

matrox AXIO™ LE

Realtime HD and SD editing for broadcast and post

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Overview

Matrox Axio LE provides a complete post-production solution that lets you get the best from the Adobe CS4 Production Premium software. It is 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.

Matrox Axio LE goes far beyond the capabilities of systems that combine Adobe Premiere Pro CS4 with a simple I/O card.

The additional benefits you get 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
- Realtime native editing of Panasonic P2 and P2 HD and Sony XDCAM, XDCAM HD, and XDCAM HD422 clips (MXF files)
- Realtime native editing of Sony XDCAM EX clips (MP4 files)
- 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, MPEG HD422, 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
- Realtime mixed-format multi-cam
- Simultaneous HD and SD output
- Realtime MPEG-2 IBP capture from analog, DV, and SDI sources for DVD authoring
- WYSIWYG for Adobe After Effects, Encore, and Photoshop; Autodesk Combustion; and NewTek LightWave 3D (32-bit versions) with dynamic Alt+Tab switching
- Audio VU meters on capture



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
- Realtime native editing of Panasonic P2 and P2 HD and Sony XDCAM, XDCAM HD, and XDCAM HD422 clips (MXF files)
- Realtime native editing of Sony XDCAM EX clips (MP4 files)
- Support for Omneon media servers via native MXF file transfers
- Extensive native codec support in HD and SD – uncompressed 8- and 10-bit, MPEG-2 I-frame, DVCPRO HD, MPEG HD, MPEG HD422, HDV, 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
- Realtime MPEG-2 IBP capture from analog, DV, and SDI sources for DVD authoring
- WYSIWYG for Adobe After Effects, Encore, and Photoshop; Autodesk Combustion; and NewTek LightWave 3D (32-bit versions)
- Native MXF and HDV AVI file support in Video for Windows applications such as Adobe After Effects via Matrox EZ-MXF and EZ-HDV utilities
- 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/8-out SDI embedded audio, 1/4" output jack for stereo monitoring

Most powerful realtime engine for HD and SD editing

Matrox Axio LE lets 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 its class. It's 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 LE 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 LE 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 LE 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 LE 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 26.

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

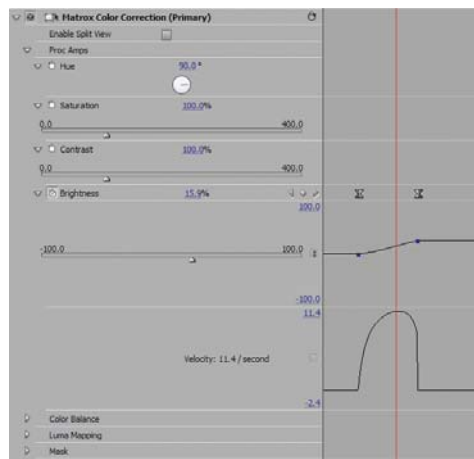
Matrox Axio LE relies on the power of your CPU to perform a variety of realtime and accelerated effects.

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.

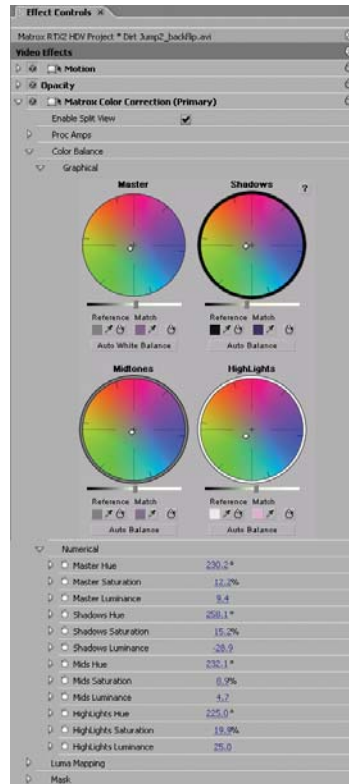
- **Realtime primary color correction** — Primary color correction is a critically important effect for all productions, whether to achieve continuity when cutting between shots, ensure broadcast safe levels, or establish and emphasize a “look”. The primary color corrector provides basic proc amp control;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



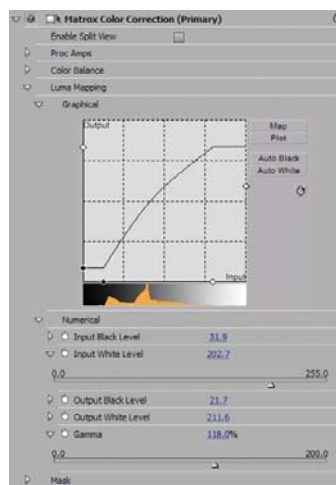
Realtime proc amp controls — Matrox Axio LE lets you easily adjust four proc amp controls – hue, saturation, brightness, and contrast. Hue adjusts the tint of the colors in the image, saturation adjusts the vividness, contrast adjusts the difference in luminance between the lightest and darkest areas 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.



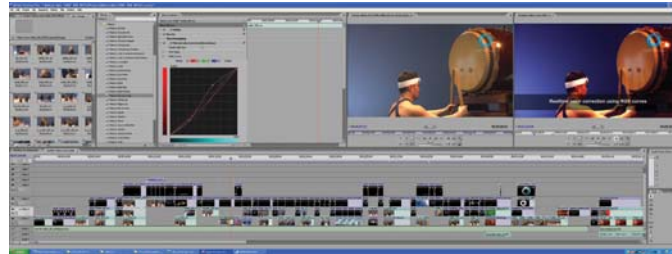
Realtime color match and color balance — Colors can be corrected using nine parameters related to the black (shadow), midtone, and white (highlight) levels of your clips. You can easily match colors or balance blacks, whites, and grays against a reference shot in one simple step.



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.

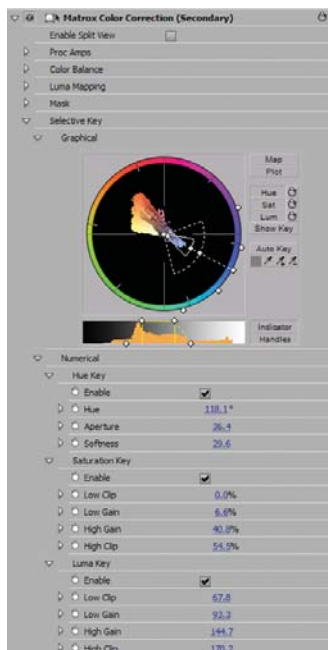


Realtime RGB curves control — RGB curves control offers a fast, natural way to fine-tune the colors in your video. If, for example, you want to remove a blue tint from your video, you simply drag the blue curve down. With RGB curves you can also achieve wild color effects and other looks that are otherwise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

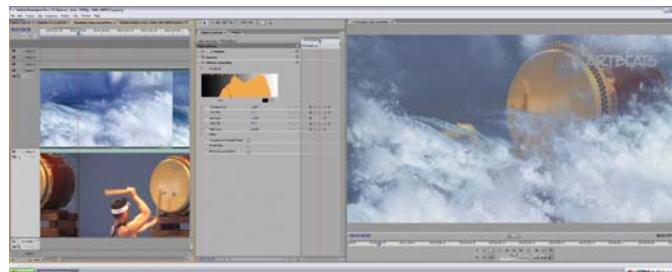
The secondary color corrector can be used, for example, to change the color of a dress, deepen the background sky color, or to achieve an effect similar to the film *Schindler's List* where only one object or person remains in color while the rest of the image becomes black and white.



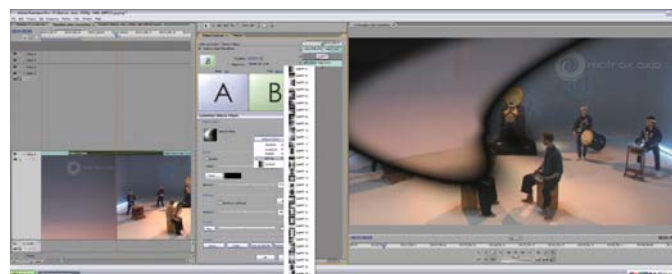
- **Realtime chroma and luma keying** — Matrox Axio LE provides one of the finest realtime chroma keyers in the industry. It makes clean blue- and green-screen keys easy to achieve, even with DV and HDV material shot in less than optimal lighting conditions. It upsamples your video to 4:4:4 resolution 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 LE 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.

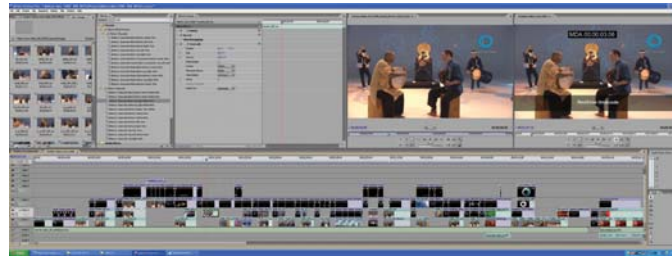


- **Realtime speed changes** — You can use speed changes to emphasize special moments, extend the duration of shots to match voiceover timing, or enhance the feeling of dramatic shots. Matrox Axio LE lets you apply smooth slow and fast motion with field or frame blending.
- **Realtime transitions** — Matrox Axio LE 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.

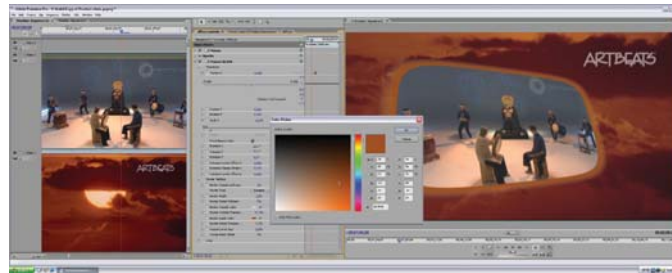
- **Realtime SD clip upscaling in an HD timeline** — This effect is enabled by right-clicking on an SD clip in an HD timeline and selecting “scale to frame size”. It provides realtime playback of SD clips upscaled to HD to let you mix NTSC material into a 1080i at 29.97 fps timeline or PAL material into 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 LE in SD. These effects and transitions are accelerated in HD.
- **Realtime timecode** — Axio LE 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

Matrox Axio LE 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. 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.

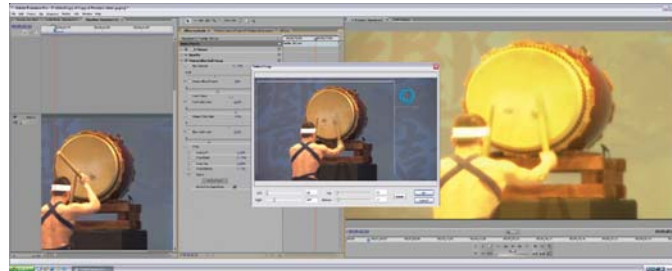
- **Realtime Adobe Motion effect** — Matrox Axio LE overwrites the Adobe Premiere Pro Motion effect (position, scale and rotation) so it becomes realtime.
- **Realtime advanced 2D/3D DVE** — Matrox Axio LE lets you position your clips anywhere in 3D space while adding soft edges and rounded borders with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



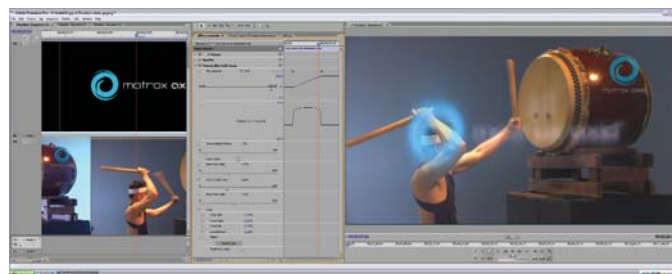
- **Realtime shadow** — Matrox Axio LE lets you project a realistic shadow from any source containing key information such as DVEs, titles, and keyed video. You can tint the shadow and position, scale, and rotate it to match the angle of the surface on which it is cast. Applying blur to the shadow can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



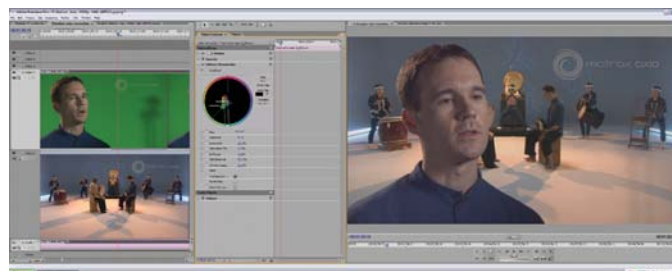
- **Realtime blur/glow/soft focus** — The blur/glow/soft focus effect lets you simulate camera defocus and create unique effects in real time.



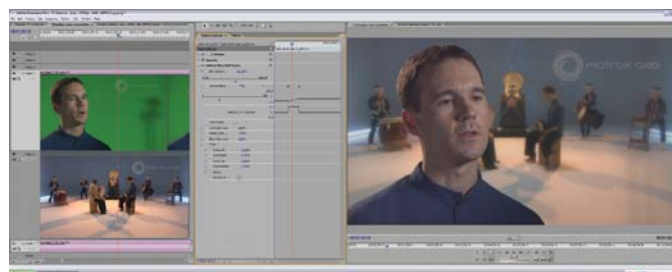
Soft focus



Glow on graphics



Chroma key without blur

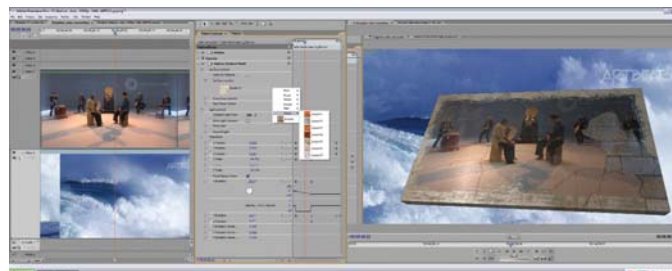


Chroma key with blur background

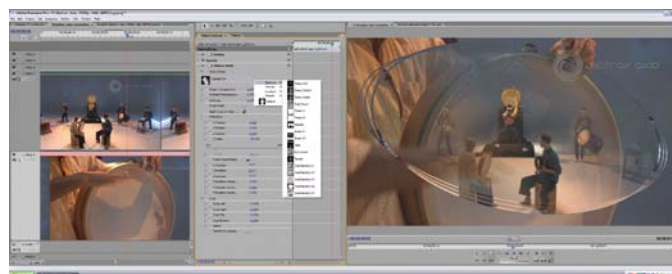
- **Realtime page curl** — Matrox Axio LE page curls are true 3D with full-motion video on the reverse side and realistic highlights. Page curls on graphics let you create great looking text effects. You control the position, rotation, scaling, and zooming of page curls in 3D space. You also have control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



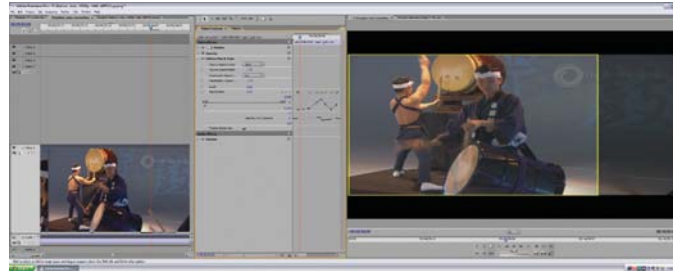
- **Realtime surface finish** — The surface finish effect gives metal, brick, wood, or granite textures to your video clips with color spot lighting.



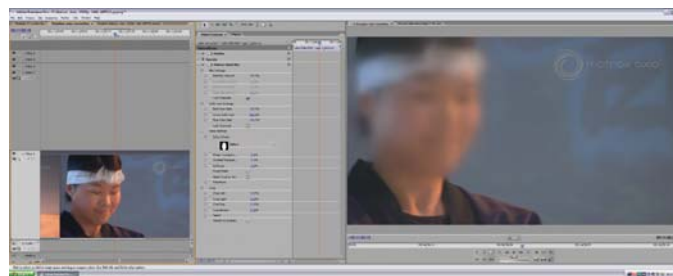
- **Realtime mask** — The mask effect lets you create a “region of interest” by adding a mask to your video clips. You can either create your own custom made mask or select one of the many pre-created, soft-edged cutout shapes included with the effect.



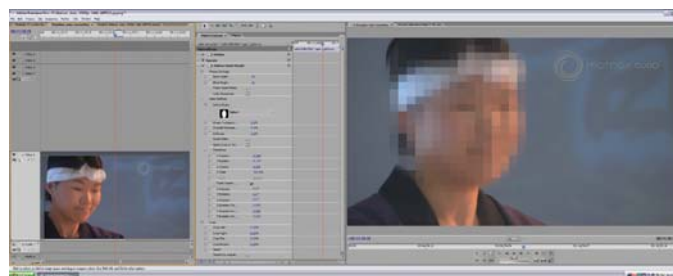
- **Realtime pan & scan** — The realtime pan & scan filter lets you easily convert footage from any aspect ratio to any other. Tracking on-screen action to make accurate judgments is easy because you see the entire source clip and the section of it that will become the final result. For example, DV 16:9 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.



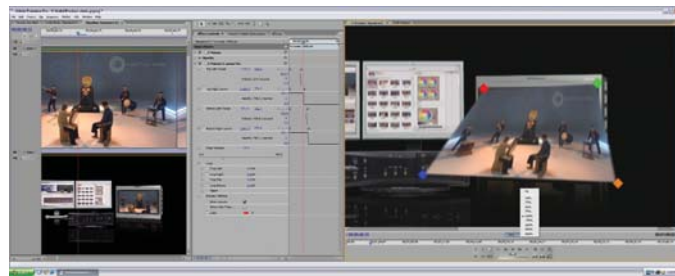
- **Realtime mask mosaic** — The realtime mask mosaic effect lets you create a “region of interest” by adding a mask and applying a mosaic effect to it. You can either create your own custom made mask, or select one of the many pre-created masks included with the effect.



- **Realtime Adobe garbage mattes** — Axio LE overwrites the Adobe Premiere Pro 4-, 8-, and 16-point garbage matte effects so they become realtime in both HD and SD. A garbage matte is often used when compositing multiple layers. For example, when applying a key, it is often desirable to apply a garbage matte so that you can crop unwanted objects from the background.
- **Realtime Matrox garbage mattes** — Similar to the Adobe Premiere Pro 4-, 8-, and 16-point garbage matte effects, the Matrox versions include additional options to apply edge softness and adjust the opacity of your mattes.



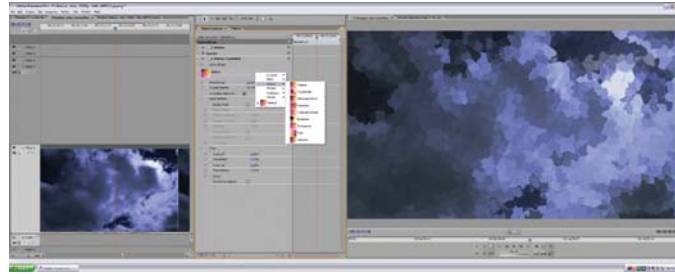
- **Realtime four-corner pin** — The realtime four-corner pin effect lets you anchor each corner of a video or graphics clip onto points in another clip, even if the underlying clip is angled or skewed. This effect is useful if you want to overlay a video clip onto an underlying clip of a television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



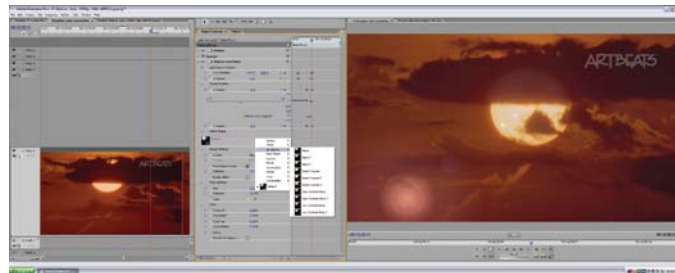
- **Accelerated shine** — Shine is the shimmering light ray effect often seen on TV and film titles. There's no need to buy an expensive plug-in to get this look. With Matrox Axio LE, processing of the shine effect is accelerated in HD and SD.



- **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.



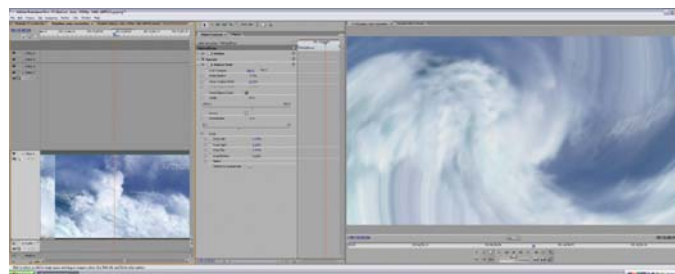
- **Realtime lens flare** — The lens flare effect lets you simulate the light refractions caused by shining a bright light into the lens of a camera when taking a photo. You can choose from many different lens flare patterns.



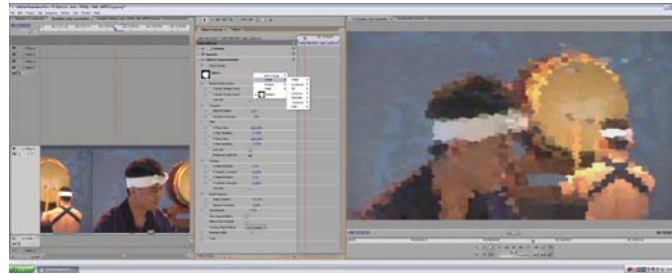
- **Realtime old movie** — The old movie effect lets you create an old film look on your clips by adding scratches, flicker, jitter, and grain.



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



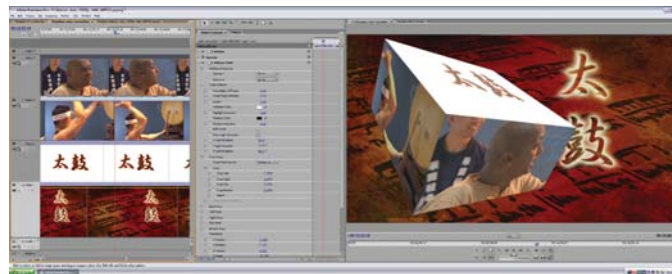
- **Realtime impressionist effect** — The impressionist effect lets you choose from many different patterns that give your image the look of an Impressionist painting.



- **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 LE. 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 LE

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 workflows

Matrox Axio LE supports the new tapeless workflows, traditional tape-based 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 LE provides realtime native editing of the complete range of SD formats as well as HDV, P2HD, XDCAM HD, XDCAM HD422, and XDCAM EX formats. You can also capture and mix uncompressed 8- or 10-bit video or use the highly optimized Matrox MPEG-2 4:2:2 I-frame codec which rivals uncompressed video in terms of visual quality yet provides tremendous savings in storage space and file transfer times.

All file formats and all codecs can be mixed on your timeline in real time. In many cases you can also mix resolutions in real time. This versatility simplifies integration with other 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 without time-consuming and quality-compromising transcoding.

For the full list of supported video resolutions, frame rates, and codecs please refer to page 26.

Matrox Axio LE 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.

Realtime HD editing workflows

At every step in your HD post-production process – capture, editing, client review/approval, and delivery – Matrox Axio LE gives you the tools you need to get the job done in record time.

Capture

Getting HD footage into your Axio system is simple and straightforward. You can capture from analog or SDI HD sources to uncompressed or MPEG-2 I-frame; transfer HDV or DVCPRO HD via 1394; or do a direct file copy from solid-state media for P2HD, XDCAM HD, and XDCAM EX. DVCPRO HD is supported only for 1080i and 720p sequences (DV-1394 capture is not supported for 720p @ 25 fps and 50 fps sequences).

Matrox Axio LE also supports the use of the popular Focus Enhancements FireStore drives allowing you to simply transfer video files to your Axio LE system and edit them in real time.

Monitoring is supported while capturing via analog, SDI or 1394.

Edit

Matrox Axio LE provides realtime native mixed-format HD editing. Your files do not need to be transcoded or rewrapped. The following combinations are supported:

NTSC timeline

1. XDCAM EX SP 1440x1080i
2. HDV 1440x1080i
3. NTSC (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)

PAL timeline

1. XDCAM EX SP 1440x1080i
2. HDV 1440x1080i
3. PAL (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)

486p timeline

1. XDCAM EX SP 1440x1080i
2. HDV 1440x1080i
3. HDV 1440 x 1080p at 29.97 fps
4. 486p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)

576p timeline

1. XDCAM EX SP 1440x1080i
2. HDV 1440x1080i
3. HDV 1440 x 1080p
4. 576p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)

720p timeline

1. Uncompressed 8- and 10-bit 720p
2. P2 720p
3. XDCAM EX HQ 720p
4. HDV 720p

1440x1080p timeline

1. XDCAM EX HQ 1920x1080p
2. XDCAM EX SP 1440x1080p
3. HDV 1440x1080p
4. NTSC (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
5. PAL (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
6. 486p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
7. 576p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)

1440x1080i timeline

1. XDCAM EX HQ 1920x1080i
2. XDCAM EX SP 1440x1080i
3. HDV 1440x1080i
4. NTSC (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
5. PAL (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
6. 486p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
7. 576p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)

1920x1080p timeline

1. 1080p formats (MPEG-2 I-Frame, P2 MXF, XDCAM HD, XDCAM HD422, XDCAM EX HQ, uncompressed 8- and 10-bit)
2. 1440x1080i formats (XDCAM EX SP, HDV)
3. PAL (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
4. 486p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
5. 576p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)

1920x1080i timeline

1. 1080i formats (MPEG-2 I-Frame, P2 MXF, XDCAM HD, XDCAM HD422, XDCAM EX HQ, uncompressed 8- and 10-bit)
2. 1440x1080i formats (XDCAM EX SP, HDV)
3. NTSC (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
4. PAL (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
5. 486p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)
6. 576p (MPEG-2 I-Frame, P2 MXF, DV, DVCAM, DVCPRO, uncompressed 8- and 10-bit)

For responsive low bit rate editing of proxy HD material on a laptop, from a DVD, or over a low-bandwidth network, Matrox Axio LE also features an offline HD codec.

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.

Deliver

Once you've finished your edit, Matrox Axio LE lets you quickly and easily deliver to any format you desire.

- Export MXF files directly to your playout server, P2HD or XDCAM HD device
- Playout directly to your P2HD or XDCAM HD device for capture to MXF
- Record directly on D5 or HDCAM tape in real time if you want the highest quality for film printing
- Export to the full range of Adobe Premiere Pro export formats
 - Blu-ray
 - DVD
 - Windows Media
 - 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

Sony XDCAM EX support

Matrox Axio LE provides realtime native editing of the MP4 files that are written by the XDCAM camcorder in Adobe Premiere Pro. You can also use these files directly in Adobe After Effects. Over and under cranked files created by the XDCAM EX camcorder's "Slow and Quick Motion Function" variable frame rate mode can be played back in real time without rendering.

Panasonic P2, P2HD, and VariCam support

Matrox Axio LE provides realtime native editing of Panasonic P2 and P2 HD MXF files in Adobe Premiere Pro. You can also use these files directly in Adobe After Effects.

Axio LE supports Panasonic VariCam 24p and 25p workflows with the Panasonic HVX200 camera via MXF file transfers. 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 LE lets you play those MXF files in a 23.98 or 25 timeline without any additional processing. Axio LE 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 LE, only video can be captured. However, you can add a voiceover or separate audio clips to your VariCam clips on the timeline. Axio LE supports playback of both video and audio in MXF files that you've recorded on your Panasonic VariCam camera.

Sony XDCAM, XDCAM HD, and XDCAM HD422 support

Matrox Axio LE provides realtime native editing of XDCAM, XDCAM HD, and XDCAM HD422 MXF files in Adobe Premiere Pro. You can also use these files directly in Adobe After Effects. Over and under cranked files created by the XDCAM camcorder's "Slow and Quick Motion Function" variable frame rate mode can be played back in real time without rendering.

Efficient management of AVI and MXF files

Matrox Axio LE 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.

Matrox EZ-MXF utility

Most animation, compositing, and motion graphics applications read Video for Windows (VFW) AVI files, but they are not designed to read MXF files. 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 EZ-HDV utility

The Matrox EZ-HDV utility lets you playback HDV-AVI files of any length in Video for Windows applications, overcoming the usual 2 GB AVI file size limitation. It does this by creating a very small reference AVI file almost instantaneously without modifying the contents of your original HDV-AVI file.

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 LE 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.

Support for Omneon media servers via native MXF file transfers

Matrox Axio LE 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 LE and Adobe Premiere Pro CS4, 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 LE offers many productivity features that streamline your workflow.

Downscaling HD projects for SD delivery

Matrox Axio LE 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. The HD and SD outputs are simultaneous.

WYSIWYG for compositing and graphics applications (supported in 32-bit versions only)

Matrox Axio LE includes a WYSIWYG (What You See Is What You Get) video output plug-in for Adobe After Effects, Adobe Encore, 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, Encore, 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 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 (supported in Windows XP only)

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.

Support for 32-bit AVI with alpha

Matrox Axio LE 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 LE 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.

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 LE supports the multi-cam feature of Adobe Premiere Pro 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 LE 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 LE's analog and SDI inputs, it is encoded in the DV stream according to the blue book specification. When capturing to Axio LE'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 LE 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 LE.

Realtime MPEG-2 IBP capture from analog SD and DV sources for direct DVD authoring

Matrox Axio LE lets you capture clips in realtime from analog and DV sources directly to MPEG-2 IBP (.m2v) files for immediate use in your DVD authoring program. There is no need to capture video first, then place clips on the timeline to finally export them into the MPEG-2 DVD format. This feature is an invaluable tool when archiving stock footage and projects on digital servers or DVD disks.

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. Matrox Axio LE supports 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 Matrox Axio LE 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.

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
- HDV
- DVCPRO HD
- MPEG HD (MXF and MP4 only)
- MPEG HD422 (MXF only)

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

Flexible AVI and WAV file formats

Matrox Axio LE 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 LE 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 LE 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

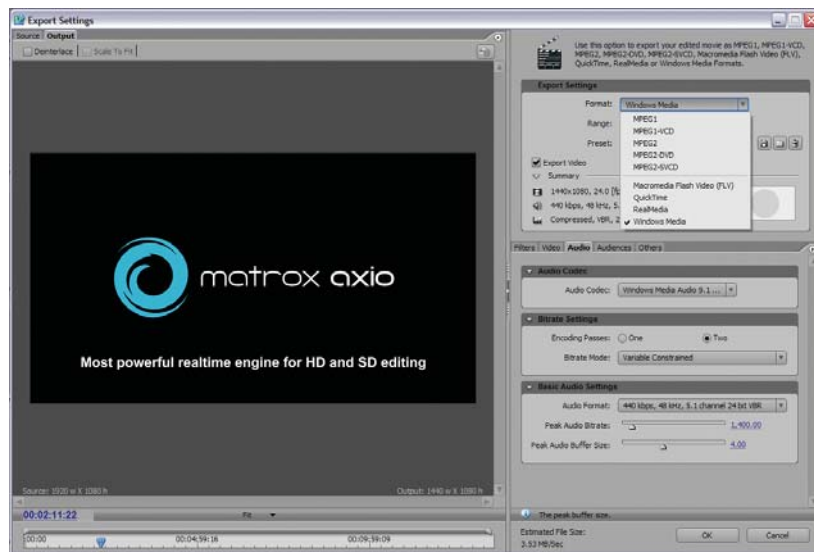
Matrox Axio LE supports playback of legacy Matrox DigiSuite and RT.X100 AVI files within the editing environment. This allows you to reuse archived footage, network existing platforms with new Matrox Axio LE workstations, and maintain compatibility with the thousands of broadcast facilities that continue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

Export to Blu-ray, DVD, all multimedia formats, and Adobe Clip Notes

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

Adobe Premiere Pro export formats include:

- Blu-ray
- DVD
- Windows Media
- 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



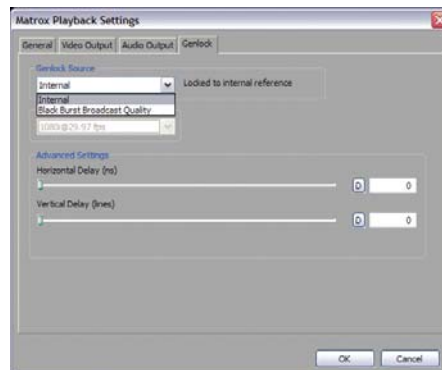
Full range of analog and digital audio and video I/O support

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

- 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/8-out SDI embedded audio
- 1/4" output jack for stereo monitoring



Matrox Axio LE can genlock to any type of video input or 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 LE 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.

Matrox Axio LE provides 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.

