BUYER'S GUIDE TO VIDEO FORMAT CONVERTERS Going Up? Or Coming Down?





Folsom Research View Max





Focus Enhancements Pro AV 1280



BUYER'S GUIDE TO VIDEO FORMAT CONVERTERS Going Up? Or Coming Down?

One of the blessings of today's digital video signal processing is that we can take video and computergenerated images and convert them to any output format or standard we desire. Want to convert composite video to 720p? How about SXGA (1280x1024) graphics to S-video? Interested in mixing 720p HD programming with 768p PC graphics?

All of this is possible and more. And the gadgets that let us perform these feats of pixel alchemy are called video format converters (VFCs), although you may better know them as seamless switchers, video scalers, and scan converters.

Format converters are definitely "solutions" to "problems." If you are using an LCD or DLP projector on a big screen and want smooth transitions from interlaced and progressive scan sources, you'll need a VFC. Trying to match an HDTV or EDTV signal to your 50" plasma? Go with a VFC. Want to convert your workstation graphics to SDI video for editing? A VFC is the ticket.

Until now, projectors and monitors have received most of the press coverage and glory. That's not surprising, since they are usually out in the open, while the work-a-day video interfaces and format converters labor in the background. But VFCs are just as important in the video chain; without them, many displays just wouldn't look good at all.

This Buyer's Guide presents a wide selection of video format converters, from devices that can rest in your hand to multifunction boxes capable of sequencing and blending images seamlessly across several screens. Many of these products started out as the result of "tinkering" with existing video format conversion products. Some address very narrowly defined and specific needs, while others can blend just about any video and computer signal format known.

The guide is organized into four sections. First up, you'll find seamless switcher/scaler products for the rental and staging market. These big boxes often have outboard switch panels that resemble production video switchers, and most of them can handle at least eight composite or component video and RGB sources.

The next category is presentation switcher/scalers. These products resemble their staging and rental cousins in function, but are designed to sit discreetly in AV racks for use in boardrooms and conference rooms. Many of these boxes also have built-in audio follow switchers and some include a microphone input, features you wouldn't need on a rental and staging product.

For basic video format conversion that goes up in resolution, you'll want to check out the video scalers. These products can be used everywhere from conference rooms to home theaters, and typically convert one to four input signals to a handful of output display rates. They are not intended for rapid switching or sequencing - just high-quality format conversions.

The last category is for products that decrease resolution, or scan converters. Most of these boxes take progressive-scan video from computers and reduce it in resolution to interlaced composite or component video. Some include genlock for use in production studios, while others are appropriate for simple format conversions used in videoconferencing or with older projectors and monitors.

Note that all product information contained in these tables was accurate as of December 1, 2002. Prices given are manufacturer's suggested retail, and of course you should get your own price quotes on any products that interest you.

To keep things simple, products are arranged by price — lowest to highest — and the columns break out the number of input and output connections as well as supported input and output formats. Audio switching support is also indicated. Finally, check the manufacturer's notes column for product features of interest.



STAGING AND RENTAL SWITCHER/SCALERS

Seamless Switcher/Mixers	MSRP, US \$	Dimensions	RU Size	Wt, Ibs.	Input Formats	Output Formats	Manufacturer's Notes
Analog Way GSW611R	\$11,500	14.5" x 19" x 5.3"	1W 3H	14.3	1-5	1-4	Optional remote control
Folsom ScreenPRO	\$15,600	5.25" x 17" x 13"	1W 2H	22	C, 1-8	1-13	RS-232/485, Ethernet control, can be daisy-chained
Extron SGS 408	\$15,825	17.5" x 11.2" x 5.25"	1W 3H	13.8	C, 1-5,7-9	1-12	RS-232 and thru Extron's RCP 1000, opt. DVI out
Analog Way GSW2811R	\$16,500	14.5" x 19" x 5.3"	1W 3H	19	C, S, Y, 1-8	1-8,13	Cut/fade/tile, opt. remote console, RS-232, opt. composite out
FSR Omni Navigator	\$17,995	5.25" x 17" x 13"	1W 3H	22	C, 1-7	1-7,10-13	PiP, Keying, Cut, Dissolve, 7 Wipes, RS-232/485, Optional Helm to control 4
Folsom BlendPRO	\$18,995	5.25" x 17" x 13"	1W 2H	22	C, 1-8	1-13	Compatible w/ScreenPRO
Folsom ScreenPRO PLUS 1201*	\$32,700	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1202 *	\$40,700	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1203*	\$48,700	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1204*	\$55,700	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1601*	\$39,300	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1602*	\$47,300	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1603*	\$55,300	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1604*	\$63,300	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1605*	\$75,300	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO
Folsom ScreenPRO PLUS 1606*	\$87,300	17.5" x 17" x 20.25"	1W 6H	45	C, 1-8	1-13	Modular design, upgradeable for add'l. screens, compatible with ScreenPRO

* - w/ 6-screen controller

	Inp	ut	Formats	
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C - NTSC/PAL/SECAM
S - S-video
Y - Component 480i
1 - VGA
2 - SVGA
3 - XGA
4 - SXGA
5 - UXGA
6 - 480p
7 - 720p
8 - 1080i
9 - 1080p

Output Formats

1 - VGA
2 - SVGA
3 - XGA
4 - SXGA
5 - UXGA
6 - 480p
7 - 720p
8 - 1080p
9 - WVGA1 (848x480)
10 - WVGA2 (852x480)
11 - WXGA1 (1280x768)
12 - WXGA2 (1365x768)
13 - D-ILA (1365x1024)

Until a few years ago, this product category didn't even exist! Until the mid-1990s, the majority of front projection systems used for live events employed either NTSC-only or VGA (640x480) tube designs. But with the rapid change to high-resolution fixed-pixel technology, there was a real need to convert all input signals to match the native resolution or "sweet spot" of these displays.

The two pioneers in this category are analog Way and Folsom Research. AW's Graphic Switcher set the stage for full-bore mixing, dissolving, and title supers with blended video and computer presentations, while Folsom's VFC-2100 and VFC-2200 were wildly popular with staging companies and also the first to use outboard production switchers.

Not surprisingly, Folsom continues to lead this category with 12 different products, several of which are multi-screen configurations for seamless panoramic images or control of multiple projectors or monitors. Extron and FSR also have products in this category that use either front-panel production





switcher buttons or outboard switcher controls.

Manufacturers are increasing support for higher resolutions and DTV formats. With the exception of one product, all of these boxes can output progressive-scan signals at rates that range from VGA (640x480) to UXGA (1600x1200) and most support 704x480p, 1280x720p, and 1920x1080i too.

Got plasma? Several of the more common plasma formats like 852x480, 1280x768, and 1365x768 are supported. You'll also find compatibility with JVC's D-ILA SXGA standard (1365x1024), a true 4:3 SXGA output mode. Analog Way's GSW2811R even has a composite video output of all mixed and switched signals if you wish to record your work to tape or disk.

Most of the models listed offer RS-232C control and a few support RS-485. IP control is also coming to many products down the road so you can design and operate a virtual screen display matrix from a desktop or laptop PC. Note that none of these products offers audio follow switching. Typically, staging and rental seamless switcher/scalers do not include audio support as that function is usually handled at the show by a separate audio mixing console.

Switchers for Staging







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PRESENTATION SWITCHER/SCALERS

Presentation Switchers	MSRP, US \$	Dimensions	RU Size	Wt, Ibs.	Input Formats	Output Formats	Audio Switch Format	Manufacturer's Notes
Aurora MM TVP-1000	\$969	9.5" x 5.5" x 1"	plug-in	1.7	C, 1-3, 6-8	8	In only	Hi-res PiP modes, NTSC tuner
Aurora MMTVP-1000 (PAL)	\$999	9.5" x 5.5" x 1"	plug-in	1.7	C, 1-3, 6-8	8	In only	Hi-res PiP modes, PAL/SECAM tuner
TV One CSC-1600HD	\$1,275	9" x 1.75" x 16"	1W 1H	5	С	1-4, 6-13	n/a	RS-232, IR, Direct Output Resolutions Selection
Aurora MM XTune	\$1,299	8.4" x 5.7" x 1"	1/2W 1H	3	C, 1-3, 6-8	1-3, 6-8, 10-12	In only	Hi-res PiP modes, NTSC tuner
Aurora MM XTune PAL	\$1,399	8.4" x 5.7" x 1"	1/2W 1H	3	C, 1-3, 6-8	1-3, 6-8, 10-12, 14-15	In only	Hi-res PiP modes, PAL/SECAM tuner
Aurora MM TVP-1000+	\$1,450	9.5" x 5.5" x 1"	plug-in	2.5	C, 1-3, 6-8, DH	8	In only	Hi-res PiP modes, NTSC tuner, DVI-HDCP
Aurora MM TVP-1000+ (PAL)	\$1,499	9.5" x 5.5" x 1"	plug-in	2.5	C, 1-3, 6-8, DH	8	In only	Hi-res PiP modes, PAL/SECAM tuner, DVI-HDCP
Aurora MM XTune+	\$1,649	8.4" x 5.7" x 1"	1/2W 1H	3.5	C, 1-3, 6-8, D	1-3, 6-8, 10-12	In only	Hi-res PiP modes, NTSC tuner, DVI Input
Kramer VP-24	\$1,650	19" x 7" x 3.5"	1W 2H	8.4	C, 1, 2, 3	1	Follow	One Box Solution, Mic input
Aurora MM XTune+ PAL	\$1,699	8.4" x 5.7" x 1"	1/2W 1H	3.5	C, 1-3, 6-8, D	1-3, 6-8, 10-12, 14-15	Follow	Hi-res PiP modes, PAL/SECAM tuner, DVI Input
Kramer VP-722DS	\$1,795	19"x 8.25"x1.75"	1W 1H	5	С	1-3	n/a	Links w/optional 6X1 audio
Altinex MT3100SR	\$1,995	8.5" x 3.5" x 12.25"	1/2W 2H	8	C, S, 1-5	1-13	Follow	Cuts-only scaled output, front panel, RS-232 cntl, customizable design
Kramer VP-720DS	\$1,995	19" x 9.3" x 1.75"	1W 1H	6.6	C, 1-5	1-5, 11-13	Follow	Seamless Switcher, PIP, Proc Amp
Kramer VP-723DS	\$2,495	19" x 9.3" x 1.75"	1W 1H	6.6	C, 1-5	1-8, 11-13	Follow	Seamless Switcher, PIP, Proc Amp
Extron DVS 406	\$3,245	1.75" x 17.5" x 12"	1W 1H	6.8	C, 1-8	1-14	n/a	Aspect control, video scaler w/seamless switching, 33 output rates
Altinex MT2130MR	\$3,265	17" x 3.5" x 12.25"	1W 2H	15	C, S, 1-5	1-13	Follow	Cuts-only scaled output, front panel, RS-232 cntl, customizable design
Altinex MT2120MV	\$3,375	17" x 3.5" x 12.25"	1W 2H	16	C, S, 1-5	1-13	Follow	Cuts-only scaled output, front panel, RS-232 cntl, customizable design
Kramer VP-25xl	\$3,750	19" x 7" x 3.5"	1W 2H	8.7	C, 1, 2, 3	1, 2, 3	Follow	Proc Amp, One Box Solution
InLine IN1404XT	\$3,895	1.75" x 17" x 12.2"	1W 1H	3.5	C, 1-8	1-5, 11-13	Follow	3:2 correction, UTP output, seamless switch w/audio breakaway
Analog Way SCUT2	\$3.995	11.8" x 13.3" x 1.74"	1W 1H	7.5	C, 1-5	1-4, 10-11, 13	Follow	RS-232, optional remote keypad
Analog Way OCP802	\$4,500	11.8" x 13.3" x 1.74"	1W 1H	7.7	C, 1-4	1-4, 13	Follow	Mic input with compressor/noise gate, RS-232
Extron System 7c	\$4,995	17.5" x 3.5" x 9.5"	1W 2H	8.5	C, 1-8	1-12,14	n/a	Projector/room control, configurable switcher with built-in scaler
Analog Way SMF251	\$5,400	11.8" x 13.3" x 1.74"	1W 1H	7.5	C, 1-5	1-4, 10-11, 13	Follow	Fade/dissolve/cut/title super, RS-232, optional remote keypad
Folsom PresentationPRO	\$5,995	1.75" x 17" x 11.25"	1W 1H	9	C, 1-7	1-7	Follow	Logo image capture, Seamless Transitions, RS-232, mic. Input
FSR Compass	\$5,995	1.5" x 17" x 13"	1W 1H	9	C, 1-7	1-7, 10-13	Follow	Cut, Dissolve, 7 Wipes, Logo Still Store, RS-232, mic. Input
Extron ISS 108	\$6,995	17.5" x 11.2" x 5.25"	1W 3H	11.2	C, 1-4	1-5	Follow	17 output rates, seamless interlaced/progressive switching
RGB SynchroMaster DualView	\$7,995	17.5" x 14" x 3.5"	1W 2H	14	C, 1-7	1-5, 10-12	n/a	Dual image display, PiP, Fades, DVI option, variable aspect ratios
Extron ISS 408	\$9,995	17.5" x 11.2" x 5.25"	1W 3H	11.2	C, 1-4	1-5, 7-13	Follow	17 output rates, seamless interlaced/progressive switching, optional DVI out
Folsom PresentationMASTER	\$10,695	5.25" x 17" x 13"	1W 1H	22	C, 1-8	1-7, 9-11, 13	Follow	Auto Signal Lock technlology, RS-232, mic. Input
FSR Compass S2	\$11,995	5.25" x 17" x 13"	1W 3H	22	C, 1-7	1-7, 10-13	Follow	Cut, Dissolve, Audio Follow / Breakaway, RS-232/485, 3CH audio mixer
Analog Way GSE2811R	\$14,280	14.5" x 19" x 5.25"	1W 3H	20	C, 1-5	1-4, 6-8, 13	n/a	Blank front panel, optional SDI input, cuts/fades/mixes/PiP, opt. remote

Input Formats

S - S-video
Y - Component 480i
1 - VGA
2 - SVGA
3 - XGA
4 - SXGA
5 - UXGA
6 - 480p
7 - 720p
8 - 1080i
D - DVI
DH - DVI-HDCP
Output Formats
1 - VGA
2 - SVGA
3 - XGA
4 - SXGA

J - SUGA
4 - SXGA
5 - UXGA
6 - 480p
7 - 720p
8 - 1080i
9 - WVGA1 (848x480)
10 - WVGA2 (852x480)
11 - WXGA2 (1365x768)
12 - WXGA2 (1365x768)
13 - D-IIA (1365x1024)
14 - 576i
15 - 576p

As new as seamless switchers are, presentation switchers are just learning to walk. These products were born out of the desire to cram some of the functionality of a full-blown staging and rental box into a 1RU, 2RU, OR 3RU chassis that could be used in a conference room or boardroom. (Our expectations aren't too unreasonable, are they?)

Like their staging and rental cousins, these format converters can blend a variety of interlaced and progressive signals at PC rates up to 1024x768, with some going higher to 1280x1024 and even 1600x1200. There are also boards that support PAL formats, 1080i output, wide XGA for plasma, and JVC's 1365x1024 D-ILA standard.

Because of the smaller size of these scalers, the output connectors are almost always 15-pin HD types and not racks of BNCs. There are a few exceptions, but in addition to the RGBHV BNC outputs you'll still get a 15-pin connector.

There's a wide range of prices here and you can buy as little or as much functionality as you wish. A couple of the Kramer models offer Picture-

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In-Picture (PiP) modes at a reasonable price, while Inline's IN1404XT has a unique universal twisted pair (UTP) output, or Cat 5/6 wiring to the rest of us. Four of the Aurora cards have DVI inputs as standard, as do Kramer's VP-720DS and VP-723DS.

On the output end of things, FSR's Compass has provision for a logo still store, while RGB Spectrum's DualView and Extron's ISS108 both have a DVI option. Want to mix your own voice? Folsom and FSR both provide a microphone input that can be mixed with any other audio sources.

Since presentations typically need some sort of audio follow, just about all of these format converters provide some way to do the job. If you are interested in audio follow switching, check with the manufacturer to determine the type of audio outputs. Most models provide balanced and unbalanced inputs and at least one balanced audio output, which is typically connected with screw terminals.

Notable exceptions would be the plug-in cards made by Aurora Multimedia for Pioneer 43" and 50" plasma monitors. These boards do allow for seamless switching and picture-in-picture, but all audio mixing is done internally and not sent to an external connector. The FSR Compass S2 has a three-channel audio mixer, while Kramer's VP-722DS hooks up with one of it's optional 6x1 audio mixer products.

Folsom Research Presentation Pro

VIDEO SCALERS

Video Scalers	MSRP, US Ş	Dimensions	RU Size	Wt, Ibs.	Input Formats	Output Formats	Manufacturer's Notes
Key Digital KD-VTCA2	\$249	2"x 4.75"x 0.75"	-	0.3	6-8	6-8	VGA loop through capability, auto format capability
TV One AVT-3700	\$495	6" x 1.75" x 8"	1/2W 1H	2	C, S, Y	1-4, 6-8	Aspect Ratio Control, IR
Kramer VP-412	\$535	4.7" x 2.95" x .098"	-	0.66	C, S	1	Small size
TV One CSC-1100A	\$695	9" x 1.75" x 9"	1/2W 1H	4	C, S, RGB-L	1-3, 6	
Analog Way TV200	\$745	5.7" x 7.8" x 1.6"	-	3	C, S	1	Ultra-Compact Metal Enclosure
CSI Deuce SDQ 2240	\$795	1.5" x 8" x 7.25"	1/2W 1H	2.2	C, S, Y	2-4, LD, LQ	Adaptive Motion Compensation, 16:9 modes
TV One CSC-1100ARS	\$795	9" x 1.75" x 9"	1/2W 1H	4	C, S, RGB-L	1-3, 6	RS-232
CSI Deuce MC 2220	\$1,095	1.5" x 8" x 7.25"	1/2W 1H	2	C, S, Y	2-3, 10, LD, LQ	Selectable motion compensation, adaptive 3:2 frame mode
Altinex MT106-101+Encl.	\$1,190	8.5" x 3.5" x 12.25"	1/2W 2H	6.5	C, S	1	Position, color, cont. & brt. control; 1 slot in a MultiTasker system
FSR MAS-3100	\$1,249	1.5" x 8.5" x 5.5"	1/2W 1H	1.6	C, RGB-L	1-3, 6	Remote control application included, H&V phase control
Kramer VP-721DS	\$1,295	19" x 8.25" x 1.75"	1W 1H	5	C, S, RGB-L	1-3	Proc Amp
Analog Way TSC432	\$1,395	7.3" x 9.8" x 1.6"	-	2.9	C, S, Y	1-3	PC switch, TBC, frame converter/follower
Analog Way TV300	\$1,495	6.9" x 9.6" x 1.6"	-	2.9	C, S, Y	1	PC switch, TBC
CSI Deuce HD 2230	\$1,495	1.5" x 8" x 7.25"	1/2W 1H	2	C, S, Y	4, 6-8, 12	Inverse 3:2 pulldown, Adaptive Frame Mode
Altinex MT106-102+Encl.	\$1,595	8.5" x 3.5" x 12.25"	1/2W 2H	5	C, S, 1-5	1-17	Cuts-only scaled output, front panel, RS-232 cntl, customizable design
Analog Way XT-TSC550	\$1,950	11.8" x 17.3" x 1.74	1W 1H	5.5	C, S, Y	1-4, 7, 11-14	Widescreen formats, RS-232, 3:2 pulldown
Extron DVS 204	\$1,995	8.8" x 9.5" x 1.75"	1W 1H	6	C, 1-8	1-12, 14	Aspect control, 33 output rates, optional SDI in
Focus CenterStage CS-1	\$1,995	19" x 9" x 3.5"	1W 2H	12	C, S, Y 1-8	1-17, 1 user	OSD, RS-232, free software upgrades
Focus CenterStage CS-2	\$2,495	19" x 9" x 3.5"	1W 2H	12	C, S, Y 1-8	1-17, 1 user	OSD, RS-232, free software upgrades, DVI-HDCP, exp/slot, TBC
RGB Spectrum DTQ	\$2,495	17" x 12" x 1.75"	1W 1H	6	C, S, Y	6-7, 9	Advanced 3D comb filter, IR remote, LCD OSD, PHAST compatible
Analog Way SMS100iR	\$2,950	11.8" x 17.3" x 1.74	1W 1H	5.5	C, S, Y	1-4, 7, 11-14	IR remote, RS-232, ext trigger, widescreen formats, 3:2 pulldown
Key Digital KD-HD1080P	\$3,999	10" x .5" x 17"	1W 2H	14	C, S, Y, 1-8	1-13	RS-232/IR control, daisy-chain, DVI-HDCP, SDI in
CSI Deuce Pro 2210A	\$4,995	1.75" x 14" x 16.75"	1W 1H	7.5	C, S, Y, RGB-L	1-4, 6-7, 9-10, 13, 2 user	Recursive NR, picture adjust, H/V position, stereo audio follow

Input Formats C - NTSC/PAL/SECAM S - S-video Y - Component 480i 1 - VGA 2 - SVGA 3 - XGA 4 - SXGA 5 - UXGA 6 - 480p 7 - 720p 8 - 1080i **Output Formats** 1 - VGA 2 - SVGA 3 - XGA 4 - SXGA 5 - UXGA 6 - 480p 7 - 720p 8 - 1080i 9 - 1080p

10 - WVGA1 (848x480) 11 - WVGA2 (852x480) 12 - WXGA1 (1280x768) 13 - WXGA2 (1365x768) 14 - D-ILA (1365x1024) 15 - 540p 16 - 852x1024 ALiS 17 - 1024x1024 ALiS LD - Line doubled

LQ - Line quadrupled

The big difference between products in this L category and the previous category is that video scalers are typically set up for "static" format conversion operation. They are not intended to be used on a daily basis to switch and mix between several video and RGB sources, nor will they incorporate audio mixers and microphone inputs. Some models may include audio follow switching, and there's also support for DVI inputs and outputs.

This category has the widest range of product features, sizes, and price. At one end, we have Key Digital's KD-VTCA2, which performs simple component format conversions, while at the opposite end of the spectrum you'll find the CSI Deuce Pro, a do-everything video scaler that supports all kinds of output rates and even lets you define two of your own.

As usual, there are plenty of bells and whistles to be had. CSI offers selectable motion compensation on its Deuce MC and Deuce HD scalers for film (24p) and video (30i) sources, while Focus Enhancements' CS-2 and Key Digital's Leeza provide selectable DVI output. The Leeza also comes standard with SDI input, an option on Extron's DVS 204. Many models also provide selectable aspect ratio control for input and output signals to let you drive your monitor or projector at the same scan rate for every signal.

If you are looking for bare-bones deinterlacing and conversion of 480i video to 480p, then products like Kramer's VP-412, Analog Way's TV200 and TV300, and Altinex's MT106-101 combo will do the trick. But if you need more format flexibility, you'll have plenty of choices



under \$1,500.

More and more manufacturers are supporting HD-standard output rates like 720p and 1080i. Examples include TV One's XVT3700, CSI's Deuce HD 2230 and Deuce Pro, Analog Way's XT-TSC550 and SM100iR (720p), Extron's DVS204, both of Focus Enhancements' Center Stage scalers, RGB Spectrum's DTQ, and Key Digital's KD-HD1080p Leeza (which offers a 1080p output rate). You'll also find support in the higher-priced products for several widescreen plasma and LCD formats like 1280x768, 1365/66x768, 852x480, 852x1024, and 1024x1024. Note: You don't necessarily have to match exactly these oddball pixel counts. If you have a 50" wide XGA plasma, you can use any of these scalers to convert your anamorphic 4:3-sized 480i video to the anamorphic 4:3 1024x768 format and then let your plasma monitor perform the image expansion horizontally. This could save you a few dollars when purchasing a scaler.

SCAN CONVERTERS

Scan Converters	MSRP, US \$	Dimensions	RU Size	Wt, Ibs.	Input Formats	Output Formats	Manufacturer's Notes
Focus TView Gold	\$199	8.2" x 3.6" x 1.7"	-	0.7	1-5	C, S, RGB	Zoom, highlight function, pointer, 5x flicker filter, H&V Pos/size
TV One CS-320	\$325	4" x 1.25" x 7.25"	-	2	1-4, 6	C, S	Automatic Sizing, Zoom & Pan
TV One CS-400	\$525	4" x 1.25" x 7.25"	-	2	1-4, 6	C, S	Automatic Sizing, RS-232, Zoom & Pan
Analog Way Power 1024	\$595	5.86" x 8.07"x 1.92"	-	2	1-3	C (NTSC), Y	Multiscan to 48/72 kHz, RS-232
Analog Way V1024PCI	\$595	8.66" x 4.72"	-	0.33	1-3	С, Ү	Internal PC card w/o software
TV One CS-450	\$750	4" x 1.25" x 7.25"	-	2	1-4, 6	C, S, G	Automatic Sizing, Genlock/Overlay, IR, RS232, Zoom & Pan
Kramer VP-701SC	\$950	7.25" x 4" x 1.25"	1/2W 1H	2	1-3	C, S	Auto-track, Zoom, Input Memory
FSR MDC-MK1	\$995	1.5" x 8.5" x 5.5"	1/2W 1H	1.6	1-8	С, Ү	Freeze, Zoom, Pan, Size, Position, Under/Overscan Remote
Altinex MT106-100+Encl.	\$1,190	8.5" x 3.5" x 12.25"	1/2W 2H	6.5	1-3	C, S	H&V position, composite out expandable; 1 slot in MultiTasker system
Extron VSC 500	\$1,295	9.5" x 8.75" x 1.75"	1/2W 1H	3.1	1-8	C, Y, YPbPr	Autoscan, 3x vertical flicker filters
TV One CS-520A	\$1,375	5" x 1.75" x 16"	1W 1H	5	1-7	C, S, YPbPr, RGB	Automatic Sizing, IR, RS-232, Zoom & Pan
CSI Scan Do Select 1290	\$1,395	7.25" x 1.5" x 8"	1/2W 1H	2.2	1-4	C, S	Zoom, size, position controls
Focus Pro AV 1280	\$1,395	7.5" x 7.25" x 2"	1/2W 1H	4	1-4	C, S, YPbPr, RGB, G	Genlock, pan, zoom, freeze, H&V Pos/size, 7x flicker filter, opt. remote
Kramer VP-703SC	\$1,495	19" x 6.75" x 1.75"	1W 1H	5	1-4	C, S, RGB	Auto-track, Zoom, Input Memory
Analog Way VHX480	\$1,595	11.6" x 9.7" x 1.7"	1/2W 1H	5	1-4	C, Y/C, RGB	Autoscan to 71 kHz, RS-232
TV One CS-620A	\$1,775	5" x 1.75" x 16"	1W 1H	5	1-7	C, S, YPbPr, RGB, G	Automatic Sizing, Studio Genlock, IR, RS-232, Pan & Zoom
Extron VSC 700	\$1,895	9.5" x 17.5" x 1.75"	1/2W 1H	3.1	1-8	C, Y, YpbPr, SDI	Autoscan, four-step H / five-step V flicker filters, genlock
Focus ProAV 1600 PCI	\$1,995	3.9" x 6.9" x .68"	-	0.7	1-5	C, S, YPbPr, RGB, G	Genlock, pan, zoom, freeze, H&V Pos/size, 7x flicker filter
Kramer VP-704SC	\$2,095	19" x 6.75" x 1.75"	1W 1H	5	1-4	C, S, YPbPr, RGB	Auto-track, Zoom, Input Memory
CSI Scan Do Pro II 1291	\$2,195	7.25" x 2.5" x 11"	1/2W 1H	3	1-4	C, S, YPbPr, RGB, G	Genlock, multi-step zoom, H&V position
Focus ProAV 1600	\$2,195	7.5" x 7.25" x 2"	1/2W 1H	4	1-5	C, S, YPbPr, RGB, G	Genlock, pan, zoom, freeze, H&V Pos/size, 7x flicker filter
Magni Systems MCP-2450N	\$3,295	1.75" x 14" x 19"	1W 1H	7.5	C, 1-4	C, VGA-SXGA	Overlay & genlock std, SDI opt.
Kramer VP-706SC	\$3,595	19" x 6.75" x 1.75"	1W 1H	5	1-5	C, S, YPbPr, RGB, G	Auto-track, Zoom, Input Memory, Genlock
Analog Way XTD820R	\$3,995	11.8" x 17.3" x 1.74"	1W 1H	5.5	1-4	C, Y/C, YPbPr, R, SDI	Genlock, autoscan to 85 kHz, RS-232, optional SDI out
CSI Scan Do Pro II/D 1292	\$3,995	7.25" x 2.5" x 11"	1/2W 1H	3	1-4	C, S, YPbPr, RGB, SDI, G	Genlock, multi-step zoom, H&V position, SDI out
Folsom SmartVIEW	\$4,495	1.75" x 17" x 10"	1W 1H	9	1, 2, 3, 4	C, Y, YPbPr, SDI	Genlock, Pan & Zoom, RS-232, Optional SDI
CSI Scan Do Ultra 1274	\$4,995	16.75" x 1.75" x 14"	1W 1H	7	1-4	C, S, YPbPr, G	Genlock, variable image sizing, pan, 3x flicker filter
Magni Systems MCP-601	\$4,995	1.75" x 14" x 19"	1W 1H	7.5	C, 1-5, DVI, SDI	C, VGA-UXGA, SDI	Overlay, genlock, SDI IN/OUT std
RGB VideoLink 1690	\$4,995	19" x 1.75" x 8"	1W 1H	6	1-8	C, S, YPbPr, RGB, G	Genlock, pan, zoom/freeze, 16-level flicker filter, opt. SDI out
Analog Way XTD620R	\$5,485	11.8"x 19"x 1.74"	1W 1H	5.5	1-5	C, Y, YPbPr, R, G	Genlock, autoscan to 110 kHz, RS-232, luma key, opt. SDI out
Folsom ViewMAX	\$5,995	1.75" x 17" x 10"	1W 1H	9	1, 2, 3, 4	C, Y, YPbPr, SDI	Keyer/mixer, 3 models available, genlock, pan/zoom
CSI Scan Do Ultra/D 1277	\$6,495	16.75" x 1.75" x 14"	1W 1H	7	1-4	C, S, YPbPr, RGB, SDI, G	Genlock, variable image sizing, pan, 3x flicker filter, SDI output
Analog Way XTD920-HDDG	\$7,500	11.8" x 17.3" x 1.74"	1W 1H	5.5	1-5	HD, HD-YPbPr	Digital HD genlock, RS-232
Analog Way XTD920-HDAG	\$8,050	11.8" x 17.3" x 1.74"	1W 1H	5.5	1-5	HD, HD-YPbPr	Analog HD genlock, RS-232

Input Formats

1 - VC	A
2 - SV	'GA
3 - X(GA
4 - SX	(GA
5 - UX	KGA
6 - 48	0p
7 - 72	0p
8 - 10	180i

Output Formats

C - NTSC/PAL/SECAM S - S-video YPbPr - Component video SDI - Serial Digital 601 G - Genlock At one time, scan converters were about the only format conversion products available. That's because the majority of displays you could use with them were NTSC-only, or capable of VGA (640x480) resolution at best.

Given the explosion in high-resolution imaging and the emergence of HDTV, you'd think that there wouldn't be much need for scan converters. Guess again! This is still a strong product category and (not surprisingly) the largest in the buyer's guide with 34 different products listed. Scan converters are useful workhorses for converting workstation graphics to interlaced video formats for broadcast, videoconferencing, and 480i production (including CCIR-601).

A decade ago, scan converters that were worth anything cost plenty. It wasn't unusual to see models in the \$10K to \$20K range at major trade shows, and these boxes had plenty of goodies like H and V position, genlock, adjustable flicker filters, and image over/underscan. Nowadays, you can get many of those features for less than \$2,000, and if you really need a top-drawer converter with the latest options, you can do it for under \$5K.

Genlock is an essential feature if you want to use your scan converter in a studio or production environment as a switched video source, and 20 of the models listed provide genlock in/out connections. SDI output for digital production is also handy and you'll find it as an option on Magni Systems' MCP-2450N, Analog Way's XTD820R and XTD620R, Folsom's SmartVIEW, and RGB Spectrum's VideoLink 1690.

SDI output is standard on CSI's Scan Do Pro II/D 1292 and Scan Do Ultra/D 1277 and Magni Systems' MCP-601. The MCP-601 is unique in that it also has an SDI input for performing graphics and text overlays. It's also the only scan converter in the lot that offers a DVI input, thus providing a digital-to-digital signal conversion path from start to finish.

Thanks to lower-cost ASICs, it's now possible to get digital image pan and zoom at very affordable prices. TV One's CS-320, CS-400, and CS-450 all offer these features for less than \$1K, as does FSR's MDC-MK1. Kramer's VP-701SC and Focus Enhancements' TView Gold provide a zoom feature in the same price range.

Analog Way has a few special-application scan converter products in this listing. It's V1024PCI is a plug-in scan converter card for a PC that saves on space, while the XTD920-HDDG and XTD920-HDAG are high-definition scan converters that support 720p and 1080i/p formats. The HDDG version uses digital genlock, while the HDAG employs analog genlock.