
# KONA XM

KONA XM represents a new generation of I/O technology from AJA that allows medical OEM developers to leverage streaming DMA (Direct Memory Access) to ensure ultra-low latency for the most mission-critical video applications, including surgical and medical video hardware devices. KONA XM is designed to be the heart of the next generation medical video technology solutions.

**$3,995** US MSRP

KONA XM is a 4-lane, PCIe 3.0 video I/O card with dual 12G-SDI BNC connections, one for input and one for output, and two full-sized HDMI 2.0 connections, one for input and one for output. KONA XM provides an ultra-low latency design, which enables powerful real time workflows with no perceptible delay on I/O and processing.

KONA XM lets OEM developers achieve sub-frame latencies with GPUDirect DMA; the ability to transfer data from host memory into a hardware accelerator and stream the results back to host memory without using local FPGA memory as a temporary buffer.

KONA XM supports video healthcare innovation by developing world-class video devices that are ideally suited for OEM customers looking for reliable, best-in-class video I/O technology.

https://www.aja.com/products/kona-xm

## SDI Video Formats

- (4K) 4096x2160p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (UltraHD) 3840x2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (2K) 2048x1080p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (2K) 2048x1080PsF 23.98, 24, 25, 29.97, 30
- (HD) 1920x1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920x1080PsF 23.98, 24, 25, 29.97, 30
- (HD) 1920x1080i 50, 59.94, 60
- (HD) 1280x720p 50, 59.94, 60
- (SD) 625i 50
- (SD) 525i 59.94

## HDMI Video Formats

- (4K CEA) 4096x2160p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (UltraHD) 3840x2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (2K CEA) 2048x1080p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (HD) 1920x1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920x1080i 50, 59.94, 60
- (VESA DMT) 1600x1200p 60
- (VESA DMT) 1280x1024p 60
- (HD) 1280x720p 50, 59.94, 60
- (VESA DMT) 1024x768p 60
- (VESA DMT) 800x600p 60
- (SD) 625i 50
- (SD) 525i 59.94
- (VESA DMT) 640 x 480p 60

**Note**: Additional VESA (DMT) formats supported for certain applications

## Video Inputs Digital

- 12G-SDI, SMPTE-2082, 12-bit, 10-bit
  - YCbCr 4:2:2 10-bit up to 60p, RGB 4:4:4 12-bit up to 30p
- 6G-SDI, SMPTE-2081, 10-bit
- 3G-SDI, SMPTE 425
  - RGB 4:4:4 12-bit, YCbCr 4:2:2 10-bit
- 1.5G-SDI, SMPTE 292M
  - Single Link HD-SDI YCbCr 4:2:2 10-bit
- 270 Mbps SDI, SMPTE 259M-C
  - YCbCr 4:2:2 10-bit, 8-bit
- HDMI v2.0
  - 30/36-bits/pixel, RGB or YUV, 6 Gbps per color component
  - 4K, UltraHD, 2K, HD, and SD
  - YCbCr 4:2:2 10-bit up to 60p, RGB 4:4:4 12-bit up to 30p
  - Connectors are full-size BNC / full-size HDMI
  - HDMI Inputs and Outputs support VESA (DMT) rasters and at

limited rates

## Video Outputs Digital

- 12G-SDI, SMPTE-2082*, 12-bit, 10-bit
  - YCbCr 4:2:2 10-bit up to 60p, RGB 4:4:4 12-bit up to 30p
- 6G-SDI, SMPTE-2081*, 10-bit
- 3G-SDI, SMPTE 425
  - RGB 4:4:4 12-bit, YCbCr 4:2:2 10-bit
- 1.5G-SDI, SMPTE 292M
  - Single Link HD-SDI YCbCr 4:2:2 10-bit
- 270 Mbps SDI, SMPTE 259M-C
  - YCbCr 4:2:2 10-bit, 8-bit
- HDMI v2.0
  - 30/36-bits/pixel, RGB or YUV, 6 Gbps per color component
  - 4K, UltraHD, 2K, HD, and SD
  - YCbCr 4:2:2 10-bit up to 60p, RGB 4:4:4 12-bit up to 30p
  - Connectors are full-size BNC / full-size HDMI
  - HDMI Input and Output support VESA rasters

*Compliant with subsets of specification for supported formats

## HDR

- SDI: VPID signaling for SDR/HDR Transfer Characteristics, Colorimetry, and Luminance
- HDMI: HDR10 Support - HDR Infoframe metadata, compatible with HDMI 2.0a/CTA-861.3
- HDMI: HLG Support - compatible with HDMI 2.0b/CTA-861-G

## SDI I/O (Via PCIe Bracket)

- 2x full-size 12G-SDI connections
- SDI connections are one for input and one for output
  - Single channel SDI capture (plus simultaneous SDI pass-through monitoring)
  - Single channel SDI output

## HDMI I/O (Via PCIe Bracket)

- 2x full-size (Type A) HDMI 2.0 connections
- HDMI connections are uni-directional (1x Input, 1x Output)
  - Single channel HDMI input
  - Single channel HDMI output

## HDMI Monitoring for SDI Inputs

- HDMI output connector supports
  - Single channel SDI source monitoring

## Video I/O Performance

- Capable of two channel 4K p60 capture or playback

## Audio Support

- KONA XM card is equipped with on-board hardware to support embedded audio, and the optional KONA Xpand board contains the hardware to support AES/EBU digital audio and discreet analog audio (and other functions). However, audio functionality is controlled by firmware programming. If you require audio functionality with KONA XM, please consult AJA SDK Support for more information.

## Downstream Keyer

- Supports graphics up to 4K/UltraHD with alpha channel over video, matte or framebuffer, or framebuffer content over incoming video or matte

## Reference

- Analog Color Black (1V) or Composite Sync (2 or 4V) or HD Tri-Level Sync (1V)
- Reference input is terminated into 75 ohms when Genlock is set to Ref In

**Note:** Available via optional KONA Xpand card or via customer supplied breakout connection to internal card

## Timecode

- LTC timecode input
- LTC timecode output

**Note:** Available via optional KONA Xpand card or via customer supplied breakout connection to internal card

## Electrical Interface

- PCIe Gen 3x4

## Machine Control

- RS-422, Sony 9-pin protocol
- 9-pin D-connector pinout is as follows:

1 GND
2 RX-
3 TX+
4 GND
5 No Connection
6 GND
7 RX+
8 TX-
9 GND
Shell GND

**Note**: Available via optional KONA Xpand card or via customer supplied breakout connection to internal card

## Noise

- <50dBA (A-weighted at 1m in free air) <40-45dBA preferred (Phase 01 )>
- Fan is rated at 33.1dBA

## Regulatory Compliance

- RoHS 3
- IEC 62368-1: 2014 2nd Edition safety standard
- Performed testing to the IEC/EN 60601-1-2: 2015 + A1: 2021 EMC standard
- EMC testing against other EMC standards, including EN 55032 and EN 55035

## Size

- Passive Configuration (no fan): 190.5 x 15.9 x 98.6 mm (7.5" x 0.63" x 3.88") Bracket Height: 127 mm (5.0")
- Active Configuration (with fan): 247.7 x 15.9 x 98.6 mm (9.75" x 0.63" x 3.88") Bracket Height: 127 mm (5.0")
- Xpand Card: 108.0 x 15.9 x 98.6 mm (4.25" x 0.63" x 3.88") Bracket Height: 127 mm (5.0")

## Weight

- PCIe Card: Active (with fan): 290.3g (10.2oz), Passive (no fan): 217.7g (7.7oz)
- Xpand Card: 90.7g (3.2oz)

## Power

- 20W typical with 16W on +12V and 4W on +3.3V
- PC Internal or PCi Aux Power Connector: Molex part number 45558-0003

**Note:** Card can utilize PCIe power from a 6 pin PCi 2x3 Aux Power connector or from the PCIe slot

## Environment

- Safe Operating Temperature: 0 to 40 C (32 to 104 F)
- Safe Storage Temperature (Power OFF): -40 to 60 C (-40 to 140 F)
- Operating Relative Humidity: 10-90% noncondensing
- Operating Altitude: <3,000 meters (<10,000 feet)