



Complete HD/SD I/O for the Mac

Why buy an I/O card and a breakout box when you can get all the features of both in Matrox MXO2? This award-winning device also gives you the added advantage of portability. It can easily be moved among the Mac Pros in your facility as the need arises and you can take it on the road with a MacBook Pro. It gives you highly-reliable, broadcast-quality HD/SD input/output via HDMI, SDI, and analog; professional audio inputs and outputs including built-in 5.1 surround sound monitoring; and HDMI video monitoring with calibration controls including blue-only. You also benefit from a wide variety of workflows with Final Cut Studio thanks to Matrox MXO2's 10-bit hardware up/down/cross scaling engine and support for a wealth of file-based formats and industry-standard codecs. Enjoy maximum I/O flexibility with Matrox MXO2 – edit anything, anywhere!

Matrox MXO2 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
- Lightweight – less than 3½ lbs. (1600 grams)
- Fits in your laptop bag – 13" x 9½" x 2" (330mm x 241mm x 51mm)
- Can run off a field battery (or its AC adapter)
- HD/SD SDI, HD/SD analog component, Y/C, and composite inputs and outputs
- Genlock – 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 surround sound monitoring
- 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.

Truly portable

Matrox MXO2 is the first truly portable I/O device for the Mac. It fits easily into your laptop bag and can run off standard field batteries or the included AC power adapter. It connects to your MacBook Pro via Apple's ExpressCard/34 slot or to your Mac Pro via a PCI Express adapter card. Both adapters are included.



HD and SD inputs and outputs

Matrox MXO2 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
 - 2 XLR - stereo pair (balanced)
 - 2 RCA - stereo pair (unbalanced)
 - 2 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
 - 4 XLR - stereo pair (balanced)
 - 6 RCA - for surround sound monitoring (unbalanced)
 - 2 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 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.

Flexible workflows

Capture to a variety of codecs – Matrox MXO2 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 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 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 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'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 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 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 provides built-in 5.1 surround sound monitoring via RCA so you don't need to invest in additional equipment as you do with some other I/O products. Matrox MXO2 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 lets you deliver in any format your clients demand. The 10-bit hardware scaling provides high-quality mastering.

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

Cross conversion – Matrox MXO2 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'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 kit contents

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Matrox MXO2 input/output device

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

Matrox MXO2 PCIe host ExpressCard/34 adapter (for use with MacBook Pro)

Matrox MXO2 PCIe cable (1 meter)

Matrox MXO2 external power supply

IEC-C13 power cord

(The Matrox MXO2 battery power cable and additional Matrox MXO2 host adapters may be purchased separately. A third-party RS422 cable is required for machine control.)

