

io HD

10-bit HD over FireWire



ProRes



Because it matters.

io HD ProRes

10-bit HD over FireWire Enhanced Workflow

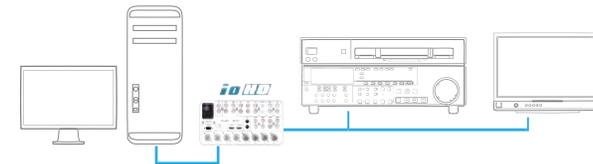
Apple ProRes 422 Workflow – in Hardware

- Allows ProRes 422 to move over FireWire 800 connectivity.
- Creates images visually indistinguishable from the source.
- 4:2:2 chroma sampling provides high-quality color definition.
- 10-bit sample depth produces images suitable for color correction and compositing.
- I-frame encoding results in easily computer-processed and edited media.

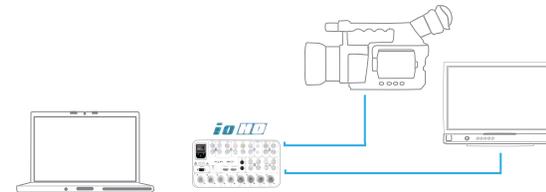
On-set capture using AJA VTR Xchange and the AJA io HD

The combination of AJA VTR Xchange and io HD are perfect for bypassing tape compression and capturing to the high quality 10-bit, full raster Apple ProRes 422 family of codecs. This workflow can include ingest from HDV cameras with HDMI output to ingest from broadcast and digital cinema cameras with component or SDI outputs. The AJA io HD also provides a LTC input and support for embedded timecode in the HD-SDI video (RP-188) so you can obtain timecode in your captured footage that matches the source timecode from the camera.

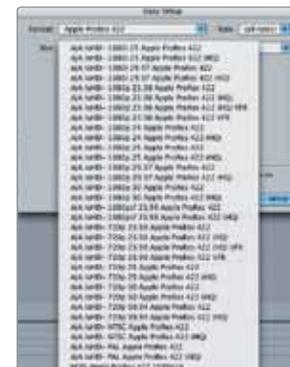
- Make appropriate audio, video and timecode connections to the AJA io HD.
- Make appropriate settings in the AJA VTR Xchange application for audio, video and timecode.
- Capture to Apple ProRes 422, Apple ProRes 422 (HQ), Apple ProRes (LT) and Apple ProRes (Proxy)
- Import captured media into Final Cut Pro.



Use io HD within your post production suite to connect to all of your professional devices.



Use io HD on set to capture from cameras with analog, SDI or HDMI outputs. Simultaneously monitor on set from any of io HD's outputs in HD or SD.



AJA provides a number of Easy Setups for working with DVCPRO HD, Uncompressed and of course, the Apple ProRes 422 family of codecs

AJA's award-winning Io HD is an effortless to use, transportable plug-in solution for working with HD and SD in Apple Final Cut Studio. With a single FireWire 800 connection, Io HD can easily be connected to a Mac Pro desktop computer or a MacBook Pro laptop.

Io HD offers unparalleled video and audio connectivity. Within its portable and rugged form factor, Io HD offers SD/HD analog I/O, SD/HD digital I/O including HD-SDI and HDMI, Balanced analog and digital AES audio, as well as RS-422, Genlock, and even LTC timecode connections. Io HD includes AJA's realtime hardware-based 10-bit up/down/cross conversions.

Features

- Apple ProRes 422 codec family support—
SD, HD 720/1080, full-raster 10 bit 4:2:2, supported in hardware
- Up/down/cross-conversion, 10-bit, realtime, in hardware
- SD-SDI and HD-SDI I/O (2)
- Component I/O (SD and HD)
- Composite and S-video I/O
- HDMI video w/8-channel audio I/O
- Embedded SDI 8-channel audio I/O
- AES/EBU 8-channel unbalanced audio I/O (BNC)
- Analog 4-channel balanced audio I/O (XLR)
- Analog 2-channel unbalanced audio output (RCA)
- Genlock with loophrough
- RS-422 machine control
- LTC Timecode I/O



Apple Final Cut Pro™
and Io HD

Io HD Control Panel
with tabbed screens

Video Connectivity

Io HD provides connectors on the rear panel to directly connect standard broadcast devices. For SDI video, Io HD features two SD/HD inputs and two outputs, one connection for Genlock input and a loop-through, and two groups of three BNCs which may be configured for component SD/HD analog video input and output. HDMI input and output allows interfacing with low-cost camcorders and HD monitors. Add to the list S-Video, Composite video, LTC in and out—and a 9-pin connector for RS-422 machine control and you can connect to just about anything. Whether you're using BetacamSP, Digital Betacam, HDCAM, DVCPro50, DVCPRO HD, D5—or any other professional video device—you'll have the proper connections.

Audio Connectivity

Io HD's extensive audio support makes integration with professional audio gear easy; tie Io HD to a digital audio mixer or DAW output with 8-channel 24-bit 48kHz AES audio via BNC connections.

For multi-channel audio mastering, 8-channel SDI embedded 24-bit 48kHz audio is also provided. Io HD features high-quality input sample-rate conversion on AES inputs, which eliminates the need for audio source synchronization. You can even input and output up to 8 embedded channels on the HDMI inputs and outputs. Balanced analog XLR connections are also provided along with two unbalanced RCA connectors for connection to consumer monitoring devices.

Io HD Flexibility with KONA-Level Power

Io HD is a versatile powerhouse, bringing features pioneered on AJA's industry-leading KONA lineup – such as 10-bit hardware-based up-conversion, cross-conversion, and downconversion – to the Io product line. Just tap into its flexibility, and you can configure a Mac as a professional HD or SD editing suite or a high-powered field-editing system.

Furthering flexibility, both analog and digital ports allow connection to virtually every kind of audio/video peripheral – from current HD digital VTRs and cameras to analog legacy devices.



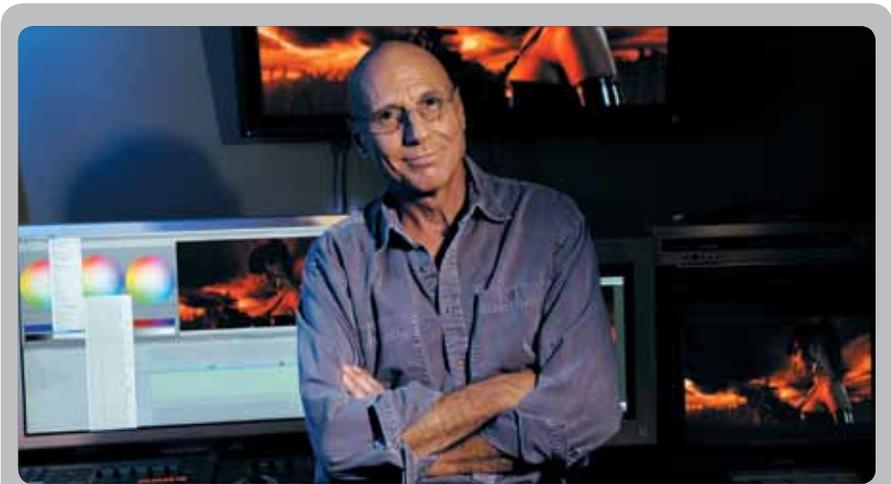
Io HD Software

Io HD runs on an AJA-built driver and features Core Audio support as well as integrated support for a number of software applications. In addition to Final Cut Studio applications like Final Cut Pro and Motion, the Io HD software also provides video output from applications such as Adobe After Effects.™ The main application installed by the AJA software is the AJA Control Panel, an application used to select the input audio/video source, configure up-, down-, cross-conversions and much more. Additional useful software included with the Io HD: the AJA Data Rate Calculator, useful for calculating storage and bandwidth requirements, the AJA System Test, useful for benchmarking storage such as disk arrays, and the AJA TV application, a simple to use QuickTime viewing application with video output. Io HD is a full-featured device delivering powerful audio and video ingest, editorial and post production capabilities—all in an intuitive to use and integrated system.

Broadcast Quality Conversions

Io HD features full 10-bit, broadcast-quality, motion-adaptive SD to HD up-conversion, HD to HD cross-conversion, HD to SD down-conversion, and HD/SD 12-bit component analog output. That's the equivalent of rolling AJA's standalone HD D/A converter, HD to SD down-converter, and our SD to HD up-converter into one convenient, cost-efficient box. The quality of the AJA Io HD's conversions is identical to AJA's award-winning stand-alone products, and since all functionality is hardware-based, this means that it is available all the time, on digitize or playback without using CPU processing like software conversions would. Io HD will address your varied delivery needs with support for hardware-based 1080-to-720 or 720-to-1080 crossconversion.

The AJA Io HD conversion capabilities streamline dailies and deliverables creation at true broadcast picture quality in realtime - just another measure of the power and flexibility of the AJA Io HD.



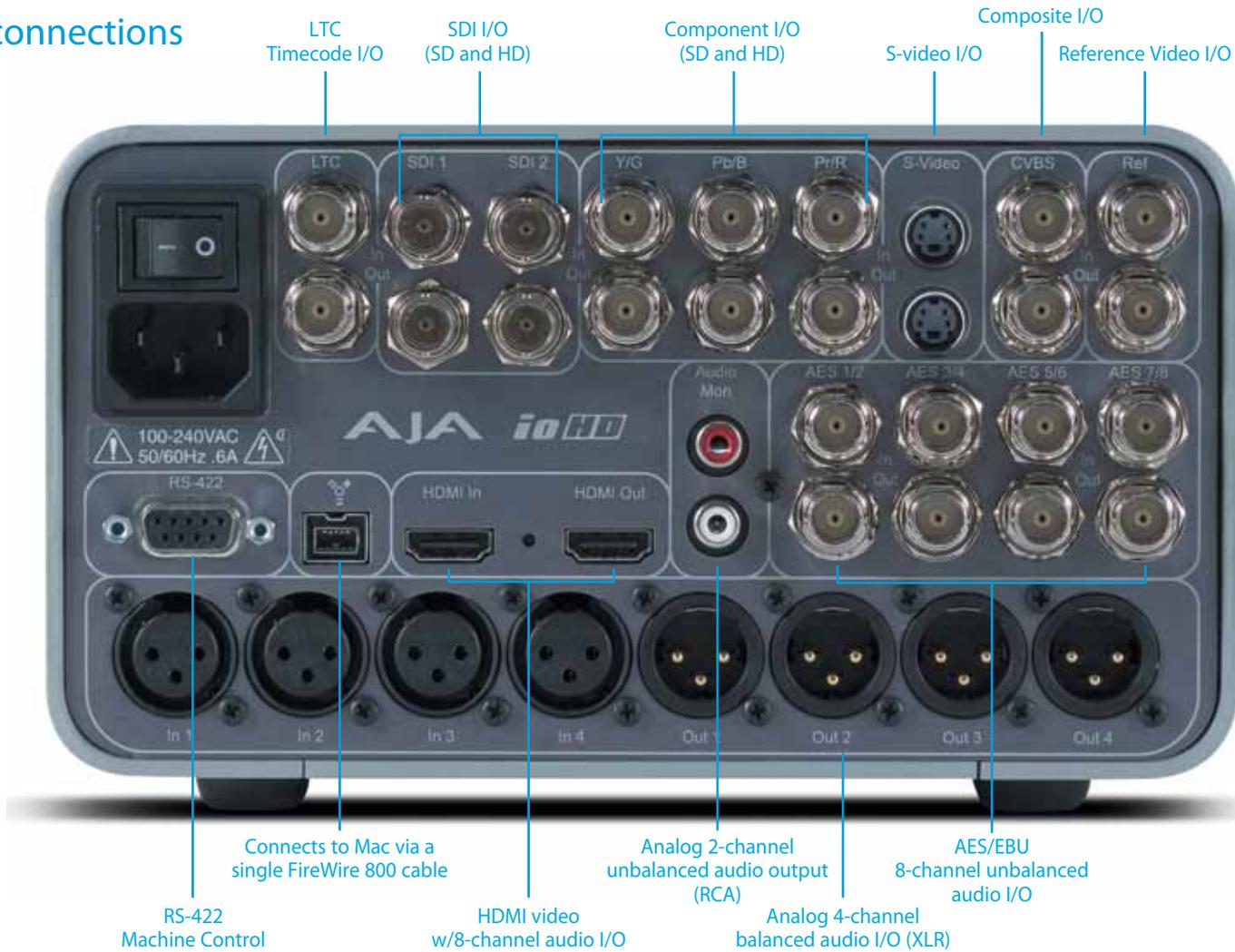
“AJA makes the whole process easier.”

From capture to conversion, Keith Collea's entire post production workflow relies on AJA at its core.

With a resumé including work on blockbusters such as 'Alien: Resurrection', 'Independence Day' and 'Pearl Harbor', the effects and post production veteran has been a longtime user of AJA products. Collea's entire post production workflow depends on AJA products, including KONA, Io HD, and Converters. "I'm a huge AJA fan," says Collea.

On his recent feature, 'The Gene Generation', Keith chose Io HD as the centerpiece of a fully portable projection system. "Using the Io HD, an Apple MacBook Pro and attached storage, we were able to create a system that allowed the film to be shown on a Sony digital cinema projector without the use of a tape-based VTR for playback," he explained. "It saved us time and money, and the picture quality was better than if it came off of tape. It was just incredible."

Rear panel connections



Specifications

Video Input

- **Digital:**
 - SD and HD-SDI, SMPTE-259/292/296 (2 inputs)
 - HDMI
- **Analog:**
 - Composite and S-Video (Y/C):
 - NTSC, NTSCJ, PAL 12-bit A/D,
 - 2x oversampling
 - 3 line adaptive comb filter decoding

SD Component:

- SMPTE/EBU N10, Betacam 525 line,
- Betacam 525J, RGB 12-bit A/D,
- 2x oversampling

HD Component:

- YPbPr
- 12-bit A/D

Video Output (all simultaneously active)

- **Digital:**
 - SD and HD-SDI, SMPTE-259/292/296 (2 outputs)
 - HDMI
- **Analog:**
 - Composite and S-Video (Y/C):
 - NTSC, NTSCJ, PAL 12-bit D/A,
 - 8x oversampling

SD Component:

- SMPTE/EBU N10, Betacam 525 line, Betacam 525J, RGB 12-bit D/A, 8x oversampling

HD Component:

- YPbPr, RGB12-bit D/A, 2x oversampling

Audio Input

- **Digital:**
 - 24-bit SDI embedded audio, 8-channel, 48kHz
 - 24-bit AES audio, 8-channel, 48kHz
 - HDMI embedded, 8-channel
- **Analog:**
 - 24-bit A/D, 4-channel balanced XLR, 48kHz
 - +15/18/24 dbu Full Scale Digital

Audio Output (all simultaneously active)

- **Digital:**
 - 24-bit SDI embedded audio, 8-channel, 48kHz
 - 24-bit AES audio, 8-channel, 48kHz
 - HDMI embedded, 8-channel
- **Analog:**
 - 24-bit D/A, 4-channel balanced XLR, 48kHz
 - +15/18/24 dbu Full Scale Digital
 - 2-channel unbalanced RCA (for monitoring)

Timecode

- LTC timecode input and output via BNC

Reference Input

- Analog Color Black, Composite Sync, or Trilevel Sync Terminated Input, buffered output

Machine Control

- RS-422, 9-pin

FireWire

- IEEE-1394b, FireWire™ 800Mb/s Apple ProRes 422 support specially integrated into hardware

Hardware Up-conversion, 10-Bit

- Anamorphic: full-screen
- Pillar box 4:3: results in a 4:3 image in center of screen with black sidebars
- Zoom 14:9: results in a 4:3 image zoomed slightly to fill a 14:9 image with black side bars
- Zoom Letterbox: image zoomed to fill screen
- Zoom Wide: combination of zoom and horizontal stretch to fill 16:9 screen; this setting can introduce a small aspect ratio change

Hardware Down-conversion, 10-Bit

- Anamorphic: full-screen
- Letterbox: image is reduced with black top and bottom added to image area with the aspect ratio preserved
- Crop: image is cropped to fit new screen size

Hardware Cross-conversion, 10-Bit

- 1080i to 720P
- 720P to 1080i
- 720P to 1080PsF

SD to SD Aspect Ratio Conversion

- Letterbox: transforms SD anamorphic to a letterboxed image.
- H Crop: produces a horizontally stretched effect on the image; transforms anamorphic SD to full frame.
- SD Pillarbox: produces image in screen center with black borders on left and right sides and an anamorphized image in the center.
- V Crop: transforms SD letterbox material to an anamorphic image

Physical

- Width: 8.2" (208.3 mm)
- Depth: 12" (304.8 mm)
- Height: 4.8" with rubber feet (121.9 mm)
- Power: 100-240VAC, 50/60Hz, 35 Watts

Incredible 3 Year Warranty

AJA Video warrants that its HD products will be free from defects in materials and workmanship for a period of three years from the date of purchase.

About AJA Video Systems, Inc.

Since 1993, AJA Video has been a leading manufacturer of video interface and conversion solutions, bringing high-quality, cost-effective digital video products to the professional broadcast and post-production markets. AJA offers the Io and KONA desktop video products, Ki Pro recorders, miniature stand-alone converters, and a complete line of rack mount interface and conversion cards and frames. With a headquarters and design center located in Grass Valley, California, AJA Video offers its products through an extensive sales channel of dealers and systems integrators around the world. For further information, please see our website at www.aja.com

B e c a u s e i t m a t t e r s .



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