



Rackmountable HD/SD I/O for the Mac

If you need the functionality of an I/O card and the convenience of a rackmountable breakout box, you'll find it all in **Matrox MXO2 Rack**. This 2RU-sized device is built on the award-winning Matrox MXO2 technology. It's designed for post-production facilities, broadcast news operations, and OB vans where highly-reliable equipment, more audio inputs and outputs, and genlock loop through are required. Matrox MXO2 streamlines editing workflow with Apple Final Cut Studio on Mac Pros and MacBook Pros. It gives you broadcast-quality HD/SD input/output via HDMI, SDI, and analog; professional audio input/output including built-in 5.1 and 7.1 surround sound monitoring; and HDMI video monitoring with calibration controls including blue-only. You also benefit from a wide variety of workflows thanks to its 10-bit hardware up/down/cross scaling engine and support for a wealth of file-based formats and industry-standard codecs.

Matrox MXO2 Rack is also available with Matrox MAX technology for faster than realtime high definition H.264 file creation.

Key features

- Works with Intel-based MacBook Pros, Mac Pros, and Apple Xserve systems
- Rugged 2RU form factor
- HD/SD SDI, HD/SD analog component, Y/C, and composite inputs and outputs
- Genlock with loop through – SD analog black burst (bi-level) or HD tri-level sync
- HDMI input, output, and monitoring with calibration controls including blue-only
- 10-bit realtime hardware up/down/cross conversion on capture and output
- Up to five user selectable simultaneous video outputs – HD and/or SD on HDMI, SDI, and analog
- Professional audio inputs and outputs including 5.1 and 7.1 surround sound monitoring
 - 4-in, 8-out balanced XLR
 - 4-in, 4-out unbalanced AES/EBU
 - 8-in, 8-out SDI and HDMI embedded
- RS-422 machine control for frame-accurate capture and print-to-tape
- Captures to a variety of codecs – Apple ProRes 422 HQ, 10-bit uncompressed HD, and many more
- File-based workflow support – XDCAM, XDCAM HD, XDCAM EX, P2, P2HD
- RED workflow support
- HD-SDI closed captioning support
- Works with Final Cut Pro, Apple Color, Adobe After Effects and all QuickTime applications that support the V-out component
- Also available with Matrox MAX for faster than realtime H.264 encoding
- Three-year hardware warranty and complimentary telephone support



Matrox MAX is a unique technology that implements faster than realtime H.264 encoding for resolutions ranging from iPod to HD. It uses a dedicated hardware processor to accelerate the creation of H.264 files for Blu-ray, the web, and mobile devices. By using specialized hardware acceleration, jobs are finished with amazing speed and system resources are liberated for other tasks. Quality and flexibility are ensured through direct integration with professional applications such as Apple Compressor on the Mac and Adobe Media Encoder on the PC. As an added benefit, the Matrox MAX technology allows direct export to higher-quality H.264 Blu-ray compliant files from Compressor.

Rackmount form factor

Matrox MXO2 Rack is a very versatile product, designed to fit into virtually any broadcast or post facility. It occupies 2RU in a standard 19-inch rack. It comes with two adjustable mounting "ears" so that the unit can be mounted in the rack with the connectors facing the front or back of the rack. The design of the ears allows you to adjust the depth of the unit in the rack.

It connects to your Mac Pro via a PCI Express adapter card which is included. An optional ExpressCard/34 adapter can be used to connect Matrox MXO2 Rack to your MacBook Pro.



PCIe adapter for Mac Pro
(included)



ExpressCard/34 adapter for MacBook Pro
(optional)

HD and SD inputs and outputs

Matrox MXO2 Rack features a full complement of professional inputs and outputs. RS-422 machine control is provided for frame-accurate capture and print-to tape with Final Cut Pro.



Inputs

- Video
 - SDI - HD/SD
 - Component - HD/SD - 10-bit
 - Y/C - 10-bit
 - Composite - 10-bit
 - HDMI - HD - 10-bit
- Audio
 - 4 XLR - stereo pair (balanced)
 - 4 AES/EBU
 - SDI embedded – up to 8 channels
 - HDMI embedded - up to 8 channels

Outputs

- Video
 - 2 SDI - HD/SD
 - Component - HD/SD - 12-bit
 - Y/C - 12-bit
 - Composite - 12-bit
 - HDMI - HD/SD - 10-bit
- Audio
 - 8 XLR - stereo pair (balanced)
 - 4 AES/EBU
 - SDI embedded – up to 8 channels
 - HDMI embedded - up to 8 channels

Up to five user selectable simultaneous video outputs, HD and/or SD on HDMI, SDI, and analog are supported.

Genlock – Matrox MXO2 Rack provides SD analog black burst (bi-level) or HD tri-level sync genlock. It can genlock to any type of video input or to house sync. Timing offset controls can be used to align your video output relative to your external genlock source to compensate for cable delays within your facility. Loop through is supported.

Flexible workflows

Capture to a variety of codecs – Matrox MXO2 Rack gives you a wide range of workflow possibilities by providing frame-accurate capture via RS-422 deck control to a variety of codecs. On systems with a 2.4 GHz or faster Core2 Duo CPU you can capture to DVCPRO HD and to SD codecs including uncompressed, DV, DVCPRO, DVCPRO50, ProRes 422, and ProRes 422 HQ. On systems with at least two Dual-Core or a Quad-Core 2.4 GHz or faster CPU you can also capture to more HD codecs including ProRes 422 and ProRes 422 HQ. On systems equipped with storage that has sufficient transfer bandwidth, you can capture uncompressed 8- and 10-bit HD.

Use your favorite file-based formats – Matrox MXO2 Rack lets you work with file-based formats such as XDCAM, XDCAM HD, XDCAM EX, P2, and P2HD. You can play out these formats directly from Final Cut Pro – no intermediate codec is needed. Matrox MXO2 Rack lets you play out these formats from a MacBook Pro without dropping frames.

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RED workflow support – RED users can benefit from Matrox MXO2 to capture, monitor, and playback on set. Back in the post suite, they can use Matrox MXO2 to work with 1K and 2K RED timelines and output to SD, 720, or 1080 via MXO2's realtime 10-bit hardware scaling feature.

HD-SDI closed captioning support – You will no longer need to spend time and money recreating HD captioning data that is typically lost when editing projects in Final Cut Pro. Matrox MXO2 offers a unique patent pending workflow to capture, playback, and preserve closed captioning data while editing. Nothing is destroyed

HD and SD video monitoring

Matrox MXO2 Rack turns your HDMI monitor into a true-color video display you can trust, even for color grading. It's packed with features that make it the ideal monitoring solution for Final Cut Pro, Apple Color, Adobe After Effects, and other QuickTime-based applications. You won't need to buy expensive HD monitoring equipment. In addition, MXO2 Rack's realtime downscaling feature lets you view your HD projects on an SD monitor.

HDMI monitoring with 10-bit 4:2:2 color precision – Matrox MXO2 Rack lets you adjust and control your HDMI monitor exactly like you would a broadcast HD/SD monitor. Controls for hue, chroma, contrast, brightness, and blue-only are provided. This unique control gives you accurate color representation so that you can use your HDMI monitor even for color grading.

Pixel-to-pixel mapping on the HDMI display – Matrox MXO2 Rack provides 1:1 pixel mapping on HDMI monitors that support this feature. You get accurate monitoring on your HDMI display in the following resolutions:

- 720 x 486 (NTSC)
- 720 x 576 (PAL)
- 1920 x 1080
- 1280 x 720

Audio monitoring

Matrox MXO2 Rack provides built-in 5.1 and 7.1 surround sound monitoring via XLR so you don't need to invest in additional equipment as you do with some other I/O products. Matrox MXO2 Rack also gives you the flexibility to map any audio track in Final Cut Pro to any audio output.

Realtime hardware up/down/cross conversion on capture and output

Matrox MXO2 Rack lets you deliver in any format your clients demand. The 10-bit hardware scaling provides high-quality mastering.

HD to SD downscaling – Matrox MXO2 Rack provides realtime HD to SD downscaling with proper conversion of the HD color space to the SD color space and proper aspect ratio conversion to anamorphic, letterbox, and center cut. You can monitor or record an SD master of your HD project in real time.

SD to HD upscaling – Matrox MXO2 Rack provides realtime SD to HD upscaling with proper conversion of the SD color space to the HD color space. MXO2 Rack will "pillarbox" 4:3 footage and scale 16:9 SD footage to full screen.

Cross conversion – Matrox MXO2 Rack offers realtime cross conversions from 720 to 1080 and 1080 to 720. Realtime frame rate conversion is also supported with 2:3:2:3 and 2:3:3:2 cadences. This feature is useful if, for example, your source material is recorded at a different frame rate or resolution than the delivery format your client requires. It also facilitates monitoring when, for example, you need to work with 23.98 fps footage but your monitor does not support that frame rate. You can use MXO2 Rack's realtime frame rate conversion to view your project at 29.97 fps. Conversion from 23.98 fps to 25 fps is handled by Final Cut Pro and the host.

Matrox MXO2 Rack kit contents

Matrox MXO2 Rack input/output device

Two mounting "ears"

Matrox MXO2 PCIe host adapter (for use with Mac Pro)

Matrox MXO2 PCIe cable (3 meter)

IEC-C13 power cord

BNC 75-ohm terminator (for REF OUT connector)

(The optional Matrox MXO2 ExpressCard/34 adapter for use with MacBook Pro and additional Matrox MXO2 PCIe host adapters may be purchased separately. A third-party RS422 cable is required for machine control.)

