

## High-density ingest and playout

#### Release 3.26 highlights:

- Support of NDI V5 Ingest and Playout of NDI V5 streams. Static configuration of NDI streams (no auto-discovery support yet)
- MP4 as HiRes ingest format MP4 can now be selected as HiRes recording format.
- Java8 to OpenJDK 11 migration
   Migration from Java8 (Java native, "at a charge" framework) to OpenJDK (open source implementation of Java platform)
- Support of Matrox XMIO5\8\550 cards and Matrox 10.3 SP1 drivers
   Brio 3.26 can now be installed on Brios mounting Matrox XMIO5\8\550 cards and is fully compatible with Matrox 10.3 SP1 drivers

#### From previous recent releases:

- Scrubbing and Frame accurate seeking for XAVC Long GOP formats
- Avid Copier: Association of proxy and high resolution
- Ingest Scheduler: Support Quartz protocol for Router Controller
- Ingest Scheduler: TC option in read-only when creating a job
- Add Closed Captions marker and Local TC in Mosaic Streaming overlay
- Display Filename in confidence monitoring
- Router controller: Reload the configuration from video router
- Imagine IP3 router control via LRC

#### Configuration

Reconfigurable models with frame synchronizers on inputs and UHD support	On-board Storage Configurations
<ul> <li>SDI</li> <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>	<ul> <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>
<ul> <li>IP</li> <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>	Additional local/shared storage available upon request.

#### Codec/Wrapper

Wrappers	HD (720p50/59.94, 1080i50/59.94, 1080psf23,98, 1080p23,98, 1080p50/59.94)	
<ul> <li>MXF Op1a, MXF Op Atom</li> <li>QuickTime Reference, QuickTime Self-Contained</li> <li>MP4, AVI, MPG, WMV</li> </ul>	<ul> <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>	
Ргоху		
<ul> <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>		
SD (PAL,NTSC)	UHD (up to 60p)	
<ul> <li>DV25, DV50, DVCPro25, DVCPro50</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>	<ul> <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> <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> <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> <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> <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> <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> <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> <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> <li>Preservation of Captions in ingest and playout (CEA-608/708, OP-42/47)</li> <li>OP-42/47 insertion from STL</li> </ul>	CIFS, FTP, Amazon S3 (or S3 compatible storage), Interplay
Reference Genlock characteristics	Special Modes	
Reference Genlock characteristics         • Analog black burst reference (tri-level or bi-level), SDI input as reference or free running mode.         • Sub-pixel adjustment at 0.9 ns/step with respect to genlock in SD         • Sub-pixel adjustment at 0.7 ns/step with respect to genlock in HD         • Flywheel on genlock	Special Modes  Slow motion Video + key 2D Graphics engine on each output chai Loop recording with extraction and time Ingest Once Write Many	
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<ul> <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> Embedded audio tracks <ul> <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> <li>Slow motion</li> <li>Video + key</li> <li>2D Graphics engine on each output chai</li> <li>Loop recording with extraction and time</li> <li>Ingest Once Write Many</li> </ul> Timecode <ul> <li>VITC file reader/writer (ANC-TC) with 1 mini XLR</li> </ul>	delay Power requirements Dual redundant Power supply 800W hot swap 50-60 Hz, 100-240 VAC
<ul> <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> Embedded audio tracks <ul> <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> Control <ul> <li>VDCP over serial and IP</li> <li>FIMS Capture v1.1 and FIMS Transfer v1.3 - RESTful implementation 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-</li> </ul>	<ul> <li>Slow motion</li> <li>Video + key</li> <li>2D Graphics engine on each output chai</li> <li>Loop recording with extraction and time</li> <li>Ingest Once Write Many</li> </ul> Timecode <ul> <li>VITC file reader/writer (ANC-TC) with 1 mini XLR</li> </ul> Discrete AES/EBU audio tracks <ul> <li>Brio 4/6/8/12: Pool of 32 tracks (16 for</li> </ul>	delay           Power requirements           • Dual redundant Power supply 800W hot swap 50-60 Hz, 100-240 VAC           Environmental characteristics           •Operating temperature: +10°C to +35°C Non-operating temperature (not in use): -

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