



## The ideal output and monitoring device for 13" and 15" MacBook Pros and iMacs

The patented Matrox MXO is a versatile output and monitoring device for the Mac. The special Matrox MXO-DVI method of using a DVI port (or Mini Display-Port with an adapter) makes Matrox MXO the ideal companion for the latest generation of 13" and 15" MacBook Pros and iMacs. These systems are powerful enough for video editing with Final Cut Pro but lack the expandability to accommodate an I/O device without sacrificing the FireWire port you'd like to use for your storage interface.

Matrox MXO gives you the frame-accurate, broadcast-quality HD/SD analog and SDI output you need for mastering native digital projects – from XDCAM HD, P2 HD, DVCPRO HD, and HDV sources, for example – directly to tape or to a satellite encoder. In addition, it turns your Apple Cinema Display or other DVI monitor into a professional HD/SD video monitor using Matrox's unique color calibration tools including blue-only.

Matrox MXO can also be switched into a genlockable scan converter with HD/SD analog and SDI output.



### Key features

- Provides HD/SD output and monitoring for the latest MacBook Pros and iMacs that lack the ExpressCard/34 or PCIe expansion slots needed to accommodate an I/O device without sacrificing the FireWire port needed for storage interface
- Ideal for native digital workflows – XDCAM HD, P2 HD, DVCPRO HD, HDV, etc. – when monitoring and output-to-tape are needed
- Provides a complete set of tools that turns an Apple Cinema Display or other DVI monitor into an artifact-free, true-color video display you can trust, even for color grading
- Genlockable, frame-accurate, broadcast-quality HD/SD SDI, HD/SD analog component, Y/C, and composite outputs with guaranteed a/v sync
- Up to 8 channels SDI embedded audio output and stereo audio monitoring
- Handy way to connect to satellite encoders or uplinks from the field and OB vans
- Realtime downscaling of HD projects to SD resolution with proper color space and aspect ratio conversion for simultaneous HD/SD monitoring and output
- Hardware acceleration of Final Cut Pro Dynamic RT segments, HDV, and DVCPRO HD
- WYSIWYG video output from QuickTime-based applications
- Genlockable HD/SD scan conversion for flicker-free video output of your computer desktop with any application
- Three-year hardware warranty and complimentary telephone support



### Video output for the latest MacBook Pros and iMacs

The latest MacBook Pros and iMacs are powerful enough for video editing with Final Cut Pro but lack the expandability to accommodate an I/O device without sacrificing the FireWire port you'd like to use for your storage interface. Matrox MXO features the special MXO-DVI method of using the DVI port (or Mini DisplayPort with an adapter) on these systems that lets you monitor and output broadcast-quality video while leaving the FireWire port free. Your FireWire port is then available to attach external hard drive video storage or to transfer video from your FireWire-based camera.

### Ideal for native digital workflows

If you work with native digital video formats such as XDCAM HD, P2 HD, DVCPRO HD, and HDV; you can easily transfer your footage into your editing system via USB, card readers, or FireWire. Matrox MXO comes into play when you need a high-quality video preview while you're editing and when you want to output to tape.

### Inexpensive HD monitoring on a DVI display

Normally you can't rely on a DVI display to give you an accurate representation of your video production for three reasons:

1. the original YUV color space of your video is changed to RGB by the system's graphics card;
2. DVI monitors are progressive so artifacts may appear when you try to display interlaced video; and
3. the frame rate of your video will not match the refresh rate of the graphics card so you will see dropped and/or repeat frames.

Matrox MXO overcomes these obstacles with the Matrox MXO-DVI method of using a DVI port (or Mini DisplayPort with an adapter) in a unique way. You may think that Matrox MXO works as a scan converter, but that is not the case. Matrox MXO-DVI turns the DVI connection into a "bus" that intercepts the video and audio before the graphics card can affect any part of the signal. The original YUV video is routed to the MXO device which can output it to an HD monitor or a VTR via SDI or analog in true YUV format. The MXO device also processes the video to ensure that what you see on your DVI monitor is, in fact, a true representation of your original video. You see accurate color including super black and super white, the elimination of interlacing artifacts, and the true frame rate. Additional tools are provided to ensure optimum viewing on the DVI display including pixel-to-pixel mapping and a "virtual bezel" adjustment.

### Color calibration

The Matrox MXO color calibration utility works in conjunction with your DVI monitor's look-up-table (LUT) to, in effect, turn your DVI monitor into a broadcast monitor. Matrox MXO lets you adjust and control your DVI 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 completely accurate color representation so that you can use your ACD or DVI monitor even for color grading.

### Super black and super white monitoring

Matrox MXO provides super black and super white monitoring, expanding the viewable color range of your DVI monitor.

### Interlacing artifact elimination

When scaling your video to full-screen to match the resolution of your display, MXO uses a special interpolation technique rather than simple line doubling to provide the best possible viewing experience without "jaggy" aliasing artifacts. If you preview interlaced video on your computer display, you've no doubt noticed tearing due to interlacing artifacts in the displayed image. The progressive display inherent in computer monitors is ideal for graphics, but when it comes to displaying interlaced video you see those annoying artifacts. Matrox MXO solves this problem, letting you enjoy artifact-free previews.

[www.matrox.com/video](http://www.matrox.com/video)

Corporate Headquarters — Matrox Video Products Group  
Tel: (514) 822-6364, (800) 361-4903 (North America) • Fax: (514) 685-2853  
E-mail: [video.info@matrox.com](mailto:video.info@matrox.com)

### Pixel-to-pixel mapping

Matrox MXO provides user-selectable 1:1 pixel mapping, providing accurate monitoring on your DVI display in the following resolutions:

720x486 (NTSC)  
720x576 (PAL)  
1920x1080  
1280x720

### "Virtual bezel" on the DVI display

Matrox MXO lets you select a pre-defined resolution to mimic the monitor bezel found on all TVs. For example, this feature can be used to simulate a safe title area so you can check title placement on your DVI monitor. You can create your own bezel or select from the following resolutions:

720x486 (NTSC)  
720x576 (PAL)  
1920x1080  
1280x720

### Frame-accurate, broadcast-quality HD/SD output

Matrox MXO provides frame-accurate output for all QuickTime-based applications that support the V-out component including Final Cut Pro, Color, Soundtrack Pro, Motion, and Adobe After Effects. It features genlockable HD/SD SDI with up to 8 channels of embedded audio, HD/SD analog component, Y/C, and composite outputs, and stereo audio monitoring. SD analog black burst (bi-level) or HD tri-level sync genlock are provided. Matrox MXO 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.

Simultaneous SDI and analog outputs in HD or SD let you view your project on a broadcast video monitor and record to tape at the same time. A third-party RS-422 adapter is required for deck control.

### Connect to satellite encoders or uplinks from the field

Matrox MXO can be used to connect to a satellite encoder or uplink from the field or an OB van.

### Realtime HD to SD downscaling and simultaneous HD and SD output

Matrox MXO provides realtime HD to SD downscaling so that you can record an SD master of your HD project in real time. MXO provides proper conversion of the HD color space to the SD color space and proper aspect ratio conversion to anamorphic, letterbox, and center cut. The scaling is done in hardware, placing no burden on the CPU and GPU, so you have more processing power available for your application.

### Hardware acceleration of Final Cut Pro Dynamic RT segments, HDV, and DVCPRO HD

When you are working with Final Cut Pro Dynamic RT segments or the HDV and DVCPRO HD formats, the Matrox MXO 10-bit hardware scaler takes some of the burden off your CPU, saving processing power for other Final Cut Pro operations, so you get better realtime performance.

In Dynamic RT editing mode, Final Cut Pro automatically reduces frame size to let you preview non-realtime segments of your project at a better frame rate. With the Matrox MXO hardware scaler, these segments are accelerated to their original frame size.

Matrox MXO accelerates HDV and DVCPRO HD to full resolution during playback.