

## Professional realtime HD and SD editing platforms for Adobe CS3 Production Premium

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## Overview

If you're a professional video editor concerned about getting maximum productivity from Adobe Premiere Pro CS3 and Adobe CS3 Production Premium, have a look at the Matrox RT.X2 product line – the ideal solutions for corporate communicators, event videographers, project studios, educational facilities and digital filmmakers. If you're delivering your work in SD, Matrox RT.X2 SD is right for you. If you need to edit HDV or P2 MXF 720p and output HD, choose Matrox RT.X2 LE or Matrox RT.X2. If you want to use a DVI display for full resolution HD previews, you'll need RT.X2.

The Matrox RT.X2 platforms go far beyond the capabilities of software-only editing and systems that combine Adobe Premiere Pro CS3 and a simple I/O card.

The additional benefits you get with Matrox RT.X2 include:

- Many more realtime layers of video and graphics
- More effects in real time including color correction, chroma/luma keying, speed changes, blur/glow/soft focus, 3D DVE and much more
- Extensive camera support with Matrox RT.X2 and RT.X2 LE including many new models from Canon, JVC, Panasonic, and Sony
- Native editing of Panasonic P2 MXF 720p and SD files with Matrox RT.X2 and RT.X2 LE
- Capture from analog sources to compressed MPEG-2 4:2:2 I-frame
- Realtime playback of 32-bit MPEG-2 I-frame AVI files with alpha
- Realtime mixed-format multi-cam
- Accelerated export to DVD and all multimedia formats
- Composite, Y/C, and analog component input and output
- WYSIWYG video output for motion graphics, animation, and compositing applications
- Audio VU meters on capture
- Full-resolution HD monitoring on an inexpensive flat panel display via independent DVI output with Matrox RT.X2

With the Matrox RT.X2 platforms, you'll save time on every project so you can concentrate on creating your best work and building your business. There are four products to choose from. Matrox RT.X2 is available as a value-priced bundle with Adobe Premiere Pro CS3 or as hardware-only for use with your copy of the Adobe software. Matrox RT.X2 LE and Matrox RT.X2SD are available as hardware-only.



## Key features of Matrox RT.X2 and Matrox RT.X2 LE

### Professional realtime HD and SD editing

- Realtime, mixed-format, multi-layer workflows that combine HD and SD material from analog and digital sources
- Realtime Matrox Flex CPU effects – color correction, speed changes, chroma/luma keying and many more
- Realtime and accelerated Matrox Flex GPU effects – 2D/3D DVE, blur/glow/soft focus, shine and many more
- Extensive camera support including many new models from Canon, JVC, Panasonic, and Sony
- Native HDV 1080i, HDV 1080p, HDV 720p (JVC ProHD), Panasonic P2 MXF 720p, and MPEG-2 4:2:2 I-frame HD editing
- Native DV, DVCAM, DVCPRO, Panasonic P2 MXF SD, and MPEG-2 4:2:2 I-frame SD editing
- Realtime playback of 32-bit MPEG-2 I-frame AVI files with alpha in HD and SD
- Realtime mixed-format multi-cam
- Realtime high-quality downscaling for analog SD output from an HD timeline
- 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 with dynamic Alt+Tab switching
- Composite, Y/C, HD/SD analog component input and output
- Full-resolution HD monitoring on an inexpensive flat panel display via independent DVI output on RT.X2
- Matrox RT.X2 is available as a bundle with Adobe Premiere Pro CS3 or as hardware-only
- Matrox RT.X2 LE is available as hardware-only for use with your copy of Adobe Premiere Pro CS3

## Key features of Matrox RT.X2 SD

### Professional realtime SD editing

- Realtime multi-layer editing of video, graphics, and effects
- Realtime Matrox Flex CPU effects – color correction, speed changes, chroma/luma keying and many more
- Realtime and accelerated Matrox Flex GPU effects – 2D/3D DVE, blur/glow/soft focus, shine and many more
- Native DV, DVCAM, DVCPRO, and MPEG-2 4:2:2 I-frame SD editing
- Realtime playback of 32-bit MPEG-2 I-frame AVI files with alpha in SD
- Realtime HDV clip downscaling in an SD timeline
- Realtime mixed-format multi-cam in an SD timeline
- Accelerated export to DVD, multimedia formats including Flash Video, and Adobe Clip Notes
- WYSIWYG for Adobe After Effects, Photoshop and Bridge, Autodesk Combustion and 3ds Max, eyeon Fusion, NewTek LightWave 3D, and Windows Media Player with dynamic Alt+Tab switching
- Composite, Y/C, and analog component SD input and output
- Available as hardware-only for use with your copy of Adobe Premiere Pro CS3

## Scalable system design

Your particular workflow requirements and budget will determine the specific components you should choose when designing your Matrox RT.X2 editing system. If your budget allows, you can combine a top-of-the-line computer system, the fastest GPU, and the largest, most robust storage subsystem to get the absolute maximum number of realtime layers and effects, in all cases. If your budget is more modest, there are many tradeoffs you can make to design an editing system that will give you maximum performance to do exactly what you need to do on a daily basis.

The Matrox RT.X2 platforms rely on the power of your CPU to perform Matrox Flex CPU effects and to decode and encode compressed video streams such as HDV and DV. They rely on the power of the GPU (Graphics Processing Unit) in your system to process Matrox Flex GPU effects. Note that what we refer to here as a GPU has various other names that may be more familiar to you, such as display card, graphics card, or VGA adapter. The type and size of storage you require depends largely on the video formats you are using and the number of hours of video you need to maintain online. Understanding your various options in each category will help you design the most economical system for your needs.

We continuously validate computers, motherboards, display cards, and storage subsystems and provide guidelines to enable you to make an informed choice as you choose the components for your own Matrox RT.X2 editing system or work with your Matrox RT.X2 dealer to specify a turnkey system.

Please visit the support section of our website for up-to-date information.

## Realtime multi-layer workflows

Matrox RT.X2 and RT.X2 LE are designed primarily for realtime native HDV, DV, and Panasonic P2 720p and SD editing, but also provides a high-quality MPEG-2 4:2:2 I-frame codec so you can capture other HD and SD formats over the analog inputs, and mix all types of footage on an HD or SD timeline in real time.

Matrox RT.X2 SD is designed primarily for realtime DV editing, but also provides a high-quality MPEG-2 4:2:2 I-frame SD codec so you can capture other SD formats over the analog inputs, and mix the various types of footage on an SD timeline in real time.

### Extensive camera support

Matrox RT.X2 and RT.X2 LE support a wide range of analog, DV, HDV, and P2 cameras from the world's leading manufacturers including most of the resolutions of these new models:

- JVC HD110, HD200, HD250
- Sony HVR-A1, HVR-Z1, HVR-V1, PDW-F330
- Panasonic HVX200, HX900, HDC27H, HPX2000
- Canon XH A1, XH G1, XL H1

### Highest quality realtime effects

The Matrox RT.X2 platforms are 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, The Matrox RT.X2 platforms leverage CPU and GPU power to provide a tightly integrated, high performance editing environment for Adobe Premiere Pro CS3. The Matrox RT.X2 platforms' broadcast quality 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 the Matrox RT.X2 platforms always deliver maximum realtime quality. Timelines with more layers and/or effects than can be processed in realtime can still benefit from hardware-accelerated previews. The Matrox RT.X2 platforms 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 and GPU as well as 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 computers, motherboards, and GPUs validated for use with the RT.X2 cards are posted in the support section of the Matrox website.

### Realtime native HDV editing workflow (does not apply to RT.X2 SD)

Matrox RT.X2 and RT.X2 LE provide the flexibility you need to get the most from your HDV editing experience.

#### *Capture*

You can transfer native HDV footage over 1394 to your RT.X2 system. Other HD footage with the same resolution and frame rate can be captured from analog HD sources using RT.X2's high-quality MPEG-2 4:2:2 I-frame codec.

#### *Edit*

On a reasonably performing system, you can expect to edit at least two HD video layers with color correction plus multiple graphics layers in real time.

Native HDV material can be mixed in real time on your HD timeline with MPEG-2 I-frame clips. You can also place SD clips on your HD timeline and RT.X2 will upscale them in real time so you can mix NTSC material into a 1080i at 29.97 fps timeline or PAL material into a 1080i at 25 fps timeline. You can also mix 576p or 486p material into a 1080p timeline.

### **Monitor**

Matrox RT.X2 provides full-resolution HD monitoring on an inexpensive flat panel display via its independent DVI output. You won't need to buy expensive HD monitoring equipment or the video-to-DVI converter required for monitoring with some I/O cards. In fact, RT.X2 provides better HD video definition, with pixel-to-pixel mapping on a flat panel (1920 x 1200), than you will get on a more expensive professional HD monitor which is typically limited to approximately 800 lines of resolution. RT.X2 LE and RT.X2 SD provide full-screen monitoring via the analog video outputs.

### **Deliver**

When your edits are complete, you can record your project directly to tape using RT.X2's analog component HD output or export to HDV for playout over 1394.

### **Realtime native editing of Panasonic P2 MXF 720p and SD files (does not apply to RT.X2 SD)**

RT.X2 provides native editing of Panasonic P2 MXF 720p files at 23.98, 25, 29.97, 50, and 60 fps and SD files at 23.98p, 25i and 25p, 29.97i and 29.97p fps in Adobe Premiere Pro and Adobe After Effects. You can use MXF files created by your Panasonic P2 camera directly in these applications without having to convert the files to the traditional AVI file format. In addition, the unique Matrox EZ-MXF utility is included with Matrox RT.X2 lets you use your native MXF files in animation, compositing, and motion graphics applications that support Video for Windows AVI files.

Matrox RT.X2 also supports the use of the popular Focus Enhancements FireStore drives allowing you to simply transfer P2 and HDV files to your RT.X2 system and edit them in real time.

RT.X2 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. RT.X2 lets you play those MXF files in a 23.98 or 25 timeline without any additional processing. RT.X2 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. RT.X2 also supports realtime playback of those "pN" files.

Matrox RT.X2 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.

### **Realtime downscaling of HD timelines to analog SD (does not apply to RT.X2 SD)**

Matrox RT.X2 also downscales HD projects to broadcast-quality NTSC and PAL with proper conversion of the HD color space to the SD color space. You can print your HD edit to analog SD tape in real time and or use this feature to preview your HD projects on an inexpensive SD monitor.

### **Capture in HD, edit in SD for maximum realtime performance**

If your goal is to deliver in SD, yet you want to take advantage of the superior image quality offered by your HDV camera, another way to work with HDV material on your RT.X2 platform is to capture HDV over 1394 then edit in SD using the original HDV clips. You maintain the quality of your original footage, yet benefit from maximum realtime performance during the editing process, similar to what you will experience when editing in native DV. When your edits are complete, you can output straight to SD. When you view the SD master you will see no significant difference in quality compared to a project that is edited in native HDV then downscaled to SD.

On RT.X2 or RT.X2 LE, if you need an HD master, you can open the same SD project in an HD timeline. No recapturing is necessary.

### **Realtime native DV editing workflow**

All the RT.X2 cards provide amazing realtime editing performance in DV. On a reasonably performing system, you can expect to edit at least five native DV video layers plus six graphics layers and effects in real time.

Other SD clips captured from analog SD sources with the same resolution and frame rate can be mixed on your SD timeline in real time.



When the need arises, HDV clips can also be placed on your SD timeline. The RT.X2 cards will downscale them so you can mix 1080i at 29.97 fps material into an NTSC timeline or 1080i at 25 fps material into a PAL timeline in real time. With Matrox RT.X2 and RT.X2 LE, you can also mix MPEG-2 I-frame HD material on an SD timeline in real time.

### **Realtime editing using progressive formats**

Matrox RT.X2 and RT.X2 LE provide realtime native editing of HDV and standard definition progressive formats that are popular with independent filmmakers. The supported formats are HDV 1080p, HDV 720p, SD 576p and SD 486p.

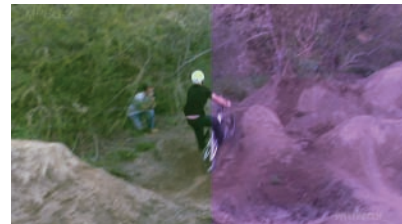
HDV 1080p clips can be mixed in realtime with SD material on a 576p or 486p timeline. As well, 576p or 486p SD material can be mixed in realtime with HD material on a HDV 1080p timeline.

## Realtime Matrox Flex CPU effects

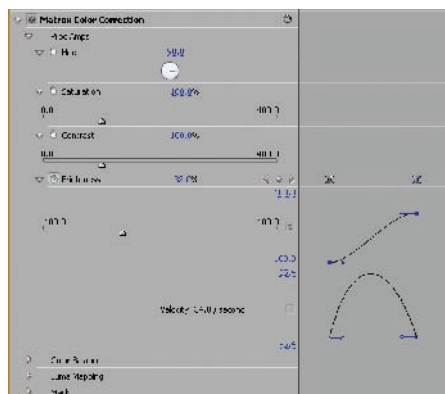
The Matrox RT.X2 platforms rely on the power of your CPU to perform a variety of realtime and accelerated effects.

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.

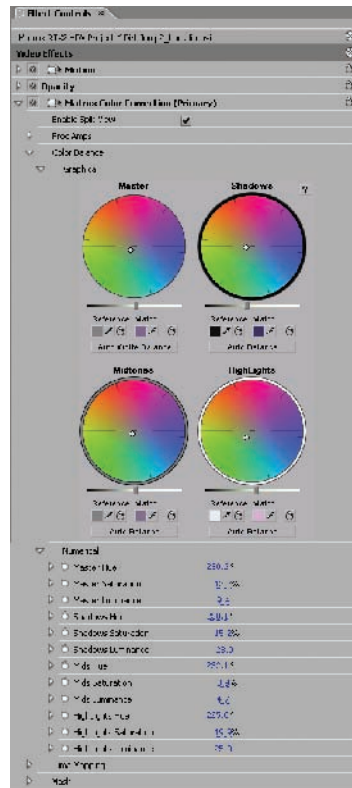
- **Realtime primary color correction** — Primary color correction is a critically important effect for all productions, whether to achieve continuity when cutting between shots, ensure broadcast safe levels, or establish and emphasize a “look”. The primary color corrector provides basic proc amp control;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



**Realtime proc amp controls** — The Matrox RT.X2 platforms let 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.



Reference

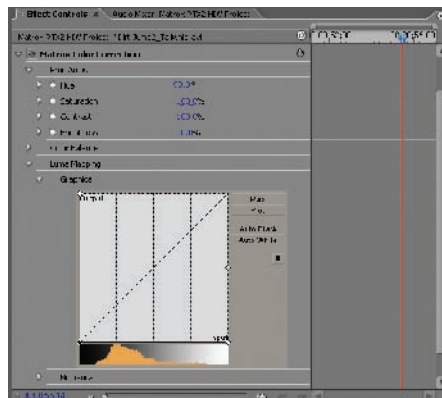


Match



Corrected

**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.

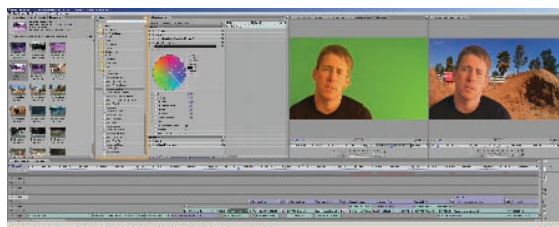


- **Realtime secondary color correction** — The secondary color corrector is an advanced tool used for fine-tuning or dramatic effects creation. It offers all the controls found in the primary color correction filter with the added capability of limiting the effect to a specific range of pixels. Pixel 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 lets you achieve effects such as color pass and color replace. It 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** — The Matrox RT.X2 platforms provide one of the finest realtime chroma keyers in the industry. Clean blue- and green-screen keys are easy to achieve, even with DV and HDV material shot in less than optimal lighting conditions. Your video is upsampled to 4:4:4 resolution and advanced noise reduction algorithms are used 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. You can key on any color, not just blue and green. You can also invert the selection and display the matte being generated to fine tune the key.



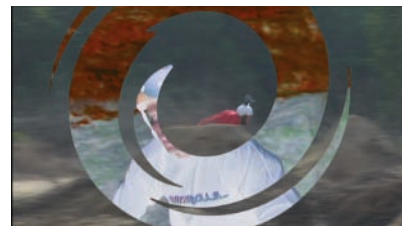
The realtime luma keyer gives you low clip, low gain, high clip, high gain, and transparency controls.



- **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. You can apply smooth slow and fast motion with field or frame blending.
- **Realtime transitions** — The Matrox RT.X2 platforms support 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 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 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. (Does not apply to RT.X2 SD)
- **Realtime HD clip downscaling in an SD timeline** — This effect is enabled by right-clicking on an HDV clip in an SD timeline and selecting “scale to frame size”. It provides realtime playback of HDV 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. On RT.X2, MPEG-2 I-frame HD clips can also be downscaled in an SD timeline. It also provides realtime playback of HDV 1080p clips downscaled to SD to mix into a 576p or 486p SD timeline. On RT.X2, MPEG-2 I-frame HD clips can also be downscaled in an SD timeline.
- **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 in SD. RT.X2 accelerates these effects and transitions in HD.
- **Realtime timecode** — The RT.X2 platforms overwrite 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 your system GPU, the Matrox RT.X2 platforms let you create a wide variety broadcast-quality 2D and 3D digital video effects.

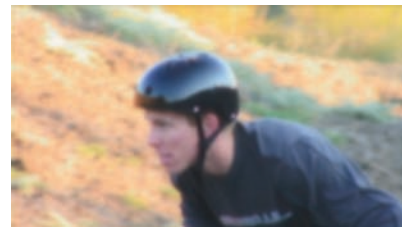
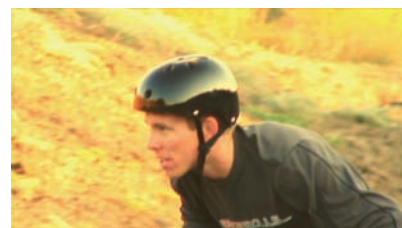
- **Realtime Adobe Motion effect** — The Matrox RT.X2 platforms overwrite the Adobe Premiere Pro fixed Motion effect (position, scale and rotation) so it becomes realtime.
- **Realtime advanced 2D/3D DVE** — The Matrox RT.X2 platforms let you position your clips anywhere in 3D space while adding soft edges and rounded borders with color gradients in real time.



- **Realtime shadow** — The Matrox RT.X2 platforms let 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.



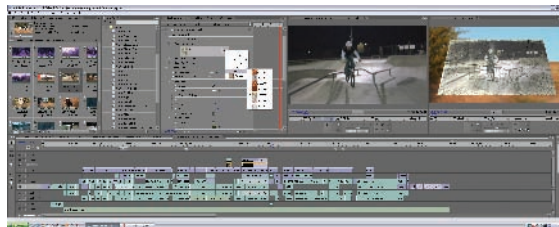
- **Realtime blur/glow/soft focus** — The blur/glow/soft focus effect lets you simulate camera defocus and create unique effects in real time.



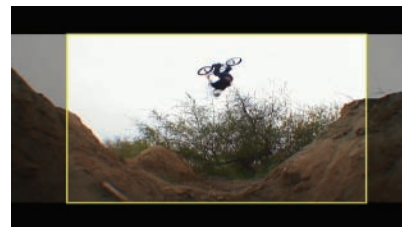
- **Realtime page curl** — Page curls are true 3D with full-motion video on the reverse side and realistic highlights. Page curls on graphics let you create great looking text effects. You control the position, rotation, scaling, and zooming of page curls in 3D space. You also have control over the softness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



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



- **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** — The mask effect lets you choose from dozens of soft-edged cutout shapes for your video clips. You can also create your own masks to meet your specific needs.

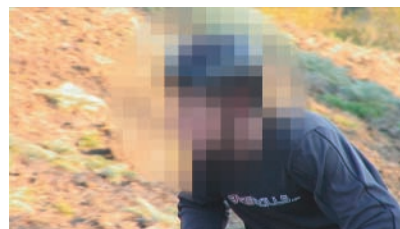
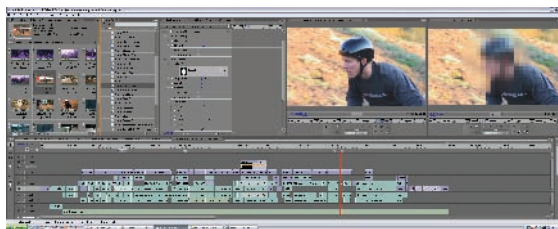




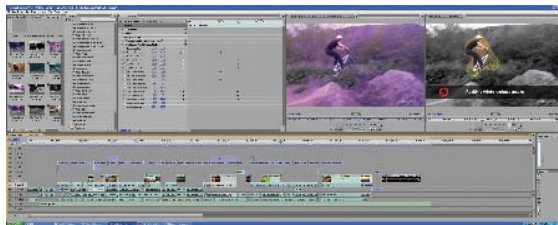
- **Realtime mask blur** — The realtime mask blur effect lets you create a “region of interest” by adding a mask and applying blurring to it. You can either create your own custom made mask, or select one of the many pre-created masks included with the effect.



- **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** — The RT.X2 platforms overwrite 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.



- **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.



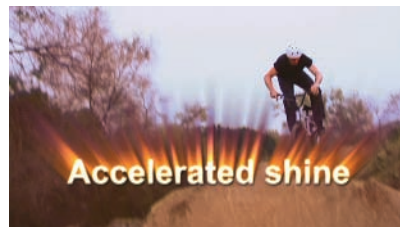
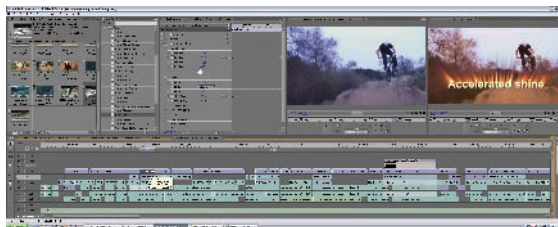
- **Realtime lens flare** — The lens flare effect lets you simulate the light refractions caused by shining a bright light into the lens of a camera when taking a photo. You can choose from many different lens flare patterns.



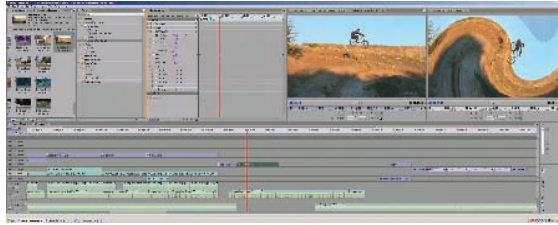
- **Realtime old movie effect** — The old movie effect lets you create an old film look on your clips by adding scratches, flicker, jitter, and grain.



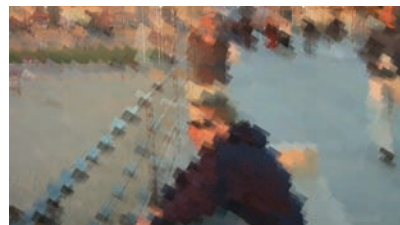
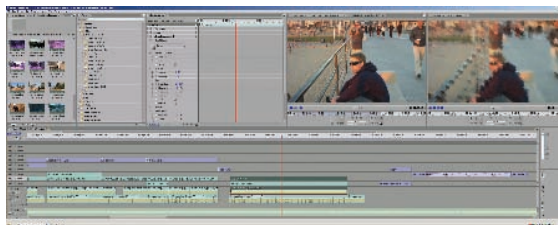
- **Accelerated shine** — Shine is the shimmering light ray effect often seen on TV and film titles. There's no need to buy an expensive plug-in to get this look.



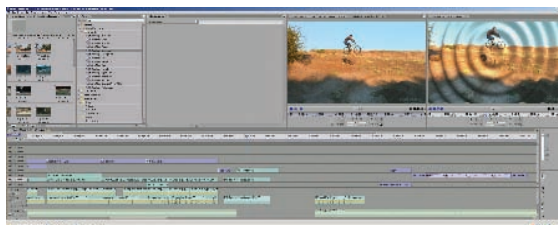
- **Realtime swirl** — The swirl effect lets you create patterns that twist and rotate your video and graphics clips into spirals, coils, or whirlpools.



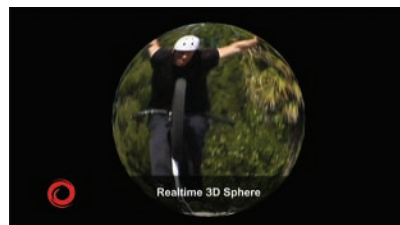
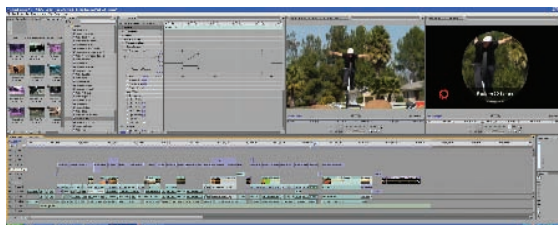
- **Realtime impressionist effect** — The impressionist effect lets you choose from many different patterns that give your image the look of an Impressionist painting.



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

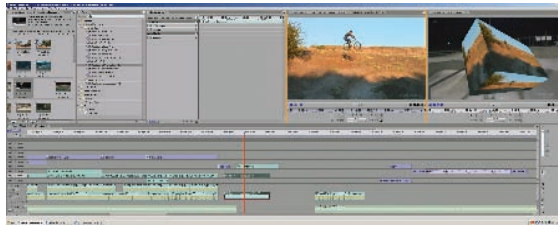


- **Realtime sphere** — The realtime sphere effect lets you morph your video into spheres with shadow and highlight. The degree of morphing, the radius of the sphere, and the location of your light source are all keyframeable.





- **Accelerated cube** — The cube effect lets you map three different video, graphics, or solid colors to the faces of 3D cubes and slabs, then rotate them in 3D space (requires GPU with 512 MB).



- **Native Adobe Premiere Pro transitions** — Most Adobe Premiere Pro native transition effects can be used in real time on the Matrox RT.X2 platforms. The effects you've been accustomed to rendering in Premiere Pro can now be played back in real time in SD. On RT.X2, they are accelerated in HD.



Adobe transitions made realtime or accelerated on the Matrox RT.X2 platforms

Special Effect	Dissolve	Iris	Wipes	3D Motion	Stretch	Page Peel	Zoom	Slide
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	Cross Dissolve*	Iris Points	Checker Wipe	Doors	Stretch		Zoom Boxes	Center Split
Three-D	Additive Dissolve*	Iris Round	CheckerBoard	Flip Over	Stretch In		Zoom Trails	Multi-Spin
	Dip to Black*	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

## Productivity features

The Matrox RT.X2 platforms offer tight integration with Adobe Premiere Pro CS3 and a variety of productivity features that help you get your work done quickly and efficiently.

### Downscaling HD projects for SD delivery (does not apply to RT.X2 SD)

Matrox RT.X2 and RT.X2 LE feature broadcast-quality NTSC and PAL analog 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.

### Panasonic VariCam 720p support (does not apply to RT.X2 SD)

RT.X2 and RT.X2 LE support 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. RT.X2 and RT.X2 LE let you play those MXF files in a 23.98 or 25 timeline without any additional processing. RT.X2 and RT.X2 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. RT.X2 and RT.X2 LE also support realtime playback of those “pN” files.

### WYSIWYG for compositing and graphics applications

The Matrox RT.X2 platforms include 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 your 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.

### 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.

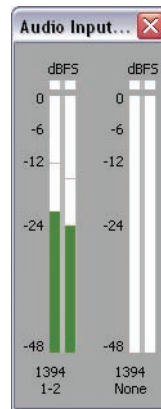


### Surround sound support

The Matrox RT.X2 platforms support the multi-channel 5.1 surround sound mixing feature of Adobe Premiere Pro. Monitoring is done via your sound card.

### VU meters on capture

VU meters on audio/video capture are a unique feature of the Matrox RT.X2 platforms. They let you see if your audio input is active and also let you monitor and adjust audio levels in order to obtain the optimal signal-to-noise ratio and dynamic range.



### Video preview on capture

The RT.X2 platforms let you see your DV video on your broadcast monitor while capturing. RT.X2 also supports HDV monitoring during capture.

### Device control

The Matrox RT.X2 platforms support the Adobe Premiere Pro standard RS-422 and FireWire device control protocols. There is no need to purchase third-party device control software.

### Realtime mixed-format multi-cam

The Matrox RT.X2 platforms support the multi-cam feature of Adobe Premiere Pro 2.0 and go further to let you view four cameras simultaneously in real time even if the formats are mixed, provided your RT.X2 system has the proper storage and system speed. For example, in a multi-cam sequence you could use one HDV stream and multiple DV streams and switch among them in real time.



### Legacy support for RT.X100 AVI files

The Matrox RT.X2 platforms support playback of legacy RT.X100 AVI files within the editing environment, allowing you to reuse archived footage.

### Flexible AVI and WAV file formats

The Matrox RT.X2 platforms capture 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.

The Matrox RT.X2 platforms provide maximum flexibility by allowing AVI files to be mixed in real time with MPEG (Adobe native HDV) and M2T (FireStore) files. This feature enables powerful and flexible online/offline workflows. For example, you can capture HDV in the field on a laptop and bring it into RT.X2 for finishing or transfer your files directly from a FireStore to the RT.X2. You can also use a software-only machine to rough cut your HDV project and bring that project into RT.X2 without having to recapture your footage. On RT.X2 SD, you can only use your HDV clips in an SD timeline.

### Efficient management of AVI and MXF files

The Matrox RT.X2 platforms extend Windows Explorer functionality to simplify AVI 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.

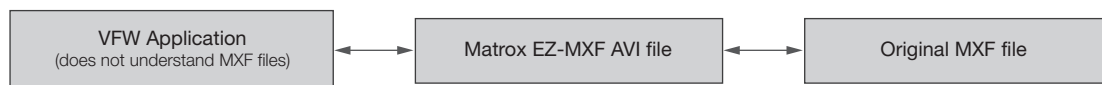
On Matrox RT.X2 and RT.X2 LE this extended Windows Explorer functionality also applies to P2 MXF 720p and SD files.

### Matrox EZ-MXF utility (does not apply to RT.X2 SD)

The new “tapeless workflows” offered by Panasonic P2 are truly revolutionary. P2 simplifies acquisition, transport, archiving, asset management, etc. It brings 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 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 RT.X2 and RT.X2 LE natively support the Panasonic P2 MXF 720p and SD file formats in Adobe Premiere Pro and Adobe After Effects. You can use MXF files created by your Panasonic P2 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 RT.X2 and RT.X2 LE also include features to simplify MXF file management in Windows Explorer. 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 bridges the gap between AVI and MXF allowing all Video for Windows applications to work with native MXF files.

### **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.

### **Support for 32-bit AVI with alpha**

The RT.X2 platforms include 32-bit 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 RT.X2 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.

On RT.X2 and RT.X2 LE, 32-bit codecs are provided in HD and SD. On RT.X2 SD, only SD is supported.

Note that the 32-bit MPEG-2 I-frame codecs are locked to the hardware and will work only if there is an RT.X2 card in the system.

### **Project compatibility with Matrox Axio**

Matrox RT.X2 and Matrox Axio projects are compatible. Any RT.X2 timeline can be loaded onto an Axio system. Axio projects created using codecs and resolutions supported by an RT.X2 card can be loaded onto an RT.X2 system.

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

The Matrox RT.X2 platforms significantly accelerate exports to all the formats included in Adobe Premiere Pro.

Adobe Premiere Pro export formats include:

- Blu-ray
- 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



## Matrox product selection table

	Axio LE	Axio HD	Axio SD	RT.X2	RT.X2 LE	RT.X2 SD
<b>Capture/editing formats</b>						
HDV 1080i	X	X	X	X	X	capture only
HDV 1080p	X	X	X	X	X	capture only
HDV 720p	X	X	X	X	X	—
DVCPRO HD	X	X	X	—	—	—
DV, DVCPRO, DVCAM	X	X	X	X	X	X
DVCPRO50	X	X	X	—	—	—
P2 MXF – DVCPRO50, DVCPRO HD	X	X	X	720p/SD only	720p/SD only	—
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	10-25 mbps	10-25 mbps	10-25 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	50-100 mbps	50-100 mbps	—
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	editing only	editing only	—
Playback of legacy Matrox DigiSuite AVI files	X	X	X	—	—	—
Playback of legacy RT series AVI files	X	X	X	X	X	X

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

### Realtime video effects\*\*

Three-way primary color correction	X	X	X	X	X	X
Three-way secondary color correction	X	X	X	X	X	X
Super smooth field- or frame-blended slow motion	X	X	X	X	X	X
Advanced 3D DVE	X	X	X	X	X	X
Chroma/luma keying	X	X	X	X	X	X
Dissolve, wipes	X	X	X	X	X	X
Surface finish	X	X	X	X	X	X
Blur/glow/soft focus	X	X	X	X	X	X
Shadow	X	X	X	X	X	X
Transitions	X	X	X	X	X	X
Page curls	X	X	X	X	X	X
Mask	X	X	X	X	X	X
Pan & Scan	X	X	X	X	X	X
Mask mosaic	X	X	X	X	X	X
Mask blur	X	X	X	X	X	X
Four-corner pin	X	X	X	X	X	X
Track matte	X	X	X	X	X	X
Native Adobe transitions	X	X	X	X	X	X
Native Adobe effects – opacity, crop, motion, etc.	X	X	X	X	X	X
Accelerated shine	X	X	X	X	X	X
Crystallize	X	X	X	X	X	X
Old movie	X	X	X	X	X	X
Lens flare	X	X	X	X	X	X
Move & scale	X	X	X	X	X	X
Accelerated cube	X***	X	X	X***	X***	X***
Ripple	X	X	X	X	X	X
Twirl	X	X	X	X	X	X
Impressionist	X	X	X	X	X	X
Adobe garbage mask	X	X	X	X	X	X
Sphere	X	X	X	X	X	X
Timecode	X	X	X	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 and the Matrox RT.X2 cards rely on the power of your system CPU and GPU to process realtime Matrox Flex effects. Please visit our website for system configuration guidelines.

\*\*\* Requires GPU with 512 MB.

### Audio inputs and outputs

RCA audio	—	—	2-in/2-out	2-in/2-out†	2-in/2-out†	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	—	—	—	—	—

† The RT.X2 cards rely on your system sound card to capture and output audio.

	Axio LE	Axio HD	Axio SD	RT.X2	RT.X2 LE	RT.X2 SD
<b>Video inputs and outputs</b>						
Simultaneous HD and SD output	X	—	—	—	—	—
Realtime downscaling of HD timelines to analog SD (and SDI with Axio)	X	X	X	X	X	—
DVI-D preview output	—	—	—	X	—	—
<b>SD</b>						
1394	X	X	X	X	X	X
Composite	X	—	X	X	X	X
Y/C	X	—	X	X	X	X
Analog component	X	output only	X	X	X	X
SDI – SMPTE 259M	X	X	X	—	—	—
Analog and digital genlock	analog only	X	X	—	—	—
<b>HD</b>						
1394	X	X	X	X	X	input only
SDI HD – SMPTE 292M	X	X	—	—	—	—
Analog RGB component	—	output only	—	—	—	—
Analog YPbPr component	X	output only	—	X	X	—
Tri-level genlock	X	X	—	—	—	—
<b>Video editing</b>						
Ultra high performance editing with Adobe Premiere Pro CS3	X	X	X	X	X	X
Realtime mixed-format timelines	X	X	X	X	X	SD timelines only
EDL import and export	X	X	X	X	X	X
AAF export for interoperability with other systems	X	X	X	X	X	X
Waveform and vectorscope monitors for color correction and broadcast safe output	X	X	X	X	X	X
User customizable keyboard	X	X	X	X	X	X
Multiple nestable timelines for managing multi-layer effects safe output and complex timelines	X	X	X	X	X	X
Accelerated export to DVD, all multimedia formats, and Adobe Clip Notes	X	X	X	X	X	X
WYSIWYG for compositing and graphics applications	X	X	X	X	X	X
Realtime mixed-format multi-cam	X	X	X	X	X	SD timelines only
Closed captioning support in NTSC	X	X	X	—	—	—
<b>Audio editing</b>						
Support for multi-channel 5.1 surround sound mixing and monitoring	X	X	X	X	X	X
Sub-frame audio editing	X	X	X	X	X	X
Audio sweetening with VST plug-in support	X	X	X	X	X	X
Voiceover recording in the timeline	X	X	X	X	X	X
VU meters on capture	X	X	X	X	X	X
<b>Supported editing resolutions</b>						
NTSC	X	X	X	X	X	X
PAL	X	X	X	X	X	X
486p @ 23.98, 29.97	X	X	X	X	X	X
576p @ 25	X	X	X	X	X	X
HDV 1080i (1440 x 1080) @ 25, 29.97	X	X	X	X	X	—
HDV 1080p (1440 x 1080) @ 23.98, 25, 29.97	X	X	X	X	X	—
720p @ 23.98, 25, 29.97, 50, 59.94	X	X	X	X	X	—
1080i @ 25, 29.97	X	X	X	—	—	—
1080p @ 23.98, 25	X	X	X	—	—	—
1080p @ 24	X	X	—	—	—	—
<b>System</b>						
System requirements	workstation 1 PCI-X slot or 1 PCIe 4x slot full-length	workstation 2 PCI-X slots	workstation 2 PCI-X slots	desktop 1 PCIe 1x slot full-length	desktop 1 PCIe 1x slot standard	desktop 1 PCIe 1x slot standard