultiStreamer™ is a family member of our flagship cost effective origin encoders. This family 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.

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.

Inputs and Outputs

Sample of GUls

Status Screen

Scheduled IP Input Setup

IP Output Setup

Computer Modules, Inc.
11409 West Bernardo Court
San Diego, CA 92127
Tel: 858-613-1818  Fax: 858-613-1815
www.dveo.com
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 (Input only)</td>
<td>554, 7070</td>
<td>6970-7170, 5005</td>
</tr>
<tr>
<td>RTMP</td>
<td>1935</td>
<td></td>
</tr>
<tr>
<td>RTP</td>
<td>6970-6999, 16384-32767</td>
<td></td>
</tr>
</tbody>
</table>

Supported Resolutions

**Supported Resolutions – Input and Output**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>HDMI</th>
<th>SDI/HD-SDI</th>
<th>Dolby</th>
<th>608</th>
<th>PAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920 x 1080</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1280 x 720</td>
<td>720 x 480</td>
<td>704 x 480</td>
<td>480 x 320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>720 x 576</td>
<td>640 x 480</td>
<td>320 x 240</td>
<td>H.264up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>720 x 480</td>
<td>640 x 480</td>
<td>320 x 240</td>
<td>H.264up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>640 x 480</td>
<td>320 x 240</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>320 x 240</td>
<td>160 x 90</td>
<td></td>
<td></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 supported 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. CDNnetworks
6. Internap
7. Highwinds
8. Ustream*
9. Mirror Image
10. Mirror Image
11. Tulix*
12. More to come!

*Certified

Options

- Optional transcoding to H.265
- SDI/HD-SDI input: Available as an option instead of HDMI input
- Archiving option: One terabyte of local storage (1 TB)
- 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 – HDMI: One HDMI input
  - Optional single SDI/HD-SDI input instead of HDMI
- 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: HDMI Embedded
- CC/Teletext: Supports closed captioning and Teletext with overlay

**HDMI Output**

- Video Output: HDMI loop through for input monitoring

**IP Output**

- Outputs: One 1080i/p stream at 6 Mbps; or one 720p60 HD stream at 4 Mbps; or 3 480 streams at 2 Mbps, or one HD and one SD stream at 6 Mbps
- Audio Output: AAC, MPEG-1 Layer II, optional MP3, and/or optional “SurCode for Dolby Digital” AC-3
- Output “wrappers”: UDP, RTP, HTTP, HTTP Live (HLS), RTMP (Open Flash)
- Bit Rates: Multiple H.264 video streams at different bit rates (.1 to 15 mbps), resolutions, and protocols, wrappers, and containers
- Quality: 8 bit encoding with 4:2:0 color sampling
- Video: NTSC or PAL
- Encoding Latency: 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: Intel® Xeon® processor
- OS: DVEO embedded Linux® on SSD
- Hard Drive: 1 TB (Option)

**Physical & Power**

- Size – 1 RU high: 19 x 14.96 x 1.7 inches (W x D x H)
- Voltage: 100-240V, 4-2A, 60-50 Hz, 220 watts
- Operating Temp.: 10°C to 35°C
- Non-operating Humidity: 20% to 90% non-condensing
- Weight: 15 lbs. (6.8 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

MultiStreamer HDMI/IP in 1 RU system
MultiStreamer DIG/IP – HD-SDI In/IP Out, 1 RU system