KONA 2
The Ultimate 10-bit Uncompressed Capture Card for SD, HD, and Dual Link HD

KONA 2 STRENGTHS
KONA 2 is the most-advanced capture device for OSX and Final Cut Pro available today. KONA 2 is so feature rich and technically deep, we created this document to highlight some of its more remarkable features and abilities. We have also included information on AJA as a company, and points that differentiate us in the Desktop Video marketplace.

Here is a quick overview of the KONA 2’s major bullet points, which are reviewed in depth below.

• SDI, HD-SDI, Dual Link 4:4:4 HD-SDI
• DVCPROHD hardware acceleration
• HDV hardware acceleration
• Dynamic RT Extreme hardware acceleration
• Broadcast Quality hardware 10-bit SD to HD Up-convert
• Broadcast Quality hardware 10-bit HD to SD Down-convert
• 12-bit HD component and SD component/composite analog output
• AJA QuickTime™ Drivers
• PCI-X 133 MHz
• 8-Channel 24-bit AES and Embedded Audio
• RS-422 Machine Control
• 3-year Warranty

KONA 2 is simply the highest quality and most flexible solution available—all at an unprecedented low price.

MULTIPLE FORMAT SUPPORT
KONA 2 supports multiple SD (Standard Definition) and HD (High Definition) video formats, including emerging new standards such as “Dual-Link” HD, which is 4:4:4 RGB.

KONA 2 supports PAL and NTSC formats in SD, as well as AES and EBU standard audio formats.

For Dual-Link HD 10-bit 4:4:4 RGB, KONA 2 is the only card that supports both log and linear color spaces. This ability carries KONA 2 into the highest end post workflows, and is especially powerful for properly displaying digitally acquired footage from the Thomson Filmstream cameras, etc. We have also provided free QuickTime to DPX (and vice-versa) translation utilities, further carrying KONA 2 into the digital intermediate world.

Because of the powerful hardware-based conversion uniquely available on KONA 2, it can simultaneously support SD and HD formats, via its up- and down-convert capabilities.
DOWNCONVERT
KONA 2 has superior, 10-bit hardware-based downconvert that is the same design as on our rackframe cards...true proven broadcast quality. There are some significant things to keep in mind about the KONA 2 downconverter:

- It can be “always-on,” and is always realtime.
- K2 can downconvert any codec (including HDV, which was shown in action by AJA and Apple at NAB) from ANY application (After Effects, Desktop, etc.) out to any or all output(s) at any time.
- K2 can downconvert 720 and 1080 formats, with multiple framerates. K2 is the only card that can downconvert 720p formats.
- The K2 downconverter can be applied to any and all INPUTS as well, for downconvert during digitize. This opens up interesting workflows, such as downconverting HD to anamorphic DV on capture for offline...
- The KONA Control Panel gives users control of aspect ratios. Users can choose Anamorphic (full-screen), Letterbox (image is reduced with black top and bottom added to image area with the aspect ratio preserved), or Crop (image is cropped to fit new screen size).

UPCONVERT
KONA 2 is the ONLY card for Final Cut Pro and Apple ProApps that has upconvert, period.

This is again 10-bit, hardware-based, the same quality as our rackframe card product. In markets where the transition to HD is under way, this seems very significant for repurposing SD material to HD.

- It can be “always-on,” and is always realtime.
- The upconverter can be applied to any and all inputs or outputs, during digitize and/or playback.
- It is codec agnostic.
- It supports 1080 and 720 formats (720p 59.94, 720p 60, 1080i 25, 1080i 29.97, 1080psf 23.98, and 1080psf 24)
- It is available out of any application that KONA 2 works with, including the Mac Desktop.
- The KONA Control Panel gives users control of aspect ratios. Users can choose 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 sidebars), Zoom Letterbox (results in image zoomed to fill full screen), or Zoom Wide (results in a combination of zoom and horizontal stretch to fill a 16:9 screen).

This is not a trivial point—our proven hardware based upconversion and downconversion are a major reason to buy KONA 2.

INPUT PASSTHROUGH CONVERSIONS
We have had a number of inquiries asking if KONA 2 can operate it's up- and down-conversion in a stand-alone mode. I want to remind you the answer is a resounding “YES”! Because it is engineered by AJA, and is the same technology used on our industry-standard rackframe products, KONA 2 can perform it’s broadcast-level conversions without ever digitizing a frame of video to disk! This is easily worth the K2’s purchase price based on that one feature alone...stand-alone down- and up-converters cost at least 3-4 times the price of the KONA 2. Now that’s added value!

The KONA 2's up- and down-convert can be used in “E-to-E” input passthrough mode, selectable in the KONA Control Panel. This makes KONA 2 a stand-alone full 10-bit broadcast-quality up- and down-converter! Just open the KONA Control Panel, click the “CONTROL” tab, and set the “Default KONA Output” pulldown to “Input Passthrough”...now, simply apply your up-conversions or down-conversions to any or all inputs or outputs!

Remember, KONA 2 is the ONLY card that has SD to HD UP-CONVERT, and is the ONLY card that can do up- and down-converts in a stand-alone mode...always 10-bit, always realtime.

Also, the KONA Control Panel has full controls for aspect ratio issues on these stand-alone conversions.
CARD CONNECTIVITY
The KONA 2 has the best connectivity of any card on the market. When paired with the KBOX, it offers unmatched:

• 8-channel AES/EBU over XLR or BNC (both on KBOX).
• Looping Genlock with KBOX.
• KBOX offers 2-channel unbalanced analog audio for monitoring.

AJA DRIVER SOFTWARE
Every device, whether it be a disk drive, keyboard, or PC Board—like the KONA 2—must have a driver program. A driver acts like a translator between the device and computer operating system and software that uses the device. Good device drivers require a very in-depth knowledge of the hardware and the software environment. The KONA AJA driver is feature rich, very stable, and fully supported in-house. It is developed and supported by experienced industry leaders who are on staff full-time. These guys are pros, and this speaks as to how our driver has come up so quickly, and is rock-solid and feature rich. It is constantly being built-upon and meticulously supported, with new features coming frequently.
The KONA Control Panel is very powerful, and very unique. Its GUI is very easy to operate, and as it is a stand-alone app, it can be left open in the background and put in the OSX Dock. The Control panel is always a big selling point, and clearly shows the power of the KONA 2 card.

![KONA Control Panel Diagram]

We have developed many FREE utilities, such as our Data Rate Calculator, and the amazing KONA TV, which allows playback of any codec through KONA 2 from the desktop, including animation codec, and more...very powerful and unique. We also provide free utilities for using KONA 2 in workflows using the DPX file format—a common interchange format for high-end film and graphics workstations. One utility takes a 10-bit RGB QuickTime movie (e.g. one that was captured via KONA 2 DualLink) and turns it into a series of DPX files (the ) while another utility does the opposite—it turns a folder full of DPX files into a KONA 10-bit RGB QuickTime movie.

APPLE FINAL CUT STUDIO INTEGRATION and SUPPORT

At NAB 05, we were showing our integration with the new ProApps (detailed below). This was also being shown by Apple at every one of their video stations in their booth. Our support is real, and is available now. We have been working with Apple for many months leading up to NAB, to ensure complete compatibility. We have many new features—some are exclusive to AJA.

- KONA 2 supports FCP5, video and audio out of Soundtrack Pro, Motion 2, and Shake 4...today.
- KONA 2 hardware accelerates the playback of the HDV codec, just as we do for DVCPRO-HD. We take significant work off of the G5 in doing so, freeing it up for other tasks, such as more RT. No one else does this.
- We hardware accelerate the Dynamic RT Extreme feature in FCP5...helping the G5 to do more. Again, a KONA-only feature.
- KONA supports Multicam in FCP5, displaying it in realtime.
- KONA fully supports Tiger and QT7.
720p PANASONIC VARICAM and NON-VARICAM SUPPORT

KONA 2 takes advantage of both Varicam (active frame removal) and non-Varicam implementations, to achieve different results.

KONA 2 can capture 720p Varicam data to a 24fps sequence over HD-SDI. The 720p format is always laying 60fps to tape, regardless of what you tell the camera the frame rate is. A 24fps Varicam shot plays back at normal speed, creating the filmlook effect. A slower Varicam rate (say 12fps) undercranks, to create fast motion without rendering, or a smeary slo mo look when doing a speed change effect in software. A faster Varicam rate (say 48fps or 60fps), creates a nice smooth slow-motion effect, good for fast action shots. With the KONA 2, all this happens in FCP without using an external Frame Rate Converter.

In non-Varicam mode, the KONA 2 driver captures all the frames regardless of the framerate set in the camera, so you can have access to all 60 frames of information and then use software to create various speed effects. This would be particularly useful if you have 24p Varicam footage that you want to create slo-motion or fast-motion effects using the speed change ability in FCP.

3rd PARTY SOFTWARE SUPPORT

The KONA cards support many 3rd party software packages, such as:

- Apple Final Cut Pro
- Apple Shake
- Apple Logic Pro
- Adobe Photoshop
- Silicon Color Final Touch
- Apple Motion
- Apple Soundtrack Pro
- Adobe After Effects
- Autodesk Combustion
- Gallery UK Virtual VTR

...and many, many more...

Core Audio services are a central part of Mac OS X, providing low-level software support for audio applications and reducing the amount of application and hardware driver overhead. Most professional Mac audio applications work with OS X Core Audio—and because the KONA driver is Core Audio compliant—KONA 2 supports those audio applications.

AJA works very closely with manufacturers of popular software and hardware technologies to ensure total support and complete integration and testing.

AJA WARRANTY

This is huge, especially to real pros.

- AJA desktop products have our unmatched 3-year international parts and labor warranty. This is the best warranty available in our industry by far.

- AJA offers the finest tech support available, email and phone, for the life of the product. Our tech support is constantly cited as among the best in the broadcast industry, and is a major source of focus and pride for AJA.

- AJA offers Advanced Exchange on all of our products. We know that pros using our gear cannot afford significant downtime when problems arise.

- AJA offers a no-questions asked 30-day money back guarantee. AJA stands behind our products, and we are committed to satisfied clients.

- EVERY product we ship is fully tested in-house. Every KONA, every Io, every converter, everything. Not all manufacturers do this. This dedication to quality is reflected in our very low out-of-box failure rates, and is another testament to AJA’s commitment to quality.
QUALITY OF COMPANY
Some things are at first look less tangible, but should be discussed, such as the quality of the company you are doing business with. There are significant differences in the way AJA operates, that should not be overlooked or undersold.

- Due to some uncertainty in the support of the KONA HD driver, AJA gave away hundreds of KONA 2 cards at no-charge when we introduced KONA 2, to existing KONA HD owners. KONA SD customers were offered generous upgrade plans. We wanted to reward our loyal KONA owners and not leave them behind. This cost us a significant amount of money, and reflects the commitment AJA has to good, honest, solid, long-term business.

- AJA always has generous price protection and/or upgrade policies in place...always. Our end-users know that AJA will never take advantage of them, such as dumping inventory before a new product is shipped.

- AJA has solid business relationships with the companies we develop for and with, such as Apple. We co-engineer products together, like the Io, and we are fully committed to the Mac platform. We have firm ties on many levels... engineering, marketing, sales, and more.

Check this out:

We have this relationship because we earn it, every day...with Apple, with the dealers, and with the end-users.

And, finally, AJA is a real broadcast company, with a true broadcast heritage. We are 15 years old, and have a diverse, mature, and healthy company. We are financially solid, and a proven track record. Our engineers come from industry giants, like Grass Valley Group, Telestream, Pinnacle, Accom, and more. We know professional broadcast, we know what real pros need and want.

We like to say that we make real broadcast products, and some of them happen to work on a Mac or PC. This thought process extends to the product design, the support, the warranties, the client interaction...into everything we do.

AJA and KONA 2, the best choice you can make for your business, and your clients.

RESOURCE LINKS AND CONTACT INFORMATION
AJA Sales: sales@aja.com
530.274.2048
AJA Support: support@aja.com
530.271.3190

General Apple Website Information:
General:
http://www.info.apple.com/
Power Mac Support Area:
http://www.apple.com/support/powermac/
Final Cut Pro Web Support:
http://www.info.apple.com/usen/finalcutpro/
Final Cut Discussion Area:
http://www.apple.com/support/finalcutpro/

AJA Support Website KONA Information:
Support Links:
http://www.aja.com/support_kona.html
http://www.aja.com/support_kona_faq_2.html
Dealer Links:
http://www.aja.com/wheretobuy_kona.html
http://www.aja.com/products_kona.html

Product Positioning Sheet: KONA 2
KONA 2 SPECIFICATIONS

Video Input
HD-SDI/SDI, SMPTE-259/292/296
Dual-link HD 4:4:4
Dual-rate

Video Output
Digital:
- SD-SDI, SMPTE, 259M, 10-bits, BNC
- HD-SDI SMPTE, 292/296, 10-bits, BNC
- Dual-link HD 4:4:4
Analog SD and HD Output, 12-bits, BNC:
  - HD: YPbPr, RGB
  - SD: YPbPr, RGB (component mode)
    Composite/YC (composite mode)

Video Formats
525i 29.97
625i 25
720p 59.94
720p 60
1080i 25
1080i 29.97
1080psf 23.98
1080psf 24

Audio
24-bit embedded HD audio
20-bit SD embedded audio
24-bit AES audio

Up-Conversion
Hardware 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 sidebars
Zoom Letterbox: results in image zoomed to fill full screen
Zoom Wide: results in a combination of zoom and horizontal stretch to fill a 16:9 screen; this setting can introduce a small aspect ratio change

Down-Conversion
Hardware 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

Reference Input
Analog Color Black (1V) or Composite Sync (2 or 4V)
Non terminating, Looping, 75 ohm
Bi- and Tri-level sync

Machine Control
RS-422, Sony 9-pin protocol.