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APRIL/MAY 1998

NEW TECHNOLOGY

Panasonic Millennium 1080i Switchers

Panasonic introduced the Millennium Series of 1080i switchers at NAB98. The AV-HS3110 is a 10-input maximum (SDI) switcher designed for telecine and editing operations; the AV-HS3100 is a 10-input maximum switcher with 100 wipe patterns, and the AV-HS3200 is a 20-input maximum SDI 1080I switcher that delivers 100 wipe patterns, two M/Es, and two keyer-M/Es. Contact **Panasonic** at 800-528-8601.

■ **More Information - Write In 200**

Quantel Editbox Magnum

The Editbox Magnum is the most powerful Editbox to date, offering audio facilities, more layers, more storage, and more user-friendly ergonomics, according to Quantel. The Magnum 4x4 offers four layers over a background and four hours non-compressed storage. Contact **Quantel** at +44 (0) 1635-48222

■ **More Information - Write In 201**

JVC BR-D92, D52 Recorders

JVC Professional's BR-D92 recorder and BR-D52 player bring four-channel independently editable audio to the Digital-S product line. In addition, by providing four channels, users can now use

four microphones to capture four separate audio signals.

The BR-D92 offers front-panel editing control of any RS-422 capable studio VTR. Player/recorder select buttons are provided and timecode from the source VTR can be displayed on the BR-D92's display. Contact **JVC** at 800- 582-5825.

■ **More Information - Write In 202**

More New Products on Page 17

NAB98 Signals Dawn of DTV

Engineers sort through hype to find real solutions to DTV conversion

By Ken Kerschbaumer

More than 104,000 people turned out for NAB98, making it the largest and most crowded NAB ever. The draw? Digital television.

With the doors closed on NAB98 and the Las Vegas Convention Center already transformed for other shows, it's difficult to find physical reminders of the show. But it's obvious that this year's exhibit, more than any other, will resonate powerfully throughout television network and station facilities for years to come.

"It was the dawn of DTV, and it was a real dawn, something we were all concerned we would never really see," said Richard Friedel, Fox Digital senior vice president, engineering and operations. "I'd have to say it was the most important show I've ever attended. DTV is finally real, and there's real equipment, and it was great to see that people are very serious about what they are going to do."

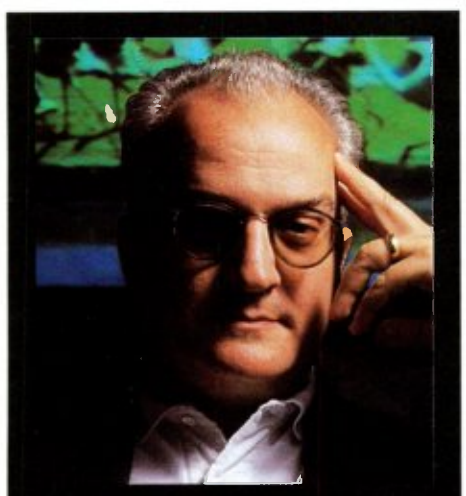
As real as much of the DTV-related equipment may have been, it wasn't quite real enough for Wayne Kube, WFAA Dallas engineering manager. "In general I had expected a little more in the way of solutions for HDTV, a little more cohesiveness of the products. I guess I expected it to be a little further advanced than it was. However, most of the stuff was slated for fall delivery."

He added: "I found HDTV monitoring and receivers lacking, and there was very little in the way of format conversion. And these are things that will be necessary for HDTV transmission."

For Kube and other broadcasters who are getting set to begin DTV transmission in November, the lack of deliverable equipment in key product areas is something other stations in smaller markets don't envy.

KSTP-TV St. Paul is scheduled to begin transmitting DTV in November of 1999, and that's okay with chief engineer Joe Taylor. "The time frame we have is satis-

(continues on page 36)



INSIDE / BARRY REBO, ALREADY A PIONEER IN HD PRODUCTION Page 12

Post-Production World Impressed By New Offerings, Trends at NAB

NT systems catch attention, but not wallet—yet

By Edmond M. Rosenthal

Call it market-driven or bandwagon-climbing, but representatives of post-production facilities observed their industry moving in some significant new directions as they toured vendor exhibits at NAB98.

NAB98 attendees with significant investments in Macintosh and SGI platforms were hit over the head with the migration of software to the NT platform and indicated mixed reactions. They also saw the emergence of uncompressed nonlinear editing from a surprising source, with Avid making its statement via the introduction of its Symphony.

Also observed was the unraveling of proprietary architecture as "Java on Quantel" opened a new door in effects creation.

"It seems things are moving in the NT direction because it's less costly and more robust," said Alfie Schloss, director of digital services at Tape House Digital, New York.

As one example, he noted that Alias Wavefront Maya, which had been running on SGI, is now on NT. He commented, "This means you can work on a less expensive platform and be more cost-effective."

Macintosh vs. NT

As for Macintosh vs. NT, Schloss asserted, "It's a user's choice, and there are interchange issues. In Macintosh, all the programs work well together. NT requires

(continues on page 37)

A D V A N C E D D I G I T A L

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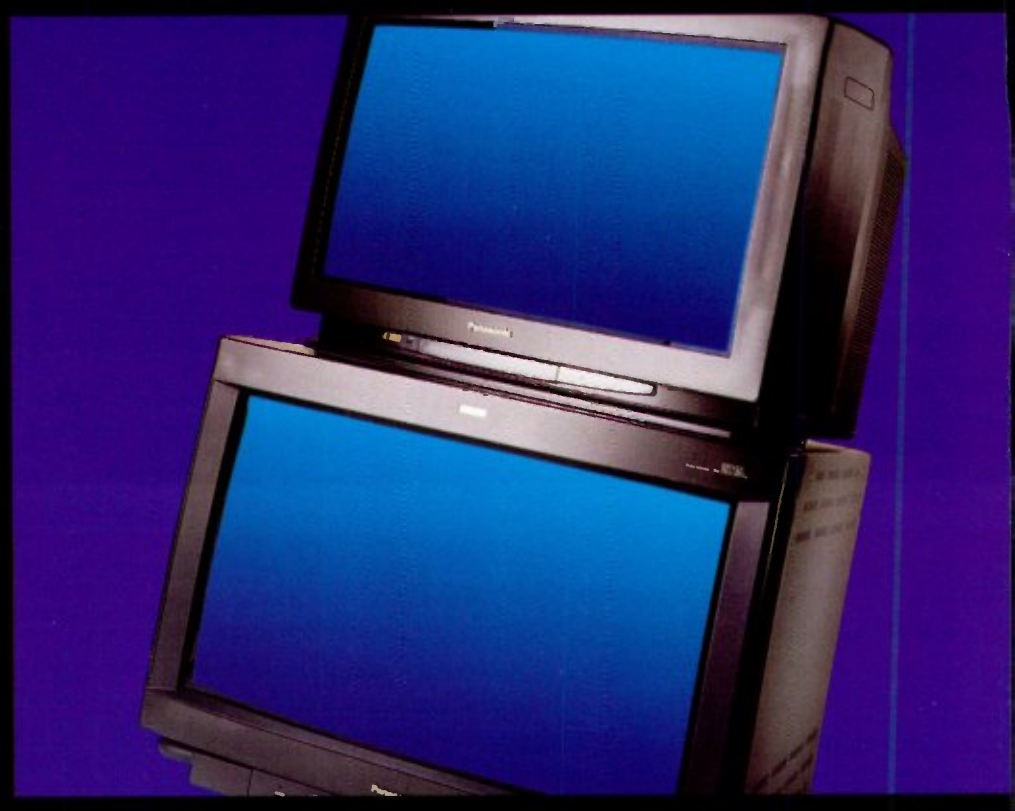

Panasonic 1125i studio cameras and 525p and 525i camcorders are essential members of the visionary ADTV family of products, offering an extensible, scaleable and affordable path to digital television.

VTRs like the AJ-HD2000 and AJ-HD580/HDP500 combination offer state-of-the-art full bandwidth 10-bit digital video in the 1125i image format.

or more information on the latest Panasonic ADTV products, call:
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NAB98 COOL STUFF

Cool Chip
C-Cube Microsystems introduced DVXpress, the industry's first single-chip MPEG2 codec for nonlinear editing applications. By making Frame Accurate MPEG Editing, what C-Cube calls FAME, possible, concerns like whether a frame is intra, predictive, or bidirectional can become a thing of the past. Pinnacle Systems and FAST Multimedia are already looking to use the chip to develop next-generation nonlinear editing solutions.

■ **More Information - Write In 204**

Neat Demo
In another related MPEG2 development, Snell & Wilcox demonstrated its MOLE technology, important because it allows for the seamless cascading of MPEG2 bitstreams. Snell & Wilcox's demonstration showed the system holds a lot of promise for those looking to carry out standard production techniques on multiple MPEG sources. MOLE accurately reconstructs the MPEG2 stream without concatenation errors occurring at each recoding.

■ **More Information - Write In 205**

Great Idea, Better Execution
Miranda Technologies offered its picoLink, a product line that falls into the "Why didn't someone do that before?" category. What makes the picoLink series normal is that it's a line of encoders/decoders and converters. What makes it exceptional is that the encoders/decoders and converters are only 4 inches long, 1 inch wide, and .7 inches high, freeing up rack space because it doesn't take any. Plus, they're priced at $599.

■ **More Information - Write In 206**

Most Anticipated
Avid introduced its Symphony uncompressed nonlinear editing system, a product Avid users have been waiting for. It features three uncompressed realtime streams (two for video and one for graphics and titles) and can also handle a wide range of compressed video formats. Most exciting for Media Composer users is that Symphony has full compatibility with all Media Composer bins and sequences for seamless autoconform of projects.

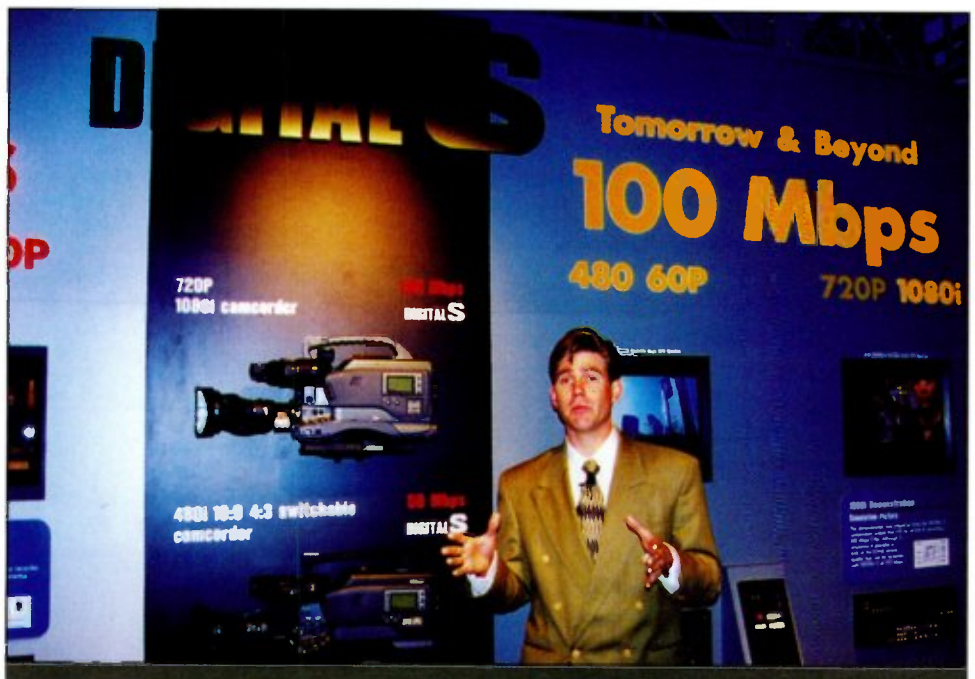
■ **More Information - Write In 207**

Best Two-For-Ones
DTV is causing a lot of either/or decision making, but two products, Panasonic's AJ-HD2700 D-5 HD VTR and the Philips LDK-2000/2000P camera lineup offer great flexibility. The AJ-HD2700 can record in either 1080i or 720p, and will be available in the third quarter for $99,000. The LDK-2000 camera lineup records in 480p but outputs an interlace signal, permitting existing interlace gear to manipulate the signal before it is sent out as a 480p signal from a facility's encoder.

■ **More Information - Write In 208**

Most Promising
It was only seen as a technology demonstration, but JVC's 100 Mbps Digital-S system looked like it could be a big winner at next year's NAB. The system will allow for recording in 480p at 60 frames per second or 1080i or 720p. Panasonic is also discussing a 100 Mbps version of DVCPRO in 1999.

■ **More Information - Write In 209**



Tomorrow and Beyond One of the more interesting and promising technical demonstrations was JVC's 100 Mbs Digital-S technology showing. Not expected to be available until sometime in 1999, the system will offer recording in 1080i, 720p, or 480p at 60 frames per second. JVC also announced a $250,000 deal with WRAL-TV Raleigh for a variety of JVC Digital-S equipment.

ACT Up for DTV Dr. Tim Hulick of Acrodyne stands in front of Acrodyne's adjacent channel transmitter (ACT), sold to KBLR Las Vegas. ACT technology, which was first demonstrated during the last NAB, is now on the air and ready to help stations whose DTV channel assignment is one channel above or below the existing NTSC channel. Dr. Hulick says there are some 120 stations in this situation; the solution from Acrodyne will allow stations to combine and feed two adjacent channel signals into the final amplifier. Once the station switches off the NTSC signal it will be able to offer greater DTV coverage.

Stickiest Product
Leitch's HDTV Glue Product lineup also showed a lot of promise, as it offered a number of modules for HDTV applications. They included an HDTV frame synchronizer, test generator module, D/A and A/D converter modules, a distribution amplifier, master control switcher, upconverter, and a serial digital routing module.

■ **More Information - Write In 210**

Price Is Right
Sony's HDW-700 widescreen HD camcorder and HDCAM HDW-500, for shooting and recording in 1080i, are priced at $75,000 and $79,900 respectively. The products show that the move to HDTV production equipment won't have to be as expensive as once believed.

■ **More Information - Write In 211**

Best Name
The Full Monty is the name Quantel chose to give its step-by-step approach to HDTV. The first two steps are to switch from 4:3 525/625 to 16:9, followed by up-rezing to HDTV. Next is the use of Clipnet, allowing Quantel systems to be connected to other Quantel systems and/or third party systems. Finally is the addition of true HDTV equipment to Clipnet, allowing both HDTV and 601 pictures to pass around the network. Thus, according to Quantel, The Full Monty: full capacity, full bandwidth, and no reduction in performance. But if you're going to name it after a movie why not 'As Good As It Gets'?

■ **More Information - Write In 212**

Most Discreet
Discreet Logic offered visitors an opportunity to take a look at how the company's existing product line can make the transfer to DTV easily. Fire, Inferno, and Smoke were all shown operating in HDTV resolution at the show, something Discreet feels gives it an advantage in the marketplace.

■ **More Information - Write In 213**

Most Universal
Panasonic announced its plans to offer the AJ-UFC1800 universal DTV format converter, a unit that allows users to convert television signals between all ATSC DTV formats. It can also adjust picture aspect ratios with pan-and-scan functions, and can insert or remove 3:2 pull-down film conversion and functions. It supports multiple frame rates, including 60, 50, 30, and 24 Hz. The converter was developed by Panasonic AVC American Laboratories in partnership with its parent laboratory, AVC American Laboratories, and is expected to be available in the second quarter of 1999.

■ **More Information - Write In 214**

—Ken Kerschbaum

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More Information Circle 310

Sony Heads To Bally's For the second consecutive year Sony held its off-the-convention floor exhibition in the Bally's Casino and Hotel convention center. And this year Sony looked to take full advantage of the extra space by focusing its booth at the Las Vegas Convention Center on presentations rather than product. Visitors who made the trip over from the convention center had a chance to take a look at the complete Sony professional product lineup in action, and had a chance to put the equipment through its paces. Pictured here are two attendees getting their hands on Sony's DME-7000 digital multi-effects image processing system.

Avid Leads Initiative To Develop Digital Media Management Standards

Avid announced the creation of the Open Media Management (OMM) initiative, an initiative designed to make media management more efficient for content creators by linking content creation tools with digital media management systems. This integration will help users access and manage shared media assets during the creation process.

Andrea Kalas, former president of the Association of the Moving Image Archivists (AMIA) and currently an archivist in Hollywood, said, "Media management standards would benefit the entire industry. Archivists ' next big challenge is the online management of moving images, multiple versions of content, terabytes of media, and multi-year projects."

The first version of the OMM is currently in use by Avid and the OMM partners: IBM, Silicon Graphics, Cinebase Software, The Bulldog Group, Virage, and e-motion.

NAB98 HOT SALES

Panasonic To Design And Build ABC Network HDTV Release Center

Panasonic Broadcast and Television Systems has signed an agreement in principle to build and install ABC's HDTV Release Center by this September. The Center will revolve around the AJ-HD2700 1080i/720p switchable D-5 HD recording system. ABC will also purchase a variety of HD and DTV 16:9 and 4:3 monitors from Panasonic as well as 720p studio cameras for use in future HD program origination by the network.

Sony HDTV Products Finding Believers

Sony's three HDTV cameras, the HDW-700 camcorder, the HDC-700 studio camera, and the HDC-750 field camera, have found early sales success, according to Sony. Among the first customers are: KMOV St. Louis, purchasing three HDC-750 cameras; KTLA Los Angeles, buying one HDC-700 camcorder, one HDC-750, and two HDW 500 VTRs; KCTS Seattle, adding one HDW-700 camcorder and one HDC-750; and WMVS Milwaukee, adding one HDW-700 to its arsenal. Other c tomers include HD Vision of Irving, Te Plus 8 Video, Los Angeles, and Amer can Production Services in Seattle.

NDS Awarded World's Largest Digital Terrestrial Technology Contract

NDS has been awarded the world's largest digital terrestrial technology con tract, worth more than $40 million, fro NTL for DTV networks in the UK, due o air later this year. The contract calls for NDS to supply its System 3000 DTV video compression, modulating, multipl ing, and transcoding solution, as well a to work closely with NTL to provide sup port through a five-year service contra

Kerschbaumer joins 'Digital Television'

Ken Kerschbaumer, managing editor of *Televisio Broadcast* magazine, has joined *Digital Televisio* magazine as editor.

"The move to DTV is challenging the industry i unprecedented ways, and I look forward to keepin our readers up to date on the latest technologie and trends to make sure they can make full informed business decisions," said Kerschbaume "This is an exciting time in the industry, and I hop our magazine reflects that every issue."

Kerschbaumer joined *Television Broadcast* a assistant editor in 1991 and worked his way up t managing editor in 1995. He was also managin editor of *TVBEurope* magazine from 1994 to 199 and of *Government Video* magazine from Augus 1997 to March 1998.

On the Road with DTV Express

Harris, Philips and PBS look to educate broadcasters in 20-city tour

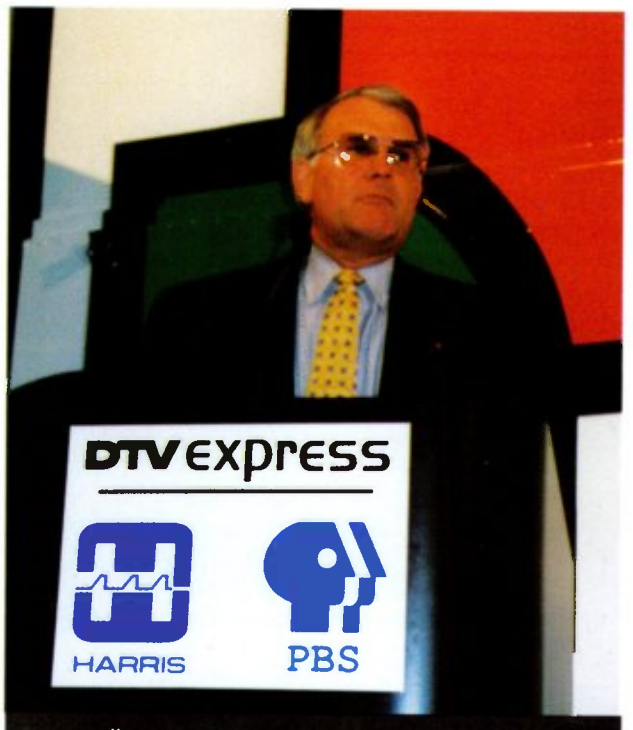
In some ways it was almost like one of those ships in a bottle.

After all, how do you get a 66-foot tractor trailer filled with HDTV production and projection equipment on the show floor at NAB without running over another booth? How about getting it out?

We'll leave that mystery to those who set up and tore down the Harris booth. The important thing for broadcasters was that the truck, known as the DTV Express, offers a unique opportunity for broadcasters and members of the public to see HDTV production equipment in action. Co-sponsored by Harris, Philips and PBS, the DTV Express truck will visit 40 cities during the next 15 months.

Digital multicasting, new ways of datacasting, enhanced interactivity, and HDTV are just a few of the areas that will be covered by the technology in the truck. The program will include demonstrations and scenarios of a living room of tomorrow and a classroom of the future, as well as a fully operational digital television broadcast facility.

Bruce Allan, vice president and general manager of Harris's Broadcast division, says: "The purpose of the DTV Express is to educate broadcasters on the options they have for the move to DTV and to help them understand what it will require."



Bruce Allan, Harris vice president and general manager, kicks off the DTV Express tour at NAB98.

The 20 cities to be visited during the first leg of the DTV Express tour are:

Los Angeles, KCET	May 4-8
San Francisco, KQED	May 11-15
Portland, Ore., Oregon PTV	May 18-22
Coeur D'Alene, Idaho, KAID-Idaho PTV	June 8-12
Bozeman, Mont., KUSM	June 15-19
Chicago, WTTW	June 22-26
East Lansing/Detroit, WKAR	July 6-10
Buffalo, N.Y., WNED	July 13-17
Philadelphia, WHYY	July 27-31
New York City, WNET	August 3-7
Trenton, N.J., New Jersey Network	August 10-14
Norfolk, Va., WHRO	August 24-28
Louisville, Ky., WKET	August 31-September 4
Washington, D.C., WETA	September 7-11
Milwaukee, Wisconsin PTV	September 21-25
Columbus, Ohio PTV	September 28-October 2
Boston, site to be determined	October 5-9
Indianapolis, WFYI	October 19-23
Columbia, S.C., South Carolina Network	October 26-30
Jacksonville, Fla., WJCT	November 2-6

NDS has the DTV solution for every resolution.

The debate about digital TV is raging on, but one thing is perfectly clear: whether you're planning to use 480p, 720p, or 1080i, there's only one company to turn to for your DTV solution — NDS.

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NDS is your one stop shop for high definition and standard definition encoding, multiplexing, modulation, MPEG splicing, ad insertion, conditional access and system control. Our decades of digital experience and proven leadership in the design, manufacture and integration of digital television products make us the right choice to help you win with DTV.

NDS has developed proven DTV solutions; and the products, systems and solutions we've created for ATSC will be the ones selected by leading broadcasters. Just like yourself.

Life may be full of resolutions, but there is only one company with the complete ATSC solution. See it for yourself. Call NDS Today.

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More Information Circle 308

NAB98

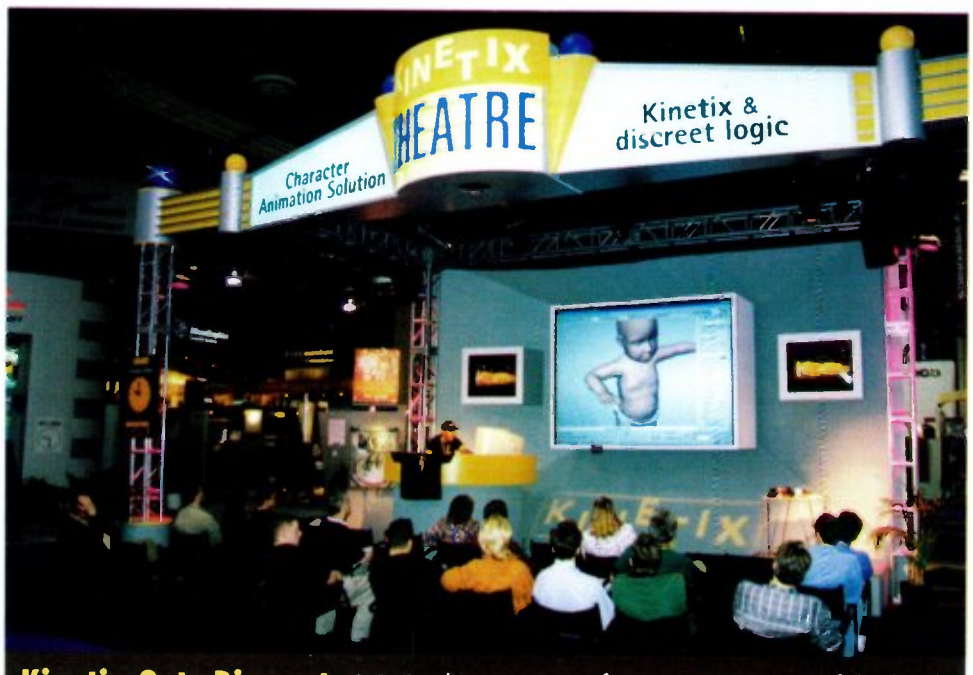
WHEELING AND DEALING

Manufacturers look to leverage strengths with development deals

NAB is the time for manufacturers to introduce new products, and it's also the time to make announcements concerning joint product developments, alliances, and mergers with other manufacturers.

NAB98 proved to be no exception to the latter. In fact, it probably had the greatest number of announcements concerning various levels of co-opetition between manufacturers of any NAB ever. With broadcast-quality computer software and server systems reaching a state of maturation and the needs of HDTV product development calling for companies to best leverage their strengths it's no wonder.

Here's a look at some of the many deals announced at NAB98.



Kinetix Gets Discreet 3-D Studio Max R2.5 from Kinetix is one of the leading 3-D software applications. So it only made sense for Discreet Logic, one of the leading post-production manufacturers, to form a co-operative relationship for product development, sales and marketing. Visitors to the Kinetix booth and the Discreet Logic booth in the Sands could see the relationship in action. Pictured is the demonstration at the Kinetix Theatre.

Intergraph+Sony

Intergraph Computer Systems and Sony announced they'll jointly develop special video effects software to run on Windows NT-based digital content creation systems. The new software package will be introduced by Sony next year and will combine Intergraph ViZfx special effects software with Sony's auto key and wire removal software technologies.

Philips+Silicon Graphics

Philips will integrate specific Silicon Graphics video computing platform software and hardware products into its applications and systems it sells into the broadcast, cable, and news media markets. The first collaboration between the two companies is the integration of the SGI Origin200 server into the Philips NewsBreaker news editor. Philips will also develop asset management applications with Silicon Graphics StudioCentral digital asset management software.

Matrox+in:sync

The in:sync Speed Razor 4.0RT can now run on the Matrox DigiSuite boardset. Combined with the Matrox hardware, Speed Razor 4.0RT provides the first NT solution to let users edit two streams of uncompressed-quality D-1 video plus 32-bit animated graphics in realtime, according to the companies. Advanced realtime features include independent transparency control on all three layers, hundreds of user-customizable transitions, and multitrack 48 Khz audio editing.

Avid+Silicon Graphics

Avid announced it will support the SGI Origin 2000 video computing platform for its AvidNews MediaServer production system. The MediaServer will use the Origin2000 server to provide advanced simultaneously shared media and storage capabilities.

Discreet Logic+Devlin Design Group

Discreet Logic and Devlin Design Group have formed a strategic alliance to bring together the two essential elements of virtual studio production: set design excellence and proven virtual studio technology. The agreement involves the integration of DDG's SoftSet virtual studio design system with Discreet Logic's Vapour virtual studio module, part of the Frost broadcast graphics product line. DDG will resell the virtual studio module in the United States, along with the SoftSet solution.

Leitch+Harris

Leitch and Harris signed an agreement for Harris to purchase the new Leitch Studio-to-Transmitter Link (STL) compression and multiplexing system. Harris will system integrate and market the Leitch multiplexer in a dual-channel, NTSC/ATSC STL to be called the MultiLinkCD. Leitch's STL multiplexer is based on the MPEG2 compression system in Leitch's DigiBus group of products. MultiLinkCD will allow broadcasters to compress and multiplex NTSC video, audio and associated data into a high-quality, 4:2:2 profile, MPEG-compliant transport stream, which can then be multiplexed with the ATSC 19.39 Mbps digital television transport layer.

Scitex Digital Video+Puffin Designs

Scitex Digital Video and Puffin Designs have formed a strategic alliance to develop complementary products, seen at NAB98 in the form of a new graphics package for the Scitex StrataSphere nonlinear finishing system. The package delivers unprecedented speed and image-processing power for StrataSphere by leveraging the synergies between Puffin's Commotion software and the StrataSphere's 50-layer compositing capabilities. It's available standard on all new StrataSphere systems and as an upgrade for existing systems.

Sony+ Louth, Pro-Bel, Drake Automation

Sony is providing the RS-422 Disk Protocol server control interface to such automation software companies as Louth, Pro-Bel, and Drake Automation. The protocol allows complete, file-based control of Sony's FlexSys transmission system family of servers, and extended control of Betacam SX VTRs by the automation systems.

Tektronix+Mitsubishi

Tektronix has signed a joint development agreement for HDTV products with the Digital Broadcasting Business America division of Mitsubishi Electric America. Tektronix will exclusively sell, market, and service the Mitsubishi-developed 100 Series of HDTV and SDTV encoders and decoders as well as multiplexers and demultiplexers under the Mitsubishi-Tektronix Grass Valley Products name.

Adaptec+Divicom

Adaptec, manufacturer of satellite-to-PC receivers, and DiviCom have signed agreement where in the DiviCom DiviC headend system for data broadcasting wi be used jointly with the Adaptec system enable satellite-based service providers offer new multimedia applications.

Panasonic+Silicon Graphics

Panasonic will offer system integration Silicon Graphics Origin servers interfaced Panasonic's DVCPRO recording, news ed ing, and robotic archive library system pr ucts. The upcoming release of the Silic Graphics IRIX 6.5 operating system w enable SGI O^2 workstations to decode DVCPRO 25 digital video stream usi built-in programmable firmware. And th summer SGI will launch DIVO for DV offering all the features of the standard DIV video I/O operating card and also providi CCIR 601 to 25 Mbps DVCPRO encode input and 25 Mbps DVCPRO to CCIR 6 decode on output within the Origin platfor

Odetics+Seachange International

Seachange International will add the Ode ics video disk recorder control protocol its new Broadcast MediaCluster vid server system. Odetics, in return, will int grate the Broadcast MediaCluster syste into its Roswell Facility Management Sy tem and SpotBank Pro Automated Ma agement System. Odetics will also becon a value-added reseller of the SeaChan Broadcast MediaCluster product line.

Truevision+Scitex+Discreet Logic

Truevision is now providing Abekas digit switcher and 3D video effects for Windo NT with its new Truevision Targa 20 RTX3D and Targa 2000 SDX3D card The integration of the Abekas PCI boa can significantly expand the switcher a effects capabilities of nonlinear syste using the Truevision Targa 2000 seri video I/O boards. The result was that Di creet Logic's EDIT realtime nonlinear ed system was "Abekas Powered" at the sho

Cinebase+Virage

Cinebase and Virage formed a partnersh whereby Cinebase will resell and licen the Virage Video Cataloger, integrating with the Cinebase Digital Media Manag ment System (DMMS). Cinebase will al license the Virage Visual Informatio Retrieval (VIR) Engine. The Virage Vide Cataloger automates much of the labo intensive video logging process, and use state-of-the-art technology to intelligentl watch, listen to and read a video strea automatically extracting information lik keyframes, an audio profile, closed-cap tioned text, and time codes.

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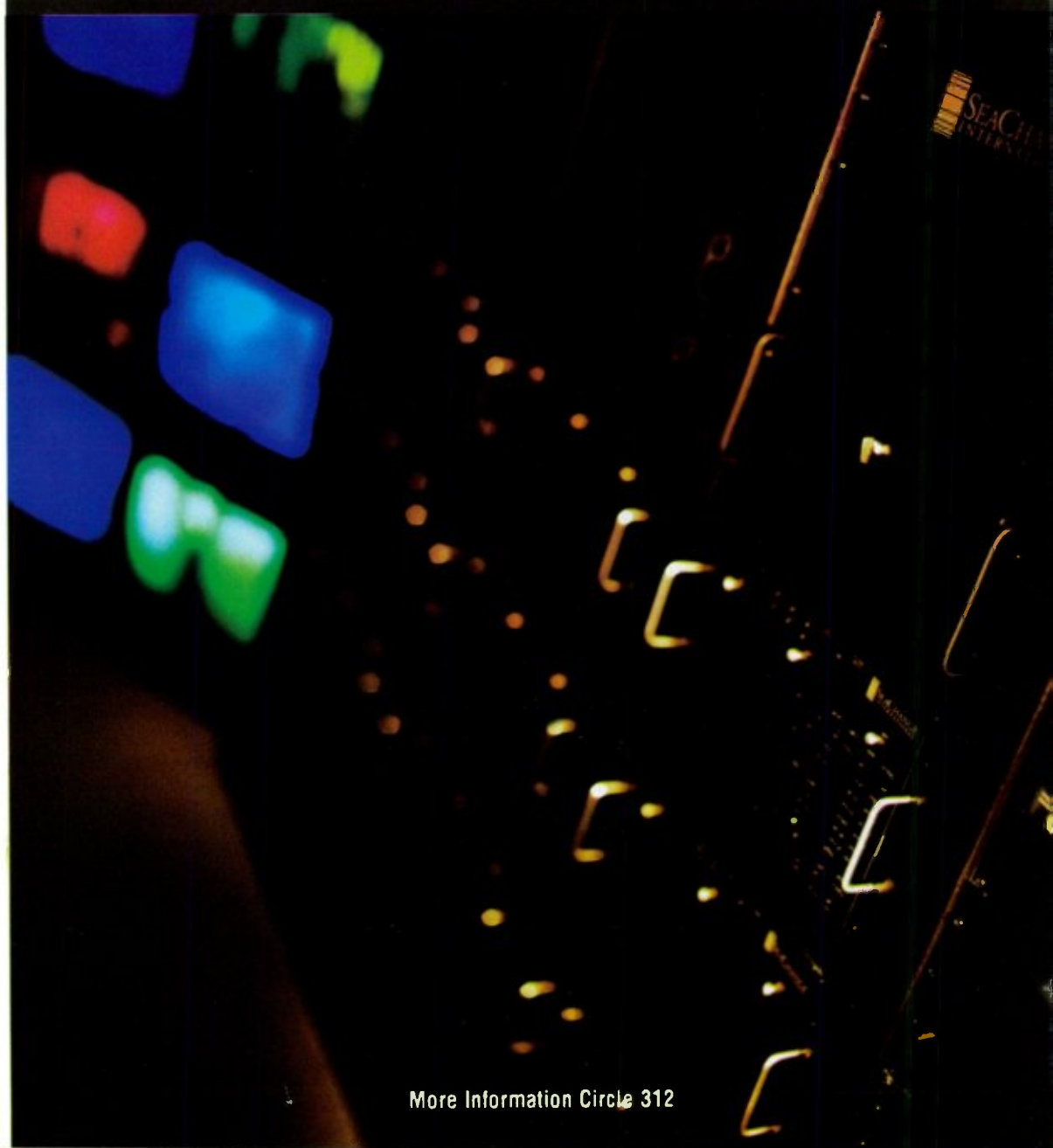


More Information Circle 312

More Information Circle 313

DTV Profile

LIFE ON THE LEADING EDGE

Barry Rebo's credentials as a producer have a decidedly avant-garde bent. He was one of the first to use the CV generation of helical-scan videotape, and in the recent past has carved out a reputation as a leading producer in high-definition. It was the latter aspect of his career that brought Digital Television's Don West to the Rebo Studio in New York for this debriefing on the state of that production art.

How did you and television get together?

Rebo □ It began with the idea of video as an experience.

I was in graduate school in Stanford, and somebody had given some of that black-and-white, half-inch, reel-to-reel gear to the university. They were basically going to use it to teach nurses how to make hospital beds. And what happened was that on the weekends the teaching assistants would take the stuff out and run around the Bay Area for eight bucks and do the whole feedback thing. The Bay Area was pretty ripe right then for whatever you wanted to do.

I got really attracted to this whole feedback and the liveness of it all. And then I came back to New York and fell into this world of the Videofreex, and People's Video Theater, and Global Village and the early days of public access. And Michael Shamberg, who went on to become partners with Danny DeVito in Jersey Films—we were on the very first Manhattan cable television public-access transmission out of another facility. It was in the kitchen of this sleazy lower-Broadway single-room-occupancy hotel. Like you'd hear gunshots, and somebody was getting murdered upstairs, and you were building this video gallery downstairs. It was kind of an interesting time.

There were other people who kind of grooved through this—Richard Rubinstein, who became Laurel Entertainment; he partnered with George O'Meara, and now he does all the Stephen King movies. There were a lot of people who came out of this hippie-video genre, for lack of a better term.

And then this portable color-camera equipment came out, the first three-quarter-inch stuff. That was about '73, '74. Nobody else wanted to buy it, because nobody else knew what you could do with it. So I got on a plane in May of '75 and went to Japan and bought my first set of equipment. When I first went to Tokyo it was 270 yen to a dollar; I've been in Tokyo when it was 80 yen to a dollar, and last week it was 125 yen to a dollar. I came back and really set up as a company because I couldn't find anybody else foolish or stupid enough to do this. So I started the business based on this technology, and this understanding: that I thought video was different.

DTV ■ **How did you segue into high-definition?**

Rebo □ I thought high-definition was a logical extension of the leading edge I'd been doing for years. There were three kinds of people in imaging: There were the film people, there were television people, and then, with the advent of this equipment, we became video people. And the video people basically thought like filmmakers—primarily single-camera, edited like films—but they used this electronic equipment, and the electronic equipment gave them other flexibilities. I was a member of this video community.

We followed the technology. We shot the first *CBS Reports* that was made in video, with Ed Bradley, and that won an Emmy in 1980. It was about the Liberty City riots in Miami.

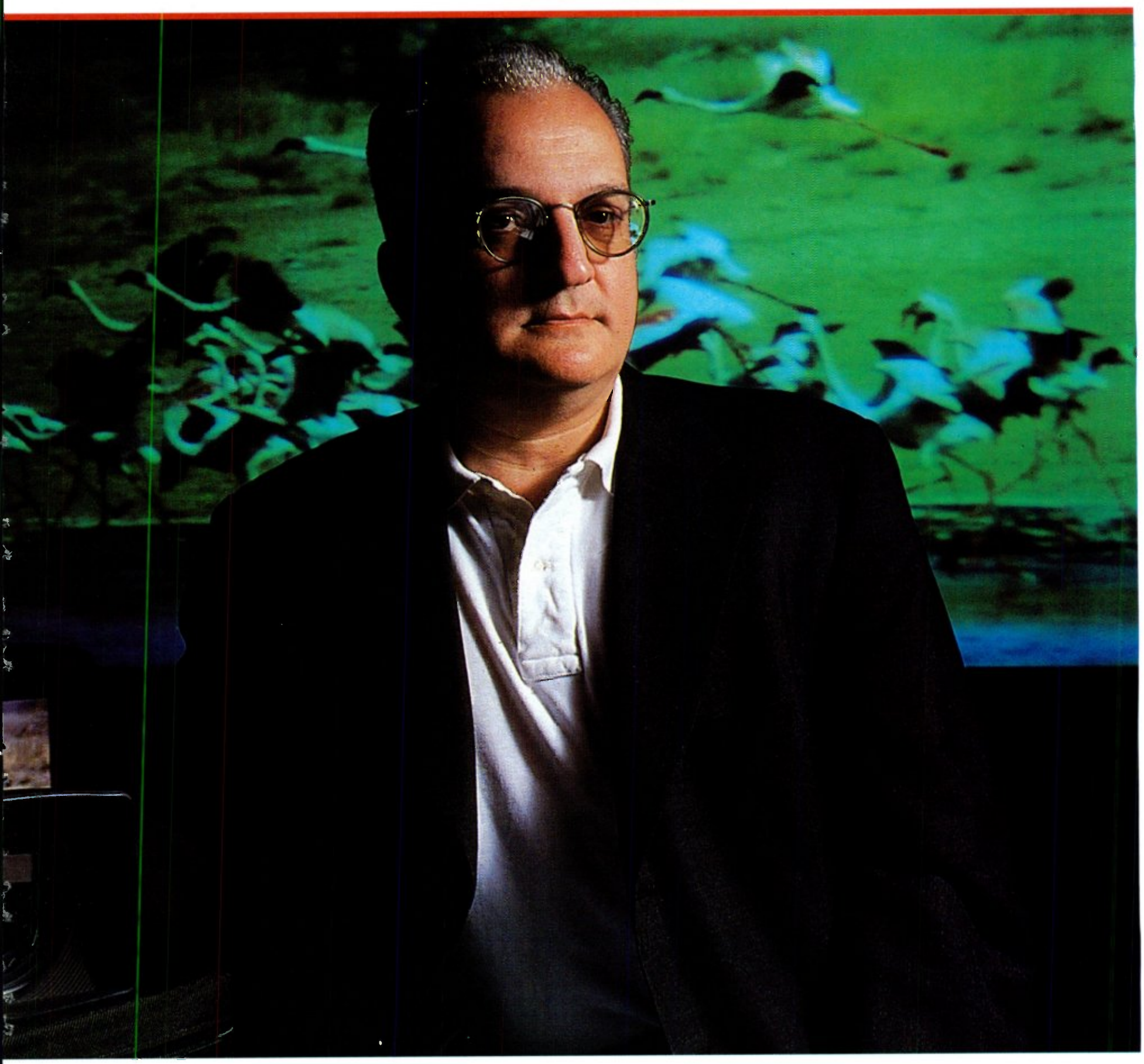
DTV ■ **Until then it was film?**

Rebo □ Yes. CBS was the bastion of 16-millimeter film. And the reason we got on that project is that it was one of the first times that they had video coverage of a courtroom. We were also doing a lot of political media with David Garth. I was his cameraman for about seven years, doing political campaigns. I was also doing Bill Moyers for PBS and *Frontline*, and following this evolution of portable video equipment—camcorders and things like that. When I first saw HDTV I frankly wasn't that interested, because it was so big and cumbersome. You know, my world had been going smaller, more portable and more remote. And now we've got this big cumbersome gear.

But like a lot of people who grew up doing documentaries, after a while you feel like you're repeating yourself. You know, I've been in every unemployed steel mill, coal town and car manufacturing plant in the country. The stories were all, in the '80s, starting to look the same, and they were all the same social problems—which, frankly, I didn't think the media were going to make much of an impact on anyway.

And then I saw a transfer of HDTV to 35-millimeter film at an SMPTE conference in 1985, and I thought: Well, this is pretty cool.

You know, I'd been meeting all these characters in real America, and I started to buy the rights to some people's stories, thinking I would dramatize them into reality-based fiction pieces. And everybody would say: Well, you know,



you can't shoot that in video. And I'd say: I'll shoot it in film. But when I saw this HDTV I thought: I can shoot this in high-definition video with all the people that I grew up with, and at the last stage I could transfer it to 35-millimeter film for a theatrical release. That was the grand scheme.

And we did it. We bought the equipment and started to make a lot of interesting films that were, you know, initially special-effects-oriented, because before the HD system there was the blue-screen ultimatte composite photography. And we made a lot of very interesting effects-oriented films that were in film festivals; one of them won the Cannes film festival for best short film, a piece about a demented performance artist who does an homage to Vincent van Gogh by cutting off his ear. A collector wants to buy it and he realizes that, as a performance artist, he's dismembering himself, and he could be selling the body parts. So when you meet him he's a talking head on a pedestal in an art gallery, because he's already sold off all the other parts of his body. So it was a very black comedy. F. Murray Abraham played the artist.

DTV ■ **Is there any essential difference between HD production gear and normal television gear?**

Rebo □ At that time it was quite different, because it was bigger and it was more cumbersome; it needed a lot more light. There were a lot of negatives, except it made these great images. A lot of things that you took for granted in regular video didn't exist. And some of the men here are very good engineers, and we started to invent equipment just out of necessity. I mean, we didn't have a titling device; we didn't have a character generator in HDTV. So the two engineering guys here built one based on a Macintosh computer. So we have a Macintosh computer that runs an HDTV. We've sold about 30 units around the world. In fact, Joe Flaherty's group at CBS is buying one so they can edit some of the Olympic footage they brought back from Japan. They have no way of doing character generation, so I think they're going to buy one from us.

That was the pattern. We would have an idea for a film, and then we would be missing a piece of equipment, so we'd have to invent the equipment to make the film. In many respects, it's been similar to the late '60s video experiment.

DTV ■ **Well, is your studio state-of-the-art in terms of HD?**

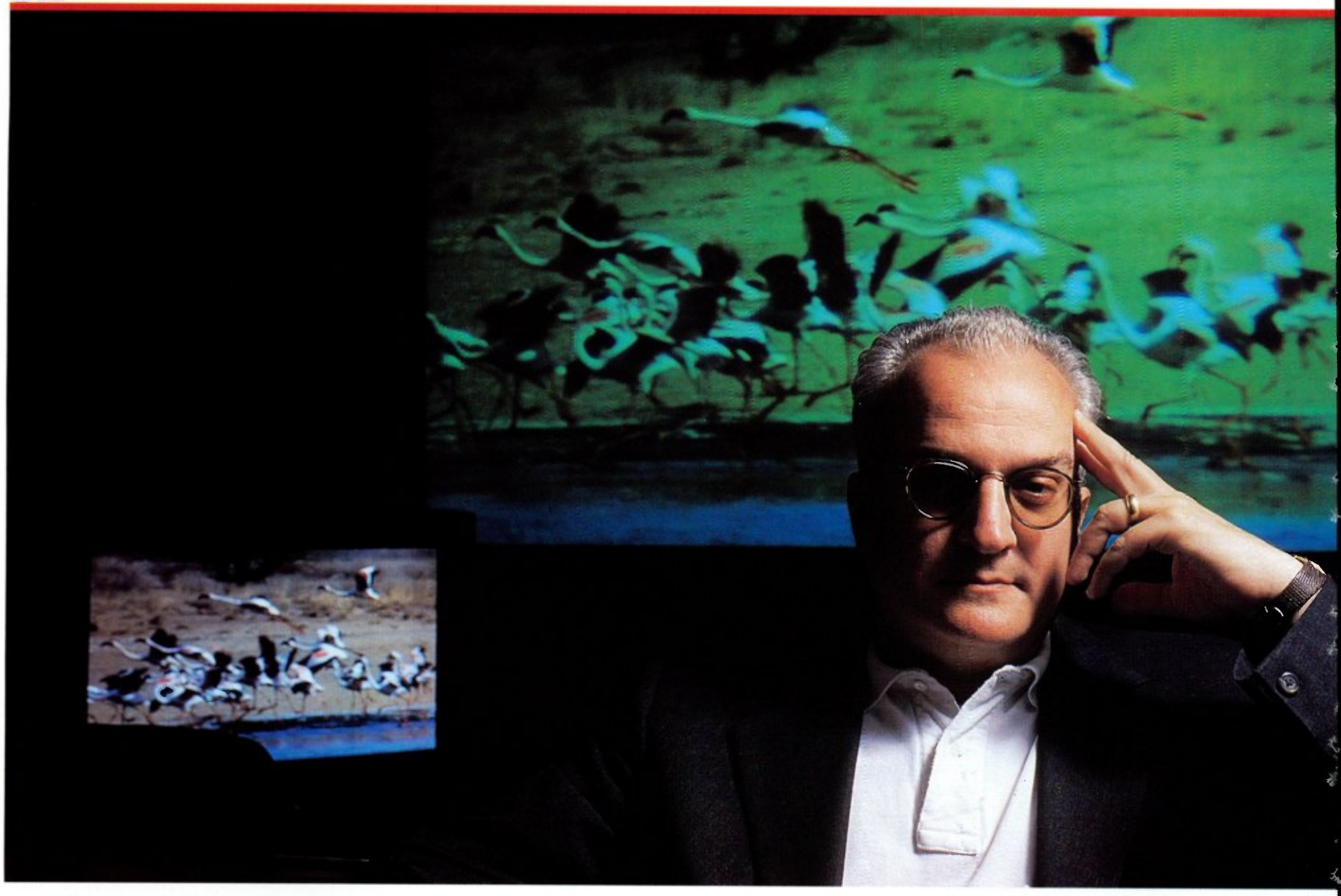
Rebo □ I don't think anything is state-of-the-art, because it's such a moving target.

DTV ■ **Do you have a horse in the race on 480 or 720 or 1080?**

Rebo □ You know, I guess the term everybody is flaunting now is to be "format-agnostic." I guess our position is what it's always been. We have a penchant for the 1080i system. We produce everything in the predecessor of 1080i, which is the 1125-60. Now it's the 1080i but, in reality, what we have is what anybody else has, which is 1035i. Well, let's say 1080i is really where it's all going. We're a big believer in producing in that, and making the highest quality, and then we can give you a deliverable in 480p or, should it appear in the real world—720p. I've never seen 720p.

So it's a moving target. The bigger issue, I believe, is that we're at the end of the era of interlaced television. I do believe it's all going to progressive scan, because it's the natural way to evolve into this total computer/television interoperability. The question is: When do you do it? If you look at the ATSC standard, it's not one standard—it's 18 standards, and 14 of those are progressive, and four are interlaced. The computer industry wants you to stop now—it's just like going cold turkey. Well, that doesn't take into account we're in this transition period. What I object to, which I think is naive, is being told by some proponents of the computer era that you should only produce in 480p. Well, you can't take a lower format and convert it to a higher-quality format and give it to us and think we're going to be happy with it. If you want to give us a 1080i product, and ABC says they can take a 480p deliverable from it, that's fine. But you can't reverse the process. You should always aspire to the highest possible origination, and then you can make your deliverables in an admittedly lesser format. I don't think anybody believes that 480p is as good as 1080i. It may be more cost-effective, but it's not the same animal. It's certainly not the same animal if you look at it on a big screen.

It's a curious situation. I've seen 16:9 480p on a 30-inch, 32-inch TV set, and it looks pretty good. But I don't think that that's going to motivate a lot of people to buy expen-



"I think there's a vacuum of leadership about digital television in the United States, and there are a lot of stations that have decided independently that they want to be active in DTV for their own market—and a lot of them are looking at their networks, wondering whether they're really going to support this."

sive television sets, if it just looks as good. It's got to look a lot better. You really have to demonstrate a significant change in viewer appeal, and you do that by changing the aspect ratio and improving the quality.

DTV ■ **How much HD are you involved with at the moment?**

Rebo □ The big project we have in-house is six natural-history specials with Turner Broadcasting and NHK. It's interesting—they're all done in HDTV. NHK obviously broadcasts the HDTV version today. Turner puts the NTSC version on TBS, and it's syndicated to 200 markets. So you can watch it on cable and in syndication in 525 with 4:3 images.

DTV ■ **What's the point of doing it in the higher echelon?**

Rebo □ Oh, it works on a lot of different levels. We package great filmmakers and great stories with this technology, and, as a production company, we raise money based on the quality of the idea and the quality of the execution. Now, a year after we started the process, when DTV became more thought-about, they realized: OK, now we have six special films in HDTV, which Rebo co-owns. So for Rebo it's an investment in a future library, and that's exactly what the mandate of the company is: make interesting evergreen programming in a format that will have residual value. So the extension of the idea is that, when other DTV stations go on the air, I'll be able to resell these programs in HDTV for a second pass at the market, or a first. I'll be able to do a first-market DTV syndication.

We're sitting here today with close to 80 hours of a variety of types of programming in HDTV, which puts us in a unique position.

You know, I think there's a vacuum of leadership about digital television in the United States, and there's a lot of stations that have decided independently that they want to be active in DTV for their own market—and a lot of them are looking at their networks, wondering whether they're really going to support this.

I believe that you will be able to put up a satellite-delivered channel as a national footprint. And we have some business plans drawn up with a partner that is a real DBS service provider. It can be more than a movie channel. The movie channel makes the most sense, because they have the content. It'll be movies and sports—those are the driving forces—and, to a lesser degree, pornography, or some degree of X-ness, if you will.

DTV ■ **Hard core?**

Rebo □ Yes. But that's what's always sold technology. It sold VCR's, it sold cable systems early on, and it sold web sites. I mean, pornography is a fact of life in introducing electronic technology. You can trace it back to cave paintings. I'm not advocating it—I'm just saying that it's a reality that's sold TV sets and VCR's and services.

You know, you can look at the international market and Canal+. It cannot lose. It's only 12, 13 years old and, pound for pound, the most profitable television service in the world. It started at 3 million people in France, and now, by extension, it's 8 million people throughout Europe. But it makes a lot of money. You have to believe that there are going to be—easily—10 million people in the United States in the next five years who are going to buy an HDTV set, and I think those people are going to want to buy content the way they want it—not necessarily just what their local broadcaster gives them.

And unless there are tens of millions of TV sets, the economics get very difficult. But if you had five million subscribers to an HDTV programming service, it's been demonstrated that you could make a lot of money. The technology, the infrastructure, is going to be there at a price point that makes it not much more difficult to acquire than NTSC. And very shortly—two, three years. The problem is, you're not going to have enough viewers at $8,000 a television set to sell free advertising. So I think the market opportunity is to do a national service.

DTV ■ **Will that be a subscription-based service?**

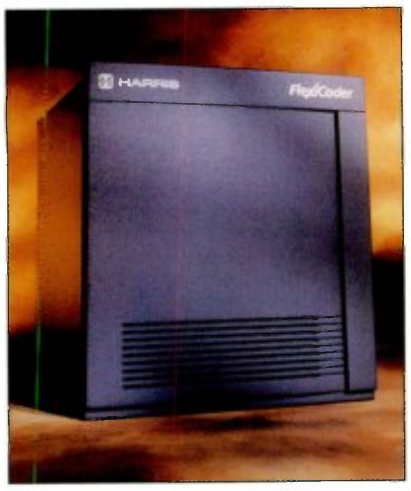
Rebo □ I think it will be a combination of subscription and pay per view. Look what DirecTV is now. It came to the Consumer Electronics Show and announced it's going to do two channels by the fall—fact or fiction. First of all, I think the majority of people don't realize that it's a standard unto itself. It's not one of the 18 ATSC standards. It's not high-definition; it's a hybrid; it's what they could comfortably crunch into an existing DirecTV transponder. But it doesn't matter, because it's going to look good, and it's going to light up television sets in dealerships across America.

DTV ■ **But will it play in a Circuit City?**

Rebo □ Yes, but only on an RCA television set, which is kind

Make a smooth and cost-effective transition to DTV with proven solutions from Harris

Let the Harris FlexiCoder™ ATSC MPEG-2 Encoding System support your digital growth path



Selected as a *Broadcast Engineering* Pick Hit at NAB 1998, "future-proof" FlexiCoder can solve your immediate needs for DTV encoding and simply lets you plug in additional capabilities when needed. You can start with a single-channel SDTV or HDTV system and upgrade to a redundant, multi-channel configuration simply by adding boards and software. FlexiCoder includes monitoring decoders, system or board-level redundancy, dual ATSC transport stream output, SMPTE 310M ATSC output interface, and external transport stream frequency reference. For more information, please fax us at 217-222-0581.

Harris CD 1A – broadcasting's *first* second-generation ATSC 8-VSB exciter for DTV

The exciter is the most complex part of the transmitter, so you don't want to take a chance on unproved technology. The Harris CD 1A is the industry's first second-generation ATSC exciter. The heart of all Harris VHF and UHF DTV transmitters, it builds on field-proven Harris technology operating in more than 50 exciters worldwide. With CD 1A, Harris offers even more features to maximize performance and coverage. Learn why Harris DTV exciters were used by six of the seven United States experimental DTV stations and by HDTV receiver manufacturers from France to Japan. For more information, please fax us at 217-222-0581.

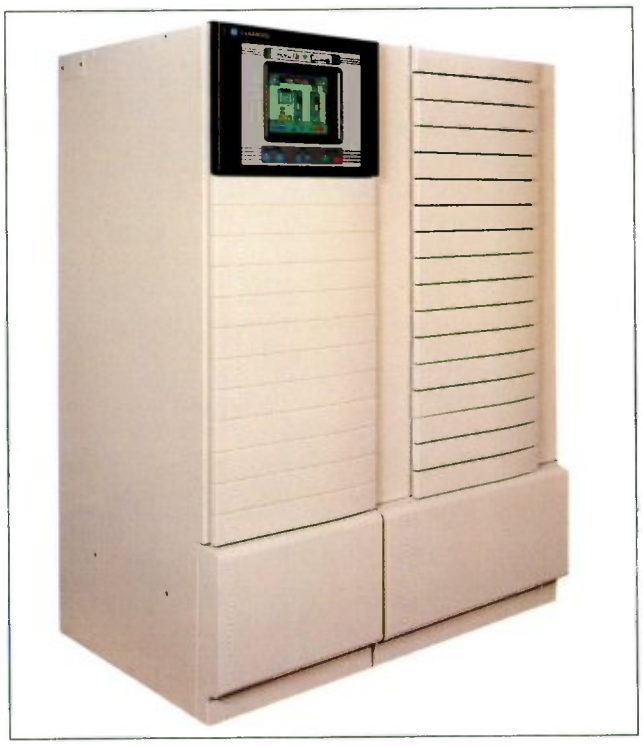
Harris offers new DTV white papers

Harris engineers have released new white papers focusing on topics relating to digital television. Papers include:

- **A Fresh New Look at 8VSB Peak to Average Ratios and Practical N+1, N-1 Combining Systems** by Robert J. Plonka, principal engineer.
- **HDTV Broadcast of Major League Baseball** by Gerald W. Collins, director of TV engineering.
- **A Harris WAVESTAR UHF Traveling Wave Array Antenna for Dual-Channel DTV/NTSC Operation** by Harris staff.

For a copy of any of these papers, please fax your request to 217-222-0581.

Maximize performance and coverage with the Harris DiamondCD™ UHF Solid State DTV Transmitter



The DiamondCD Series was developed especially for DTV. This modular system offers exceptional redundancy, while its CD 1A second-generation ATSC 8-VSB exciter provides superb, field-proven performance. Special features - including a power supply for every two "smart" power amplifier modules - ensure maximum coverage. Straightforward controls and graphical diagnostics simplify local and remote operation. Air cooling and configuration flexibility simplify installation, even in crowded transmitter buildings. See why DiamondCD could be your best choice for DTV. For more information, please fax us at 217-222-0581.

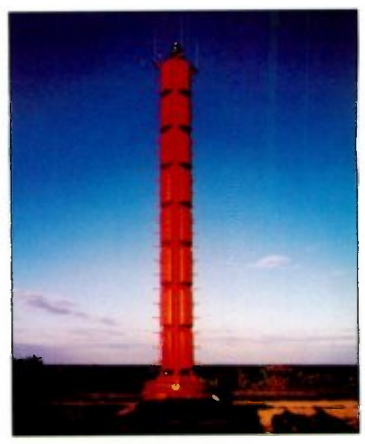
Harris/ITI DTV conversion studies provide complete RF blueprint for cost-effective DTV implementation

Harris has partnered with International Towers, Inc. (ITI) to offer customized DTV conversion studies. These studies consider every part of the broadcaster's RF air-chain to provide a comprehensive planning document outlining various DTV implementation options. The Harris/ITI studies include results, photos and recommendations from a complete physical tower inspection; a DTV RF proposal and budgetary information for antenna, transmission line, and transmitter; NTSC and DTV antenna/transmitter summaries and coverage estimates; a structural analysis and modifications of the existing tower (including proposed DTV equipment); tower location and registration section based on differential GPS measurements; tower-related budgetary prices, and a preliminary installation schedule. For more information, please fax us at 217-222-0581.

Harris combined-channel antennas can help alleviate tower problems

Harris offers a comprehensive range of wideband antennas capable of combined-channel operation, including:

- **UHF Dual-Channel Wavestar®**, a slotted, coaxial, center-fed antenna with a low-windload design. This antenna is ideal for stations with analog and lower-adjacent (N-1) DTV channel assignments. Providing exceptional aperture efficiency, this side-mount antenna can replace an existing single-channel antenna without adding significant windloads to an existing tower.
- **UHF Deltawing,** a line of wideband panel antennas that can accommodate up to five separate channels, whether they are adjacent or widely spaced. These antennas are available for low-power to high-power (240 kW average power) applications. While a semiflexible transmission line is standard, a rigid feed system is available and offers maximum reliability for high-power applications. Deltawing antennas offer enormous pattern flexibility, and are well suited for stacked arrangements.



- **VHF Deltawing,** wideband panel antennas that are available for low-band and high-band applications. These antennas, which also lend themselves to combined operation, can mount on existing towers and are ideal for stacked arrangements. Among other benefits, they are simpler – and therefore more reliable – than dipole antennas.
- **VHF Batwing,** turnstile antennas that are capable of adjacent-channel (N+1 and N-1) and multi-channel operation. These antennas are ideal for top mount, side mount and stacked arrangements.

For more information, please fax us at 217-222-0581.

Harris adds DTV courses to Training Center line-up

Harris has added two five-day courses to support broadcasters in the conversion to DTV to the curriculum roster at its Broadcast Technology Training Center in Quincy, IL:

- **Intro to HDTV** provides a roadmap to DTV planning for engineers and first-line managers. This course is designed to provide a comfortable understanding of the entire DTV system. Focuses include DTV technologies (MPEG-2, 8-VSB, AC-3 Dolby® audio), peak to average power, NTSC and ATSC combining including N+1 and N-1, coverage issues, and possible bottlenecks and constraints.
- **TV Systems and Installation** aims to prepare engineers and support staff to design and install the second transmission air-chain required during the DTV conversion.

For additional information, please phone the Harris Broadcast Technology Training Center at 217-221-7589 from 8 a.m. to 5 p.m. CDT weekdays or check our website: www.broadcast.harris.com.

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HARRIS

A new world of broadcast solutions

of smart from their point of view. You'll buy an RCA television set that has a built-in DirecTV satellite dish receiver.

You know, we're also a firm believer that cable is going to upgrade to a digital path. They need to do it, because they need to have more multiple channels of pay per view, so they can make revenue that's unregulated. I think some of those channels will be in a higher-resolution HDTV.

DTV ■ **What do HDTV sets cost in Japan?**

Rebo □ They're coming down. I think the cheapest set I saw was a 28- or a 30-inch TV set for under $2,000. It's also a mystery—since they're all going to be built in Japan—why the U.S. ones are five grand, and you could buy the same set in Japan for two grand. Nobody's quite explained that.

DTV ■ **Where is the break point on the set size, in terms of when you can have a glass tube and when you have to go to rear projection?**

Rebo □ I don't think anybody's talking about glass tubes bigger than 32 or 36 inches. That's pretty big and pretty heavy. I mean, they can't ship them without breaking them, so I don't think you'll see a lot of those coming over. I think the initial sets are going to be projection systems with a screen larger than 50 inches for people to get a wow factor.

DTV ■ **Do you think the product that emerges through high-definition will be different from the NTSC product?**

Rebo □ I actually do. I stay away from a "new visual literacy" and a lot of the gobbledygook that people have said. And I think the take-up on this is going to be remarkably quick. And people will finance it, because that's been the reality of society for the last 20 years—you finance what you want. If you say $6,000, that's one thing. If you sa $80 a month and look at all the good stuff you can wat on it, that's another.

In my view, television has evolved to a transaction medium, in many respects. By that I mean everything fro an HBO subscription to an á la carte pay-per-view mov to interactive service and an Internet provider. People a used to paying for what they want these days, and they going to pay the amount for it that they're comfortab with and in a format that they want. If they want an HDT movie channel or a pay-per-view service in their hous they'll find a way to support it.

You know, one of the learning experiences that's com from 12 years of presenting this to people—from th most jaded top-end cinematographer to my mother-i law—is that I've never had anybody look at it and say: S what?

PREPARING FOR FUTURE SHOCK

When the Best Way is the Only Way

By Abby Levine

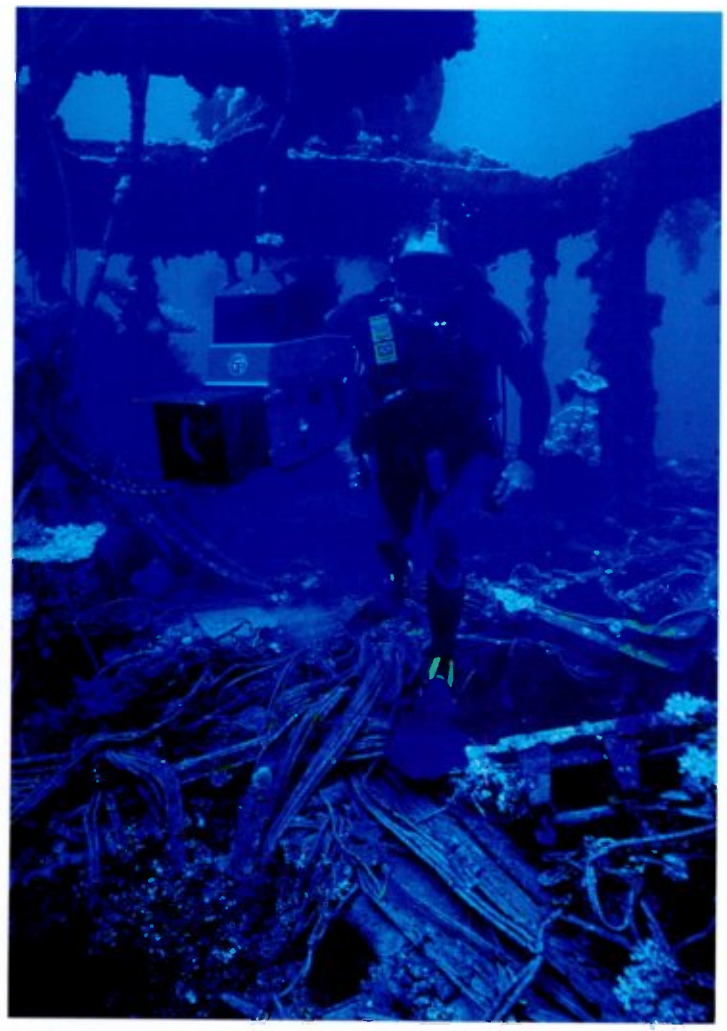
If today you set out to produce a one-shot TV extravaganza you have a limited number of production origination choices. No one will see it in anything other than today's standard definition television broadcast, so why originate in a format whose advantages will never make it to air?

Yet if your project is bound for the immortality of syndication and further distribution, with its attendant fame and fortune, suddenly the picture, and the need, widen. The imminent DTV future will demand your attention and preparation in production today, not tomorrow.

Regardless of your personal sentiments for a DTV format, now is the time to produce in widerscreen, higher-resolution formats—unless, of course, you're hell bent on creating "evergreen" programming. Of course, any of these higher-quality options can be downconverted for immediate use while waiting for tomorrow's advanced broadcasts.

Perhaps the only common denominator to the DTV future is widescreen pictures. A 16:9 aspect ratio seems to be something everyone is agreeing on, despite the protestations of a select few for something wider, fatter, taller, or thinner.

Extensive analysis has shown that there may well be no compelling reason for any single aspect ratio over any other, but a variable aspect ratio picture tube hasn't yet been demonstrated. In practice, letterboxed broadcasts in NTSC are slowly becoming more common and could help obviate the cinematographer's almost impossible task of framing and "protecting" for both 16:9 and today's 4:3. High-resolution widescreen masters will thus pave the way not only towards technically improved pictures, but away from compromised cinematography.



Coming soon to TBS: Truk Lagoon. HDTV demands a top of the line acquisition format to protect production investments, says author Levine.

Making Choices

The choice of picture resolution and fidelity is another matter altogether. Despite manufacturers' display signage at NAB to the contrary, I wouldn't recommend attempting to produce new programming today in any video format other than 1035/1080i. We're talking about significantly higher-quality TV here, and for me that rules out any active picture line count less than 720 as chosen from the aforementioned standards list. And while most agree that progressive scanning is the most advantageous, if you try and produce in 720p today you won't get far.

This year's NAB saw a smattering of 720p equipment, with little or no gear deliverable for some indeterminate period of time. Technology displays of 720p equipment likely sprang up to satisfy a potentially large purchaser or two. 720p displays also appeared in a number of booths to demonstrate various resolution comparisons. In most cases, these comparisons were of the apples and oranges variety, and too small or too far away for valid assessments.

Two Options

As a practical matter, if you are producing today for a higher-resolution future, you have only two origination options:

a. 35mm (16mm and S16mm continue to be debated)

b. 1035/1080i high definition video

Either choice can take you down a variety of completion pathways, depending on your budgetary constraints, timing and optimism.

Originating in film for television will demand a film-to-tape transfer at some point in the process. And there are suddenly a number of places to make that transfer to high definition. In the very rare case of shows which have been completed entirely in film, one could transfer a completed print to an HD master.

Today, shows shot in film generally transfer either all or selected source footage to NTSC resolutions, and then complete in standard definition post for broadcast. These shows, likely framed for 4:3 only, would require considerable legwork and budget to recreate in high definition from re-transfer through HD post.

I have heard that some shows are currently being finished as described in NTSC, and then negative-conformed fo transfer to PAL. Productions completed i this fashion are well on their way to fu ture uses (again, save for widescree framing). However, productions whic have merely archived their source fil after NTSC transfer leave their owne the unenviable task of recreating b transfer to HD their entire project.

I might add that it would be the most ex ceptional and organized post-productio process which preserved a perfect tra with well-kept elements and informatio for re-creation from scratch. This will be, i most cases, a costly and daunting process

HD Origination

Originating in 1035i/1080i is th other viable and probably preferred op tion. Eliminating the film-to-tape transfe a similar set of post options exists. Finally a high definition video program produce has options. Camcorders of high defini tion image quality are available from a variety of sources nationwide. Mobil units and studio cameras are likewis available. Post-production facilities exis in a number of cities, providing varying capabilities, almost replicating traditiona linear suites, albeit with a slower moving clock and incrementally higher rates. Bu the point is to spend a little extra now i order to ensure some future value.

Traditional nonlinear offlines can be im plemented for either of these options on th way to conforming an HD master. This widescreen master would then be available as a source for today's NTSC resolutio broadcasts, and higher-resolution distribu tion over tomorrow's DTV channels.

Debating the merits of one DTV forma over another is something for another day As a practical matter, these are the only choices today for leaving yourself some flexibility in production and post, while pro tecting your investment into the future. □

Abby Levine, award-winning partner, director of post production and engineer at REBO Studio has helped the company navigate the uncharted waters of High Definition Television for more than 11 of his 16 years there.

NAB98 Product Review

Videotek On-Screen Monitors

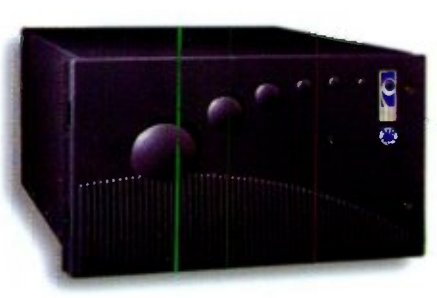
Videotek has expanded its family of multi-format, on-screen monitors to four.

All of the monitors are compatible for either NTSC or PAL operation, and the features and specifications for the new VTM-180, TVM-183, and the VTM-203 are the same as those found on the VTM-200. But each of these models has different types of input capabilities. More than 150 graticules for video and audio are built into the software to accommodate various formats and requirements for worldwide use. Contact **Videotek** at 800-800-5719.

■ **For more information - write in 215**

AirSpace Multi-Channel Broadcast Server

Pluto Technologies has introduced the AirSPACE multi-channel broadcast server, a state-of- the-art storage and



networking recorder for news production. AirSPACE is a multi-channel server system that features DV compression at 25 Mbps and DVCPRO50 at 50 Mbps, with other compression formats planned. AirSPACE supports 525 and 625 lines with 4:3 and 16:9 aspect ratios and is compatible with all DV-based acquisition devices. It also accommodates up to 10 simultaneous serial digital or analog composite input/outputs with operation within a single unit. Fibre Channel is used for communication and transfer purposes. Single unit storage of 25 Mbps media ranges from 4 to 20 hours. Contact **Pluto Technologies International** at 303-402-9000.

■ **For more information - write in 216**

On-Line Express For Windows NT

United Media, Inc. has released the On-Line Express realtime nonlinear editing system for Windows NT that is powered

by and takes full advantage of the Matrox DigiSuite boardset. The combination offers users uncompressed D1-quality video, realtime dissolves, fades, special effects and transitions, realtime titles, and 48KHz DAT audio quality. It's available for purchase as software only or as a turnkey solution. Contact **United Media** at 714-777-4510.

■ **For more information - write in 217**

Cintel C-Reality Multi-Standard Film Scanning System

Cintel has released its new C-Reality multi-standard film scanning system that

features Direct Scan. Direct Scan is an image scanning and detection system that allows full, 14-bit digital scanning resolution—2048 pixels-by-1536 lines for 2k data—in each of three colors (red, green, and blue) to optimize the maximum color detail available off the film. And C-Reality's Flying Spot technology allows the scanning rate to be changed so film is always scanned at the correct high-definition standard with full resolution in each color. Contact **Cintel** at 805-294-2310.

■ **For more information - write in 218**

Hewlett-Packard Wide Area Networking Capability

Hewlett-Packard has released two wide area networking (WAN) connectivity products for the HP MediaStream broadcast server and disk recorder products—HP MediaStream Connect and HP MediaStream Connect+. These products are designed to streamline interfacility content distribution for broadcasters, providing increased distribution reliability

and maintaining video quality through MPEG file transfer. HP MediaStream Connect provides WAN connectivity designed for applications that require near-real-time transfer rates. HP MediaStream Connect+ delivers high-speed WAN connectivity. The new products will help decrease operator costs by eliminating redundancy in dubbing and trimming at multiple facilities within a group. Contact **Hewlett-Packard** at 800-452-4844.

■ **For more information - write in 219**

YEM HDTV Products

YEM's new HSC-1125D1 and HSC-1125D2 units convert realtime serial digital component and serial digital composite signals into serial digital HDTV signals respectively. They provide high picture resolution and clarity with the use of a unique horizontal and vertical image enhancer coupled with a proprietary motion adaptive digital conversion system. Contact **YEM America** at 310-544-9343.

■ **For more information - write in 220**

Metawave Router Control System

MetaWave Ltd. has launched the new MX/SC control system for the MX routing system family of video and audio routing switchers. The control system includes a range of control panels suitable

for small and large routing applications up to 1024x1024. In keeping with MetaWave's space-saving compact router designs, the MX/SC panel controller is actually included in the router chassis and thus does not take up valuable facility space. A wide-range of panel sizes, including programmable panels, x-y, and single and multiple destination control panels with breakaways, are available and all types of panels can be used together in the same system. The panels are easily customized for user applications, featuring user-definable button mapping, field legendable backlit pushbuttons, programmable LCD buttons, and reconfiguration of panels from a single PC. Contact **MetaWave** at 44-1635-299000.

■ **For more information - write in 221**

Media 100 Intros Finish

Media 100 is now offering Finish, the first complete digital video finishing system for the Windows NT platform. Finish provides a completely integrated online finishing system for the Windows NT platform with support of ITU-R BT.601, direct realtime processing of DV-formatted data, and support for IEEE 1394 connectivity. It also offers realtime effects capabilities without degrading image quality, and virtually eliminates rendering during online finishing. Contact **Media 100** at 508-460-1600.

■ **For more information - write in 222**

Harris UHF DTV Transmitter

Harris Broadcast Division has introduced DiamondCD, the first solid-state UHF transmitter developed exclusively for the DTV market. DiamondCD combines a

leading-edge solid-state architecture with Harris' advanced CD 1A exciter. With it, broadcasters can combine digital HDTV, multiple standard-definition (SDTV) programs and datacasting—all within a single 6 MHz channel. Each Diamond CD features a control cabinet and up to five identical power amplifier cabinets capable of producing an average of 5 kW output power (20 kW peak). Contact **Harris** at 415-453-3400.

■ **For more information - write in 223**

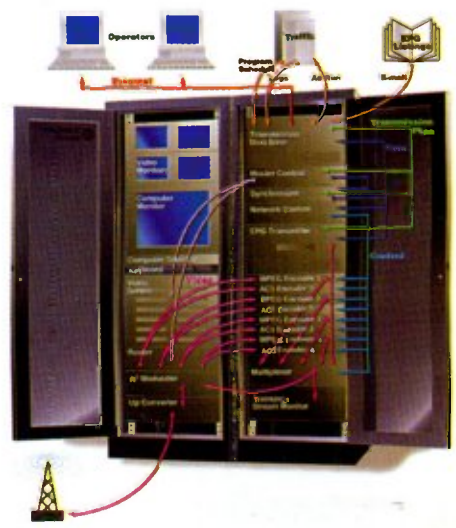
Miranda Stellar DTV/HDTV Series

Miranda Technologies has made its entry into the DTV/HDTV marketplace with Stellar, its modular series for applications such as upconversion, downconversion and pre-processing. This series allows broadcasters and post-production facilities to mix and match the different functional modules in order to build DTV/HDTV system solutions in 4RU of space. A total of 12 processing modules and 12 rear connector modules can be accommodated in each 4RU Stellar housing frame. Scalable upconversion systems for the Stellar 4RU frame are available. Contact **Miranda Technologies** at miranda.com or 514-333-1772.

■ **For more information - write in 224**

Columbine JDS Transmission Manager

Columbine JDS has released its TransMission Manager, a totally integrated solution designed to address all transmis-



NAB98 Product Review

sion requirements for digital broadcasting. Made up of a number of modules, TransMission Manager provides a total package to manage all aspects of DTV transmission, including planning the broadcast, allocating bandwidth, and controlling the on-air environment. This end-to-end solution interfaces to all CJDS traffic products and includes CJDS's established master control automation system, MCAS-III. Contact **Columbine JDS** at 303-237-4000.

■ **For more information - write in 225**

Amek Soho Console

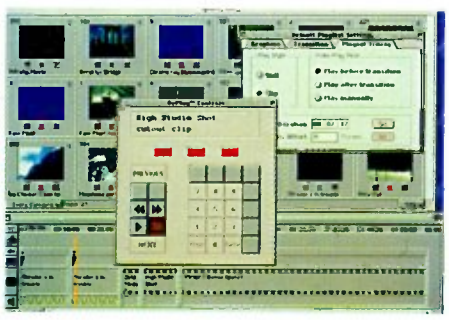
AMEK's new Soho digital post-production console is the first-generation descendant of the AMEK DMS console.

The product optimizes DMS capabilities specifically for post-production, with a view to the new formats of DVD and multi-channel surround sound. After the re-engineering of the DMS core hardware, costs have been reduced and DSP efficiency improved. The result is a one-size design available in three variations--8 faders with 8 analog inputs or 24 analog inputs and 16 faders with 24 analog inputs. All variations have 32 digital inputs. Contact **AMEK** at 615-360-0488.

■ **For more information - write in 226**

Abekas Replay

Scitex Digital Video has introduced the Abekas Replay on-air playback system



for acquisition, organization and playout of broadcast-quality video, audio, graphics and animations. The disk-based system can be used for on-air playback, commercial insertion or as a presentation device. The system features a 5RU rack-mountable chassis, RS-422 control and an optional Shot Box control panel for live broadcast use. Replay includes 40 minutes of internal storage, equivalent to 72,000 stills; storage can be expanded with third-party drive arrays. Off-the-shelf networking solutions provide for sharing footage among multiple workstations or for transfer of footage to a centralized station for playout. Media can be input to Replay from AIFF, CD audio, PICT and QuickTime files, as well as a variety of video formats. Shipment is scheduled for July, with a list price less than $25,000. Contact **Scitex Digital Video** at 888-846-7017 or visit www.scitexdv.com.

■ **For more information - write in 227**

Accom Frame Server Option

Accom, Inc has a new Windows NT-based file system for the WSD/2Xtreme

video disk array. The AFS (Accom Frame Server) software module allows several computers to simultaneously render frames to one 2Xtreme from multiple applications and computer platforms. The AFS package permits the 2Xtreme to become a mountable NT network drive, enabling drag and drop image transfers, file format translation and disk partitioning tools. The AFS package runs on an external Windows NT 4.0 configured computer, and is compatible with previous WSD models. Contact **Accom, Inc.** at 650-328-3818.

■ **For more information - write in 228**

Sanken Short Shotgun Mic

Audio Intervisual Design, national distributor for Sanken microphones, has released Sanken's CS-3 short shotgun microphone. CS-3 made its broadcast debut at the Nagano Winter Olympics, where more than 150 were used for coverage of the games. The new product features a low-frequency roll-off switch that allows it to operate as a traditional shotgun microphone or with increased high-directivity in the low frequency ranges. The new PPS diaphragms provide exceptional response and optimum humidity/temperature stability. Contact **Audio Intervisual** Design at 213-845-1155.

■ **For more information - write in 229**

ATTO's Fibrebridge

ATTO has released FibreBridge, an intelligent conversion device that allows

integrators to easily attach any existing UltraSCSI device to the new technology of Fibre Channel. The device provides performance of full duplex 1.0625-Gigabit transfer rates tightly coupled with two independent 40 Mbytes/sec. UltraSCSI ports. FibreBridge is stackable and managed by a Fibre Channel-to-Ultra SCSI converter that enables a simple transition to Fibre Channel, while preserving investment in current SCSI devices and content. Contact **ATTO Technology** at www.attotech.com. 716-691-1999.

■ **For more information - write in 230**

Telemetrics Enhanced Camera Control System

Telemetrics, Inc., has unveiled an enhanced line of triax and coax camera

control systems, which incorporate a separate IFB channel and universal mounting provisions for non-docking and hip pack configurations. Other new features include external microphone selection switches and improved styling. Contact **Telemetrics Inc.** at 201-848-9818.

■ **For more information - write in 231**

Scitex Dveous Product Additions

Scitex Digital Video has added the Dveous ADVE5000, a mid-range effects system targeted to broadcasters, and Version 6 software to its family of digital video effects system products. The Dveous 5000 is a 10-bit DVE, which aims to increase the production value of sports and local programming. It offers instant Slab Builder and SurfaceFX textures, and 3D light sources. Scheduled for shipment in June, it has a U.S. list price of under $50,000.

Version 6 software, meant for use with all Dveous systems, features OrbitalFX, a new method of effects creation that supports live interactive use. An alternative to traditional keyframing, OrbitalFX applies oscillators to the system's effects parameters, instantly creating complex animations. Shipment is scheduled for June. Contact **Scitex Digital Video** at 888-846-7017 or visit www.scitexdv.com.

■ **For more information - write in 232**

Cinema Products DV Steadicam

Cinema Products Corporation is exhibiting a new professional hand-held video DV Steadicam that is designed for

the new generation of digital video camcorders. It can be used with virtually any two-to-six pound camera. The new Steadicam offers the same fluid motion achieved in large-budget features. Light and compact at two pounds, it offers a four-inch active matrix LCD monitor. A patented design, ergonomic handle grip, precise lead screw stage and quick release make it easy and comfortable to use. Contact **Cinema Products** at www.steadicam.com, 310-836-7991.

■ **For more information - write in 233**

Newtek Aura For Animation, Paint, Layering

NewTek has released Aura, a new software program for animation and video paint and layering that enhances the creative capabilities of any nonlinear editing system, character generation program, or 3D animation system. Aura's tools include a full range of standard video and image processing tools, natural media brushes, and fully animated brush and video brush operations including tactile operation that mimics the feel of traditional artist tools. The software supports different file formats, sequential images, and all video frame rates and sizes, so it fits any production environment. Contact **NewTek** at 210-370-8000.

■ **For more information - write in 234**

Digital AlphaServer Image Tower

Digital Equipment has released its AlphaServer ImageTower that, according to

the company, offers special effects houses four times the compositing capacity for the dollar with multiple 64-bit Alpha processors running at speeds of up to 600 Mhz. The only compositing solution for Windows NT and UNIX, ImageTower delivers nearly double the PCI I/O bandwidth previously available. It also features from one-to-eight gigabytes of error-corrected, protected memory, which allows animators, compositors and post-production editors to save valuable editing time. It's selling price is under $80,000. Contact **Digital Equipment** at 508-841-3148.

■ **For more information - write in 235**

Belden 7731A HDTV Coax

Increased data rate demands in light of the FCC HDTV mandate necessitate an equally improved cable type. With this in mind, Belden has released its 7731A, the first cable built specifically for HDTV/ATV systems. 7731A is capable of car-

JVC DIGITAL

Every step in video production affects the next.

Your first is the most critical – start with 4:2:2!

BR-D40 Dockable Recorder & KY-D29 DSP Camera – package under $18,000 (with viewfinder, less lens)

DY-700 Camcorder under $12,000 (with viewfinder and 13:1 lens)

DIGITAL-S Acquisition

To get the most out of today's digital editing systems, you need to begin with the best raw footage possible. And that means shooting in 4:2:2. With DIGITAL-S, you get 4:2:2 color sampling with perceptually lossless compression. This produces an image that remains free of annoying artifacts that could build up through various steps in post production and digital distribution.

DIGITAL-S also offers superior chroma resolution, producing more well-defined colors, chroma keys and effects. In fact, all high-end systems, including the best non-linear editors, require 4:2:2 to achieve these benefits. The result is performance and quality that can stand up through each phase of digital video production. Shooting in a 4:1:1 DV format compromises your image, and you can't bring back the quality once it's lost.

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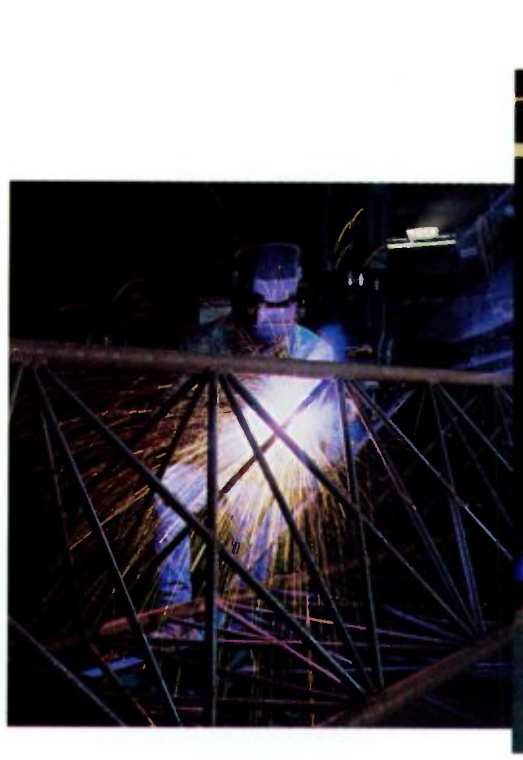
LOOK AT WHAT'S HAPPENING AT LeBLANC®



LOOK AT WHY.

LeBLANC is one of few companies in the world who have the experience and capabilities to design, manufacture, install and erect integrated broadcast communication systems. This is our business... and has been...for over 30 years.

Our new television group **LeBLANC Broadcast Inc., (LBI)** is a member of the LeBLANC Group. We are uniquely positioned to offer turnkey services ranging from tower construction to antenna installation and testing for analog and DTV systems. We form teams of highly trained professionals from our staff of 2400. They work directly with your staff and consulting engineers to nail down tight specifications and cost effective solutions.

LeBLANC's specialty is designing, constructing and installing towers up to 2000 feet. Starting with a thorough structural feasibility study of the existing tower...and working with our LARCAN teammates...we provide comprehensive DTV solutions to ensure your tower, transmitter, waveguide and antenna requirements are met...and to your complete satisfaction.

You are always concerned about quality and safety. So is LeBLANC. No other company has achieved the myriad of certifications in as many jurisdictions for our products and services as LeBLANC.

For all your tower solutions...
Look At **LeBLANC Broadcast Inc.**

LARCAN

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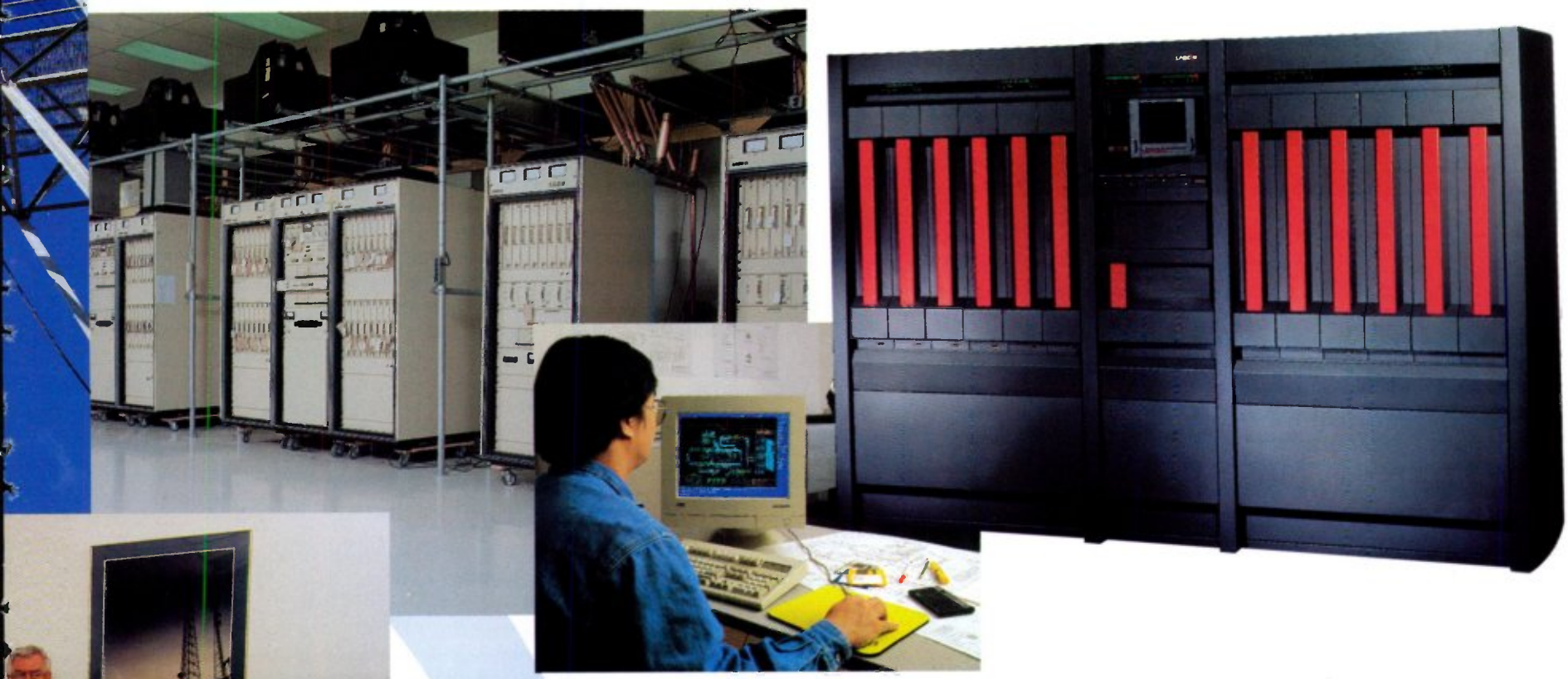
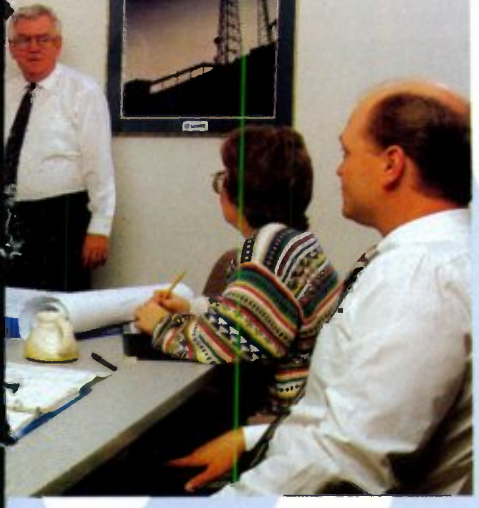
Corporate Offices: Dallas: Bob Groothand, President 972.664.1817
Special Projects: New York: Joe Nigro, Vice Pres. 973.790.4778

LOOK AT WHAT'S HAPPENING AT LARCAN





LOOK AT WHY.

LARCAN pioneered high-power solid-state VHF transmitter technology and is a recognized leader worldwide.

With the advent of Digital TV we contributed to its development and in 1993 LARCAN supplied the VHF solid-state transmitter for ACATS 'air' tests in Charlotte, North Carolina.

At NAB '97 our new LANDMARK Series DTV transmitter demonstrated the Zenith DTV 8-VSB exciter...live...an industry first.

In January 1997 we assisted KOMO-HD to transmit the first HDTV signal west of the Mississippi. In early 1998 we delivered a LANDMARK UHF digital transmitter to KOMO-HD.

These LARCAN pioneering successes translate into major LANDMARK features and benefits for your DTV Transition, and include...

• LARCAN/Zenith exciters ensure ATSC compliance. • Microprocessor control ensures complete system stability. • Touch screen controllers and fiber optic LAN control. • Solid-State LDMOS Class AB Broadband Driver ensures exceptional linearity. • LARCAN conservative power ratings in 8kW to 25kW IOT socket modules...up to 100kW. • Our Quality Assurance System has attained ISO 9001 registration.

For all your transmitter solutions...
Look At **LeBLANC Broadcast Inc.**

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Regional Offices: Providence: Bob Palmer 401.461.0999
Minneapolis: Jeff Clarine 507.332.6703 San Francisco: Dave Hill 650.574.4600

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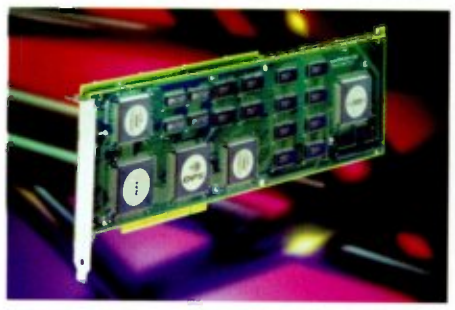
rying 1.485 Gbps ATV signals in excess of 500 feet. Contact **Belden** at www.belden.com

■ **For more information - write in 236**

DPS R3DX Realtime 3D Effects Processor

Digital Processing Systems' new DPS R3DX is a complete 3D digital video effects processor on a single PCI card. The

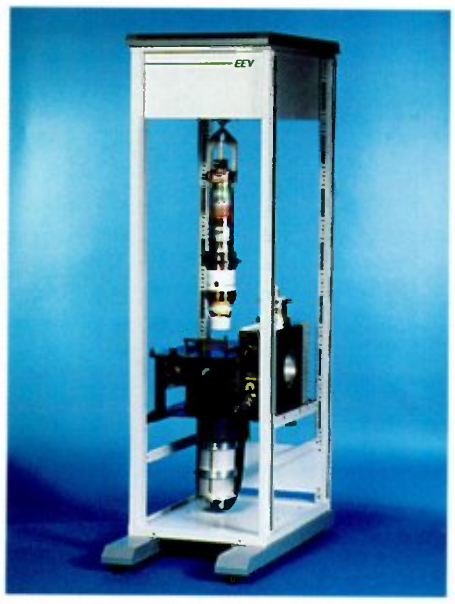


R3DX enables realtime 3D effects such as flips, tumbles, warps, and page curls to be performed on a new DPS Perception RT editing system, also recently released. Perspective, rotation, transition, and resizing effects can be easily controlled from the DPS Video Action RT editing environment. Contact **Digital Processing Systems** at 606-371-5533.

■ **For more information - write in 237**

EEV Digital IOT

EEV's new digital IOT system, type IOTD3100W, is suitable for DTV



transmitters having output powers of 100 KW peak/25 KW average. It incorporates simple plug in tubes that substantially reduce installation and tube replacement times. It has a much smaller footprint than previous designs and is therefore suitable for compact transmitters as it can be installed in a 19-inch rack mounting. This IOT system will also be available for analog transmission as type IOT9505 for transmitters of 50 KW + 5 KW combined amplification. Contact **EEV** at 914-592-6050 or info@eevinc.com.

■ **For more information - write in 238**

Yamaha 01V Digital Mixing Console

Yamaha's new digital mixer, the 01V, has

the power and performance of the 02R and 03D at the original price of the ProMix 01, less than $2,000. It retains all the ProMix 01 features, including snapshot storage, instant reset of all functions, motorized faders, on-board dynamics, parametric EQ and digital effects, and it includes advances to meet the needs of recording and production professionals. Contact **Yamaha Corp. of America** at 714-522-9011 or www.yamaha.com.

■ **For more information - write in 239**

AMS Neve Enhances Libra Live

AMS Neve has announced new hardware and software enhancements for its Libra Live digital broadcast production console. New features include enhanced IFB

matrix, new split console mode, snapshot scope, improved on-air logic, user-definable channel control, standalone I/O units, and fast reboot from Flash RAM. An advanced Logic Control Board now accelerates the console boot-up time by storing control code in Flash RAM instead of on the system's hard disk. Contact **AMS Neve** in New York at 212-965-1400 or in Los Angeles at 818-753-8789.

■ **For more information - write in 240**

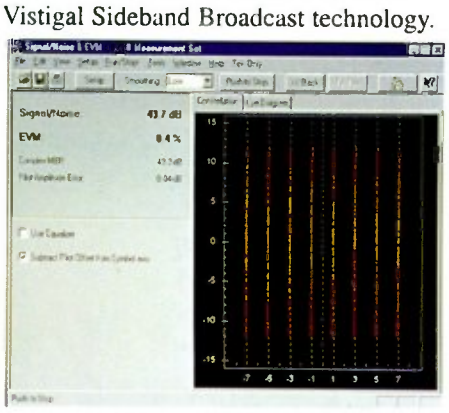
GEPCO GEP-FLEX Audio Cable

GEPCO International has reintroduced its popular GEP-FLEX audio cable with color-coded pair jackets for easier installation. The audio cable jackets of the new GEP-FLEX are now identified with alpha-numeric surface print, inverted every inch, and pair jackets color-coded to the base-10 resistor color code for increased functionality. Contact **GEPCO** at 312-733-9555 or at www.gepco.com.

■ **For more information - write in 241**

Tektronix 8-VSB Measurement Technology

Tektronix, Inc. showed its new 8-level Vistigal Sideband Broadcast technology.



While digital transmission will enhance TV broadcasting with features like HDTV and data services, more care will be required to ensure that the highest-quality signal is available to the consumer. The Tektronix 8-VSB measurement technology prefigures the user-friendly, cost-effective solutions broadcasters need to make the transition from analog to digital television. Contact **Tektronix** at 800-426-2200 or at www.tek.com.

■ **For more information - write in 242**

Gennum Integrated HDTV Cable Equalizer/Driver

Gennum Corp.'s new cable equalizer and cable driver for 1.485Gb/s HDTV applications enable broadcasters to use their existing co-axial infrastructure for future HDTV requirements. The GS1504 HDTV cable equalizer's differential serial outputs are designed to drive 50 ohm loads, and it's capable of equalizing well over 150m of Belden 1694 or 100m of Belden 8281. The GS1508 HDTV cable driver was designed to provide one differential output pair to drive two 75 ohm co-axial cables at 1.485Gb/s. The device is fully compliant with SMPTE 292M serial digital video signals. Contact **Gennum Corp**. at 905-632-2996.

■ **For more information - write in 243**

Hamlet Digital Measurement Products

Hamlet has introduced the Monitor Scope 601 and the Digi Scope 601 for measurement and analysis of both video and audio in serial digital and analog domains, plus AES/EBU audio. The Monitor Scope provides analysis with data displays, waveforms, vectors, gamut displays and alarms, colored bar graphs and peak-level indicators of the digital and analog audio, all displayed on its own built-in, high-quality color LCD. The Hamlet Digi Scope 601 is operationally the same as the Monitor Scope, but enclosed in a space- and power-saving 1U full rack width enclosure. Contact **Hamlet** at +44(0) 1494-793-763 or http://www.hamlet.co.uk

■ **For more information - write in 244**

Equi=Tech's Wall Cabinet AC System

Equi=Tech Corp. has added the ET12.5W to its line of hardwired, wall cabinet AC systems. The 125-amp ca-

pacity unit is the largest wall cabinet system Equi=Tech offers, featuring a sturdy NEMA 12 industrial control cabinet and a weight of 336 pounds. Available for the ET12.5W is the Super-isolator, which increases the Common Mode Rejection Ration (CMRR) to approximately 100 dB, and EMI/RFI filtering. High-quality Transient Voltage Surge Suppression is standard with the unit. It is currently available for less than $6,000. Call **Equi=Tech** at 541-597-4448.

■ **For more information - write in 245**

JLCooper MCS-3000 Expansion Options

JLCooper is offering three new control options for its MCS-3000 Series, Media Command Station product line: the MCS-Panner, the MCS-TBar and the MCS Bridge. The MCS-Panner features a high-quality, two or three-axis joystick module plus five rotary encoders and nine switches with LEDs. The MCS-TBar feature a high-quality T-bar style control, plus five rotary encoders and nine switches with LEDs. The MCS Bridge features eight alpha-numeric displays, eight rotary encoders and LED bar graph "pan position" indicators. Contact **JLCooper** at 310-322-9990 or www.jlcooper.com.

■ **For more information - write in 246**

Ensemble Designs Carbon Analog I/O

Ensemble Designs is shipping the new Carbon analog video interface solution

for Silicon Graphics O^2 users. Carbon provides an easy-to-use analog video and key interface for O^2 workstations. Its built-in key channel enables O^2 integration into all types of video environments, including broadcast and post. Carbon provides a signal connector set with properly timed analog component or composite video and key outputs. Software drivers are not needed. Contact **Ensemble Designs** at 530-478-1832.

■ **For more information - write in 247**

Inscriber Live Shotbox

Inscriber Technology has introduced LIVE Shotbox, a dedicated remote control unit for VideoCarte, Inscriber's

Windows-based digital store product. The Inscriber Shotbox allows an operator to build event sequences and play them back at any workstation on the network that is running the VideoCarte software. It can be operated without a computer keyboard, and, among other things, incorporates an array of function keys, a shuttle and jog control, and programmable hotkeys. Inscriber LIVE Shotbox

THE MORE HYPE THERE IS IN BROADCASTING, THE LESS LIKELY ANYONE IS TO BELIEVE IT.

The $65,000 HP MediaStream Disk Recorder: Digital video comes down to earth.*

There have been plenty of wild claims flying around out there about digital video. So when we introduced a video disk recorder with integrated RAID for about the price of a broadcast digital VTR, well, let's just say people found it hard to swallow.

The Hewlett-Packard MediaStream Disk Recorder is the newest member of our MediaStream family. It works perfectly well on its own, or in concert with our MediaStream Broadcast Server. And like all our products, it has plenty of room to grow.

You can start with just two channels, or as many as five. It stores up to 18 hours of broadcast-quality programming, and it even supports fiber channel networking. And all you need to get started is just $65,000* and a little space in a standard rack.

The HP MediaStream Disk Recorder can make the leap to digital a lot less of a leap. For more information, call **1-800-452-4844, Ext. 5660**.

We'll show you digital video you can believe in.

*U.S. list price

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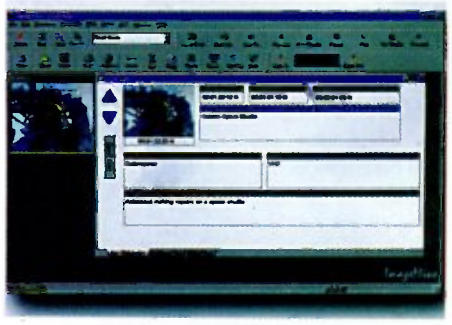
NAB98 Product Review

retails for $3,000. Contact **Inscriber**, Waterloo, Ontario Canada, at 519-570-9111 or www.inscriber.com.

For more information - write in 248

Imagine Products ImageMine

Imagine Products has introduced ImageMine, an internet-enabled, video asset management tool. ImageMine is a suite of software modules with integrated storage, logging, asset tracking and internet browsing capabilities. It features



(patent pending) Auto Capture Technology (ACT), which allows non-attended frame cataloging and simultaneous annotating. Contact **Imagine** at 317-843-0706 or www.imagineproducts.com.

For more information - write in 249

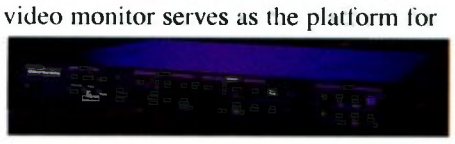
Leitch Modular Routers

Leitch has introduced the Integrator family of routers that expand as large as 128x64, and are soon to be available in analog audio, AES, analog video and serial digital video versions. The Integrator also lets users mix analog and digital formats in the same frame and, on the serial digital version, feed-in coax or fibre. These front-loading modular routers feature hot swapable power and logic cards, as well as backward compatibility with all Leitch products. Contact **Leitch** at 800-387-0233.

For more information - write in 250

Magni Automated Video Monitor

The new Magni AVM-510 automated video monitor serves as the platform for



a complete analog and digital monitoring solution that includes the AVM-510 and two standalone stackable digital input processors. The complete system will address TV formats such as NTSC, PAL and serial digital formats. Standard features include "live video" measurement displays with numeric readouts, direct interface to serial printer for error reporting, and loss of video and audio variable delayed alarm plus status reporting. Contact **Magni Systems** at 503-615-1900 or http://www.magnisystems.com.

For more information - write in 251

Ikegami HDL-37 Camera

Ikegami's new HDL-37 compact HDTV 3CCD camera features a new 2/3-inch 2,000,000-pixel CCD image sensor and resolution that compares to a one-inch 2,000,000-pixel CCD counterpart. It also features two types of camera control units, digital video circuitry, flexible cable employed, component serial digital video signal output supported, and operation with existing facilities also considered. Contact **Ikegami** at 201-368-9171 or www.ikegami.com.

For more information - write in 252

Orad Cyberset M

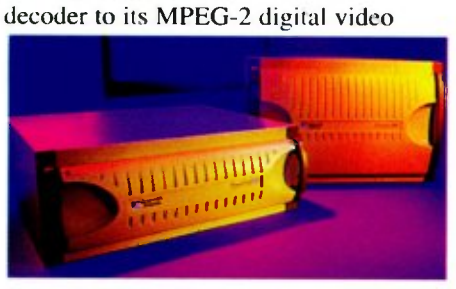
Orad has introduced CyberSet M, a virtual set studio system that delivers all the

power and capabilities of the company's flagship CyberSet O, but at half the cost. CyberSet M, which handles virtual sets comprised of up to 12,500 polygons, is for users who intend to use less than the most complicated virtual sets for their productions. The new system runs on the SGI Onyx2 Reality computer. Features include anti-aliasing, an automatic depth key and automatic integration of foreground objects into the virtual scenery. Contact **Orad Inc.** at 212-554-4225 or 76750.2570@compuserve.com.

For more information - write in 253

Scientific-Atlanta HDTV Products

Scientific-Atlanta has added the PowerVu HD high definition encoder and decoder to its MPEG-2 digital video



compression system. The PowerVu solution provides end-to-end digital delivery of signals for contribution, distribution and broadcast used over terrestrial, cable or satellite. The system will be able to deliver multiple SDTV or HDTV in an ATSC format to provide a variety of application solutions. Plus, users could choose from MPEG 4:2:2 or 4:2:0 profiles to address picture quality, add conditional access to offer subscription services and include data broadcast services. Contact **Scientific-Atlanta** at 770-903-6156 or http://www.sciatl.com.

For more information - write in 254

SSL Aysis Air

Solid State Logic has unveiled Aysis Air, a 48-channel digital console designed to

meet the requirements of live broadcasters. It incorporates its own router for standalone operations, yet can be extended to utilize SSL's Hub Router, providing access to over 2,000 sources and destination. The system also offers reduced wiring complexity with 95 channels of digital audio on a single coaxial cable. Aysis Air's control surface is optimized for realtime mixing operations. And all console controls are fully automated via snapshots. Contact **Solid State Logic** at (011) 44-1865-842300.

For more information - write in 255

Chyron Clyps

Chyron Corporation has released CLYPS, a full-screen video clip capture and instant playback system for Chryon's Infinit graphics workstations. CLYPS provides complex animations and movie files in realtime without external devices. Total integration of capture, sequence, and playback are now in the one CLYPS system. The goal is a more convenient, cost-effective process for broadcasters. Contact **Chyron** at 516-845-2019.

For more information - write in 256

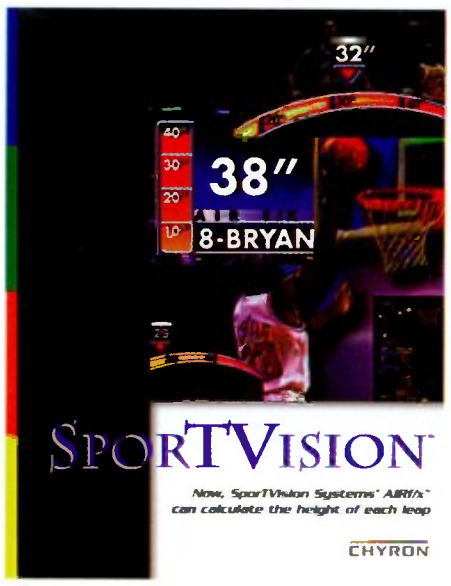
ISLIP Media Speech Recognition Products

ISLIP Media, Inc., has unveiled MediaSpeak Solo and MediaSpeak Chorus, speech recognition software designed specifically for media applications. Both new products convert speech to text, but each features a distinct type of speech recognition technology for the unique needs of different media applications. With MediaSpeak Solo, loggers, producers and librarians can use speech recognition to describe video that was typically annotated via typed text. MediaSpeak Chorus is ideal for automatically processing the multitude of different speakers found in news, film, documentaries, training and conference panel sessions. Contact **ISLIP Media** at 412-687-0530 or www.islip.com.

For more information - write in 257

SporTVision Basketball Measurement System

Chyron and SporTVision Systems are marketing AIRf/x software that allows broadcasters to accurately measure the vertical leap of basketball players.



Created by SporTVision Systems for use on Chyron's Infinit family of character generators, its goal is to settle water cooler debates about basketball's best jumpers, as it allows viewers to see the vertical leap of players during replays. Contact **Chyron**, 516-845-2019.

For more information - write in 258

Chyron Duet

Chyron has released Duet, a new media processing platform that provides the primary component for a variety of realtime video applications. Duet addresses the challenge of realtime video performance within an open-system framework. This platform is also Chyron's HDTV solution. Its architecture supports 40 simultaneous, full-bandwidth video streams along with an object-oriented 2D/3D graphics engine that is scalable to any ATSC resolution and scan rate. Contact **Chyron** at 516-845-2019.

For more information - write in 259

Doremi Labs V1D-DVR Serial Digital Interface

Doremi Labs has introduced the V1D DVR, featuring a serial digital interface.

The V1D is three rack units high and has full front panel controls including jog/shuttle wheel, autolocator, and audio input level control. Its familiar operation and immediate access to all functions makes it a drop-in replacement for any VTR. The V1D is ITU601 compliant and offers full-screen NTSC and PAL resolutions. It records field-accurate, compressed video with four audio tracks and time code. Contact **Doremi Labs** at 213-874-3411.

For more information - write in 260

E&S Mindset Virtual Studio System

Evans & Sutherland has released its MindSet Virtual Studio System, a

complete, turnkey solution that brings the advantages of virtual studio technology to programmers. It allows objects to be set in motion, live video to be integrated anywhere in a scene, and other special effects to be created in hours. Contact **Evans & Sutherland** at www.es.com or 801-588-1000.

For more information - write in 261

Where Digital CDS Gets Down To Business.

Comark Digital Services (CDS) brings you the benefit of an organization dedicated to the rapid on-air deployment of digital technology. CDS is putting stations on the air with industry-leading, tested technology and custom solutions for any type of Digital Television (DTV) application.

CDS is a division of COMARK, the company with the most experience in UHF transmitter technology and now an experienced leader in DTV system solutions.

SOLUTIONS THAT FIT. DTV requirements vary from broadcaster to broadcaster. That's why CDS offers a broad range of solutions. Our core set of services are specially designed to meet your needs:

- Consulting services
- System planning
- Innovative products
- Key sub-systems
- Complete turnkey design and implementation solutions

Whether you're a small market independent, a Top 10 network affiliate, or a Public TV station, CDS will address your specific business planning needs, timetables, capital, and operating budgetary considerations. That's the professional difference and working flexibility that makes CDS a partner you can grow with.

DTV WITHOUT LIMITATIONS. ATSC television is more than just audio and video. DTV means multiple services such as High Definition Television (HDTV), Standard Definition Television (SDTV), multiple audio services, or data casting. CDS covers it all.

Emmy Award Winner for Engineering Excellence

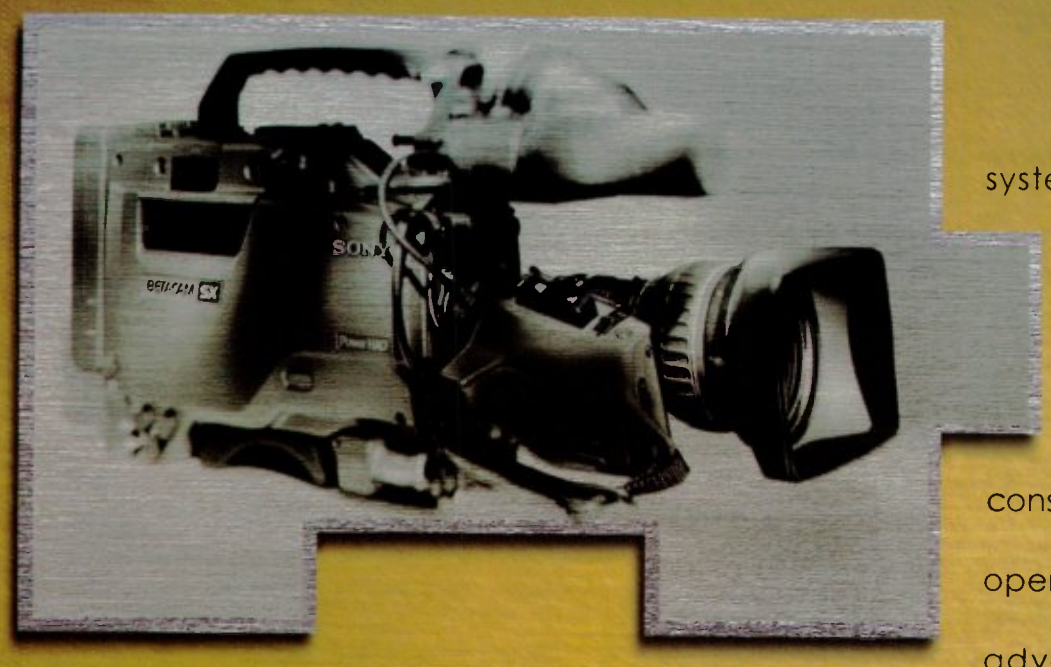
FUTURE TESTED. READY. At CDS, we're leading the way in development of practical strategies for the present — and future — of digital television. We're working with broadcasters around the world and building a base of experience that's unrivaled in the industry. In addition, we're setting up key technology partnerships with global digital equipment and systems providers. Finally, we're developing our own line of specialized hardware and software sub-systems.

At CDS, we're dedicated to every step of your digital success.

For a free brochure contact us at 601 North Fairfax Street, Alexandria, Virginia 22314 or via e-mail by contacting cds@comarkcom.com and see the innovative ways CDS can get you up to digital speed.

COMARK Communications, Inc.: Tel: (413) 569-0116 Fax: (413) 569-0679
Comark Digital Services: Tel: (703) 838-5655 Fax: (703) 838-1687
www.comarkcom.com

The Digital Experience From COMARK



Everything is here. The complete Betacam SX® system. The only digital ENG solution that employs the MPEG-2 compression standard from acquisition, through production, to delivery. The choice is clear. Especially when you consider all the operational advantages of Betacam SX: high quality 4.2:2 digital component video, four audio channels, a low 18 Mb/s video data rate, and analog Betacam® playback capability. But there's more to the story.

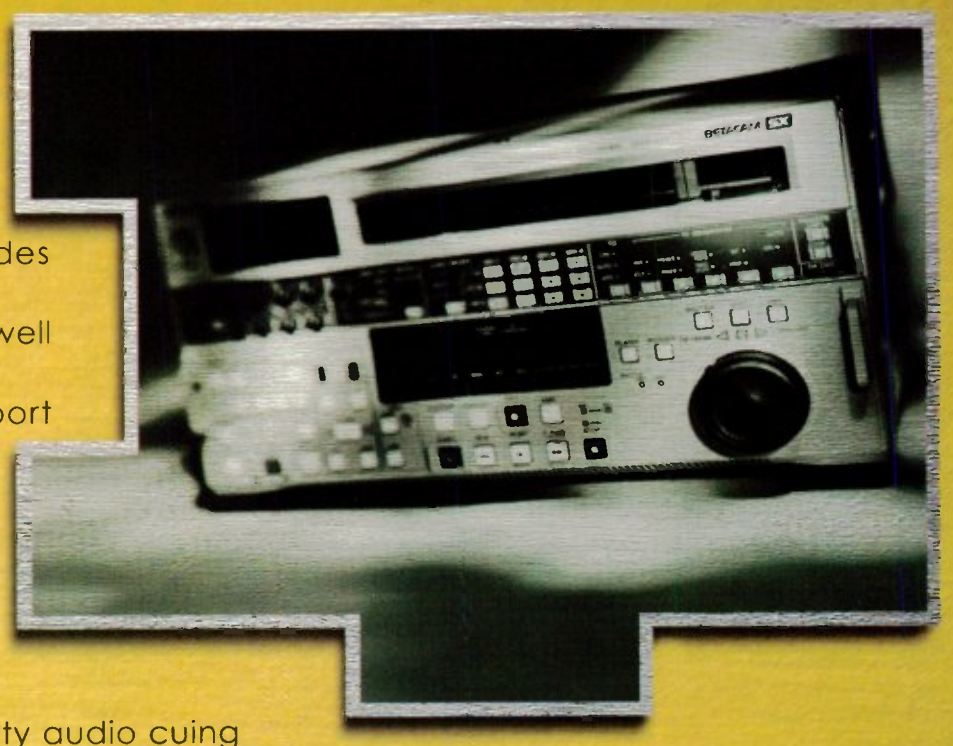
BETACAM SX

New for 1998 is the DNW-A75 VTR. Adding to our extensive line of SX Hybrid Recorders and Players, the A75 offers frame-accurate video and audio insert editing on Betacam SX tape.

All the elements of a great news story.

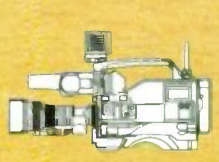
It includes Preread technology, compressed digital output in either SDTI or MPEG ES formats, and the analog Betacam playback features of the legendary BVW-65. All for a list price of $27,000.

The Betacam SX acquisition products include a dockable recorder and a full-line of one-piece camcorders. Sony's camcorders are known for their ruggedness and reliability. Betacam SX equipment continues this tradition in packages that are smaller and lighter in weight than analog Betacam camcorders. The line-up includes products supporting both 4:3 and true 16:9 aspects with IT or FIT imaging. New CCDs and DSP processing have significantly extended low light shooting capabilities, improved overall picture quality, and added important new operational aids, including set-up cards and the Good Shot Marker™ system.



In the news business, timing is everything. Sony delivers a variety of editing solutions to meet your business demands. The Betacam SX line includes portable editors and efficient nonlinear systems, as well as more traditional linear editing products. All support the SX Good Shot Marker system, streamlining the decision-making process from acquisition to editing. The SX portable editors weigh under 30 lbs, yet include powerful features like DMC and studio-quality audio cuing capabilities. The Betacam SX nonlinear editors provide many time-saving features, including faster than real-time transfer from tape to disk. All of the SX editing sytems allow easy integration of analog Betacam material into your work.

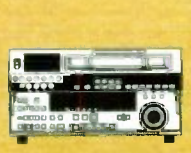
Acquisition



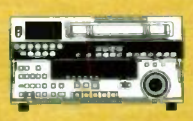
Camcorders

Dockable Recorder

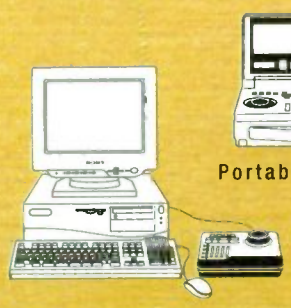
Production



Linear Editors



Hybrid Recorders



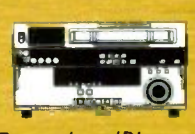
Nonlinear Editors

Portable Editors

Delivery

Flexicart

Servers

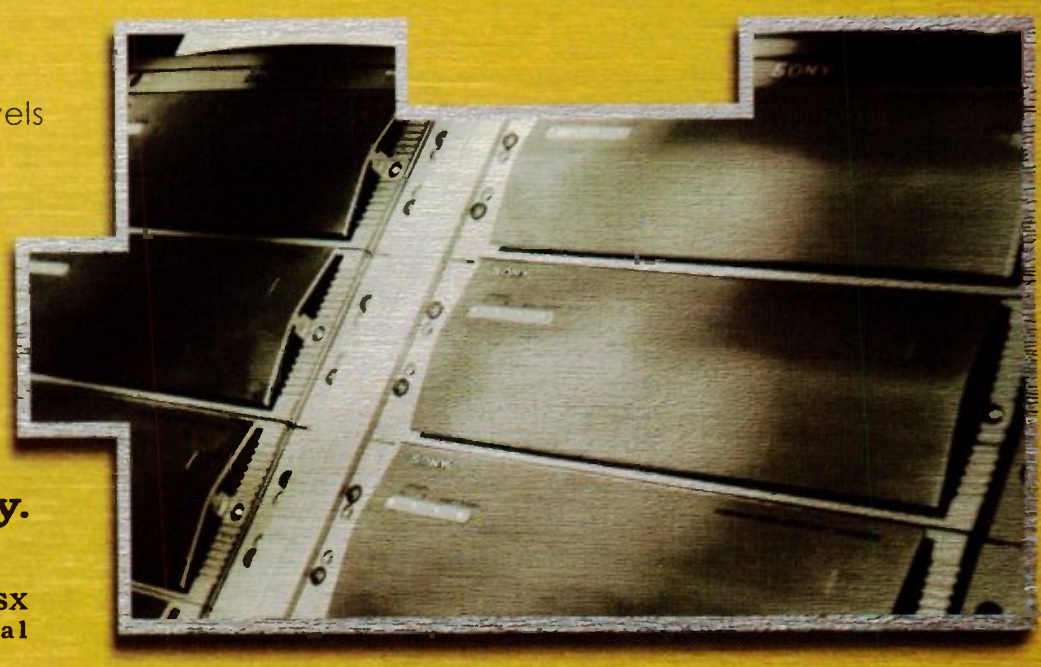


Recorders/Players

Sony also offers a wide range of newsroom servers, including the NewsCache™ system. This affordable server system takes advantage of MPEG-2 4:2:2 P@ML compression technology to deliver high quality news playback with efficient disk storage. NewsCache integrates with many popular newsroom computer systems and can grow with your news operation.

When everything works together, news travels fast. That's the idea behind the Betacam SX format. From acquisition to transmission, the complete line of Betacam SX equipment is news-ready, road-worthy, and here now.

Choose your formats carefully.



SONY

Call 1-800-635-SONY, ext. BetaSX
www.sony.com/professional

NAB98 Product Review

Pinnacle Systems AlladinPro

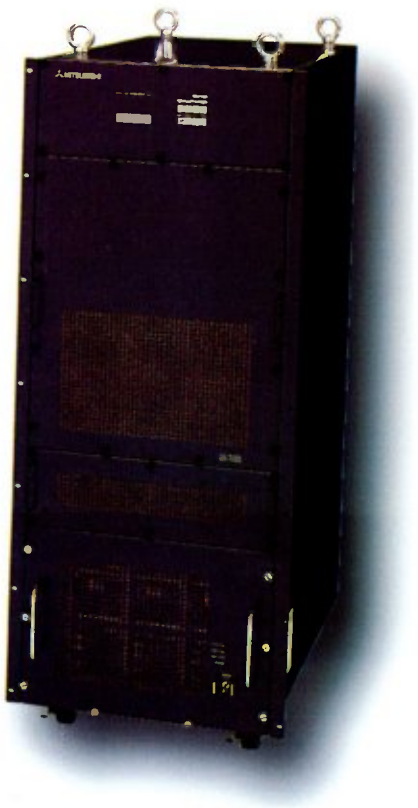
AlladinPro is Pinnacle Systems newest high-performance digital effects system

and is targeted at live and on-line applications. AlladinPro offers a suite of Studio Tools, including an integrated still store, Pinnacle's Deko character generator, a paint program, and router panel designed for live environments. It also provides users single- or dual-channel video effects, bringing to market a level of performance that once was limited to more expensive systems. Contact **Pinnacle Systems** at www.pinnaclesys.com, 650-526-1600.

For more information - write in 262

Mitsubishi Second-Generation HDTV Products

The Digital Broadcasting Business America division of Mitsubishi Electric America has unveiled its second generation of professional-quality HDTV broadcast equipment. Mitsubishi Electric's 1100 Series is made up of three



product lines: the MH line of HDTV encoders and decoders, the BC line of SDTV encoders and decoders, and the TM line of multiplexers and demultiplexers. Contact **Mitsubishi Electric America DBBA** at 908-665-1200.

For more information - write in 263

Ikegami HL-V59/59W Camera Recorder

Ikegami has released the HL-V59/HL-V59W, an all-in-one camera recorder featuring digital architecture for the camera head. It employs newly developed ASICs to deliver improved image quality, while providing enhanced reliability with substantially fewer parts. Two models are available to meet various needs. The camera incorporates a high-performance 520,000-pixel FIT CCD image sensor. Contact **Ikegami** at 201-368-9171 or at www.ikegami.com.

For more information - write in 264

DiviCom MV40 Encoder

DiviCom Inc., has introduced the MediaView MV40 program encoder. The

MV40 was designed to optimize transmission bandwidth for broadcasters, satellite operators, cable providers, wireless cable operators and telecommunications services providers. The design of the encoder harnesses the power of two complete compression silicon "engines" to first analyze program data, then use the data to perform a similar, yet more refined encoding operation. This enables the encoder to maintain picture quality at extremely low bit rates. Contact **DiviCom**, at 408-944-6700 or www.divi.com.

For more information - write in 265

Videonics Powerscript Studio 4000

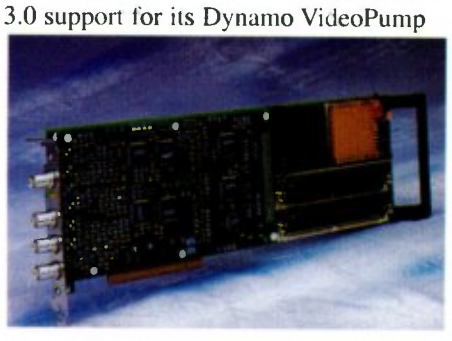
Videonics has released PowerScript Studio 4000, its newest addition to the

PowerScript line of CGs. Available in two models, it has composite Y/C video inputs and outputs. The Model PS-4000 Studio Component offers analog component inputs and outputs, in addition to composite and Y/C. Both models are available in PAL and NTSC. Contact **Videonics** at www.videonics.com or 800-338- 3348.

For more information - write in 266

Viewgraphics VideoPump Supports Quicktime 3.0

Viewgraphics has introduced QuickTime 3.0 support for its Dynamo VideoPump



serial digital video adapter, which transfers full-rate, full-size uncompressed video to and from an NT workstation. By providing a QuickTime interface, Viewgraphics gives familiar QuickTime-based applications the power to produce professional, uncompressed results on a reasonably priced computer platforms. Contact **Viewgraphics** at www.viewgraphics.com or 650-903-4900.

For more information - write in 267

NDS End-to-End DTV System

NDS' new DTV system, and the individual products within it, is fully compliant with all ATSC standards and resolutions, and provides solutions for contributions and distribution for affiliates and networks. NDS' ATSC-ready products include seamless MPEG splicing; a new 2U encoder range of products to fit most contribution and distribution applications; high-definition encoders; the System 3000 ATSC multiplexer; ATSC audio/data encoder; ATSC satellite modulator; NDS Reflex statistical multiplexing and VideoGuard conditional access; and the StreamServer PCpro multiplex control package. Contact **NDS Americas** at 714-725-2548.

For more information - write in 268

WaveFrame 408-Plus DAW

WaveFrame's 408 Plus is a new digital audio workstation that offers seamless

compatibility with Tascam's new MMR-8 recorder and helps reduce overall system costs and physical size. The 408 Plus provides playback of 8 audio tracks from a single SCSI bus, identical to the format used in Tascam's MMR-8 multichannel digital recorder. This allows quick, easy transfer between an MMR-8 and a WaveFrame Plus to form a completely integrated recording and editing system. Overall system size, bulk, and complexity are also reduced. Contact **WaveFrame** at 818-843-7004.

For more information - write in 269

Ultimatte Avid Compositing Plug-Ins

Ultimatte has announced full support for the Avid's Xpress 2.0 and Media Composer 7.0 nonlinear digital video editing systems. Ultimatte's compositing plug-ins for Avid are now included as part of the Ultimatte for Macintosh package. Avid users will now be able to employ the same award-winning matting technology that has established Ultimatte as the standard for blue- and green-screen compositing. The combination provides video content creators with the ability to create realistic, seamless composites. Contact **Ultimatte** at www.ultimatte.com or 818-993-8007.

For more information - write in 270

Artel Utah 1500 HDTV Router

Artel Video Systems has released three new products, the UTAH 200 compact router, the UTAH 1500 HDTV router, and MegaLink 1360 (a new 270/360 Mbps digital fiber optic transmission device. The new routers and transmission devices enable seamless and sensible migration to HDTV. Contact **Artel Video Systems** at www.artel.com or 508-303-8197.

For more information - write in 271

Telex Radiocom Wireless Intercom System

Telex has released Radiocom BTR-600 two-channel encrypted digital and BTR-500 two-channel UHF wireless intercom systems. The BTR-600 is a full duplex

wireless intercom system capable of addressing two independent channels of wired intercom. The unit offers full frequency agility. And it integrates into any two-wire or four-wire Telex, RTS or other intercom system. The digital encryption scheme, not available on the BTR-500, offers a cipher code of more than 65,000 possible combinations. Contact **Telex** at 612-884-4051.

For more information - write in 272

Truevision Targa Video Engine

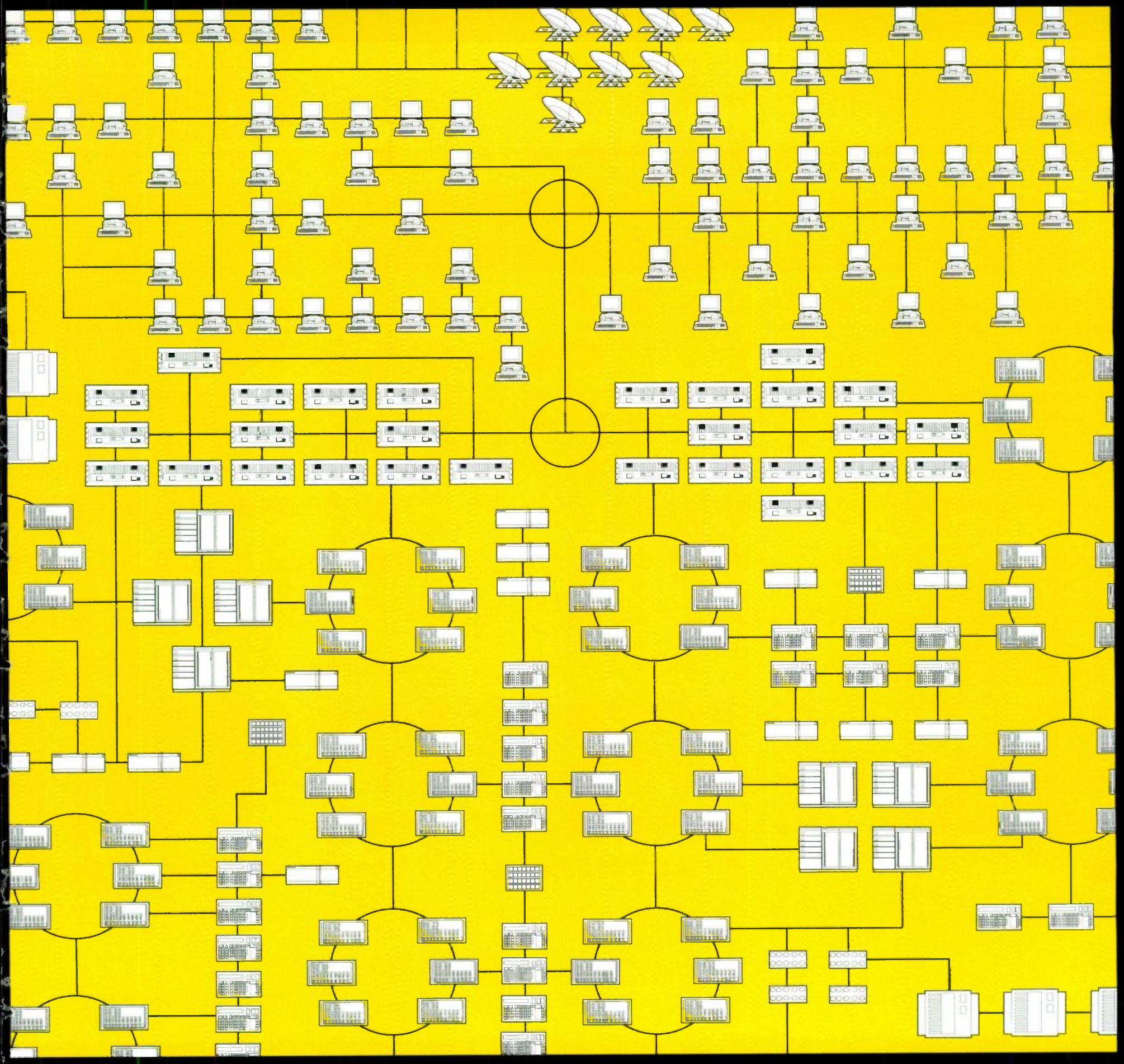
Truevision's new TARGA DV2000 RTX video engine is a realtime, dual-stream DVCPRO-based video capture solution designed for professional production of DV-compatible video content. Fully compatible with DVCPRO, DVCAM and consumer DV formats, it combines tight integration of professional nonlinear editing software applications with realtime capture and effects processing of DV-encoded content under Windows NT. Available in June, it retails for $7995. Contact **Truevision** at 408-562-4200 or http://www.truevision.com.

For more information - write in 273

Telect Digital Conversion System

Telect has entered the DTV marketplace by releasing a digital conversion system

the VersaFrame II. Telect has also released more than 30 major conversion modules and key accessories and options with the modular frame. This lets users transition into digital formats at a price and pace they can afford. The VersaFrame II provides a range of conversion tools from A-to-D, D-to-A, compo-



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>> UNPRECEDENTED TECHNOLOGY BREEDS UNPRECEDENTED CHALLENGES – VIDEO SERVERS, FIBRE CHANNEL NETWORKING, DIGITAL ARCHIVING, ASSET MANAGEMENT AND THE AUTOMATION SYSTEM TO ELEGANTLY ORCHESTRATE IT ALL. IT'S A MANDATE RECOGNIZED BY LEADING BROADCAST ORGANIZATIONS WORLDWIDE WHO DEPEND ON LOUTH SOLUTIONS. VISIT US AT WWW.LOUTH.COM LOUTH AUTOMATION. WE'D LIKE TO HELP YOU MAKE THIS NEW WORLD QUITE FAMILIAR.

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More Information Circle 307

NAB98 Product Review

nent, composite, and countless other applications. A five-year warranty is also available. Contact **Telect** at www.telect.com or 509-926-6000.

■ **For more information - write in 274**

Tekniche HDTV Upconverters

Tekniche's JUNO Range of HDTV up-Converters offer advanced conversion of SDTV to HDTV and feature flexible architecture with options for conversion to 1920x1080, 60i and 1280x720, 60p and 640x480, 60p formats. And the company's Stand Alone Noise Reducer and Pre-Processor offers three-stage noise reduction: impulse, motion adaptive recursive, and field based with flexible input and output configurations including SDI composite video and component video within 1RU. Contact **Tekniche** in the UK at 011-44-1483-728006.

■ **For more information - write in 275**

Pinnacle Lightning System

Pinnacle Systems has expanded its Windows NT-based, realtime image management and play-out system, Lightning, into a family of products that include entry and mid-level products—Lightning 500, and Lightning 100. Lightning 500 has been introduced to meet the budget requirements of smaller market call-letter stations. The Lightning 100 addresses the business needs of markets such as industrial and educational, and is a tool for cable head-end operations. Contact **Pinnacle Systems** at www.pinnaclesys.com or 650-526-1600.

■ **For more information - write in 276**

Telecast Fiber Systems Viper

Telecast Fiber Systems' most popular fiber optic system now provides digital transmission for all production environments—from studio, to transmitter, to outside broadcasting applications. The new Digital Viper simultaneously carries 601 Se-

rial Digital video, NTSC/PAL analog video, audio, intercom, and control data over a single, lightweight fiber cable. Contact **Telecast** at 508-754-4858.

■ **For more information - write in 277**

Snell & Wilcox HD1132 Router

The new Snell & Wilcox HD1132 is an all-digital 1.5 Gbits/sec 32x32 HDTV router that's very compact in size (4RU) and uses standard industry protocol. It's designed to provide a fully transparent signal path for high definition serial digital video. It features full equalization and re-clocking on all outputs and is controllable through an optional control panel. Contact **Snell & Wilcox** at www.snellwilcox.com, 408-260-1000.

■ **For more information - write in 278**

SyntheSys Research HDTV Test System

SyntheSys Research now supports manufacturers and broadcasters with a complete testing solution for HDTV signals. The BitAlyzerHDTV, model HDVA292, assists video manufacturers, broadcasters, and productions facilities in imple-

menting the SMPTE 292M, HDTV standard. It continues the company's tradition of producing easy-to-use equipment by integrating a Windows-NT platform with advanced touchscreen control. Contact **SyntheSys** at www.synthesysresearch.com or 650-364-1853.

■ **For more information - write in 279**

Sony BVP-900/950 12-Bit Camera

The Sony BVP-900/950 "top-of-the-line" studio camera system utilizes 12-bit A/D converter and digital processing to provide high-quality images and an extended set of operational features. The cameras employ a combination of a new Power HAD1000 CCD imager and advanced 12-Bit DSP—implemented in the very latest VLSI technology—which bring a number of distinct improvements to overall picture quality. This advanced design includes many new creative features such as Auto Iris Skin Tone System, Adaptive High Light Control and Knee Saturation.

The "Integrated Imaging capsules" lineup for the BVP-900 system have been expanded to include 4:3 "FIT" and 16:9/4:3 "FIT", and 4:3 520k "IT," 16:9/4:3 520k "IT" models. These virtual miniature camera systems maintain all pertinent setup data to allow rapid reconfiguration of camera systems while requiring minimal re-alignment. Contact **Sony** at 800 686-SONY or visit www.sony.com/professional.

■ **For more information - write in 280**

Avid Marquee 3-D Title Animation System

Avid Marquee is a new resolution-independent 3-D title animation software for SGI and Windows NT workstations. It includes a powerful Avid-style timeline, enabling designers to create animations based on time rather than still frames. Artists also can preview work with rotation, lighting and textures in realtime, and can also stretch, rotate and flip strings of text, as well as letters within that string, independently. Contact **Avid** at 978640-6789.

■ **For more information - write in 281**

Discreet Logic Fire, Inferno 2.5

Discreet Logic offered new versions of Fire and Inferno, both now supporting resolution and aspect-ratio independence of all DTV formats. Fire 2.5 delivers DVE with an unprecedented 12 programmable layers over a live background, each offering independent control of key, color, correction, tracking, and DVE axis attributes, as well as new layer re-entry feature.

Inferno 2.5 complements the editing capabilities of Fire with a powerful integrated suite of visual effects tools essential for work at higher bit-depth per color channel and spatial image resolution. Visit **Discreet Logic** at www.discreet.com.

■ **For more information - write in 282**

Fujinon HA3 6X ENG-Style HDTV Lens

Fujinon's Broadcast & Communications Products Division has introduced the HA36X, the highest magnification

barrel-type ENG-style zoom lens for HDTV. The zoom capability makes it suitable for capturing sporting events, wildlife, and other telephoto applications. It weighs 10 pounds and features Fujinon's exclusive Aspheric technology, which reduces lens weight, minimum object distance and chromatic aberration, and improves corner resolution. Contact **Fujinon** at 800-553-6611.

■ **For more information - write in 283**

Panasonic AK-HC800 1080i Cameras

Panasonic's AK-HC800 1080i high-definition studio and portable cameras will be available in the fourth quarter of 1998. The two cameras, the AK-HC880 studio model and the AK-HC830 mobile field unit, each feature 2/3-inch, 2 million-pixel FIT CCD imagers. Sensitivity is f8.0 at 2000 lux, and signal-to-noise ratio is 54dB. The cameras offer parallel 1125-line HD with 525 interlace downconverted outputs with 16:9/4:3 aspect ratio conversion.

Contact **Panasonic** at 800-528-8601 or visit www.panasonic .com/PBDS.

■ **For more information - write in 284**

Quantel Henry

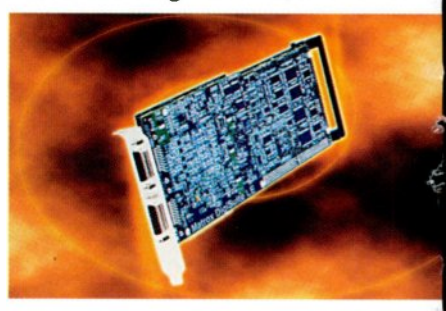
Henry V-Infinity from Quantel offers the full Henry toolset across an infinite number of concurrent superlayers. According to Quantel, any parameter or effect can be instantly changed in any layer without having to unpick or rebuild the entire piece. It offers two hours of storage and other new features, including enhancements to editing, keyer, and color corrector functionality.

Contact **Quantel** at +44 (0) 1635-48222 or visit www.quantel.com.

■ **For more information - write in 285**

Matrox DigitSuite LE

Matrox Video Products Group has released a new dual-stream realtime digital media creation platform for Windows NT. Dubbed DigiSuite LE, the board



features an advanced realtime feature set and the highest M-JPEG data rates on the market at a price of $4995. Contact **Matrox**, at www.matrox.com/video or 514-685-2630.

■ **For more information - write in 286**

Fairlight FAME Software Upgrade

Fairlight has introduced Version 2.0 software for the Fairlight FAME digital audio workstation. With new 32-bit processing, the processing speed will be four times faster and the entire system will be more flexible. The software also offers improved user interface, including fully integrated support for all surround audio formats up to 5.1. Contact **Fairlight USA** 800-4-FAIRLIGHT.

■ **For more information - write in 287**

Westcott Masterpiece Backgrounds

Westcott has added six 5x6 foot Masterpiece Collapsible Two-in-One Illuminato Backgrounds to its product line.

The two backgrounds are combined in one steel frame. Each is composed of a low and high key color. The six color combinations available are storm clouds and gentian blue, April Showers and heather, bracken brown and light gray splatter, hazel pastel and athens, costa brava blue and canberra, black and white. Contact **F.J. Westcott** at 419-243-7311.

■ **For more information - write in 288**

NAB98 Product Review

360 Systems Instant Replay 2.0

360 Systems has released its newest hard disk audio player, Instant Replay 2.0. A

self-contained, professional digital audio player and recorder that places an audio library at your fingertips, the product offers immediate access to 1,000 audio cuts. It is intended to conveniently and powerfully manage on-line audio. High-quality linear and Dolby AC-2 digital compression technology, 50 panel mounted buttons or Hot Keys, and a find feature are also offered. Contact **360 Systems** at www.360systems.com or 818-991-0360.

For more information - write in 289

Sony HDS-7000 HDTV Production Switcher

The HDS-7000 High Definition digital production switcher is Sony's first introduction of a three-mix/effects high definition switcher. Designed for high-end live production as well as post-production applications, the HDS-7000 is an integral part of Sony's High Definition Video System (HDVS). Supporting multiple standards 1080/1035 line 59.94/60Hz and 16:9/4:3, the HDS-7000 meets the requirements of HDTV/DTV digital transmission. It has a familiar operational style, using the DVS-7000 three mix/effects control panel. It can also use the popular 2.5 M/E style with program preset and dual downstream keyer. It's also equipped with internal storage system for key position, retouch and paint functions. Contact **Sony** at 800-686-SONY or visit www.sony.com/professional.

For more information - write in 290

Philips NewsBreaker News Editor

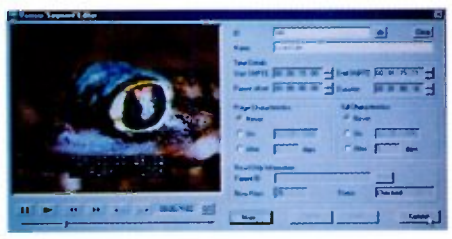
Philips introduced the NewsBreaker networked news editing solution for the Media Pool digital video server. The NewsBreaker is a networked solution for newsroom integration of editing suites, providing networking of multiple stations from a single, browser resolution editing server. The NewsBreaker edit station provides video-cuts only, nonlinear editing capabilities with audio effcts. Features include timeline editing, simultaneous capture and editing, picon-based media manager, and media browsing.

Contact **Philips** at 801-972-8000 or visit www.news.philips.com.

For more information - write in 291

Odetics Broadcast New Bowser Visual Asset Manager

Odetics Broadcast's new Bowser Visual Asset Manager is the first broadcast industry video browsing system that allows users to access, see and hear their entire media databases from PC workstations. It stores highly compressed proxies of all on-line and archive video material. Storage capabilities can be increased to thousands of hours and can support hundreds of users to meet a broad range of requirements. Contact **Odetics Broadcast** at 714-774-2200.



For more information - write in 292

Discreet Logic Smoke 2.5

Version 2.5 of the Smoke online, nonlinear video editing system offers new enhancements and features, including layer re-entry for its DVE, 3D text, an improved keyboard layout with printed key caps, the ability to load and conform EDLs simultaneously, and a new optional Filters module. Project management improvements include the ability to create, archive and restore setup files on a project-by-project basis, create user-preference profiles, as well as an enhanced file browser. Visit **Discreet Logic** at www.discreet.com.

For more information - write in 293

Lucent HDTV Encoder

Lucent Technologies has released its new HDTV encoder, the HDC-100. It's an optional feature in the Harris FlexiCoder, the MPEG-2 encoder designed by Lucent

with input from Harris for the broadcast industry. HDC-100 coordinates and controls six processing engines for HDTV and is capable of film detection. Its SMPTE 292M video input handles either 1080 lines of resolution interlaced or 720 lines of resolution progressive. Contact **Lucent Technologies** at www.lucent.com or 908-582-7571.

For more information - write in 294

Panasonic 16:9 Monitors

Panasonic introduced two 16:9 widescreen monitors, the AT-H3015W 30-inch master grade high-definition monitor and the DT-M3050W 30-inch multi-format monitor. The AT-H3015W master monitor is for highly critical production applications including colorist work in film-to-tape transfer, and in quality control applications. The DT-M3050W is compatible with multiple ATSC formats, including 480i, 480p, 720p, 1125i, NTSC, M-NTSC, PAL, and SECAM, and is also capable of 4:3 display. It delivers more than 700 TV lines of horizontal resolution.

Contact **Panasonic** at 800-528-8601 or visit www.panasonic.com/PBDS.

For more information - write in 295

Avid NewsCutter DV

The NewsCutter DV is a DV-native version of the NewsCutter disk-based news editing system, running on the Windows NT platform. Combined with the just-released NewsPlayer DV multichannel playback server, which was developed with Pluto Technologies, the DV editing and playback solution offers broadcasters an advanced editing and playback solution for DV news production. Contact **Avid** at 978-640-6789.

For more information - write in 296

Pesa Alliance Master Control Switcher

Developed through a joint effort between NEC America and Pesa, Pesa's Alliance master control switcher allows a station to use a single platform switcher for both SDTV and HDTV broadcasting. Support of multiple video formats provides a seamless migration path to HDTV, without the recurring cost of a second master control switcher dedicated for broadcasting HDTV.

The Alliance is designed for full-time SDTV, full-time HDTV, or mixed SDTV and HDTV broadcasting. In its basic dual-format configuration, the system can be dynamically configured for two SDTV channels (480i or 480p) or one HDTV channel (1080i or 720p). Contact **Pesa** at 516-845-5020.

For more information - write in 297

Sierra Design Labs Switchable SDTV/HDTV Recorder

Sierra Design Labs new HD 1.5Plus Video Disk Recording System allows

users to record in either standard 601 or uncompressed DTV/HDTV video. Using four of Sierra's Quickframe Video Disk Recorders with a new HD processor, users can record up to 120 minutes of uncompressed HDTV video. It is the first true uncompressed and mid-market HD recorder available. Contact **Sierra Design Labs** at www.sdlabs.com or 702-831-7837.

For more information - write in 298

Pixel VS-5200 Universal Synchronizer/TBC

The new VS-5200 Universal Synchronizer/TBC from Pixel Instruments is a

10-bit synchronizer with multi-format inputs and outputs and a built-in heterodyne TBC. Serial digital, composite analog, component analog and Y/C selectable inputs and simultaneous outputs are standard. This allows transcoding from any format to any format. The built-in TBC detects the time-base error in the source and automatically enables. Contact **Pixel Instruments**, www.pixelinstruments.com, 408-871-1975.

For more information - write in 299

AKG C 1000 S Microphones

AKG has added a new presence boost adapter to its C 100 S microphones to

provide broadcasters with improved pickup for speech reproduction and high-frequencies. As with the standard version, the Polar Pattern Converter supplied in the new C 100 S changes the pickup pattern from cardioid to hypercardioid. The new PB 1000 Presence Boost Adapter provides better high-frequency and speech reproduction. Contact **AKG Acoustics** at 615-399-2199.

For more information - write in 300

Technology Watch

A European Approach to an American Dilemma

Philips Tackles Interlace vs. Progressive

By Greg Pine, Philips Digital Video Systems, vice president, Commercial Operations/Cameras, The Netherlands

With the alphabet soup of formats, resolutions and scanning rates that compose the ATSC Table 3 as a backdrop, what choices will the DTV broadcaster make?

Good question. Picking a winning format is as easy as picking the winner in an 18-horse race. And like anything involving a big bet, this can become a very emotional issue if you let it.

So let's leave emotions aside and take a more objective look at what's happening.

To deliver an improved picture to the home, DTV will offer many things, most importantly digital component video. Connect a component analog or digital 601 feed to an ATSC encoder and you're off and running. Say goodbye to cross-color artifacts that have been with us since NTSC started in the late 1950s.

You probably noticed I left out standard composite video. That's because if plain vanilla composite video is used in a DTV plant all the cross-color artifacts will already be present. Conversion to a 270 Mbps ala CCIR-601 infrastructure is mandatory as a minimum quality for the future.

If you do the above conversion, life should be pretty good. I just converted your existing station to DTV. Looks good, right? Sure does, but how can you squeeze out a better picture without a major investment in HDTV equipment?

Here at Philips we looked at this problem and decided to try and offer some way to make the transition from interlace to progressive scan easier.

From a quality standpoint we feel progressive is the best option. Remember what progressive scan did to the computer display? It offered readable text on a 12-inch bottle on your desktop.

So we imagined if it would be possible to bring a migratory approach to HDTV. After all, stations have already invested in a 270 Mbps infrastructure that will be in place for the next decade.

So we looked into creating a camera system that was compatible with both interlace and progressive. This way facilities could serve the world of interlace on the analog channel and progressive on the DTV channel. Concept in hand, the development of True Frame Progressive or TFP technology began.

Here's how the technology works. The cameras with TFP image at 29.94 fps, call it 30 frames per second. Inside of the camera the true progressive frame is broken down into two matched fields with half of the total picture information in each (See figure 1). The digital 601 output is then sent to the production switcher, as is any source.

After switching, routing, recording, etc. the signal is sent to a de-interlacing unit prior to the ATSC encoder and the progressive signal is restored. Some ATSC encoders perform this function automatically.

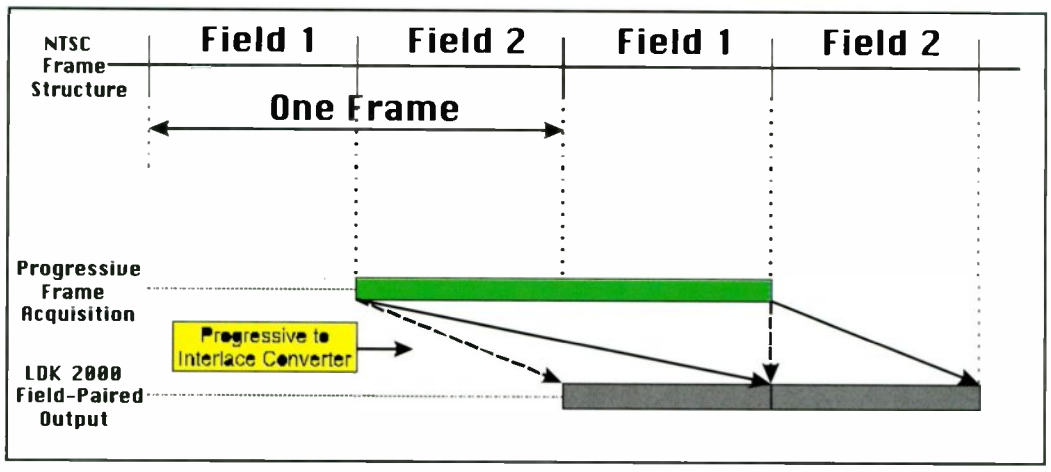


Figure 1: The TFP frame is broken down into two matching fields with half of the total information in each.

Further inspiration for the camera system came from looking at other computer sources in a facility. For example, in a telecine the film is scanned as a frame, then inside the telecine the progressive signal is field-paired to make an interlaced output. And any other computer source, be it a character generator or a weather graphics system, also starts out as a progressive signal.

All of these field-paired sources that are taken as digital 601 will convert to wideband progressive signals at the end of the chain. In most cases the output for the NTSC transmitter may be taken directly from a 601-to-NTSC converter.

Progressive Is Logical

A number of factors make the transition to progressive logical:

Resolution

Almost every recent test, both objective and subjective, has verified that a progressive format image exhibits at least a 50% greater perceived resolution than its equivalent interlaced format image. This is due to Kell (K) factor.

Interlace Motion Artifacts

Since each progressive frame produces a complete picture, the familiar flicker of interlaced pictures is virtually eliminated and interlace motion artifacts are greatly reduced, while the scanning efficiency is increased.

Freedom from artifacts is particularly significant in static shots and slow-motion sequences, which are essential for sports coverage and special effects. Motion artifacts are even more noticeable in interlaced images in HDTV resolutions (above a .70 K factor) and actually detract from the HDTV viewing experience. The same holds true for SDTV viewing.

The imager in the camera system is 480p. In the full DTV mode, the camera can produce an image with a full 50% increase in resolution over the current 480i cameras with no interlace artifacts, while at the same time eliminating those nasty NTSC chroma crawl artifacts. Even in current standard definition applications there are, surprisingly, some very impressive benefits.

It's helpful to know that the ATSC encoder which enables the use of all of the accepted HDTV formats from 480 to 1080, interlace and progressive, makes use of an additional, supplementary vertical interpolator only when it detects an incoming interlace signal. That interpolator has a somewha deteriorative, negative effect on the outp resolution of the transmitted interlace signal, but has no effect on a progressiv signal, as it is not applied to any incomin progressive signal. It's also easier to con press images derived from progressiv scanning rather than interlace.

Production Costs

Where costs are concerned it seems tha to date any objective technical judgemer would lean toward the use of a progressiv image format, but one more subject shoul be viewed as it relates to practical impl mentation of the cost of doing productio business in the DTV/HDTV world.

A wide range of technology implementa tion possibilities are available to a progra originator. They range from up-conversion existing NTSC 525 (480i) signals to the u of completely new, native 1080i productio processing and post-production systems.

Even if we ignore the possibility of usin lesser (than 1080i) formats to achieve mu ticasting income streams, we cannot ignor the difference in the cost of equipment us in the different format schemes.

For example, the average television sta tion, in order to completely re-equip in 1080 scenario, will be forced to replace a of its existing equipment with a new—an expensive—facility.

Now that the timeline for DTV imple mentation is in place, many broadcaster television producers and television produc tion facilities providers (e.g. rental house and mobile units) are beginning to realiz that the money may not be present to pa for these new "mandated" facilities. An historically, networks and advertisers ha been unwilling to pay more for "highe technology" production tools.

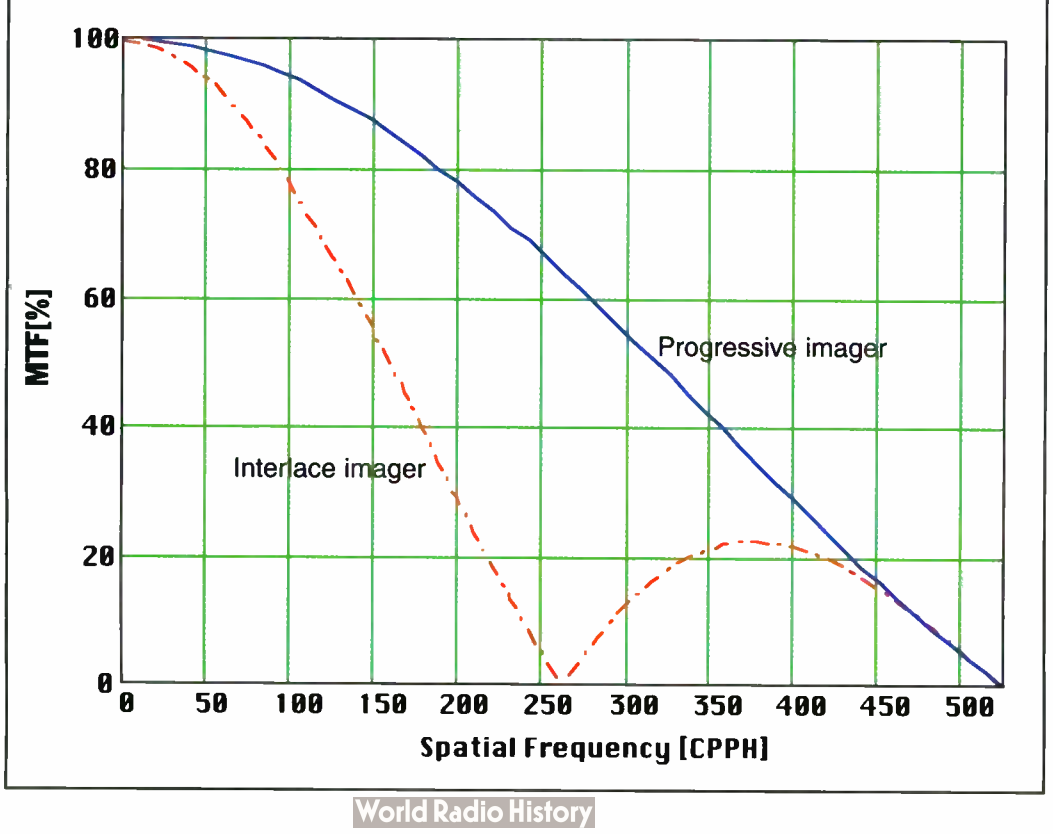
A 1080i line video plus audio signal als occupies all of the available 1.5 Gbps da stream digital bandwidth. If you're boun and determined to use 1080i, it obvia any possibility of digital multicasting More important, it requires the use o complete, new production, processing and post-production facilities which a capable of handling that bandwidth. An analysis of HDTV within the DTV par digm follows the same general mandate of the DTV model: bandwidth require vs. the cost of that bandwidth.

We believe a 480p, 270 Mbit scenari is the only reasonable economic model fo cost-effective DTV implementation yet be presented. No other scenario (1080i 720p) includes a full range of existin production and/or post-production equip ment required for a full system, whic would replace any current television sta tion, studio or post-bay application.

But the TFP 480p signal does exactl that, as it makes use of all existing digita (270 Mbit, interlace) equipment with th added advantage that the end produc maintains 50% more perceived resolutio with no interlace artifacts, once 'de-inter laced' by the ATSC encoder or externa de-interlacer.

Some might ask why the same thing

Figure 2



COMING MAY/JUNE 1998

AN IN-DEPTH LOOK AT THE POWER PLAYERS SHAPING DIGITAL TV

DigitalTelevision is the premiere publication dedicated to the digital field. In our May/June 1998 issue, we offer this opportunity to present your company to the broadcasting, cable, satellite and post-production industries. Our May/June issue of Digital Television will include a special section entitled, "Corporate Profiles". This will be a comprehensive reference on who's doing what in the digital TV industry. Our corporate profile will be a must-read issue.

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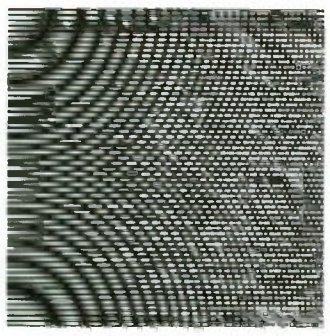
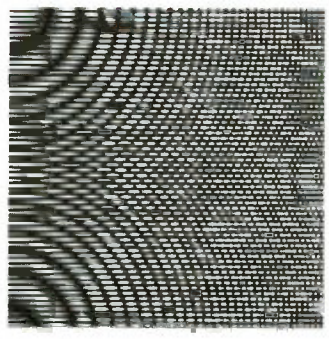
couldn't be achieved with an up-conversion of a standard interlace signal to a progressive signal. It's important to understand that up-conversion of an interlaced signal to a progressive signal is not a corollary process to the ATSC's de-interlacing of our two-field interlaced image to its original progressive format.

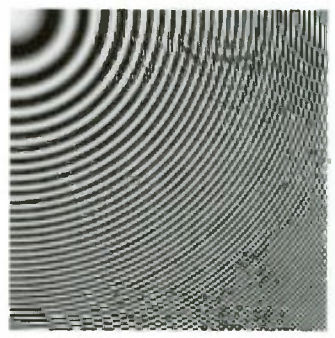
Why? Because our image starts as a full-field progressive frame with no interlace artifacts. This image is readily de-interlaced to its original progressive full-frame format by the ATSC encoder for distribution.

On the other hand, both the unconverted interlaced signal and the 1080i signals attain no such benefit at either end of the processing chain, as both suffer from embedded interlace artifacts which contaminate the image from the beginning with no hope of removal at the ATSC encoder.



Field 1 and 2 sampled in interlace





A Frame sampled progressively

Problems

Let's look at some of the technical problems in interlace.

Aliasing

A progressive imager samples vertically with a frame-sample rate of 480 Cycles Per Picture Height (CPPH), no matter what the movements are of the camera.

An interlaced imager samples vertically with a field-sample rate of 240 CPPH. Only when a static picture is imaged do the two fields show up as one frame with an effective sample rate of 480 CPPH. As soon as the camera is moved, even at slow speeds, the effective sample frequency drops back to its lower value of 240 CPPH and the interlaced artifacts show up.

On top of that, an interlaced imager needs two dips in the MTF-curve. One is at the field-sample-frequency of 240 CPPH and the other at 480 CPPH. Both dips are needed to reduce aliasing sufficiently (see figure 2). At the same time, these dips reduce MTF (Modulation Transfer Function) seen as a loss of resolution.

Aliasing caused by this vertical sample frequency changes phase from the odd-field to the even-field. This goes with a repetition rate of 30Hz. Therefore the dip at 240 CPPH is needed. When this dip is not there the human eye has to cancel the aliasing of opposite polarity from both fields in a static image. When moving the camera, however slowly, the picture will be unacceptable since the field aliasing from both fields do not cancel anymore.

An interlace image, split into two interlace fields, is received by the eye on different moments in time to recombine them again to the original picture. The fields pictured here show the 30Hz alias flicker the eye has t cancel in an interlace mode. When the ey has cancelled all the field differences, th picture recombines to the original. The ey can only cancel this aliasing as long as th object in the picture moves far less tha one line per field period.

DPM: a programmable Finite Impuls Response (FIR)-Filter in the FT-imager

One of the benefits of the Dynamic Pix Management (DPM) principle used here Philips is that it includes the possibility o making a temporal and/or spatial FIR-filte This programmable FIR-filter is designe within the CCD-imaging array. Actually, wit DPM one can make some 240 differen images to create one field or twice that num ber when using a progressive imager.

Spatially we have 480 TV-lines with 8 sub-cells in it amounting to a total of 384 cells. So the tabs of that FIR-filter are spa tially only 1/8 of a TV-line apart for a 4: aspect ratio in the interlace mode.

Contributors to this article include Pete Centen, Ton Moelands, Jan van Rooi Dean Leeson and George Palmer

A VETERAN'S REFLECTIONS ON NAB98

Chaos, Confusion and Concern

By Bob Paulson

Bigger is better. That would appear to be the conviction that drove NAB98, the biggest NAB to date. For me, this year's convention can be reduced to the three C's.

Chaos (the dictionary, not programming definition) was encountered immediately when nearing the Sands and LVCC technology warehouses.

The construction frenzies were reminiscent of anywhere in London after WWII. And the Sands even had the nerve to demand $8.00 for parking on a debris-strewn remote lot during setup!

But amidst the chaos there was some good news. Inside the halls, NAB staffers and GES/et al service people were admirable in their efforts to cope and be pleasant, however.

With more than 1,300 exhibitors to choose from it was easy to get lost at NAB98.

Confusion (synonym of chaos) seemed to prevail inside the halls. Why?

Because an age-old exhibitor created a booth space allocations policy that seems in need of a major overhaul. The current system uses a point rating system, with points based on years of exhibiting and previous booth size. The more points, the more the exhibitor can "improve" booth space size and/or location.

With NAB getting bigger every year it seems to me the allocation system is in need of some changes to help make the show more user-friendly. Trying to visit all the exhibitors in even a few product categories scattered in both halls was impossible within the 34 exhibit hours. And the information one did gather was confusing because it was incomplete.

There were a couple of exceptions. The seven top-of-the-line camera vendors were within hailing distance of each other in the LVCC, and transmitter and transmission-related manufacturers also were located in the LVCC. But for the majority of product categories it was difficult to evaluate product because by the time you made it to the next booth the brain was filled again to overflow.

Seeing The Future

The most important reality at NAB2000, I believe, will be the emergence of a rapidly growing consumer demand for primetime HDTV programming.

My first glimpse of that future came in ATSC's LVCC North Hall demonstration of "DTV: The Future is Clear." The theater-screen size demo with surround sound was "awesome," especially the commercials. Before it began, I sat in "the living room" watching three over the air feeds from Las Vegas stations to a "smart receiver."

Switched randomly among 1080i feeds from the PBS and CBS affiliates and a 720p feed from the ABC affiliate, lockup time on the next MPEG2 signal was under a half second, and not objectionable.

However, there's one small detail that broadcasters striving to build DTV channel audience must work out with their coverage area's smart digital receiver dealers. How can dealers demonstrate the mesmerizing superiority of DTV over analog NTSC in the morning, afternoon and early evening, if the networks feed HDTV programs to their affiliates only randomly during primetime?

In the exhibit halls, there was one interesting manifestation that bigger is better: Vendors I queried were pleased with the traffic into their booths.

Concerns I have two. First is the proliferation of management, technical and creative conferences that were scheduled concurrent with exhibition hours.

My second concern addresses the fact that NAB99 will definitely be bigger and better. The steel framework of the LVCC North Hall expansion is one proof (If we build it, exhibitors will come). And the unused space on the Sands Expo Center first floor surely won't remain empty.

Of course, empty space could remain. The number of exhibitors demanding NAB99 space could shrink downward from its '98 record and/or the number of real prospect attendees could shrink from its '98 record.

Why might that happen? Because both constituencies could decide, "Bigger is better–NOT!!", regardless of NAB PR importunings. Ergo, these post NAB98 weeks should be a time not only for automatic extrapolation of past curves, but also for open minded thinking about conference and exhibition alternatives to "Bigger is better."

Make It Better

A petition to the Exhibitor Advisory Committee and NAB Conference Planners: Now is the time to start thinking creatively. Organize NAB99 to be equally accommodating to everybody who makes the trek to NAB. How?

- Devise a space allocations policy that improves the productivity of attendees' information gathering efforts.
- Group all the vendors of like products and services in proximity to each other.
- Expand the exhibit schedule to five days.
- Schedule conferences with common appeal to be consecutive, with appropriate registration incentives.

I attended my first NAB in 1957 at Chicago's Conrad Hilton Hotel, as sales manager of a then small company called Ampex as part of the VR-1000 quad VTR sales force. I've attended approximately 40 since then, as a high-tech company exec, consultant and/or engineering session organizer. In these five decades I've been a participant in five "broadcast industry revolutions."

DTV is just the latest one, and probably the most important one. So let's make sure NAB becomes the place to find the information as easily as it could be found at past NABs. □

Bob Paulson is currently under contract with McGraw Hill to write a book on DTV facility design set for release in the NAB bookstores in April, 1999. He is an SMPTE Past Governor and current member of the Journal Editorial Board, an SBE Life Certified Senior Television Engineer, IEEE life Member, AFCEA Life Fellow, and AES and ITVA Charter Member.

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NAB98 and DTV

Continued from page 1

factory," he said. "It's aggressive, but it's satisfactory. I think there are still a lot of questions to be answered, so as we move into the implementation of digital I would say it's preferable to have a later commitment to see how the industry is developing rather than making decisions today."

Taylor has been attending NAB for more than 30 years, and his characterization of the show compared with previous shows was that it lacked true star power as far as product introductions. "There weren't any stars of the show, like the Sony Betacam format or an ENG camera like the TK76. But on a broader scale it was a very interesting show."

Alan Hodgson, CBS director of engineering project management, said of the show: "We went to see how far DTV/HDTV had progressed. The pleasant thing was that there was a proliferation of 16:9 displays both in direct and plasma display, full-bandwidth routers and some small switchers."

Steve Zimmerman, chief engineer at WKOW-TV Madison, Wis., says the DTV products that surfaced at NAB coupled with the major networks finally taking positions on DTV are good news for the industry.

"I think the manufacturers are going as fast as they can to address our needs, and we're trying to define our needs also," he explains. "A lot of stations were waiting for something solid from the networks, and it seems that the affiliate meetings at the show went really well."

"In general I had expected a little more in the way of solutions for HDTV."

—Wayne Kube, WFAA Dallas

In Search Of...

For most broadcast stations, encoders, transmitters, antennas and towers were on the top of the list as far as things to see. Clifford Anderson, KCTS Seattle director of engineering, went to NAB98 in search of these products, and overall he was happy with what he saw.

"There was a lot of stuff there for DTV, even though a lot of it wasn't ready for delivery," he explained. "I think that the manufacturers are still trying to figure out what the industry wants, so that means working customer suggestions into product design."

Anderson said he was impressed with the Harris Flexicoder. "I liked the modular slot design and the fact that you can utilize the same encoder for standard and HDTV plus have two separate output streams. Seems to me if you're running a couple of stations then you can load up to six standard encoders in the system and then have two separate streams." He also liked the Mitsubishi version 2 encoder but was disappointed that it was HD only. "It looked pretty good, however," he added.

Anderson also said he was looking for an IOT transmitter that runs around 100Kw peak, and he found transmitters from Comark and Harris that can fit the bill. "They're both nice-looking transmitters."

Other products he was impressed with include Tektronix's new demodulator and DTV test box ("It looked like it was real easy to use") and Panasonic's HD2200 portable D-5 recorder ("having a small recorder would be the way to go").

Available Product?

When it comes to product introductions at NAB, the majority of intros over the years have been displayed at the show and scheduled for delivery in the third or fourth quarter of the same year. At NAB98, with stations looking to get on the air with DTV in November, those production delays were cause for some frustration.

Kube, whose station has already started test signals, says that he doesn't anticipate too many difficulties from the production delays. For instance, he said, "We were looking for switchers and what was shown were early models, and some in the concept stage. I don't think it's going to be a big problem for us; it'll just be delivered later this fall."

One thing Kube did like was Tektronix's 8-VSB transmission test set. "It's a really neat product. It's very versatile and offers spectrum analysis, bit error rate, all of the tests you'll need for digital transmission."

Kube stumbled upon another company in the back of the Sands that really impressed him. "There's a company called Astro Designs, and they're building a format converter that takes in any format and does any format out. Plus it offers aspect-ratio conversion."

Taylor wondered about the maturity of some of the products he saw, particularly with respect to upconversion and downconversion products. Progressive gear was also a mild concern. "We're an ABC station and we're going 720 P, and the equipment available for that need is still maturing," he said. "But I do think that ABC will provide the impetus for manufacturers to respond more quickly with products."

Hodgson spent some time looking into HDTV production switchers and master control needs, and what he saw he considered to be a good starting point. "There's still only one production switcher that is approaching the size we could use in a control room, as all the others are too small. But the introduction of master control products is a good idea because stations will definitely have to address that area. It was certainly encouraging to see so many vendors addressing that area."

Zimmerman was also looking into master control and switchers, and he was impressed with Philips' master control solution. "It's important that our master control is going to be able to allow us to switch among the various program feeds for our NTSC channel, the network HDTV channel, and possibly another standard definition channel as well."

And while it wasn't designed for HDTV, Zimmerman liked the latest digital switcher offering from Ross Video. "It was very competitive when it came to price and it had a tremendous amount of features for a switcher in that price range. It was also very well-tailored for operators, and they put a lot into it to make it great for both newscasts and other productions."

"I think the manufacturers are going as fast as they can to address our needs, and we're trying to define our needs also."

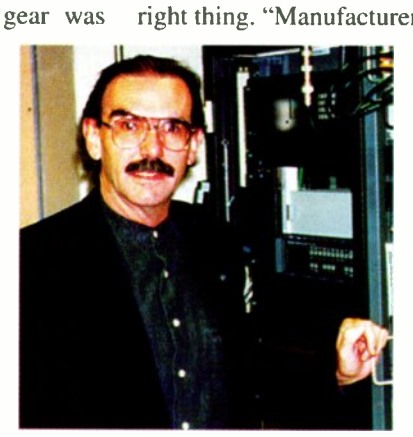
—Steve Zimmerman, WKOW-TV Madison, Wis.

Hodgson said also spent some time checking out routing products. "Various manufacturers, like Nvision, Pro-bel, and Tektronix, had small wideband routers at the 32x32 size. That's fine to start out with, but we tend to do a lot of large-scale routing in NTSC," he explained. "And when we begin laying out our new facilities we're going to have to keep them as compact as possible, to try and keep everything in one physical space, because I'm hearing that anything over 100 meters will require fiber."

Offering Some i, a Little p

Heading into Vegas, one of the great arguments was whether a station should embrace 720p or 1080i. In the weeks before the show CBS, NBC, Fox and ABC all made their choices known. It was a split, with CBS and NBC deciding to transmit in 1080i and ABC and Fox electing to go with 720p.

So how did the manufacturers prepare for the split? Friedel said he was struck by what he saw. "The exciting part was that most manufacturers showed both kinds of equipment, and since the consumer sets will be able to reproduce all 18 formats no one will be excluded." By offering both progressive and interlace equipment Friedel said manufacturers are doing the right thing. "Manufacturers see an opportunity, and they run businesses just like the stations," he explained. "There's a huge opportunity for them, and while not everyone was writing purchase orders at the show, it was a good start."



"I think that the manufacturers are still trying to figure out what the industry wants, so that means working customer suggestions into product design."

—Clifford Anderson, KCTS Seattle

Kube, who quickly looked at 1080i cameras, said he found a couple of vendors with good solutions in cameras, and a couple of others who had products in formats he didn't expect them to offer. "Still, there were some who seemed to be ignoring 1080i, and there were only a few offering a complete line," he added.

Cameras were the last thing on Taylor mind. "We're mostly trying to meet th needs of getting a digital signal. We hav Philips LDK10s in our studio that ar switchable between 16:9 and 4:3, so whe the time comes all we need is a digital car Plus the Betacam equipment we have is i pretty good shape thanks to a great engi neering and maintenance staff that is high ly astute in those areas."

As for the cost of the equipment, Friedel said it didn't live up to the gloomy prediction of the past, but there was still an obvious pre mium. "You definitely didn't see any of th million-dollar cameras predicte only a few years ago, but ther also weren't any cameras ou there for $20,000," he offered.

One product that Anderso thought was priced extremel well, however, was Sony HDW700 HDTV camcorder. " know that some gear, like that, ca be bought for around $75,00 and they're looking to move a lo of those into the market," he said "I think it'll hit the market hard."

Hodgson said the cost of early adoptio of DTV transmission will come with price, albeit a hidden one. "You have to b careful of price quotations where the man ufacturer says it will be 20%-30% abov the price of NTSC equipment. For instance here at CBS we're used to a decent dis count, so when you look at it in real dollar it could actually be quite expensive."

Too Big

For all the products that Anderson sav that he liked, he had one problem—the siz of the show made it difficult to do compar isons among the different encoders he wa considering. "We were discussing how would be nice if someone could take seve of these encoders and run the same materia through them and do an evaluation at the en and come up with some sort of rating."

The encoder market is an example of on that seemed to grow substantially since las NAB, but Anderson was a little leery some of the solutions he saw on the show floor. "Are the manufacturers buildin encoders today building with a good desig or are they building to rush and get to mar ket? I could buy an encoder today and b sorry next year that I didn't wait. But the are some that are well thought out—fron Harris, Lucent, and also NDS, which ha been making them for a long time in th European market."

There's little doubt that NAB98 will b remembered as one of the turning points i the industry, as DTV made its arrival loud and clear. "The whole HD thing alone was a whiz bang," commented Hodgson. "To see that many people producing product was encouraging, and the manufacturers said yes, this is for real. I'm sure some vendors and broadcasters thought that if they stood quietly it would go away, but it's here."

Post-Production

Continued from page 1

ore effort on the user's part. Most of e programs that Macintosh artists like ave been ported to NT systems, but NT s a little more difficult to navigate. The ow and middle end of post-production ow has a lot more options because of e expansion of NT products, particurly in the CGI end. SGI has seen this, o now it's developing NT products."

The NT juggernaut is seen less favorbly by the technical operations manager of Paramount Digital Design, Los ngeles, who is known by the singular me of Dragon.

"The only need to purchase in NT is ot because of the speed but because it upports so much software," she conended. "It's not worth investing in a ew platform for negligible or no speed ifference. We'd prefer that developers evelop for our Macintosh and SGI latforms versus bringing out NT softare first."

Nor is PrinczCo Productions, New ork, ready to make the move to NT yet. esigner/editor Joey Princz said, Between Macintosh and NT, we haven't een any improvement. On the 3-D side here's more software for NT. But we lready have a big investment in SGI."

ymphony In Avid

Having looked over Avid's Symphony, e commented, "It runs on NT and it's ncompressed video. It looks like a Media Composer but the quality is better."

Although he stated that this is a needd improvement, he initially wondered ow soon it would be obsolete—with DTV around the corner. He also noted here was a demo version of Symphony unning in HD.

Scott Jacobs, president of IPA, Chicao, was generally impressed with Symhony but noted that his facility already s the means to do uncompressed nonnear editing in its online video editing uite. Symphony offers a number of dvantages, he added, such as dealing ore efficiently with Avid offline lists, ut these aren't needed often enough to ake them selling points.

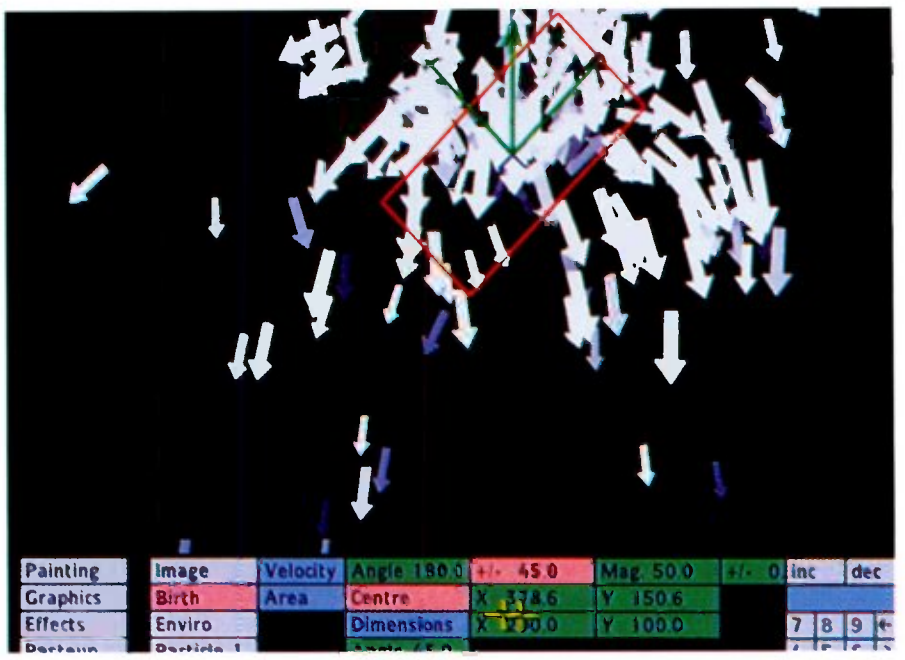
With the price of Symphony pproaching $200,000, this isn't going to e an immediate buy for Paramount Digal Design, but Dragon stated, "As soon s we need another Avid, that's the one e'll get. We've been waiting a long time r Avid to come out with an uncomessed editor. Currently, you can call dobe After Effects a resolution-indeendent nonlinear compositing device, t it's not really an editing system.

"The big difference," she pointed out, s that now you don't have to do an ffline edit followed by an online sesion. You can now do all the work nline with the same efficiency you sed to have in the offline portion."

ot On Java

Schloss of Tape House finds it significant that Quantel has opened its architecture in its introduction of Java. With ava, Quantel customers can now pay a $1,000-per-year licensing fee to have he right to create their own effects for Quantel systems with the Java language.

"It's a welcome addition to their platform," he held. "Companies are already showing plug-ins for it for various kinds of effects that you're used to seeing in Discreet Flame and After Effects."



Quantel's use of Java caught the attention of post professionals who attended NAB98.

While Discreet Logic's Sparks plug-ins are a comparable product, Schloss observed that 5D, which does effects for Sparks, is also now doing so for Java.

Taking on Java is a strong possibility for PrinczCo, where it would operate on that company's Quantel Hal. Said Princz, "It allows you to do a lot of new effects not previously available. You can import rendered models from Hal or Henry and also actually reposition the models and bring them back into Hal or Henry."

Princz also evaluated the new version of Discreet Logic Fire and was impressed by its ability to do up to 12 layers in one pass.

"It allows more creativity when you can see more elements at one time, and you can now import multiple EDLs. They're trying to work with the Avid Media Composer in importing multiple layers."

But he saw significant advantages beyond these in Avid's Illusion 5.0, due sometime this summer. "Here," he asserted, "you can take your project from Media Composer, import it into Illusion and it will reconform the whole project for you with every layer and effect."

3-D Modeling Makes Gains

In 3-D modeling and animation software, Princz was impressed that both Alias Wavefront Maya and Kinetics Lightwave 3-D have the ability to do 3-D motion tracking. He noted, "This will allow you to animate characters and objects with live action in 3-D space. It will speed up the process of tracking in 3-D objects with live action. If you have a camera move on your live action, you can now match your computer-generated objects with the live action."

He also observed that Integrated Computing Engines' Blue Ice accelerator card for Macintosh or NT means 5 to 30 times the current speed in handling effects. This applies to Adobe After Effects, Avid Media Composer, Discreet Logic Paint and Effect and Puffin's Commotion.

Dragon was impressed with Discreet Logic's Effect program, commenting, "It will generate alpha channel information from a 3-D rendering, allowing you to affect all of the objects separately after doing 3-D rendering only one time." Elimination of the need to do multiple time-consuming renderings, she noted, will either cut production time dramatically or afford the time to do more design work.

Looking for HD

Doug Cheek, president and CEO of GTN Inc., Oak Park, Mich., tracked a number of products at NAB from the standpoint of whether they provide a path to HDTV. Showing one means or another of getting there, he observed, are such nonlinear online systems as Jaleo and SoftImage's DS as well as Quantel and Discreet Logic products. Pluto's Hyperspace digital disk recorder, he noted, provides a plug-in solution for current Space recorder users to employ in HD configuration.

"We have a Philips Spirit Datacine," he noted, "We looked at some of the processes that Spirit was demonstrating, and we see that our next step is to use its data option to change the way we move data around within our facility."

He added, "We explored asset-management systems because we have a very large library, and some systems are emerging that better serve our clients, allowing them to query their parts of the library and giving us a centralized database from which we can work." He looked at systems from Bulldog, Cinesite and Virage, but noted there were many more such systems that he didn't get to.

Concerned with worldwide collaboration, he checked out the progress of Jazz Media Network, watching some impressive demonstrations. "I saw further improvement in the ability to collaborate seamlessly," he observed.

Having just acquired its second Philips Spirit Datacine, Tape House was interested in improvements made to the telecine, which outputs HD and data along with video. Schloss commented, "They have electronic pin registration to allow stabilization of the film during the transfer. It saves time and money when you don't have to stabilize the image later in a workstation."

Schloss also saw advantages in Panasonic's new D-5 tape machine, which has a built-in downconverter allowing the transfer of HD to the machine at 1080i and downconversion to all the other formats. "It looks like it will be a very robust product in being able to deal with all the standards," he observed. □

Zeros and Ones

Commentary from the Editors of Digital Television

NAB98: One To Remember

At a glance, NAB98 may have looked like any other recent NAB. It started on a Monday, ended on a Thursday and featured a multitude of delegates, manufacturers and sessions.

But anyone who took anything longer than a quick glance realized the historic importance of this year's show. With DTV and HDTV broadcasts scheduled to begin in November, and more to follow, there was a definite buzz about DTV and HDTV-related products.

The buzz, however, is not what made NAB98 special. After all, it was only a few years ago that NAB held HDTV World in the Las Vegas Hilton, so most attendees had seen the beautiful pictures. And they've also been debating the hows and whys of DTV for years.

No, what made NAB98 so important had less to do with great pictures and more to do with the multitude of products and solutions for the move to DTV.

It was only three or four years ago that many in the industry believed the conversion to DTV and HDTV broadcasting would be a difficult and costly one.

To begin with, where was the equipment? More important, how could it possibly be affordable? Fears ran high as broadcasters contemplated an FCC-mandated technological conversion that would put numerous broadcast stations deep in the red.

But this year's NAB showed just how far technology has come in a very short time. Everywhere one turned it seemed there were viable solutions to DTV problems—and compared with the price estimates of three years ago they seemed like relative bargains.

Even HDTV encoders, while still pricey, seem a relative bargain when one considers the benefits they bring to a station.

Your Show Of Shows

The most important reason NAB98 will go down as pivotal is that the message from every manufacturer seemed to be the same: Whatever the broadcaster wants us to do to help make the transition to DTV easier, we'll do.

This is obviously a big change from even the most recent NABs. It was only a few years ago that manufacturers were the ones with the vision, offering new products that promised to take broadcasters to a better place.

This year broadcasters and manufacturers know where that better place is. For most it's 1080i, 720p, or 480p. As such, manufacturers know what their job is (and where the money is), making the transition to DTV as easy as possible.

And at NAB98 it seems that manufacturers have taken a solid first step towards ensuring broadcasters meet that goal.

The Great Debate

Nothing excites journalists more than the letters "vs." Kennedy vs. Nixon. Starr vs. Clinton. New Coke vs. Coke Classic. Leno vs. Letterman. It implies a fight, and hopefully a good one, because good fights equal good copy.

So when the FCC released its approved HDTV standards there it was for all to see: 1080i vs. 720p.

Today everyone has an opinion on which is better—network executives, chief engineers, consumer set manufacturers, trade journalists, and technical gurus. And the arguments for both sides are hard to avoid. 1080i has more pixels and handles fast motion better, but it's subject to the artifacts inherent in an interlace standard. 720p, on the other hand, is free of those artifacts but has fewer pixels and is subject to flicker in pictures with fast motion. It also allows for multicasting and holds out possibilities of convergence with computers.

Now that CBS, NBC, ABC, and Fox have made their respective choices, it's time for the debate to end and the work on moving to DTV—and offering the viewer the best picture possible—to begin.

That's right: *The best picture possible*.

Somewhere in the discussions of business opportunities afforded by multicasting and the misguided belief held by some that the viewer won't be able to tell the difference between 480p and 1080i, something was forgotten: Why the industry wanted to move to HDTV in the first place.

Providing the best picture possible is the only way to ensure that the public understands what HDTV truly promises. Multicasting may make short-term business sense, but with cable and DBS systems already offering too many channels for most viewers, where's the real appeal?

As one station general manager told us, the move to DTV is not a business investment, it's a necessary cost of doing business. And as he sees it, there's too much at stake to gamble with anything other than a picture that will blow the viewer away. He believes that offering the best picture possible is the best way to become a market leader.

We couldn't agree more.

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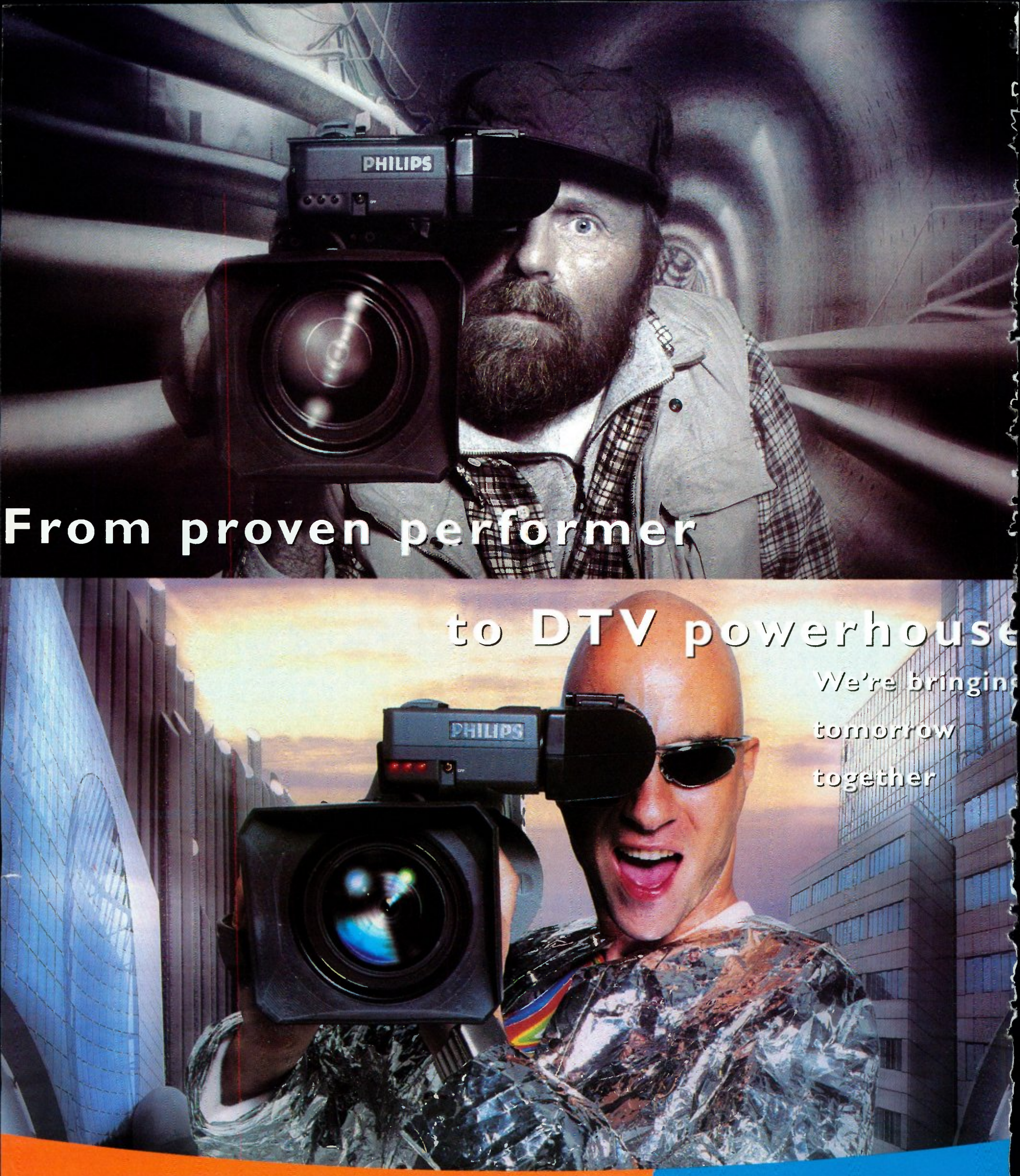

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