

Release 3.28 highlights:

- Support of new Matrox 10.4 drivers  
Brio 3.28 is now fully compatible with Matrox 10.4 and 10.3.102.798 drivers.
- NMOS BRIO presentation as single device  
A different presentation of the BRIO through the NMOS protocol to show it as a single device and group all channels (senders and receivers).
- Support of MPEG-DASH base profile  
A new parameter for the MPEG-DASH proxy configuration to support base profile for better performance in web-based environment.
- Improved PTP monitor in Brio Web Portal  
Enhanced PTP information are displayed in GUI, like PTP lock state of the card and telemetry information on individual SFP+ ports.

From previous recent releases:

- Ingest & Playout of multiple 2110-30 audio streams
- Stop Proxy if High Quality fails
- Support of DSXLE family cards
- Support of MPEG-Dash with 8 audio tracks stereo
- Support of NDI V5
- MP4 as HiRes ingest format
- Java8 to OpenJDK 11 migration
- Support of Matrox XMIO5\8\550 cards and Matrox 10.3 SP1 drivers

Configuration

Reconfigurable models with frame synchronizers on inputs and UHD support	On-board Storage Configurations
<p><b>SDI</b></p> <ul style="list-style-type: none"> <li>• Brio 4 – 4 reconfigurable i/o multi-rate SD/HD/3G/12G SDI</li> <li>• Brio 6 – 6 reconfigurable i/o multi-rate SD/HD/3G/12G SDI (software upgrade to 8 and 12)</li> <li>• Brio 8 – 8 reconfigurable i/o multi-rate SD/HD/3G/12G SDI (software upgrade to 12)</li> <li>• Brio 12 – 12 reconfigurable i/o multi-rate SD/HD/3G SDI</li> </ul> <p><b>IP</b></p> <ul style="list-style-type: none"> <li>• 8in/8out IP high density for SMPTE ST-2110 (HD/FullHD/QFHD) only</li> <li>• 4in/4out IP high density for SMPTE ST-2110 (HD/FullHD/QFHD) only</li> <li>• Brio IP Flex – Flexible and multi-rate SD/HD/3G with SMPTE-2022-2 and Newtek NDI connectivity</li> </ul>	<ul style="list-style-type: none"> <li>• 3.2TB - 133 hours @50Mb/s</li> <li>• 6.6TB - 266 hours @50Mb/s</li> <li>• 9.8TB - 400 hours @50Mb/s</li> <li>• 13TB - 530 hours @50Mb/s</li> <li>• 19.6TB - 800 hours @50Mb/s</li> </ul> <p>Additional local/shared storage available upon request.</p>

Codec/Wrapper

Wrappers	HD (720p50/59.94, 1080i50/59.94, 1080psf23.98, 1080p23.98, 1080p50/59.94)
<ul style="list-style-type: none"> <li>• MXF Op1a, MXF Op Atom</li> <li>• QuickTime Reference, QuickTime Self-Contained</li> <li>• MP4, AVI, MPG, WMV</li> </ul>	<ul style="list-style-type: none"> <li>• DVCProHD</li> <li>• XDCAM HD - 4:2:0 (18-25-35 Mb/s) - 4:2:2 (50 Mb/s)</li> <li>• Avid DNxHD® 120/145 (8-bit), 185/220 (8-bit), 185x/220x (10-bit)</li> <li>• Apple ProRes 422LT-422-422HQ</li> <li>• AVC-Intra Class 50/100</li> <li>• Sony XAVC Intra and Long GOP</li> <li>• Panasonic AVC-LongG</li> <li>• MPEG-4 H.264/AVC</li> <li>• MPEG-2@HL - 4:2:0 I-Frame 5-80 Mb/s - 4:2:2 Long GOP 5-300 Mb/s</li> <li>• FFV1 (Ingest only)</li> <li>• Uncompressed</li> </ul>
<p><b>Proxy</b></p> <ul style="list-style-type: none"> <li>• MP4 H264/AAC - Configurable profile/level/GOP size/bitrate/resolution</li> <li>• WMV</li> <li>• DALET MPEG-2 Proxy</li> <li>• MPEG-DASH</li> </ul>	
<p><b>SD (PAL,NTSC)</b></p> <ul style="list-style-type: none"> <li>• DV25, DV50, DVCPPro25, DVCPPro50</li> <li>• D10 IMX 30-40-50</li> <li>• MPEG-2@ML - 4:2:0 I-Frame 2-15 Mb/s - 4:2:2 Long GOP 10-50 Mb/s</li> </ul>	<p><b>UHD (up to 60p)</b></p> <ul style="list-style-type: none"> <li>• Apple ProRes 422LT-422-422HQ</li> <li>• Sony XAVC 4K Intra Class 300 and 480 (CBG and VBR), XAVC Long GOP 200</li> <li>• Avid DNxHR® (HQX, HQ, SQ, LB)</li> </ul>

## General Specifications

Video Specifications	Video Over IP specifications	Redundancy
<ul style="list-style-type: none"> <li>SD SDI: SMPTE ST-259M, ITU-R601, 525/625-line component, 10-bit</li> <li>HD-SDI: SMPTE ST-292M, 10-bit</li> <li>3G-SDI: SMPTE ST-424M, 10-bit</li> <li>75 Ohms BNC</li> <li>ITU-R BT.601 (data and electrical)</li> </ul>	<ul style="list-style-type: none"> <li>SMPTE ST-2110</li> <li>SMPTE ST-2022-7</li> <li>SMPTE ST-2059 for PTP</li> <li>NEWTEK NDI v5</li> <li>RTMP</li> <li>RTMPS (playback only)</li> <li>SRT</li> <li>SMPTE ST-2022-2</li> </ul>	<ul style="list-style-type: none"> <li>Dual hot swappable power supplies</li> <li>RAID1 for system drives, RAID50 or RAID6 for data drives</li> <li>Hot spare drives</li> <li>Dual 10Gb and Quad 1 Gb Eth network attachment</li> <li>Dual FC attachment</li> </ul>
Dynamic Conversions	Dimensions	Connectivity
<ul style="list-style-type: none"> <li>Output: PAL &lt;-&gt; 1080i50 &amp; PAL &lt;-&gt; 720p50</li> <li>Output: NTSC &lt;-&gt; 1080i59.94, NTSC &lt;-&gt; 720p59.94</li> <li>Output: 720p59.94 -&gt; 1080p59.94</li> <li>Input: PAL -&gt; 1080i50&amp; NTSC -&gt; 1080i59.94</li> <li>Input: SMPTE 2110 720p -&gt; 1080p</li> <li>Aspect ratio: AFD and WSS support (per channel)</li> </ul>	<ul style="list-style-type: none"> <li>Width: 44.55 cm (17.54 in.)</li> <li>Height: 2 RU 8.9 cm (3.5 in.)</li> <li>Depth: 74.93 cm (29.5 in.)</li> <li>Weight: 28 kg (60 lbs.) maximum</li> </ul>	<ul style="list-style-type: none"> <li>Four 100/1000Base-T Ethernet ports and Two 10Gb Ethernet</li> <li>One USB 3.0 front, two USB 3.0 rear</li> <li>4 mini-display ports</li> <li>2 fiber optics ports for HBA (optional)</li> <li>Multi-serial ports board (optional)</li> </ul>
Audio Specifications	Closed Caption specifications	File transfer protocols
<ul style="list-style-type: none"> <li>Input: 48 kHz, 16-bit, 20-bit or 24-bits digital audio PCM</li> <li>Audio clock genlocked to video ref (SMPTE 272M and AES11-1997)</li> <li>Video clip with supported audio format can be played back-to-back</li> <li>Dolby-E pass-through.</li> </ul>	<ul style="list-style-type: none"> <li>Preservation of Captions in ingest and playout (CEA-608/708, OP-42/47)</li> <li>OP-42/47 insertion from STL</li> </ul>	<p>CIFS, FTP, Amazon S3 (or S3 compatible storage), Interplay</p>
Reference Genlock characteristics	Special Modes	
<ul style="list-style-type: none"> <li>Analog black burst reference (tri-level or bi-level), SDI input as reference or free running mode.</li> <li>Sub-pixel adjustment at 0.9 ns/step with respect to genlock in SD</li> <li>Sub-pixel adjustment at 0.7 ns/step with respect to genlock in HD</li> <li>Flywheel on genlock</li> </ul>	<ul style="list-style-type: none"> <li>Slow motion</li> <li>Video + key</li> <li>2D Graphics engine on each output channel</li> <li>Loop recording with extraction and time delay</li> <li>Ingest Once Write Many</li> </ul>	
Embedded audio tracks	Timecode	Power requirements
<ul style="list-style-type: none"> <li>16 tracks embedded per channel SDI (8AES-EBU)</li> <li>Supports SDI embedded audio compliant with SMPTE 272M (SD) and SMPTE 299M (HD).</li> </ul>	<ul style="list-style-type: none"> <li>VITC file reader/writer (ANC-TC) with 1 mini XLR</li> </ul>	<ul style="list-style-type: none"> <li>Dual redundant Power supply 800W hot swap</li> <li>50-60 Hz, 100-240 VAC</li> </ul>
Control	Discrete AES/EBU audio tracks	Environmental characteristics
<ul style="list-style-type: none"> <li>VDCP over serial and IP</li> <li>FIMS Capture v1.1 and FIMS Transfer v1.3 - RESTful implementation</li> <li>Administration, Players, Ingest Scheduler API (RESTful)</li> <li>AMWA NMOS IS-04 v1.3 (incl. BCP-002-01), IS-05 v1.0.2, IS-08, IS-09 (audio mapping) support</li> </ul>	<ul style="list-style-type: none"> <li>Brio 4/6/8/12: Pool of 32 tracks (16 for inputs, 16 for outputs)</li> </ul>	<ul style="list-style-type: none"> <li>•Operating temperature: +10°C to +35°C</li> <li>Non-operating temperature (not in use): -30°C to +60°C</li> </ul>
Video Preview	Monitoring	Video Playback
<ul style="list-style-type: none"> <li>Customizable text overlay per channel</li> <li>Streaming multi-viewer for remote preview of multiple Brio channels in a web browser.</li> </ul>	<ul style="list-style-type: none"> <li>SNMP</li> <li>Brio REST API</li> </ul>	<p>Any supported format can be played seamlessly back-to-back</p>



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