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ROUNDUP Matrox RT.X100 and Pinnacle Pro-One RTDV



REALTIME DV EDITING BOARDS

Matrox RT.X100 and Pinnacle Pro-One RTDV compared. By John Jackman

It's roundup time at the realtime corral again. Both Matrox and Pinnacle Systems have upped the ante in the around-\$1000 DV editing board market by adding realtime IEEE 1394 output to their boards. This step

levels the playing field among the three big players in the category.

In my last Roundup of the Pinnacle Systems Pro-One and Matrox RT2500 (see "The Real Meaning of Real," Feb. '02 *DV*),

I pointed out shortcomings in the products—lack of usable color-correction, lack of realtime output to DV—that placed them behind Canopus DVStorm in the \$1000 category. Those shortcomings have been

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The RT.X100 ships with the full version of Adobe Premiere 6.5, Sonic Solutions DVDIt LE, Ligos GoMotion for MPEG export from Premiere, and Pixelan SpiceRack. Because some of the processing comes from the host unit's CPU, don't expect a lot from the RT.X100 if you plug it into an older computer. The unit works well with dual monitors.

almost eliminated, which makes a decision between these cards much more difficult. However, there are still differences in the capabilities of the products. DV tried to get Canopus DVStorm2 in this Roundup to match the group in the last story, but Storm2 wasn't shipping in time. I'll refer to the product, though, because potential purchasers will be comparing these cards and weighing the differences to make a purchase decision.

Matrox RT.X100

Wow. I'm impressed. I feel like Matrox (www.matrox.com) read my review of the RT2500 and used the gripes and groans as a blueprint for development. The sluggish response in Adobe Premiere I complained about is greatly reduced, and Matrox added proper color-correction and realtime DV output. It's apparent Matrox worked hard to address the usability issues, and even added more features: The RT.X100 also allows realtime encoding to MPEG-2 for DVD creation.

The RT.X100 ships with the full version of Adobe Premiere 6.5, Sonic Solutions DVDIt LE, Ligos GoMotion for MPEG export from Premiere, and Pixelan SpiceRack Lite. RT.X100 also ships with Matrox Productivity Tools, which include applications for capturing and logging; hardware accelerated simultaneous export to RealMedia, Windows Media, MPEG-1, and MPEG-2; the very clean Matrox software codec; and WYSIWYG plug-ins for Adobe After Effects, NewTek LightWave, and Discreet 3ds max.

Because some of the processing comes from the host unit's CPU, don't expect a lot from the RT.X100 if you plug it into an older computer. Be sure to check the Matrox Web site for hardware recommendations, and approved systems and motherboards. I thought it was odd that the unit doesn't yet support dual-processor systems under Windows 2000 (support should be in SP1 by the time you read this), and Matrox claims the unit performs better under XP than 2000. I tested the unit in a Compaq Evo-

The Matrox RT.X100 includes a snazzy chroma key module that can up-res DV color to 4:4:4 before pulling a matte. The end result is a nice, clean key without any of the stair-stepped edges so common to DV-originated chroma keys.



W4000 workstation with 2.4 GHz Pentium, 512 MB RAM, Windows XP Professional, and a Matrox Parhelia display card. The unit works well with dual monitors.

Matrox has optimized 60 of the native Adobe transitions for realtime playback, so you're not stuck with the Matrox plug-ins.

Latest and greatest

Where the RT.X100 shines is with 3D effects and transitions. The Matrox Flex 3D technology is really good, and in some ways this product goes beyond the company's higher-

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end DigiSuite product. The 3D mapping is clean, accurate, and snappy. Scaling is excellent with no blockiness. Edges are antialiased and smooth. The effects are editable and keyframable, and your custom settings are easily saved for reuse.

The new, improved, and really exciting stuff happens in color-correction, blur, and chroma keying plug-ins. The RT2500 had no real color-correction to speak of, only a fairly crude colorization filter. The new color-correction filter is nice. The plug-in integrates levels, HSV, and CSV in one

RT.X100
Matrox, \$1099
Score: 4.5 ◆◆◆◆



PROS

Powerful realtime multilayer effects. Great chroma key. Good color-correction.

CONS

Needs a beefy platform to perform well. Can't do multiple layers of active video for montages or layered effects.

BOTTOM LINE

A good bet, especially if you like 3D DVEs and need chroma key and color-correction.

SYSTEM REQUIREMENTS

Recommended system configuration: Realtime DV output requires Pentium 4 at 2.2 GHz, AMD Athlon XP 2000+, or faster; 512 MB DDR RAM or RDRAM; 1394 camcorder or VTR.

biggest gripe about the whole group of boards that claimed to be "realtime."



panel, and allows pretty decent control of chroma and luma values in realtime. It's a shade below the color-controls of Final Cut Pro 3.0 or Synthetic Aperture Color Finesse, but it's nice nonetheless, and it happens in realtime. The blur plug-in works well, and, as anyone who has ever waited for a render can tell you, blurs are some of the most time-consuming operations.

But the thing that really made me happy was the new chroma key module. For years, I've been nudging manufacturers to fix the clunky chroma keying of DV footage by internally up-resing the chroma from DV's 4:1:1 color space to interpolated 4:4:4 (something the esteemed Ultimatte hardware chroma keyers do) before pulling the matte. Canopus beat everyone to the punch by implementing up-resing in its nifty chroma key plug-in in 2001. Matrox's new keyer now does this in 4:4:4, and produces some of the snappiest, smoothest

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used in another situation.

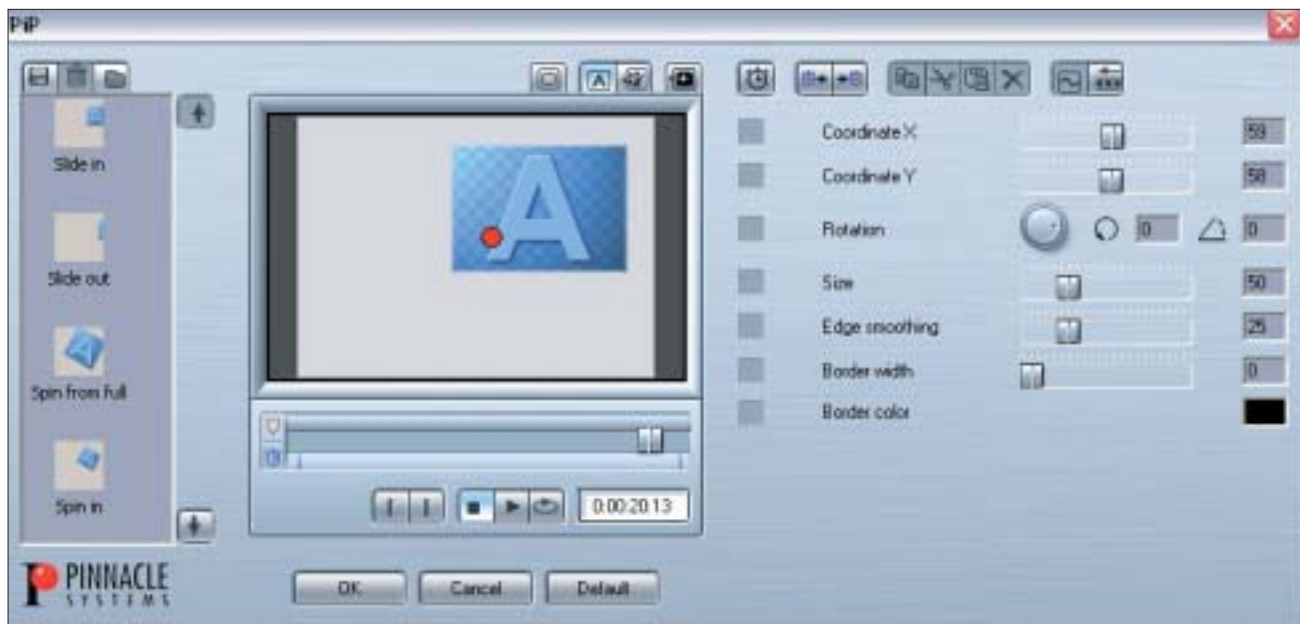
The minimum hardware configuration can run two video streams—one keyed track (a Targa still or a Premiere title) and a basic transition in realtime. The recommended setup can run all of that plus an additional graphics track, two color-correction effects, and one key effect, together with two speed changes and two basic 3D DVE effects. As I mentioned earlier, if the effect is a blur or particle, or one of the other Matrox hardware-based Flex 3D effects (such as a page curl, advanced DVE, organic wipe, or a Premiere realtime transition), you can run only one.

I'm sorry if this sounds confusing, but the realtime playback varies from situation to

the major complaints I had about the earlier systems.

The Pro-One RTDV is solid and performs reliably, but the sluggishness I complained about in my earlier review is still there. There's a definite pause between when you click on Play and when the playback starts. It's not huge—perhaps a second—but it grew old fast when I was auditioning a lot of clips from within Premiere. The DVTools capture and logging utility works smoothly and can do automatic scene detection, but takes two passes.

How many layers can the Pro-One play out simultaneously? Pro-One handles two video clips, a transition, and an over-



The Pinnacle Pro-One RTDV offers native MPEG editing and DVE transitions that are keyframable and can be saved as new custom presets.

keys you'll see from DV footage. There's a spill correction control, although it can't handle really heavy spill. The keyer even handles transparent and semitransparent foreground objects such as smoke, and it does a decent job with wisps of hair. Well done, Matrox.

Running numbers

Okay, everyone is waiting for the big question: How many layers can the Matrox RT.X100 run in realtime? It's not a simple answer, because part of the processing now comes from the host computer's CPU. Basically, the more CPU power you have, the more you'll be able to do. It also depends on what effects are involved. Blur and particles are accelerated by the Matrox hardware, as are the advanced DVEs, organic wipes, and Premiere transitions. Because these effects tie up the hardware, only one of these may be used where two simpler effects might be

situation. However, the RT.X100 is quite powerful when compared with the RT2500. Two video streams with color-correction, a key layer, two title layers, and a spiffy DVE transition will make most editors happy, happy, happy. Whoops, except for some wedding video folks who like to do multiple picture-in-picture montages. Matrox only has a single PIP, or two basic PIPs.

Matrox has overcome the stumbling blocks of the earlier product. For most folks, the RT.X100 has all the power they usually need.

Pinnacle Pro-One RTDV

I tested the Pinnacle Pro-One RTDV (www.pinnaclesys.com) in an Alienware computer running Windows XP Professional, with a 2.5 GHz Pentium 4 and 1 GB of RAM. There's not as much change between the Pro-One and the Pro-One RTDV as there is between the Matrox RT2500 and the RT.X100. The main difference with the Pro-One RTDV is the addition of the realtime output for both DV and MPEG-2, which of course was one of

Pro-One RTDV Pinnacle, \$995 Score: 3.0 ♦♦♦

PROS

Solid and basic performer. Native MPEG editing. Works in less-powerful host machines.

CONS

Realtime engine isn't as powerful as competition's. Sluggish timeline response. No chroma key.

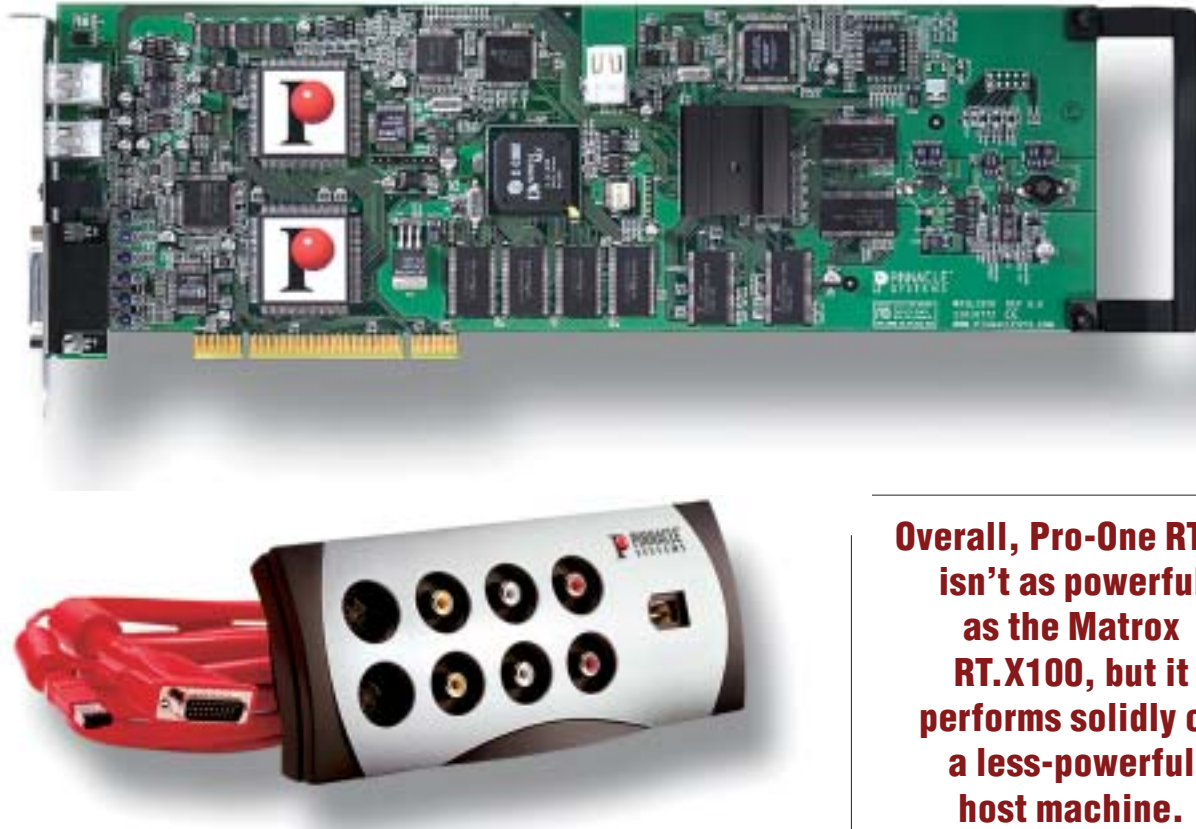
BOTTOM LINE

Good, solid, basic performer for simpler editing and DVD creation, but not as powerful as the Matrox RT.X100 or Canopus DVStorm.

SYSTEM REQUIREMENTS

Intel Pentium 3 or AMD Athlon 1 GHz or faster; Windows 2000/ XP; 256 MB RAM; AGP DirectX-compatible VGA board.

lay channel in realtime. There are only a few realtime plug-ins, most of which duplicate Premiere transitions and filters. None of the Premiere filters or transitions



The Pinnacle Pro-One RTDV board and its breakout box. The unit features native MPEG editing and realtime output to DV and MPEG.

play back in realtime. Although the Hollywood FX DVE transitions are nice, there is noticeable blurring on many of them. This is undoubtedly related to an issue in Premiere 6.0 that appeared to be fixed in version 6.5, but it means that the plug-in isn't signaling Premiere that it can handle tall pixels.

Stabilization and tracking

Pro-One has two realtime features that aren't found on other products in the price range: realtime image stabilization and motion tracking. I tested the image stabilization with several types of shaky-cam footage. As with most digital stabilization systems, the plug-in scales up the original footage and then shifts right, left, up, or down to counteract the unwanted camera motion. The plug-in analyzes the motion automatically. The results are pretty good, although not as good as in-camera stabilization. The plug-in worked best with shots that had only a little motion. A handheld shot at full zoom didn't turn out as well. Although very shaky motion was counteracted, the end result exaggerated small, sharp motions—almost a vibration—which was more annoying to me than the

original shake.

The motion tracking plug-in works about as consistently as the motion tracking in After Effects—that is, pretty well, but not always. Obviously any significant motion blur can cause the tracking to lose the target, but the plug-in is effective for tracking transitions or effects, such as applying a regional blur or pixelation to make a face anonymous. This is very hard to do in Premiere without true motion tracking.

There's still no real color-correction, only a "make it sepia or fuchsia" colorizer, and there's no chroma key at all. DVD producers will appreciate the native MPEG IBP editing, which in combination with realtime MPEG-2 output makes for a speedy path to DVD. The software bundle includes the full version of Premiere 6.0, TitleDeko RT, Hollywood FX RT, Impression DVD, and Alpha Magic transitions.

Overall, Pro-One RTDV isn't as powerful as the RT.X100, but it performs solidly on a less-powerful host machine.

All together now

Okay, so you have a thousand bucks burning a hole in your pocket and you need to know how to spend it. Pinnacle Systems, Matrox, or perhaps Canopus? The answer is less clear than it was a year ago. If you often run multi-

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layered video (such as multiple-stream video montages), then check out the Canopus DVStorm, which can run up to five layers of actual video—and keep an eye out for DVStorm2, which should be available by the time you read this. Canopus is still the winner for the maximum number of layers doing anything you want them to.

If you don't need the maximum layers, and really love 3D DVE transitions, the Pro-One RTDV or especially the RT.X100 will serve you better. This is also true if you simply must have large file capture and can't deal with Canopus's reference AVIs.

If you need color-correction and chroma keying, your choices are limited to the Canopus DVStorm and the Matrox RT.X100.

Deciding between the RT.X100 and the Pro-One RTDV is simple at first glance: the Matrox RT.X100 wins in power and features. But that's not everything. If you need to plug the board into an older or cheaper machine, or if you need a specific feature offered by Pro-One (such as native MPEG editing or motion tracking), the Pro-One may be a better choice. All three cards are solid performers that do the basics well in realtime. Best of all, this time around, I know the real meaning of *realtime* because they output in realtime too! ■

The Rev. **John Jackman** is vice president of Comenius Communication, an independent television production firm located in the Winston-Salem, NC, area. He started in video back in the days of 1/2-inch reel-to-reel and is astonished that any of this realtime computer stuff works at all. You can reach him online at john@dv.com.

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