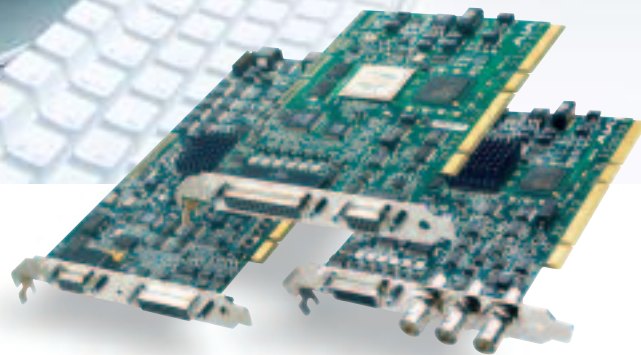# KONA²   KONA^LH   KONA^LS

Capture Made Perfect

Award-winning functionality. Solid performance. Unparalleled reliability. That sums up the power of AJA Video's KONA 2, KONA LS and the new KONA LH. Built by video pros for video pros, these superior capture cards deliver top-of-the-line-quality for every type of video workflow.

AJA
AJA VIDEO SYSTEMS INC

KONA 2

The ultimate uncompressed capture card for SD, HD, and Dual Link HD.

Picture it. Incredible uncompressed video, 8-channel AES and embedded audio, up/down HD/SD format conversion, and HD/SD component analog output—all yours on a state-of-the-art card. Intrigued? KONA 2 also features dual-monitor desktop viewing for no-holds-barred design and editing—with support for Apple Final Cut Pro 5™, RT Extreme effects—plus hardware acceleration for the new DVCPROHD and HDV codecs in Final Cut Pro 5. Quite simply, KONA 2 is the highest quality and most flexible solution out there.

KONA 2 Features:
- 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 Up-convert
- Broadcast Quality hardware 10-bit Down-convert
- 12-bit HD component and SD component/composite analog output
- AJA QuickTime™ Drivers
- 8-Channel 24-bit AES and Embedded Audio
- Apple Final Cut Pro 5™
- Adobe AfterEffects, PhotoShop... and Much More!
- RS-422 Machine Control
- Cables Standard—K-Box Breakout Optional
- 3-year Warranty

Very Cool Stuff
KONA 2 combines state-of-the-art hardware for the Apple PowerMac with AJA's own integrated QuickTime™ drivers, supporting any uncompressed SD or HD format, including the new Dual Link. In addition to capturing uncompressed 10-bit and 8-bit digital video and 24-bit 48kHz digital audio in standard definition (SMPTE 259M), high definition (SMPTE 292M), and Dual Link high definition (SMPTE 372M), KONA 2 also includes a variety of 10-bit broadcast-quality features, such as up-and-down-conversion to and from HD.

Dual Link
KONA 2 also supports Dual Link 4:4:4 HD-SDI, an emerging technology on the Macintosh platform. Commonly known as Sony HDCAM SR or Thompson Viper Format, KONA 2 Dual Link supports full bandwidth 4:4:4 RGB at 10-bits (12-bit capable) for 1080i, 1080p, and 720p formats. KONA 2 can also convert between 4:4:4 and 4:2:2 formats for single link HD-SDI output.

Broadcast-Quality Conversion
KONA 2 features full 10-bit, broadcast-quality, motion-adaptive SD to HD up-conversion, HD to SD down-conversion, and automatic HD/SD 12-bit component analog output. That's the equivalent of rolling AJA's stand-alone HD D/A converter, HD to SD downconverter, and our SD to HD up-converter into one convenient, cost-efficient KONA 2 board — at half the price. The quality is identical to AJA's award-winning stand-alone products, and all functionality is hardware-based, making it available full time, all the time, on digitize or playback.

Audio
KONA 2's extensive audio support makes installation a breeze, working with 8-channel 24-bit 48kHz AES audio via XLR (balanced) or BNC (unbalanced) connections, and 8-channel embedded 24-bit 48kHz embedded SDI/HD-SDI audio. KONA 2 also features high-quality input sample rate conversion on AES inputs, which eliminates the need for audio source synchronization. If you're using a digital Betacam deck, HDCAM, DVCPRO HD, D5, D9, or even an HDCAM SR, you'll have the proper connections.

Flexible I/O
KONA 2 boasts two HD/SD SDI video outputs and a component analog output, each independently switchable between HD and SD (SD analog can be configured as composite). For example, if you are working in HD, you can have simultaneous HD-SDI, SDI, and HD or SD component analog output. Using KONA 2's full-time format conversion features, monitoring can be as simple as a single composite monitor for both SD and HD projects. Dual Link can be monitored via Dual Link HD-SDI outputs, Single Link HD-SDI, or HD component analog.

Looking for unsurpassed cable connectivity? Well look no further, because when you plug in KONA 2's breakout cables, they automatically configure. Choose from either XLR or BNC AES connections. For SDI video, the cables feature two HD/SD BNC inputs and two outputs for single or Dual Link, one BNC for Genlock input, and three BNCs for HD/SD component analog video out. Also included is a 9-pin D connector for RS-422 machine control.

The **K-Box** for KONA 2 simplifies interfacing by offering a 19-inch, rack-mountable breakout box that attaches to the KONA 2 with just two cables. This option offers all the same inputs and outputs as the standard breakout cable, and can be easily rack-mounted or placed on top of a broadcast monitor or editing desk. Additional functionality includes simultaneous XLR and BNC AES output, 2-channel RCA analog audio monitoring, and looping BNC Genlock reference connectors.

KONA Desktop
Most users run multiple applications to create their video projects. So in addition to Final Cut Pro 5 support, the KONA Desktop feature allows broadcast design elements to be viewed with the proper aspect ratio and color depth on a broadcast monitor via the KONA card. KONA Desktop is available on both KONA 2, KONA LH and KONA LS, supporting Adobe After Effects, Adobe Photoshop, Apple Motion, Apple Shake, Discreet Combustion and more.

KONA 2 and KONA LH Hardware Acceleration
Final Cut Pro 5 users will love DVCPROHD, HDV, and Apple RT Extreme hardware acceleration, developed in close cooperation with Apple and available exclusively on KONA 2 and KONA LH. KONA 2/LH hardware takes a portion of the codec processing load off the CPU, allowing more Real Time effects in Final Cut Pro 5 when outputting. KONA 2/LH also have hardware support when capturing. This brings amazing RealTime HD production power to the desktop. With KONA 2/LH, any source can be captured using the DVCPROHD codec—giving you online HD quality at remarkably low data rates, allowing the internal PowerMac SATA storage to be used for HD capture, playback, and RT effects. Of course, you'll obtain still better performance and more RT when using a fast SCSI or Fibre array, but this feature allows HD to be used where only SD would have been considered due to budget or time constraints. KONA 2/LH even supports the DVCPROHD and HDV codecs with up or down conversion (KONA LH supports down-conversion only)—allowing projects to be downconverted to SD, or even upconverted for DVCPROHD capture.

How do KONA 2 and KONA LH Accelerate DVCPROHD, HDV, and Apple's Dynamic RT?
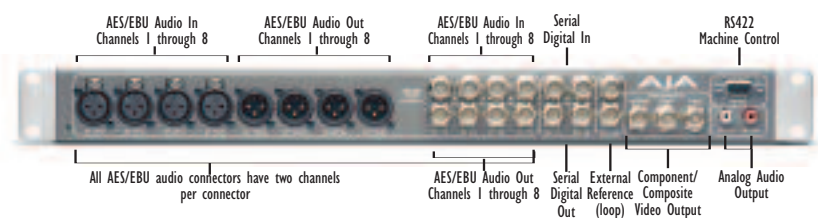Because KONA's precision hardware does part of the work, the G5 has more time available to process RT effects. This means more RT effects power, and more RT streams.

Most broadcast codecs, including DVCPROHD and HDV, use a two-step process. First the video is scaled to a lower horizontal pixel count, and then the video is compressed. This is done

KONA 2 Breakout Cables

K-Box for KONA 2

AES/EBU Audio In Channels 1 through 8   AES/EBU Audio Out Channels 1 through 8   AES/EBU Audio In Channels 1 through 8   Serial Digital In   RS422 Machine Control

All AES/EBU audio connectors have two channels per connector   AES/EBU Audio Out Channels 1 through 8   Serial Digital Out   External Reference (loop)   Component/ Composite Video Output   Analog Audio Output

KONA² SD HD Dual Link

KONALH SD HD Analog

because the slightly scaled video results in a favorable trade-off between resolution and codec efficiency. KONA 2/LH's hardware not only dramatically speeds up the scaling part of the job, but it's also done with full 10-bit broadcast quality.

When using the Final Cut Pro 5 HDV codec, the KONA 2 and KONA LH's hardware acceleration allows instantaneous real-time playback for both monitoring and recording. Even KONA's downconverter works in real-time with HDV, allowing SD monitoring, dubs, or mastering. This KONA 2 and KONA LH functionality makes HDV a fully professional solution.

The Panasonic DVCPROHD format takes advantage of KONA hardware as well. KONA's precision hardware allows capture and playback of HD-SDI video to/from the DVCPROHD codec at a quality level virtually indistinguishable from native FireWire, while freeing up valuable RT processing power.

For Final Cut Pro 5's Dynamic RT feature, KONA's hardware is used to offload the video scaling as the "Playback Video Quality" dynamically adjusts. This allows more playback power – and because KONA handles it seamlessly, the Dynamic RT you see on the Mac monitor is the same as that shown on your professional broadcast monitor.

KONA 2 and KONA LH Support Final Cut Multi-cam Feature
Final Cut Pro 5 now provides multi-cam playout — and KONA 2 and KONA LH support it! With KONA hardware and a sufficient storage solution, you can handle up to 16 sources in real time. Each stream of video is captured individually and then ganged together in Final Cut Pro 5 for a multi-cam editing workflow. The KONA 2 and KONA LH hardware seamlessly play the multi-cam clips out to professional broadcast monitors or decks, via SDI, HD-SDI or component video. Up to 16 sources can be viewed in real time via the KONA (4-up, 6-up, 9-up, 16-up, etc.) — or each individual source can be viewed as it is selected via Final Cut Pro 5.

KONA 2 Control Panel
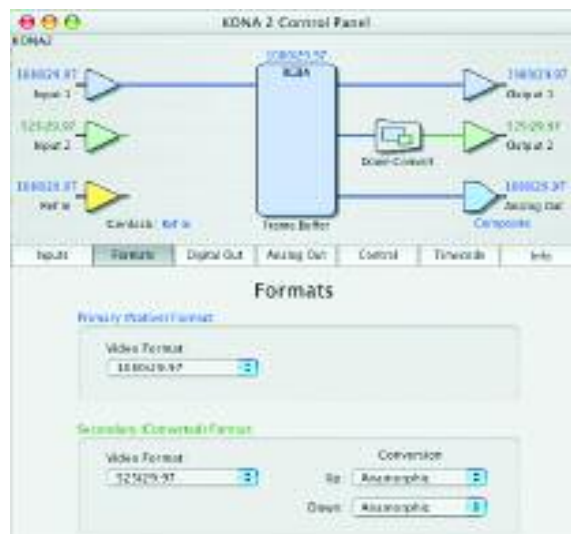
NEW KONA LH
The only card for OSX and Final Cut Pro 5 that provides both HD and SD analog and digital I/O.

Not an entry-level card, KONA LH offers a full-ride to HD with no-compromise 10-bit uncompressed video, 2-channel AES and 8-channel embedded audio, Analog Composite/Component Video In/Out, 2-channel analog audio In/Out, broadcast-quality hardware downconversion and TBC on analog inputs. Similar to KONA 2, but without upconversion or Dual-link, KONA LH bridges the analog and digital worlds by offering I/O for both. A lot of card for a low price, KONA LH also features dual-monitor desktop viewing for editing ease.

KONA LH Features:
- 10-bit Uncompressed SD/HD QuickTime Capture Card
- 12-bit HD Analog Component I/O
- 12-bit SD Analog Component or Composite S-Video I/O
- 10-bit Hardware HD to SD Downconversion
- DVCProHD hardware acceleration
- HDV hardware acceleration
- Dynamic RT Extreme hardware acceleration
- SDI or HD-SDI Input
- 2 Independent SDI/HD-SDI Outputs
- 2-ch Balanced XLR AES and 2-ch Balanced XLR Analog Audio I/O
- 8-ch SDI Embedded Audio I/O
- HD/SD Genlock and RS-422 Machine Control
- Final Cut Pro 5, Motion, After Effects, Combustion, and More
- Cables Standard, KL-Box Breakout Optional
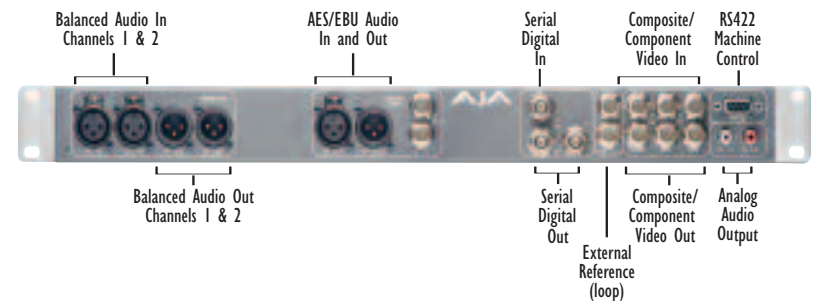- 3-year warranty

Like the KONA LS, the KONA LH comes standard with a breakout cable and also works with the optional KL-Box for rackmounted I/O convenience.

Supporting native 10-bit resolution, KONA LH provides optimum quality for SD and HD—the maximum allowed in SMPTE SDI standards. Using the QuickTime format, KONA LH captures directly to 10-bit files on disk, and also supports many legacy 8-bit formats for backward compatibility. KONA LH also supports DVCPROHD and HDV, DV25, DV50, JPEG, and more.

In addition to perfection in video, KONA LH offers all the audio support you'd ever want: native OSX multi-channel audio and 24-bit AES/EBU digital audio at 48kHz for digital production. For ease of use, KONA LH also includes hardware sample-rate conversion on AES inputs—eliminating source synchronizing requirements.

As the only card available supporting HD/SD analog I/O, KONA LH is perfect for not only uncompressed, but also HDV and other diverse workflows.

KL-Box for KONA LH & LS

Balanced Audio In Channels 1 & 2 — AES/EBU Audio In and Out — Serial Digital In — Composite/Component Video In — RS422 Machine Control

Balanced Audio Out Channels 1 & 2 — Serial Digital Out — External Reference (loop) — Composite/Component Video Out — Analog Audio Output

KONA LS

The best solution for SD capture and playback. AJA quality at an affordable price.

AJA-quality standard definition video capture and playback isn't just for the big guys. The affordably priced KONA LS is the perfect engine for a professional Final Cut Pro 5 editing system. AJA has made a significant investment in the development of exceptional KONA hardware, making KONA cards the preferred choice for performance and stability in the broadcast industry. Now, with KONA LS, everyone can enjoy the features, rock-solid video/audio, and factory support that exemplify AJA products.

KONA LS Features:
- 12-bit Component/Composite/S-video analog I/O
- SDI input, 2 independent SDI outputs
- AES I/O; sample rate conversion on input (2 Ch, XLR)
- Balanced analog audio I/O (2 Ch, XLR)
- 6-Ch SDI embedded audio support
- Broadcast-quality TBC with VHS support
- Genlock and RS-422 Machine Control
- AJA QuickTime™ Drivers
- Apple Final Cut Pro™ Support
- After Effects, Combustion, Motion, and more
- Supports all popular standard definition formats: 8/10-bit uncompressed, JPEG, DV25/50, and 3:2 pulldown for 24Hz support
- Cables Standard, KL-Box Breakout Optional
- 3-year warranty

KONA LS does away with the need to spend serious money on a nonlinear editing suite. This affordable card, when configured with the Apple Power Mac™ G4 and G5, RAID storage, computer display, and video monitor—along with Final Cut Pro 5, achieves the same editing quality as an expensive turnkey suite.

Like the KONA LH, the LS supports 10-bit resolution SMPTE SDI, using a QuickTime compatible format. KONA LS also has great audio I/O support: balanced analog, AES, and embedded SDI audio. KONA LS includes hardware sample-rate conversion on AES inputs—eliminating source synchronizing requirements. And the optional KL-Box for KONA LS provides all the standard features of the cable in an easy-to-use rackmount panel.
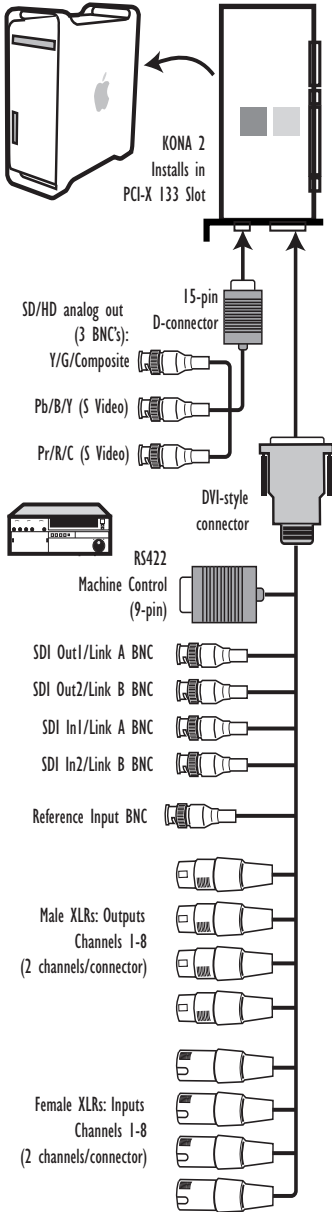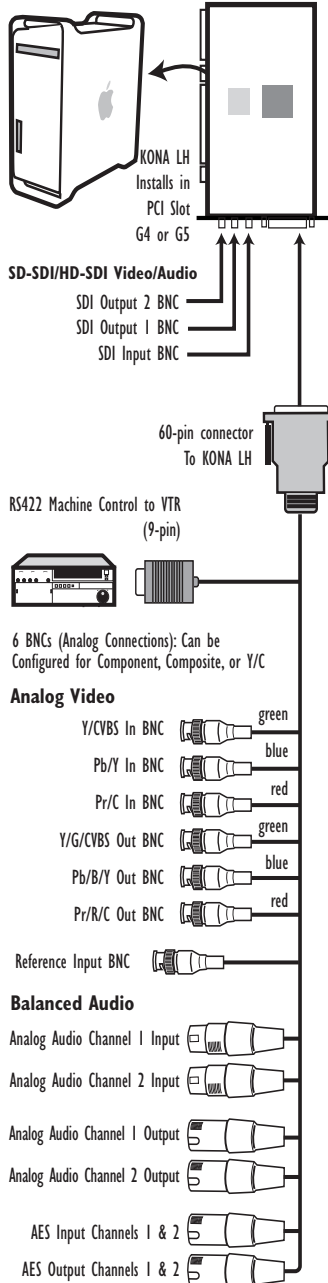
KONA LH Breakout Cables
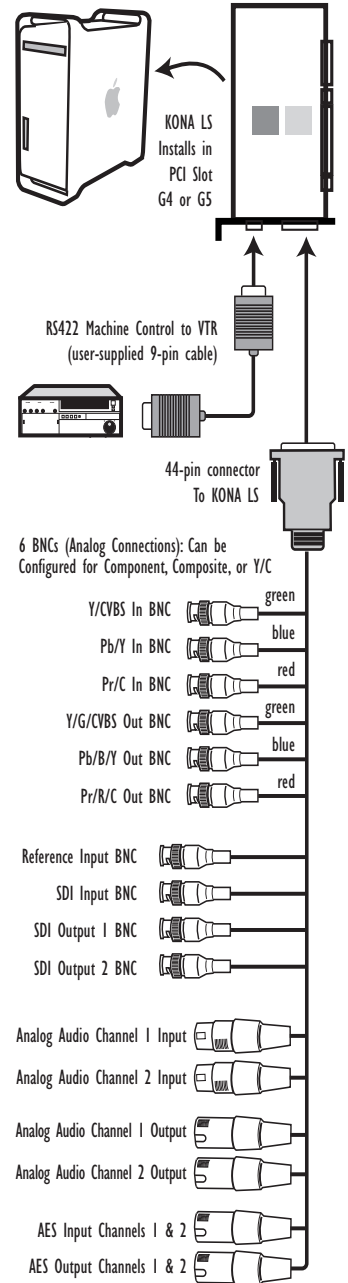

KONA LS Breakout Cables

KONA 2 Standard Breakout Cable

KONA 2 Installs in PCI-X 133 Slot

15-pin D-connector

SD/HD analog out (3 BNC's):
Y/G/Composite

Pb/B/Y (S Video)

Pr/R/C (S Video)

DVI-style connector

RS422 Machine Control (9-pin)

SDI Out1/Link A BNC

SDI Out2/Link B BNC

SDI In1/Link A BNC

SDI In2/Link B BNC

Reference Input BNC

Male XLRs: Outputs
Channels 1-8
(2 channels/connector)

Female XLRs: Inputs
Channels 1-8
(2 channels/connector)

KONA LH Standard Breakout Cable

KONA LH Installs in PCI Slot G4 or G5

SD-SDI/HD-SDI Video/Audio

SDI Output 2 BNC

SDI Output 1 BNC

SDI Input BNC

60-pin connector To KONA LH

RS422 Machine Control to VTR (9-pin)

6 BNCs (Analog Connections): Can be Configured for Component, Composite, or Y/C

Analog Video

Y/CVBS In BNC — green

Pb/Y In BNC — blue

Pr/C In BNC — red

Y/G/CVBS Out BNC — green

Pb/B/Y Out BNC — blue

Pr/R/C Out BNC — red

Reference Input BNC

Balanced Audio

Analog Audio Channel 1 Input

Analog Audio Channel 2 Input

Analog Audio Channel 1 Output

Analog Audio Channel 2 Output

AES Input Channels 1 & 2

AES Output Channels 1 & 2

KONA LS Standard Breakout Cable

KONA LS Installs in PCI Slot G4 or G5

RS422 Machine Control to VTR (user-supplied 9-pin cable)

44-pin connector To KONA LS

6 BNCs (Analog Connections): Can be Configured for Component, Composite, or Y/C

Y/CVBS In BNC — green

Pb/Y In BNC — blue

Pr/C In BNC — red

Y/G/CVBS Out BNC — green

Pb/B/Y Out BNC — blue

Pr/R/C Out BNC — red

Reference Input BNC

SDI Input BNC

SDI Output 1 BNC

SDI Output 2 BNC

Analog Audio Channel 1 Input

Analog Audio Channel 2 Input

Analog Audio Channel 1 Output

Analog Audio Channel 2 Output

AES Input Channels 1 & 2

AES Output Channels 1 & 2

KONA 2 Specifications

Video Input
HD-SDI/SDI, SMPTE-259/292/296
Dual-link HD 4:4:4
Dual-rate
Video Formats
   525i 29.97
   625i 25
   720p 59.94
   720p 60
   1080i 25
   1080i 29.97
   1080i 50
   1080psf 23.98
   1080psf 24

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)

Audio
24-bit 48KHz synchronous
8-channel SDI/HD-SDI embedded audio
sample rate conversion on AES inputs
  (no source synchronization required)
2-channel unbalanced output (RCA-jack):
  requires K-Box option

Up-Conversion
Hardware 10-bit
Aspect Conversion modes:
  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: zooms a 16:9 Letterbox source to 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: 16:9 image with black top and bottom
Crop: image is cropped for full screen image

Reference Input
Analog Color or HD Tri-level
1 BNC on standard breakout cable (75 ohm terminating);
K-Box (optional): 2 BNCs, passive loop

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

KONA LH Specifications

Formats
525i 29.97
625i 25
720p 59.94
720p 60
1080i 25
1080i 29.97
1080i 50
1080psf 23.98
1080psf 24

Video Input
Digital: 8 or10-bit HD-SDI/SDI, SMPTE-259/292/296
Analog:
  Composite/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
Digital: SD-SDI, SMPTE, 259M, 10-bits, BNC
  HD-SDI SMPTE, 292/296, 10-bits, BNC
Analog:
  Composite/S Video: 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, RGB
  12-bit D/A, 2x oversampling

Audio Input
Digital: 2-channel 24-bit AES/EBU, 48KHz sample rate
  Synchronous or Non-synchronous
  (Internal sample rate conversion)
  24-bit SMPTE-259 SDI embedded audio,
    8 ch, 48kHz synchronous
Analog:
  2-channel balanced input
  +24dbu Full Scale Digital
  24-bit A/D, 48 KHz sample rate
  +/- 0.2db 20 to 20 KHz Frequency Response

Audio Output
Digital:
  2-channel 24-bit AES/EBU, 48KHz sample rate
  24-bit AES/EBU, 48 KHz sample rate
  24-bit SMPTE-259 SDI embedded audio, 8 ch,
    48 KHz synchronous
Analog:
  2-channel balanced output
  +24dbu Full Scale Digital
  24-bit D/A, 48 KHz sample rate
  +/- 0.2db 20 to 20 KHz Frequency Response

Down-Conversion
  Hardware 10-bit output, 24-bit internal processing
  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 horizontally

Reference Input
  Analog Color or HD Tri-level
  1 BNC on standard breakout cable (75 ohm terminating)
  KL-Box (optional): 2 BNCs, passive loop

Machine Control
RS-422, Sony 9-pin protocol Connector provided on KONA LH
  breakout cable and on optional KL-Box.

KONA LS Specifications

Video Input
Digital: 8 or 10-bit SDI, SMPTE-259
Analog:
  Composite/S-Video (Y/C): NTSC, NTSCJ, PAL
  12-bit A/D, 2x oversampling
  5 line adaptive comb filter decoding
  Component: SMPTE/EBU N10, Betacam 525
    line, Betacam 525J, RGB
  12-bit A/D, 2x oversampling

Video Output
Digital: 8 or 10-bit SDI, SMPTE-259
Analog:
  Composite/S Video: NTSC, NTSCJ, PAL
  12-bit D/A, 8x oversampling
  Component: SMPTE/EBU N10,
    Betacam 525 line, Betacam 525J, RGB
  12-bit D/A, 8x oversampling

Audio Input
Digital: 2-channel 24-bit AES/EBU, 48KHz sample rate
  Synchronous or Non-synchronous
  (Internal sample rate conversion)
  24-bit SMPTE-259 SDI embedded audio, 6-ch,
    48kHz synchronous
Analog:
  2-channel balanced input
  +24dbu Full Scale Digital
  24-bit A/D, 48 KHz sample rate
  +/- 0.2db 20 to 20 KHz Frequency Response

Audio Output
Digital:
  2-channel 24-bit AES/EBU, 48KHz sample rate
  24-bit SMPTE-259 SDI embedded audio, 6-ch,
    48 KHz synchronous
Analog:
  2-channel balanced output (XLR)
  +24dbu Full Scale Digital (0dbFS)
  24-bit D/A, 48 KHz sample rate
  +/- 0.2db 20 to 20 KHz Frequency Response
  2-channel unbalanced output (RCA-jack):
    requires KL-Box option

Reference Input
  Analog Color Black
  1 BNC on standard breakout cable (75 ohm terminating)
  KL-Box (optional): 2 BNCs, passive loop

Machine Control
RS-422, Sony 9-pin protocol Connector provided on KONA LS
  breakout cable and on optional KL-Box.

Incredible 3 Year Warranty

AJA Video warrants that KONA 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.

Since1993, 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 Io (the "ultimate" capture box), KONA and XENA PCI capture cards, miniature stand-alone converters, and a complete line of rack mount interface and conversion cards and frames.

With 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*

AJA
AJA VIDEO SYSTEMS INC