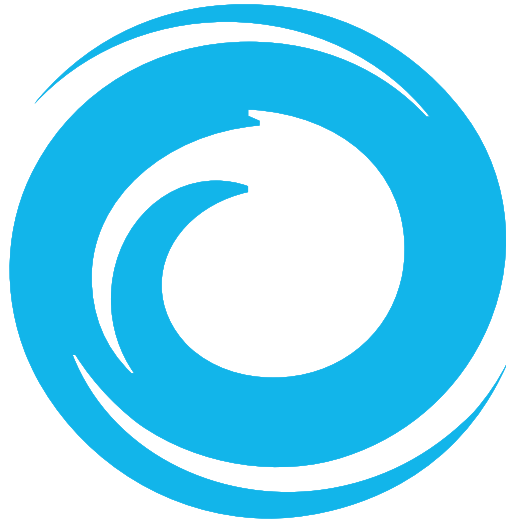


PCIe version of Axio LE  
*now available!*



matrox **axio**<sup>™</sup>

Most powerful realtime HD and SD editing engines  
for broadcast and post

Product Guide / Release 3.1 / March 2008



**matrox**  
Digital Video Solutions

## Table of contents

Overview .....	4
<b>Key features</b> .....	5
Matrox Axio LE .....	5
Matrox Axio HD .....	5
Matrox Axio SD .....	5
<b>Most powerful realtime engine for HD and SD editing</b> .....	6
Highest quality realtime effects .....	6
Most realtime video/graphics layers .....	6
Most comprehensive realtime tool set .....	7
Realtime CPU-based effects .....	7
Realtime primary color correction .....	7
<i>Realtime proc amp controls</i> .....	7
<i>Realtime color match and color balance</i> .....	8
<i>Realtime input/output level control</i> .....	8
<i>Realtime RGB curves control</i> .....	9
Realtime secondary color correction .....	9
Realtime chroma and luma keying .....	10
Realtime speed changes .....	10
Realtime transitions .....	10
Realtime track matte .....	10
Realtime SD clip upscaling in an HD timeline .....	11
Realtime HD clip downscaling in an SD timeline .....	11
Realtime move & scale .....	11
Realtime native Adobe Premiere Pro effects and transitions .....	11
Realtime timecode .....	11
Realtime Matrox Flex GPU effects .....	12
Realtime Adobe Motion effect .....	12
Realtime advanced 2D/3D DVE .....	12
Realtime shadow .....	12
Realtime blur/glow/soft focus .....	13
Realtime page curl .....	14
Realtime surface finish .....	14
Realtime mask .....	14
Realtime pan & scan .....	15
Realtime mask blur .....	15
Realtime mask mosaic .....	15
Realtime Adobe garbage masks .....	16
Realtime four-corner pin .....	16
Accelerated shine .....	16
Realtime crystallize .....	17
Realtime lens flare .....	17
Realtime old movie .....	17
Realtime twirl .....	17
Realtime impressionist effect .....	18
Realtime ripple .....	18
Realtime cube .....	18
Realtime sphere .....	18
Native Adobe Premiere Pro transitions .....	19

<b>Advanced realtime editing workflow</b> .....	20
Tape-based HD workflows .....	20
Tapeless workflows .....	20
Collaborative workflow using centralized storage .....	21
Support for Omneon media servers via native MXF file transfers .....	21
<b>Advanced productivity features</b> .....	22
Editing HD material on Matrox Axio SD .....	22
Downscaling HD projects for SD delivery.....	22
Panasonic VariCam support .....	22
WYSIWYG for compositing and graphics applications .....	22
WYSIWYG video output for Adobe Bridge and Windows Media Player .....	22
Efficient management of AVI and MXF files .....	22
Support for 32-bit AVI with alpha .....	23
Matrox EZ-MXF utility .....	23
Matrox M.Key/100.....	23
Voiceover recording in the timeline.....	23
Realtime mixed-format multi-cam .....	23
Closed captioning support in NTSC .....	24
Cross-platform compatibility.....	24
<b>Multi-format support from DV to 10 bit uncompressed HD</b> .....	25
Standard definition (SD) resolutions and codecs .....	25
High definition (HD) resolutions and codecs .....	25
Flexible AVI and WAV file formats.....	26
Legacy support for Matrox DigiSuite and RT.X100 .....	26
Accelerated export to DVD, all multimedia formats, and Adobe Clip Notes .....	26
<b>Full range of analog and digital audio and video I/O</b> .....	27
Axio LE breakout box .....	28
Axio HD breakout box.....	28
Axio SD breakout box.....	28
<b>Product selection table</b> .....	29
Appendix 1 – What is Matrox EZ-MXF? .....	30
Appendix 2 – The Ultimate Tapeless Workflow – Panasonic P2 .....	31
Appendix 3 – The Ultimate Tapeless Workflow – Sony XDCAM and XDCAM HD.....	33

## Overview

The Matrox Axio family of HD and SD platforms provides a complete post-production solution that lets you get the best from the Adobe CS3 Production Premium software. The Axio platforms are designed to give you the most comprehensive realtime feature set, the highest quality native codec technology, and complete file-based workflows – totally integrated with the Adobe software.

There are three Matrox Axio platforms to choose from, Matrox Axio HD, Matrox Axio SD, and Matrox Axio LE. All offer ultra high performance editing in HD and SD formats. They differ only in terms of the editing codecs supported, the method of performing Matrox Flex GPU effects, and the audio and video inputs and outputs provided on the breakout boxes.

Matrox Axio goes far beyond the capabilities of systems that combine Premiere Pro with a simple I/O card.

The additional benefits you get with the Axio platforms include:

- Many more realtime layers of video and graphics in HD and SD
- Realtime mixed-format timelines
- More effects in real time including color correction, chroma/luma keying, speed changes, blur/glow/soft focus, and much more
- Broadcast-quality, realtime 3D effects with soft edges, and realistic shadows
- Native MXF file support for Panasonic P2, Sony XDCAM, and Sony XDCAM HD in Adobe Premiere Pro and After Effects
- Support for Omneon media servers via native MXF file transfers
- Matrox EZ-MXF utility for native MXF file support in video for Windows (AVI) applications
- Native support for additional codecs including: DVCPRO HD, MPEG HD, offline HD, MPEG-2 I-frame in HD and SD, IMX, DVCPRO, and DVCPRO50
- Realtime playback of 32-bit compressed and uncompressed AVI with alpha
- Support for Panasonic VariCam
- Support for 720p @ 50 and 59.94 fps (JVC ProHD)
- Realtime mixed-format multi-cam
- Realtime high-quality downscaling from HD to SD (simultaneous HD and SD output on Axio LE)
- Accelerated export to DVD, all multimedia formats including Flash Video, and Adobe Clip Notes
- WYSIWYG for Adobe After Effects, Bridge, and Photoshop, Autodesk Combustion and 3ds Max, eyeon Fusion, NewTek LightWave 3D, and Windows Media Player with dynamic Alt+Tab switching
- Audio VU meters on capture



## Key features

### Matrox Axio key features

- Makes Adobe Premiere Pro the foremost HD and SD editor for broadcast and post
- Full-resolution, mixed-format, multi-layer realtime editing of HD and SD video, graphics, and effects
- Realtime Matrox Flex CPU effects such as color correction, speed changes, and chroma/luma keying
- Realtime and accelerated Matrox Flex GPU effects such as 2D/3D DVE, blur/glow/soft focus, and shine
- Native MXF file support for Panasonic P2, Sony XDCAM, and Sony XDCAM HD in Adobe Premiere Pro and After Effects
- Support for Omneon media servers via native MXF file transfers
- Extensive native codec support in HD and SD – uncompressed, MPEG-2 I-frame, DVCPRO HD, MPEG HD, HDV 1080i, HDV 1080p, HDV 720p (JVC ProHD), IMX, DVCPRO50, DV, DVCPRO, DVCAM
- Realtime playback of 32-bit compressed and uncompressed AVI with alpha
- 24 fps editing in HD and SD with pull down, reverse pull down, and Panasonic VariCam support
- Realtime high-quality downscaling from HD to SD
- Accelerated export to DVD, multimedia formats including Flash Video, and Adobe Clip Notes
- WYSIWYG for Adobe After Effects, Bridge, and Photoshop, Autodesk Combustion and 3ds Max, eyeon Fusion, NewTek LightWave 3D, and Windows Media Player
- Matrox EZ-MXF utility for native MXF file support in Video for Windows (AVI) applications

### Matrox Axio LE

#### Realtime HD and SD editing for broadcast and post

- Uncompressed 8- or 10-bit HD and SD editing
- Relies on the power of your system GPU to process Matrox Flex effects
- DV-1394, composite, Y/C, HD/SD analog component, and HD/SD SDI input and output
- Simultaneous HD and SD output
- 2-in/6-out AES/EBU audio, 2-in/6-out XLR audio, 8-in/6-out SDI embedded audio, 1/4" output jack for stereo monitoring



### Matrox Axio HD

#### Realtime HD and SD editing with HD I/O for broadcast and post

- Uncompressed 8- or 10-bit HD and SD editing
- Dedicated on-board GPU for guaranteed realtime Matrox Flex effects
- DV-1394, HD/SD SDI input and output
- RGB and YPbPr analog component output
- 4-in/8-out AES/EBU audio, 8-in/8-out SDI embedded audio, 2 XLR outputs for monitoring



### Matrox Axio SD

#### Realtime HD and SD editing with SD I/O for broadcast and post

- Uncompressed 8- or 10-bit SD editing
- Uncompressed 8-bit HD editing
- Dedicated on-board GPU for guaranteed realtime Matrox Flex effects
- DV-1394, composite, Y/C, analog component, and SD SDI video input and output
- 2-in/2-out RCA and XLR audio, 8-in/8-out SDI embedded audio
- Upgradeable to Matrox Axio HD by simply adding the Axio HD breakout box



## Most powerful realtime engine for HD and SD editing

The Matrox Axio platforms let you work at the highest finishing quality with the most realtime video/graphic layers and the most comprehensive realtime tool set of any platform in their class.

Matrox Axio is designed to overcome the limitations of software-only editing by providing performance- and quality-optimized effects processing. Built on Matrox Power of X and Flex technologies, Matrox Axio leverages CPU and GPU power to provide a tightly integrated, ultra high performance SD and HD editing environment for Adobe Premiere Pro.

### Highest quality realtime effects

Matrox has invested heavily to develop the expertise in code optimization for both AMD and Intel processors that enables us to deliver the most powerful realtime effects at the highest quality. Matrox Axio effects are fully keyframeable and feature a high level of control for detailed work. Each effect has a series of parameters that can be fine tuned to get just the look you want. To save time you can use the preconfigured effects presets or create and save your own presets.

### Most realtime video/graphics layers

Many editing systems compromise quality or effects refinement and complexity to increase the number of layers, whereas Matrox Axio always delivers maximum realtime quality. Timelines with more layers and/or effects than can be processed in realtime can still benefit from hardware-accelerated previews. Matrox Axio will always play back the timeline at the best possible quality and if necessary, gracefully reduce the frame rate. You always get in-context feedback as you work.

The number of layers that can be processed in real time depends on your system CPU, the GPU that is performing the effects processing, and the characteristics of your workflow – the video resolution you are working with, the frame rate, the codec, and the number and complexity of effects. System selection guidelines and lists of validated computers, motherboards, and GPUs are posted in the support section of the Matrox website.

For more information on supported video resolutions, frame rates, and codecs please refer to page 25.

## Most comprehensive realtime tool set

The combination of realtime Matrox Flex CPU effects and realtime Matrox Flex GPU effects gives you all the realtime features you need to finish your projects in record time.

### Realtime CPU-based effects

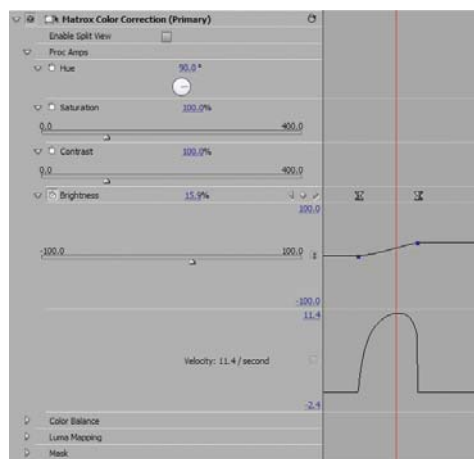
The Matrox Axio platforms rely on the power of your CPU to perform a variety of realtime and accelerated effects.

The Matrox Flex CPU effects are also available in Adobe After Effects. If you have a timeline in Premiere Pro with any of the Matrox Flex CPU effects and you copy/paste the timeline into After Effects, the Matrox effects will remain intact. This is a huge time saver, given that these effects are realtime in Premiere Pro.

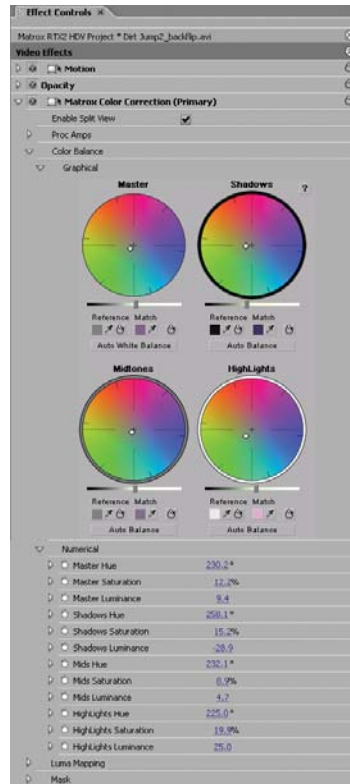
- **Realtime primary color correction** — Primary color correction is a critically important effect for all productions, whether to achieve continuity when cutting between shots, ensure broadcast safe levels, or establish and emphasize a “look”. The primary color corrector provides basic proc amp control; three-way color correction complete with master, shadows, midtones and highlights control; input/output level control; and RGB curves control.



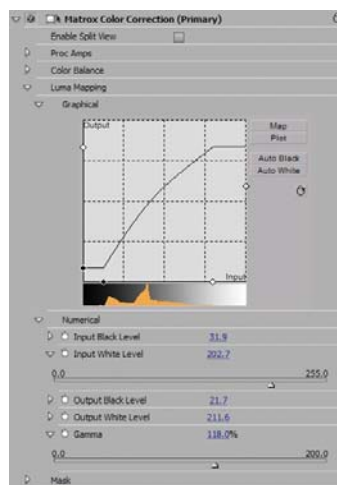
**Realtime proc amp controls** — Matrox Axio lets you easily adjust four proc amp controls – hue, saturation, brightness, and contrast. Hue adjusts the tint of the colors in the image, saturation adjusts the vividness, contrast adjusts the difference in luminance between the lightest and darkest areas of the image, and brightness adjusts the level of black. You can also use these controls to create special effects, such as black and white, in real time.



*Realtime color match and color balance* — Colors can be corrected using nine parameters related to the black (shadow), midtone, and white (highlight) levels of your clips. You can easily match colors or balance blacks, whites, and grays against a reference shot in one simple step.



*Realtime input/output level control* — Using the histogram display and level controls, luminance levels can be remapped to maximize the dynamic range of a clip. For example, bright areas can be made brighter and dark areas can be made darker. Five parameters are available – black, white, and gamma levels on the input; and black and white levels on the output. Auto white and auto black controls are also provided.



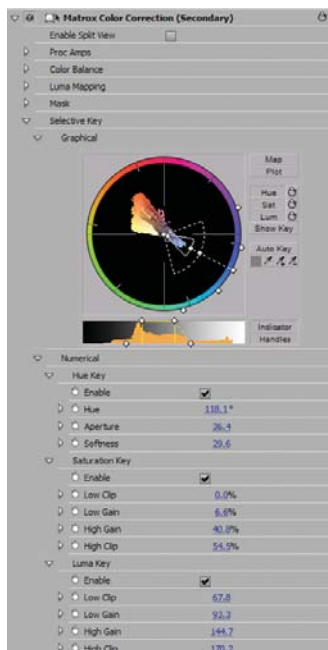


*Realtime RGB curves control* — RGB curves control offers a fast, natural way to fine-tune the colors in your video. If, for example, you want to remove a blue tint from your video, you simply drag the blue curve down. With RGB curves you can also achieve wild color effects and other looks that are otherwise impossible.



- **Realtime secondary color correction** — The secondary color corrector is an advanced tool used for fine-tuning or dramatic effects creation. It offers all the controls found in the primary color correction filter with the added capability of limiting the effect to a specific range of pixels. Pixel selection can be done using color and/or brightness. Using the simple garbage matte tool, you can also limit the effect to a specific region. The pixel selection can also be inverted.

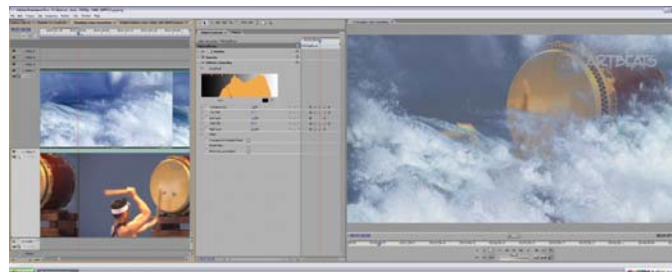
The secondary color corrector can be used, for example, to change the color of a dress, deepen the background sky color, or to achieve an effect similar to the film *Schindler's List* where only one object or person remains in color while the rest of the image becomes black and white.



- **Realtime chroma and luma keying** — Matrox Axio provides one of the finest realtime chroma keyers in the industry. It makes clean blue- and green-screen keys easy to achieve, even with DV and HDV material shot in less than optimal lighting conditions. It upsamples your video to 4:4:4 resolution and uses advanced noise reduction algorithms to ensure superior results. The auto key button intelligently adjusts the key with soft edges, spill removal, and shadow preservation. If needed, you can further refine the key with manual controls. The Matrox Axio chroma keyer lets you key on any color, not just blue and green. It also lets you invert the selection and display the matte being generated to fine tune the key.



The realtime luma keyer gives you low clip, low gain, high clip, high gain, and transparency controls.

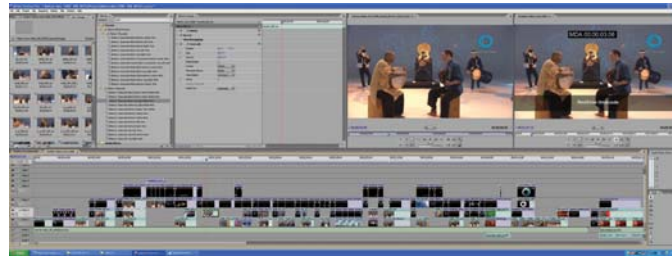


- **Realtime speed changes** — You can use speed changes to emphasize special moments, extend the duration of shots to match voiceover timing, or enhance the feeling of dramatic shots. Matrox Axio lets you apply smooth slow and fast motion with field or frame blending.
- **Realtime transitions** — Matrox Axio supports standard dissolves, SMPTE wipes, and organic wipes with soft edges and color borders.



- **Realtime track matte** — The realtime track matte effect lets you superimpose one clip onto another using an animated matte, sometimes called a traveling matte, to determine how the two clips are composited (keyed). You can use a grayscale video or graphics clip as your matte, or use a graphics clip or graphics sequence with an alpha channel as your matte. When using a grayscale clip as your matte, areas of black in the matte create transparent areas in your foreground clip, areas of white create opaque areas that prevent the underlying clip from showing through, and gray areas create semi-transparent areas in your foreground clip.

- **Realtime SD clip upscaling in an HD timeline** — This effect is enabled by right-clicking on an SD clip in an HD timeline and selecting “scale to frame size”. It provides realtime playback of SD clips upscaled to HD to let you mix NTSC material into a 1080i at 29.97 fps timeline or PAL material into a 1080i at 25 fps timeline. It also provides realtime playback of 576p or 486p SD clips upscaled to HD to mix into a 1080p timeline.
- **Realtime HD clip downscaling in an SD timeline** — This effect is enabled by right-clicking on an HD clip in an SD timeline and selecting “scale to frame size”. It provides realtime playback of HD clips downscaled to SD to let you mix 1080i at 29.97 fps material into an NTSC timeline or 1080i at 25 fps material into a PAL timeline. It also provides realtime playback of HD 1080p clips downscaled to SD to mix into a 576p or 486p SD timeline.
- **Realtime move & scale** — This effect lets you apply multiple 2D DVEs simultaneously in real time to easily set up picture-in-picture effects. You can also use the move & scale effect to animate multiple titles in real time.
- **Realtime native Adobe Premiere Pro effects and transitions** — Some of Adobe Premiere Pro’s most popular native effects and transitions such as Opacity, Crop, Dip to Black, Black and White, Dissolve, and Additive Dissolve can be used in real time on Matrox Axio in SD. These effects and transitions are accelerated in HD.
- **Realtime timecode** — Axio overwrites the Adobe Premiere Pro timecode filter so that it becomes realtime. The realtime timecode effect lets you generate and overlay a timecode counter on a video production. You can use it to make a dub of source tapes with timecode “burn-in” then use these tapes to log scenes, create edit decision lists, or get client feedback on your finished production.



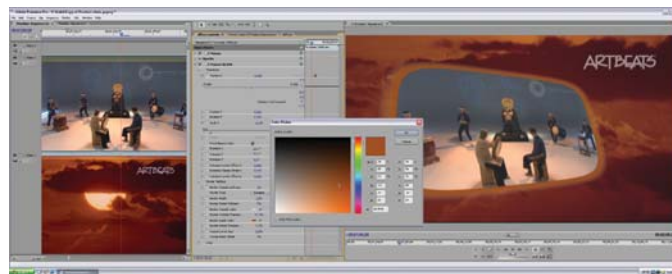
## Realtime Matrox Flex GPU effects

Using the power of a GPU, Matrox Axio lets you create a wide variety of fully-keyframeable, broadcast-quality 2D and 3D digital video effects. All effects can be applied to video or graphics on any layer. Although Matrox Axio provides the most realtime power of any system in its class, certain complex effects or combinations of effects at certain resolutions using certain codecs may not playback in real time, but they still benefit from hardware acceleration.

Matrox Axio HD and Matrox Axio SD feature a specialized card with an on-board GPU optimized for moving large amounts of data to and from host memory. The use of this dedicated card maximizes realtime 3D effects performance in HD and SD.

Axio LE relies on the power of your system CPU and GPU to process Matrox Flex effects. Using today's graphics cards, most 3D effects will be realtime in SD. In the more demanding HD resolutions, some effects will be realtime and the rest will be hardware accelerated. System selection guidelines and lists of validated computers, motherboards, and GPUs are posted in the support section of the Matrox website.

- **Realtime Adobe Motion effect** — Matrox Axio overwrites the Adobe Premiere Pro Motion effect (position, scale and rotation) so it becomes realtime.
- **Realtime advanced 2D/3D DVE** — Matrox Axio lets you position your clips anywhere in 3D space while adding soft edges and rounded borders with color gradients in real time.



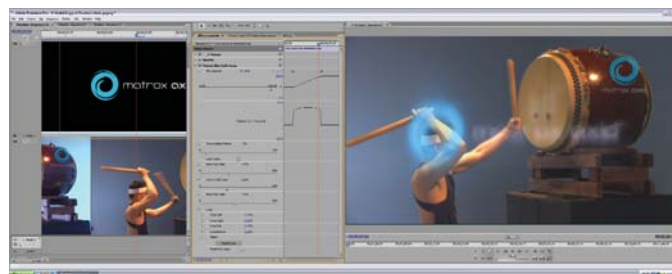
- **Realtime shadow** — Matrox Axio lets you project a realistic shadow from any source containing key information such as DVEs, titles, and keyed video. You can tint the shadow and position, scale, and rotate it to match the angle of the surface on which it is cast. Applying blur to the shadow can simulate the realistic look of diffused light being projected on the source.



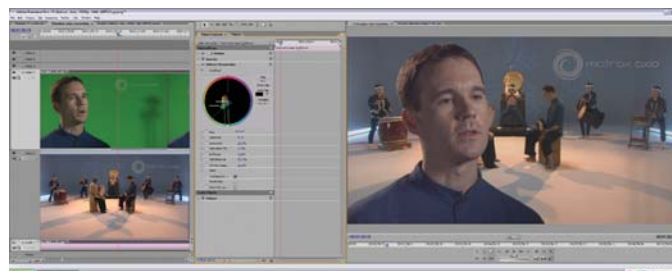
- **Realtime blur/glow/soft focus** — The blur/glow/soft focus effect lets you simulate camera defocus and create unique effects in real time.



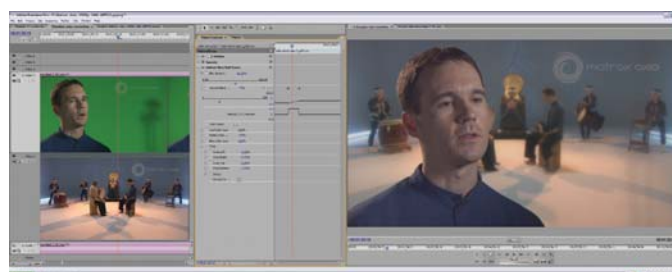
Soft focus



Glow on graphics



Chroma key without blur

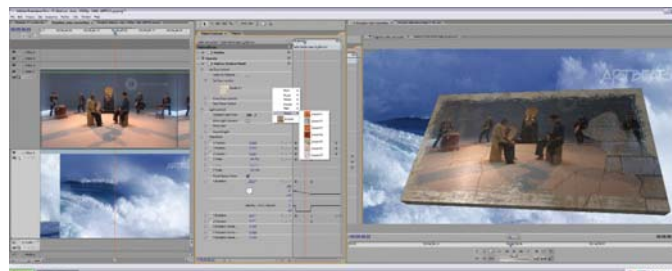


Chroma key with blur background

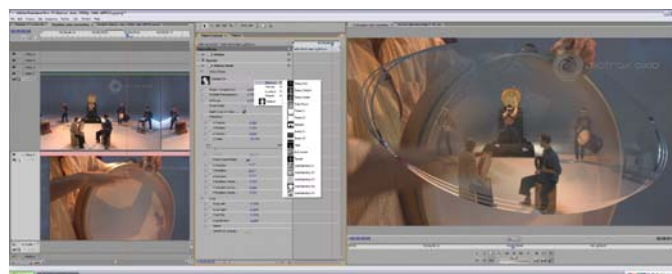
- **Realtime page curl** — Matrox Axio page curls are true 3D with full-motion video on the reverse side and realistic highlights. Page curls on graphics let you create great looking text effects. You control the position, rotation, scaling, and zooming of page curls in 3D space. You also have control over the softness of the edges.



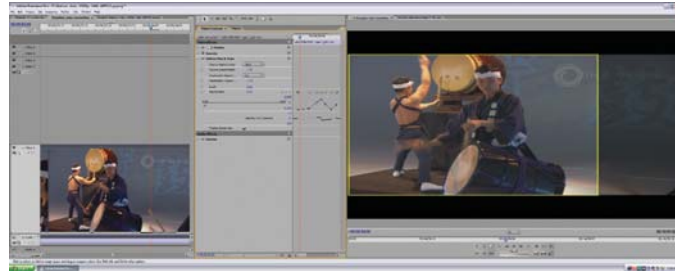
- **Realtime surface finish** — The surface finish effect gives metal, brick, wood, or granite textures to your video clips with color spot lighting.



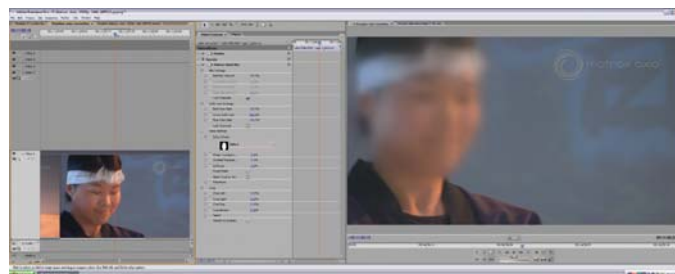
- **Realtime mask** — The mask effect lets you create a “region of interest” by adding a mask to your video clips. You can either create your own custom made mask or select one of the many pre-created, soft-edged cutout shapes included with the effect.



- **Realtime pan & scan** — The realtime pan & scan filter lets you easily convert footage from any aspect ratio to any other. Tracking on-screen action to make accurate judgments is easy because you see the entire source clip and the section of it that will become the final result. For example, DV 16:9 footage is always captured anamorphically and therefore appears vertically stretched when viewed on a 4:3 monitor. To restore the proper aspect ratio, the realtime pan & scan filter lets you letterbox or pan & scan your footage, or use a combination.



- **Realtime mask blur** — The realtime mask blur effect lets you create a “region of interest” by adding a mask and applying blurring to it. You can either create your own custom made mask, or select one of the many pre-created masks included with the effect.



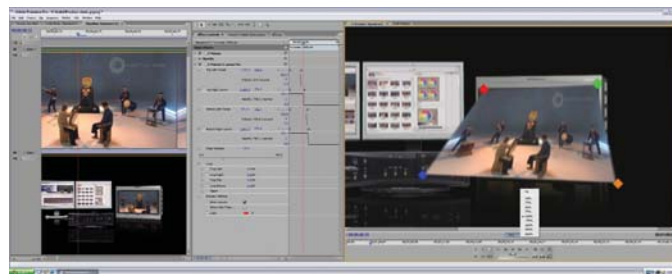
- **Realtime mask mosaic** — The realtime mask mosaic effect lets you create a “region of interest” by adding a mask and applying a mosaic effect to it. You can either create your own custom made mask, or select one of the many pre-created masks included with the effect.



- **Realtime Adobe garbage masks** — Axio overwrites the Adobe Premiere Pro 4-, 8-, and 16-point garbage mask effects so they become realtime in both HD and SD. A garbage mask is often used when compositing multiple layers. For example, when applying a key, it is often desirable to apply a garbage mask so that you can crop unwanted objects from the background.



- **Realtime four-corner pin** — The realtime four-corner pin effect lets you anchor each corner of a video or graphics clip onto points in another clip, even if the underlying clip is angled or skewed. This effect is useful if you want to overlay a video clip onto an underlying clip of a television screen, for example.

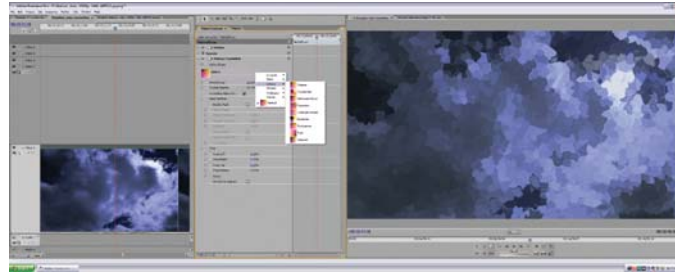


- **Accelerated shine** — Shine is the shimmering light ray effect often seen on TV and film titles. There's no need to buy an expensive plug-in to get this look. With Matrox Axio, processing of the shine effect is accelerated in HD and SD.

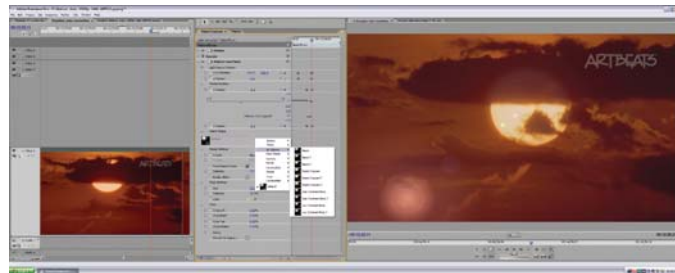




- **Realtime crystallize** — The crystallize effect lets you choose from many different patterns to make your image or text appear as if it is made of crystals.



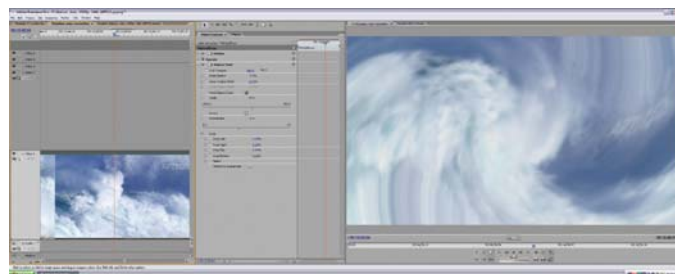
- **Realtime lens flare** — The lens flare effect lets you simulate the light refractions caused by shining a bright light into the lens of a camera when taking a photo. You can choose from many different lens flare patterns.



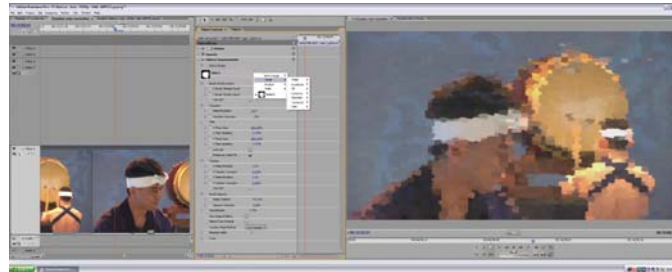
- **Realtime old movie** — The old movie effect lets you create an old film look on your clips by adding scratches, flicker, jitter, and grain.



- **Realtime swirl** — The swirl effect lets you create patterns that twist and rotate your video and graphics clips into spirals, coils, or whirlpools.



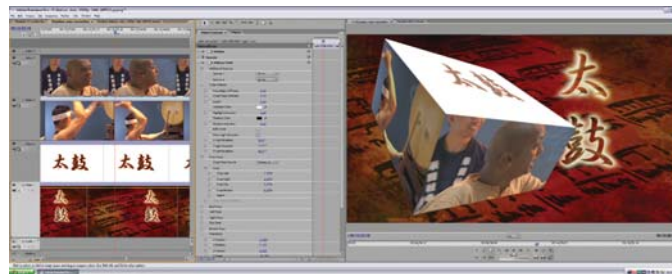
- **Realtime impressionist effect** — The impressionist effect lets you choose from many different patterns that give your image the look of an Impressionist painting.



- **Realtime ripple** — The ripple effect lets you create 3D patterns that simulate a flag waving, ripples in a pond, or a dream sequence.



- **Realtime cube** — The cube effect lets you map three different video, graphics, or solid colors to the faces of 3D cubes and slabs in real time, then rotate them in 3D space.



- **Realtime sphere** — The realtime sphere effect lets you morph your video into spheres with shadow and highlight. The degree of morphing, the radius of the sphere, and the location of your light source are all keyframeable.



- **Native Adobe Premiere Pro transitions** — Most Adobe Premiere Pro native transitions can be used in real time on Matrox Axio. The effects you've been accustomed to rendering in Premiere Pro can now be played back in real time in SD. They are accelerated in HD.



Adobe transitions made realtime or accelerated on Matrox Axio

Efecto Especial	Encadenados	Iris	Cortinillas	3D Motion	Estiramiento	Page Peel	Zoom	Delizamiento
Direct	Random Invert	Iris Cross	Band Wipe	Cube Spin	Cross Stretch	Roll Away	Cross Zoom	Band Slide
Take		Iris Diamond	Barn Doors	Curtain	Funnel		Zoom	Center Merge
Texturize	Fundido encadenado*	Iris Points	Checker Wipe	Doors	Stretch		Zoom Boxes	Center Split
Tres-D	Additive Dissolve*	Iris Round	CheckerBoard	Flip Over	Stretch In		Zoom Trails	Multi-Spin
	Fundido a negro*	Iris Shapes	Clock Wipe	Fold Up	Stretch Over			Push
		Iris Square	Inset	Spin				Slash Slide
		Iris Star	Pinwheel	Spin Away				Slide
			Radial Wipe	Swing In				Sliding Bands
			Random Blocks	Swing Out				Sliding Boxes
			Random Wipe	Tumble Away				Split
			Spiral Boxes					Swap
			Venetian Blinds					Swirl
			Wedge Wipe					
			Wipe					
			Zig-Zag Blocks					

\* CPU-based effects

## Advanced realtime editing workflow

Matrox Axio supports traditional offline-online tape-based workflows and the new tapeless workflows, as well as a mix of both. There is no need to choose one or the other – you have complete flexibility to work with whatever formats your clients throw at you. Matrox Axio offers a full range of performance- and quality-optimized codecs that are critical for efficient collaborative workflow. Axio's versatile architecture and native codec support let you mix the full range of video formats on your timeline without time-consuming and quality-compromising transcoding.

You can mix all file formats and all codecs on your timeline in real time. In many cases you can also mix resolutions in real time. Mixing interlaced formats with progressive formats will require rendering of the clips that do not match the timeline format. Clips within a timeline that do not have the same frame rate as the timeline format will also require rendering.

- Resolutions: NTSC <-> 1080i at 29.97 fps; PAL <-> 1080i at 25 fps; 486p at 23.98 fps <-> 1080p at 23.98 fps; 486p at 29.97 fps <-> 1080p at 29.97 fps; 576p <-> 1080p at 25 fps
- File formats – MXF, AVI, MPEG (Adobe native HDV), M2T (FireStore)
- Codecs – uncompressed, MPEG-2 I-frame, DVCPRO HD, MPEG HD, HDV, IMX, DVCPRO50, DV, DVCPRO, DVCAM, offline

This versatility simplifies integration with various broadcast equipment and eases file management, as there is no need to maintain multiple versions of your clips. You simply capture your footage using the appropriate codec for your source material and then combine clips in their native formats as needed.

For the full list of supported video resolutions, frame rates, and codecs please refer to page 25.

Matrox Axio also completes a PC-based workflow for customers seeking end-to-end solutions using MXF file formats with Omneon MediaDeck and Spectrum media servers, and MediaGrid active storage systems.

### Tape-based HD workflows

Matrox Axio provides the full range of analog and digital inputs to let you work with tape-based source material. For the full list of supported I/Os please refer to page 28.

- For no-compromise image quality, Matrox Axio offers realtime multi-layer uncompressed editing
- For those projects where HD bandwidth and storage requirements are a concern, Matrox Axio provides a finishing-quality MPEG-2 I-frame HD codec. It is highly optimized to provide visual quality that rivals uncompressed but with tremendous savings in storage space and file transfer times
- For responsive low bit rate editing of proxy HD material on a laptop, from a DVD, or over a low-bandwidth network, Matrox Axio also features an offline HD codec
- For digital tape formats, Matrox Axio provides native ingest over 1394 and realtime multi-layer editing of HDV, DV, DVCPRO HD, DVCPRO50, DVCPRO, and DVCAM. Native editing saves time and preserves video quality

### Tapeless workflows



The new “tapeless workflows” offered by Panasonic P2 and Sony XDCAM and XDCAM HD are truly revolutionary. They simplify acquisition, transport, archiving, asset management, etc. At the heart of these tapeless workflows is MXF. MXF (Material eXchange Format) is a standardized (by SMPTE) file exchange format that assures interoperability among devices and systems. P2 and XDCAM use .mxf files rather than .mov, .avi, or .mpg files, for example. MXF provides a common way of packaging video and audio along with metadata so that information about the content is maintained as it flows through the production process.

Matrox Axio natively supports the MXF file format in Adobe Premiere Pro and Adobe After Effects. This allows Axio users to use MXF files – created by their Panasonic P2, Sony XDCAM, or Sony XDCAM HD cameras – directly in these applications without having to convert the files to the traditional AVI file format.

Matrox Axio also includes the unique Matrox EZ-MXF utility to let you use your native MXF files in animation, compositing, and motion graphics applications that support Video for Windows AVI files.

Matrox Axio also supports the use of the popular Focus Enhancements FireStore drives allowing you to simply transfer P2 and HDV files to your Axio system and edit them in realtime.

For more information about Matrox EZ-MXF please refer to Appendix 1.

For more information about tapeless workflow with Matrox Axio and Panasonic P2 please refer to Appendix 2.

For more information about tapeless workflow with Matrox Axio and Sony XDCAM and XDCAM HD please refer to Appendix 3.

### Collaborative workflow using centralized storage

Realtime nonlinear editing gives you the creative freedom to experiment and make changes to your projects on the fly. In facilities where multiple artists collaborate on common projects, the next level of productivity gain comes from true file sharing using centralized storage. Where tasks are sub-divided, with everyone working from their own computer and storage; special effects scenes, graphics, sound tracks, and animations are transferred back and forth between editing stations and the other creation stations. All these file transfers cause delays, interfere with creativity, lead to versioning errors, and make back-ups more difficult.

Matrox Axio takes advantage of recent advances in compression, data storage, and high-speed networking technologies to enable realtime editing of HD projects across your entire facility. Media files reside on central storage and are accessed using a high-speed network so the most recent changes are immediately available to everyone working on a project. Access rights can be managed to prevent accidental or unauthorized modification or deletion of files.

The optional Matrox M.Key/100 USB device lets you implement this workflow even in compressed HD. It unlocks the Matrox MPEG-2 I-frame HD, DVCPRO HD, HDV, and 32-bit VFW codecs on systems without Matrox editing cards, so any system can use these AVI files captured on Matrox Axio and create these AVI files for use on Matrox Axio. This flexibility lets you use any machine to do a rough cut, then copy the project and assets to an Axio system to finish the job. There is no need for time consuming recapturing. In addition, digital content creators can use VFW applications such as Adobe After Effects, Autodesk Combustion and 3ds Max, eyeon Fusion, and NewTek LightWave 3D to render finished elements that will playback in real time on an Axio system. By using compressed HD, bandwidth and space pressures on the storage system are minimized.

### Support for Omneon media servers via native MXF file transfers

Matrox Axio completes a PC-based workflow for customers seeking end-to-end solutions using MXF file formats with Omneon MediaDeck and Spectrum media servers, and MediaGrid active storage systems. Using Matrox Axio and Adobe Premiere Pro CS3, you can edit files natively from Omneon Spectrum or MediaGrid servers. After editing, the resulting MXF OP1a (IBP and I-frame) and XDCAM HD/SD files can be sent back to the Omneon MediaDeck or Spectrum media servers for playout. This workflow provides a huge productivity advantage over other methods involving conversion or transcoding before and after editing.

Supported formats include:

- Generic OP1A using MPEG-2 I-frame or IBP compression  
NTSC, PAL  
720p at 50, 60 fps  
1080i at 25, 29.97 fps
- XDCAM using IMX or DV compression  
NTSC, PAL
- XDCAM HD using MPEG HD compression  
1440 x 1080i at 25, 29.97 fps (Available only when in a 1440 x 1080i editing mode.)

## Advanced productivity features

Matrox Axio offers many productivity features that streamline your workflow.

### Editing HD material on Matrox Axio SD

The ability to edit HD material on an Axio SD system makes the collaborative workflow even more flexible and affordable. Projects can be shared seamlessly between systems – projects created on Axio HD can be opened on Axio SD and vice versa. The high quality downscaling also lets you save on the cost of HD monitors. Your SD broadcast monitors can be used to monitor your HD edits.

### Downscaling HD projects for SD delivery

Matrox Axio features broadcast-quality NTSC and PAL output of downscaled HD projects with proper conversion of the HD color space to the SD color space. You can print your HD edit to SD tape in real time. On Axio LE, HD and SD outputs are simultaneous.

### Panasonic VariCam support

Axio supports Panasonic VariCam 24p and 25p workflows. When capturing a VariCam tape, Axio will detect the real 24 or 25 frames (from the transmitted 60) and create a 23.98 or 25 fps file for editing. Axio supports detection over 1394 in a 720p at 23.98 or 25 fps project. The VariCam feature on a P2 camera works similarly to the VariCam feature on tape. The camera actually saves 60 or 50 frames in the P2 MXF file and tags the ones that should be used to playback at 23.98 or 25 fps. Axio lets you play those MXF files in a 23.98 or 25 timeline without any additional processing. Axio will detect and remove the repeated frames on the fly. The camera also features a “pN” native mode in which it will only save the required 23.98 or 25 frames on the P2 card. Axio also supports realtime playback of those “pN” files.

Note: When capturing from a VariCam source using Matrox Axio, only video can be captured. However, you can add a voiceover or separate audio clips to your VariCam clips on the timeline. Axio supports playback of both video and audio in MXF files that you’ve recorded on your Panasonic VariCam camera.

### WYSIWYG for compositing and graphics applications

Matrox Axio includes a WYSIWYG (What You See Is What You Get) video output plug-in for Adobe After Effects and Adobe Photoshop that lets you see your work directly on a broadcast video monitor. The Adobe Dynamic Link feature is supported so you can work in After Effects, Photoshop, and Premiere Pro simultaneously and Alt-Tab between the applications. The video output will change to show the output of the active application.

The WYSIWYG plug-in also supports Autodesk Combustion and 3ds Max, eyeon Fusion, and NewTek LightWave 3D. This feature lets you ensure proper 4:3 or 16:9 aspect ratio in NTSC or PAL, and check for exact color temperature, safe-title area, and any interlace artifacts that may be present in your images. You can also view the alpha channel of your output on the video monitor to check for defects.

### WYSIWYG video output for Adobe Bridge and Windows Media Player

You get instant output of video files such as MPEG, DivX, and AVI on your broadcast monitor using Adobe Bridge, Windows Media Player or other DirectShow-based applications. You can use this feature to show different versions of your work to clients on a broadcast monitor without having to open Adobe Premiere Pro. You simply double click on the file in Windows Explorer.

### Efficient management of AVI and MXF files

Matrox Axio extends Windows Explorer functionality to simplify AVI and MXF file management. Important details such as User Clip Name, Start Timecode, End Timecode, Duration, etc. are available in the Windows Explorer Details View. A clip icon can also be displayed in the Thumbnails View to let you more easily identify your clips.

### Support for 32-bit AVI with alpha

Axio includes 32-bit uncompressed and MPEG-2 I-frame VFW codecs that you can use to render your animations or other compositions containing alpha. The 32-bit AVI files will playback in real time on an Axio system. This support enables many workflow possibilities. For example, an editor creating broadcast graphics in After Effects or using a stock animation package such as Digital Juice or Artbeats can export one 32-bit file instead of rendering out two separate AVI + MATTE files. Having only one file simplifies management and makes it easy to include the composition in the final edit.

The optional Matrox M.Key/100 USB device unlocks the 32-bit Matrox MPEG-2 I-frame VFW codecs on systems without Matrox editing cards.

### Matrox EZ-MXF utility

Matrox Axio includes the unique Matrox EZ-MXF utility to let you use native MXF files in animation, compositing, and motion graphics applications that support Video for Windows (AVI) files.

For more information about Matrox EZ-MXF please refer to Appendix 1.

### Matrox M.Key/100

The optional Matrox M.Key/100 USB device unlocks the Matrox MPEG-2 I-frame HD, DVCPRO HD, HDV, and 32-bit VFW codecs on systems without Matrox editing cards.

With Matrox M.Key/100 attached, any system can use these AVI files captured on Matrox Axio and create these AVI files for use on Matrox Axio. This flexibility lets you use any machine to do a rough cut, then copy the project and assets to an Axio system to finish the job. There is no need for time consuming recapturing. In addition, Matrox M.Key/100 lets dedicated compositing or animation workstations render finished elements that will playback in real time on an Axio system. Popular VFW digital content creation applications include Adobe After Effects, Autodesk Combustion and 3ds Max, eyeon Fusion, and NewTek LightWave 3D.



### Voiceover recording in the timeline

The voiceover feature of Premiere Pro is supported to let you record audio directly in the timeline. It is based on ASIO driver technology, which provides low latency. ASIO is a trademark and software of Steinberg Media Technologies GmbH.



### Realtime mixed-format multi-cam

Matrox Axio supports the multi-cam feature of Adobe Premiere Pro 2.0 and goes further to let you view four cameras simultaneously in real time, even in HD, even if the formats are mixed, provided your Axio system has the proper storage and system speed. For example, in a multi-cam sequence you could use one DV stream, one HDV stream, one DVCPRO HD stream, and one uncompressed stream and switch among them in real time.

### Closed captioning support in NTSC

Your Axio system can be used to edit NTSC video clips that contain closed captioning information on line 21 of active video. You save time, because there is no need to re-create closed captioning information when you deliver your project.

Captioning information is maintained when capturing uncompressed video. It is also maintained when acquiring DV, DVCPRO, and DV50 material over 1394. When capturing to DV using Axio's analog and SDI inputs, it is encoded in the DV stream according to the blue book specification. When capturing to Axio's MPEG-2 I-frame codec, the captioning information is encoded into the MPEG stream according to the ATSC standard.

You can see the closed captioning on your broadcast monitor as you play and scrub the timeline to accurately make your edit decisions. You can even apply some effects such as color correction and fades while maintaining the closed captioning information. Other effects such as cross dissolves and 3D DVEs, however, do affect the closed captioning information so care must be taken when applying effects.

Because Axio maintains the captioning information according to the blue book and ATSC specifications, playout servers that support these specifications, such as the Grass Valley iVDR, can be used to playout Axio files.

### Cross-platform compatibility

If your post-production process involves the use of different offline and/or online suites, you can depend on Adobe Premiere Pro for industry-standard EDL input and output, as well as more advanced exchange formats such as AAF.

All files and projects created on Axio HD, Axio SD, and Axio LE are compatible with all Matrox Axio platforms.

Matrox RT.X2 files and projects are compatible with Matrox Axio.



## Multi-format support from DV to 10-bit uncompressed HD

In an increasingly complex post-production environment, editors need to be able to work in various video formats. All Matrox Axio platforms support a full range of SD and HD editing resolutions, frame rates and industry-standard codecs for compatibility with broadcast and professional equipment.

Matrox's industry-leading expertise in codec development has been fully exploited in the Matrox Axio platforms to provide the most highly optimized quality.

### Standard definition (SD) resolutions and codecs

#### SD resolutions and frame rates

- 486i at 29.97 (NTSC)
- 576i at 25 fps (PAL)
- 486p at 23.98, 29.97 fps
- 576p at 25 fps

#### SD codecs

- DV
- DVCAM
- DVCPRO
- DVCPRO50
- IMX (MXF only)
- MPEG-2 I-frame
- Uncompressed 8-bit
- Uncompressed 10-bit
- M-JPEG DigiSuite legacy format playback
- Lossless DigiSuite legacy format playback

The MPEG-2 I-frame SD and uncompressed SD codecs are also available as 32-bit AVI with alpha. The optional Matrox M.Key/100 USB device unlocks the 32-bit Matrox MPEG-2 I-frame SD VFW codec on systems without Matrox editing cards.

### High definition (HD) resolutions and codecs

#### HD resolutions and frame rates

- 1080i at 25, 29.97 fps
- 1080p at 23.98, 24, 25 fps
- 720p at 23.98, 25, 29.97, 50, 59.94 fps
- HDV 1080i (1440 x 1080) at 25, 29.97 fps
- HDV 1080p (1440 x 1080) at 23.98, 25, 29.97

#### HD codecs

- Matrox Axio MPEG-2 I-frame HD codec – online quality
- Matrox Axio offline HD codec – playback at 1/16 resolution on a laptop or scales up to full size on an Axio system
- Uncompressed 8-bit
- Uncompressed 10-bit (Axio HD and Axio LE only)
- HDV
- DVCPRO HD
- MPEG HD (MXF only)

The MPEG-2 I-frame HD and uncompressed HD codecs are also available as 32-bit AVI with alpha.

The optional Matrox M.Key/100 USB device unlocks the Matrox MPEG-2 I-frame HD, DVCPRO HD, HDV, and 32-bit Matrox MPEG-2 I-frame HD VFW codecs on systems without Matrox editing cards.

## Flexible AVI and WAV file formats

Matrox Axio captures video in Windows-standard AVI and WAV files for complete compatibility with other multimedia applications. Interleaved audio is the industry standard and allows for maximum compatibility with applications that expect the audio to be contained within the AVI file. File management is simplified because there is only one file to keep track of. However, integration with audio workstations and DVD authoring is simplified by using separate WAV audio files. Matrox Axio supports up to eight channels of audio where the first stereo pair is interleaved and the other channels are always separate WAV files.

Matrox Axio provides maximum flexibility by allowing AVI files to be mixed in real time with MPEG (Adobe native HDV), M2T (FireStore), and MXF files.

## Legacy support for Matrox DigiSuite and RT.X100

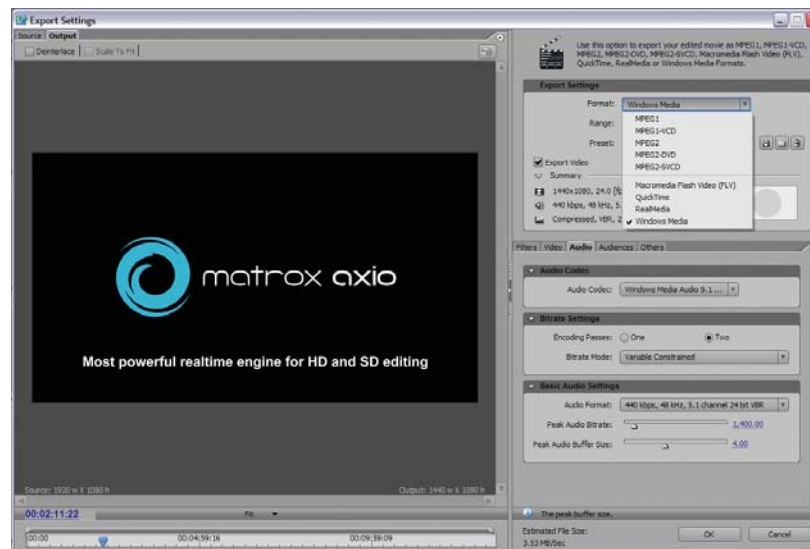
Matrox Axio supports playback of legacy Matrox DigiSuite and RT.X100 AVI files within the editing environment. This allows you to reuse archived footage, network existing platforms with new Matrox Axio workstations, and maintain compatibility with the thousands of broadcast facilities that continue to use Matrox products daily.

## Accelerated export to DVD, all multimedia formats, and Adobe Clip Notes

Matrox Axio significantly accelerates exports to all the formats included in Adobe Premiere Pro.

Adobe Premiere Pro export formats include:

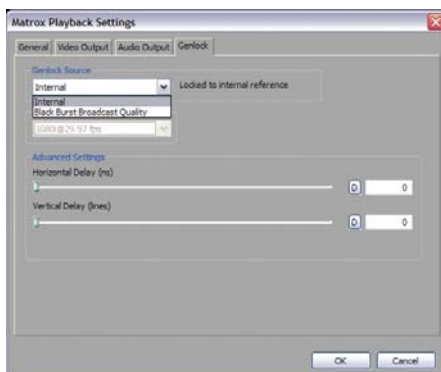
- DVD
- Windows Media for digital cinema, HD DVD, web, and multimedia
- QuickTime
- Real Media
- MPEG-1 for VCD and multimedia
- MPEG-2 for S-VCD, DVD, and HD DVD
- MPEG-4 for streaming
- Flash video (FLV)
- Adobe Clip Notes



## Full range of analog and digital audio and video I/O support

Matrox Axio supports a complete set of industry standard audio and video inputs and outputs via breakout boxes for maximum quality, flexibility, and ease of connection. Matrox Axio breakout boxes can be rack mounted or used on the desktop.

Matrox Axio can genlock to any type of video input. Alternatively, Matrox Axio can genlock to house sync along with other SD or HD equipment through bi-level and tri-level sync so it can easily be timed into your facility's switcher or remote production truck.

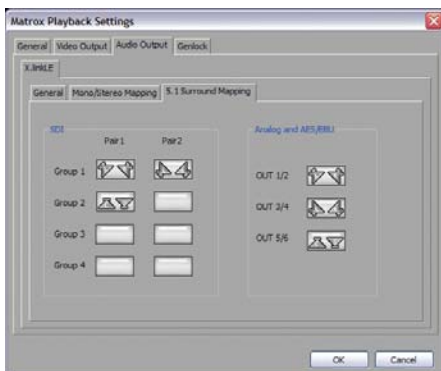


When capturing video, you see the footage that is going onto your hard drive on your console display and your broadcast monitor, even in HDV. VU meters are provided to monitor audio levels when capturing video.



Matrox Axio supports standard RS-422 and FireWire device control protocols with frame accurate capture and print-to-tape. There is no need to purchase third-party device control software for use with Adobe Premiere Pro.

All Matrox Axio platforms provide a full complement of audio I/Os, perfectly synced with video. All audio inputs and outputs support up to 24-bit sampling to ensure very high quality and superior dynamic range during capture, mixing, and output.



### Axio LE breakout box

- Simultaneous HD and SD output
- HD SDI SMPTE-292M or SD SDI SMPTE-259M input and output
- HD or SD analog component input and output
- DV-1394 input and output
- Composite input and output
- Y/C input and output
- Bi-level and tri-level genlock
- 2-in/6-out AES/EBU audio
- 2-in/6-out XLR audio
- 8-in/6-out SDI embedded audio
- 1/4" output jack for stereo monitoring



### Axio HD breakout box

- HD SDI SMPTE-292M or SD SDI SMPTE-259M input and output
- Component YPbPr or RGB output
- DV-1394 input and output
- Bi-level and tri-level genlock
- 4-in/8-out AES/EBU audio
- 8-in/8-out SDI embedded audio
- 2 XLR outputs for monitoring
- User configurable audio routing



### Axio SD breakout box

- DV-1394 input and output
- Composite input and output
- Y/C input and output
- Component YPbPr input and output
- SD SDI SMPTE-259M input and output
- Bi-level genlock
- 2-in/2-out RCA and XLR audio
- 8-in/8-out SDI embedded audio
- User configurable audio routing



# Product selection table

Capture/editing formats	Axio LE	Axio HD	Axio SD
HDV 1080i	X	X	X
HDV 1080p	X	X	X
HDV 720p	X	X	X
DVCPRO HD	X	X	X
DV, DVCPRO, DVCAM	X	X	X
DVCPRO50	X	X	X
P2 MXF – DVCPRO50, DVCPRO HD	X	X	X
XDCAM MXF – DVCAM, IMX	X	X	X
XDCAM HD MXF 18, 25, 35 mbps Slow & Quick Motion	X	X	X
MPEG-2 4:2:2 I-frame SD*	10-50 mbps	10-50 mbps	10-50 mbps
Uncompressed 8-bit SD*	X	X	X
Uncompressed 8-bit HD*	X	X	editing only
Uncompressed 10-bit SD*	X	X	X
Uncompressed 10-bit HD*	X	X	—
MPEG-2 4:2:2 I-frame HD at 1440 horizontal resolution*	50-300 mbps	50-300 mbps	editing only
MPEG-2 4:2:2 I-frame HD at 1920 horizontal resolution*	50-300 mbps	50-300 mbps	editing only
MPEG-2 4:2:2 I-frame HD at 1280 horizontal resolution*	50-300 mbps	50-300 mbps	editing only
Compressed HD for offline	X	X	editing only
Playback of legacy Matrox DigiSuite AVI files	X	X	X
Playback of legacy RT series AVI files	X	X	X

\* Also available as 32-bit AVI with alpha.

## Realtime video effects\*\*

Three-way primary color correction	X	X	X
Three-way secondary color correction	X	X	X
Super smooth field- or frame-blended slow motion	X	X	X
Advanced 3D DVE	X	X	X
Chroma/luma keying	X	X	X
Dissolve, wipes	X	X	X
Surface finish	X	X	X
Blur/glow/soft focus	X	X	X
Shadow	X	X	X
Transitions	X	X	X
Page curls	X	X	X
Mask	X	X	X
Pan & Scan	X	X	X
Mask mosaic	X	X	X
Mask blur	X	X	X
Four-corner pin	X	X	X
Track matte	X	X	X
Native Adobe transitions	X	X	X
Native Adobe effects – opacity, crop, motion, etc.	X	X	X
Accelerated shine	X	X	X
Crystallize	X	X	X
Old movie	X	X	X
Lens flare	X	X	X
Move & scale	X	X	X
Cube	X	X	X
Ripple	X	X	X
Twirl	X	X	X
Impressionist	X	X	X
Adobe garbage mask	X	X	X
Sphere	X	X	X
Timecode	X	X	X

\*\* Certain complex effects at certain resolutions using certain codecs may not playback in real time, but they still benefit from hardware acceleration. Matrox Axio LE relies on the power of your system CPU and GPU to process realtime Matrox Flex effects. Please visit our website for system configuration guidelines.

## System

System requirements	workstation 1 PCI-X slot or 1 PCIe 4x slot full-length	workstation 2 PCI-X slots	workstation 2 PCI-X slots
---------------------	---	------------------------------	------------------------------

Video editing	Axio LE	Axio HD	Axio SD
Ultra high performance editing with Adobe Premiere Pro CS3	X	X	X
Realtime mixed-format timelines	X	X	X
EDL import and export	X	X	X
AAF export for interoperability with other systems	X	X	X
Waveform and vectorscope monitors for color correction and broadcast safe output	X	X	X
User customizable keyboard	X	X	X
Multiple nestable timelines for managing multi-layer effects and complex timelines	X	X	X
Accelerated export to DVD, all multimedia formats, and Adobe Clip Notes	X	X	X
WYSIWYG for compositing and graphics applications	X	X	X
Realtime mixed-format multi-cam	X	X	X
Closed captioning support in NTSC	X	X	X

## Audio editing

Support for multi-channel 5.1 surround sound mixing and monitoring	X	X	X
Sub-frame audio editing	X	X	X
Audio sweetening with VST plug-in support	X	X	X
Voiceover recording in the timeline	X	X	X
VU meters on capture	X	X	X

## Video inputs and outputs

Simultaneous HD and SD output	X	—	—
Realtime high quality downscaling from HD to SD	X	X	X
<b>SD</b>			
1394	X	X	X
Composite	X	—	X
Y/C	X	—	X
Analog component	X	output only	X
SDI – SMPTE 259M	X	X	X
Analog and digital genlock	analog only	X	X
<b>HD</b>			
1394	X	X	X
SDI HD – SMPTE 292M	X	X	—
Analog RGB component	—	output only	—
Analog YPbPr component	X	output only	—
Tri-level genlock	X	X	—

## Supported editing resolutions

720p @ 23.98, 25, 29.97, 50, 59.94	X	X	X
1080i @ 25, 29.97	X	X	X
HDV 1080i (1440 x 1080) @ 25, 29.97	X	X	X
HDV 1080p (1440 x 1080) @ 23.98, 25, 29.97	X	X	X
1080p @ 23.98, 25	X	X	X
1080p @ 24	X	X	—
NTSC	X	X	X
PAL	X	X	X
486p @ 23.98, 29.97	X	X	X
576p @ 25	X	X	X

## Audio inputs and outputs

RCA audio	—	—	2-in/2-out
XLR audio (analog)	2-in/6-out	2-out	2-in/2-out
AES/EBU audio	2-in/6-out	4-in/8-out	—
SDI embedded audio	8-in/6-out	8-in/8-out	8-in/8-out
1/4" output jack for stereo monitoring	X	—	—

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

Matrox reserves the right to change the product specifications without notice. All trademarks are the property of their respective owners. Matrox is a registered trademark and Matrox Axio is a trademark of Matrox Electronic Systems Ltd. Adobe and Adobe Premiere are registered trademarks of Adobe Systems Incorporated in the United States and/or other countries.



## What is Matrox EZ-MXF?

The new “tapeless workflows” offered by Panasonic P2 and Sony XDCAM and XDCAM HD are truly revolutionary. They simplify acquisition, transport, archiving, asset management, etc. They bring the worlds of video editing and IT closer, making video simply a new data format that is as easy to manage as any other digital file.

At the heart of the new tapeless workflows is MXF. MXF (Material eXchange Format) is a standardized (by SMPTE) file exchange format that assures interoperability among devices and systems. P2 and XDCAM use .mxf files rather than .mov, .avi, or .mpg files, for example. MXF is designed for today's file-based workflows and provides a common way of packaging video and audio along with metadata so that information about the content is maintained as it flows through the production process.

Matrox Axio release 2.5 natively supports the MXF file format in Adobe Premiere Pro and Adobe After Effects. This allows Axio users to use MXF files – created by their Panasonic P2, Sony XDCAM, or Sony XDCAM HD cameras – directly in these applications without having to convert the files to the traditional AVI file format. By natively supporting the MXF file format, Matrox is joining the global MXF community committed to cross platform support.

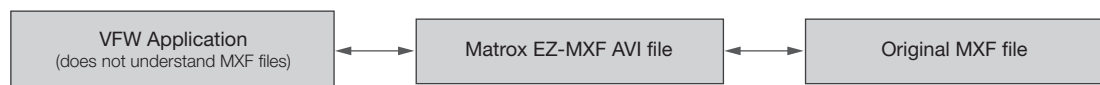
Like every new technology, the MXF file format brings new advantages, but also some inconveniences. Most animation, compositing, and motion graphics applications used by video editors on the PC today read Video for Windows (VFW) AVI files, but they are not designed to read MXF files. So the question arises: Where can you really use your MXF files? This is where the new Matrox EZ-MXF utility bridges the gap.

With Matrox EZ-MXF you can use the content of your native MXF files in all the applications that support Video for Windows AVI files. Matrox EZ-MXF lets your application see MXF files as AVI files without transcoding or decompressing and recompressing the video. The Matrox EZ-MXF utility creates very small reference AVI files almost instantaneously. The new AVI files can then be used in your favorite VFW application, making the MXF file format practical and efficient throughout your workflow. The Matrox EZ-MXF utility does not modify the contents of your original MXF file nor its metadata.

Creating a Matrox EZ-MXF file could not be easier. You simply right-click on the selected MXF file and select “Create Matrox EZ-MXF” from the menu.

Matrox Axio release 2.5 also includes features to simplify MXF file management in Windows Explorer. Important details such as User Clip Name, Start Timecode, End Timecode, Duration, etc. are be available in the Windows Explorer Details View. A clip icon can also be displayed in the Thumbnails View to let you more easily identify your clips.

### Matrox EZ-MXF Workflow

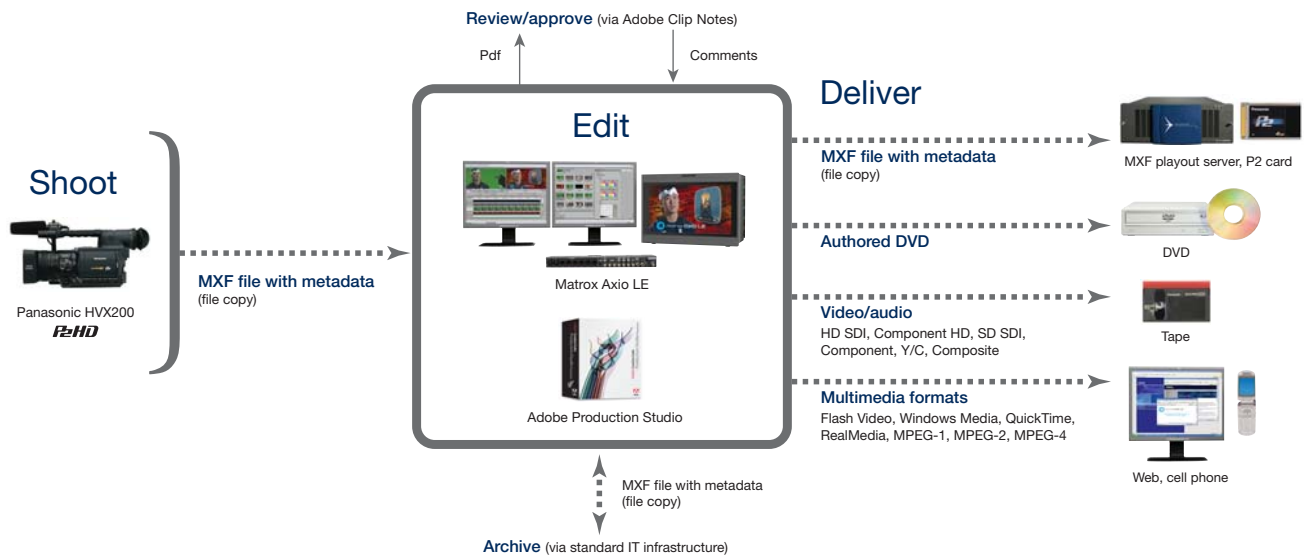


Matrox EZ-MXF bridges the gap between AVI and MXF allowing all Video for Windows applications to work with native MXF files.

# The Ultimate Tapeless HD Workflow

What are you working on today? Whether it's a television program, documentary, commercial spot, corporate video, or feature film, you can get it done faster and more cost effectively with a combination of Panasonic P2, Matrox Axio, and Adobe Production Studio.

This end-to-end solution increases productivity throughout the entire production process from shooting through editing, approval, delivery and archiving. The Panasonic HVX200 P2 camera records directly to files that can be edited by the Matrox Axio editing system and Adobe Production Studio applications in real time. Lengthy waits for footage to be captured, files to be converted, and timelines to be rendered are a thing of the past. Even the review/approval and archiving processes are easier and more efficient than ever before.



**Shoot** — Panasonic P2 (Professional Plug-in) memory-based acquisition lets shooters move away from the linear nature of tape and eliminates the need to digitize footage before it can be edited. The camera records high-quality 4:2:2 DVCPRO 50 or DVCPRO HD as MXF data files on solid-state P2 memory cards or high-capacity hard disk storage. These digital data files can be transferred, copied, downloaded or transmitted at high speed over networks using a personal computer.

The HVX200 sports an impressive list of features and supports a variety of formats including 1080i, 720p, and SD. It is also capable of variable frame rate recording.

**Edit** — To start editing, all you have to do is copy the data from your P2 card to your Matrox Axio editing system. Copying is faster than real time. If you can't wait the short time it takes to transfer your files, you can edit directly from the P2 card.

Axio makes it easier for you to manage your P2 assets by extending the Windows Thumbnails View to show icons for the P2 MXF files. P2 metadata can be seen in the Windows Details View.

#### What is MXF?

MXF (Material eXchange Format) is a standardized (by SMPTE) file exchange format that assures interoperability among devices and systems. P2 uses .mxf files rather than .mov, .avi, or .mpg files, for example.

MXF is designed for today's file-based workflows and provides a common way of packaging video and audio along with metadata so that information about the content is maintained as it flows through the production process.

Matrox Axio enables Adobe Premiere Pro and Adobe After Effects to natively edit the MXF files that are written by the P2 camera. There are no time-consuming file format conversions and no need to waste disk space managing multiple versions of files. In addition, metadata is retained and can be read in Adobe Premiere Pro. Matrox Axio also lets you work seamlessly with the other Adobe applications, fully supporting Adobe Dynamic Link and providing WYSIWYG video output support for Adobe After Effects and Photoshop CS2, as well as other animation and compositing packages.

Matrox Axio features no-render HD and SD finishing in a wide range of compressed and uncompressed formats, superior realtime color correction tools, advanced realtime effects, and a full complement of analog and digital audio and video inputs and outputs.

Axio's powerful and scaleable architecture lets you edit multiple HD and SD MXF streams simultaneously and mix them with other formats in real time including footage captured as AVI files from the popular VariCam camera. The VariCam feature, variable frame rate shooting, on a P2 camera works similarly to the VariCam feature on tape. The camera actually saves 60 or 50 frames in the P2 MXF file and tags the ones that should be used to playback at 23.98 or 25 fps. Axio lets you play those MXF files in a 23.98 or 25 timeline without any additional processing. Axio will detect and remove the repeated frames on the fly. The camera also features a "pN" native mode in which it will only save the required 23.98 or 25 frames on the P2 card. Axio also supports realtime playback of those "pN" files.

Note: When capturing from a VariCam source using Matrox Axio, only video can be captured. However, you can add a voiceover or separate audio clips to your VariCam clips on the timeline. Axio supports playback of both video and audio in MXF files that you've recorded on your Panasonic VariCam camera.

**Review/approve** — Getting team and client feedback is essential to most video projects. Adobe Clip Notes makes edit reviews simple. You no longer have to export rough cuts to disc or tape, or try to match various comments to the shots. Your teammates and clients can mark your rough cuts directly by using free Adobe Reader software, then send comments to you via e-mail. You can import their comments directly into your project, where they appear as markers in the timeline for you to review. Matrox Axio accelerates the creation of Adobe Clip Notes files.

**Deliver** — Once you've finished your edit, Matrox Axio lets you quickly and easily deliver to any format you desire, from D5 tape to the latest cell phone!

- Export MXF files directly to your playout server or P2 card
- Record to D5 tape if you want the highest quality for film printing
- Export directly to DVD from Adobe Premiere Pro, taking advantage of Matrox Axio's acceleration
- Use the Adobe Media Encoder to export to a variety of multimedia formats, taking advantage of Matrox Axio's acceleration
- Export to Flash Video for integration into rich web experiences and for playback on Flash Lite-capable cell phones, taking advantage of Matrox Axio's acceleration

**Archive** — Finally, because P2 works in an already mature IT infrastructure, archiving is a simple matter of backing up your data. Industries like banking and insurance have used this type of data backup reliably for many years. Some products, such as the Quantum SDLT 600A, even go a step further than standard backup solutions, because they are MXF aware. You can easily search and access your archived material over a standard Ethernet network.

#### AG-HVX200 HD formats supported by Matrox Axio

Camera format	Axio editing resolution	Comments
1080/60i	1080i @ 29.97	Realtime full resolution, full frame-rate playback
1080/50i	1080i @ 25	Realtime full resolution, full frame-rate playback
1080/25p (over 50i)	1080p @ 25	Realtime full resolution, full frame-rate playback of the original 25 frames captured by the camera – pulldown sequence removed
1080/24pA (over 60i)	1080p @ 23.98	Realtime full resolution, full frame-rate playback of the original 23.98 frames captured by the camera – pulldown sequence removed
720/60p	720p @ 59.94	Realtime full resolution, full frame-rate playback
720/50p	720p @ 50	Realtime full resolution, full frame-rate playback
720/25p (over 50p)	720p @ 25	Realtime full resolution, full frame-rate playback of the original 25 frames captured by the camera – pulldown sequence removed
720/25pN Variable	720p @ 25	Realtime full resolution, full frame-rate playback
720/25pN	720p @ 25	Realtime full resolution, full frame-rate playback
720/24p (over 60p)	720p @ 23.98	Realtime full resolution, full frame-rate playback of the original 23.98 frames captured by the camera – pulldown sequence removed
720/30p (over 60p)	720p @ 29.97	Realtime full resolution, full frame-rate playback of the original 29.97 frames captured by the camera – pulldown sequence removed
720/24pN Variable	720p @ 23.98	Realtime full resolution, full frame-rate playback
720/24pN	720p @ 23.98	Realtime full resolution, full frame-rate playback
720/30pN	720p @ 29.97	Realtime full resolution, full frame-rate playback

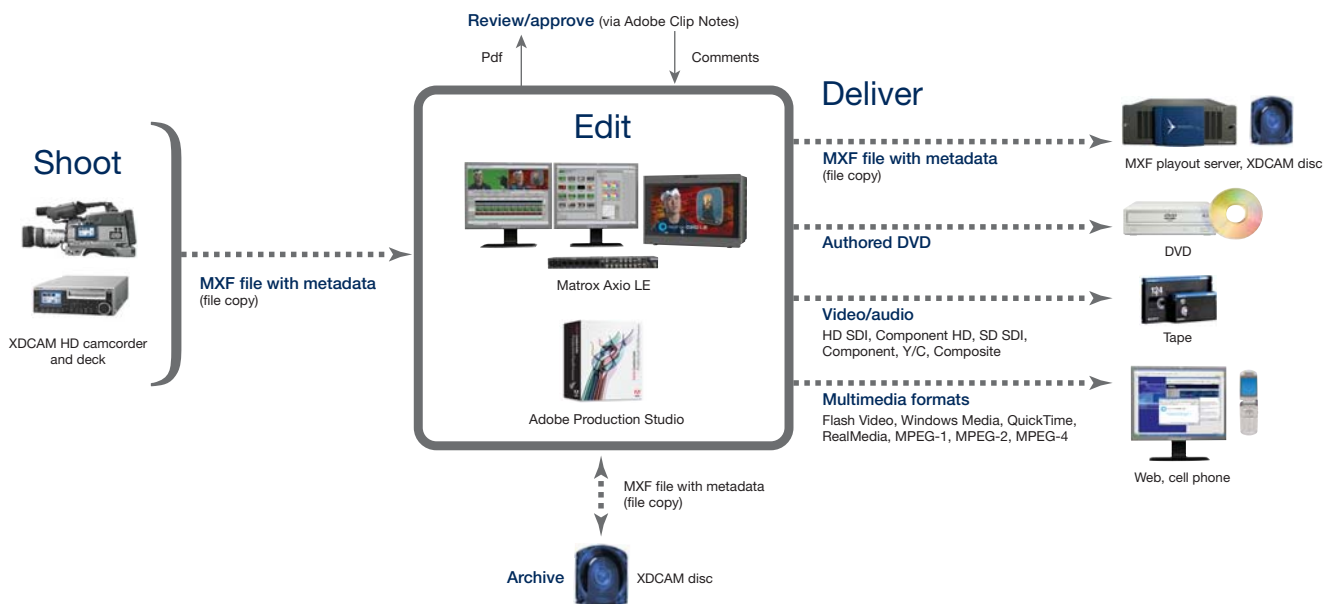




# The Ultimate Tapeless HD Workflow

What are you working on today? Whether it's a television program, documentary, commercial spot, corporate video, or feature film, you can get it done faster and more cost effectively with a combination of Sony XDCAM (for SD and HD), Matrox Axio, and Adobe Production Studio.

This end-to-end solution increases productivity throughout the entire production process from shooting through editing, approval, delivery and archiving. The Sony XDCAM camcorders record files on optical disc that can be edited by the Matrox Axio editing system and Adobe Production Studio applications in real time. Lengthy waits for footage to be captured, files to be converted, and timelines to be rendered are a thing of the past. Even the review/approval and archiving processes are easier and more efficient than ever before.



**Shoot** — Sony XDCAM optical disc-based acquisition lets shooters move away from the linear nature of tape and eliminates the need to digitize footage before it can be edited. The XDCAM camcorders record high-quality DVCAM, IMX, or MPEG HD video at various quality settings as MXF data files on inexpensive optical disc-based storage. These digital data files can be transferred, copied, downloaded or transmitted at high speed over networks or FireWire using a personal computer.

The XDCAM HD camcorders are part of the Sony CineAlta family and therefore support 23.98 recording. In-camera fast and slow motion effects let you express your creativity using excellent-quality speed effects.

**Edit** — To start editing, all you have to do is copy the data from your XDCAM disc to your Matrox Axio editing system. You can use the Sony PDZ-1 software, Windows Explorer, or an FTP browser to copy the high resolution MXF files to your local storage. Note that you cannot edit directly from the XDCAM or XDCAM HD deck.

Axio makes it easier for you to manage your XDCAM assets by extending the Windows Thumbnails View to show icons for the MXF files. Metadata can be seen in the Windows Details View.

#### What is MXF?

MXF (Material eXchange Format) is a standardized (by SMPTE) file exchange format that assures interoperability among devices and systems. XDCAM uses .mxf files rather than .mov, .avi, or .mpg files, for example.

MXF is designed for today's file-based workflows and provides a common way of packaging video and audio along with metadata so that information about the content is maintained as it flows through the production process.

Matrox Axio enables Adobe Premiere Pro and Adobe After Effects to natively edit the MXF files that are written by the XDCAM camcorder. There are no time-consuming file format conversions and no need to waste disk space managing multiple versions of files. In addition, metadata is retained and can be read in Adobe Premiere Pro. Matrox Axio also lets you work seamlessly with the other Adobe applications, fully supporting Adobe Dynamic Link and providing WYSIWYG video output support for Adobe After Effects and Photoshop CS2, as well as other animation and compositing packages.

Matrox Axio features no-render HD and SD finishing in a wide range of compressed and uncompressed formats, superior realtime color correction tools, advanced realtime effects, and a full complement of analog and digital audio and video inputs and outputs.

Axio's powerful and scalable architecture lets you edit multiple HD and SD MXF streams simultaneously and mix them with other formats in real time. XDCAM HD files recorded at all three bit rates: 35 mbps (HQ), 25 mbps (SP), and 18 mbps (LP) – can be mixed together on the same timeline and played back in real time. Both over and under cranked files created by the XDCAM HD camcorder's "Slow and Quick Motion Function" variable frame rate mode can be played back in real time without rendering.

**Review/approve** — Getting team and client feedback is essential to most video projects. Adobe Clip Notes makes edit reviews simple. You no longer have to export rough cuts to disc or tape, or try to match various comments to the shots. Your teammates and clients can mark your rough cuts directly by using free Adobe Reader software, then send comments to you via e-mail. You can import their comments directly into your project, where they appear as markers in the timeline for you to review. Matrox Axio accelerates the creation of Adobe Clip Notes files.

**Deliver** — Once you've finished your edit, Matrox Axio lets you quickly and easily deliver to any format you desire, from HDCAM tape to the latest cell phone!

- Export standard and high definition MXF files directly to your playout server or XDCAM deck
- Play out your timeline over SDI and record in real time to your XDCAM or XDCAM HD deck
- Record to HDCAM tape in real time if you want the highest quality for film printing
- Export directly to DVD from Adobe Premiere Pro, taking advantage of Matrox Axio's acceleration
- Use the Adobe Media Encoder to export to a variety of multimedia formats, taking advantage of Matrox Axio's acceleration
- Export to Flash Video for integration into rich web experiences and for playback on Flash Lite-capable cell phones, taking advantage of Matrox Axio's acceleration

**Archive** — Archiving is a simple matter of storing your material on XDCAM optical discs. They are inexpensive and better than tape because they offer convenient random accesses to your material.



Sony, XDCAM, CineAlta, MPEG IMX, HDCAM and DVCAM are trademarks of Sony.

