

TV TECHNOLOGY

THE DIGITAL TELEVISION AUTHORITY

Serving the Broadcast, Cable, Production, Post Production, Business and New Media Markets

WWW.TVTECHNOLOGY.COM

VOLUME 22, NO. 9 • MAY 24, 2004

WHAT'S INSIDE

NAB NEWS

• page 22-56



MARIO AWARDS

• page 58-59



TECHNOLOGY ROUNDUP

• page 60-122



Good Times Return to Glitter Gulch

NAB2004 sparks optimism after some tough years

by Deborah D. McAdams

LAS VEGAS

It's a good sign for business when company executives are too busy to talk to a reporter. Traffic on the show floor at NAB2004 was such that a few executives had to apologize and excuse themselves in the midst of a hard-won booth visit, because potential paying customers beckoned.

Jackson Ryehara and Hiro Tanoue of For-A were in constant demand on opening day, as a steady stream of people moved through their booth asking questions about For-A's products. In between directing traffic and explaining technology, Tanoue noted two trends in For-A products that were reflected across the floor—people want more functionality in a smaller space.

"The number one thinking is compact," Tanoue said.

To that end, there were tiny HD cameras on the floor, pocket- and pen-sized signal monitors, scaled-down coaxial cable, diminutive audio mixers, miniature camera lights, hard drives and even master controllers.

Perhaps nowhere was the effort to squeeze more stuff into less space more evident than in the category of codecs.

More than anything an FCC
GLITTER, PAGE 12

It's zero degrees and snowing.
The transmitter needs to be checked.
And it was your day off.



Remote, in-depth transmitter and transmitter facility analysis and management
...anywhere, anytime...from Harris!

Tired of the personal sacrifices you make every time something's not right at the transmitter?
Tired of watching your 50-hour week turn into 80?

We understand. And **we've got the solution: Harris Remote Management.** Now, take advantage of a fully integrated suite of remote tools that offer complete studio monitoring and control, transmitter monitoring, and transmitter facility monitoring. With an unmatched history as the technology leader for broadcast facility management, Harris provides the ultimate IP-driven control and intelligence products, products you can integrate as separate components (with later upgrades) or as complete solution. You'll enjoy web-based monitoring available through wireless laptop, cell phone, and PDA. You'll be able to solve problems with your counterparts dozens... or thousands of miles away. Best of all, you'll work more efficiently...and get your life back.

For more information about Harris Remote Management and ReCon, eCDI™ and HBM, contact your local District Sales Manager or visit us online at www.broadcast.harris.com.

www.broadcast.harris.com

HARRIS



In our "get the news first...and faster" world, Panasonic's DVCPRO P2 Series provides the instant advantage, with no moving parts, no consumed media and no need for digitization prior to editing. P2 solutions offer low operating costs and seamlessly connect original-quality DVCPRO data to laptop editors, servers and IT media. Just what you'd expect from DVCPRO. To find out how Panasonic can improve your news operation, call 1-800-528-8601 or visit www.panasonic.com/p2

DVCPRO

Panasonic ideas for life

IN THIS ISSUE

NEWS

- 6 Infocomm 2004 Hits Atlanta June 5-11**
Record number of exhibitors sign up for this year's show

- 130 TV Tech Stock Index**
Political Ads Fuel Broadcasters' Q1

NAB2004 NEWS

- 1 Good Times Return to Glitter Gulch**
- 8 DVR's Impact, Formats to Grow**
- 12 Global DTV Transition Discussed**
- 14 Thales Broadens Into Multimedia**
- 14 Thales Angenieux Outlines Advances**
- 16 Congressmen Debate Broadcast Issues**
- 16 Leitch Goes Hunting**
- 18 Sony HD Targets Multiple Markets**
- 18 Scarcella: HD is 'Here and Now'**
- 20 CEA's Chief Urges Broadcasters to Act**
- 22 FCC Chairman Tackles Broadcast Issues**
- 22 Omneon Struts its Stuff**
- 24 Panasonic Pushes HD Desktop Editing**
- 24 Connecting Electronic News Gathering and Information Technology**

- 26 2004 STAR Awards**

- 30 Chyron Generates HD Graphics**

- 32 Avid Spreads HD Across the Line**

- 34 Grass Valley Pitches HD SloMo**

- 36 HDV Now Ready to Edit at NAB2004**

- 36 JVC Democratizes Hi-Def**

- 39 HDTV Production Hits the Desktop**

- 40 Engineers Discuss Digital Disbursement**

- 42 Local Broadcaster Responds to FCC**

- 44 Euphonix Max Air Tour Stops at NAB2004**

- 44 Broadcaster Goes After Cable**

- 46 Wohler Debuts New Dolby E Products**

- 46 Rohde & Schwarz Ups U.S. Presence**

- 48 Quantel Moves eQ into the Newsroom**

- 51 Next-Gen Ads: More Interactivity**

- 51 Encoda Links with Arkemedia**

- 52 Miranda Revamps With Mobile in Mind**

- 52 Ridge, Holt Address RTNDA**

- 54 Oprah Honored in NAB Opener**

- 56 Pinnacle Advances Tapeless HD Workflows**

- 56 Omnibus Targets Local TV**

- 58 2004 Mario Awards**

EQUIPMENT

- 98, 99, 108, 109, 113, 114**
Product Showcase

- 114, 119**
Marketplace

- 124-129**
Classified

TECHNOLOGY ROUNDUP

Part I

Cameras60
Audio66
Cable, Fiber & Networks	..74
Camera Support82
Lenses88
Editing91
Monitors94
Transmission96
Test & Measurement	...103
Signal Processing107
Batteries & Lighting117

CONTRIBUTING WRITERS

NAME:
Craig Johnston

COLUMN:
Cameras



The biggest camera news at last year's NAB was in the form of prototypes and promises. If this year lacked its predecessor's number of show-stopping announcements, NAB2004 made it up on promises delivered. There seemed...Page 60

NAME:
Bob Kovacs

COLUMN:
Cable, Fiber & Networks



It's a shame that "glamorous" and "necessary" are, by and large, mutually exclusive; the things that we "need" are frequently not the things that we "want." So it is with cable, fiber and networking vendors, who know that while we may dream of HDTV...Page 74

NAME:
Jay Ankeney

COLUMN:
Editing



The booths at NAB2004 were loaded with edit systems capable of tackling high definition post production, but for the most part it was an evolutionary rather than revolutionary step into handling the massive requirements of HD. Look for significant inroads from Apple...Page 91

The staff can be contacted at the phone extensions listed or via e-mail using first initial, last name @imaspub.com

Publisher: Eric Trabb
732-845-0004
Associate Publisher: Marlene Lane
ext. 128

Editor: Tom Butts
ext. 122
News Editor: Deborah McAdams
ext. 177
Technology Editor: Bob Kovacs
ext. 150
Assistant Editor: Kelly Brooks
ext. 136

News Correspondents: Frank Beacham, Art Daudelin, Claudia Kienzie, William T. Hayes, Naina Narayana Chernoff, John Merli, Mary Gruszka, Craig Johnston and Susan Ashworth.

Production Director: Annette Linn
ext. 125

Publication Coordinator: Carolina Schierholz
ext. 106

Ad Traffic Manager: Kathy Jackson
ext. 134

Classifieds/Product Showcase Coordinator: Milagros Castañeda
ext. 109

Ad Coordinator: Caroline Freeland
ext. 153

Circulation Manager: Kwentin Keenan
ext. 108

President/CEO: Stevan B. Dana
ext. 110

Vice President/Group Publisher: Carmel King
ext. 157

COO/Edit. Dir.: Marlene Lane
ext. 128

Chief Financial Officer: Chuck Inderrieden
ext. 165

TV Technology (ISSN: 0887-1701) is published semi-monthly by IMAS Publishing (USA) Inc. 5827 Columbia Pike, Third Floor, Falls Church, VA 22041. Phone: 703-998-7600. FAX: 703-998-2956. The international edition is published monthly along with the month's second domestic edition. Periodicals postage paid at Falls Church, VA 22046 and additional mailing offices. POSTMASTER: Send address changes to TV Technology, P.O. Box 1214, Falls Church, VA 22041. Copyright 2004 by IMAS Publishing (USA) Inc. All rights reserved. For reprints contact the author and TV Technology.

For address changes, send your current and new address to TV Technology a month in advance at the above address. Unsolicited manuscripts are welcome for review; send to the attention of the appropriate editor. REPRINTS: Reprints of all articles in this issue are available. Call or write Joanne Munroe, P.O. Box 1214, Falls Church, VA 22041. (703) 998-7600 ext. 152 Fax: (703) 998-7409. Member, BPA International.



FROM THE EDITOR

A Wild and Wonderful Show



Comments overheard on the show floor at NAB2004:

"We did more business in the first two days of the show than in all four days last year."

"People really seem to be ready to buy HD gear."

"You want HOW much for that bottled water?"

Comments *not* overheard on the show floor:

"The crowds are down but the quality of the attendees is better."

"HDV is a fad, it will never succeed."

"Hmmm... SU3039 is here so there's SU3040, right next to it."

In recent years, the word "cautious optimism" has been bandied about a lot at NAB, as if nobody was quite sure whether business was picking up; and nobody wanted to admit that business was just plain bad.

But this year the optimism was real, and people seemed to want to finally get down to business. And there's plenty to be optimistic about.

The promise of IT was everywhere

on the show floor. Competing tapeless formats introduced by Sony and Panasonic last year are deliverable this year and, while there's still some trepidation about committing to one or the other, stations are seriously looking at these new IT-based technologies as a way to improve efficiencies.

HDV was another bright star on the horizon, with major vendors adding new editing and acquisition gear to the format family. It will be interesting to see if it will positively affect the burgeoning HD news market.

Another enduring image of the show was the emergence of the laptop as an important piece of gear in the broadcast industry. Everything from integrating Apple's Final Cut Pro HD with DVCPRO and ingesting and editing material from Panasonic's P2 and Sony's optical disk format, increasingly powerful FireWire-enabled laptops are becoming a mainstay in the production environment.

By the time you read this, your feet will have recovered and you've probably even had time to sort out all those

business cards you gathered at the show. But how could you have possibly seen all there was to see at NAB? That's why we're here. We've gathered all the news and gear information that made headlines at the show (and then some). Take your time to check all the news in the following pages; we'll be following it up with even more product news in early June. Enjoy!

Several months ago, TV Technology conducted its first webinar on the introduction of IT-based technology in the broadcast plant. Response was so overwhelming that we're following it up with another webinar session on IT in broadcast on June 30 at noon, EDT. The event is free and easy to access; visit <http://www.tvtechnology.com/webinar2.com>.

Tom Butts
Editor

tbutts@imaspub.com

LETTERS

Send to Editor, TV Technology at e-mail tvtech@imaspub.com

It's Still Indecent

Dear Editor:

Regarding Frank Beacham's "The Death of Live Television" (April 21), Janet Jackson's planned and staged stripping off of her top showing a pasty on her nipple with children watching during the Super Bowl is and was an indecent act.

It was indecent not because her partially bare breast was shown, but under the context of the song being sung and the inappropriate actions of Justin Timberlake toward a woman in public during family viewing hours.

Janet Jackson's pasty bare breast is not the type of programming I wanted my 11 year old grandson to watch during half-time.

Please don't think for a moment I want to trample the First Amendment. If Ms. Jackson would have committed her planned act of indecency on HBO, "Saturday Night Live" or "Howard Stern" late at night, when children are supposed to be in bed, neither I nor the other 200,000 enraged parents in the USA would give a flip. But there must be a point of decency and civility in this world for our children or anarchy will reign and that is also not acceptable.

CBS should have had a time delay on all of the "live" programming, as was required decades ago on all "live" programming (how quickly we forget) to protect the viewers and listeners from these types of obscenities during family viewing times.

Keith Houser
Dallas

Milk the Cow

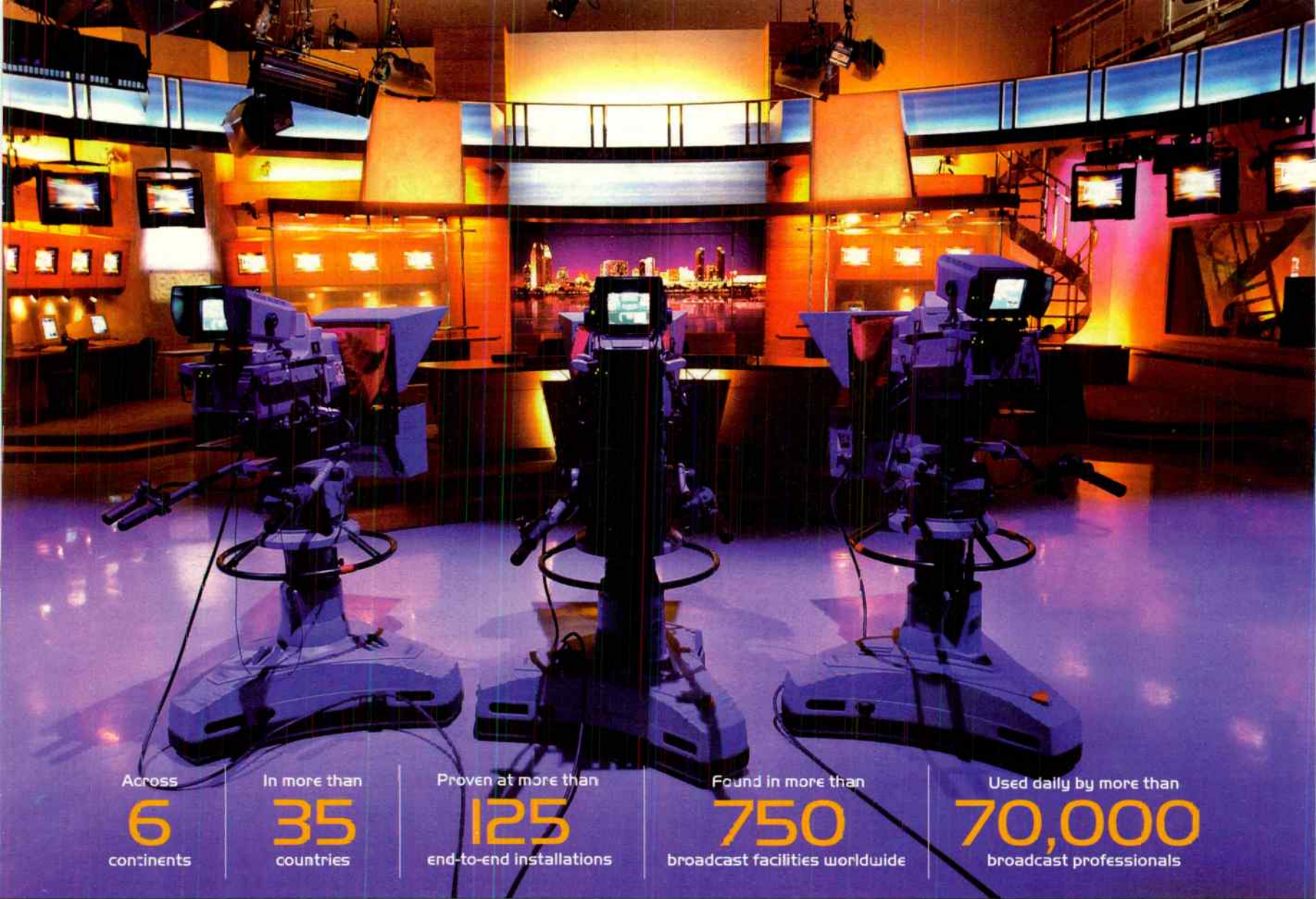
Dear Editor:

I totally agree with Frank Beacham's assessment of the local TV scene ("A 'What-if' Proposition for Local Broadcast Stations, March 26, 2004). TV was far more adventurous in the 1950s when the technology was very creaky. Given the fact that the elephant in the bedroom is the high cost of syndicated programming, consolidating operations and other heroic engineering feats is barely spit in the ocean.

Metro market stations rarely took on the task of providing coverage via translators and ceded the carriage job to cable. PBS stations were usually the only exception. Aside from providing yesterday's headlines to the illiterate, stations can't claim to do much in the way of local programming. The one exception is when they carry and stay with a breaking story; that's where they shine. I'm still waiting for a news director to tear up the news, sports, weather mantra that was laid down in 1955.

Before I retired, I worked on a number of ventures with cable companies and got to know them pretty well. Loss of must-carry would reduce a TV station to salvage value. The game plan of GMs is pretty much what it's been from the beginning: "Milk the cow." if it exists, I'm not aware of a Plan B.

Roy Trumbull
California State University
Hayward, Calif.



Across
6
continents

In more than
35
countries

Proven at more than
125
end-to-end installations

Found in more than
750
broadcast facilities worldwide

Used daily by more than
70,000
broadcast professionals

The numbers are in.

In an industry where numbers mean everything, Avid has delivered more all-digital, end-to-end news production systems than all of its competitors combined. Avid helps broadcasters improve the number that matters most — the bottom line.

Networks. Affiliates. Cable. Large, medium, and small markets. Around the world, more and more broadcasters are turning to Avid for a competitive advantage through integrated media asset management, editing, storage, and newsroom solutions.

- Designed to deliver true, real-time collaboration through seamless connectivity
- Integrated through an open, high-performance media network architecture
- Trusted by the people who make news happen
- Available today, engineered for tomorrow
- Find out more at www.avid.com/broadcast

Custom set design by
BROADCAST DESIGN INTERNATIONAL, INC.
www.broadcastdesign.com

make manage move | media™ **Avid**

©2004 Avid Technology, Inc. All rights reserved. Product features, specifications, system requirements, and availability are subject to change without notice. Avid and make manage move | media are either registered trademarks or trademarks of Avid Technology, Inc. in the United States and/or other countries. All other trademarks contained herein are the property of their respective owners.

InfoComm 2004 Hits Atlanta June 5-11

Record number of exhibitors sign up for this year's show

by Claudia Kienzle

ATLANTA

As communication becomes more visually driven, the audio-visual technology exhibited at InfoComm is increasingly vital to a wide range of applications, including marketing, education, retail promotions, theme park attractions, digital cinema, and worship.

To communicate information more effectively to groups, more media professionals are turning to the latest in display, projection, video conferencing, and streaming media systems, and striving to understand how to use cameras, lighting, sound, and IP networks to better advantage.

"Creating powerful visual presentations is not only an exciting and dynamic business; it's a burgeoning market. And InfoComm is growing right along with it," said Dr. Randal A. Lemke, executive director of the International Communications Industries Association, Inc. (ICIA), in Fairfax, Va., which founded and hosts this high-profile annual event.

InfoComm 2004 will be held at the Georgia World Congress Center, in Atlanta, Ga., with the conference scheduled for June 5-11, and the

exhibition June 9-11.

Attesting to the success and impact of InfoComm, Dr. Lemke said, "Last year, over 22,000 people visited InfoComm from over 50 countries. We had 561 exhibits, which broke a record. And this year, we'll have 630 exhibitors, with the show floor completely sold out. Of that number, 160 exhibitors are new to the show. And of all the trade shows in the U.S., InfoComm is rated in the 'top 75.'"

YEAR TO LEARN

InfoComm 2004 will feature 300 seminars on a range of topics. For those interested in digital cinema and HDTV, there's an all-day event set for June 8 called "Beyond the Cineplex: A Forum on Digital Cinema's Impact on Pro AV."

Among the featured experts offering market analysis will be Randall Dark, founder of HD Vision Studios who will present "High Definition in Business;" Loren Nielsen, founder of Entertainment Technology Consultants talking about "3D in Theme Parks;" and Matt Peterson, president of Scenic Wonders Inc., who will present "Exclusive Plan-to-Purchase Survey Results."

The Lighting and Staging Pavilion,



InfoComm 2004 will feature 630 exhibitors, 160 of them new to the show.

new to this year's show, will feature lighting design for staged corporate events, corporate video productions, and Webcasting. For those especially interested in using the Internet to distribute video, InfoComm 2004 will offer the Streaming Media Pavilion featuring products and services for Webcasting, streaming HD or DVD quality video and distributing marketing presentations via the Internet.

Many vendors will conduct seminars as well as exhibiting products. For instance, Extron Electronics will present "Understanding Video

Bandwidth," and Sonic Foundry will tackle "Designing Next Generation Presentation Facilities," both on June 9 at 10:30 a.m.

Tandberg will offer several seminars on networking and streaming media; Samsung will discuss "Advanced Display Technologies" (June 10 at 8 a.m.); and Texas Instruments is offering a "DLP Technology Overview" (June 10 at 10:30 a.m.).

While many vendors will be speaking about the convergence between IT and AV, the InfoComm show itself is a testament to this important trend. ■

InfoComm 2004: Thousands of Hot Products on Hand

"Of the \$50 billion audio-visual communications services and products business worldwide, \$20 billion is spent here in the U.S., with the remainder split between Europe and Asia," said Dr. Randal Lemke, executive director of the ICIA, which hosts the event. "Every year, many vendors plan their new product introductions around InfoComm."

One major vendor introducing a new marketing strategy is Thomson Broadcast and Media Solutions. Through its new "Digital Affordability Initiative," Thomson is offering affordable high-end broadcast production.

"We're extending this same high-quality production technology that has been enhancing the broadcast experience into three adjacent markets—presentations; distance learning and telecommunications; and broadcast education," said Scott Murray, director of market development for Thomson in Nevada City, Calif.

At Booth 533, Thomson will provide an overview of the solutions targeting these markets. On display will be the KayakDD-1 production switcher and the KayakDD-2 2 M/E digital video production switcher and Kayak HD production switcher.

Also on display, the M-Series iVDR, (Intelligent Video Disk Recorder), with simultaneous record and payout.

Following the acquisition of the video division of Parkervision (announced in February), Thomson will also be showing two Parkervision products—

the CameraMan robotic camera system and WebSTATION Internet media streaming solution, both of which will now be offered under the Grass Valley brand.

"For years, we have used this technology to produce our own high-impact presentations to show at events like NAB and IBC," Murray said. "Now, customers in the corporate, industrial, education, and government markets will have affordable access to these same capabilities for their presentations."

Christie Digital Systems Inc. will unveil its new Christie Roadie 25K projector. Christie's announcement marks the launch of their latest line of DLP-based, 2K-resolution, high brightness digital, networkable projectors.

Utilizing 3-chip DLP technology, the Christie Roadie 25K features 2K-resolution, with a 1500:1 contrast ratio, and 25,000 ANSI lumens.

Panasonic Broadcast & Television Systems will show three projectors, including the PT-DW7000U, 3-chip DLP projector featuring high-contrast, widescreen HD resolution for large

venues. Equipped with Texas Instruments' DLP chips and optical technologies, the PT-DW7000U produces a display with a contrast ratio of 3000:1.

Panasonic will also show the PT-LB10 projector family, including the wireless, 2000-lumens PT-LB10NTU; the 2000 lumens PT-LB10U; and the 1600 lumens PT-LB10VU—all of which offer XGA resolution and a high brightness and contrast ratio of 500:1.

Also on display at Panasonic's booth is the PT-D5500U and PT-D5500UL one-chip mid-to-large venue DLP projectors, with a contrast ratio of 1000:1 and images in 1024x768 XGA resolution.

Lastly, in the InfoComm 2004 "Display Gallery," a free exhibit in Hall A, people will be able to experience the impact and quality of a variety of display screens, including Plasma's, LCDs, and HDTVs, paired with different projectors; enhanced by Surround Sound—targeting such applications as Digital Cinema, multimedia-enabled boardrooms, college classrooms, museums, churches, retail, and even home theater. ■



Panasonic will feature its PT-LB10 series projectors at the show.



Aren't all Triax Camera Connectors the same?

No. ADC's are the most compatible and flexible.

ADC's New ProAx™ Triaxial Camera Connector is loaded with patented features that ensure the greatest performance, flexibility and compatibility with other vendors' connectors.

- MIL-Std 202 tested and qualified
- Gender reversible
- Field repairable center conductors
- Quickly reverse between US and four global formats

ADC's broad range of copper and fiber audio, video and data products are designed to deliver the highest performance and withstand the rigors of real world use. With ADC you'll get...

- Noticeably better quality & performance
- Pre/Post-sale engineering and support
- Wide selection of cable sizes, tools & accessories
- Competitive pricing and longest product warranty

PERFORMANCE



100% US made precision components.
Call today for fast delivery!



For a free copy of ADC's 12th edition broadcast product catalog, call 1.800.366.3891 ext. 20000. Or visit adc.com/broadcast.

DVR's Impact, Formats to Grow

But NAB panelists differ on route

by Gary Arlen
Special to TV Technology

Neither the panelists at several NAB convention sessions nor exhibitors trying to sell set-top storage devices could agree on whether to call the products "DVRs" or "PVRs" (as in Digital Video Recorders or Personal Video Recorders) or simply "Media Centers."

Nor would the experts concur about DVRs' affect on broadcasting, which so far has greeted TiVo and its disruptive brethren with pained complaints about "ad-skipping" and video-on-demand competition.

Nonetheless, one of the speakers on the ambitiously titled session "2004: Year of the PVR" contrarily predicted

way for more consumers to experiment with the new DVR equipment that will burst into the marketplace—at more affordable prices—during the coming holiday season, Morgan adds.

DIFFERING APPROACHES

Morgan's DiMA (Digital Media and Advertising) Group has been working with advertisers, networks and equipment makers to develop common formats so that "telescoped" and "banked" commercials stored on DVRs, can be accessed on any of the devices coming to market.

Other panelists during the DVR session agreed that technical consistency is vital, but their presentations underscored the differing directions they are taking.

agree on some terms or technologies, they all acknowledged the inevitability of DVRs on viewing patterns.

"Some people in the value chain still have their heads in the sand," Hume said—acknowledging that he means broadcasters who continue to fret and fight about the DVR juggernaut.

DVR development worked its way into an array of other NAB venues, including an invitation-only half-day session on Wednesday, April 21, run by the DiMA Group. The "Interactive Digital Advertising" ("IDiA") seminar

tent. Canepa acknowledged that tools such as DVRs shift the power to viewers, and he urged media companies to maintain their role—or find new roles—in the evolving process.

Earlier in the week, at a session on "Profitable Partnerships Broadcast, Cable and Telco," NBC Vice President Glenn Reitmeier voiced similar advice, urging that "broadcasters need to think like start-ups," avoiding an "us-versus-them attitude" and looking for opportunities through new devices such as DVRs.

"Some people in the [DVR] value chain still have their heads in the sand."

—Adam Hume, BBC Futurologist

that the "tipping point" for DVR implementation will come at "4:36 p.m. eastern daylight time on May 30, 2005—give or take one hour."

Tom Morgan, a principal of the DiMA Group LLC, conceded that his time frame was developed with "tongue planted firmly in cheek."

"The date is not that important," Morgan confessed. "The critical issue is the confluence of factors within a year or so" that will lead to the DVR boom. He offered five reasons to support the DVR blossom date during mid-2005.

"Ten percent of U.S. homes will have a DVR by then," Morgan said, up from about four percent today. "Most will be provided by cable or satellite companies."

Morgan expects "100 percent of digital cable households will have VOD service" by next spring, which will tie into DVR usage. He also expects that Nielsen "will start measuring for viewership via DVRs in its overnights" and that "DirecTV will be fully driven by News Corp.," which has a very aggressive DVR agenda, as Morgan pointed out.

Those four reasons alone will spur advertisers and media companies to accelerate their DVR strategies.

Morgan's fifth factor is more ambiguous. He contends that in the period after the 2004 Olympics and election year ad frenzy, media companies will struggle to find programs and direction. That situation will pave the

way for more consumers to experiment with the new DVR equipment that will burst into the marketplace—at more affordable prices—during the coming holiday season, Morgan adds.

For example, Simon Parnall, director of advanced technologies for the TV Platforms Division of NDS Ltd., spoke on behalf of the TV Anytime Forum. Parnall described the latest update of the ETSI-I technical specification, published by the European Telecommunications Standards Institute. The Phase One specification, developed by the TV Anytime Forum, covers details about how to search, select and "rightfully use" content on personal storage systems, such as DVRs.

TV Anytime Forum, which had a sizeable suite in the Las Vegas Convention Center to showcase its technical standards and formats and recruit allies, is focusing on meta-tagging standards for advertising, Parnall said. The goal is to add features to customized commercials that will make them more valuable to advertisers when customers store and retrieve messages from their DVRs.

"What you don't want to do is start tagging shows and ads with a variety of proprietary solutions," Morgan said.

Indeed, the concept of "interoperability" permeated the DVR session. Adam Hume a BBC "futurologist" (who also chairs the TV Anytime Forum Working Group on Business Models) and Ted Malone, a TiVo vice president, joined the chorus of panelists extolling the value of interoperable technology amidst the competitive rush into the nascent DVR market.

Although the speakers could not



Scientific-Atlanta's DVR-equipped box

sought to help advertising planners prepare for the uptake in DVR usage.

Prof. Duane Varan, director of the Interactive Television Research Institute, based at Murdoch University near Perth, Australia, shared results of DVR and related interactive advertising studies that he has conducted in Europe, Asia and the U.S.

AMPLIFICATION EFFECT

Among his findings was the impact of interactive commercials. A single exposure to an interactive commercial generates the same awareness as three exposures to conventional passive ads, Varan said. But he also cautioned about an "amplification effect" in which viewers have "raised expectations" for their experiences with interactive commercials, according to Varan's research.

Elsewhere on NAB's official program at a session on "On-Demand Computing for Entertainment and Broadcasting," IBM Vice President Steve Canepa characterized the emerging digital landscape as one that empowers the media value chain to "create, manage and distribute" con-

As the debate about terminology, technology and timing played out in NAB conference sessions, a number of DVR developers showed their latest systems on the show floor or in private suites. NDS Ltd., the News Corp.-owned technology company, hinted quietly at new implementations of its XTV ("eXtended Television") DVR products, possibly for use on DirecTV, which is now a News Corp. operating subsidiary.

Avirex Inc., a Silicon Valley software firm, demonstrated personalized interfaces and navigation tools for its advanced DVR systems, seeking partnerships with media and technology companies.

Companies such as SeaChange International and Scientific-Atlanta showcased their DVR and VOD integration solutions and Microsoft's booth featured the company's multiple approaches to DVR and VOD storage and access.

The steady onslaught of DVRs was popping up throughout NAB's venues—despite the lack of technical or financial agreements, or possibly because of such disarray. ■

HDTV

Time for an update...



FUJINON
HD
DIGITAL

NO ONE DELIVERS MORE CHOICES THAN FUJINON!

- Digital control system
- Focus breathing compensation
- *Advanced backfocus
- *Focus fader
- "FIND" diagnostics system
- New EBC coatings
- One shot preset
- RS-485 compatible



HA22x7.2ESM



HA26x6.7ESM

*HA26x only

FUJINON

Broadcast and Communications Products Division

FUJINON INC. 10 High Point Dr., Wayne, NJ 07470-7434 Phone: (973) 633-5600, FAX: (973) 633-5216
FUJII PHOTO OPTICAL CO., LTD. 1-324 Uetake, Kita-Ku, Saitama City, Saitama 331-9624 Japan Phone: 81-48-668-2152

www.fujinon.com



HERE AND NOW!

FOR BROADCAST, PRODUCTION,
AND CORPORATE APPLICATIONS

BEXEL, CNN, Communications Four, KPRC /
Post Newsweek, Shybert Productions, State
of Mind Productions, Watering Life Production
& Design, WBNS / Dispatch, Wexler Video,
WFLD-TV Chicago, and WLS-TV ABC Chicago.

*And Sony is proud to announce that NBC will
be piloting XDCAM cameras during their
broadcast of the Olympic Games in Athens
this summer!*

TO FIND AN XDCAM REPRESENTATIVE IN YOUR AREA,

SONY®

SUPPORTED BY:

Avid®



©2004 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Features and specifications are subject to change without notice. Sony and XDCAM are trademarks of Sony. All other trademarks are the property of their respective owners.

VISIT OUR WEBSITE AT WWW.SONY.COM/XDCAM

Global DTV Transition Discussed

Different strokes for different countries

by Andrew Morris

Both successful and failed launches of digital terrestrial television were discussed at an NAB Broadcast Engineering Conference session where the NAB's Graham Jones told attendees, "We can learn from the mistakes and successes of these rollouts."

Chaired by Jones, the session, titled "Digital Television Transition Worldwide," focused on digital terrestrial television rollouts in Japan, the United Kingdom and Spain.

Aldo Cugnini, AGC Systems, offered an overview of the digital transition in many countries throughout the world. In addition to discussing the United Kingdom and Spain, Cugnini reported on progress in China, Germany, the Netherlands, Sweden, Canada, Mexico, Argentina, Chile, Brazil and Australia.

"Lessons learned," Cugnini said, "are that free services are most likely to succeed. Pay services must be able to compete with other pay services. It is important to emphasize the digital service and not the transition itself."

Adrian Corcoran of BBC Technology discussed the failure of the pay TV British digital broadcast terrestrial rollout. Ultimately renamed iTV Digital, this venture failed because "consumers were confused and didn't understand the difference between digital reception from cable, satellite and terrestrial broadcast."

Corcoran added, "There were reception problems and the business model was flawed. Consumers perceived this service as poor value for the money."

Resurrected as Freeview, this now-free service seems to be well on its way to success. Freeview changed the modulation scheme (from 64 QAM to 16 QAM) in order to provide better coverage with a more robust signal at the expense of transmitting fewer channels. It is now second in size only to satellite as a digital platform in the United Kingdom.

Hiroshi Asami of Japan's Post and Telecommunications office discussed the rollout of digital terrestrial television in Japan.

VALUE-ADDED

Asami explained that satellite is currently the dominant technology for the transmission of digital programming. In order to foster digital terrestrial television (DTTV), the government has "assigned 6 MHz channels for incumbent broadcasters," Asami said.

"There will be a simulcast of analog

programming but with more values," Alex Mestre Molins of Retevisi-n in Barcelona explained the failure of

failed service was a pay TV venture. "It could not compete with satellite," Mestre Molins said.

Mestre Molins offered a recipe for success for a Spanish digital terrestrial television service.

"It is important to secure a critical mass at the European level," Mestre Molins said. "Public broadcasters should be assigned as DTTV leaders and we should reinvest the spectrum to provide new interactive, high definition and portable, mobile services."

The session offered lessons for broadcasters in any country on the issues that must be faced in order to successfully rollout digital terrestrial broadcast. Lessons learned include the need to provide consumers with added value and to clearly communicate the nature and the value of DTTV. ■

©2004, NAB

"Lessons learned are that free services are most likely to succeed. Pay services must be able to compete with other pay services."

—Aldo Cugnini, AGC Systems

come in the form of HDTV, multicasting and datacasting. Similarly, DTTV will offer different and added value as compared to digital satellite programming."

Spain's initial digital terrestrial broadcast initiative and the projected success of a new digital terrestrial television service.

Similar to the U.K., Spain's initial

Glitter

CONTINUED FROM PAGE 1

chairman may proclaim, the attention given codecs at this year's NAB show is a definitive milepost in the DTV transition. First of all, when folks are blithely tossing off the term "codec" and uttering nary a "wave," certainly the top of the transition bell curve is near. Second, by the very nature of what codecs do, it suggests that demand for hi-def material is expected to take off.

HD EXPECTATIONS

Apple signaled its expectation by adding Panasonic's HD codec to its Final Cut Pro HD editing software. Avid also weighed in with DNxHD, a variable codec designed for the editing process that reduces the storage capacity necessary for HD material.

At least two companies, Modulus Video and Envivio showed gear with AVC, the next-generation MPEG codec that's said to be twice as efficient as MPEG-2. QuVis brought its ASIC Digital Mastering Codec, designed to support ATSC-quality HD video at 5-10 Mbps. Broadcast International heralded CodecSys, a video distribution management system that instantly switches to the most efficient codec, reducing HD transfer data rates to as low as 3 Mbps.

Anticipation of a hotter market for hi-def gear was also apparent in cameras, where lipstick cams, long-range lenses, and super slow-motion models were all introduced in HD versions.

Elsewhere, there were HD radio transmitters, HD mobile encoders, HD delay gear and of course, the KUSA-TV HD chopper at the MRC booth.

For all the indications that the peak of the digital transition is near, there are as many indications that analog technology is not going gently into that good night. Chyron introduced an upconverter to make HD graphics out of SD files, which are still easier and quicker to manipulate. Broadcast Pix added analog capability into its self-contained production systems. Also, many switcher dealers on the floor showed units with interchangeable HD and SD matrix boards, allowing customers to buy a chassis that can be upgraded as the need arises. The lingering presence of analog was also quite pronounced among the companies making transmitters, which still exclusively provide signals to anywhere from 20 million to 80 million television sets.

A GOOD TIME HAD

One observation made by many on the show floor was that attendance, particularly by the international contingent, was up over last year, when the show coincided with the launch of the war in Iraq and the SARS outbreak. This year, with world events being comparatively orderly, attendance increased by nearly 10 percent over last year to around 98,000.

Feedback from exhibitors was predominately positive. Michael Wellesley-Wesley, president and CEO of Chyron in Melville, N.Y.

said it was the best show for his company in several years. Pete Challenger, vice president of Quartz Electronics in Nevada City, Calif. came away with a stash of product-development information.

"The show went really well for us with strong positive reactions to the new products," Challenger said. "We got more ideas for signal processing technology modules than we can handle right now. Everyone had something they'd like and many were good ideas."

Pesa also generated its share of suggestions with its photonic switcher demonstration.

"I'm hearing more and more about requirements for this product, and the overall direction in the industry," said Bob McAlpine, senior vice president, sales & marketing Pesa, also in Melville.

Joe Turbolski, director of marketing for Thales in Southwick, Mass., reported that his company "had all the right prospects visit our booth."

As anyone who goes to the NAB show knows, it involves far more than spending a few days in the Las Vegas Convention Center, dreaming of a foot massage. In a way, the fat lady never sings. The event is a year-round affair that generates sales, new technology and new demands to the point that vendors can never rest, as the president of Panasonic Broadcast TV Systems in Secaucus, N.J., John Baisley can attest.

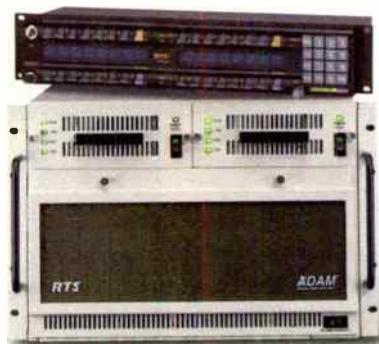
"From my perspective, the show went very well," Baisley said. "But, ultimately it is the customer who will decide how successful the show was for Panasonic." ■

In this room

there are no excuses, no second chances. If you can't perform, get out.



RTS™ TW
Two-Wire Intercom System



RTS™
Digital Matrix Intercom System



RadioCom™
Wireless Intercom System

We've been in control rooms for over 30 years. We know that when all else fails, your intercom can't. It must be reliable, intuitive to use, and in these days of stretched budgets, must have a lifetime measured in decades. RTS TW intercom systems have the widest variety of panels and the newest technology. Yet today's model will "plug and play" with a RTS system circa 1971. RTS ADAM DSP-based matrix can be used with the newest VOIP technologies, fiber optics and coax interconnects, and still work with the keypanels you bought in 1984. Radiocom wireless intercoms have the exclusive Clearscan™ frequency agility to find you an interference-free channel within seconds after someone else's RF signal starts interfering with yours.

Reliability. Backward compatibility. Low cost of ownership.
RTS and RadioCom intercom systems don't need excuses. **They work.**

Call Toll-Free 877-863-4169 today or visit our web site www.rtssystems.com

the industry standard for over 30 years

Thales Broadens Into Multimedia

Company rolls out new products in U.S. market

by John Merli

Thales may have made an international name for itself by building transmitters, but the digital era is necessitating a much-welcomed expansion into many other forms of product—most of them notably targeting the transport of digital content over a variety of platforms, ranging from traditional analog to broadband Internet IP.

"We are very much a company in transition," said Thales chairman and CEO Jerry Chase at NAB2004. "But transmitters still remain our core business." Chase said that Thales today does business across six companies headquartered in five nations, and currently has product in some 170 countries. Both product and 62,000 worldwide employees—generated more than \$10 billion in 2003.

NEW TO THE U.S.

Thales announced several new products being introduced to the U.S. market and on display at its NAB2004 booth,

including SmartVision TV—which Chase said already has a track record in France to successfully manage a complete system of transporting live, multimedia or on-demand content over high-speed broad-



Thales Chairman and CEO Jerry Chase

band networks. Chase said SmartVision TV allows end-users the various options of VOD (basic free and subscription), Personal Video Recording, e-commerce and Web services including e-mail.

Chase is high on his company's new Crystal Logo Inserter, which was also introduced in Las Vegas. This DTV tool uses MPEG-2 compressed video, which, among others things, allows

"We are very much a company in transition, but transmitters still remain our core business."

— Jerry Chase, Thales Chairman and CEO

as preserving the integrity of the original video signals. Designed to make logo insertions simpler and more cost-effective, The Thales product works across both multi-logo (multi channel) platforms and HD, Chase said.

For transmitters, Thales estimated that about 25 to 30 percent of its sales remain in the analog category. Also, a variety of factors, including global economics, "has produced a recent resurgence in analog transmitter purchases," Chase said.

Among its transmitter product introductions was the MSDC-IOT, a part of the firm's DCX Paragon Product line, which is now available in the United States in digital and analog formats. The MSDC-IOT supports oil and water cooling.

NAB shows, of course, are not without their politics—or perhaps more to the point, political correctness. Each member of the media attending the French firm's briefing received a bottle of wine—a white chardonnay from California. ■ ©2004, NAB

I·D·
15 Years of Excellence

**Thinking Blue?
Join the Club!**

Here's what some of our Club Members say ...

"We outfitted six of our news cameras with the ENDURA System and the photojournalists love them. They can't believe the amount of runtime they get before needing a recharge Needless to say the overall light weight is a plus as well. The only gripe I've heard is the crews using the old battery system want to know when they are getting ENDURA's".

**Mark Schaefer, Director of Engineering
WFLA-TV**

"We are pleased with the power to weight ratio and reliable performance of the IDX Lithium Ion batteries. The quality of their products and exceptional service and support we get from IDX, gives us the best return on our investment".

**Peter Larson, Vice President
Broadcast Sports Technology**

"While compact and amazingly lightweight, the IDX ENDURA System has proved itself completely durable with tremendous holding power. I have taken IDX ENDURA batteries into extremely difficult environments for commercials, features, and documentaries...the batteries have performed flawlessly."

**Matthew J. Siegel
Director of Photography**



**Endura
SYSTEM**

**Joining the World
Lithium Ion
Technology**

IDX System Technology, Inc.
1602 Lockness Place, Torrance, CA 90501
Phone: (310) 891-2800 Fax: (310) 891-3600
Email: idx_usa@idx.tv WWW: www.idx.tv

Thales Angenieux Outlines Advances

The past 12 months have been a particularly productive period for Thales Angenieux with the opening of a new optical factory in France and the introduction of a new line of box lenses.

The company's booth at NAB was enhanced by the debut of a new 70 HD OB/Sports lens that expands its new OB/Sports family of lenses to six. The Digital 70 delivers a focal range of 9.5 to 665mm (22 to 1330 with a 2X extender) and an aperture of f/2.2.

The company also introduced a new 26X HD/High Resolution (HR) lens for the ENG/EFP market. The 26X 7.8A1F Tele Super Zoom lens provides an extended focal range to provide news and sports field production crews with extended coverage capabilities.

Other telephoto lenses in the product line cover 10X, 12X, 15X, 40X focal ranges, which can all be controlled via RS232 and feature selectable zoom/focus sensitivity adjustments along with a unique anti-breathing feature that maintains field of view while focusing. The new digital ENG/EFP lenses can interface with any controller for remote operation,

according to Chris Beauparlant, U.S. sales manager for Thales Angenieux.

"They are ideally suited for use with camera robotics systems, jibs, weather-proof systems and in fixed camera locations," Beauparlant said. "As camera robotics systems and the trend towards remote broadcasting continues to gain popularity, we believe this further increases the value of Thales Angenieux ENG and EFP lenses."

The company also featured its Optimo 35mm and HD lenses including a new 17-80mm T2.2 Wide Angle Zoom version for 35mm.

The company's new \$9.1 million factory in Saint Héand, France is one of the most advanced optical plants in the world, said Denis Levallant, general manager of Thales Angenieux.

"This new factory is not only a way to be more competitive on the broadcast market in terms of product and price, it is also the place where we build our future," he said.

Among the new processes Thales Angenieux has developed is a "Sol Gel" process for high-performance optical coating, which allows the lens-maker to cost efficiently coat big dimensions of glass, Le vaillant said. ■



Thales Angenieux's new 26X HD lens targets ENG/EFP



Leading the way into a digital future.

BCE Digital Video Services is one of North America's leading providers of high-speed, top quality, customized solutions to the broadcast, post-production, wireless and DTH industries. Our team of experts delivers a full range of permanent and on-demand digital video transport services, all using first-class technology – DVB/ASI, 8Mbps, 20Mbps, 50Mbps, and 270Mbps. Compressed or uncompressed, your video content can be transmitted without loss of video or sound quality. To experience it for yourself, contact us today.

Call 1 866 223-4872 (in Canada, 1 800 361-8989).
Email info.solutions@bell.ca or visit www.enterprise.bell.ca

Media, Entertainment, Broadcast and Imaging Solutions



Congressmen Debate Broadcast Issues

Pharmaceutical ad spending causing concern

by Leslie Stimson

Several members of the House and Senate touched on everything from the Ferree plan to satellite radio during the "Congressional Breakfast" sponsored by Bank of America Securities at NAB2004.

Turning to the Ferree Plan, the proposal by FCC Media Bureau Chief Ken Ferree to factor cable subscribers into the 85-percent audience reach threshold that triggers the end of analog TV, Sen. Conrad Burns (R-Mont.) of the Senate Communications subcommittee called it "a step backwards. We will continue to put pressure on the FCC."

Rep. Joe Barton (R-Texas), new chair of the House Commerce Committee signaled his position on must-carry by stating that he was not a big fan.

"We haven't decided what we're going to do yet," he said.

The subject of putting limits on pharmaceutical ad spending, which

became a welcome windfall for broadcasters just as the Internet economy was caving in, was also discussed. Rep. Michael Bilirakis (R-Fla.) said the pharmaceutical industry is spending about \$3 billion a year in advertising, but that it was driving up the cost of prescriptions and wreaking havoc for physicians.

"There is no immediate action in the Senate," he said. "It probably won't happen this year."

Switching to radio, Rep. Greg Walden of Oregon, a co-sponsor of HR 4026, the bill to forbid satellite radio from inserting local programming into their terrestrial repeater system, said the measure would help local radio stop losing market share to the satcasters.

Rep. Fred Upton (R-Mich.) said letters written to the satellite radio companies by previous House Commerce Committee Chairman Rep. Billy Tauzin of Louisiana have gone unanswered as far as he knew.

"This legislation puts them on

notice. This is a shot across the bow," Upton said.

Burns called the issue, "the tip of the iceberg." He was optimistic when

the agreement and the commission's intent when it authorized satellite radio.

"Someone's not holding to their

"Right now, the cable and DBS folks don't have to play by the rules that you do. I think that's fair."

—Rep. Joe Barton, chairman, House Commerce Committee

he heard about the agreement between NAB and XM Satellite Radio to codify language in the final FCC rules governing satellite radio repeaters that they not be used for local programming.

Now both XM and Sirius are beam-ing local traffic/weather channels nationwide and NAB opposes the practice, saying it violates the spirit of

word," Burns said.

Barton cautioned broadcasters about the measure, saying he doesn't think it will pass this year.

"Satellite radio is here and it's going to be here. This is something you guys are going to have to work out. Don't expect this bill to just sail through," he said.

DEBATE, PAGE 33

Unlimited conversion

Computer to video

OUR SCAN CONVERTERS FULFILL ALL YOUR NEEDS THROUGH THEIR CONTINUAL EVOLUTION.
Today our program's performance gives you access to the widest spectrum on the market. Try it.

HD SCAN™
STUDIO SCAN XTD825™
STUDIO SCAN XTD825™
SCAN VISION VHXII™
POWER 1024™
VISIO 1024 PCI™

> Computer Input :
PC, Mac, Workstations
800 x 600 up to 1600 x 1280

> Outputs :
Analog HDTV & HDSDI output
Composite Video, YUV, RGB/S,
Y/C, NTSC, PAL, D1-10 bits,
SMPTE standards, ITUR

> With or without Genlock

> High performance
Anti-Flicker Filters

ANALOG WAY®
Think Fast Forward™

From US & Canada:
Analog Way Inc.
New York
Phone: (212) 269 1902
Fax: (212) 269 1943
Email: salesusa@analogway.com

From Europe, Africa,
South America & Middle East:
Analog Way France
Phone: (33) 1 64 47 15 03
Fax: (33) 1 64 47 14 73
Email: saleseuro@analogway.com

From Asian & Asian Pacific:
Analog Way Pte Ltd
Singapore
Phone: (65) 62 925 800
Fax: (65) 62 925 205
Email: salesasia@analogway.com

Leitch Goes Hunting

by Bob Kovacs

Leitch Technology, the Canada-based manufacturer of a broad range of television products, expanded its portfolio with the acquisition of test equipment specialist Videotek.

The deal was completed shortly after being announced at NAB2004. Leitch President and CEO Tim Thorsteinson said Videotek test and measurement products, notably waveform monitors, vectorscopes and rasterized waveform displays, would still be sold under the Videotek name.

Similarities between the companies' product lines drove the deal.

"The Videotek test and measurement product line sells to the same customers as our products and uses the same technology," Thorsteinson said.

Videotek makes a variety of other products, including switchers, color correctors and distribution ampli-

fiers, which will be marketed under the Leitch name in the future. The acquisition price was \$18 million, which leaves money in Leitch's coffers for future acquisitions, Thorsteinson said.

"We will always be looking for complementary acquisitions," he added.

Like many companies in the television equipment industry, Leitch has gone through a down cycle but sees stronger business in 2004. Thorsteinson said that the company had 10 percent sales growth in the first quarter of this year.

NEW HD PRODUCTS

On the product side of Leitch's announcements, the company showed several new HD products.

Leitch expanded its routing switcher line with the release of the Panacea Clean Switch, which is available in sizes from 8x8 to 32x32. The Nexio server line grows this year to include the NX4000MTS MPEG transport stream server, which supports multiple compression formats in both SD and HD resolutions. ■

©2004, NAB



Tim Thorsteinson



Go further.
Expand your coverage and
capture new audiences.



Video Solutions: *Distribute content to new viewers and new markets, opening up new opportunities the world over.*

Delivering content has never been easier. With Intelsat's Video Solutions, you can grow your audience by distributing programming anywhere in the world. Our state-of-the-art network gives you the flexibility and reliability you need to access new markets and new audiences. After all, Intelsat has been creating global content delivery solutions for broadcasters for 40 years. So whether you're distributing world news, cable feeds or DTH programming, Intelsat can help.

Go further. Connect with us at +1-202-944-8545
or email videosolutions@intelsat.com

www.intelsat.com

building on 40 years of leadership



Sony HD Targets Multiple Markets

Company demonstrated HDV prototypes for entry-level systems

by Susan Ashworth

With its eyes more squarely focused on the HD market than perhaps ever before, Sony showed up at NAB2004 to demonstrate how the technology can be used to improve workflow and cut costs for broadcast, production, digital cinema and film.

As a prime example, this year the equipment giant placed a new lower-cost high-definition format in front of NAB attendees.

Dubbed HDV, this entry-level system is a professional HD acquisition and post production system aimed at entry-level producers and videographers. While not announcing shipping dates or anticipated costs, Sony showed a prototype HDV camcorder that can record 1080i high-definition video.

BIG BUZZ

The company also introduced a new entry-level HD camcorder, the HDW-730S, designed for videographers looking to migrate to high definition, a theme echoed across the show floor that seemed to illustrate how HD is finally becoming a high-end option for even the common woman.

Along those same lines, the company also complemented its line of HD acquisition products with a small but money-saving high-definition accessory: an HD triax converter that allows users to choose to connect with triax or

fiber with the HDC-900 Series cameras when on location.

News also swirled around the much-discussed XDCAM line of products. Sony's IT-centric professional disc system solution, included DVCAM camcorders, a mobile deck for editing, an editing recorder and a compact ingest deck. Future solutions may include a dual-layer disc that would double the 23.3 GB space available on current discs.

Avid also announced it would work with Sony to provide support for XDCAM. The collaborative development will enable high-speed importation and native editing of proxy A/V data in Avid nonlinear editing systems. Other new XDCAM products included XDCAM logging software.

Other new products from Sony included the MVS-8000A multifunction production switcher, which delivers many of the same features as its predecessor but in half the rack space and with 25-percent less power consumption.

And while much talk was centered on the new options for HD broadcasting, Sony was cognizant of the role consumers play in the industry's future success.

"It's an exciting time to be part of the industry, but consumers' expectations have changed" when it comes to HD technology, said Tim Baxter, senior vice president of marketing for the Home Entertainment Division.

Baxter discussed some of the 35

new HDTV and HD-ready solutions available as part of Sony's 2004 HDTV lineup.

"They want flat-panel TVs, they want to design the television into the living room ... and women are now playing a more vital role [in consumer electronics purchases]," he said. "This is the year we all have to be screaming the benefits of HD."

As part of its focus on the content

side of the equation, the company has partnered with several broadcasters on HD projects, including CBS for the Super Bowl and NBC for the upcoming 2004 Olympics.

"We want to create HD enthusiasts," Baxter said. "We need them to demand creation in the marketplace. We need them to drive the market the way DVD drove the home theater market five years ago." ■ ©2004, NAB

Scarcella: HD is 'Here and Now'

Sony's new president John Scarcella took over the leadership of the company's Broadcast and Professional Solutions Division in January. Scarcella has a long rich history with Sony, having served in positions in both consumer and professional divisions. He sat down with **TV Technology** editor Tom Butts just prior to NAB to discuss the company's current push to HD and IT.

TV Technology: What are your goals as president of Sony's Broadcast and Business Solutions Division?

Scarcella: We want to get back to the dominant position we had enjoyed for so many years. Even though we've had a commanding position in certain product categories, we want to make more of a statement in the broadcast production world by strengthening certain parts of the production chain.



Sony's John Scarcella

TV Technology: What kind of response are you getting from broadcasters on your NAB theme, "Ride the HD Wave?"

Scarcella: I think broadcasters have come to the realization that HD is here and now and are wondering how Sony is going to play in the HD field. Interestingly enough, I've seen more and more broadcasters at the Consumer Electronics Show in recent years because they're also very interested in what their programming is playing on. At Sony we've done a pretty good job at having an end to end HD strategy both from the consumer monitor side as well as technology that allows you to acquire, produce and edit. Broadcasters are also interested in workflow innovations and that is where our XDCAM comes into play.

TV Technology: How did the sale of

Sony's Systems Integration division last year affect how Sony approaches SI now?

Scarcella: The sale has been very positive for us. In the past it was difficult for SIs to sell and market Sony products when they knew we were competing with them. I think now we will be able to deal much better with key integrators. In fact, we invited them to our pre-NAB training this year and it was very well received. Sales into the SI class of trade are up for us this year.

TV Technology:

What parts are you referring to?

Scarcella: If you look at our lineup, we hadn't done as well in nonlinear editing as we think we should have. And this year, I believe we've reclaimed the throne in the switcher market. I don't know if it was due to marketing or perhaps not recognizing that perhaps the world was going to move as quickly as it did to a nonlinear world.

TV Technology: How have the organizational changes that have taken place at Sony over the last six months affected the company's business?

Scarcella: [In the U.S.] We've consolidated everything in the non-consumer business and which links up very nicely with the organization the company has developed in Japan. At least half the business in the new division covers broadcast and post production.

TV Technology: Does Sony have any plans to introduce a solid state memory card type acquisition format on the professional broadcast market?

Scarcella: I never want to rule anything out completely and we certainly have the expertise but it is not in our plans right now. I just think that XDCAM as a solution for broadcasters will prove to be far better. ■

NEW MEDIA FLEX 16 Cost Effective Groundbreaking Modular Routing Switcher



Introducing...
MediaFlex16, the first in a new line of modular routing switchers. Applications include: Presentation, Education, Residential, Sports Bars, Post Production, Duplication

Features:

- 16x16 Modular Video & Stereo Audio Cards
- NTSC/PAL, Y/C, Hi-Def Component, RGBHV
- Optional 8x8 VGA (DB-15HD Card)
- RS232 Control With SAS (Simple ASCII Strings)
- Volume, Bass, Treble & Balance Controls
- Audio Input Trims
- Accepts Up To 8 GPI Inputs
- 5-Year P&L Warranty

Make The Switch!

KNOX VIDEO TECHNOLOGIES
8547 GROVEMONT CIRCLE
GAITHERSBURG, MD 20877
TEL: 301 840 5805 FAX: 301 840 2946

www.knoxvideo.com

Visit Knox at Infocomm Booth #1046

Innovated by Canon. Customized by you.

e

Enhanced Features
Environmental Design

80



eHDxs
eIFxs

PERSONALIZATION

Canon's e-technology lets you program the digital tools on our portable IFxs and HDxs lenses for a wide range of situations, allowing you pre-set zoom and framing speeds, focus, movement sensitivity, and many more benefits that will enhance your production value.

INSTANT VIEW

Memorized settings of up to nine operator patterns are communicated instantly via an LCD "window into the lens." Data can be transmitted from lens to lens.



For a lens you can call your own,
request our **FREE CD** at
bctv@cusa.canon.com
and learn more about this
exciting technology.

Find out more at canonbroadcast.com

1-800-321-HDTV (Canada: 905-795-2012)

Maximize Your Camera's Performance.

Canon **KNOW HOW®**

Canon and Canon Know How are registered trademarks of Canon Inc. ©2004 Canon USA, Inc.

CEA's Chief Urges Broadcasters to Act

Shapiro calls multicasting a 'get-rich-quick' scheme

by Susan Ashworth

Gary Shapiro issued a few stern words of warning for broadcasters during the Broadcast Engineering Conference (BEC) keynote opening address at NAB2004, suggesting broadcasters make some quick,

reminded broadcasters, that he suggested they heartily endorse 11 years ago when Shapiro gave the guest keynote speech at the 1993 NAB convention. He offered a quick look back at that speech in 1993, touching on the eight suggestions he then made to the industry. Some were a

viously, he said.

To counter broadcasting's newest challenges, Shapiro then offered a new set of plans for 2004.

In addition to urging broadcasters to shift to HDTV quickly, he suggested

Particularly for radio, Shapiro suggested the industry rush to support local HD Radio. "Satellite will continue to grow. Radio broadcasters need to claim their share," he said.

Of radio's digital transition Shapiro

**"We're in the middle of a revolution,
and, as we look back,
we're going to realize HD is a huge
shift, shaping not only
technology but society itself."**

—Gary Shapiro, CEA president and CEO

smart choices as they continue to navigate the tricky waters of the HD rollout.

"We're in the middle of a revolution, and, as we look back, we're going to realize HD is a huge shift, shaping not only technology but society itself," said Shapiro, president and CEO of the Consumer Electronics Association. "Digital is your destiny, but your complacency could make HD your swan song."

DOWN THE HD PATH

Shapiro was referring to the sometimes-sluggish rollout of both HDTV and digital radio, which has allowed satellite and cable television, as well as satellite radio, to encroach on the territory of traditional broadcasting.

HD was a path, he gently

bit off—think of the promised adoption of an AM stereo standard—while others hit the mark, such as a call to establish closed captioning and a suggestion to rally around high-definition television.

Now, however, Shapiro said, "broadcasting is much worse off," pointing to a drop in over-the-air television viewership, the encroaching success of satellite and cable, and competition from the Internet.

For radio, Shapiro warned of ongoing challenges from CD, MP3 and video technologies in cars, as well as the growing success of satellite radio services.

"Today's broadcast media is challenged" in a way they haven't been pre-

viously, he said. "HDTV is driving this transition," he said. "While it's more appropriate for a noncommercial model like PBS, I think consumers want true HDTV."

DRIVING THE TRANSITION

Shapiro also pushed broadcasters to promote over-the-air broadcasting more heartily, focus on HDTV surround sound, and recognize encroaching media competitors such as broadband and wireless.

Shapiro also pushed broadcasters to promote over-the-air broadcasting more heartily, focus on HDTV surround sound, and recognize encroaching media competitors such as broadband and wireless.

television broadcasters be cautious of anything but HD, alluding to multicasting and extra services, which he called "get-rich-quick schemes."

said, "radio has a small window of opportunity to do this. iBiquity has a business model that will work."

If broadcasters remain complacent and ignore HD radio as they did RDS when it was first introduced, he said, "radio will continue to lose market share."

He also pushed the industry to protect consumers' home recording rights and to fight for the First Amendment rights of broadcasters. By not taking these steps, he said, 11 years from now, "this room will be very small and we will become a paid industry. Remove your shackles and stand up for your rights." ■ ©2004, NAB



CEA chief, Gary Shapiro, delivered the opening keynote address at NAB2004.



Are You HDTV Ready?

The viewers at home sure are. Broadcasters now face the daunting challenge of modernizing their broadcasting infrastructure to deliver digital.

One design, consulting and integration firm is leading the way. Venue Services Group's roster of top broadcast engineering professionals are experts in HD integration and infrastructure, delivering everything from the first all-HDTV sports broadcast to the world's first native 720p mobile truck.

When your organization is ready for HDTV modernization, call on the leaders with real HDTV experience since 1998.

RECENT PROJECTS

- HD 4 Mobile Unit (NMT) used for ABC's Monday Night Football
- Fox Sports Net New England control room and studio
- HDTV Retrofit Cabling Infrastructure -- Fenway Park
- Technology Consultant for the NFL

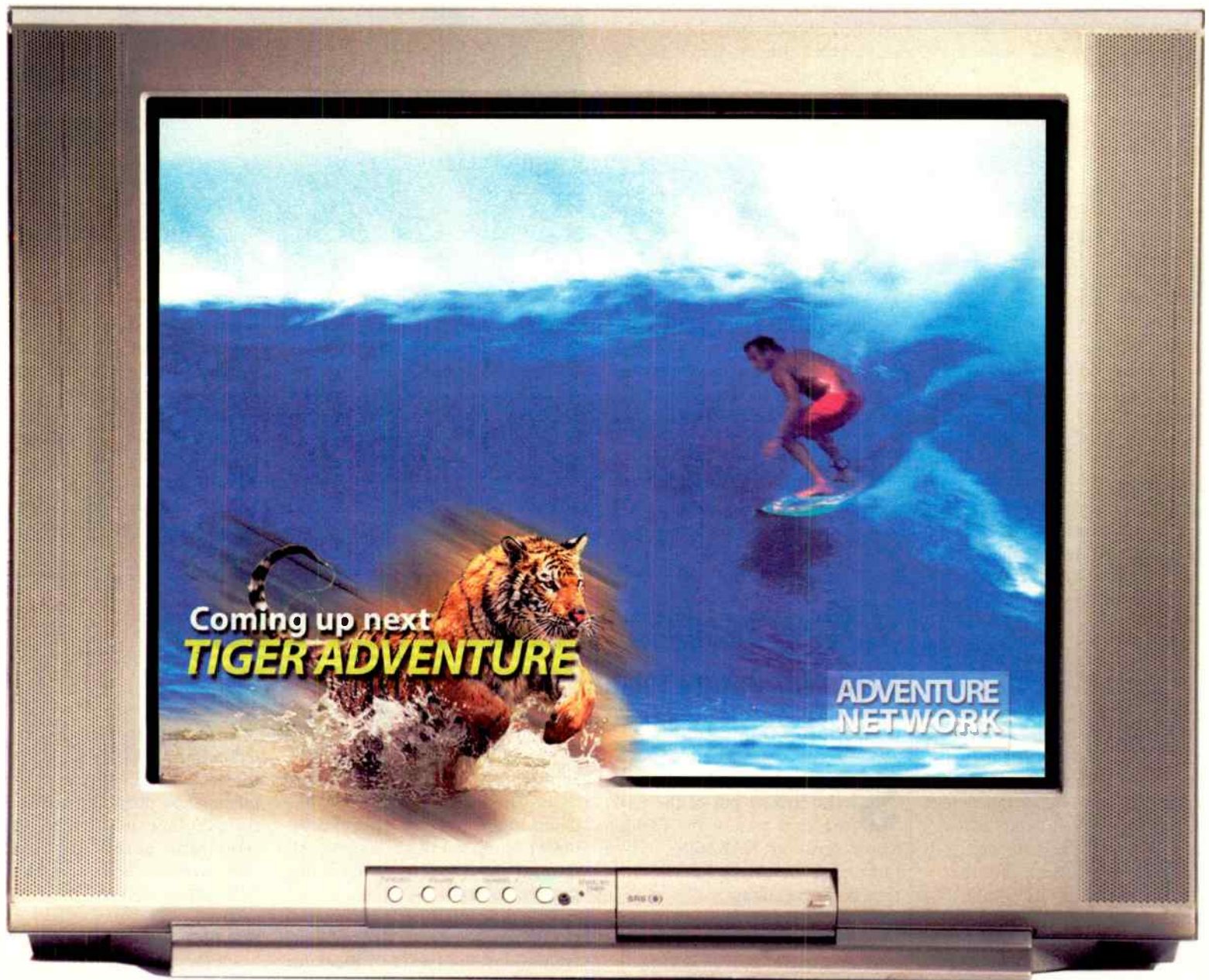


Venue Services Group
www.vsg.tv
914-682-2111



VSG is a wholly owned subsidiary of National Mobile Television.
© 2004 Venue Services Group

How to build a brand, instead of just graphics.



APR • ClipStore™ Video + key + audio = better branding for your station.
The new, low-cost ClipStore DDR delivers live, full motion graphics that practically jump off the screen — truly unforgettable images that keep viewers glued to your channel. Capture, store and play pristine, uncompressed video + key + audio content, while seamlessly rendering projects directly to ClipStore via ultra-fast gigabit Ethernet. So fast and easy. Best of all, ClipStore is from Accom — the leader in reliable, innovative digital disk recorders. Visit www.accom.com to learn more about building a better station brand with ClipStore.

Accom®

FCC Chairman Tackles Broadcast Issues

Powell defends Ferree's 85-percent effort

by Leslie Stimson

FCC Chairman Michael Powell and ABC News host Sam Donaldson kept up a lively banter at NAB3004's "FCC Chairman's Breakfast," sponsored by A.G. Edwards & Sons.

Indecency dominated the discussion between the two, now in their fourth year appearing as a duo before the NAB crowd.

Donaldson, reminding Powell of his well-known free-market leanings, suggested the chairman had bowed to public pressure.

"And now all of a sudden, there are these huge fines," Donaldson said. "Why?"

Powell said it was a misconception that the FCC has only recently begun to focus on indecency enforcement. He conceded the fines have grown, and the commission has begun fining stations per indecent utterance, rather than per program.

"The increase in enforcement is in response to public complaints," Powell said. The agency received 14,000 indecency complaints in 2002; 250,000 in 2003 and so far in 2004, the number is nearly 540,000.

The agency is trying to be faster in resolving such cases, Powell said. But, as he did after NAB's Responsible Programming Summit, Powell reiterated that it is better for broadcasters to control what's on their airwaves than to have government step in with a mandate.

"You do not want the government to write a 'Red Book' of what you can say and not say," stressed the chairman.

Broadcasters question whether indecency statutes should apply to cable and satellite as well. When asked his views on the issue, Powell said, "I think the government should be conservative about regulating content for anybody."

He stressed that Congress needs to get involved in the issue, rather than having an unelected set of commissioners deciding it.

The TV analog spectrum giveback was also a big topic of discussion.

Just before the show, FCC Media Bureau Chief Ken Ferree detailed a proposal to reach the 85-percent TV audience threshold that triggers the analog giveback. Powell said his plan two years ago to move the DTV transition forward led to the push for mandatory digital tuners for TV sets.

The commission has concerns about the 85 percent threshold, Powell said.

"The law is muddy about what is the end," and how is the agency supposed to know whether every house-

hold, which has three to four TVs, has purchased a digital TV set, he asked rhetorically.

It is right for the Media Bureau to discuss how the 85-percent threshold is reached, Powell said, although he added a caveat that the Ferree plan "is not the final word."

As for when the TV analog spectrum giveback actually begins, Powell said, "Forget 2006. The law is when they get to 85 percent."

"If all we do is wait until all households—all three and four TVs—are digital... we're waiting for 50 years and that's unacceptable."

No one knows what to do about converting the remaining 15 percent of households that have analog-only over-the-air TVs, he said. Whether Congress could subsidize converter boxes for those households should be a part of the discussion, believes Powell. "All that should be in play."

He cautioned broadcasters to remain nimble and be open to change as delivery systems grow to rival broadcasting in the future. He's been watching the



FCC Chairman Michael Powell being ever-so-lightly grilled by Sam Donaldson.

rise of personal telecommunications, and uses his sons as an example of kids who want their personalized devices with them at all times.

"My kids look for mobility," he said. "They want their things to go with them. You're going to have a problem if WiFi matches what broadcasting gives to people."

He said a lot of industries want the spectrum broadcasters now have. As a

spectrum manager, he has to balance the needs of all industries when it comes to allocation, he said.

All of this is why the DTV transition is important, said Powell.

"There has to be a plan, or the other things will happen to you—fees or the government will yank it back."

"This is a warning... I see the Ferree plan as a way to foster dialogue," he said. ■ ©2004, NAB

Omneon Struts its Stuff

Adds HD in any format

by Deborah D. McAdams

Sometimes the public relations folks hit one out of the park. And so it was, at the Fashion Show Mall at NAB2004, when Omneon's handlers let the customers do the talking.

"We had a ridiculous RFP" (request for proposal), said Alan Popkin, director of technical operations and TV engineering at KLCSTV in Los Angeles, "Thirty-six pages of technical specifications for the server."

Popkin ushered KLCSTV from a tape-based operation to a fully automated facility feeding approximately 1,000 schools in the Los Angeles County School District. The Omneon server was the only one that fit the bill, he said.

MODULAR & SCALABLE

Using Omneon, KLCSTV could move multiple file forms. Because the server is modular and scalable, it's capable of handling DVCPRO, ASI, DV50 and other formats.

"We really believe it was something not seen on the planet before," Popkin said.

Omneon expanded the capabilities of its servers this year with the addition of DVCPRO HD compatibility. The enhancement makes the Omneon the first media server capable of "supporting all leading HD formats simultaneously," according to the company.

Others who testified on Omneon's behalf included Andre Mendez, chief technology integration officer for PBS, and Marcus Obedia, executive vice president of the Discovery TV Center in Miami.

Obedia said the center was launched as a server-based facility seven years ago, and has since expanded to handle 18 services using Omneon servers.

Mendez, the guru behind PBS's new server-based distribution model, said Omneon provided the closest match to the network's technological vision.

Larry Kaplan, executive chairman of Omneon, appearing on the Fashion Show Mall runway in well-tailored pinstripes, white shirt and red tie, pulled in passers-by with a perfectly executed intonation of the Kmart mantra: "Attention shoppers!"

Kaplan then proceeded to thank Omneon's supporters and tick off the list of the company's accomplishments, including the fact that the 300-foot or so video displays stretching across the front of Fashion Show Mall were being fed by Omneon servers.

BRING IT ON

Omneon's business doubled in 2003, edging out two major competitors in market share, Kaplan said. The BBC, which tested its first Omneon server for Wimbledon in 2001, is now taking delivery of its 30th system, he said. Omneon currently has installations in 27 countries and recently opened an office in Tokyo.

Omneon is also jumping full-tilt onto the Material Exchange Format train with native support for the universal file wrapper. All Omneon Spectrum media servers will support MXF similarly to QuickTime, said Geoff Stedman, vice president of marketing for Omneon. Free upgrades will be made available to current Spectrum owners, he said. ■

©2004, NAB

A Simple Solution For Wardrobe Malfunctions

HD/SD Audio
Video Delay



The D1 Pipeline Delay

Live broadcasts are full of surprises. Some are welcomed, some aren't. Put an end to the unwanted shocking language, actions and wardrobe malfunctions that can plague some live events with Prime Image's popular Pipeline delay device.

With Pipeline, delaying audio and video for up to 10 seconds is as easy as pushing a button. Delaying everything for as long as an additional 20 seconds is also an option.

The D1 Pipeline is Prime Image's popular Pipeline audio/video delay device, but with a serial digital interface. D1 Pipeline features 10-bit video processing with a primary as well as an auxiliary/alternate video input. Audio processing is 24-bit, with four channels in and out; select AES/EBU, digital or analog. Four auxiliary/alternate audio channels (also AES/EBU, digital analog) can be switched with, or independent of, auxiliary video.

All that, in a rack-mounted unit just 2U high.

D1 Pipeline. It's about time — delaying it, utilizing the latest video technology.

HD/SD Standards
Converters

HD/SD
Time Machine

HD/SD Trimmer

HD/SD Time Base
Correctors/
Synchronizers

**Prime
Image**

The Digital Video People

Tel (408) 867-6519 • Fax (408) 926-7294
www.primeimageinc.com

Panasonic Pushes HD Desktop Editing

P2 wins \$1.2 million order from Time Warner's NY1

by Deborah D. McAdams

The big news from Panasonic at NAB2004 this year was not that its P2 serial-digital card format had legs, but that hi-def content captured in the company's DVCPRO HD format could be downloaded to a desktop or laptop via FireWire and edited with a new HD version of Apple's Final Cut Pro software. The FireWire/Final Cut Pro initiative, dubbed "HD Access," puts Panasonic VariCams in a healthy position in the arena of hi-def, end-to-end production, something that once seemed as far away as the end of a cab line at NAB.

"It wasn't many years ago that you would have snickered had I said television shows would be shot with

Panasonic cameras," said John Baisley, president of Panasonic Broadcast to the journalists assembled for Panasonic's press conference at the Aladdin Hotel.

Now, nearly every week, Panasonic announces a movie, documentary or TV series being shot with VariCam, including Fox's "Arrested Development" and Mark Burnett's "The Casino."

The increasing adoption of VariCam led Panasonic to take up the cause of editing, because HD post production was still complicated and costly, said Stuart English, Panasonic Broadcast vice president of marketing.

"Despite its application in Hollywood," English posed, "how do you edit VariCam material affordably?"

Hence, the introduction of the AJ-HD1200A. The heart of HD Access, the AJ-HD1200A is the industry's first HD production VTR with FireWire interface. The portable VTR supports 1080i and 720p, handles 24 and 60 fps material and costs around \$25,000.

Combined with a Final Cut Pro HD-equipped Apple PowerMac G4 or G5, English said, a fully outfitted HD editing suite with more than 100 hours of 24 fps HD online storage could be had for less than \$50,000.

The VTR's portability makes it compatible with field editing, which Apple also supports with a laptop version of Final Cut Pro HD.

Waving a DVD, English said that it could hold about 12 minutes of HD VariCam material. Then, pulling out a

PDA-sized hard drive, he said it would hold two-and-a-half hours of VariCam footage.

Panasonic has received a \$1.2 million order from Time Warner's Manhattan new network, NY1, for P2 camcorders. Nineteen Media General stations are converting to P2, as are 15 Liberty Corp. stations, Sinclair's WNYO-TV in Buffalo, VOOH's HDNews and Scripps Howard's WEWS-TV.

P2 will also be used to capture more than 300 hours of the Summer Olympic Games in Athens, said Yoshihiko Yamada, vice president of Panasonic AV Networks. DVCPro HD P2 equipment will be on the market in time for the 2006 Olympic Games.

■ ©2004, NAB

Connecting Electronic News Gathering and Information Technology

by Tom Butts

One year after introducing its version of a tapeless professional broadcast production system, Panasonic's P2 line of products is ready to ship, said Panasonic Broadcast president John Baisley.

The solid state memory card-based system, which includes three DVCPRO camcorders (referred to as 'computers'), card drive, recorder and 2 GB and 4 GB memory cards was the main focus at Panasonic's booth this year and represents a major cornerstone of the division's future ING (IT-based newsgathering) strategy for broadcasters.

THE COMPUTERS

"We've dubbed it the 'computer' because it takes the best of the traditional functions of today's ENG camera

with the latest advancements in the IT world," Baisley said. "Broadcasters have

seen the transformation from film to memory that still digital cameras have



Panasonic's John Baisley

brought to consumer photography, and the broadcast industry has quickly grasped the possibilities of a parallel transformation that the P2 media-less system would bring to video.

"I think users have also grasped the transformation that nonlinear acquisition can bring as a critical part of the high-speed IT-centric news system."

The rapid development of the P2 system, with a ready-for-delivery date approximately one year after its introduction, was a particular note of accomplishment in Baisley's opinion.

"The new DVCPRO P2 products are really the pinnacle of innovation in broadcasting," Baisley said. "It's taken us only one year to bring the P2 product from concept to delivery, and I think that's quite remarkable."

Broadcasters have reacted favorably to P2, Baisley said. "They

ELECTRONIC NEWS, PAGE 30

The World's Largest Range of Rack Mounted Audio & Video Monitors & Converters
Solutions for HD-SDI, SDI, Dolby E, Dolby Digital, AES & Analog Formats

See us at

infoComm booth #1922
International Communications
Industries Association, Inc.
Georgia World Congress, Atlanta • June 9-11 2004



Check Out Our Award Winning Products at www.Wohler.com!

www.Wohler.com

sales@wohler.com

Toll Free (U.S.) 1-888-5-WOHLER

+1-650-589-5676 (Int.)

World Radio History

World Leader In-Rack Audio & Video Monitoring

Dolby and the double D symbol are registered trademarks of Dolby Laboratories



It's Here!

*Integrating fiber into...
your truck,
your stadium,
your studio,
your facility,
your life,
your world.*

INTRODUCING...

MAMBA

*This new snake is poised to bring fiber **into** your truck, facility, stadium, campus, or studio. With the Mamba, you'll have unprecedented signal capacity and the freedom to move **all** of your signals without concern for the typical problems of a copper environment. Mamba is the new way to think about fiber, facility design, and integration.*

See where fiber can take you now!



Telecast
Fiber Systems, Inc.

(508) 754-4858 • www.telecast-fiber.com



STAR 2004 COMMITTEE

Tom Butts, Bob Kovacs, Deborah McAdams, Susan Ashworth, Craig Johnston, Mary Gruszka, Jay Ankeney, Walter Schoenknecht, Tim Carroll and Karl Paulsen



Brickhouse Video

Paul Hiorns, managing director of Brickhouse Video accepts the STAR for its 1 RU Neptune dual-channel SDI synchronizer. The unit can be configured as two independent channels or as an intelligent switch that selects input based on the operator's criteria.



Accom

Douglas George (l) Accom staff engineer and Douglas Johnson, product development, accept the STAR award for the Accom APR ClipStore, an uncompressed SD recording system for on-air playback of video, key, audio and graphics.



Broadcast International

(l-r) Dan Mabey, director, business operations division, Robert Chipman, vice president, sales and marketing and Randy Turner, director and CFO for Broadcast International accept the STAR for CodecSys, a multiple codec system that switches between the most efficient codecs, packing the best-quality video into the least number of bits.



Anton-Bauer

Shinichi Minowa, vice president of marketing and development, Anton-Bauer, accepts the STAR for the Anton/Bauer Dionic 160 battery. With real-time capacity display, the battery runs a typical 25 W camcorder for three hours, and can be mixed and matched to charge with other Anton/Bauer batteries.



Broadcast Pix

Ken Swanton, president of Broadcast Pix accepts the STAR for its self-contained control room, now with analog as well as digital capabilities. The studio-in-a-workstation enables switching, title creation and generation and B-roll device control via digital disk recorder.



Avid

David Krall, Avid president/CEO accepts the STAR for its new DNxHD codec, which enables hi-def post production with the same bandwidth as standard definition files and features a source code that is licensable for free from the Avid Web site (www.avid.com).



Calrec

Henry Goodman, Calrec sales manager for Asia and Europe, accepts the award for Calrec's Hydra Gigabit Ethernet Networking. Hydra provides a network for sharing of I/O resources and control data between Calrec mixing consoles. By using Hydra, a facility can avoid costly hard-wiring, patching and distribution of shared audio signals to each console.



Band Pro / Weinberger

(l-r) Ingo Kaske (Weinberger), Gerhard Baier of Band Pro and Kay Mackenneth, cinematographer (off-camera), accept the STAR for the Weinberger Cine SpeedCam HD slow-motion camera, an HD high-speed digital camera with widescreen HD video capture from 1,000 to 4,000 fps.



Canon

Gordon Tubbs, assistant director of Canon's Broadcast and Communications Division accepts the STAR award for the DIGISUPER 22x compact studio HD lens, intended for portable cameras. Equipped with the company's rotary encoder servo system, the 22xs has a maximum zoom speed of .5 seconds and focus of 1.5 seconds.



BlackMagic Design

Grant Petty, BlackMagic Design CEO, accepts the STAR award for DeckLink HD Pro, a 12-bit HDTV dual-link 4:4:4 capture and playback card that combines Dual Link HD I/O with SD.



Canopus

Robert Sharp, general manager of the Canopus Sales & Marketing Division accepts the STAR for the HQ Codec, which provides variable bitrate compression for the Edius HD NLE system to balance file size with image complexity. Luminance sampling and chroma subsampling are scaled based on each individual frame's content for maximum picture quality.



Coptervision

Sarita Spiwak, president and CEO of Coptervision accepts the STAR award for the Coptervision CVG-A flying camera, an aerial motion control camera system that features GPS-based flight control with autopilot and 3D waypoint navigation.



JVC

Larry Librach, assistant vice president of business development for JVC Broadcast & Entertainment accepts the STAR award for the JVC DM-JV600 MPEG encoder, which has the ability to offer HD remotes using existing SD microwave or satellite uplinks. With the DM-JV600U HD encoder, it becomes possible to relay HD live shots from the field to the station using live trucks and helicopters.



Evertz

Joe Cirincione, senior western U.S. sales manager for Evertz accepts the STAR award for the Evertz ECAS-HD, an HD camera fiber adapter that provides uncompressed HD, two-way audio and video feeds, and even has a local FireWire DV25 port for making a reference recording on a VCR or hard disk recorder.



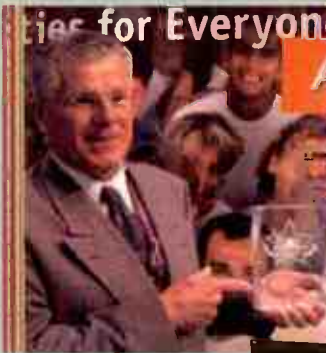
Kodak

Peter Postma, systems engineer, Kodak Image and Technology Center, (I), and Mitchell Bogdanowicz, senior research associate accept the STAR for Kodak's Look Manager System, an appearance simulation program for cinematographers. The hybrid technology incorporated in the system enables cinematographers to create, communicate and manage film looks from preproduction through post production.



Fujinon

Kazumichi Tsuchiya, (I) senior executive officer and general manager of Fujinon's TV Lens Department and Jown Newton, vice president of Broadcast and Communications Products accept the STAR for the Precision Focus Assist System for HD production, which addresses focus issues stemming from the format's shallow depth of focus and lack of size and resolution in camera viewfinders.



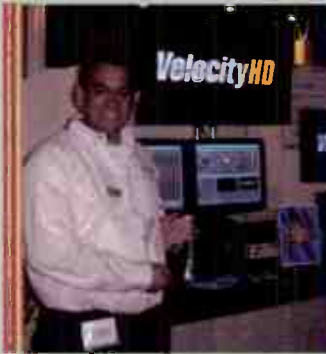
Larcen

David Hale, vice president of sales at Larcen accepts the STAR award for the Larcen 8-VSB Regen Transcoder, which uses Zenith's DTV receiver technology to process a station's digital signal, regenerate the data stream and supply both analog and digital outputs for retransmission on a translator.



Thomson Grass Valley

Marcel Koutstall (I) senior product manager and Jan Eveleens, business unit manager for Thomson Grass Valley accept the STAR award for the Grass Valley LDK 6200 HD camera, based on the company's existing LDK 6200 and using Grass Valley 9.2-megapixel image sensors to provide native resolution at all HD formats.



Leitch

Mike Nann, product manager, Leitch Professional Post Production, accepts the STAR for the Leitch Velocity HD, a format-flexible nonlinear editing system that features Altitude hardware for online playback of two HD video streams and two dynamic graphics streams.



Ikegami

Naoki Kashimura (I) and Alan Keil of Ikegami accept the STAR for the Ikegami HDK-75EX camera, which features new IT CCDs offering improved vertical smear characteristics and is switchable between progressive and interlaced modes.



Miranda

Pascal Carrieres, Miranda HDTV R&D team leader, accepts the STAR award for the Imaging Series XVP-801i HD/SD Universal Video and Audio Processor Modules. The XVP modules adapt incoming audio/video feeds to suit a station's infrastructure and integrate functions such as proc-amp, A-to-D conversion, frame delay and embedding/de-embedding with track swapping.



Jadoo

(l-r) Robert Noble, sales manager, N.A.; Barbara Van Fleet, senior marketing associate; Larry Bawden, president and CEO; Ken Pearson, COO and Lee Arikara, vice president of sales and marketing at Jadoo accept the STAR for Jadoo's NABII fuel cell technology, which produces electricity by combining hydrogen and oxygen over a platinum catalyst, enabling a camera to operate three times longer than with traditional battery systems.



Nucomm

John Dulany (I) director of international sales and Gordon Peters, regional sales representative for Nucomm accept the STAR for the Nucomm Primus Microwave System, which enables three simultaneous video programs in a 12 MHz channel using existing 2 GHz analog radios.



Orad

(l-r) Christopher Moskva, project leader, Broadcast Graphics, Avi Sharir, Orad president and CEO and Andrew Wojdala, head of R&D, Broadcast Graphics & Visual Stimulation for Orad Hi-Tec Systems accept the STAR for 3Designer, which works with the company's CyberGraphics 2D/3D on-air system and features an intuitive interface with lots of familiar controls and terminology.



Sigma Electronics

George Smith (l) director of engineering, and Nigel Spratling, Sigma president accept the STAR award for Sigma's OctaStream, which handles audio in eight-channel-wide groups and features two modules that help solve lip sync and audio quality issues through the company's DATC technology.



Panasonic

Panasonic Broadcast President John Baisley accepts the STAR for the Panasonic P2 solid-state recording format. The P2 system features no moving parts, and records video onto solid-state memory cards, eliminating the chance for shock or vibration that can disrupt the recording process.



Sony

Sony's "Anycast" theme is brought to life with its new Anycast content creation system, a portable production system that combines a six-input video switcher, six channel audio mixer, special effects generator, a preview and program video monitor, robotic control and an encoder and server to handle webcasting and streaming.



Panavision

Iain Neil, CTO and executive vice president of R&D and Optics for Panavision accepts the STAR for the Panavision 300x zoom lens, offering features such as continuous zoom and focusing through zoom; optical breathing control at short focal lengths; and low distortion over zoom and focus ranges.



Spencer Technology

Paul Lines, Spencer president, accepts the STAR for Spencer Technology's Video Host. The system frees hosts of live talk shows from predetermined scripts or the need to communicate with an off-camera director by enabling the host to select clips and stills from a purpose-built touchscreen.



PESA Systems (with partner Glimmerglass)

Miguel Sánchez Moraga, president and CEO of Pesa, (l) and Bob McAlpine, senior vice president of sales and marketing for PESA Systems accept the STAR for the 64x64 XD Photonic "any definition" routing switcher powered by Glimmerglass chips. The 64x64 HD system is a fiber optic photonic switcher that integrates Glimmerglass' Brilliance microphonics technology with PESA's 3500PRO control system.



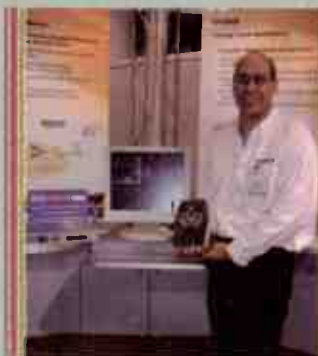
Telestream

Dan Castles, president and CEO of Telestream, accepts the STAR award for the Telestream MAPone system, a wireless IP transmission application that improves time-to-air by enabling journalists to transmit news stories directly from ENG laptops.



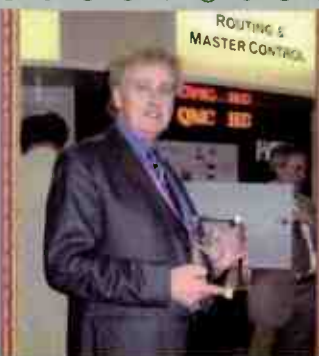
Pixelmetrix

TV Technology's Bob Kovacs presents the STAR to Pixelmetrix President Danny Wilson for the Pixelmetrix HD/SD Delay and Time Shift, enabling the user via a user-selectable A/V delay to preview live content before it hits the airwaves. The system transfers active picture area including all embedded audio and ancillary data from input to output.



Triveni/Terayon

Mark Corl, director, Triveni Systems & Architecture accepts the STAR for the Triveni ANDES HD system. The Advanced Network Distribution Enhancement System combines Terayon's BP5100-HD broadcast platform with Triveni's SkyScraper data distribution and GuideBuilder equipment for content delivery and management.



Quartz

Pete Challinger, vice president of marketing for Quartz accepts a STAR award for the company's new Xenon HD/SD multi-format router, which incorporates keyers and mixers internally as daughter cards, integrates with current MC switchers, offers swapping of embedded AES and channel shuffling as well as future internal MCR branding and switching in a single box.



Wohler

Carl Dempsey, vice president and Cian de Buitelir, marketing manager for Wohler accept the STAR for the AMP2-E8MDA Dolby E Audio Monitor, a 2U rack-mounted unit that features a self-powered speaker system, eight 53-segment level meters and functions as both an audio monitor and converter.



BrightEye™

VIDEO, AUDIO AND OPTICAL CONVERTERS

7 New BrightEyes!

• Embedding • Audio Conversion • Sync Pulse Gen and more



The BrightEye family offers converters and embedders for video and audio with choices like fiber, TBC, Frame Sync and USB interface. At 5.5 inches wide, BrightEye converters pack a pile of functionality into a little package. Put them where you need them – with a workstation, at a camera, near a VTR. 12 bit processing ensures your output is bright and shiny.

ENSEMBLE

D E S I G N S

Tel +1 530.478.1830 ▲ Fax +1 530.478.1832

www.ensembledesigns.com

info@endes.com

PO Box 993 Grass Valley CA 95945 USA

Chyron Generates HD Graphics

Company gets back to its core basics

by Deborah D. McAdams

Chyron is taking a whole new approach to generating HD graphics. Instead of focusing on creating graphics in hi-def from the get-go, the company is rolling out the C-Mix HD, a mixer that upconverts SD graphics for HD output.

"People have bought a lot of character generators in the last two years that they're not going to replace," said Rich Hajdu, Chyron's vice president of sales and marketing at the company's NAB2004 breakfast press

was WRAL in Raleigh, N.C.

NEW DIRECTION

"They wanted to convert their HD Duets to SD Duets," he said. Because of the complications involved in doing whiz-bang graphics with current HD technology, the folks at the Raleigh station decided they would upconvert for HD, which Hajdu said would be the likely direction of the market, at least for the next few years.

The C-Mix HD can take up to four video and key input pairs and a background layer, combine them in

any order for both compositing and blending, and output them in either SD or upconverted HD. The C-Mix HD is expected to ship by June, with a base price of around \$20,000.

Hajdu recalled how, in 1998, Chyron and the rest of the industry focused on HD, "and it was a complete bust."

The landscape is finally changing. More people

are buying HD sets, so Chyron expects the broadcast market to embrace native HD graphics eventually. The company's HyperX multiformat SD/HD character generator reflects that philosophy as well as the transitory period. The \$45,000 base-

priced HyperX can be deployed as SD-only or HD-only, or with simultaneous SD/HD capability. HD cards can also be added later, Hajdu said.

In addition to the C-Mix and HyperX, Chyron is introducing Clyps HD, a hi-def clip server with a built-in keyer and 1.3 TB of storage. Chyron is also launching its second generation of MOS newsroom software, enhanced with image replacement and full preview capabilities.

Hajdu and Chyron president and CEO, Michael Wellesley-Wesley both noted that the company is buckling

down to focus on its core competency—broadcast graphics. Wellesley-Wesley said the \$15 million in proceeds from the sale of Pro-Bel last November repaid the company's bank debt, and between that and the rescheduling of Chyron's subordinated debt, the company is able to put money that formerly went toward interest payments into research and development. The House of Chyron, Hajdu said, is ready to rock n' roll.

"It ain't your father's Chyron," he said. ■ ©2004, NAB



Chyron CEO Michael Wellesley-Wesley

conference at the Orleans Hotel. Over a lavish spread of fresh fruit, fried eggs and the requisite breakfast meats, Hajdu went on to describe how Chyron had anticipated hefty mid-market demand for graphics upconversion. Case in point, he said,

Electronic News

CONTINUED FROM PAGE 24

clearly see the day to day savings," he said. "By finally connecting ENG acquisition with the IT world, we're offering broadcasters substantial workflow improvements, overall operating efficiencies and significant savings in ownership costs."

HD IN THE CARDS

And is there an HD future for P2? Baisley said that P2 is ready for HD production now, but that the high storage demand is the only issue standing in the way. "One of the benefits of P2 and its open architecture is that there's a clear migration path to being able to do HD on P2," Baisley said. "We can do it today, it's just a question of the capacity of the cards."

While P2 was a main focus for

Panasonic at NAB this year, the rapid growth of HD production also marks a key opportunity for the company. Baisley is a firm believer that, with HD program production in full bloom, hi-def news is also on the horizon.

"Many broadcasters who first thought they would never do news in HD are now thinking about how to do news in HD," Baisley said. "We're hearing more and more about that."

Regarding the state of the industry since the last NAB show, Baisley said business has "improved, but not dramatically." As for Panasonic, the company is ahead of the curve.

"In the last two years, we've seen strong double-digit growth across the board, and we've had growth in every one of our major product categories, from production equipment to DVCPRO to projectors to plasma to box-convertible cameras," he said.

■ ©2004, NAB

Belden Delivers Flexibility To Your Audio and Video Digital Conversion.



Analog, Digital or Data — More Broadcast Engineers Choose Belden Than Any Other Brand of Cabling Products.

Why? Because broadcast engineers know that Belden has an extensive line-up of digital cabling products — including data cables — and the quality to match.

Whether you're installing cable in a television or radio studio, a video post-production facility, an indoor or outdoor sports arena, a film production studio, a church, a government chamber, or an entertainment venue — any area where a high quality signal is important — Belden has the digital cable to meet your needs.

To make your selection process easier, we're offering a 3rd Edition of our "Digital Studio Cable Guide." This Guide will help your understanding of digital cables, SDI and AES/EBU specifications, HD Radio concerns, key electrical/distance parameters, and why Installable Performance® is important to cable performance.

Look to the leader. Call 1-800-BELEDEN-4 and get a free copy of the definitive "Digital Studio Cable Guide." Or download a copy from Belden's Web site at: www.belden.com/tb65.pdf.



Performance Delivers The Future™

©2004 Belden, Inc.



**"IF WE PLAY BY THE
OLD RULES...
WE'RE ALL
GOING TO BE
LEFT
BEHIND"**

JEFF ZUCKER

PRESIDENT, NBC ENTERTAINMENT
QUOTED IN THE BOSTON GLOBE 2.8.04

EMBRACE CHANGE.



The changes confronting television are splashed in headlines every day. SeaChange is the one company helping hundreds of broadcasters adapt to new opportunities. From high-quality digital audio/video interfaces, to IP data networks, to open file access protocols, SeaChange has the expertise to help broadcasters streamline their operations — and to connect with viewers in more ways than ever before.

SeaChange is focused on television. Its digital video servers and libraries are providing new efficiencies in television operations. Editors, directors, and producers are leveraging central access to disparate media files and multi-purpose content for broadcasting and streaming — from high-definition to low bit-rates. With the industry's most reliable, most economical storage, broadcasters are leveraging fundamental SeaChange advances — changing the way they do business.

With over 15,000 servers deployed today, SeaChange has the experience that you can rely on.

BROADCAST. ADVERTISING. ON DEMAND.

 **SeaChange™**

Avid Spreads HD Across The Line

Codec allows post-production movement of HD at SD data rates

by Jay Ankeney

The big announcement from Avid Technologies at NAB2004 was Avid DNxHD encoding technology that spreads high-definition post capabilities across the Avid editing line, including the Avid Xpress Pro, NewsCutter XP, Avid Media Composer Adrenaline, NewsCutter Adrenaline FX and Avid DS Nitris systems.

"I think the tremendous breakthrough of DNxHD encoding will be that it delivers mastering quality HD at SD data rates," said David Krall president and CEO of Avid Technology Inc. "This means high definition is now a format that everyone can work with. Our NAB2004 introduction of DNxHD is delivering on the promise of last year's Avid DNA [Digital Nonlinear Accelerator] breakthrough."

FREE SOURCE CODE

DNxHD is a 10-bit encoding technology that enables collaborative HD post production with the same storage bandwidth as SD files. Better yet, the source code for Avid DNxHD will be

available free from the Avid Web site to any third-party software developer working on any platform.

At the press event, Avid demonstrated that the improved DNA lets Media Composer Adrenaline version 1.5 work with 11 streams of uncompressed SD video on Windows-based systems—nine on PowerMacs—and they also showed three simultaneous streams of real-time HD, which will be available later this year.

The new version 7.5 software for Avid DS Nitris can create digital intermediates in the 2k and 4k range, along with extensive new workflow and compositing capabilities thanks to DNxHD technology. It is fully compatible with the Media Composer Adrenaline systems.

For cost-efficient DV post, Avid also introduced the Avid Xpress Studio content-creation suite of products, integrating Avid Xpress Pro software for video editing, Avid Pro Tools LE for audio production, Avid 3-D for

animation, Avid FX for titling and compositing based on Boris Red technology, and the Avid DVD Sonic tool for DVD authoring.

In addition, the new Avid Xpress

debuted AirSpeed, the first software codec-based video ingest and broadcast playback server intended to streamline the news production workflow. AirSpeed provides full interoper-

"This means high definition is now a format that everyone can work with."

—David Krall, president and CEO of Avid



The masses gathered at Avid's booth.

Pro version 4.5 software for both Windows and Mac will support Windows Media Player 9 and MXF files. They also demonstrated a future release that will enable editing of HDV MPEG and DVCPRO HD formats, as well as supporting the Avid DNxHD encoding technology.

The Avid Broadcast Division also

ability with the Avid Unity for News family of media network solutions as well as Avid's nonlinear edit systems.

And Softimage presented the new Softimage|XSI version 4.0 for 3D content creation. Version 4.0 will be available in three configurations: XSI Advanced, XSI Essentials, and the new entry level XSI Foundation. ■

©2004, NAB

Ingest Is A Thing Of the Past



Ingest, capturing, digitizing, file transfer...whatever you want to call it, it's a time consuming step between acquisition and editing. What if you could eliminate that step entirely? Only the FireStore family of DV disk recorders has DTE Technology™ which completely eliminates the ingest stage of production. DTE Technology allows you to record clips directly to disk, in NLE native file formats for popular editing packages including Avid, Final Cut Pro, Premiere, Matrox, Canopus and more. There is no need to capture, transfer or convert files...just shoot, then edit.

With models for the desktop, the field and the studio, only FireStore with DTE Technology makes ingest a thing of the past.



See us at Infocomm Booth # 4883
FOCUS Enhancements

FireStore™
(800) 338-3348 www.firestore.com

Debate

CONTINUED FROM PAGE 16

He compared satellite radio to satellite TV when it began, that it is not a big part of the market now but may grow. He urged broadcasters to work with satcasters on the issue.

The indecency discussion was mainly linked with radio in the panelists' minds. NAB Joint Board Chair and Citadel CEO, Phil Lombardo, who was also the moderator of the panel, said NAB would form



Rep. Greg Walden

"I'm a small market broadcaster. As an affiliate, I believe the program provider should be held responsible."

**—Rep. Greg Walden
of Oregon**

a task force shortly on the issue, following the association's recent Responsible Programming Summit.

Upton said his indecency bill, which he noted was authored "before the 'wardrobe malfunction' of 2004," raised the fines for indecent programming. The Senate bill is tougher, the panelists agreed, including provisions affecting media ownership and protecting affiliates from being fined for indecent material carried in network programming.

Rep. Greg Walden (R-Ore.), a member of the House Telecom/Internet Subcommittee bridled at the Senate's indecency bill.

"I'm a small market broadcaster," he said. "As an affiliate, I believe the program provider should be held responsible."

Regulators need to consider three things when levying fines against broadcasters, he said.

"Look at the size of the company. Look at the viability of the company, and look at where the program is originating," he said.

The House passed Upton's bill and he said the Senate was close to passing its bill; both measures would then go to a conference committee to iron out differences. The President supports the House version, Upton said.

Burns, who said he didn't "know

anyone as far removed from mainstream America as the creative community," predicted the Senate would act on its indecency measure within two weeks.

Barton said he recently met with cable industry representatives about indecency.

"Right now, the cable and DBS folks don't have to play by the rules that you do," Barton told his audience of mostly

broadcasters. "I think that's fair."

Cable is going to develop a policy to police themselves, he said, but predicted failure for self-policing policies in general. He predicted Congress would craft legislation so that the same indecency rules that apply to broadcasters would apply to cable also. ■

—Deborah D. McAdams contributed to this story. ©2004, NAB

**On the Road
with
System 5-B**

Digital Audio Mixing Systems for Broadcast

One of three System 5-B installations in
Western Mobile Television's HD capable remote trucks

Western Mobile Television
USA • Doug Clark, Director of Operations
Phone: (303) 331 8584 • E-mail: doug@coloradostudios.com
Web: [www.WesternMobileTV.com]

Be Sure
www.euphonix.com

Euphonix
digital emotion

Euphonix Inc., 220 Portage Ave., Palo Alto, CA 94306 Tel: (650) 855-0400 Fax: (650) 855-0410 ©2003 Euphonix, Inc.

Grass Valley Pitches HD SloMo

Company also aligns with Apple on news editing

by Bob Kovacs

Grass Valley, the television production equipment arm of Thomson Broadcast and Multimedia Solutions, announced at NAB the debut of a high-definition, slow-motion camera based on the company's existing LDK 6000.

The LDK 6200 HD Super SloMo uses Grass Valley 9.2-megapixel image sensors to provide native resolution at all HD formats, driving the technology at double speed for 2x slow-motion capability. The new camera will have triax and fiber-optic options, and is compatible with many accessories used by the standard-speed LDK 6000.

"We saw that there was a missing link for HD production—a real-time, slow-motion camera," said Jan Eveleens, the general manager for the Grass Valley camera business unit. "[The LDK 6200 HD] is the world's first high-definition, slow-motion camera."

Eveleens said the first major event to use the new SloMo camera would be the UEFA Euro2004 soccer championship in Europe. It will also receive extensive use at the 2004 Olympics in Athens.

The LDK 6200 HD can be switched on-the-fly between slow-motion and standard operation, and the camera outputs HD-SDI. Although the camera's data requirements mean that it will have about 10 percent less cable reach than a similar LDK 6000 when using triax, it still accommodates cable runs up to 1,800 meters.

To record the LDK 6200 HD, the

double-speed data is recorded on an EVS HD-XT digital disk recorder. Grass Valley said that several U.S. networks are planning to use the new slow-motion camera for HD football broadcasts this fall.

APPLE PIE

In a bid to move to the head of the class, Apple Computer and ThomsonGrass Valley announced the development of a news and production system integrating Apple Final Cut Pro 4 into Grass Valley server technology.

"A reporter can sit at a Final Cut Pro workstation... and a Grass Valley plug-in will let you see the media, work with it on the timeline and publish it to the system," said Mike Cronk, vice president and general manager for Thomson Grass Valley's servers and digital news production division.

The folks at Apple were pleased to have an opportunity to place the popular Final Cut Pro NLE software into the workday world of television newsrooms.

looking forward to moving our standalone platform to the next level."

The combined technologies were not just targeted at newsrooms—a version of the system was designed for collaborative production, editing and program finishing. The companies expect to deliver the system by fall 2004.

Extending the limits of technology while maintaining or lowering cost has been a major effort. Among the other new products that the company displayed at NAB2004 were a Profile



Marc Valentin, president, Thomson Broadcast & Media Solutions

The resulting system means newsrooms can be equipped with Apple PowerMac G5 workstations running Final Cut Pro 4, sharing DV25 and DV50 video with Grass Valley Profile servers and newsroom systems.

"We're excited that the combination [of Grass Valley and Apple] really cuts the cost of networked editing," said Rob Schoeben, vice president of application product marketing for Apple Computer. "We're

server with 2 GB of storage and Fibre Channel connectivity for 40 percent less than the previous model and NewsEdit Unplugged, a system to provide a wireless news editing network using 802.11b/g technology. ■
©2004, NAB

**"We saw that there was a missing link for HD production—a real-time, slow-motion camera."
—Jan Eveleens, general manager, Grass Valley cameras**



One FireWire cable... 10-bit uncompressed video, multi-channel 24-bit audio, Genlock, and RS-422 machine control.



800.251.4224
530.274.2048
Grass Valley, California
www.aja.com

Meet The Family!

Io



Connects to Analog or Digital Audio/Video

Io^{LA}



Analog Only **NEW**

Io^{LD}



Digital Only **NEW**
(with Analog Monitoring)



In. Out. Simple.

THE ICE INITIATIVE

NEXIO

SERVER PLATFORM

DV/MPEG, SD & HD
SDI, DVB/ASI & AES
IP/Ethernet
MXF-compatible
+100 I/O channels
1.14 terabytes

NEXIO: The new server platform for your Integrated Content Environment (ICE)

Need TV operations that run better for less?

- True shared storage: Simultaneous access to all content by all users
- Ultra-fast Gigabit Ethernet IP connectivity: High-speed access for media and asset management
- Integrated shared-content editing: Ingest, edit, to air—with no content transfers
- Total integration: Support for all the software you count on most
- Extreme extensibility: Additional storage and channels in low-cost increments

Just add ICE.

Turbo-charge your Integrated Content Environment:
www.leitch.com/nexio



www.leitch.com

Canada +1 (800) 387 0233
USA East +1 (800) 231 9673
USA West +1 (888) 843 7004
Latin America +1 (305) 512 0045

World Radio History

HDV Now Ready to Edit at NAB2004

Vendors introduce low-cost HD gear

by Carl Mrozek

"The time for HDV is now" was the consensus of visitors to JVC's HDV-dominated booth at NAB2004. "The response to HDV and to our new products was sheer exuberance," said JVC spokesman Dave Walton. "It's no longer a question of whether HDV is a viable alternative to much more expensive HD options. For producers and broadcasters who visited us the big question was 'when will the new HDV gear be ready.'"

PRODUCTION

Unfortunately, the answer was not what they wanted to hear, "We're not sure yet when the camcorder and studio deck will be ready, but the stand-alone camera, with new 2/3-inch CMOS chips should be ready in July," Walton added. "We're hoping that the exuberance over HDV at NAB will help us move up delivery. However, we also want to be sure that the new gear will meet the needs of broadcasters, producers and filmmakers alike and that it will accelerate the transition to HD production."

Perhaps the most anticipated HDV product was JVC's full-sized HDV camcorder using the new generation of 2/3-inch CMOS CCDs by Rockwell Scientific. It can record in 720p, 480p and 480i, with 24p and 1080i capability. A new studio deck will play, record and output all the variations of HDV, plus DV, and will be competitively priced, Walton added. Ready now was a portable HDV player/recorder, the CU-VH1 with a built-in encoder, FireWire Connectivity, LCD monitor, priced at \$2,000.

Not to be left in the starting gate, Sony also fired its opening salvo in the battle for what could be a substantial market for HDV products. Sony showcased a model of its new 1/3-inch CCD

HDV camcorder. While details were sketchy, one certainty is that it will scan

1080i, natively, and also output DV (480i). It may closely resemble popular

DVCAM camcorders like the PD-150 with its flip-out monitor and 48 kHz audio with XLR jacks, etc. The final feature set will be determined with the help of customer feedback from NAB, according to Bob Ott, Sony's VP of marketing for professional video products.

"We have a long track record making popular pro camcorders and decks

and want to get it right rather than rushing to market," he said. "It's a question of how many and which features we can include and still keep the price under \$7K."

Sony also showed an HDV/DV edit deck in development and as well as an optional HDV-HD/SDI converter, co-developed with Miranda Technologies, for lossless dubbing of HDV to HDCAM. However, none of their HDV gear is slated for delivery this year.

"With 450,000-plus DVCAM units sold we're concerned about legacy," Ott said. "We want an affordable path to HDV that is compatible with the large base of DV and DVCAM products in use."

HDV, PAGE 38



Sony's HDV prototype

JVC Democratizes Hi-Def

by Craig Johnston

"It is the most exciting NAB I've been involved with," said JVC Professional Products National Marketing Communication Manager Dave Walton in his opening remarks at the company's annual press luncheon.

"We are opening the doors to the entire industry—and that means from the very lowest end to the very highest end—to the concept of affordable high definition," he said.

Walton explained that he wasn't just referring to the content-creation industry.

"We are opening the doors to really everyone in America to be able to see high definition," he said. "[Until now], it's something that's

been relegated to the very elite because of the very proprietary ideas that other manufacturers have had. We are democratizing the whole concept."

JVC's initiatives toward affordable high defini-

JVC also upgraded the single-chip high-definition ENG/EFP style camcorder it showed last year to a 3-chip model sporting CMOS imagers. It features built-in MPEG-2 encoding.



JVC's DM-JV600 encoder

LEGACY ADAPTER

Calling it the solution to the last link of high-definition news production, JVC introduced its affordable DM-JV600 high-definition MPEG-2 encoder, which allows high-definition live and taped news video to be

JVC, PAGE 40

Discover What's New at Canare

Canare's NEW 75Ω Slim BNC Plug:

- Slim design ideal for use with Canare's 32-channel Mid-Size Video Patchbay.
- Compatible with L-3CFB, L-5CFB, LV-61S, RG-59 and RG-6.
- Compatible with standard BNC tooling.
- New Slim BNC Extraction tool available.



See us at InfoComm 2004 - Booth 1038

CANARE

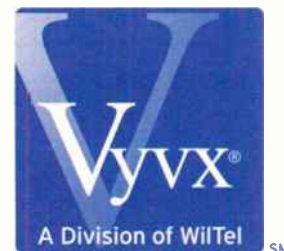
Canare Corporation of America
Los Angeles New York
Tel: 818-365-2446 Tel: 212-682-9661
Fax: 818-365-0479 Fax: 212-682-9480
<http://www.canare.com>

CUTTING-EDGE SOLUTIONS FOR THE
MEDIA AND ENTERTAINMENT INDUSTRY.

VYVX HD VENUE.NET® SOLUTION WINS NAB AWARD
FOR INNOVATION IN MEDIA — MORE AT VYVX.COM

AT VYVX, WE'RE THE ONLY ONE THAT'S HD TO THE CORE. COMPETENCY-WISE, THAT IS.

WHILE COMPETITORS STRUGGLE to understand HD, ASAP, it's core technology and a fundamental offering at Vyvx. We delivered history's first High Definition broadcast over an MPLS infrastructure, end-to-end and live during February's Super Bowl. And we continue to master HD delivery with the Masters, the Final Four and hundreds of other sporting events. But broadcasters and advertisers expect innovation and expertise from Vyvx, the company that's carried every major news, entertainment and sporting event for years — including 15 straight Super Bowls. And you can expect comprehensive, cutting-edge transmission services — customized large, tailored small — plus more flexible, accessible and affordable HDTV solutions. *When it's video, Vyvx It®*



www.vyvx.com
Call 1.866.945.8351

HDV

CONTINUED FROM PAGE 36

With identical data rates (25 Mbps) between HDV and DV, computers and hard drives are expected to handle HDV footage without reformatting. However, to ensure that HDV adopters can edit their footage on familiar desktop platforms, Sony has been working with leading software developers like

Avid, Canopus and Pinnacle Systems to develop desktop editing solutions for HDV. At NAB, its partners demonstrated their respective approaches to editing long GOP MPEG-2 at Sony's HDV display.

JVC dedicated a hefty portion of its booth to desktop and other HDV solutions developed with a long list of partners. One of the first, Ulead Systems showed its second generation of HDV software within its Media

Studio Pro7 video editing/ DVD authoring software. Ulead's plug-in enables native capture, multi-stream editing and output of HDV, plus device control. CineForm also introduced second generation HDV software. Aspect HD 2.2 includes Adobe Premiere Pro, Encore DVD and Audition. It is a software-based pipeline with real-time editing of HDV with Premiere Pro on a fast PC. Also new, Connect HD, uses Sony's Vegas

software to edit the same AVI files.

Frame-accurate editing of HDV, in native MPEG-2 is now possible with software by Mediaware of Australia. EditXpress uses "third generation frame-accurate MPEG-2 HD and SD technology for fast, efficient native MPEG-2 editing. There is no format transcoding, hence no loss of quality when editing," according to Mediaware VP David Keightley.

Pinnacle Systems demonstrated native HDV editing for the PC and the Mac. With Liquid Editing for Workgroups, HDV remains in MPEG-2, precluding video degradation on standard PCs. With CinéWave 4.6, multiple streams of HD can be edited on the Mac and then output in HD and SD simultaneously, at full quality.

Heuris, the first to enable HDV editing on the Mac, released Pro Indie HD Toolkit and Indie HD Toolkit. The former features MPEG Power Professional, DTV-HD MPEG-2 encoding software, the XtoHD player utility and XtractorHDV import utility, - which extracts video and audio from HDV tapes into Final Cut Pro via FireWire.

Also for the Mac, Lumiere Media targets small-budget filmmakers using Final Cut Pro. Lumiere HD enables real-time HDV editing without rendering the timeline. HDV is converted to MPEG-2 friendly files for offline editing and later is conformed into an HD master.

BOXX Technologies unveiled a turnkey solution for real-time HDV editing using Cineform's (Applied Magic) Aspect HD and Adobe Premiere Pro, Encore DVD and Audition for a one box, HDV editing solution. Similarly, MacroSystem Digital Video unveiled Casablanca Solitaire with one-button backup and plenty of memory for fast editing of native MPEG-2 on a PC, targeting its global school and event videography market.

BitCentral demonstrated HDV editing for broadcasters. Quality is maintained by keeping the MPEG-2 video files in native HD while editing with any of several NLE codecs. The edited MPEG-2 files are fed to broadcasters via satellite or the Internet using MediaPipe, without transcoding.

THE PAYOFF

The take home message from NAB2004 was clearly that there are now plenty of options for editing HDV on the desktop at different price points. If JVC, Sony and other manufacturers make good on the new cameras, decks and peripherals promised at NAB, producers and broadcasters should have an ample toolset with which to plumb the potential of this new HD format to fulfill its potential of democratizing HD production by making it affordable to the masses vs. the elite few. ■

Some innovations make your action faster.

NEW MANFROTTO 542ART AND 532ART PROFESSIONAL VIDEO TRIPODS

Get there before the competition

THANKS TO OUR ADVANCED RELEASE TECHNOLOGY, YOU CAN OPEN, SET UP, REPOSITION OR CLOSE AN **ART** PRO VIDEO TRIPOD ON ANY TERRAIN, IN UNDER 4* SECONDS.

*ACTUALLY, MAKE THAT 3



FEATURES:

542ART CARBON FIBER

532ART ALUMINUM

NO BUTTONS OR LEVERS NEEDED TO OPEN OR CLOSE THE TRIPOD

MID LEVEL "SQUID" SPREADER LOCKS INTO ALL ANGLES FOR STABILITY, EVEN WITH A SMALL FOOTPRINT

EACH LEG CAN BE RAPIDLY AND INDIVIDUALLY POSITIONED



Manfrotto distributed by: Bogen Imaging Inc. 201 818 9500 www.bogenimaging.us info@bogenimaging.com

HDTV Production Hits the Desktop

Advanced codecs expand HD possibilities

by Scott Fybush

Video content producers now have nearly million reasons to begin creating programming in high-definition: That's how many HD sets and monitors have reached showroom floors.

"We've really broken through the chicken-and-egg problem," said David Trescot, senior director of Adobe Systems, at an NAB2004 Super Session entitled "The Hi-Def Desktop."

**"This is
the biggest
single change
to hit
our industry,
ever."
—David Trescot,
senior director
of Adobe Systems**

Even though consumers may be picking up HD sets more for the cool factor of having a plasma rather than to get hi-def programming, there will soon be a heightened expectation for high-def content to fill those screens.

"This is the biggest single change to hit our industry, ever," Trescot said.

PLENTY OF CHOICES

That transition brings with it plenty of choices, Trescot said. Among the most critical is the question of compressed versus uncompressed video.

While uncompressed video may sound attractive at first, Trescot said it carries a huge price in the storage space and computing power it requires.

For many high-definition production applications, it is common to spend far more on storage than on the actual computer system.

Microsoft's general manager for Windows Media, Dave Fester, said compression technologies are keeping pace with the demand for high-definition solutions.

CODECS FOR HD

Fester said Microsoft's WMV high-definition format, part of its Windows Media 9 family, offers three times the compression efficiency of MPEG-2, allowing 720p or 1080i HD video streaming in as lit-



Adobe's David Trescot

tle as 5 to 8 Mbps of bandwidth.

The company hopes Windows Media 9 will become an industry standard. VOOOM direct-to-home satellite service is adopting Windows Media 9, allowing it to increase its channel lineup from 30 to 60 HDTV channels in the same amount of bandwidth.

DO IT ON A DESKTOP

Scott Bryant of the STEAM production house showed how high-def desktop video is allowing his firm to produce complicated, effects-laden productions in real time.

Fester also demonstrated some of the new features of Adobe's latest versions of After Effects and Premiere, including a "close source overlay" cloning function that will make it easier to add or remove people or objects from high-definition video. ■ ©2004, NAB

26x7.8AIF Tele Super Zoom



TL Mobile Television, Inc.
Springfield, MO

"We own two Thales Angenieux 26 X Telephoto Zoom lenses (along with five other lenses from Thales Angenieux) that we started using in June of 2003 after consulting with industry peers and comparing glass from competitive manufacturers.

We found Thales Angenieux lenses to be just as good, if not better than competitive brands – and their prices were very attractive – which provides a significant cost-performance advantage," said Troy Fain, President of TL Mobile Television, Inc.



26 x 7.8AIF.HR Tele Super Zoom
26 x 7.8AIF.HD Tele Super Zoom

"Our clients love the quality, and our operators have found the 26X Thales Angenieux lenses great for handheld camera work because they deliver the extra range we want for sports coverage while providing that extra degree of mobility," concluded Mr. Fain.

angenieux THALES

For more information call 973-812-3858,
e-mail angenieux@tccus.com or visit www.angenieux.com

Local Broadcaster Responds to FCC

GM reminds commission of broadcast contributions

by Deborah D. McAdams

During the NAB2004 Regulatory Face-Off, a local broadcaster stood before four FCC commissioners and asked them to be more aware of how their actions affected his business.

"Every time you attack local broadcasters, you attack our ability to make money and serve the community," said Steve Baboulis, vice president and general manager of WNYT-TV in Albany, N.Y.

Baboulis was responding to an earlier discussion among the commissioners about establishing a minimum number of hours that broadcasters would have to devote to public interest programming, and about cracking down on indecency.

Commissioner Kathleen Abernathy said that with the exception of children's programming, such a statute would be a "high constitutional hurdle."

FIVE-MINUTE STUMPS

Commissioner Jonathan Adelstein displayed less ambiguity, rhetorically asking broadcasters if it was too much

to ask of them to give five minutes to political candidates in the month leading up to elections.

Baboulis said that whenever he offered free airtime to candidates, "only about 25 percent said yes." His experience was that incumbents would rather leave well enough alone.

The commissioners covered several issues during the panel, including indecency, multicasting, cable content regulation, localism and the 85-percent solution that would count downconverted cable carriage of broadcast signals toward the analog shut-off threshold.

On the 85-percent formula proposed by the FCC Media Bureau, Abernathy said it was still very much in the idea stage.

"We haven't even been briefed yet," she said, "but I'm glad to have the dialogue. The idea of starting to think about how we get there is a good thing," she said.

Commissioner Michael Copps wondered how downconverting a digital broadcast signal for analog cable subscribers would advance the ultimate goal of the digital transition, i.e., get-



Commissioner Kathleen Abernathy

ting a digital signal to households.

Commissioner Kevin Martin repeatedly said multicast must-carry should be resolved before the commission considered how to do the 85-percent calculation.

"The question of whether the broadcaster can get those multicast signals carried is going to drive business models," he said. "I think consumers may actually prefer multiple outlets of programming. We need to clarify what

those carriage rights are."

Copps indicated that he, too, was open to multicast must-carry.

"A must-carry properly conceived can be a boon to diversity and a boon to localism," he said.

LICENSE LOSS

Regarding indecency, moderator John Cochran, a correspondent for ABC News, asked if a station could lose its license for violating the FCC's current standards.

All four of the commissioners said yes, as did panelist Michael Gallagher, acting assistant secretary for the National Telecommunications Information Administration's Communication and Information division.

Baboulis, the broadcaster from Albany, subsequently asked the commissioners to bear in mind the difference between broadcast, cable networks and radio.

Abernathy responded that much of the indecency problem now involved radio. Copps said broadcasters needed to keep reminding regulators of the specific community services they provide. ■ ©2004, NAB

Contact your local dealer **VISIT: www.pro-x1.com**
620-342-7743

**Easily Convert
Your Prosumer
Camcorders into
LIVE PRODUCTION CAMERAS!**

We invite you to consider a move into the future with PRO-X1...a move that will dramatically increase the production capabilities of your camcorder. Interfaced with PRO-X1 adapter systems and a small switcher, prosumer camcorders can then be used for live multi-camera studio productions, or to create live, remote, multicam shoots in the field at distances up to 3,000 feet between the camcorder and control center. The PRO-X1 utilizes only one 75 ohm coax cable between its control center and camera adapter to bi-directionally deliver safe power, camera video, program audio, intercom, and tally.

PRO-X1 CAMERA ADAPTER

CANON XL1S

PRO-X1 CONSOLE UNIT

CANON GL2

SONY PD-170

WEVA International
August 17-18 2004
Las Vegas
Visit us at Booth #717

WHEN YOU'RE LOOKING FOR THE "LITE" TOUCH

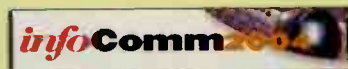
Make PESA's MCLite Master Control Your Choice for SD Operations.

Master Control has become one of the fastest evolving areas in the modern broadcast plant. The PESA MCLite Digital Master Control Switcher, with its flexible and open architecture, has been developed to fulfill the needs of all present and future requirements.

The MCLite is a compact, low-cost, multi-channel SDTV Master Control Switcher available with a wide range of processor and control panel options. Multi-channel, multi-format and centralcasting operations benefit from the modular nature of the MCLite, allowing each channel to be fitted with just the appropriate amount of processing power. Multiple processors and control panels can be arranged in any combination, with up to 16 channels being controlled all from a single control panel or from station automation.

FEATURES

- Multi-Channel SDTV Operation
- Compact A/B Mix-Effects Processor
- Four Keying Layers
- Logo Keyer with Internal Storage
- Extensive Logo Management Software
- Optional DVE Squeezeback
- AES and Embedded Audio Processing
- Automation and GPIO Interfaces
- Relay Bypass Protection



Atlanta, GA
June 9-11, 2004
Booth: # 4131

Contact Your
Local PESA Sales Rep. for More Information



35 Pinelawn Road
Suite 99E
Melville, NY 11747 USA
Tel: +1 (631) 845-5020
(800) 328-1008
Fax: +1 (631) 845-5023

PESA's MCLite Has It All!

Euphonix Max Air Tour Stops At NAB2004

Rolling demonstration nets new customers

By Bob Kovacs

The Euphonix Max Air Tour truck rolled into the company's NAB2004 booth, looking none the worse for wear after logging 50,000 miles over the past 18 months.

A 96-input Max Air console anchored the technology in the truck, which features products from a variety of television equipment manufacturers. The rolling exhibition of the Max Air digital audio console has been a success for the company.

"It was the best thing we've ever done," said Andrew Wild, vice president of marketing for Euphonix. "It has been so good that we bought the truck."

The company plans to continue scheduling visits around North America for the next several months.

Wild credits the Max Air Tour truck for several recent sales to broadcasters, including six consoles to CNN, two to WOFL-TV and two to the Nebraska Educational Telecommunications Commission.

To simplify training of Euphonix Max Air operators, the company now has a 70-minute interactive DVD. Shot at Tribune Studios in Hollywood, the video includes 38 chapters and covers the main operational features of the mixer.

The company recently had other major sales not related to the Max Air Tour, including eight Euphonix System 5 consoles to the Shaw Brothers' Hong Kong Movie City. The facility, one of the largest film post production studios in the world, will use the System 5 mixers for everything from ADR/Foley work to a 400-seat dubbing theater.

Another recent success for Euphonix is the sale of a System 5 and a Max Air to the Sydney Opera House in Australia.

After getting requests from several



Andrew Wild, vice president of marketing for Euphonix

users at the high end of television production, Euphonix developed two versions of its broadcast System 5-B

console. System 5-B will remain the model targeted at typical broadcast requirements, with 96 input channels, 24 mix busses and 24 group/clean feeds.

For more demanding live-to-air,

live-to-tape and post production requirements, Euphonix announced the System 5-BP, which can handle up to 310 inputs. The System 5-BP also includes automation to support both complex live mixes and post production. ■ ©2004, NAB

"It has been so good that we bought the truck."

**— Andrew Wild,
vice president**

of marketing, Euphonix

Broadcaster Goes After Cable

Emmis chief unveils plan for Digital Antenna System

by Scott Fybush

If Emmis Communications Chairman and CEO Jeff Smulyan has his way, the rooftops of America will once again bloom with TV antennas—all tuned to a broadcaster-provided multichannel video service offering an alternative to cable at a fraction of the price.

Smulyan unveiled the "Digital Antenna System" at NAB2004, asking fellow broadcasters to join him in pooling their digital TV spectrum to provide bandwidth for the system.

"The television industry has allowed a third party to take our

BROADCASTER, PAGE 50

"Our signals have value and we want to get paid."

**— Jeff Smulyan,
chairman and CEO,
Emmis
Communications**



Jeff Smulyan, chairman and CEO of Emmis Communications

"We had an aggressive strategy to create a tapeless, high-bandwidth, mission critical environment that also needed to support multiple file formats and be user friendly."

We chose Omneon."

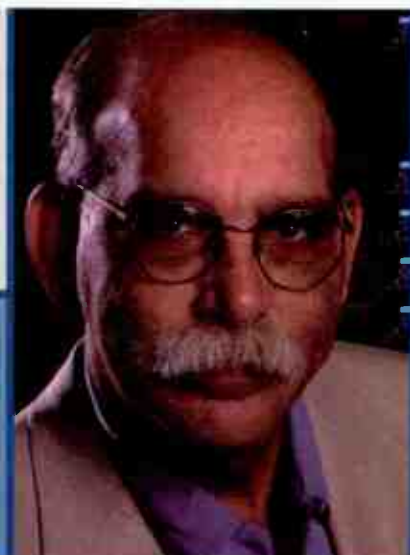
Alan Popkin

Director of TV Engineering and Technical Operations
KLCS-TV/DT, Los Angeles

When KLCS embarked on an ambitious program to upgrade to DTV, they saw an opportunity to go far beyond just television. Maximizing their use of the digital spectrum, KLCS is providing nearly a million students and teachers with a host of new programming options.

With Omneon Spectrum™ media servers, KLCS has been able to implement an efficient model for delivering new services. Incorporating Smart Scalability™, Omneon Spectrum systems meet precise format, channel count, bandwidth and storage specifications. What's more, an Omneon Spectrum can then be expanded in smart, manageable increments - without replacing the original system and in many cases, without taking the system offline.

To learn more about the unique advantages of an Omneon Spectrum media server system visit



It's not just what you serve.

It's who.

**OMNEON
VIDEONETWORKS**

The Fastest Alternative in the World!

NEW EDITION



The new **DV 15 Fluid Head** is the perfect combination with any digital ENG camcorder. It is yet another example of Sachtlер's proven quality being used to support the new generation of cameras. And with its central locking for immediate leg release, the new **Hot Pod CF** is the fastest tripod in the world. Its maintenance-free pneumatic gas spring effortlessly lifts the camera over six feet high. So why wait? Optimize your equipment now. With Sachtlер!

www.sachtler.com

sachtler
corporation of america

55, North Main Street
Freeport, N.Y. 11520
Phone: (516) 867 4900
Fax: (516) 623 6844
email sachtlerUS@aol.com

3316, West Victory Blvd., Burbank, CA. 91505
Phone: (818) 845-4446

World Radio History



set your ideas in motion!

Wohler Debuts New Dolby E Products

Panoramadt division unveils new monitors

by Mary C. Gruszka

Wohler Technologies announced the introduction of two new Dolby E audio monitors at NAB2004.

The monitors, AMP2-E8MDA and AMP2-E8MDA/DSP, now provide full decoding of either Dolby E or Dolby Digital, presented as discrete AES/EBU connections on the rear panel.

DUAL FORMAT AUDIO

"This is something that hasn't been done before," said Carl J. Dempsey, vice president Wohler Technologies. "Before this Dolby would only license us to output two channels at one time, but our customers were asking to have all the outputs available. It's taken a long time to get here, but this is the first product outside of Dolby that provides this capability. Our unit doesn't do everything that the Dolby unit does, but it does provide access to the Dolby E stream."

The 2RU monitors accept Dolby E

and Dolby Digital as direct inputs as well as embedded in either an HD-SDI or SD-SDI stream. Both units employ Wohler's new dual-format technology that provides for both HD-SDI and SD-SDI inputs on the same connectors.

With the AMP2-E8MDA/DSP,

for use by a Windows-based GUI running on a connected PC. The GUI provides not only monitoring but control of the parameters.

John E. Hartwell, a consultant who helped develop this product with Wohler, explained that metadata

under automation control, through the Wohler unit at the same time the program is played out, thus providing metadata correction on the fly.

"This means you don't have to re- ingest the material if something is wrong with the metadata," Hartwell said.

**"Now audio is as important as video,
and in some instances more complicated
because of multichannel sound."**

—Carl J. Dempsey, vice president

Wohler Technologies

Wohler Technologies ventured into the world of control. This data stream processor monitors and displays 15 Dolby metadata parameters on the front panel of the unit (one parameter at a time) and also outputs the data stream on an Ethernet port

authoring is often inaccurate. In a typical application, the AMP2-E8MDA/DSP would be used for quality control during the ingest process of program content, and to develop a metadata correction file. That file could then be later played back,

MONITORS UNVEILED

Dempsey also announced a new RM series of Panoramadt rack-mounted LCD video monitors. The RM series offers two composite video inputs per screen with optional SDI, tricolor tally lights.

The RM-2440 provides four 4-inch 4:3 LCDs in a 2RU chassis, and the RM-3358 provides three 5.8-inch 16:9 LCDs that can also handle 4:3, in a 3RU frame. Also introduced, the MON8-1 with eight 1.8-inch LCD screens for checking multiple feeds.

As Dempsey said, "Now audio is as important as video, and in some instances more complicated because of multichannel sound." ■

©2004, NAB



**Integrated News
and Automation**

Buzzword for 2004: "Tapeless Newsroom"

A tapeless Newsroom is more efficient and flexible; it gives you greater power over your content. It should also be integrated with your newsroom ... and it shouldn't cost you an arm and a leg. Comprompter has the best, most Practical Tapeless Newsroom Solution. See it now

Automation for:

**News ... Elections ... Closings ... Scores ...
Markets ... Headlines ... Forecasts ... Tapeless
Newsroom ...**

Devices:

**Captioning ... Stills ... Character Generators ...
Video ... Audio ... Robotic Cameras ... Video
Streaming ... Tapeless Newsrooms**

Think of it as Automation ...

With a built-in Newsroom!

Call For Demonstration

PHONE 800-785-7765

WWW.COMPROMPTER.COM



Rohde & Schwarz Ups U.S. Presence

by Mary C. Gruszka

Enhancing its commitment to the U.S. and Canadian markets, test equipment and transmitter manufacturer Rohde & Schwarz announced that as of June 1, 2004, the company will assume direct responsibility for the sales and service of all its products in North America.

"We've been working on this for the past two and a half years, and we now have all the resources in place," said John A. Pannucci, president and CEO of Rohde & Schwarz.

Previously Rohde & Schwarz test and measurement products were distributed and serviced in the U.S. and Canada by Tektronix. But in 2003, Rohde & Schwarz took ownership from Tektronix of all service and calibration functions in the U.S. including acquiring the Tektronix service department and personnel. The new

service facility, including a 24/7 call center, is in Columbia, Md.

The company also introduced a number of new products to "meet the complex needs of digital broadcasting," said Thomas W. Christenson, national sales manager, Broadcast Test and Measurement.



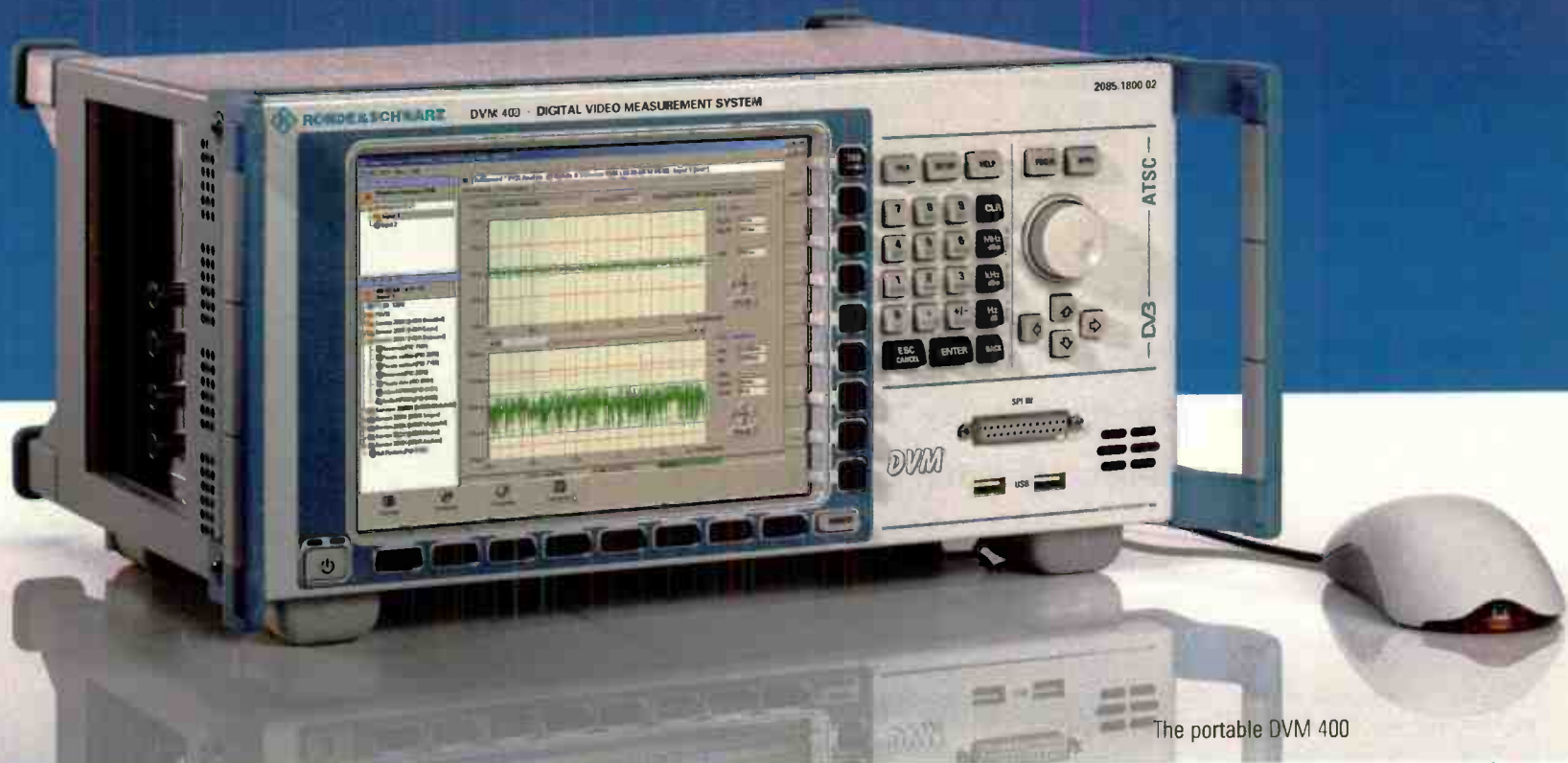
Rohde & Schwarz' DVM-50

NEW DVM ADDITIONS

Two new MPEG-2 monitoring and analysis products join the company's DVM family. The DVM-400 is a big brother to the established DVM-100, with more options and capabilities. The self-contained unit includes an

ROHDE & SCHWARZ, PAGE 48

Scalable Performance.



The portable DVM 400

High performance and flexibility for MPEG2 transport stream analysis.

The new DVM family of MPEG 2 instruments lets you know exactly what's going on, with powerful analysis capabilities. It gives you:

- Real-time monitoring
- In-depth analysis
- Networkability (SNMP)
- Scalability up to 20 signals

It's also a very flexible family that lets you get the configuration you need, and then add to it as your needs grow. We even offer a portable version.

So don't spend time puzzling over your MPEG2 transport streams. Ask us about the DVM family – with the performance you need, and the scalability you've been looking for.



The DVM 100/120 monitoring system



The single/dual-stream DVM 50



Quantel Moves eQ into the Newsroom

Company announces new compatibility alliances

by Mark Hallinger

Quantel officials at NAB2004 said that the company's generationQ range of products is in use, upgrading, winning customers and expanding into new niches.

Company Chairman Richard Taylor noted that the company's early decision to focus on multi-resolution HD products was paying dividends in 2004.

eQ post system would have a full HD-RGB option alongside its existing HD-YUV capability.

This latter move reflects a new emphasis on quality in mainstream HD production and coincides with a market shift towards 4:4:4 image handling, said Quantel Post Production Business Manager Steve Owen.

"eQ users can choose the most appropriate format for each job rather than being forced down one

sophisticated custom transitions.

NEW COMPATIBLES

In other news, the company announced its collaboration with Harris Corp.'s broadcast division to ensure compatibility between

tem and with Sony's XDCAM system at the companies' respective booths.

The company also announced a sale of no less than 12 generationQ HD editing systems to Seattle-based creative design and post facility Flying Spot and the use of an eQ sys-

"Six years ago HD was little more than a dream, and now it's a reality."

—Richard Taylor, Quantel chairman

"Six years ago HD was little more than a dream, and now it's a reality," he said.

Taylor said this was obvious when walking into any consumer electronics store in the U.S., where a significant part of display space is now devoted to HD receivers, receivers that need HD programming.

ADDING HD TO GENQ

Against this backdrop Quantel recently released Vers. 2 software for generationQ, and announced that its

path or the other by the technology," he said.

The company also announced the expansion of its broadcast range with QEdit, a software-only editor designed to fill the middle ground between QEdit Pro and eQ on the high-end, and the company's browse-level products for journalists.

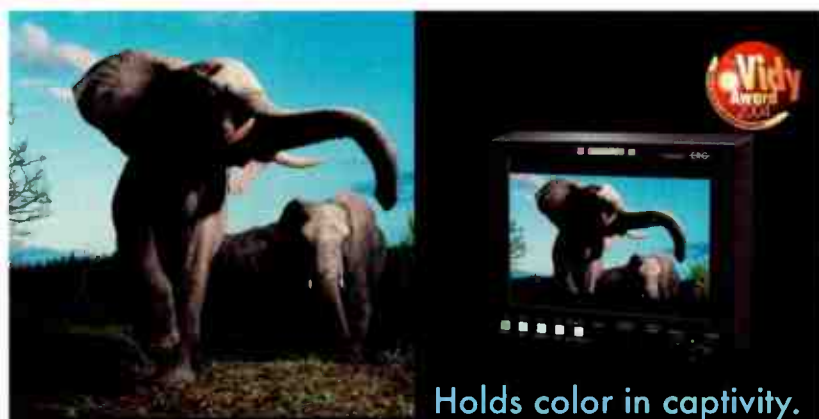
QEdit is designed to run on a standard PC to lower the cost of multi-seat news operations, but is capable of both basic editing needs such as wipes and dissolves as well as more

Quantel's Qedit

generationQ newsrooms and Harris' automation softwares.

As for how generationQ will fit into the evolving next-gen acquisition world, Quantel demonstrated its products with Panasonic's P2 sys-

tem for ARRI MEDIA's Tornado digital ultra slo-mo capture and playback system, which provides images at up to 1000 fps that are enhanced within the eQ and then versioned to any output standard. ■ ©2004, NAB



Holds color in captivity.

Introducing the new 8.4" diagonal ERG HDM-EV80D HD monitor with extremely accurate color. Its HD innovations include four inputs and one output, which allow it to be used with multiple cameras. The monitor's DC output and cost effectiveness make it ideal for rack mounting while its compact, rugged design and low power consumption make it perfect for location shooting. No matter how you use it, the monitor will capture your imagination. For more information, simply call or visit our website: erg-ventures.com, contact@erg-ventures.com, U.S.: +1-949-263-1630, Japan: +81-3-3760-8161

ERG HD Monitors

Rohde & Schwarz

CONTINUED FROM PAGE 46

embedded Windows XP computer, an integral TFT color screen and a keypad. Depending on options outfitted, the DVM-400 can generate, record, replay and analyze MPEG-2 signals, up to 20 streams, as well as perform deep analysis and data broadcast analysis.

For a low-cost MPEG-2 monitoring solution, Rohde & Schwarz developed the DVM-50, which monitors one or two streams, depending on options. The DVM-50 needs to connect to a Windows XP computer, but it offers the same types of analyses as the rest of the DVM family.

To provide the test signals required for the emerging digital transmission methods, Rohde & Schwarz debuted a new test transmitter, the SFU. The SFU supports new standards, DVB-S2, DVB-H (for handheld devices) and DMB-T (TDS-OFDM, being developed in China), as well as more established standards.

The unit provides a variety of transmission parameters plus settable error simulation signals that manufacturers of set-top boxes, receivers, TV sets and chips employ for product development and quality control.

For audio, Rohde & Schwarz introduced the compact UPV for a full complement of analog and digital measurements. Features include a wide bandwidth of 250 kHz, comprehensive FFT analysis covering up to 256k points and a sampling rate up to 192 kbps for digital audio. Analog dynamic range is 140 dB and for digital, greater than 170 dB.

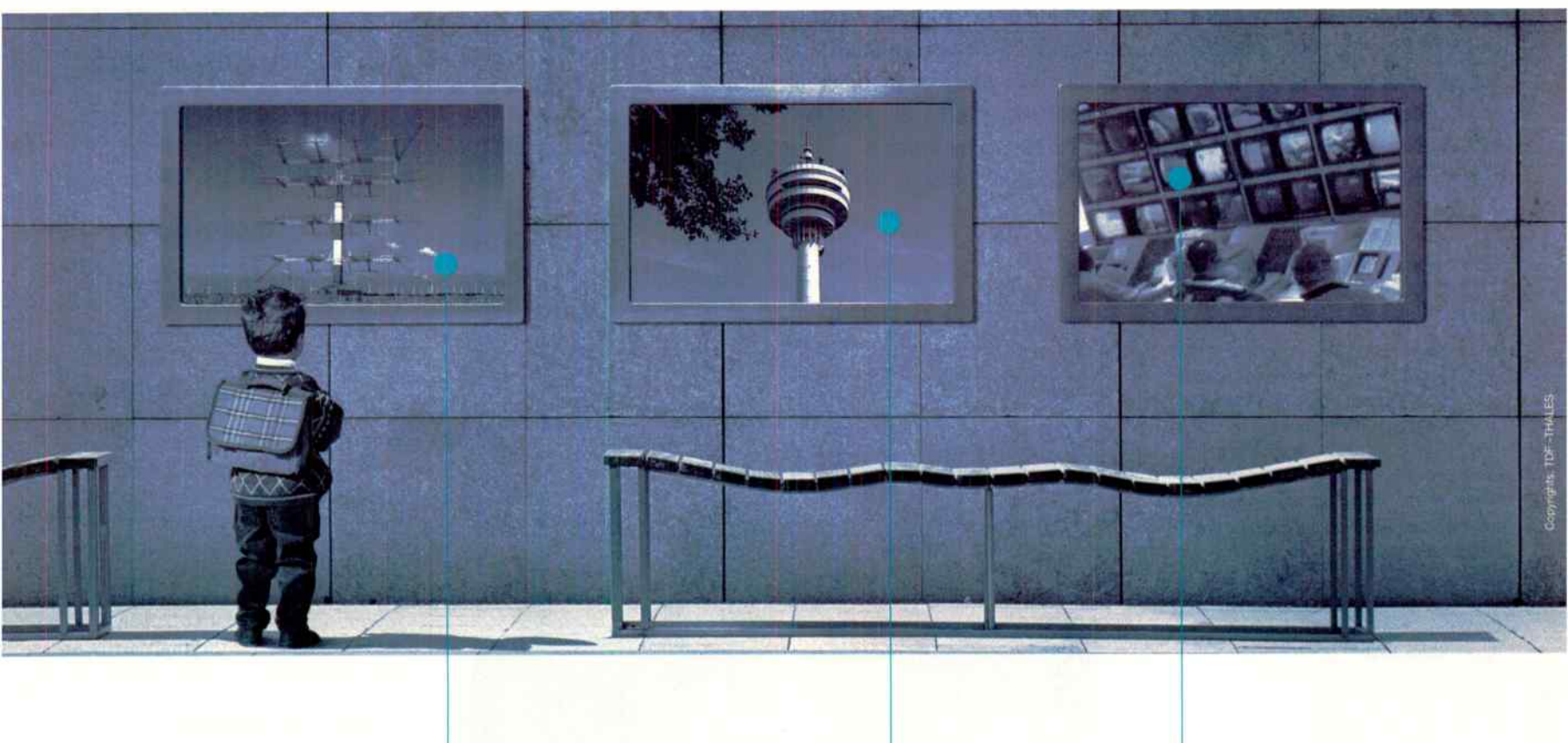
The UPV comes equipped with an integrated PC and TFT color monitor, LAN interface, four USB connectors and slots for additional interfaces like I2S.

Also on the roster of new products is an adaptive equalizer option, the NX7000 ADE, for Rohde & Schwarz's SV700 exciter for digital TV transmitters. The ADE system automatically calculates the values required for phase and amplitude correction, but correction is performed only if distortion exceeds predefined tolerance limits. ■ ©2004, NAB

The future is unlimited where you find the Thales point

Wherever you find the Thales point, you'll find award-winning innovation for all your digital transmission and distribution needs. We're helping broadcasters and service providers benefit from the unlimited potential of the digital age with complete end-to-end solutions. And that's the whole point. Thales. Great people behind great solutions.

THALES



Radio

A key pioneer in the creation and evolution of Digital AM, Thales leads the way in advanced radio innovation, offering today's broadcasters scaleable, dependable high-performance solutions. It's no wonder half the world's high power transmitters today carry the Thales name.

Television

Thales offers today's broadcasters the most reliable and cost-effective path to digital compliance for high- and low-power television. An Emmy winner for transmitter innovation, Thales' solutions are helping customers achieve optimal DTV performance with lower operating costs.

Multimedia

Thales' experience and innovation in transport stream management is allowing multimedia providers to optimize their bandwidth investment and offer the latest in interactive and customized services. Our digital solutions comply with all open standards for DTV, cable and satellite distribution networks.

Broadcaster

CONTINUED FROM PAGE 44

product and profit from it," Smulyan said.

The Digital Antenna System, he said, would allow broadcasters to take back some of the revenue stream now owned by cable without spend-

ing much additional money on infrastructure.

START-UP COSTS

"We don't have to launch a satellite for \$400 million," Smulyan said. "Our industry has already paid \$4 billion for building out the digital infrastructure."

Smulyan estimated that the startup

cost to the industry for launching the Digital Antenna System would be in the \$500 million to \$700 million range over three to five years.

Smulyan cited a survey that found 27 percent of American consumers would be interested in a service that offered 30 "must-have" cable channels and local high-definition broadcasts at \$25 a month if the receiver

box cost them \$99.

If broadcasters gave away the boxes for free, Smulyan said, interest in the service climbed to 49 percent of Americans.

Smulyan said the service would need only 10 percent market penetration to succeed, though—a figure he said would be easily met from consumers eager for a less expensive alternative to cable and satellite.

ANTON BAUER® OR IDX! ONLY THE AZDEN 1000 SERIES UHF RECEIVER IS DESIGNED AS AN INTEGRATED PACKAGE!

The Azden 1000 Receiver can be purchased integrated into the Anton Bauer® "Gold Mount" (1000URX/AB), or the IDX "V" Mount (1000UDX/VM) for use with any V-Mount battery system, for easy and secure mounting to your camera. Designed specifically for broadcast ENG, the 1000 is a true diversity system with 2 complete front ends, and offers 121 user-selectable UHF channels in the 723-735MHz range.

Here's what Buck McNeely, of the TV Show "THE OUTDOORSMAN WITH BUCK MCNEELY" has to say about the 1000:

"My choice of wireless microphones is the AZDEN 1000 series. I can mount up to 2 receivers in line between the camera body and the battery on the gold mount adapter and it's powered by the attached battery with little noticeable extra drain. We have hundreds of channel options and appreciate the clear reception and range these Azden units deliver."



Craig Caples of Caples Productions in Las Vegas says

"When shooting at the Las Vegas Motor Speedway and televising UNLV games at Sam Boyd Stadium we use the Azden 1000 series, the Anton Bauer® unit and both the 1000BT beltpack and 1000XT plug-in transmitter. We've used it for about 2 years in almost every condition and environment, getting a strong clear signal, without any problems, including on the ski slopes of Utah. Caples Productions is proud to use Azden."



Azden has been selected by both Ikegami and Panasonic for their "Slot-In" cameras (model 1000URX-Si).

For complete features and specifications visit our website: www.azdencorp.com.



P.O. Box 10, Franklin Square, NY 11010 • (516) 328-7500 • FAX: (516) 328-7506
E-Mail - azdenus@azdencorp.com



Bodypack transmitter (1000BT) with reduced current-drain for improved battery life, is available with Azden EX-503H, Sony ECM-44H.



Plug-in XLR transmitter (1000XT) works with dynamic mics.



"We don't have to launch a satellite for \$400 million," Smulyan said. "Our industry has already paid \$4 billion for building out the digital infrastructure."

—Emmis chief

Jeff Smulyan

Even if broadcasters pay full retail rates for the cable networks they carry on their additional spectrum, Smulyan said the business model predicts \$4 billion to \$6 billion in revenues five years after launch, with profit margins "in the high teens or low twenties."

COME TOGETHER

For the service to work, however, Smulyan said the broadcasting industry must come together as a whole in its support.

Broadcast groups including Barrington Broadcasting Co, Citadel Communications Co., Clear Channel, E.W. Scripps Co., Fisher Broadcasting, Media General, Meredith, NexStar Broadcasting Group, Prime Cities Broadcasting, Raycom Media and Sunbelt Communications joined Emmis for the launch announcement.

"Our goal is that 100 percent of this business is owned by 100 percent of the broadcasters in this industry," Smulyan said.

A secondary goal of the broadcast challenge to cable is to demonstrate to cable and satellite providers that broadcasters deserve compensation for carriage of their signals.

"Our signals have value and we want to get paid," Smulyan said. ■
©2004, NAB

Next-Gen Ads: More Interactivity

RealNets founder predicts ubiquity of digital media

by Alan R. Peterson

In 1994, RealNetworks founder Rob Glaser proclaimed that, "Digital media would be everywhere. Every consumer electronic product would be an IP device and all audio and video would be digitally delivered."

to be," he said.

Viewers are already involved in such shows as "American Idol," where they are able to vote by phone or online in real time for their favorite performers. In turn, advertisers like Coca-Cola and Ford use their equity in the show to promote their own products and use it across

tipped it to the amused audience and said, "As they say in Vegas, 'it's noon somewhere!'"

Levinsohn called it "protecting the core business and the advertisers." Fox Sports worked with Sprint and Major League Baseball to create instant polls and contests where viewers can use their Sprint wireless

last fall on NBC. When the viewer clicked on an "attract icon," it opened a short pet quiz, then linked to a Purina site for additional information. Another TV spot allowed the viewer to click for a free bag of dog food or puppy food; the interactive message rode atop the main commercial.



**"Programming must reach people
where they are, not
where they used to be."**

**—RealNetworks
founder Rob Glaser**

Ten years later, with the realization of that vision comes the challenge of delivering advertising messages to those consumers—a topic thoroughly covered in the NAB2004 Super Session "Next: Generation Advertising," hosted by Ben Mendelsohn of the Interactive Television Alliance (ITA) and moderated by Allison Dollar, also of the ITA.

Keynote speaker Glaser was joined by an executive panel consisting of William Corbin, vice president of interactive production, A&E television networks; Phil Bienert, manager of e-business for Volvo; Olivier Gers, senior vice president of FremantleMedia Licensing; Ross Levinsohn, senior vice president of FoxSports.com; Maureen Posey, group media director of Nestlé Purina; and Dennis Quinn, executive vice president of business development for Turner Network Sales.

THE PC THING

Glaser set the tone of the session by defining the trends seen in consumers today and challenges faced by advertisers—notably, how to use interactive media to reach consumers where they are, and how to think beyond more than just television.

"The 'PC thing' will become the television thing," he said, "and the early adopters will be the ones to reap the benefits."

Glaser noted how television viewers are not as passive as they once were, that they might have the TV on while they are surfing the Web or using a cell phone.

"Programming must reach people where they are, not where they used

all their advertising.

A SONG FOR A BEER

Glaser used an example where RealNetwork's "Rhapsody" music service is advertising free music downloads on 12-packs of Heineken beer. To punctuate his point, Glaser popped open a can of Heineken,

phones to participate in "virtual manager" games.

"Sprint sponsors online, on the phones and on TV," Levinsohn said. "It hedges against the loss of the consumer across multiple platforms."

Posey's example used an interactive in-show enhanced program during the National Dog Show, televised

Levinsohn calls next-generation advertising a "seismic shift in TV," and realizes that very few consumers today will continue to be passive television viewers.

"Nobody can sit for five minutes in front of TV without thinking they have to be doing three other things," he said. ■ ©2004, NAB

Encoda Links with Arkemedia

Company makes inroads in European markets

by John Merli

Capping off the release of several new products and co-op deals at NAB2004, Encoda Systems announced its intent to acquire a majority interest in Arkemedia Technologies, a British digital asset management (DAM) company. Both companies have been working together on common end-to-end solution projects for many months.

Steven L'Heureux, president of Encoda's Automation Solutions division, said the deal would allow future customers to work even more efficiently on integrated solutions, with an emphasis on workflow. This will be especially beneficial, he said, considering the ongoing transition to a mostly digital scenario. Some of the demonstrations at Encoda Systems' booth this year were "geared to improving a broadcaster's workflow efficiency for future digital activity featuring synchronized automation and traffic, including live updates."

Encoda also announced that its D-

Series Vers. 4 Automation Solution with Linux Vers. 2.6 was recently chosen for a new transmission center and its standard network operations center by BskyB, Europe's predominant satellite

automation systems—to feed PSIP data using the PMCP protocol to several different brands of generators. PMCP has been endorsed by the Advanced Television Systems Committee.

**"[BSkyB] is a very important
acceptance for us."**

—Encoda President Steven L'Heureux

TV provider.

"This is a very important acceptance for us," L'Heureux said. A similar announcement was made recently regarding Encoda and SkyPerfecTV Japan. (Encoda's Japanese distributor is Itochu Cable Systems Corp.)

L'Heureux also said Encoda has moved for full adoption of the Programming Metadata Communications Protocol (PMCP), which allows broadcast systems—such as listing services, program management, traffic and

Encoda also provided details at its booth on its recently announced next evolution of MART, a data management and reporting scheme that enables users to access core business data from a single station or party, or stations within a specific group, and review information at various levels of granularity. What makes some of Encoda's latest products stand out from the crowd, asserted L'Heureux, is the ability to control and monitor facilities remotely, using local area network interfaces. ■ ©2004, NAB

Miranda Revamps With Mobile in Mind

Exec expects advent of HDTV golden age

by Mark Baechtel

At Miranda's NAB2004 press conference, the company's Senior Vice President for Product Development, Michel Proulx, pegged the company's remarkable sales over the last six months and its introduction of 17 new products in the last year to two things.

"The first thing was our understanding of who the HD 'early adopters' were," he said. "And the second thing was a game our product development team played a while back, where the magic question was 'Will it fit on a truck?'"

Proulx explained: Miranda's analysis had indicated that the real driver for growth in HD content hasn't been FCC regulations, but the demand for special-

This conclusion led to the aforementioned product development game show in Miranda's Montreal headquarters. Simply put, Proulx and company concluded that, if the product would not be useful on an ENG trailer, it was not going to put Miranda on the crest of the building wave. This led the company to revamp its product line to aid the gatherers, creators and distributors the sort of content the market is hungry for.

Providing sales of Miranda's upcon-

verter as his measure, Proulx presented a convincing case that his conclusions were right: Sales went from less than 50 units in 2000 to more than 250 in the last quarter of 2003 alone. Sales so far this year stand at more than 400.

"The way we see it, our early sales were just for those interested in compliance," Proulx said. "These new sales are about conversion. Now that cable and satellite are highly motivated to carry HD content, I think broadcast TV is going to

follow suit. It will be the advent of HDTV's golden years."

Taking pride of place among the 17 new HD-oriented products in Miranda's line is its XVP-801i interface card, a one-card solution to the conversion needs of stations trying to juggle the multiple demands of stations that want help in stepping across the cusp that separates the SD and HD worlds. The card will accept any kind of input and convert it for either HD or SD use. ■ ©2004, NAB

**"These new sales
are about
conversion."**

**—Michel Proulx,
senior vice president,
Miranda**

ized HD content that has been coming from subscribers to niche sports-and-entertainment channels on the menus of cable and satellite providers.

"These people accounted for the highest percentage of HD demand," Proulx said. "So we concluded that in order to be successful in a market where HD demand was going to be driven first by special interests, we were going to have to provide products that made it easier to get out there and harvest content for these venues."

Ridge, Holt Address RTNDA

Both stress importance of journalism

by Kelly Brooks

Secretary of the Department of Homeland Defense Tom Ridge took the stage at RTNDA's opening session at NAB2004 to acknowledge and praise the cooperative relationship between the media and the Department of Homeland Security in getting important information to the public in a timely manner.

"Every single day since Sept. 11, 2001, you, [the media] have kept America informed about this century's greatest threat. America has listened, and learned about international terrorism from you," he said. "We have sent the terrorists a clear and simple message: You are not freedom fighters. You are murderers. And on this issue, the world has come together. And as the eyes and ears of democracy, [the media] often find [themselves] on the front line of the fight," he said.

PLAN AND PREPARE

Ridge spoke on the difficulties in simultaneously taking appropriate safety measures while relaying perti-

nent information to the public without causing hysteria, asking, "How do we inform the public without alarming them? [The terrorists] plan and prepare and so must we. And at this time, obviously we do not have specific threat information around [upcoming events, such as the dedication of the World War II memorial or the Summer Olympics]."

"But ladies and gentlemen," he said, "we do have our common sense. We don't need to change the threat level to make us safer and more secure. With so many symbolic [events] in the next few months, we must be aggressive. Special attention will be given to areas of concern such as rail and airline security, hazardous materials, chemical facilities and protection of the electric grid."

"The bottom line is that homeland security is not about one department. It's not about one level of government, or just one organization. It's a national call to action, a philosophy of shared responsibility, shared accountability and shared leadership. The terrorist threat is directed at an entire nation. Only an entire nation, working in close cooperation can deter the threat."

Also speaking at the event was

anchorman Lester Holt, the host of MSNBC's "Lester Holt Live" and a substitute host on NBC's "Today Show." He encouraged the media to convey the exhilaration of grassroots reporting to bright-eyed journalists who only have eyes for the desks of celebrity anchorpersons such as Katie Couric or Barbara Walters.

MENTORS ARE KEY

"How many times have we seen rising young stars in this business crash because no one was mentoring them or correcting them, simply criticizing them. Are we nurturing them, sharing our experiences? Mentorship and those willing to be mentors are the keys to building the maturity levels demanded in our newsroom today. No one should be allowed to fail due to false expectations," said Holt. "Not a month goes by where someone will come into my office wanting to talk about getting into the business, and very often the conversation starts like this: 'I want to be an anchor. I want to be the next Katie Couric. Very few come into my office and say, 'I want to be a reporter.'"

He added that the only way he could obtain a full-time position at the radio station that gave him his first job was if he was willing to report the news.

"The first time I came running out to a police station in a mobile unit, with my tape recorder and walkie-talkie, I was hooked, hooked on being a reporter—being there, being the first to know it and the first to tell it."

Holt encouraged his fellow journalists to remind themselves of that initial excitement and energy, and combine it with their industry experience to guide young reporters. "If you love the game, love it enough to raise the bar, and help the next generation over that bar," he said. ■ ©2004, NAB

The HD Maestro™

- Input HD-SDI, output DVB-ASI
- Based on the LSI Logic DoMiNo™ chipset
- Perfect for post production HD content distribution
- PC platform provides flexibility and connectivity

For more information on the HD Maestro or any DVEO products, call 858 613-1818. Or visit www.dveo.com

DVEO
Pro Broadcast Division
by CMI

Real-time
PC-based
High-resolution
(1080i) HD
MPEG Encoding
Workstation





EDIUS HD

DESIGNING THE BEST HD-NLE SYSTEM



HDRX-E1



EDIUS PRO



DESIGNING THE BEST HD-NLE SYSTEM

Canopus set out to design the best HD video editing system. It had to be of the highest quality, yet affordable – a fraction of the cost of current high-end HD editing systems. It needed to provide realtime, multi-layer HD editing and effects processing with the scalable functionality and stability for which Canopus is renowned. Since current video content is still largely SD, support for editing both SD and HD simultaneously was essential.

Canopus proudly presents...

EDIUS HD

Complete Realtime HD/SD Editing Solution

- > EDIUS Pro editing software with Inscrber® TitleMotion™ HD for Canopus
- > Canopus software HD codec
- > Canopus HDRX-E1 – HD-SDI and SDI input/output board



www.canopus.com

ESOE. All trademarks or registered trademarks are properties of their respective holders.

canopus
broadcast

Oprah Honored in NAB Opener

HP chief urges broadcasters to define medium's character

by Deborah D. McAdams

The first female co-anchor at WLAC in Nashville pulled in a standing ovation from the crowd assembled at the Hilton for the official opening of NAB2004. The woman now universally known as Oprah was about to receive the 2004 NAB Distinguished Service Award. Winfrey was 19 years old when she got the job at WLAC, and so distinc-

was also paying attention to young Winfrey, and called her in for an interview. She went in determined not to relive her previous experience.

"I said to Dennis, 'you know that I'm black. That's not gonna change,'" Winfrey related. Then lowering her voice to intone Swanson, she repeated his dry response: "I'm looking at you."

She proceeded to tell Swanson that she had a weight problem, and that she'd had it all her life.

rated syndicated talk show in television history.

Winfrey was introduced by Carly Fiorina, chairman and CEO of Hewlett-Packard, who delivered the opening keynote, extolling broadcasters to

perceptions about the world. She urged broadcasters to continue their tradition of community service and implored them not to abandon positive, uplifting storytelling.

"I have always thought broadcasters have been at their best when they help people sit back and think reflectively," she said.

Fiorina praised Eddie Fritts, president and CEO of NAB, for his solid leadership in broadcasting over the last 24 years.

"In an industry full of famous voices, none is stronger than Eddie Fritts," she said.

Fritts preceded Fiorina on the dais, asking those assembled to imagine a country void of local information services, and then to imagine the introduction of free TV and radio into such an environment.

"If this new technology called broadcasting came along today," he said, "it would be hailed as a miracle."

Fritts pointed out that broadcasters contribute more than \$9.9 billion a year for charities, local disaster relief and public service announcements, including Amber Alerts that helped recover 150 kidnapped children. He said that in light of broadcasting's contributions, it was "mystifying" that the FCC had not taken action on must-carry of all multicast signals.

"I call on the FCC to break down the cable industry's digital dam," he said, "and let the free broadcast signals flow."

Fritts said he has a "message to [Comcast CEO] Brian Roberts and leaders of the cable cartel: Tear down that wall. Stop blocking consumer access to the best TV pictures the world has ever seen."

The NAB president called the infamous Janet Jackson incident at this year's Super Bowl "unfortunate." However, he said had a similar incident occurred on cable or satellite TV, "it would have been greeted with a collective shrug" by the public and policymakers.

"Why?" asked Fritts. "Because 'wardrobe malfunctions' are part of the cable and satellite landscape Monday through Friday, 24-7." ■ ©2004, NAB

"So have I. Nobody around here is going to say anything about it."

—WLS-TV GM Dennis Swanson, when his new employee, Oprah Winfrey, told him she had a weight problem.

tive was her work that she caught the attention of some Baltimore station executives, who ultimately recruited her. There, she soon came under pressure to alter her appearance.

"They wanted me to change my nose and change my hair," recalled Winfrey, who was less than amenable to such suggestions.

Meanwhile, in Chicago, Dennis Swanson, general manager of WLS-TV,

"He said, 'so have I. Nobody around here is going to say anything about it,'" Winfrey said.

Winfrey said the award represented one of a handful of "full-circle moments" in her life. As a youngster growing up in Mississippi who saw women and African American role models begin to emerge in television, she wondered if she could do what they did. Years later, she has the highest-



Oprah accepts the NAB2004 Distinguished Service Award at the conference's opening ceremony.

"define the character" of their medium.

No one is in a better position to communicate globally than broadcasters, Fiorina said, and more than ever before, television images are forming people's

K 5600®
 LIGHTING

200W

"THE COMPLETE FAMILY"
Joker-Bugs and BlackJack

400W

800W

FAMILY VALUES

- Versatility
- Reliability
- Innovative
- Compact

JOKERBUG 200 KIT
JOKERBUG 400 KIT
BLACKJACK 400 KIT
JOKERBUG 800 KIT

www.K5600.com

10434 Burbank Blvd. • North Hollywood, CA 91601 • Tel: (818) 762.5756 • Fax: (818) 762.6629 • (800) 662-5756

A PROFESSIONAL SELECTS
HIS EQUIPMENT KNOWING THAT
THERE ARE NO SECOND CHANCES.



antonbauer

**THE POWER BEHIND THE BEST CAMERAS
CAPTURING THE BEST IMAGES IN THE WORLD.SM**

PHOTO COURTESY OF PAUL WILLIAMS, VIDEO PRODUCTION SPECIALIST, PHOENIX FIRE DEPARTMENT, ARIZONA

ANTON/BAUER, INC. 14 PROGRESS DRIVE, SHELTON, CONNECTICUT 06484 USA • (203) 929-1100 • FAX (203) 925-4988 • WWW.ANTONBAUER.COM

World Radio History

Pinnacle Advances Tapeless HD Workflows

HD version of Liquid editing software introduced

by Geoff Poister

Pinnacle Systems' latest round of product releases advanced its goal of providing tapeless, networked editing environments for SD and HD.

For the news industry, Pinnacle is going tapeless by incorporating Panasonic's P2 solid-state storage cards and Sony's XDCam format into its Vortex news systems. Time Warner Cable's NY1 has already adopted the system.

At its NAB2004 press conference, Pinnacle announced that its Palladium-based Vortex networked news systems with Liquid Blue editing is now on air at the new CNN production facility at Time Warner Center in New York.

"This marks a significant step in their transition to an all digital, tapeless production environment. The Pinnacle systems will provide feed recording, editing and control room playback—and will be integrated to playback and archive systems in Atlanta," Gordon Castle, senior vice president CNN Technology said.

Central to the system is Pinnacle's Palladium 5000 shared storage system, which provides about 4 TB for on-air quality and proxy video. Media is available within five seconds of the start of ingest, for review and editing—even while the ingest process is ongoing.

Signifying a full commitment to the HD format, Ajay Chopra, Pinnacle Systems' founder and president of the Broadcast and Professional Division, announced a full line of HD products.

"Pinnacle believes that HD is a requirement, not an option, for its customers," said Chopra. "Pinnacle is eliminating the cost and technical obstacles that have slowed the move to HD."

HD PRODUCTS

Part of this thrust is represented by Liquid HD, the HD version of the current Pinnacle Liquid editing platform. It has

a scalable architecture from low-bandwidth HDV to uncompressed HD. Pinnacle's extensive experience with MPEG-2 IBP editing technology assures high-quality HD when compression is required.

For networking HD, compression is a requirement and Pinnacle's IBP technology allows high quality at low bandwidth. Pinnacle claims that at 50 Mbps IBP encoding, HD is virtually indistinguish-

able from uncompressed video.

All Pinnacle Liquid editing systems and Editing for Workgroup systems will be HD-enabled.

Pinnacle also announced the release of Deko3000, which combines 3D modeling and animation with real-time data and image integration. It is also upgradeable to HD resolutions.

Pinnacle has continued its move into

the NLE arena with the release of CinéWave 4.6 for the Apple PowerMac.

The new version offers real-time multistream DVCPRO HD editing with simultaneous monitoring on SD and HD monitors. In addition, CinéWave will support capture and transcode of popular HD formats and frame rates to DV100 from most Legacy HD decks. ■

©2004, NAB

OmniBus Targets Local TV

Scalable controller also introduced

by Mary C. Gruszka

Targeting "call-letter TV stations," OmniBus Systems Inc. announced the availability of its new TX>Play transmission automation system at NAB2004.

Based on OmniBus' G3 technology, TX>Play is an entry-level object-based modular content delivery system.

"TX>Play is scalable and flexible," said Ian Fletcher, chief technology officer and cofounder of OmniBus Systems. "The user interface looks simple, but behind it is a powerful automation engine."

TX>Play supports content ingest to video servers, and provides playlist editing and schedule import features. The system's content metadata and schedule management tools facilitate various levels of integration with business systems.

"The perception in the market among call letter stations is that they can't afford a premier product like OmniBus," said Mike Oldham, CEO of OmniBus Systems. "But we've re-engineered our pricing to make it affordable to local stations. We can do this because the underlying technology gives us more flexibility. A station can buy only the components it

needs, and can add more later."

Dave Polyard, vice president of sales and marketing, predicted that with the availability of TV>Play OmniBus Systems will be installed in call-letter stations by this time next year.

"Local stations see value in what OmniBus can produce," he said.

"A station can buy only the components it needs, and can add more later."

—Mike Oldham, CEO, OmniBus Systems

OmniBus also announced the release of G3 Control, which provides device access, operation and management over distributed networks. G3 Control consists of three elements: G3 Desktop, G3 Routing, and G3 Machine Control.

"This new technology offers unparalleled flexibility. It's a revolutionary way of thinking about designing systems," said Fletcher. "The G3 architecture consists of building blocks that can be highly customizable to provide focused solutions without having to write custom code."

In other news, OmniBus reported significant global growth with key clients in the Americas, Europe, and Asia.

"Our Q1 revenue was up 35 percent over the same quarter in 2003," said Oldham. "The investment by our owner of \$12.5 million demonstrates confidence in what we are doing, and they want us to expand faster."

Major projects include ACE for PBS and a consortium of leading technology suppliers, the consolidation of play-out operations at Crawford Communications, a new content management infrastructure at NOB in the Netherlands and the BBC's new Broadcast Centre in West London.

All of these projects involved OmniBus integrating its systems with those from third-party vendors.

"We have a good relationship with other vendors," said Polyard. "We touch everything they do." ■ ©2004, NAB



Introducing Xenon

The Signal Processing Router

Multi-format Routing **plus** optional plug-ins

Initial plug-in functions include

- Channel Branding
- Master Control
- Embedded Audio Processing





Winner of the STAR award at NAB



888.638.8745 | sales@quartzus.com | www.quartzus.com

Deliver More Content With the Best Picture Quality at Your Bit-Rate



DiviCom[®] MV 100

- Highest performing standard definition (SD) encoder in the industry delivers beautiful digital video at ultra low bit-rates.
- Advanced noise reduction technology improves picture quality and further reduces bit-rate.
- Platform for the future supporting MPEG-2 as well as MPEG-4/AVC and Windows Media 9 (VC9).



DiviCom MV 450

- Flexible, low bit-rate, high definition (HD) digital video encoder delivers an exceptional HD experience.
- Provides standards-based HD digital program insertion (DPI).
- Supports up to two Dolby E passthroughs and 4:2:2.



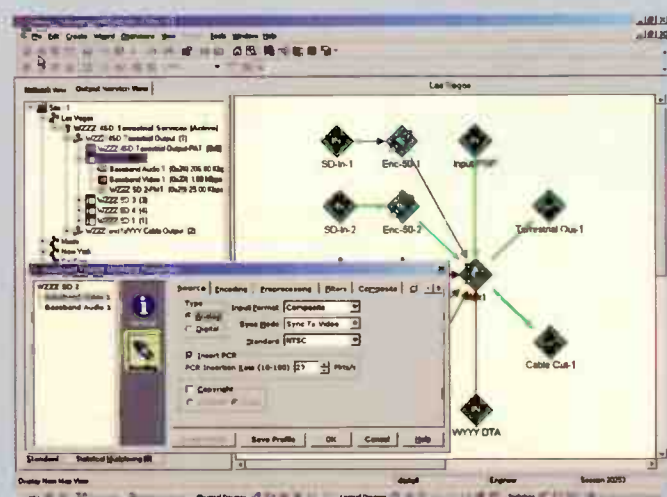
DiviTrackXE[™]

- Third generation closed-loop statistical multiplexer maximizes channel carrying capacity while preserving picture quality.
- Supports a mix of SD and HD VBR and CBR encoders along with data in the same pool.
- Offers a variety of input/output options to integrate with virtually any environment.



Broadcast Network Gateway[™] (BNG)

- Gigabit Ethernet output enables efficient IP-based transport of HD and SD digital video to carrier headends.



NMX Digital Service Manager[™]

- Manages video infrastructure as a series of services rather than discrete hardware and software components.
- Enables seamless change in system mode according to time-of-day and day-of-week.
- Interfaces with third party conditional access, PSI/SI and automation systems.
- Supports a wide range of redundancy designs and automatically reprovisions the infrastructure, ensuring the highest levels of service reliability and availability.
- Permits centralized and distributed service management.

Call us or visit harmonicinc.com/broadcast for more information.

Harmonic Inc. • 549 Baltic Way • Sunnyvale, CA 94089 • Tel: 1.800.788.1330 or +1.408.542.2500 • Fax: +1.408.542.2510

© 2004 Harmonic Inc. All rights reserved.



11th Annual Mario

You may not have noticed that nine normally comes between eight and ten. Now would someone kindly mention that to the NAB?

Yeesh! It's tough enough covering 100 square miles of exhibits in four days and wading through 100,000 Applets hogging the Apple booth without having to deal with NAB's booth numbers.

You think I jest? Here, in order, leaving nothing out, are the booth numbers you would have passed walking east to west in the South Hall: SU9117, SU9019, SU9122, SU9123, SU9025, SU9036, SU9029, SU9031, SU8834, SU9139...

The SU part of each number is to ensure that it's unreadable on the gigantic NAB-supplied maps. Methinks putting 9019 between 9117 and 9112 or 8834 between 9031 and 9139 is to get one in the mood for figuring out what's going on in the minds of ... Well, here's an award-winning example:

'PAN'-TASTIC

Most folks seem more interested in the latest cameras than in what they sit on. Not me. I don't know how you can use Panavision's 300x7 lens without a very stable, very supportive mount. Chapman and Vinten both came out with base-shrunk versions of their pedestals. That's pretty handy in a crowded studio, but it ain't going to help with that humongous heavy new lens, and I'd be concerned about even Fujinon's new precision focus version of their 101x on it.

The precision focus lens is hot stuff, but it costs more and ain't as sensitive as the pre-precision version. The smaller-base peds are great ideas, but they don't have the same payload as the bigger-base ones. That makes sense. But then there's Vinten's Vector 900, quite possibly the best pan head ever.

It's got a bigger payload than the Vector 700. It's smaller and lighter. It's got a greater tilt range (an astounding +/- 90 degrees!). It costs less. In every possible way, it is better than the already terrific Vector 700. But Vinten is continuing to sell the bigger, heavier, less-capable Vector 700, for more than the Vector 900. And booth SU8834 comes between SU9031 and SU9139. Now do you understand? Me, neither. But I love the Vector 900 regardless.

APPLE OF NELLIE'S EYE

Okay, so you buy a Vector 900 and stick it on a tripod and discover that it and the camera operator are both too low. Since roughly Day One of moving-image photography (and probably even before that) the solution has involved apple boxes.

A cinematographer told me once how an improved apple box (with the carry hole moved closer to the edge so two could be picked up with one hand) was rejected by moviemakers for being too scary, adding something about a set being the most expensive place to do R&D. You don't want your production to fail because you brought the wrong kind of apple box.

Well, sure! What if the closer-to-the-edge hole made the wood break? I'd be scared, too. But not of the **Valise Pro** from Fuji Television in Japan, the first completely redesigned apple box.

Yes, it's exactly the right size, but it folds, so it takes up less room in a grip truck. It's made of aluminum, so it weighs less. It's got non-skid, quiet rubber on top. It's got leveling legs and a built-in level. It's got dents for those legs on top for safer stacking and locks on each side for safer (rock-solid) platforming. It's even got strap slots for tying down tripods (or talent).

Wow! The ideal apple box! Who knew?

SKY'S THE LIMIT

So maybe you need to light the talent sitting on a stool on the high platform made from Valise Pro apple boxes. There surely were a lot of fluorescent lamps at

the show. There was a 150-LED camera-mounted array from LitePanels. And there were still a bunch of incandescent and discharge lights. But ARRI's Sky Panel 21 is something else.

It uses an Osram Planon lamp, which is, methinks, something originally made to be an LCD panel backlight. The bulb is roughly 19x15 inches and almost as thin as this magazine. By the time ARRI puts it in a frame with a ballast and supports, it's still only two inches thick. It lights instantly with full output. Methinks it works kind of like a bright, single-pixel plasma display—beautiful soft light without melting the talent.

"But, Mario, hasn't this been around already?"

Yes, indeed it has. You could see something similar at the Licht-Technik booth. But there it was just 5600K. Maybe there's an application or two for an outdoor softlight like this, but I'd sure rather use it in a studio setting, and there we like to be 3200K, which is what ARRI offered this year—with a CRI better than 90! Yes!

SEEING IS BELIEVING

Did I just mention shooting outdoors? I can't see much use for a 3200K ARRI Sky Panel there, but there surely is a lighting-related problem.

Sony is justifiably proud of the LCD screens on some of their notebook computers, but have you ever tried to look at them in direct sunlight? Yeesh! Methinks Panasonic has a better computer display for that purpose, but I ain't being paid to discuss laptops.

I'm being paid (please!) to talk about TV technology, and it uses LCDs, too. They've had motion-rendition issues (which are getting better) and contrast issues (which are getting better). There are viewing-angle issues, which Sony's new Luma series seems to have licked completely. But then there are those sunbeams.

Sony's Luma monitors looked good in their booth. They'd probably look good in a control room. Out in the Las Vegas noonday sun? Hah!

Then there's IMP Electronics. Their Hummingbird LCD monitors have good motion, contrast, and viewing angles. They looked great in their booth and in direct noonday sunlight, right on the screen.

I don't expect you to believe me. I had a hard time believing my own eyes. But if you think you'd like a portable, multistandard LCD monitor (6.5-, 10.4-, or 15-inch) if only it looked good in direct sunlight, all I can say is that you'd better bring your checkbook to the demo. Wow!

PHANTOM SLO-MO

Let me see. I've done mounts, platforms, lights, and

viewfinders (or at least monitors), and I've mentioned lenses. I guess I've danced around it about as much as I can. It's time to get to cameras.

They surely did run the gamut at NAB 2004, from Discreet Surveillance Technology's wireless color camera built into a pen (the pen writes, too) to Luma's HD lipstick to Linetta's digital cinematography camera that uses a hand crank for overcranking and undercranking. I am not making this up.

In the spirit of NAB's crazy booth numbers, Sony announced publicly that they were showing a 1080/60p camera secretly. 1080/60p makes some sense to me; a public announcement of a secret doesn't, but then, I couldn't figure out NAB's booth-numbering scheme.

Anyhow, Grass Valley said they've finally provided the missing link in HDTV: an HD slo-mo camera. That probably came as a surprise to Ikegami, which was also showing an HD slo-mo camera. Both of them do what they can from shooting at 120 images a second.

Over at BandPro, the Cine SpeedCam was grabbing 1024-line pix at a thousand frames per second. And at Motion Lab's booth, Vision Research was grabbing full HD at a thousand frames per second (SD at up to 6,000).

My eyes don't work that fast, but the pictures played back at normal speed from the Vision Research Phantom v9.0 were just drop-dead gorgeous. But, when you record a thousand fps, you'd better be danged sure about when you press RECORD.

WHEN PIXELS GO BAD

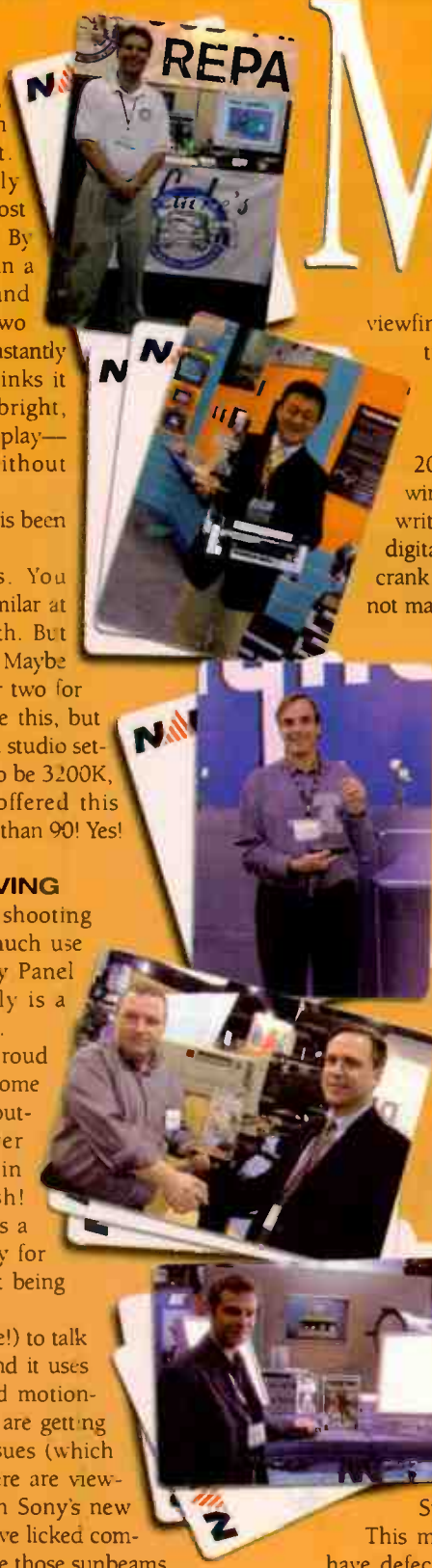
The Vision Research cameras use imaging chips. So do the Cine SpeedCam, Ikegami, and Grass Valley.

This much is certain about imaging chips: They have defective pixels. These days, that's no big deal. The cameras have "defective pixel repair" circuitry—basically memories that note where the bad pixels are and substitute averages of the surrounding pixels.

That is to say, it's no big deal when you pull a new camera out of the box. But, over time, more pixels go bad. Now it's a little bigger deal as you identify the bad pixels and stick them into the memory. And then more pixels go bad.

In a two-megapixel three-chip HD camera, there are six million pixels that can go bad, and the memory ain't that big. At some point, you have to choose between a lit pixel in the upper right or a lit pixel in the lower left. Or you can go to **Lucke's Camera Service**.

Their Pixel Repair Service is about as simple as can be. They add more memory and, thereby, "fix" the never bad pixels. It's one whole heck of a lot cheaper than buy-



Awards 2004



ing a new camera or even a new optical block. Hooray for American ingenuity!

IN THE CITY

Hooray, too, for the inscrutable (who wants to be scrutinized?) folks in Taiwan at Shining Technology. Panasonic's big hit at the show—this year and last—was P2. P2 lets you record DV-quality signals on a PCMCIA card for instant editing in a computer.

Well, **Shining Technology's** CitiDISK DV lets you record DV-quality signals for instant editing in a computer, too, and you don't need to use a P2 camera (but you can, if you want to). As a matter of fact, despite the name, CitiDISK DV supports not just DV but also AVI and MOV files.

P2 captures up to 18 minutes on a 4 GB card; CitiDISK captures up to 80 GB—that's 20 P2 cards worth—a full six hours! P2 cards pop into a PCMCIA slot. CitiDISK DV pops into a FireWire connection.

P2 allows pre-scene loop recording; so does CitiDISK DV. The latter also automatically detects signal format and offers last-scene quick review in viewfinders.

I value the subsistence wages that my editor doles out to me, so I ain't going to mention the cost of a P2 card. Ninety minutes worth of CitiDISK DV (the same capacity as five 4-GB P2 cards) goes for \$599 to \$649, depending on the features you want.

P2 does have no moving parts. I don't think I'll be breaking any confidences in revealing that CitiDISK DV has a rotating disk drive. You pick.

HD GRAPHICS FOR A SONG

CitiDISK DV surely wasn't the only camera disk recorder at the show. Sony, of course, showed its XDCAM with blue-laser optical-disk recording.

Sony's theme was "Ride the HD Wave." But XDCAM, like DVCAM, and a bunch of other Sony products, was SD-only; maybe Sony's SD products like to ride the HD wave, too.

Anyhow, it wasn't big news to hear that some station was upgrading from SD to HD. On the other hand, **Chyron** announced that WRAL, the pioneering digital station, was trading in its HD graphics gear for SD.

They're doing it on account of the SD gear being more flexible than the HD. And they can get away with it thanks to Chyron's C-Mix HD.

C-Mix HD is a four-part (video and key) plus background-layer mixer allowing compositing and blending. It works great with Chyron's Lyric software, but it'll live with anyone's XML app. And here's the key (so to speak): it's got a built-in HD upconverter.

Shoot HD. Record HD. But do your graphics in SD and upconvert. It surely saves money and trouble. And it's under \$20k.

FREE MXF

Now, then, two awardees ago, I was proclaiming something with only three figures in its price tag, and I just said something with five figures was a money saver. It's tough to say what's inexpensive: \$20,000 is pretty low for a house; \$599 is an awful lot for a copy of a newspaper. But, when it comes to cheap, there's one thing everyone can agree on. Free is as inexpensive as you can get.

So, let me see, what could you get for free at NAB2004? Las

Vegas water from a water fountain, rum-cordial chocolates from B&H Photo. Assorted pens, candies, the occasional light-up ball.

Then there was **Snell & Wilcox**. Some folks called 2004 the year of HDTV. To me, it looked more like the year of MXF.

What's MXF? How do you use it? How will your computer deal with it? How much is this going to cost?

The last one's pretty easy, thanks to Snell & Wilcox. Their MXF Desktop player and MXF Express software toolkit were (and are) free! That's gratis. Complimentary. No charge. And (be still my heart!) they actually support these giveaways!

To the grand tradition of Tektronix chroma-resolution charts, Fujinon backfocus charts, and Panasonic's Varicam training, please welcome Snell & Wilcox's free MXF software! Wahoo!

KEEPING IT CLEAN

Note to Our Beloved Commish: The last word in the previous paragraph is not, nor was intended to be, obscene, indecent, prurient, or anything else that a devout minister wouldn't be willing to say to a mixed audience in church.

You've got to be careful these



days. Or is it just business?

Transmitter sales slowed down? Our Beloved Commish creates digital TV broadcasting. Camera purchases lagging? Michael Powell comes up with his "voluntary" plan for HDTV. Video delays in a slump? Raise the indemnity fines!

It seemed to work. Leitch was touting its "SafeFeed." Janet-Jackson delay at the show. Evertz, Pixelworks, and others had their own versions of "wardrobe malfunction" equipment. But there's a problem: What if someone forgets to hit the Dump button? It happened to a commentator at a non-commercial station who submitted her remarks in advance, and she got fired.

So **Enco's** Guardian does it for you. It listens to what's being said, compares it to a dictionary of no-nos, and bleeps what's offensive. Really! It learns as it goes and is context sensitive, so Nick at Nite's TV Land doesn't have to worry about emitting "The BLOOP Van BLOOP Show, co-starring Mary Tyler Moore." What's it cost? Less than the current fine for one incident, that's for sure.

I could go on, but Roman Moronie, a character in the 1984 family movie "Johnny Dangerously," did it so eloquently that I'll give him the last word. Giving credit where it's due, this was lifted from the Internet Movie Database, which lifted it from the movie.

"I would like to direct this to the distinguished members of the panel: You lousy corksuckers. You have violated my farging rights. Dis somanumbatching country was founded so that the liberties of common patriotic citizens like me could not be taken away by a bunch of fargin iceholes like yourselves."

Mario Orazio is the pseudonym of a well-known television engineer who wishes to remain anonymous. You can e-mail him at Mario_Orazio@imaspub.com.



Upper left to lower right: Kevin Lucke, video engineer, Lucke's Camera Service; Katsuya Seki, Fuji Television Center and designer of the Valise Pro; Chyron President/CEO Michael I. Wellesley-Wesley; Peter Harman, marketing manager, Vinten and TV Technology Editor Tom Butts; Timo Muller, ARRI product support/technical marketing; Howard Smith, Modular Systems; Trevor Bilcock, business dev't manager and Gill Ashby, managing director, IMP Electronics; Larry Vlado and Andy Kubit of Vision Research and Jeff Silverman of Inertia Unlimited; Bruce Devlin, principal R&D engineer, Snell & Wilcox; Shining Technology Marketing Manager Chris Wang; Enco Systems President Eugene Novacek

TECHNOLOGY ROUNDUP

A review of selected gear on display at NAB2004 Part I

PRODUCT REVIEW



BY CRAIG JOHNSTON

The biggest camera news at last year's NAB was in the form of prototypes and promises. If this year lacked its predecessor's number of show-stopping announcements, NAB2004 made it up on promises delivered. There seemed to be two new video camera initiatives this year: one is to make HD video production more affordable, and the other is to develop digital-cinema cameras that more closely mimic the image quality of their film brethren.

Panasonic Broadcast surprised the broadcast world last year with its decision to skip DVD media and move directly from videotape to memory-based media camcorders. At this year's show, Panasonic fleshed out its P2 system with a dedicated P2 nonlinear editor and a more finished P2 camcorder, as well as customer announcements.

The company also coined a new acronym: ING, which stands for IT News Gathering.

Panasonic's P2 media consists of four ganged Secure Digital (SD) media chips on a credit card-sized rectangle

CAMERAS

and there is general agreement that its advantages include the ability to hot-swap recording media, data rates to high-definition and beyond, and very low power usage.

Questions remain regarding the high cost of media, which is hundreds of dollars for around 20 minutes of recording time. Panasonic is banking on broadcasters treating the media, which can be re-used thousands of times, as a capital, one-time expense.

The company introduced a standard-definition DVCPRO50 camcorder, the AJ-SDC905, which features three 2/3-inch CCDs and an IEEE-1394 (FireWire) port. The camera has a 12-bit DSP and 16:9/4:3 switchable aspect ratio, and the unit is part of Panasonic's initiative to make DVCPRO50 the main SD production standard.

Panasonic also debuted an ultra low-light convertible camera and complementary accessories to strengthen its line-up of remotely controllable, multi-purpose cameras. The new Panasonic cameras are the AW-E650 1/2-inch, three-CCD and AW-E350 1/3-inch, three-CCD models.

In the electronic cinema area, Panasonic's AJ-HDC27 VariCam HD cinema camera is finding lots of work. The company added some new tools for it this year, including the AJ-GBX27 HD gamma corrector, designed to

adjust the VariCam's HD-SDI output to match the tone graduations of an HD display monitor.

Sony Electronics started down a different path last year, choosing optical disk recording on its newest camcorders. This IT-based video production equipment now includes the PFD23 disc media, PDW-530/P and PDW-510/P disc camcorders, the PDW-3000, PDW-1500 and PDW-1 disc recorders and the PDZ-1 proxy browsing software. The company also announced interoperability between the XDCAM recorded disks and Avid's nonlinear editing systems.

Also in Sony's booth was a new entry-level HD camcorder, the HDW-730S. It features three 2/3-inch IT CCDs (1,920 x 1,080) yielding 1,000 TV-line horizontal resolution and a sensitivity of f/10 @ 2000lx. The camcorder also features power consumption of 33W.

Another new camera in Sony's booth was the HDC-X300, an HD POV camera featuring three 1.5 megapixel power HAD, 1/2-inch CCDs. The camera achieves 1,080 lines at 59.94i, 50i, 24p, 25p, and 30p and still-picture mode and it lowers the cost of an HD camera to the \$15,000 range.

The company also introduced a 14-bit A/D standard-definition studio camera, the BVP-E30 SD.



Tom Parrish (l), district sales manager for Panasonic, demonstrates the company's P2 camcorder for Gene Cordes of Creative Alternatives (c) and Craig Raisner of Present Productions.

In the accessory area, Sony and other HD outside broadcast camera makers have found resistance from remote van vendors to pulling new fiber optic cable into sports and entertainment venues already cabled with triax. So Sony showed a new HD triax converter that enables a choice of connectivity with triax or optical fiber systems on location.

Ikegami attacked on the affordable HD front with its HDK-75EX

CAMERAS, PAGE 62

NAB Technology Roundup Part I

Cameras	60
Audio	66
Cable, Fiber & Networks.....	74
Camera Support.....	82
Lenses	88
Editing	91
Monitors	94
Transmission.....	96
Test & Measurement.....	103
Signal Processing	107
Batteries & Lighting	117

Coming in Part II

Graphics
Storage/Recording
Asset Management
Satellite/ENG • Routers & Switchers • Automation



Mary Sullivan of B&H Electronics shows off a Sony DXC-D50 WSL camera. Behind her is B&H's extensive line of broadcast cameras and tripods.



Grass Valley's new LDK 6200 HD Super SloMo camera

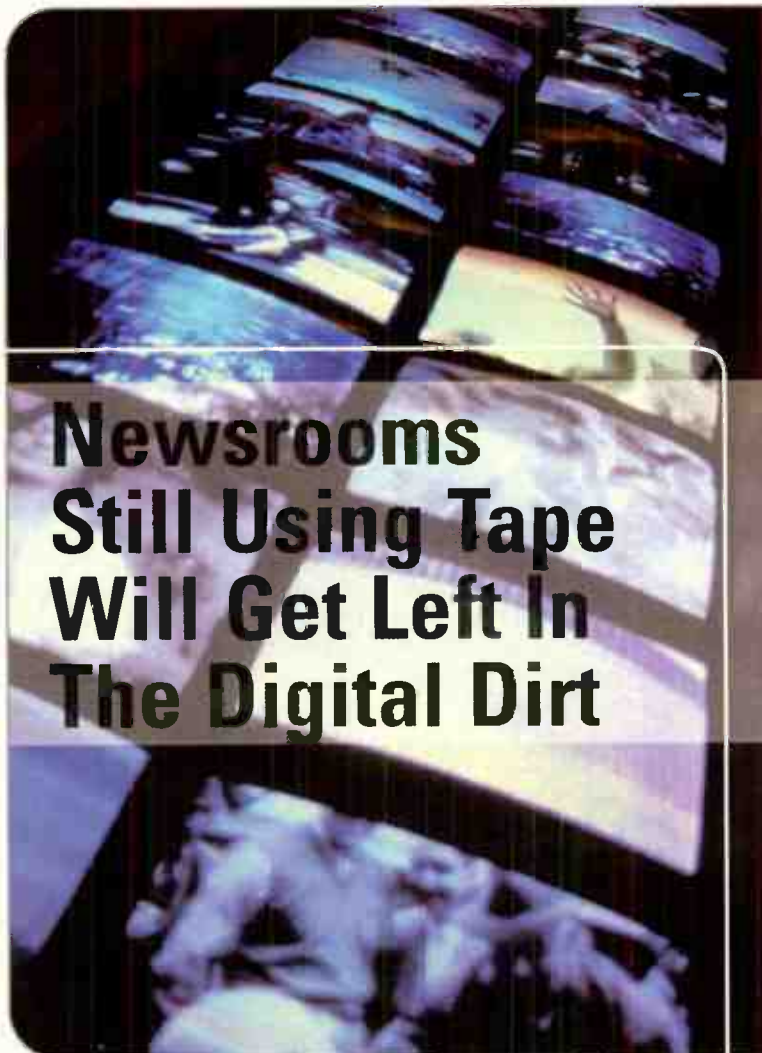
camera head and CCU, and built-in up- and down-converters, allowing the CU-3300 CCU to provide any format SDI including 1080i, 480i, 575i, 720p or 480p. The camera features a self-diagnosis system and a 12-bit A/D converter that consumes little power.

And Hitachi returned with its CR-D10 DVD camera recorder, first introduced at NAB2002. The recorder section features direct docking to the company's Z-3000 and Z-4000 digital

processing professional video cameras, and can write to DVD-RAM and DVD-R optical disks. It also sports an LCD monitor and power for wireless microphone receivers.

Thomson Grass Valley's new camera entry this year was touted by the company as delivering the last major missing link in HD production: slow motion. To fill the gap, the company introduced the Grass Valley LDK 6200

CAMERAS, PAGE 64



Newsrooms Still Using Tape Will Get Left In The Digital Dirt

New Open-Architecture Design Provides First Affordable, All Digital Tapeless Newsroom



Ingest



Edit



Produce



Playback



- Full-Featured Ingest/Edit/Playback End-to-End Solution
- Instant Access to Hundreds of Hours of DV and MPEG Networked Storage
- Automated Ingest of SAT Feeds and Faster than Real-Time Batch Digitizing
- Low-Resolution, Frame Accurate Proxy Editing Running Inside Newsroom Automation Software
- DV Studio Pro Editor with Real-Time Effects and No Transcoding
- Fully MOS and VDCP Compliant for Broadcast Environments

"The Video Technics NewsFlow product is a reliable integrated system that delivered as advertised, with outstanding support as an added plus."

Allen Finne, Director of Engineering for KLRT

VIDEO
TECHNICS
INC.

CIPRICO
Accelerating the Digital Media Workflow

matrox
Digital Video Solutions

Adobe

www.newsflow.tv

Cameras

CONTINUED FROM PAGE 63

HD Super SloMo digital camera, which will premier at sporting events this summer including the Euro 2004 Soccer Championship in Portugal and the 2004 Summer Olympics in Athens.

Thomson Grass Valley's LDK 6000 mk II Worldcam has found a lot of acceptance with mobile truck operators because of its HD format agility. The Worldcam was upgraded for NAB with an option to allow the camera to deliver higher quality back to the broadcast center through the use of fiber optic cable. (It was originally capable of triax transmission only.) Key to extending the range of triax is the Thomson Grass Valley triax repeater, also debuted at the show.

For-A also moved forward in the slow-motion video camera front by showing three variable frame-rate cameras at NAB2004. The VFC-2000, shown as a preliminary model, can capture full frames of SD video at a 2,000 frames per second rate and split frames at up to 32,000 frames per second. It records to the camera's own

memory and comes standard with one-second of recording time, expandable to four seconds with optional additional memory.

AltaSens is a new name to the professional video camera business, but then so was Rockwell Scientific, the CMOS imaging sensor maker that spun AltaSens off shortly before NAB2004 to handle the CMOS sensor business.

AltaSens introduced its new ProCamHD 3560 CMOS sensor, with a 2.1 megapixel (1,936 x 1,086) capture area providing 60 frames-per-second progressive, 120 fps interlaced at 150 MHz at full HD resolution. The new sensor allows the selection of a 12-bit data rate at 150 MHz or 24-bits at 75 MHz, and color sub-sampling to achieve lower resolution images (and higher frame rates) while maintaining the same optical size.

Several camera makers interviewed by this author expressed real excitement with the availability of this new CMOS sensor, saying that it puts the new technology closer to, if not on, par with the incumbent CCD sensors.

Arriflex, long a name in film cameras, showed its D-20 camera demonstrator. Arri and the Fraunhofer



Chris Ridzon of Sights 2 See Television tries out the HDC-910 HD high-definition camera in the Sony booth.

Institute for Integrated Circuits in Erlangen, Germany, developed a camera that features a single six-megapixel CMOS sensor with an image area identical to a 35mm film camera. This allows use of existing cinema lenses and the removal of a beam splitter, which permits better lens designs and the elimination of errors introduced by a beam splitter.

Dalsa had shown a similar single-imager concept camera at NAB2003. This year they returned with a "beta" version, and have slated November as the roll-out date for a production model. It will rely on an eight-megapixel CCD imager being fabricated at the company's own plant in Bromont, Quebec. Target exposure latitude for the imager is 12-stops.

Laird Telemedia demonstrated its EdgeCam, a ruggedized, +80-line camera designed for extreme conditions. The EdgeCam was showcased in a Helmet Camera System, featuring lightweight aircraft aluminum mounts that the company said is indestructible and carries a lifetime warranty. It uses a steel tube-style color camera with a Sony precision CCD image pickup device. The mount also features a built-in clear lens cover to protect from bugs, mud and other debris, requires no modification to speeds in excess of 180 mph.

Link Research added a reverse video feature to its LinkXP wireless camera equipment. The new version is called LinkXPR, and shows the cameraman a return picture from the production truck or studio. Link Research has included reverse video in its LinkXP camera-back range, which docks onto a broadcast camera via a standard BVV5 Sony interface.

Band Pro Film & Digital announced a marketing agreement with Sony that allows Band Pro world-

wide rights to market a customized "Powered By Band Pro" HDW-F900 HDCAM high-definition camcorder. Band Pro's camcorder features a beefed up handle usable for low-slung shots, reinforced viewfinder hardware, and a mount for a conventional matte box. Other advancements are now being engineered.

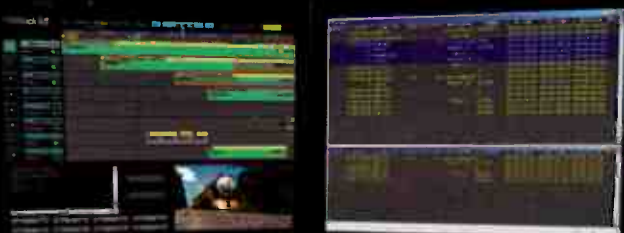
The company also brought a super slow-motion HD camera to the floor, the Cine Speedcam, which utilizes 35mm cine lenses. With its CMOS imager, the camera delivers true widescreen HD (1,536 by 1,024 pixels) video capture at frame rates up to 1,000 frames-per-second, and up to 4,000 fps at SD resolution. Images are captured as uncompressed .tiffs in RAM installed in the camera, then downloaded to a PC for processing and replay.

16X9 brought back the Sim F-900 time-frame intervalometer, built to work with the Sony CineAlta 24p HDW-F900's single-frame record feature. It is a specialty device designed to allow recording time-lapse intervals between four seconds (the minimum allowed by the HDW-F900) and up to 18 hours. It requires no modification to the CineAlta camera.

Clarity Image showed its Varispeed Controller, designed to allow videographers using a Panasonic VariCam to program the frame rate of the camera. The Varispeed controller makes the VariCam capable of user-defined ramp times, smooth real-time frame-rate changes, and can also handle camera start and stop.

WolfVision added to its line of presentation stand camera systems with the VZ-9, which features a built-in LCD preview monitor, lightfield for slides, mounted turntable and Ethernet port. The camera used in the VZ-9 produces progressive-scan images. ■

Fastrack!



Tape/Server Hybrid Editing

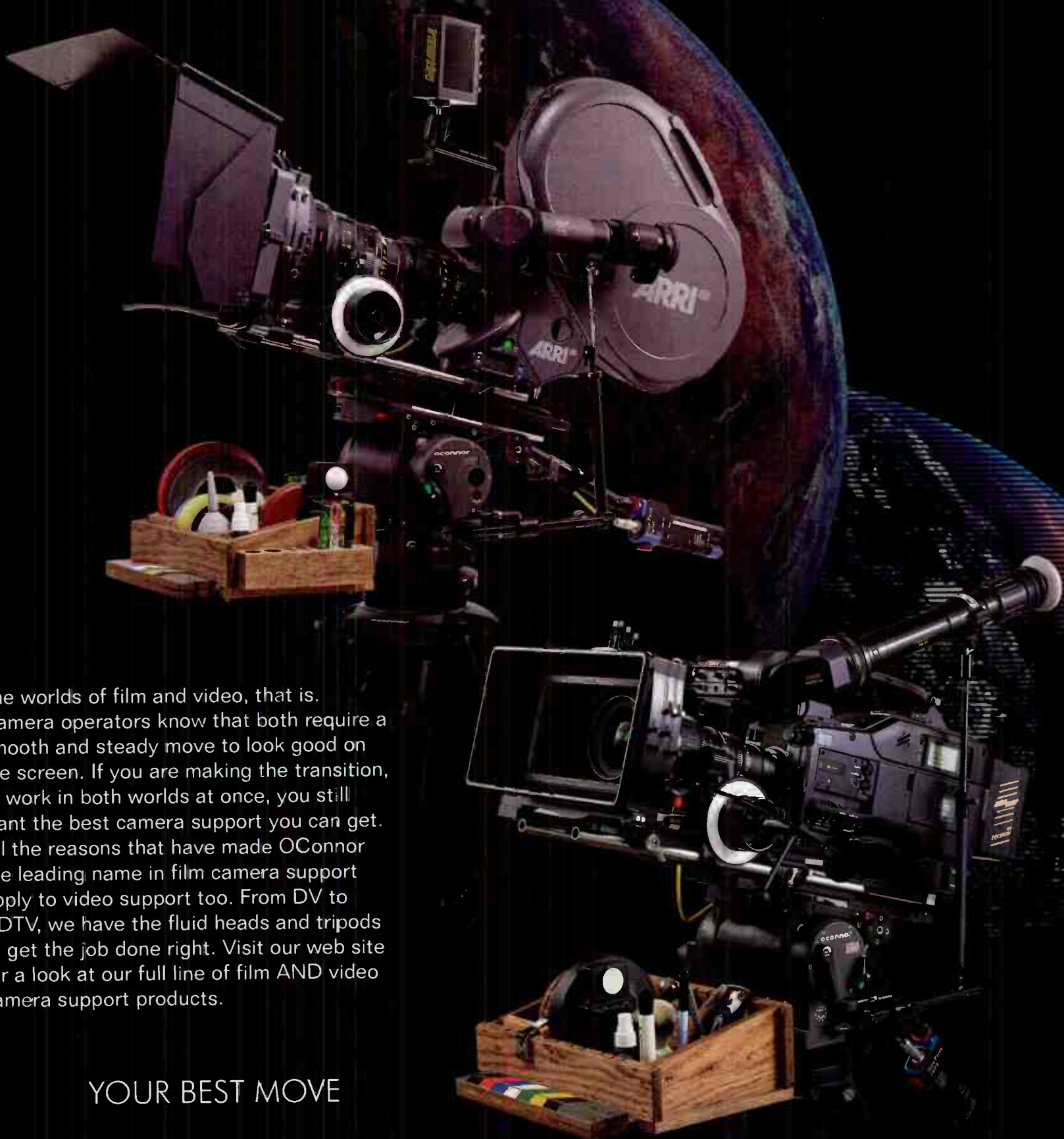
Non-linear editing on video servers
Combine up to 80 tape/server channels
Flexible serial and ethernet control
Optimized linear editing capabilities

Real Time Non-Linear Media Controller

Editware

Hybrid Media Controllers
200 Litton Drive, Suite 308
Grass Valley, CA 95945 USA
tel: 530.477.4300 fax: 530.477.4304
www.editware.com

THE BEST FOR BOTH WORLDS



The worlds of film and video, that is. Camera operators know that both require a smooth and steady move to look good on the screen. If you are making the transition, or work in both worlds at once, you still want the best camera support you can get. All the reasons that have made OConnor the leading name in film camera support apply to video support too. From DV to HDTV, we have the fluid heads and tripods to get the job done right. Visit our web site for a look at our full line of film AND video camera support products.

YOUR BEST MOVE

OConnor

A Division of Sachtler®

100 Kalmus Drive Costa Mesa, CA 92626 Tel (714) 979-3993 Fax (714) 957-8138 <http://www.ocon.com> sales@ocon.com

World Radio History

CONSOLES & AUDIO MIXERS

AMS Neve showed the DFC Gemini digital mixing system featuring the WavTrak display of audio track data by channel. The company also demonstrated new features for its Libra Live Series II digital broadcast console, including networked Encore Automation allowing configurations and surface settings to be shared across network and I/O resource sharing between multiple studios.

Calrec's Hydra audio network made its NAB debut. The Hydra is an advanced networking and mic pre-amp system that enables I/O resources to be shared throughout the range of Calrec digital consoles.

Calrec also demonstrated its Alpha, Sigma, and Zeta 100 consoles with a new set of features designed for NBC's coverage of the 2004 Olympic Games in Athens. New software includes input gain linking of inputs 1 and 2, automatic camera-led cross-fading and a re-engineered front end for faster boot up and access. A revised metering selection offers more choice of signals with different types of meter on the same signal, metering of any external input and up to three stereo phase meters.

Dan Dugan Sound Design showcased its Model D-3 automatic mixing controller. This eight-channel processor patches into the digital insert points of a digital mixing console, detects which mics are receiving input, and makes fast cross-fades. The unit's voice-controlled crossfades track unscripted dialog.

Digigram debuted the miXart 8 ES

multichannel sound card as the newest product in the company's EtherSound line. The sound card features 8/8 Ethersound I/Os and 8/8 analog I/Os including four microphone preamps with phantom power. Analog and network inputs may be mixed on the card and routed to analog or network outputs. The core of the system, the miXart 8, supports simultaneous recording and playback plus audio effects, metering, mixing, routing, and real-time processing. Options include MPEG encoding/decoding, sample rate conversion, and delay.

New mixer software for Euphonix's System 5-B broadcast digital mixing system was unveiled at its booth. With the new software, the console supports up to 96 channels using a single DSP mixer core, and includes 24 mix buses,

24 group/clean feeds, and 16 IFE/aux sends. The new System 5-B also includes a dedicated mix-minus bus with single button press N-1 mix-minus outputs and talkback from each channel.

A second model, the System 5-BP supports up to 310 channels, includes mix automation and a number of different mixer software packages for the customer to select combinations of buses and channels.

Euphonix also parked its Max Air Broadcast Tour vehicle at its booth. After NAB, the tour heads east, reaching Chicago in mid-June and New York at the end of July. This specially commissioned truck is outfitted with a 96-channel Max Air digital audio mixing system set up to simulate a local TV station digital audio control room.



Tony Langley of Euphonix (r) explains a feature of the Euphonix Max Air console to Jared Hall of JaredHall.com.

The latest developments in audio at NAB2004 featured networked audio, expanded features for audio consoles in the mid- and lower-price ranges, a wider range of small portable mixers, new disk-based recorders, plus new software for digital editing tools to enhance the creative process. Also evident on the exhibit floor were all sorts of processing gear—IP and ISDN audio, mic pre-amps, A/D and D/A converters, limiters/compressors and more.



Video Heads

- ★ Digital Betacam
- ★ Betacam SP
- ★ Betacam SX
- ★ 1" Type C
- ★ 3/4" U-Matic
- ★ 2" Quadruplex
- ★ Pro VHS/SVHS

Twice the Head Life Half the Cost



800-971-9191 ♦ 408-226-9800

WWW.AHEADTEK.COM

To aid in training, Euphonix published a 70-minute training video on DVD for the Max Air. The video includes 38 chapters covering all the main operational topics of the Max Air and also includes an 18-minute guided tour of the main console features and basic operational concepts.

Harrison introduced the new MPC4-D film mix console that features TFT screens above all the faders displaying a waveform-envelope display. As audio is passed through the channel from source machines, the IKIS computer system generates a waveform for each input and stores it in synchronized memory.

Harrison developed a number of new features for its Generation-3 TVDSL on-air broadcast console. Assigning talent or other sources to their respective mix minus feeds also assigns them to the Producer's Bus. Talent faders, when down, feed this special mono bus that could then feed a listen key on the producer's intercom or a separate loudspeaker.

Level Dependent EQ allows two different curves to be applied separately to a problem sound source. The two EQ settings switch when a predeter-

AUDIO, PAGE 68

www.bhphotovideo.com



Apple G4 Turnkey Systems



Avid Xpress DV



Pioneer DVD-R/RW Writer



Sony PVM-20N5U



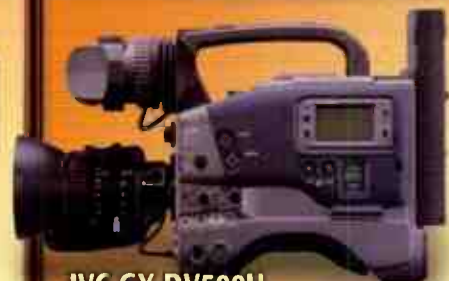
Panasonic AG-DV1000



Canon XL-1S



Sony DSR-25



JVC GY-DV500U



Sony DSR-370L



InFocus LP-650



Panasonic AG-DVX100



JVC BR-DV600UA



The Professional's Source

When in New York City

Be Sure To Visit Our

SuperStore



420 Ninth Ave.

Between 33rd & 34th Streets,
New York, N.Y. 10001

For Orders Call:

800-947-9907 • 212-444-5007

or Fax (24 Hours):

800-947-7008 • 212-239-7770

Store and Mail Order Hours:

Sun. 10-5, Mon. thru Thurs. 9-7

Fri. 9-1, Sat. Closed

We Ship Worldwide

Audio

CONTINUED FROM PAGE 66

mined level threshold is reached.

SuperLooper provides 20 seconds of 40-bit digital audio recording to capture the sound from a person speaking into a microphone that can then be used to optimize that input channel.

Finally, the Generation-3 TVDSL console features a satellite management system, called Party Line for setup of complex communications requirements during multiple satellite feeds.

Henry Engineering debuted the StudioDrive PC audio mixer, a stereo on-the-air and production mixer that fits in the drive bay of any PC. It features six inputs (mic + five line ins), and includes both On-Air and Soundcard outputs. The unit also includes a built-in mix-minus output, a built-in telephone coupler, plus a monitor system with automatic muting and a headphone jack.

Tascam is now distributing Kamesan's line of mixers in the U.S. These mixers are geared for electronic news-gathering, independent filmmaking, commercial advertising and television production. Included are the KST-2000 and KS-342 mixers and the MoniCough.

The KST-2000 is a small three-channel mixer. The KS-342 features a pair of expansion modules, four mic inputs, and comprehensive monitoring. The MoniCough is a stand-alone microphone preamp, talkback/headphone monitor system and mute switch for commentary applications.

Mackie unveiled its latest digital recording console, the dXb.400. Features include dual touch-screen interface, 96 kHz operation (optional to 192 kHz), on-board automation and DSP, 25 100mm Penny+Giles optical faders, fully configurable I/O card cage and a FireWire I/O card option for streaming to/from desktop or laptop computers. The mixer is compatible with select VST plug-ins and integrates Mackie Control Universal functionality for controlling Pro Tools, Logic and

other popular audio software applications. The dXb.400 ships with a Universal Audio UAD-1 Powered Plug-ins Card pre-loaded, providing instant access to popular plug-ins like the Teletronix LA-2A and 1176LN compressors. The unit will be available in third quarter this year.

Mackie also introduced Onyx, a new family of FireWire-capable analog consoles. Three small-format mixers make up the Onyx line.

The Onyx 1220 is a 12-channel (four

unbalanced line level audio sources to feed a balanced (or unbalanced) audio output. The front panel features two gold-plated phono jacks, intended for mono or stereo consumer level sources. The inputs are combined and balanced through transformers configured to reject induced hum. The line-level output is provided on the front panel barrier block for connection to a 10 kohm or higher input impedance line-level equipment.

RDL also exhibited the RU-MX4

A soft-knee compressor may be applied to the output via a rear panel switch. The RU-MX4T shares all of the features of the RU-MX4 and has a transformer balanced output. An optional rear panel security cover protects the rear panel settings when the mixer is used in portable applications.

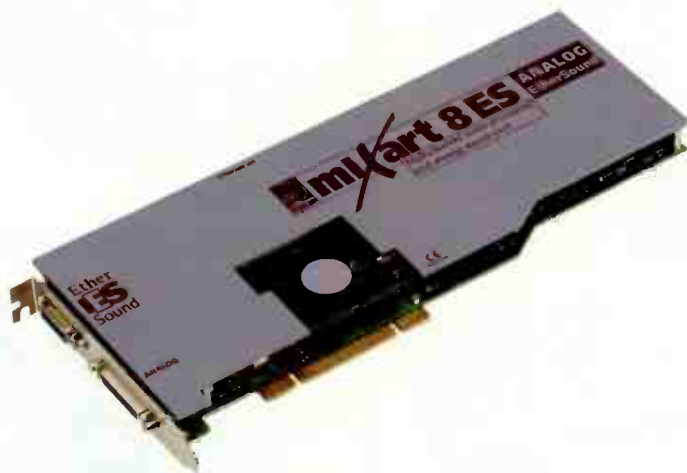
Sennheiser Electronic Corp. showcased the InnovaSON Sy80 console, which features a brand new control surface, new software, and a unique new technology that allows users to define the function of any fader on the console. InnovaSON's Sy80 features 80 inputs, 80 outputs, 80 faders, and 48 mix busses housed in a new chassis weighing less than 176 pounds (80 kg). Combined with a new version of the company's real-time console software manager, Sensoft 8, and a new DSP module built around the latest SHARC digital signal processors, the Sy80 offers greater mixing capabilities.

Sensoft 8 software introduces two new and very important features—XFAD (patent pending) technology and the Fader Configuration System—that allow users to define the function of each and every fader on the console surface. For example, faders configured to control mix busses may be designated as mono, stereo or LCR, auxiliary or matrix masters, audio subgroups, or VCA group masters. A virtually unlimited number of VCA groups may be created.

The Sy80 system also incorporates Mix Box, a local audio rack that is remote-controlled from the control surface. Mounted in a separate flight case or conveniently located in the control room or remote vehicle, Mix Box allows outboard equipment to be directly connected to the console I/O.

InnovaSON introduced an upgrade to the lightweight and compact Sy40 digital live mixing console. The new Sensoft 8.1 software package adds new features that include InnovaSON's Xfad (expanded fader) mode for inputs and busses, as well as free assignment of

AUDIO, PAGE 70



Digigram's miXart 8 ES multichannel sound card is part of the company's Ethersound product line.

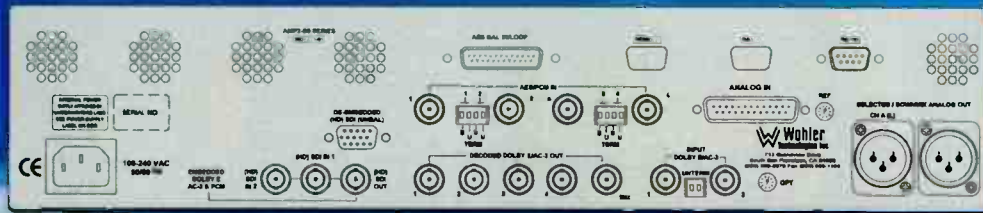
mic/line inputs and eight line inputs) mixer with two buses and a three-band Perkins EQ with sweepable midrange. The Onyx 1620 is a 16-channel (eight mic/line inputs and four stereo line inputs) mixer with two buses and a four-band Perkins EQ with dual sweepable midrange. The Onyx 1640 is a 16-channel (16 mono mic/line inputs) mixer with four buses and a four-band Perkins EQ with dual sweepable midrange. The Onyx 1640 also includes a rotatable I/O pod that can be configured for rack or desktop use.

Each Onyx mixer includes an upgrade slot for an optional FireWire card.

Radio Design Labs (RDL) showed the TX-J2 for the passive mixing of two

mixer in the compact RDL RACK-UP one-third rack space chassis. The mixer features four input channels, each with an XLR microphone input with selectable phantom power, and with an unbalanced phono jack line input. Each input channel has its own dual-LED VU meter above the associated front panel level control. The output stage has one balanced output that may be set to microphone or line level, plus an unbalanced phono jack line out. Mixing capability can be expanded by connecting the unbalanced output of one RU-MX4 to the direct input of another RU-MX4. Twelve inputs are possible with three mixers mounted in a single rack space. An LED arc VU/peak meter monitors the final mix.

NEW Dolby® E & Dolby® Digital (AC-3) Audio Monitor & Decoder with Discrete AES / EBU Outputs



AMP2-E8MDA

- Inputs: Dolby® E, HD-SDI/SD-SDI with Embedded Dolby® E
- Internal Dolby® E & Dolby® Digital Decoder
- Simultaneous 8 channel AES output of Decoded Dolby® E/Dolby® Digital
- Dual Format Technology, HD-SDI & SD-SDI Inputs on the Same Connections

Wohler

Check Out Our Award Winning Products at www.Wohler.com!

www.Wohler.com

sales@wohler.com

Toll Free (U.S.) 1-888-5-WOHLER

+1-650-589-5676 (Int.)

World Radio History

Dolby and the double D symbol are registered trademarks of Dolby Laboratories



The Most Versatile IOT Transmitter Available



Axcera's Visionary transmitters lead the industry in versatility. These amazing transmitters offer broadcasters the choice of single- or multi-collector IOT amplifiers from various manufacturers, with air, oil, water, or water/glycol cooling, for analog or digital operation, all in the same transmitter design. And to protect your investment into the future, systems can be configured for easy field conversion between analog and digital operation and between various tube technologies with nearly 100% re-use. Industry leading technology and the ability to choose - from Axcera, the RF experts.



t: 724.873.8100 f: 724.873.8105 www.axcera.com/tvtech info@axcera.com

the **rf** experts

Audio

CONTINUED FROM PAGE 68

VCA's and freely configurable fader layouts. Groups, auxiliary buses, and master buses may be separately configured as mono, stereo, LCR and LCR+M. Matrix assignments offer direct input routing, and the monitor bus supports three output circuits. The automation features have been enhanced with the addition of MIDI program change, MIDI timecode, crossfade, mute control, and fader start functionality.

With the upgrade to Sensoft 8.1, the Sy40, Compact or new InnovaSON Sy40-8 digital console will have 48 input channels and 26 output mix buses, plus an additional two monitor buses. As a stand-alone console, the Sy40-8 may be fitted with a mix of audio I/O cards with a choice of seven modules to custom tailor the system for any application. In combination with the optional digital Stage Box, 48 active inputs may be selected from a possible 72 mic/line inputs with 26 buses from a possible 48 outputs, maximizing the system's mixing power.

Solid State Logic (SSL) introduced new features for its C100 digital broadcast console. The new v1.5 software includes new security features—a DSP redundancy system and control surface management. For the latter, an operator can reconfigure the control surface via a GUI without interrupting the audio. In addition, a new remote bay option allows the console to be split across two control surfaces. Enhanced networking and integration including third party router integration allows information interchange between an external router and the console's built-in router.

The SSL C200 console also received an update, with v.2.0 software. Features include more channels, support for 44.1 kHz, 88.2 kHz, and pull-up/pull-down sample frequencies, UltiPan automated spatial positioning and flexible output bus options.

The Vista 8 large-frame live broadcast console was introduced at Studer's booth. The Vista 8 is a development in the Studer Vistonics range, combining the automation capabilities of the Vista 7 and the on-air ergonomics of the Vista 6. Vista 8 features a completely redesigned central control bay housing 12 faders and a Vistonics TFT screen, with direct access to up to 52 output signals.

Wheatstone exhibited its D-9TV digital television console targeted to mid-market stations. Powered by the Wheatstone Bridge Engine, the D-9TV can access and send unlimited sources and feeds throughout an infrastructure of control surfaces. The console can direct any source to any fader and is equipped with integral dynamics/EQ functions with full event recall. Other features include multiple mix-minus clean feeds, individual channel Bus-Minus outputs and 5.1 digital surround sound.

Yamaha showed the DME64N and DME24N consoles as well as the PM5D and PM5D-RH. The PM5D includes 48 XLR analog mono inputs and balanced TRS insert I/O's with manual mic preamps based on the circuitry found in the Yamaha DM2000, plus an additional four stereo line level inputs. The PM5D can accommodate a total of 130 input connections (48 channel inputs, four stereo inputs, five two-TR ins plus four Mini-YGDAI slots), and can handle up to 64 inputs simultaneously.

The PM5D-RH includes 48 XLR

analog mono inputs with recallable mic preamps derived from the head amplifier design of the Yamaha PM5000, with four stereo inputs that will accept mic level signals.

DIGITAL AUDIO WORKSTATIONS

AMS Neve demonstrated its new generation AudioFile technology along with its new DFC Gemini mixer. The system accepts files from a variety of other workstations including ProTools.

Digidesign debuted the ICON Integrated Console Environment featuring a new D-Control tactile work surface, Pro Tools 2HD Accel system as the core DSP engine, and modular HD audio interfaces for analog and digital I/O. ICON consolidates the recording,

Virtual Studio Runner featureset, an option to its QDC-XT engine providing mailbox in and out, and support for QDC-based systems that have MediaLink node access. OMF, AIFF, AES31, MP3 and WAV files can be placed in the studio inbox and, once entered, automatically converted for use in the QDC environment. Once in the QDC environment, files can be automatically converted and sent to registered contacts in the Studio Runner menu.

Fairlight also introduced the QDC-XT engine for its Dream family of workstations. The new QDC-XT doubles the number of tracks in the disk recorder in the Dream workstations, bringing the track count to 96. In addition, configurations of up to 192 chan-



InnovaSON introduced the Sensoft 8.1 upgrade to its Sy40 digital live mixing console.

editing, processing, and mixing functions that can be instantly reconfigured.

Fairlight debuted a number of digital editing products including the new

nels of fully automated digital mixing and up to 72 mix busses are now supported for Constellation and StationPlus DAWs. Other features

AUDIO, PAGE 72

Trans-Coder LX-5000

Easily Convert Transport Stream Between ASI, SMPTE 310M and LVDS

Get the details at
linxelectronics.com



**ANY IN:
ASI
SMPTE 310M
LVDS
ALL OUT!**

LINX
ELECTRONICS
DTV Innovations



When your
Equipment
absolutely **Has To Work**

Must-Have Wireless: Sennheiser 3000 & 5000 Series

In Real Life, there are no second takes. That's why you need Sennheiser 3000 and 5000 Series systems and components. Our benchmark products have garnered praise from every corner of the industry and an Academy Award® for our wireless technology. We've brought you such innovations as the Neumann KK105 vocal capsule and the SK5012 - the world's smallest professional bodypack. But more than that, Sennheiser gives you the best RF link and the most durable, dependable gear on the planet. When your life depends on reliable wireless, choose Sennheiser.



www.sennheiserusa.com

Sennheiser Electronic Corp., 1 Enterprise Drive, Old Lyme, CT 06371 USA • Tel: 860-434-9190 • Fax: 860-434-1759
Mexico: Tel: (525) 639-0956 • Fax: (525) 639-9482 • Canada: Tel: 514-426-3013 Fax: 514-426-3953

Audio

CONTINUED FROM PAGE 70

include an increased size for the EDL and a total file size capacity increase.

Version 3.2 software for Fairlight's Dream Series platform was demonstrated, providing enhanced automation, patching and routing, transport control and processing capability. A new patching/routing screen provides GUI support for patch I/O and buss assignments. An enhanced undo/redo allows the disk recorder to locate the transport to the time position for the event being undone or redone. Another new feature allows the jog/shuttle to be limited to speeds slower than play speed and the ability to lock a region as safe to prevent alteration.

Also introduced for the Dream Series was the Plug-in Manager 6 for VST plug-ins, MIDI support for the plug-in manager, and AV transfer support for DAR file exchange.

RAPID, or Remote Application Program Interface for Dream, offers an accessible open operating system for automation, disk recording, editing,

plug-ins, SFX, video, and other elements to be stored and controlled from one place in the studio.

The Fairlight Pyxis-Pro and Pyxis-ADR are software platforms that evolved from last year's merger between AV Media and Fairlight.

The Pyxis-Pro PCI card provides support for Blackmagic Design's

DeckLink Extreme hardware via the Pyxis platform, replacing the recommended ASUS card in Pyxis. The corresponding software includes the necessary drivers to enable genlock of audio to video output as well as a range of professional I/Os such as SDI, balanced analog, and SPDIF.

Pyxis-ADR can be used with languages and characters other than English. The ADR process has the ability to add text dialog to the required take and displayed in a dialog box along with the picture. External machines are notified of the in and out points for the required take. If connected to a Dream workstation, it will automatically enter record on armed tracks once a take has been engaged.

Mackie introduced a new monitor switching, source selection and communications box for DAW-based studios known as the Big Knob Studio Command System. Big Knob features a large volume knob that provides easy access for precise level adjustments. Also included are three buttons for quick switching between three sets of studio monitors, a built-in Talkback microphone, Input Source Select for up to four different stereo sources, dual headphone outputs with an independent headphone mix bus, as well as Mono, Mute and Dim switches.

A host of rear-panel connections include a dedicated DAW mix input as well as three independent two-track stereo inputs, each with variable gain control as well as +4 dB and -10dB selection buttons. Three two-track stereo outputs also provide +4 dB and -10 dB selection buttons. Other connections include a DAW Phones Mix Input, a Phono preamp input, outputs for up to three sets of control-room monitors as well as one set of in-studio monitors and a Talkback Foot Switch input.

SADiE launched the PCM-H64, a new large scale multitrack DAW for post and music applications. At the heart of the system is the newly devel-

oped SADiE TNG3 processor card. Each card is capable of the editing, equalization, control of dynamics, and mixing into full surround of up to 64 channels of 48 kHz/24-bit audio, or up to 16 channels at 192 kHz/24-bit. As with the entire SADiE Series 5 range, all editing and processing is performed in realtime. The SADiE PCM-H64 system is fully modular, both in terms of processing power and input/output capabilities.

The hardware is supported by the new SADiE v.5.3 software which features true multitrack editing, edit group selection, interface to the Yamaha mixer range, 9-pin slave functionality, improved AVI video support (including direct editing of the video stream, and specialized hardware solutions), and full compliance with AAF v.1.2, including the Edit Protocol, with greatly improved import capabilities from a variety of other applications.

SRS Labs announced the availability of SRS Circle Surround encoding software plug-in for Digidesign's Pro Tools workstations. The new product features an SRS Circle Surround encoder and decoder for monitoring surround mixes.

Solid State Logic (SSL) introduced the AWS 900 analog workstation system. Features include combined console and DAW controller, SSL's SuperAnalogue mic preamps and signal processing, monitoring up to 5.1 surround, direct control of DAW recording, editing and mixing, signal routing, direct control of plug-in settings, integral color TFT display, and motorized faders.

Signal routing, inputs/outputs, monitoring and signal processing are all permanently available on the console. Motorized faders provide conventional audio level control as well as controlling the recording and replay levels in the DAW.

Tascam introduced the 2488, a 24-track/24-bit production workstation with 36 mixer channels. Three-band EQ is provided for all 24 channels, plus the eight inputs and tone generator channel. Three aux sends—one for each mixer channel except for the effects return—send to a loop effect with effects-like reverb and delay or external devices. Up to eight dynamics processors can be used while recording or mixing, and an additional stereo compressor is dedicated to the stereo output. The 2488 can master and burn a CD using the built-in CD-RW drive, or transfer the track to a computer using the high-speed USB 2.0 connection.

Tascam also unveiled the US-2400 DAW controller featuring 25 touch-sensitive 100mm moving faders. Each of the 24 channels has an assignable encoder with an LED ring that shows

AUDIO, PAGE 78



Tascam's 2488 audio production workstation

Pixelmetrix corporation

PREVENT WARDROBE MALFUNCTION

ANNOUNCING DVShift
DIGITAL DELAY FOR HDTV

Providing up to 10s of delay for both video and embedded audio, DVShift-HD allows you to screen outgoing content before it hits the airwaves.

US: 954 472 5445 Europe: +41 79742 7454 Asia: +65 6547 4935
tvtech@pixelmetrix.com www.pixelmetrix.com

TV Technology STAR 2004

Experience. Reliability. Innovation.

Video, Audio & Data Fiber Optic Transmission Systems



FMV Series
Simplex/Duplex Video,
Audio & Data



MMV-110/120 Series
Compact 1-3 Channel
10-30 Mhz Video (FM & AM)



19" Distribution Frame
Multiverse™ Multicard
Distribution Frame



DMX-785
4 Channel T1 & E1 Multiplexer



DMX-781
RS-232 Async or Sync Multiplexer



FDV Series
Simplex/Duplex Video/Data
Multiplexer



DVI Series
Digital Visual Interface
Extenders



DS Series
10 & 100 BaseT I/P Ethernet
Media Converters



DVX Digiband® Series
SDI/HDTV/DVB Solutions



RGB-4000 Series
Single-Fiber RGB Digital
Solutions

Come to us for your fiber
optic communication needs.

We can help.

 **opticomm**
travel by light™

www.opticomm.com | info@opticomm.com | 1.800.8.OPTICOMM
(1.800.867.8426)

World Radio History

BY BOB KOVACS

It's a shame that "glamorous" and "necessary" are, by and large, mutually exclusive; the things that we "need" are frequently not the things that we "want." So it is with cable, fiber and networking vendors, who know that while we may dream of HDTV, editing systems and high-powered transmitters, it is cable, fiber-optic components and networks that enable those more glamorous tools. There were many interesting things to see with respect to cable, fiber-optic components and networks at NAB2004, as companies design new ways to move signals around facilities, between buildings and across geographic barriers.

Belden was up to its usual tricks this year, as sleight-of-hand artist Dick Stoner entertained crowds and touted the company's products as he cunningly manipulated decks of cards. Fortunately, the new products did not get caught in the shuffle.

Topping the list of introductions from Belden is its Brilliance 179DT "DigiTruck" coax, a thin 75-Ohm cable that weighs 60 percent less and uses 40 percent less space than mini RG-59. Brilliance 179DT conforms to the RG-179 cable standard and is sweep-tested to 3 GHz. The new cable's shield can be left bonded to the insulation for termination in one-piece connectors or removed for use in complex multipiece connectors.

Belden also featured its Belcoil packaging concept, which places cable in a dense package that is easy to pay out for ease of installation. There is no spool or box to deal with once the installation is done; the only thing remaining after the cable is gone is the Belcoil plastic wrapper.

Walking the tightrope between thin-and-lightweight and thick-and-sturdy, Gepco International showed two remote hybrid fiber-optic cables for proponents of either style. For the thin-and-lightweight crowd, the company displayed its HDC920 9.2 mm SMPTE 311M hybrid cable for high-definition video cameras. Featuring two single-mode fibers and six copper conductors, HDC920 also has an overall copper shield and a central steel wire for strength.

If a 9.2 mm cable is too fragile for your applications, Gepco also showed its 12 mm heavy-duty SMPTE 311M hybrid cable for high-definition video cameras. The HDC120 has the same two single-mode fibers and four copper conductors, as well as an overall copper braid and central steel strengthening wire.

For both kinds of hybrid-fiber cables, Gepco introduced a hybrid-fiber component distribution box and related connectors. The distribution

box is available in both portable and rackmount versions, and has two ST optical connectors as well as other connectors for power and audio. The rackmount version of the distribution box uses a five-pin AMP connector for quicker integration into a system.

Gepco also introduced a new version of its audio cable, the 61801EZ, which now comes in 20 colors to simplify organizing audio feeds in complex facilities. Some of the new colors sound quite tasty, including "lime green" and "plum."

The other news from Gepco is that the company is now providing test documentation with every reel of its high-definition video coax cable. Each reel will now ship with a cer-

tification that it has been sweep tested out to 3 GHz.

Flexibility was the point at the



Steve Robinson (r) of Serial Scene listens as Alan Lamshead of Evertz discusses the features of the Evertz ECAS-HD camera adapter.



Luke Land (l), Peter Young (c) and Rian Altschul watch closely as Dick Stoner performs a card trick at the Belden booth.

Football + Music Shows + Movies + Commercials + Local Content = Quite a bit to deal with in master control. Are you ready?
The Linear Acoustic OCTiMAX 5.1. Making excellent DTV audio easier everywhere.



LINEAR ACOUSTIC
 Multichannel Audio Processing
 For Digital Broadcast

www.LinearAcoustic.com Phone: 888-292-3117

- Multichannel audio processing designed for digital television • Developed by former Dolby® and Orban® engineers • Prevents LOUDNESS problems due to missing or incorrect metadata
- Works with all audio formats including Dolby E and Dolby Digital (AC-3) • upMAX™ for selectable "upconversion" of two-channel audio • Ten channels for main plus SAP audio

Contains Octiv OctiMax multiband dynamics processing

Canare booth. The company has a popular line of flexible coaxial cables in both small and standard (8281-equivalent) sizes. Available in a variety of colors (including chromakey blue!), the Canare coax line boasts much greater flexibility than standard RG-59 and RG-6 cables, and all are compatible with SDI video.

For terminating its coaxial cable, Canare showed its true 75-Ohm BNC connectors. Although many BNC connectors used in video applications are actually 50-Ohm connectors designed for RF connections, the Canare BCP-C4B is a true 75-Ohm product that maximizes bandwidth and minimizes reflections and standing waves.

Canare also showed off its new digital video patch panels, which are suitable for SD and HD applications. Available in 1 RU, 2 RU and 4 RU sizes, Canare's 75-Ohm digital video patchbays are available in densities up to 26 jacks wide.

New fiber-optic cables in many vari-



Javier Juarez of Clark Wire & Cable gets tangled up in his work.

eties were the talk of the Clark Wire and Cable booth. The company has SMPTE 311M hybrid cable ranging in size from 7.5mm to 10.3mm in diameter, with different outer jackets to meet the needs of different applications. The Clark Wire family of fiber-optic cables includes products for signal distribution and breakout, and there are even versions that are for tactical military applications.

Elsewhere in the Clark booth were the company's popular analog and digital video and audio cables, as well as heavy-duty power cords. Many of these were on reels and ready to be used in the field.

Wireworks marked NAB2004 by celebrating the company's 30th anniversary. The company showed its line of custom cable solutions and manufactured cables, including the MuxiLux microphone cable and InstaLux installation cables. Both these latter cables come in a wide variety of

colors and both can be stripped quickly for ease of installation.

The company's mainstays are its audio snake products and these liberally decorated the booth, including the Wireworks MultiBoxes, MultiRacks and MultiTrunks. This last product line is a multiconductor cable available in standard lengths up to 250 feet, with

each end terminated by a multipin connector.

A less-well-known name exhibiting cable at NAB2004 was the VTG Broadcast Group, a manufacturer of bulk cable as well as a producer of custom cabling solutions. Unveiled in the company's booth was its A/V bulk cable that is intended for ENG and remote

applications. With six coaxial cables and four twisted-pairs, VTG A/V cable can be permanently installed in venues or unwound on location as needed. VTG supplies the portable A/V Snake manufactured from its A/V cable, pre-mounted on a reel and ready to use.

If you cable to convert your system

CABLE, PAGE 76

You've heard our name. You've heard our products.

If you've watched any TV this millennium, you've heard audio passing through Sound Devices — the fastest growing name in portable audio mixers, preamps, computer interfaces, and digital field recorders. Our philosophy is simple:

Build field-production audio products that improve our customer's work life.

Sound Devices audio specs far outperform any camera's onboard audio. Our 442, 302, and Mix Pre are known for superb audio quality, extensive control, and field-tested durability, making them the portable mixers of choice.

You'll find our gear in the hands of production crews working with ABC, CBS Sports, NBC News and Sports, CNN, NEP, NMT, Fox Sports, National Geographic, and scores of other clients who can't afford to work with anything but the best.



(From the top: **MixPre**, our most compact, two channel field mixer. **302**, a feature-packed, three channel field mixer (the one you'll end up buying). **442**, our top of the line, four channel field mixer (the one you'll want to buy).)

Now we'd like to hear from you.

Give us a call or drop us an e-mail (no spam, thanks). Let us know what you do and what kind of audio gear you're using. We'll help you determine which Sound Devices product is right for you and then get it in your hands — either to try or buy.

SOUND  DEVICES

Sound Devices, LLC · Reedsburg, Wisconsin USA · 800.505.0625 · www.sounddevices.com

Cable

CONTINUED FROM PAGE 75

from analog audio to digital, VTG introduced its AES/EBU cable to meet that need. The company's AES/EBU cable is available with up to 16 pairs, with polyethylene insulation for the individual strands and an overall shield and PVC jacket.

CONNECTORS

All these cables need connectors and there were several companies at NAB2004 to meet this need. One was **Switchcraft**, which had a slew of new connectors to meet the changing requirements of today's video and audio.

Highlighting the company's booth was a display of its EH Series, which includes connectors for IEEE-1394 (FireWire), USB, RJ45 (Category-6), 9-pin D, 15-pin high-density (VGA) D, as well as the common audio and video connectors. The EH connectors are also offered in patch panels, so that you can now get USB, FireWire and VGA patch panels from Switchcraft.

Also new from Switchcraft are its

programmable audio patchbays that let you select the normal setting from a front-panel screw adjustment. With a quick twist of a flat-blade tweaker screwdriver, you can set Switchcraft EZ Norm patch jacks for full-, non-, or half-normal operation.

Neutrik has a reputation for innovation when it comes to audio connectors and this year the company showed a new version of the Speakon Combo jack, which combines both a 1/4-inch phone jack with a female XLR connector. The new connector is called the NLJ2MD-V and is rated for 30 Amps through the Speakon (XLR) connection and 15 Amps through the 1/4-inch TS connection. The new Speakon Combo connector fits into the same mounting hole as the popular Neutrik NL4MD-V Speakon connector.

Neutrik also displayed its new line of 1/4-inch phone plugs, which have a slim overall diameter of 14.5mm and are available in either nickel or gold-plated versions. This new connector, called the C+ series, has both TS (mono) and TRS (stereo) versions and features a "chuck-style" strain relief.


Exhibiting in the Techni-Tool booth was **Pomona Electronics**, which has a



Jim Hoffman of Switchcraft points to the company's new EH series of connectors, including FireWire, USB, Ethernet and S-Video.




Tim Wolfer (l) of Andrews University listens as Glen Towater explains the benefits of Trompeter patch cords and panels.




HEAD FOR THE IVN™ FUTURE. TODAY.

Discover the Intelligent Video Networking (IVN™) end-to-end system concept for Satellite digital video distribution. Our solution simplifies headend operations, ensures bandwidth optimization, and gives you access to advanced turnaround technologies.

Best of all, it's so very cost-effective! The IVN™ system concept is supported by Scopus products and technologies for: video routing, rate shaping & multiplexing, advanced encoding and professional reception. Yes, Scopus IVN™ for satellite will make you turn your head!



IVN™
YOUR WAY TO
VIDEO NETWORKING



scopus
Network Technologies

Broadening Your Scope
www.scopus.net • E-mail: info@scopus.net

See us at
SCTE
Orlando, FL
June 15-18, 2004
Booth 2129

broad line of audio and video connectors. The company spotlighted its digital-ready BNC connectors for applications such as uncompressed HD video. In addition, Pomona displayed its range of professional audio connectors, which includes chassis- and cable-mount XLR and 1/4-inch models.

Patchbays was the show at **Audio Accessories**. Although you could expect the company to show its extensive line of audio patch panels and cords, you would also have found video patchbays in its booth.

Audio Accessories has both Bantam (0.174-inch) and Long-Frame (1/4-inch) varieties of audio patchbays, which are in turn available with a range of termination and normal options. For example, the company's Shorti Quick-Switch audio patchbays are available for either Bantam or Long-Frame models, all with quickly con-

nected EDAC fittings and the ability to change normals on-the-fly.

On the video side, **Audio Accessories** supplies 1 RU and 2 RU patch frames that fit Canare, Trompeter, Kings and ADC video jacks. Jacks from different manufacturers can be mixed and matched on a single patch frame.

For complex control applications, **Audio Accessories** also has an RS-422 patchbay.

Connector and patch panel specialist **Trompeter** hit the exhibition floor with its new enhanced HD-ready video patch jacks. Fitting into the company's established line of patchbay frames, the new jacks use a forked actuator to provide multiple points of contact to improve signal flow and eliminate points of failure.

These improved patch jacks, design-

CABLE, PAGE 121

It's not the first time we changed the way you look at pro-video test equipment. And some people noticed...



- First to introduce and deliver Serial Digital HD test solutions
- First to implement 720P capabilities in our products
- First test equipment provider to include both analog and digital input capabilities in one package
- First to provide built in 10 bit analog decoding for picture monitoring
- First to introduce an HD Rasterizer with built in XGA display capabilities

And now Leader is the first to bring pro-video test and measurement information to the palm of your hand! No more endless trips from the set to the camera to view the action.

Our easy to use software connects the award winning LV5700 Multi-SDI monitor to a wireless capable PDA, allowing the user to monitor key signal functions such as waveform, vectorscope, audio, status, as well as view the picture the camera is producing... away from the camera.

When it comes to industry innovations... Leader is first.

LEADER

FOR PROFESSIONALS WHO KNOW
THE DIFFERENCE

Leader Instruments Corporation
6484 Commerce Drive
Cypress, CA 90630



TF 800.645.5104
T 714.527.9300
F 714.527.7490

sales@LeaderUSA.com
www.LeaderUSA.com

Audio

CONTINUED FROM PAGE 72

the current value or doubles as a signal meter. A full transport section is also included for DAW control, as well as a

new IF-FW/DM that adds 24 inputs and outputs from a computer DAW to the company's DM-24 Digital Mixer. The IF-FW/DM expansion card follows the same design as the ADAT, AES/EBU, TDIF and analog expansion cards for the DM-24. Features include

support for ASIO, MME, WDM and Apple Core Audio standards, two FireWire jacks, and Mac OS X and Windows XP compatibility.

MICROPHONES & ACCESSORIES

AKG introduced the C 414 family of microphones that include the C 414B-XLS and C414B-XL II. Features include a wide cardioid pattern added to the cardioid, hypercardioid, figure eight and omni patterns, higher sensitivity (+6 dB) than previous C 414 models, three pre-attenuation pads, three high pass filters, low noise and wide dynamic range, and an elastic capsule shock mount system.

AKG also exhibited its Discreet Acoustics Compact Series (DAC) of gooseneck mics. DAC models CGN 321E and CGN 521E are cardioids; CGN 323D and CGN 523E are hypercardioids, and CHM 21 is a hanging cardioid.

AKG also unveiled new mic stands, the KM256/80 with tripod base, the



The EV RE-92 is an electret cardioid mic that can be supplied in various versions.

KM260/80 with heavy cast-iron base, and the KM260/85 light weight round base.

Audio-Technica exhibited the AT897 Line + Gradient condenser microphone. The new AT897 is a short shotgun microphone with a Line + Gradient polar pattern that provides sound rejection from the sides and rear of the mic. The mic can operate on an internal battery (AA) or phantom power (9-48 V, 2 mA) and includes an integral low-frequency roll-off switch and a foam windscreen and stand adapter.

The company also introduced its new AT898 Subminiature Cardioid Condenser lavalier microphone that is 5 mm in diameter. The subminiature cardioid element is enclosed in a rugged, low-profile hous-

ing with internal construction designed to minimize noise from handling, clothing, and wind. The microphone



Azden's 511 DRH true diversity UHF receiver

joystick for surround panning. The US-2400, co-developed with Sane-Wave, provides a professional mixing console feel to DAW recording software.

In addition, Tascam exhibited the

24-channel input and 24-channel output when used with the DM-24, 16-channel input and output when used at 88.1 kHz or 96 kHz sample rates with the DM-24, MIDI Input and Output for use with DAW software,

"Mini" Replay at a "Mini" Price - \$5995

Sport offers all the advantages of disk based recording at a fraction of the usual cost. Sport is intuitive, takes only minutes to learn, and has perfect control over picture motion.

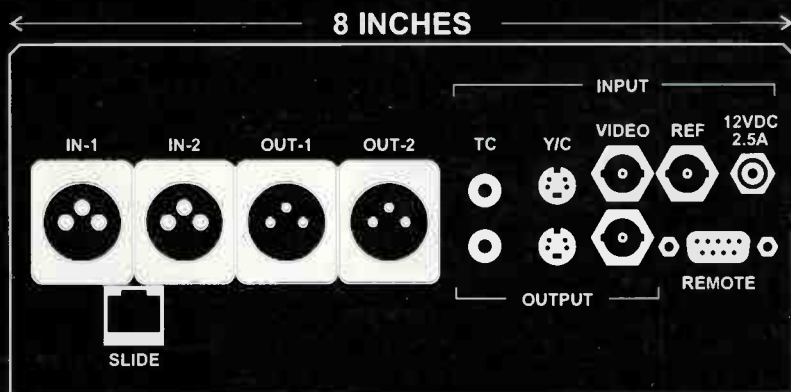
Replays are ready in a flash and highlights are built with ease and speed. Sport records hours of high quality video and audio, yet fits anywhere - zero rack space.

Finally, disk based recording is within reach of any budget.

Video Server Inside!



Sport
Integrated Replay System



Sport Rear Panel

858-451-1350
www.buftek.com
info@buftek.com

BUF
TECHNOLOGY

plugs into the included AT8537 power module, which features battery/phantom power operation, switchable low-frequency roll-off switch, and an integral XLR3M connector supplying a low-impedance balanced output. The extensive accessory kit includes three single and two double interchangeable mounts, clothing clip, viper clip, magnetic clip, and two open-pore foam windscreens.

Audio-Technica also offered an additional frequency band, the 540-565 MHz frequency range (TV channels 25-30), for its UHF wireless microphone systems and accessories, including the Artist Elite Wireless Series and 3000 Series UHF Wireless Systems.

Audio-Technica's 5000 and 4000 Series Artist Elite Wireless Systems and its 3000 Series True Diversity Wireless Systems now come standard with 200 selectable UHF channels in each of two available frequency bands, the 540-565 MHz range (TV Channels 25-30) and 655-680 MHz range (TV Channels 44-49). The newly available 500 MHz frequency range is Audio-Technica's C-band, with corresponding "C" product designations; the 600 MHz frequency range is A-T's D-band, which is tagged with "D" in product designations.

Azden Corp. introduced the portable 2-channel FMX-20, an all-metal, battery-operated field mixer that can be attached to a camera or worn on a belt. Also new at the Azden booth was the SGM-1000 shotgun microphone which combines wide frequency response with low noise and phantom power.

The company also introduced a new addition to the 1000 Series UHF system. Offering 121 digitally selectable UHF frequencies (723 to 735 MHz), the 1000URX/VM receiver is housed in an IDX battery case that makes it compatible with the Sony V-Mount system. In addition the 511DRH true diversity UHF receiver was also launched at the show. The AC-powered unit features 63 user-selectable UHF frequencies in the 794 to 806 MHz band and features twin LED indicators that show antenna reception and signal strength as well as LED indicators for audio signal strength.

Beyerdynamic displayed its range of mics for broadcast and video production as well as wireless mic systems.

Clockaudio showcased its CS series of boundary layer microphones. The CS2 is a dual element boundary layer condenser with a half-cardioid polar pattern. The CS3 microphone has the same characteristics as the CS2 but with the addition of a third element.

Also shown was the C420 dual podium mic, with a separate output for each mic.

DPA Microphones launched its

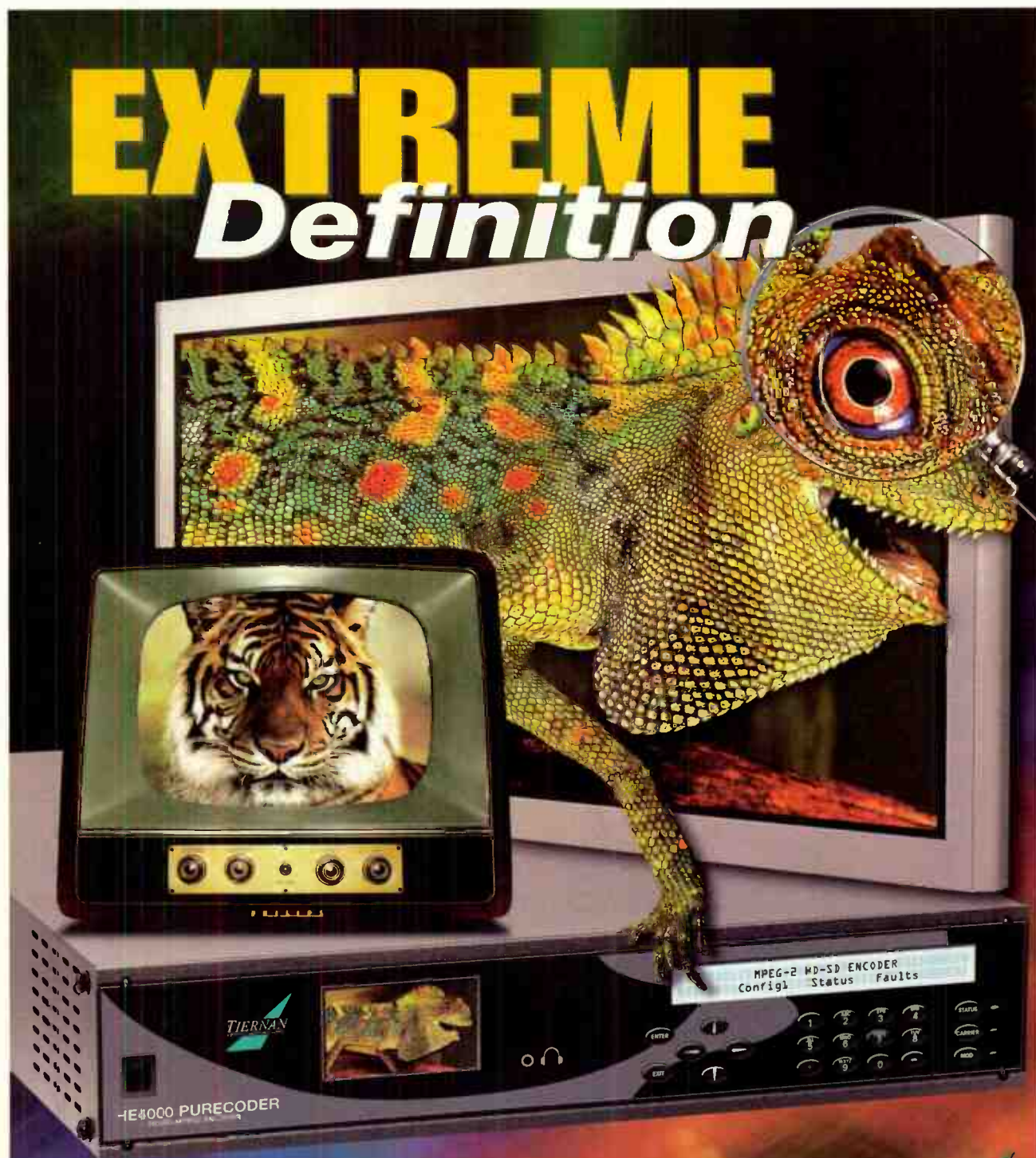
first-ever cardioid headband microphone, the DPA 4088. The capsule is a pre-polarized first order pressure gradient transducer, hidden in a small and lightweight housing with dimensions just slightly larger than its omni capsules. The bass response is designed for optimal linearity at 2-3 cm distance from the sound source.

The mechanical design is based on the company's 4066 headband microphone. The headband mount is exactly the same; the boom however is 3 cm longer to match the need for placement at the corner of the mouth.

DPA Microphones also unveiled the WINDPAC, an ultra-lightweight weatherproof solution for location record-

ing. Wind and water resistant and simple to operate, the WINDPAC weighs in at 9 ounces. The collapsible zeppelin-shaped windshield is made from a fabric which blocks wind noise in gusts of up to 70 mph while allowing accurate sound reproduction and audio transparency.

AUDIO, PAGE 80



HE4000: HD AND SD Encoder

HD and SD Encoding Simultaneously

Front Panel Monitor

Advanced "PUREPEG" Technology

- Enhanced Low Bit Rate Performance
- Absolute Finest Picture Quality

Satellite and Terrestrial Interfaces

1 MB/s to 160 MB/s

TIERNAN
A Radn ComStream Company

Phoenix: 602-437-9620
San Diego: 858-458-1800
UK: 44-1420-540233
America: 858-458-1800
Singapore: 65-6225-4016
Beijing: 86-10-65831975
www.radn.com
www.tiernan.com

Audio

CONTINUED FROM PAGE 79

EV (Electro-Voice) introduced the new RE92 microphone family that comprises three models: the RE92L wired lavalier, the RE92Tx wireless cardioid electret condenser lavalier, and the RE92H and RE92HW hanging style/choir microphone.

The RE92L is the hardwired counterpart of the Tx version, and its 4-ft. cable is terminated into an in-line amplifier with XLR output. The amp features a 12 dB/octave switchable high-pass filter for rolling off low frequency noise, and provides a transformer-less differential output. Accessories include a two-stage mic windscreen, both single and dual mic tie clips, an amp housing belt clip, and a zippered gig-bag.

EV debuted the PolarChoice Desktop, a freestanding podium style microphone. Its on/off switch can be programmed for either push-to-mute, push-to-talk, or latching on/off operation, and its blue LED displays microphone status. Like all Electro-Voice PolarChoice microphones, the PC Desktop polar pattern is selectable with a choice of omni, cardioid, super-car-

dioid and hyper-cardioid.

Also new from Electro-Voice was the RE-2 UHF wireless microphone, which automatically checks for a clear channel before assigning transmit and receive frequencies. The RE-2 also features EV's "virtually compression-free" companding for quiet operation.

Lectrosonics introduced its modular 1RU Venue receiver. The modular configuration allows up to six receivers to share the resources of a common chassis, including an antenna, DSP and computer interface. Antenna loopthrough connections permit stacking of multiple units to expand multi-channel operations.

Mackie introduced the Onyx 800R rack-mount eight-channel mic preamp. The 1U unit features simultaneous analog and 24-bit/192kHz digital connectivity via ADAT Lightpipe, AES/EBU and S/PDIF. The front panel provides access to features such as selectable mic/line inputs per channel, and two instrument input jacks.

Schoeps demonstrated how its CCM4Vlg cardioid and CCM 8Lg figure-eight microphones can be mounted and wired to the DMS-Splitter to capture surround sound. Another approach to surround sound recording is the Surround Microphone System by

Bruck with the KFM 360 sphere microphone, two CCM 8Lg compact figure-eights along with the DSP-4 KFM 360 processor unit with built-in A/D and D/A converters.

Sennheiser showcased its new MKH 418S compact M-S stereo shot-

gun microphone designed to withstand harsh outdoor conditions. A cost-effective model, the MKH 418S M-S stereo shotgun incorporates a mid capsule combined with a newly designed figure-of-eight side capsule system. Mid-side (M-S) stereo allows the adjustment of stereo imaging through the use of an independent dual-capsule system. The independent capsule outputs of the MKH 418S support variable matrixing



Audio-Technica's AT897 condenser microphone

gun microphone designed to withstand harsh outdoor conditions. A cost-effective model, the MKH 418S M-S stereo shotgun incorporates a mid capsule from the industry standard MKH 416,

capabilities and multi-functional use in post-production. The output connector is a standard five-pin XLR male, and the microphone is powered via +8-Volt phantom supplied to each capsule.

Tektronix™ 751

+

msi 320



+

msi 751



Automatic Calibration

Video Demodulation, Automatic Calibration, Modulation Monitoring

Tek, 1450 and 751 are trademarks of Tektronix, Inc.

Modulation Sciences

understands your needs.

First we introduced the **msi 320** Precision Video Demodulator. The **320** offers quality, specifications and features comparable to the Tek 1450* for only \$5,820. Now, we've heard your requests for maintaining the simple automatic calibration of your Tek 751 Modulation Monitor. That's why we created the **msi 751** Calibration Interface.

The **msi 751** allows you to use the **msi 320** Precision Video Demodulator to auto-calibrate the Tek 751 with the same accuracy afforded by the Tek 1450.

Modulation Sciences

responds to your needs.

For more information, contact Modulation Sciences, Inc.
12A World's Fair Dr. Somerset, NJ 08873
(800) 826-2603 Toll-Free
(732) 302-0206 Fax
e-mail: sales@modsci.com
Web: www.modsci.com



Neumann USA launched a new broadcast line of microphones with the BCM 104. The K 104 large-diaphragm condenser capsule used in the BCM 104 has a cardioid directional pattern with switchable proximity effect compensation, introducing a high-pass filter that reduces frequencies below 100Hz by 12 dB/octave. A second, pre-attenuation switch allows the sensitivity to be reduced by 14 dB to optimize performance for circuits designed for dynamic microphones. Both switches are internally mounted within the microphone housing. The K 104 capsule offers a flat frequency response up to 3kHz, while higher frequencies have a maximum increased presence of 2 dB. The BCM 104 amplifier has a linear operation down to 20 Hz. The BCM 104 microphone head grille twists off easily for quick cleaning, and is outfitted with an elastic mount to guard against structure-borne noise.

Neumann USA introduced the TLM 127, a mid-price, large diaphragm, multipattern condenser microphone. As delivered, the TLM 127 includes a wooden box and EAL elastic suspension, and offers switching options including a choice of cardioid or omnidirectional pattern, plus a 14 dB pre-attenuation and high-pass filter. A

power supply option provides an upgrade for the TLM 127 to support a choice of five directional patterns—cardioid, hyper-cardioid, wide-angle cardioid, omni-directional, and figure-eight—all selectable by remote control via standard XLR mic cabling.

Making news at the Telex booth was the company's BTR-1 encrypted digital wireless intercom system, which provides wideband, full-duplex communications. The BTR-1 employs ClearScan to automatically check for interference-free channels. As technology adjusts, the encryption algorithm in the BTR-1 can be updated to the latest protection.

Zaxcom exhibited the Stereoline digital wireless microphone system designed for ENG. The transmitter, powered by internal AA batteries or external 12 VDC, has two microphone inputs. A single Zaxcom Stereoline wireless system can take the place of two separate transmitters and receivers. This unit is also available with clothing noise reduction software. Other transmitter choices include the Goldline, Spy II, Handheld and MMT. All Zaxcom Digital Wireless transmitters are remote controlled via complimentary software the end user can install in any standard Windows CE based palm

computer.

RECORDERS

HHB introduced new software for its PDR2000 Portadrive eight-track location audio recorder at NAB 2004. The Portadrive Version 1.2 operating system software upgrade adds enhanced interoperability with other systems, including Digidesign Pro Tools V5 format support, plus simultaneous recording to an external disc, enhanced metadata support, Ethernet data transfer, and many other new features. Pro Tools V5 format support in the new v1.2 software allows Portadrive to record directly in Pro Tools V5 format (PT5). This allows direct import of Portadrive sessions into Pro Tools V5 and above systems without the need for manual import. SDII Audio file support in the software upgrade additionally allows Portadrive to record using the SDII file format for increased interoperability with earlier Pro Tools and Avid editing systems.

Enhanced metadata support in Portadrives v1.2 software issue adds front panel editing of slate, take, and notes in addition to existing top panel support, as well as full editing of those functions before and after recording. Notes may additionally be edited dur-

ing recording. The release also adds front panel circle/uncircle functionality plus front panel PS2 keyboard text entry. New Ethernet data transfer support permits drag and drop data transfer between Portadrive and Windows or Macintosh machines. HFS Disk format support has been added in v1.2, allowing Portadrive to format, write to and read from Mac-based HFS formatted disks.

HHB also introduced a USB2.0/FireWire docking station for Portadrive. This device accepts the Portadrive's removable HD caddy via a slot in the front panel to deliver fast file transfer with Mac and PC-based post-production systems. The PDRDSUF docking station features a universal power supply for operation anywhere in the world, and comes complete with both USB and FireWire cables for connecting to any DAW.

Sound Devices introduced the high resolution two-track 722 and four track 744T recorders, which write and play audio files with bit depths of 24 or 16 bit, with sample rates from 44.1 to 96 kHz, including pull-up sample rates. The 7-Series writes industry-standard .wav, .bwt, and .mp3 audio files to hard drive or Compact Flash.

AUDIO, PAGE 115

All-Inclusive Professional Studio Television Receiver

The complete studio monitor — **msi 189** from Modulation Sciences. Our state-of-the-art design provides full access to everything you broadcast, SAP, Stereo, Mono and Video, on five independent, simultaneous outputs. You gain superior performance at an affordable price while eliminating cobbled together monitoring systems.

- Simultaneous reception of SAP, Stereo, Mono and Video
- All channel tuning 2 - 69
- True 75 ohm video on a BNC connector
- Performance *far* exceeds commonly used consumer tuners
- Compact 1 RU high box
- All audio outputs transformer balanced, Low Z, line level on XLR type connectors
- High-quality stereo audio
- Diversity reception available
- Affordably priced at \$2,358
- Backed by MSI's outstanding 3-year warranty



Contact Modulation Sciences, Your Sound Authority
 12A World's Fair Dr. Somerset, NJ 08873
 (800) 826-2603 Toll Free • (732) 302-3090
 E-mail: sales@modsci.com • Web: www.modsci.com

msi
 modulation
 sciences
 inc.



BY CRAIG JOHNSTON

From the front to the back of the NAB2004 exhibit halls, camera support equipment makers reported good customer traffic and brisk business this year. For their expended shoe leather and aching feet, convention attendees found creative solutions to the challenges of videography in the field and studio.

ROBOTICS & MOTION CONTROL

Vinten and Radamec officially merged, and booth personnel were sporting Vinten Radamec Broadcast Robotics pins. Company officials were quick to deliver the message that they will continue to support the many installed systems of both lines, that they will continue to develop new products and features for each line, and will develop joint products when it makes sense.

Vinten introduced its Series 200 scaleable Control System, and showed an eye-tracking software feature, still in the concept stage, that would slave the robotic pan/tilt head to a newscaster's eyes.

Radamec re-introduced its Linux-based touch control panel with a robotic digital Key Frame Control Mode that memorizes the camera's position and orientation as the operator moves it, allowing robotically controlled cameras to achieve creative shots.

Telemetrics Inc. added several new robotic systems, including the PT-LP-S3 Pan/Tilt Head with a weatherproof housing to allow outdoor cameras to be integrated with the studio automation system; and the high-speed PT-BD



Elisabetta Cartoni, managing director for Cartoni, poses with the company's e-Sensor pan/tilt head.



NUCOMM'S CHANNELMASTER

COFDM AND ANALOG PORTABLE TRANSMITTER

More Power. More Features. Less Bulk.

All this in one small package:

- Single or dual 2 and 7 GHz
- COFDM and analog
- Universal power supply (AC & DC)
- 4 Audio channels and AES/EBU
- Composite, ASI, and SDI interfaces
- 4:2:2, 4:2:0 NTSC & PAL switchable
- Low latency: 100 msec
- Color bars and remote controllable
- Matching ChannelMaster Receiver available

Nucomm
Video Solutions for the Broadcast Industry

101 Bilby Road, Hackettstown ■ New Jersey 07840 USA ■ Phone: 908.852.3700 ■ Fax: 908.813.0399 ■ www.nucomm.com

Point-of-View Pan/Tilt Head.

ParkerVision Inc. is in the process of closing the sale of its broadcast division to Thomson Grass Valley. Combining the ParkerVision automated studio software and pan/tilt systems with TGV's high-end hardware is aimed at moving ParkerVision into larger station and network applications.

Cartoni S.P.A. showed off its MO-SYS LAMBDA motion control camera support head, designed to marry Cartoni's Lambda pan/tilt head and Motion Systems Technology Ltd.'s servo drives and remote control system.

Centurfax Ltd. demonstrated its Blue.i Studio Navigator, a tracking and positioning system for studio equipment, especially robotic cameras and those utilizing Virtual Reality sets.

Frezzi Energy Systems premiered its new FPT-15 Pan/Tilt Head and Advanced Controller System, which can support up to a 15-pound camera and has onboard memory storage of 255 accurate presets. Frezzi also introduced the Stable-Cam Support System for Mini-DVs.

Hitachi Denshi America Ltd. introduced two new members of its EagleT Pan/Tilt product line, including the fiber-optic indoor Eagle PT101FO pan/tilt head and the Eagle Command Module, an integrated Eagle pan/tilt control unit available in an SDI as well as an analog version.

Innovision Optics debuted its Mini Shuttle HD compact remote-controlled camera platform designed to carry popular broadcast cameras. The unit travels along customized straight or curved track, and comes with pan/tilt head and controller with eight preset memory positions.

Manfrotto, which exhibited in the **Bogen Imaging** booth, showed its line of LANC Remote Control equipment, introducing the 521 Series for advanced amateur videographers who use Mini DV and Hi8 cameras, and the 523 Series designed for professional videographers.

Mark Roberts Motion Control debuted its Ulti-Head, a low-cost motion control pan/tilt remote head designed for studio or location use.

Shotoku Inc. brought its VR Tracking System featuring real-time camera-positional signals of the X, Y and Z (height) locations on virtual reality software. This VR tracking capability is built into the company's TP-70VR pedestal (four-stage) and TP-66VR pedestal (three-stage).

TRIPODS AND PEDESTALS

American Grip Inc. introduced the SideWinder 150 portable studio pedestal, a crank-powered pedestal column with folding legs and a payload capacity of 150 pounds.

Cambo Video & Broadcasting Products B.V. premiered a new fold-up camera pedestal system, featuring a gas and spring-powered pedestal capable of carrying a load of up to 66 pounds, including the pan/tilt head.

Cartoni S.P.A. showcased its Cartoni e-Sensor pan/tilt head, which encodes the precise pan/tilt position of

the fluid head to allow it to communicate with virtual set software and virtual sports broadcast effects, such as football's first-and-ten line.

Chapman/Leonard showed its line of LENCIN camera pedestals, including the new LENCIN Compact, featuring an enclosed base and a column friction brake. The Compact can hold

the column at any height and can be wheeled through a 30-inch door.

Davis & Sanford displayed the Provista air lift hydraulic tripod that supports cameras up to 25 pounds and features a three-section tripod of black anodized aluminum, a double-strut top leg section for extra stability,

CAMERA SUPPORT, PAGE 84

ON THE FAST TRACK...



Even if you don't know our name, you know our work.

Riedel designs, manufactures and distributes the most sophisticated radio and intercom technology for customers worldwide in the broadcast, pro-audio, event, sports and theatre industries. And while you may not have seen us, we have been hard at work behind the scenes at such major events as:

SuperBowls XXXVII and XXXVIII

The Academy Awards

MTV Music Video Awards

Formula One Racing (all events!)

Winter Olympics at Salt Lake City

NBA All Star Games

...and many more!

Because our all digital systems are simple to use and easy to install and set up, we have quickly become a favorite among those who demand the best. They know that when it comes to the **FAST TRACK** of live events and broadcasting, there are no second chances!



The New Artist S - Powerful, Fiber-Based Network Matrix Intercom Platform

RIEDEL

THE COMMUNICATIONS PEOPLE

www.riedel.net

Burbank, CA. 818-563-4100

Camera Support

CONTINUED FROM PAGE 83

and a geared 11-inch air-cushioned centerpost with a 3/8-16 stud that accepts most professional pan/tilt heads.



Miller's SOLO VJ tripod

Diawa Broadcast Tripods, formerly represented in the U.S. by C.S.I., are now being handled by Slik. The display featured the 508QF and 507QF tripods and pan/tilt heads aimed at the educational market.

DuoPod Monopods showcased the DuoPod Pro, combining the advantages of a tripod with those of a monopod.

Gitzo showed its array of monopods and microphone fishpoles,

which have been upgraded to carbon-fiber construction for weight and for non-absorption of cold.

Libec USA debuted its LS-22 tripod and pan/tilt head system for DV cameras, featuring an advanced fluid head equipped with two-position

counterbalance system to handle both standard and front-heavy cameras up to 8.8 pounds.

Miller Camera Support, LLC displayed its SOLO VJ tripod for 10- to 40-pound camcorders. The spreaderless design allows the height to be varied from 8.7 to 74 inches. Miller's Arrow 30 is a fully featured ball leveling fluid head for 10- to 30-pound DV and ENG camcorders.

In the **Bogen Imaging** booth,

Manfrotto addressed the challenge of using one tripod for a variety of different cameras with its Manfrotto 519 Fluid Video Head, which has interchangeable counter-balance springs, one to handle cameras from two to 11 pounds, a second for cameras 12 to 23 pounds.

OConnor Engineering, a division of Sachtler, showcased its OConnor 50-200 Ultimate series digital fluid camera head, capable of counterbalancing a 200-pound camera throughout its +/- 90-degree tilt range.

Sachtler GmbH debuted its DV 1 tripod and pan/tilt head, a support system for MiniDV camcorders weighing from one to more than four pounds, and featuring two-step horizontal and vertical-damping to enable steady panning and tilting.

Shotoku Inc. exhibited a new 3-staged TP-66 Studio Pedestal, along with its standby 4-stage TP-70 Studio Pedestal and Crescent pan/tilt head.

Spider Support Systems introduced its Spider Pod v.2.0, which creates a two-foot high platform for the camera tripod and a separate two-foot high platform for the videographers, isolating the camera from the operator's movement.

Vinten addressed concerns of remote van operators with the new Vector 900 pan/tilt head, which handles a nearly 200-pound payload, tilts to 90 degrees with a 100-pound payload, weighs 20 percent less than its predecessor, and features an LCD multifunction display with a counterbalance readout, a permanent 24-hour clock and a stop watch.

CRANES, JIM ARMS & DOLLIES

Allen Osborne Associates Inc. presented its A4-30 Stand Alone, a four-leg pneumatic mast that can go up to 30 feet and hold a 50-pound top load.

Boom Audio/Video featured its Cool Cam portable camera boom arm for MiniDV or broadcast camera,

which can be body-worn or tripod-mounted. Its length can be varied from three to 13 feet, and features a motorized pan/tilt head and full camera and lens control.

Cambo Video & Broadcasting Products B.V. showed a low-cost Artes Video Boom System, using 30-inch modular sections to allow the jib arm to be erected to a variety of lengths up to nearly eight feet from the fulcrum.

Camera Track demonstrated an economical model of its dolly and track which includes the car with moving head and 10 feet of track. The system comes with a leveling bubble and 10 leveling bolts. A motorized car for the system is in the works.

CamMate Systems featured its Dutch Head option this year. The 360-degree rotation option will adapt to older models of the CamMate jib arms.

Dykortech Ltd. displayed its Advanta-jib portable camera jib, featuring its own built-in, manually controlled remote fluid head. From pan/tilt handles at the operator end, the pan/tilt head can be controlled up to 10 feet out on the arm.

Egripment, which last year showed a small-scale model of a telescoping crane in development, had a working model of the Xtreme T12 in its booth this year. It can reach a height of 44 feet with an arm capable of on-air telescoping moves from a length of 16- to 33-feet.

Glidecam Industries Inc. displayed its Glidecam Vista Head, an affordable and versatile full range remote-control camera pan/tilt head, designed for use on the company's line of jib-arms.

Isaia & Company featured Grip Factory Munich's GF-9 Crane System, incorporating 5- and 3-foot sections that can be erected in variable lengths up to a height of 33 feet.

J.L. Fisher showed its new fluid damped beam control for dollies, which allows more precision when raising or lowering the beam, and also provides an adjustable stop to the

Free Online Seminar

Moving To A Server-Based Workflow

June 30th
12-1pm EST



Alan Popkin
Director of Technical
Operations and TV
Engineering, KLCS

Join Omneon experts, Alan Popkin from KLCS and TV Technology Editor Tom Butts for a free online seminar about using Information Technologies (IT) to optimize your broadcast operations. Learn how server-based workflows can improve efficiency, reduce costs and increase reliability at your station or network.

Register today at www.tvtechnology.com/webinar2

No special software needed, just use your Internet browser to register.

Don't delay! The first IT For Broadcast seminar was "standing room only." Reserve Now!



IT For Broadcast
Online Seminars



OMNEON
VIDEONETWORKS



Robert Low (l) of OConnor, demonstrates the OSTT66 tripod to Harv Voris of Visions Computer Graphics.

speed of the beam movement can be duplicated on subsequent takes.

Matthews Studio Equipment premiered its MAT TOWERCAM, a remote-controlled telescoping camera column that gives smooth, silent operation moving the camera from 4.5 to 15 feet.

Microdolly Hollywood introduced the Model 2 Power Head, a wire-driven camera head that operates in silence and will run underwater. The upgraded model now has presets to aid operators in doing repetitive shots.

Panther GmbH showed its new Classic dolly, slotted between the company's top-of-the-line Evolution dolly and its predecessor the Super Panther III. It features a CPU-controlled center column and pivoting wheel arms.

Porta-Jib introduced

a new leveling system for its FlexTrak dolly track system that utilizes lengths of solid rubber hose for a dolly track.

Technocrane debuted its Techno 15 telescoping crane, which gives a 50-percent extension in reach at speeds of up to 1.5 meters-per-second in and out during a shot. Its integral remote read has unlimited rotations for pan/tilt.

VFGadgets.com demonstrated its Warrendolly, a portable dolly that weighs 40 pounds and fits in a 50-by-7-inch travel tube. It assembles in seconds with no tools and sports Swiss bearings for a smooth ride and comes with 11 feet of track.

Videopart showed several camera and accessory mounting devices designed to eliminate parallax errors and address safety issues due to unstable camera fastening plates on cranes and other mountings.

STABILIZERS

ABC Products displayed its camera stabilizer line, including the HandyMan DV stabilizer for lighter weight DV camcorders, featuring two independently working spring arms for shock absorption and variable arm tension.

DvRigPro presented its shoulder-

mounted support system for MiniDV cameras, designed for stability and offering 180-degree of tilt on the vertical axis. The unit's spring-loaded central support rod helps stabilize the camera while taking the weight off of the arms of the operator.

EASYRIG Camera Support demonstrated its EASYRIG2 stabilizer, now in several sizes to give camera operators speed and mobility with a stable, smooth camera move. EASYRIG accepts loads from 13 to 35 pounds and folds into a carrying bag.

Glidecam Industries Inc. debuted its Glidecam V-35, a body-mounted stabilization system designed to carry camera payloads from 10 to 25 pounds. A companion L7-Pro, daylight viewable, 16:9/4:3, NTSC/PAL autoread, LCD monitor was designed for Glidecam's stabilizers.

Hollywood Lite introduced Pro Lite, a new line of stabilizing platforms for cameras weighing from 6 to 12 pounds. The Pro Lite features a friction-free gimbal, adjustable length post and 5.6-inch NTSC/PAL monitor.

MK-V unveiled its Nexus System, a stabilizer designed to offer maximum stability with the lightest of cameras.

CAMERA SUPPORT, PAGE 86

SAVE A BUNDLE

ON MULTI CHANNEL DIGITAL MASTER CONTROL

Now that your DTV transmitter is on the air, you're probably looking into multicasting. Our NV5128-MC is the only fully featured master control switcher that has been designed expressly for cost effective multi channel operation. Key features include:

- ◆ Up to 128 inputs—digital, analog, or mixed
- ◆ Up to 4 channels per 8 RU frame
- ◆ Both SD and HD versions available
- ◆ Built-in squeezeback and logo store
- ◆ Full 8 channel audio path
- ◆ Optional built-in Dolby-E decoding

For more information, contact your nearest NVISION sales rep, or visit us on the web.



NVISION
Masters in Digital Audio, Pioneers in HDTV

Camera Support

CONTINUED FROM PAGE 85

Sachtler GmbH debuted its SDI-HD version of the Artemis camera stabilizer system, touted as the world's only stabilizing system with a 1.5 GHz video line that enables direct SDI/RGB HD monitor connection and offers camera operators high-resolution monitoring of their work.

Tiffen introduced three new Steadicam camera-stabilizing systems, including the Flyer, designed to bring hi-end features to a mass-produced, affordable product. It sports a 30-inch lifting range and a 4 to 15-pound camera payload.

VariZoom showed off its new FlowPod, a monopod camera stabilizer for Panasonic MiniDV cameras.

Walter KlassenFX displayed an array of Steadicam harnesses, including the Walter Light, a redesign of

earlier harnesses that results in lighter weight with the same strength and support.

CAMERA MONITORS

Abakus Scientific Limited featured its Abakus Eyepiece Extender, designed to increase the comfort and efficiency of operating cameras mounted on tripods, dollies or other mounts.

Laird Telemedia showcased its Waveshot Wireless Video Monitoring System, a lightweight camera-mounted transmitter that sends a video image up to 100 feet to any pocket-sized or regular TV with a UHF tuner and antenna.

Microdolly Hollywood presented a pair of glasses with a small video monitor on one side to give a boom operator the ability to see what the camera is shooting without being tied to a fixed monitor. The glasses have a set of bellows to shield the monitor

from bright sunlight.

NEBTEK featured its NEB XL Series 16:9/4:3 and NTSC/PAL switchable color monitor designed to mount directly onto a Canon XL-1 camcorder.

VFGadgets.com displayed its AvalonRF TX630 wireless A/V 2.4 GHz Transmitter with optional two-way talk-back or SMPTE time stamp. The unit features a broadcast transmission range of just under one mile, and non-broadcast range up to four miles.

INTERCOMS

Clear-Com featured its CellCom digital wireless intercom, which allows placement of several cellular base stations in various rooms and hallways to allow the headset wearers to communicate as they move through a facility. Efforts to license U.S. operating frequencies are underway.

Drake Electronics Ltd. demonstrated its FreeSpeak digital, license-free wireless intercom system that supports 35 to 50 operators per cell, and allows users to speak with selected individuals or groups, and to freely roam between cells and systems.

JK Audio displayed its ComPack, a universal telecom interface for intercoms with a three-pin XLR beltpack jack that allows it to be plugged in to a ClearCom or RTS partyline system, and connected to any PBX, analog phone line or cell phone.

Kroma Telecom S.A. presented its DECT Wireless Intercom System

WIRCOM TW7000, which utilizes the digital enhanced cordless telephony standard in a 4-by-4 matrix. The system includes a base station and belt-packs.

Riedel Communications introduced the Artist-S, an intercom matrix system designed for small-scale, mobile or large intercom applications. Each 1 RU matrix provides 32 intercom ports expandable up to 512 ports and is capable of routing analog and AES3 audio and TCP/IP data as an Ethernet hub.

Systems Wireless showed off its HME PRO 850 frequency agile RF wireless intercom system operating in the UHF band. Frequencies can be selected in 25 kHz increments over each 18 MHz operational band, providing 720 transmit and 720 receive frequencies.

Telex Communications demonstrated its flexible RTS Cronus Digital DSP Intercom, a 32-port digital matrix intercom based upon an advanced DSP architecture. Up to four of the Cronus units can be networked into a single 128 port matrix.

TELEPROMPTERS

Audio Video Design Inc. showed an upgrade of its EasyReaderPRO teleprompting software with an editor screen run-order management tool that allows drop-and-drag script shuffling prior to entering scroll mode. It also allows text editing without interrupting scrolling.

BarberTech Video Products introduced its EZ Laptop Scroll Mount teleprompter system, which utilizes the laptop's screen as the script source. The system's software handles the image flip so that the scrolling script appears correct in the mirror for the talent.

BDL Autoscript introduced a new wireless scroll control designed for the "wandering" presenter at the show. The UK-based company also showed a new ActiveX controller which enables a prompter to be managed



Jeff Iverson of Unisys tries out the Cambo V-15 video crane. The Canon camera in the foreground is at the end of the crane.

BREAKING NEWS

NEW!



MMAP
MEDIA APPLICATION PLATFORM

one™

- all digital, end-to-end delivery
- send from any ENG laptop
- in selectable broadcast quality



TELESTREAM

www.telestream.net

and scrolled from any newsroom client as well as updates to its +WinPlus+ prompting software with many new facility and newsroom interfaces. In addition, the new Autoscript TFT 20-inch teleprompter was shown.

CPC Computer Prompting and Captioning addressed HD production by introducing its CPC-2000 software, which outputs both teleprompter text for the talent to read and closed captions in HD. The company has also acquired the Mac-based CCaption software line.

Listec Video added the Model ST-2015SA Stand-Alone Solo Series—teleprompters mounted on their own rolling tripods.

Highlighting the new offerings from **Mirror Image** was its OS-160 Outsider teleprompter, featuring a high-bright LCD panel and a 20-by-18-inch mirror. The OS-160 takes inputs from both SVGA and composite sources.

Prompter People used innovative design and the dropping cost of LCDs to present an affordable array of teleprompters, including the MiniDV Prompter, a lightweight 9-inch unit that can be used hand-held or with a camera on a tripod.

ProPrompter brought its ProPrompter PocketPC Package, which includes a camera-mounted mirror system for broadcast or DV cameras, PocketPC, ProPrompter software and attendant cabling.

QTV (a division of Autocue) debuted its FDP-7 LCD TelePrompter, utilizing a 7-inch, lightweight LCD screen that is much brighter than its 6-inch predecessor. It is designed to work with the newest generation of portable cameras and lightweight support equipment.

SRI-Prompter System showed an "old-is-new" style teleprompter, featuring a video camera shooting printed page scripts for display on the prompter screen rather than using a laptop to generate scrolling video.

Tekskil Industries answered the



David McBean (l) of the CVM Communications Group listens as Sophie Roberts explains the Mark Roberts Ulti-Head motion control pan/tilt camera head.

challenge of wider lenses used with HD cameras by widening the beam splitter on its new HDTV High-Light LCD Prompting Series, which also features integrated air monitors.

Telescript rolled out its new FPS-180 Flat Panel LCD Teleprompter, with an 18-inch flat panel screen designed for studios and large venues. The company also added MOS protocol to its TeleScript PRO News prompting software, allowing it to interface with systems like ENPS and iNews.

BAGS, CASES & CARTS

ATS Communications demonstrated the Rock 'n Roller Multicart, a light-weight, heavy-duty equipment moving vehicle. It can be set up in any of nine configurations and is telescopic in length.

Case Supplier brought samples of the 12 lines of protective shipping containers it handles, including fabricated, roto molded and vacuum formed, injection molded, blow molded, fiber and aluminum cases. Case Supplier also handles soft bags

and pouches.

CineBags unveiled its new Production Field Case CB-01, which offers users four removable user-configurable inside pouches and 22 individual compartments to keep the camera and production accessories organized.

IDX System Technology entered the equipment bag arena with its IDX-UPB Universal Production Bag, featuring four removable and user-configurable padded inside pouches and see-thru mesh pockets for finding small accessories. It is waterproof with rubber backing construction and has a removable interior for easy cleaning.

Impact Case and Container introduced its aluminum cases to the NAB floor, combining a strong exterior and foam padded interior. One ICC model is designed to offer the maximum size allowed for shipping via UPS.

KATA Ltd. has incorporated Thermo-Shield-Technology into its equipment bag line. TST features a thermo-formed protective rib-shape construction of the outside layer of

the cases, offering padding and protection while maintaining the lightweight characteristics of the bags.

Petrol designed a contoured cover for video cameras called CamWrap, which protects against bumps, jolts, and rain, while offering easy accessibility to camera functions. Three oversized transparent windows offer convenient viewing of displays on both sides of the camera.

PortaBrace/K & H Products Ltd. added the DV Organizer 2 to its line of soft-sided equipment carrying cases. It can be ordered with custom cradles for various popular DV cameras, has configurable pockets inside, and is stackable.

MISCELLANEOUS

Cablecam International showed its high-speed Traveling High Line System designed to give close-up views in the middle of sports stadiums and deliver camera swoops in motion pictures. The rentable system is capable of moving the camera at speeds as fast as 40 mph.

Lastolite introduced the Ezybalance, a color and exposure balance card featuring one side with a pure white surface for colorbalancing a DV camera, the other side with an 18-percent gray surface for setting an accurate exposure.

Noga showed its HOLDIT Variable Arm System, a one-touch articulated arm system designed for mounting accessories to cameras and stands.

Photoflex Inc. premiered its FlexDrop2 reversible chroma-key blue and green backdrops for use in digital photography as well as video and film. The backdrop is 5-by-7-feet, with double-riveted steel frames.

Rip-Tie showed a solution for the camera crewman who needs to carry several cables for quick deployment, the CableCarrier, which attaches to a belt loop or tool belt.

Videopart Inc. showed an array of camera mounting plates designed to allow the camera to be more securely fastened to a tripod or crane arm. ■

now delivered directly from laptops!

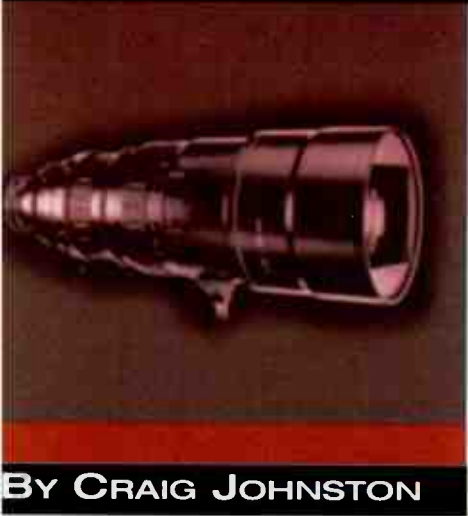


- delivered in minutes
- over standard or wireless IP
- to any server or edit system

NEWSROOM



TELESTREAM



BY CRAIG JOHNSTON

It's usually difficult to decide which lens maker to lead off with in an NAB wrap-up article, but a company rolling out its first video camera lens made the choice easy by introducing a product that triples the previous greatest zoom range.

Panavision's 300x HD lens with compound zoom is a meter-long 7mm to 2,100mm lens that the company thinks will find application not only in the sports and entertainment remote market, but with the military and homeland security forces as well.

The company's goal, four years ago, was to design an HD lens with a zoom range of more than 100. Conventional lens design kept putting up roadblocks, which led Panavision's engineers to the compound zoom breakthrough, described as a zoom within a zoom within a zoom. Once they had that, the 300x zoom range became practicable.

The compound zoom design allows the 300x lens to be slimmed down to 85 lbs., and the patent-pending technology may also lead to high-quality zooms being built into small form-factor video cameras, maybe even those in cell phones.

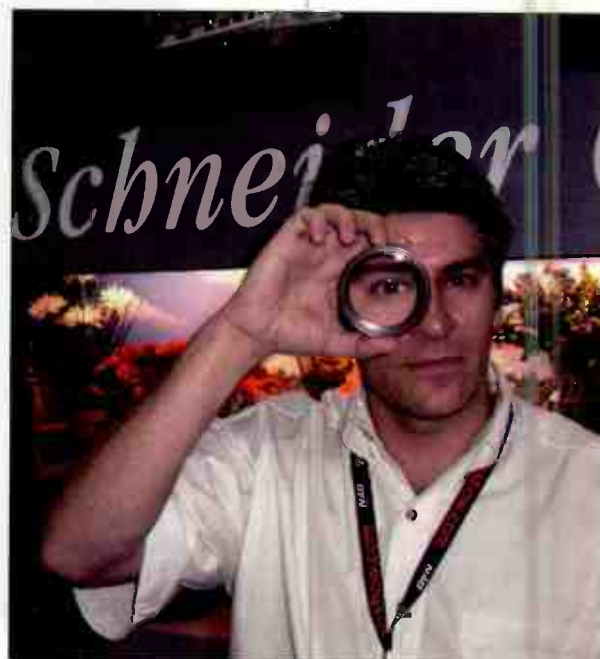
Fujinon rolled out a number of new lenses, but first thing to mention is a lens feature, the Fujinon Precision Focus Assist system. Because of HD's shallow depth-of-focus and the lack of size and resolu-

tion of viewfinders, lens buyers can opt for this built-in feature. Precision Focus Assist is not an auto focus system, but a focus assist that allows the operator to select an area of the frame to remain in crisp focus. It can be used manually by watching an in-the-eyepiece indicator, or allow a servo motor to continually adjust focus.

Another Fujinon introduction is the first HD lens designed for remote control applications, the Hasl8x7.6MD. Intended for use in sports remotes and robotic studios, the lens is stripped of its zoom rocker switch and 2x extender, making it economical for an HD zoom.

In the cine lens category, the company introduced a 10mm member of its prime lens family, and the HA18x7.6 to its Compact C series of cine-style HD zoom lenses.

Canon has observed the increasing use of ENG-type cameras on manned and robotic pedestals in TV studios and decided to develop a box-style HD studio lens specifically for portable cameras. The result is the DigiSuper 23xs, yielding a focal length of 7.3mm to 161mm, with a 2x extender on top of that.



Glenn Diener of Schneider Optics takes a hard look through a Century Optics +2 achromatic diopter.

and precision.

In the HD electronic cine arena, Canon introduced six new prime lenses, a new HJ8x5.5B KLL-SC cine zoom lens, and an anamorphic lens converter for the 2/3-inch HD image size format, designed to make it possible for a cine video HD camera to deliver a 2.35:1 aspect ratio (CinemaScope) image to the screen.

Thales Angenieux exhibited its new line of digital ENG/EPF lenses, including the new Digital 26x7.8AIF high definition (HD) and high resolution (HR) Tele Super Zoom Lenses. It joins a family of zooms including 10x, 12x, 15x and 40x focal ranges, and offers RS-232 control. The HR version utilizes technology introduced last year in its Optimo film lens.

The company also showcased its box type lenses, including the 70x HD OB/Sports Lens, which features a unique Advanced Display System (ADS) to enable the user to monitor lens settings and adjust digital features quickly.

Zeiss has set a high standard for cine style HD lenses that has kept the firm from making a zoom lens for that market—at least until now. At the Band Pro booth, the company lifted the curtain off the Carl Zeiss DigiZoom 6-24mm T1.9 lens. Zeiss engineers explained that the relatively short 4x zoom range gives electronic cinematographers the ability to perform zooms where required while

LENSES, PAGE 90

network
the innovator



Flashlink®

The most modern range of fiberoptical transport products

- All signal formats (Broadcast, Telecom and Multimedia)
- WDM (2 ch.)
- CWDM (up to 16 ch.)
- DWDM (up to 40 ch.)
- Multi Rate Transponder
- Optical Embedders/De-embedders
- 8 ch. AES-MUX
- GYDA System Controller

N-Box for housing one of any Flashlink® or ConQuer® cards



Network Electronics US Inc • 11075 South State Street Ste27 • Salt Lake City UT 84070 • Phone: (800) 420-5909 • Fax: (800) 420-5911

www.network-electronics.com/US



Canon's DigiSuper 23xs zoom lens

The company also debuted four new ENG/EPF zoom lenses, including what it calls the widest-angle portable telephoto lens ever produced for SDTV, the J22ex7.6B IRS-DIASD. It is the first in Canon's new e-IFxs broadcast lens series, and is equipped with an informational LCD display with control paddle, which allows users to customize the enhanced digital functions with ease

SENCORE

Get Yourself
A New
FantASI!

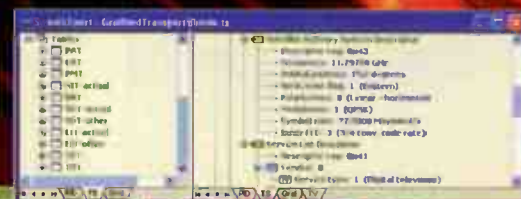
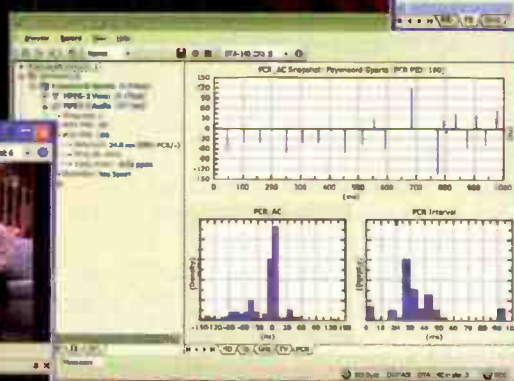


NEW!



SENCORE
is the Exclusive
North American
Distributor
For Dektec
products.

The DTU-225-SX
ASI/USB-2 Adapter
MPEG-2 Transport Streams
From Your Laptop!



Monitor

Analyze

Decode

Didn't make it to NAB this Year? Here's What's New At SENCORE

New! Receiver/Decoders that are configurable to your exact requirements, including QAM and 8-VSB

New! MPEG-2 Delay Servers, MPEG-2 Transport Stream Analyzers.

SENCORE is also the new authorized agent for the
Thales Logo Inserter, Smart Switch, and Cable Translator.

Call **SENCORE** Now at 1-800-SENCORE (736-2673),
or go to www.sencore.com to find out about all the new
innovative DTV solutions we can provide you!

Lenses

CONTINUED FROM PAGE 88

not sacrificing on image quality. The zoom's color characteristics match those of Zeiss' DigiPrime lenses, and it takes the same industry-standard zoom, focus and iris gears.

Innovision Optics specializes in tubular-shaped probe lenses for those trick shots where the lens passes through a hole. The company added a 45-degree angle attachment to its HD Probe lens, joining the Straight and 90-degree Periscope versions. The HD Probe lens offers a choice of five high-resolution prime optics.

The company also showed the Series 6000DV lens system, a narrow diameter endoscopic lens system which allows the lens to go through

small openings like a donut hole. Users can choose from an array of objective prime lenses in 45- or 90-degree view, in popular mounts including B4.

Abakus Scientific Limited showed off its wide-angle specialty lenses, including the Stadium Lens, which yields a horizontal angle of view greater than 180-degrees, and a diagonal angle of view of 210 degrees. Also on display was its High Definition Arena Lens, yielding a horizontal angle of view greater than 120-degrees and a diagonal angle of view of 140-degrees.

Cavision brought its extensive range of attachment lens adapters and converters for extending the range of zoom and fixed-focus lenses. The company has product lines for broadcast, industrial, DV and micro camera lenses. The company also showed its line of matt boxes, including a new one incorporating a shoulder mount for a Sony MiniDV camcorder.

Century Optics (a Schneider Optics division) took the wraps off its 2X HR tele-converter, which fits 27-37mm front-thread camcorders like Sony PDX10, TRV950, PC 120 and the Canon Elura/Optura. It is a high-resolution converter that instantly doubles focal length range in telephoto direction.

Lee Filters introduced a new Soft Focus glass camera filter, designed to offer a touch of soft diffusion for portrait work. The new filter works with the Lee system of filter holders and hoods.

Schneider Optics unveiled its Digicon Filter, designed for lowering highlights and raising black levels, allowing digital cameras to capture a more dynamic range without loss of resolution. The Digicon is available in 6.6 x 6.6-, 4 x 5.65- and 4 x 4-inch sizes.

Slik Broadcast showed an extensive line of Hoya multicoated optical glass filters.

Tiffen demonstrated its Glimmer Glass filters, designed to take edge and lines off a face without sacrificing sharpness. The company also showed its Smoke filter, which can eliminate the need for a smoke machine to achieve a smoky image.

Chrosziel introduced a new matte box with interchangeable filter stages that fits any lens up to a 4.5mm focal length zoom lens or 5mm Canon or Fujinon prime lens. It has a wide-angle housing covering both 16:9/4:3 (CLWAH-F4.8) aspect ratio and includes a French flag, mounting blocks and pivot mechanism for use of side wings.

Formatt displayed its FM-500 Matte Box, manufactured from tough aviation grade aluminum. It is a



Fujinon's HA13x4.5BRD-S28K wide angle lens features the company's new patented Precision Focus Assist system.



Panavision's new 300x HD lens is targeted to sports and entertainment but could also find application in military and homeland security.

lightweight, inexpensive way of shading lenses on cameras with internal focus lenses, and comes with a sunshade and an adjustable and removable French flag.

The company also showed a new generation of glass filters, manufactured using water-white Schott optical glass that is precision polished and ground.

Petroff Matte Boxes showed its universal MiniDV camera-base adapter for its matte boxes designed to fit most popular lenses for video and film production. The matte box comes in 4 x 4- 4 x 5- and 5 x 5-inch sizes, and accommodates three filter stages.

VFGadgets.com demonstrated its Red Eye wide-angle, non-zoom-through camera lens attachment. It fits over the end of the camera lens, weighs less than 3.5 oz., and increases lens angle by 30 percent. Models are available to fit a range of DV camcorders.

Abel Cine Tech showed a pair of servo motors for video and film cameras. The Digital Servo Motor M26VE

is compatible with digital lens control systems. The M21VP Power Dwarf is a small, vertically oriented lens servo motor. Neither servo motor requires tools for installation.

ProSource/BMI unveiled the new Z-10 Zoom Controller from Vocas, which features zoom position memory that allows user-defined wide and tele points to be set anywhere within the zoom range, and Zoom Position Feedback to provide a digital display of zoom position. The Z-10 is compatible with all servo-driven professional and broadcast lenses from Angenieux, Canon and Fujinon.

The company also introduced the new MB-350 wide-angle matte box (SHADE FX) from Vocas. The unit is designed for lenses wider than 5.0mm and features a four-stage filter system that incorporates two independently rotatable filter trays and two non-rotatable, horizontally oriented 4 x 5.6 filter trays.

VariZoom displayed its Pro Series focus and zoom controls, including models for broadcast cameras as well as MiniDV and Hi-8 camcorders. ■

Brings You Maximum Value From Install to Upgrade



Fast... All patchbays are designed, built, tested and warehoused in our state-of-the-art plant, giving you the fast turnaround you need.

Flexible... Bittree pioneered the 3-pin connector (E3) in patchbays, providing a simple, sturdy



connection for fast re-configurations. We also invented the "Programmable" patchbay, letting you

change normaling and grounding by re-arranging the shunts under the designation strips.

Reliable... From gold-plated contacts to powder-coated panels, count on Bittree to deliver years of flawless connections and the industry's finest fit-and-finish.

Convenient... Bittree produces a wide range of audio, video and data patchbays, as well as patchcords, tools and accessories.

Bittree

High-Performance Patching Systems

Toll-Free (800) 500-8142
Outside U.S.A. (818) 500-8142
www.bittree.com

The booths at NAB2004 were loaded with edit systems capable of tackling high definition post production, but for the most part it was an evolutionary rather than revolutionary step into handling the massive requirements of HD. Look for significant inroads from Apple editing and HDV acquisition. Here are the highlights of the editing innovations seen on the floor of the big show.

Designed to replace its venerable Axial 3000 for the same price, the Axial/MX Universal-format online edit system from **Accom** supports all types of uncompressed SD and HD editing along with 8 channels of AES audio in a smaller 2 RU chassis. Its Live Video option lets you cut between 5 live streams of either SD or HD video.

With its new Premiere Pro vers. 1.5 software for Windows XP, in addition to editing most HD resolutions, Adobe is giving editors a new interface and more real-time editing tools including Bézier keyframe effect controls, advanced color correction, a sophisticated titler, improved audio mixing and direct-to-DVD output. Premier Pro 1.5's Project Manager also improves data management by excluding unused clips, preview files and conformed audio files.

One of the most interesting turnkey edit systems running Adobe Premiere Pro software came from **1 Beyond** whose HD Pro workstation offers affordable 10-bit uncompressed HD editing as well as HDV, SD and DV. With 1 Beyond's built-in removable Raid 3 storage system called HotRock, the cost of holding uncompressed HD comes down to just \$3.90 per GB.

Apple upped the ante from last year's release of Final Cut Pro 4 by debuting Final Cut Pro HD, capable of real-time camera-native DVCPRO HD over FireWire as well as DV and SD. Its Digital Cinema Desktop feature lets you monitor SD and HD on an Apple Cinema Display. Costing the same as FCP 4, the upgrade to Final Cut Pro HD is free. Apple also announced a suite of software packages including Motion to animate titles and graphics, Shake 3.5 for visual effects, and DVD Studio Pro 3 for high quality HD to MPEG-2 encoding. Another eagerly awaited Apple announcement was Xsan, a 64-bit cluster file system on Mac OS X for scalable high bandwidth collaborative access to centralized

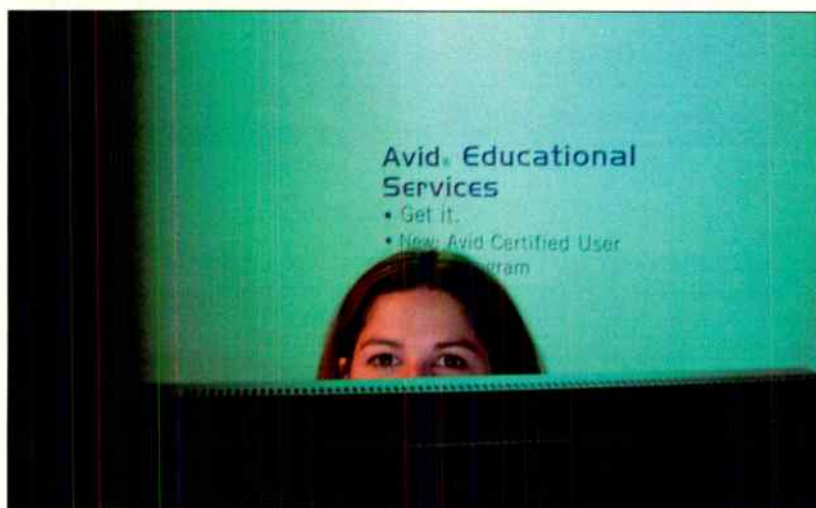
shared storage.

Over in its suite at the Hilton, **Applied Magic** displayed its new turnkey system. HD Cinema, for editing up to four streams of HDV. HD Cinema features keyframeable color adjustment and over 30 parameter-controllable transitions

Offering collaborative HD post production utilizing the same storage bandwidth as SD files, **Avid Technology, Inc.** has given its line of NLE's from Xpress Pro to DS Nitris the new DNxHD encoding technology—and made the DNxHD source code licensable free of charge on their Web

site. They also announced a new Version 7.5 software for the Avid DS Nitris system (due this summer), giving it real time 2K capabilities. For DV editing, Avid released the Xpress Studio Suite of five software applications including Xpress Pro editing software, Pro Tools LE for audio, Avid 3D featuring animation and effects from the Softimage|XSI software, Avid FX for titling and compositing, and Avid DVD by Sonic that allows DVDs to be edited without re-authoring.

With its new HD [pro] RT, **BOXX Technologies** is providing real-time HD editing featuring CineForm's



Cheryl Panepinto of Avid worked to spread the word about the company's training and education services.



Bernard Lamborelle (L) of Matrox explains a feature of the company's HD graphics system to Marshall Johnson of the LDS Church.

Prospect HD plug-in running in Adobe

Premiere Pro on Windows XP. BOXX also previewed GoBOXX, a lug-gable mobile workstation empowering HDV editing in the field.

The new EDIUS HD system from **Canopus** includes its EDIUS Pro software for real-time HD editing along with both the Canopus HD and its variable HQ codec and the HDRX-E1 SDI I/O card. The company's MediaEdge2 network-based video distribution system now supports MPEG-4 video, and it announced that V2.0 of Canopus' ProCoder software can automate even the encoding of large projects with the help of a new Wizard interface.

One of the most successful plug-ins for editing the new HDV format on Adobe's Premiere Pro software is CineForm's Aspect HD, now in V2.2, that includes performance enhancements to the HDLink, CineForm's capture utility for HDV camcorders. Even more impressive, they showed off Prospect HD, a software package that can present up to three 1080p streams simultaneously.

Within an exhibit emphasizing its data-centric "Connect" theme, **Discreet** presented V6.0 for its smoke NLE, now on IBM's Intellistation running Linux as well as SGI workstations. Its flint visual effects system now benefits from V8.5 software for real-time paint and motion graphics with the Nvidia Quadro FX3000G graphics card and DVS video I/O.

EDITING, PAGE 92

vtecs™

General Purpose Control Panels with Interfaces

Introducing the Hottest, and the Coolest Control Panels

- ◆ Multiple Vendor Control
- ◆ Ingest Frame Sync QC
- ◆ Full Router Integration
- ◆ Channel Based Organization

Videoframe™
 Videoframe, Inc. P.O. Box 1991, Grass Valley, CA 95945
 Tel: 530-477-2000 www.videoframesystems.com

Editing

CONTINUED FROM PAGE 91

Discreet also announced it will support Apple's Final Cut Pro XML interchange format in upcoming versions of its editing and effects products.

Clipster from **DVS Digital Video Systems** was seen with its new DVS PCI-X bus capture card for real-time dual stream editing up to 2K (2,048 X 1,556) now with real-time color correction. Clipster also now offers real-time pan and scan and can be conformed to a Virtual Network for playback from SAN storage in real time based on a CMX 3600-style EDL.

The new DV-7DL standalone edit system from **Edirol** now provides what they call a "nonstop editing environment" by constantly looping clips for effect and title additions. A new split screen display lets you reposition images within a frame, and a unique manual switcher mode lets you physically effect between video streams with a contextually tactile feel.

The new V3.4 software for **Editware's** hybrid Fastrack editing controller offers an improved linear mode on its SE model with an intuitive record track display that graphically represents the master tape on its



Jim Barclay of Accom strikes a pose with the company's new Axial/MX editing system.

timeline. Fastrack also now has assignable shortcut keys on either the screen menu or the keyboard.

Calling it a "format flexible" non-linear editor (1080i, 1080PsF and 720p), the new VelocityHD from **Leitch** combines its new Altitude hardware platform with an enhanced version of the Velocity software interface. Its clever eyecons video thumbnails of each clip on the timeline is

now joined by waveform displays on the audio tracks that update while scrubbing. The VelocityQ 2 X 4, a lower cost model of their flagship standard definition NLE, was seen on its Quatrus platform. Now that Leitch has acquired Videotek, Inc., we can expect to see even more emphasis on testing and standards measurements in its editing products.

With a nifty new QuadCam feature

on **MacroSystem Digital Video's** Casablanca line of all-in-one video editing systems you can now cut between up to four ISO cameras using the keyboard, mouse or Wacom pen and tablet. Its premiere Casablanca Solitaire system with dual 1 GB drives can edit HDV and then burn the result onto a built-in DVD, and their whole line now features background rendering.

New software V3.0 is shipping for **Media 100's** 844/X NLE, providing an advanced keyer that combines all of the GenesisEngine's processing power into one pipeline for separate spill suppression, matte erode and blur control. The system also now boasts a 3D DVE for XYZ plane rotation with perspectives. Its new Media 100 HD on a Macintosh G5 platform leverages the Genesis-Engine on an Xraid array for uncompressed SD and HD editing, and media from legacy Media 100i systems can be imported directly onto the Media 100 HD timeline without re-digitizing.

Reporting a 40-percent increase in seats worldwide last year, **Pinnacle Systems** announced that later this year its whole line of Pinnacle Liquid editing systems will receive real-time multistream HD editing, including uncompressed HD, HDV, as well as its

FOR-A
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

Multi Bit Rate is Ready

SDI, 1080i, 720p, 24p...whatever the format, FOR-A is there.

Digital Video Switcher 1M/E HANABI

More compact but yet maintaining the same know-how of HANABI 2M/E model, the new 1M/E HANABI offers two types of control panels for live and edit applications.

Frame Synchronizer UFH-70FS

New frame synchronizer module for HD. Universal Frames is capable for the synchronization for HD-SDI or SDI signals. Conveniently installed into the various UFH frames depending on the system requirement.

Digital Color Corrector DCC-70HS

Compact digital color corrector offers superior 14-bit 4:4:4 component signal processing circuitry and the ability to control Black, White and Gamma (RGB) levels individually or as a group.

RCG Solution / Virtual Studio System digiStorm

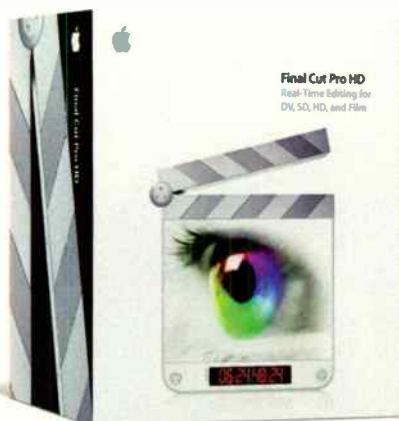
Joint development of FOR-A and Brainstorm Multimedia. It is compatible with wide range of virtual studios and real-time computer graphics.

And more...

<http://www.for-a.com/>

FOR-A Company Limited/Head Office: 3-8-1 Ebisu, Shibuya-ku, Tokyo 150-0013, Japan
USA/FOR-A Corporation of America: 11125 Knott Ave. Cypress, CA 90630, USA
CANADA/FOR-A Corporation of Canada: 425 Queen St. W. #210, Toronto, Ontario M5V 2A5, Canada

Tel: +81 (0)3-3446-3936 Fax: +81 (0)3-3446-1470
Tel: +1 714-894-3311 Fax: +1 714-894-5399
Tel: +1 416-977-0343 Fax: +1 416-977-0657



Apple released an HD version of Final Cut Pro.

own HD Elite, a 50-Mbps MPEG format. They also released CinéWave V4.5 that can now fully display Final Cut Pro's RT Extreme offline video, and previewed Vers. 4.6 which will give CinéWave simultaneous HD and SD video out for Panasonic's DVCPRO HD format. Now supporting P2 media, Pinnacle edit systems are also enabling Time Warner Cable's NY1 news operation to become completely tapeless from acquisition through payout.

After the release of V2.0 software, Quantel claims its generationQ family of post products is "past its adolescence". With a new tree structure in its GUI, Vers. 2 provides faster integration with QEffects and affords its mastering system, eQ, the option of full HD-RGB while the top end iQ can handle 4K resolutions in hardware. Joining the P2 Alliance, Quantel's new QEdit software package can now cut from tapeless media feeding its output to a full generationQ broadcast production system.

With its new Vers. 7.0 software due out in July, Sony's XPR1 nonlinear editors will access real-time multicam cutting capabilities from up to nine cameras. A nifty "Virtual TD" feature loads live cut points directly onto the timeline for subsequent trimming, and its SAN storage has been expanded to eight real-time HD seats. Sony's low-cost Vegas5 software handles SD, HD and the new HDV format and can now, finally, create a CMX-style time-code based EDL.

Apple's Final Cut Pro editing software (4.0 and higher) has now been integrated into Thomson's Grass Valley brand Digital News Production (DNP) line, allowing stories rough cut on the NewsEdit system to be polished with Apple's more sophisticated finishing capabilities. Thomson and Apple are combining Final Cut Pro HD with the Grass Valley M-Series iVDR "intelligent video digital recorder," a removable media technology designed to replace VTRs. In

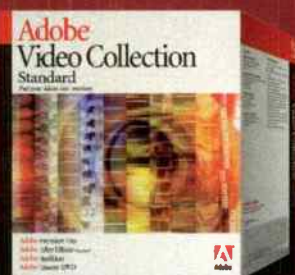
addition, the NewsEdit LT Vers. 5.0 laptop editor, now with access to Panasonic's P2 and Sony's XDCAM storage, is being packaged with the Telestream MAPone application, enabling low data rate WiFi transmission to send stories back to the studio over phone lines or Internet access points.

Another HDV editing option is Ulead's HD plug-in for its MediaStudio Pro 7 software with FireWire I/O. Ulead also spotlighted its new DVD Workshop 2 for drag-and-drop ease in DVD authoring with multiple subtitle and audio tracks.

Finally, all editors should note that at NAB2004 the AAF (Advanced

Authoring Format) Association released its finalized edit protocol providing reliable interchange of video and audio content along with its associated metadata between different manufacturer's equipment. If widely adopted, the AAF edit protocol should facilitate greater interoperability between edit systems. ■

The Most Flexible, and Cost Effective Uncompressed Editing System Around



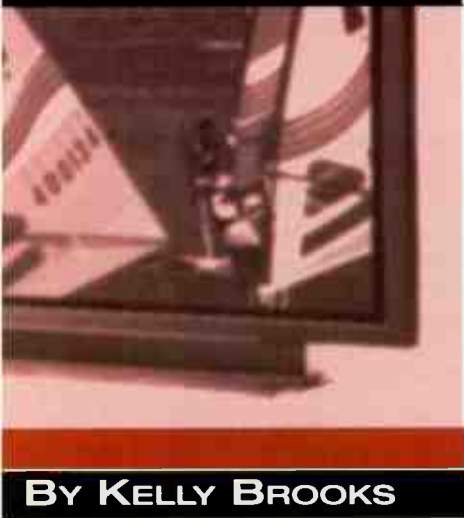
ProMax adds a new dimension to their uncompressed video editing solutions with their Premiere SDMAX, at a price point that is unbelievable. This remarkable system, powered by BlackMagic's DeckLink Extreme card and Adobe's® powerful new Premiere® Pro software, features the highest quality 10 bit uncompressed video. Make a professional choice and contact ProMax for a quote on a new SD editing system that meets your needs and budget.

- ProMax Pentium 4 - 3.2 GHz SP, 1024 MB RAM, 80 GB, DVD-RW
- Two 250 GB SATA Media Drives
- BlackMagic DeckLink Extreme
- Altec-Lansing VS4121 3 Piece Speakers
- Adobe® Video Collection Standard includes:
 - Adobe After Effects® Standard
 - Adobe Premiere® Pro
 - Adobe Encore DVD™
 - Adobe Audition™
- 19 inch ViewSonic RGB Black Monitor
- System Configuration
- 90 Day Toll Free Support

pro MAX

ProMax Systems, Inc.

16 Technology Drive - #106 • Irvine, California 92618
www.promax.com • TEL: 949-727-3977 • SALES: 1-800-977-6629 • FAX: 949-727-3546



BY KELLY BROOKS

Monitors on display at NAB2004 confirmed two things: most major monitor display manufacturers are no longer producing new CRTs, and SDI inputs are a must-have feature.

MAKE ROOM FOR HD

Ikegami straddled the technology fence with both CRT and LCD models, including the HTM-1907 flat 19-inch and the HTM-2070 20-inch HDTV/SDTV multi-format color, high-resolution CRT monitors with optional SDI modules. The company's new LCD monitors, the 22-inch HLM-2200 and 17-inch HLM-1700R, also made their debut.

The HDM-EV80HD 8.4-inch LCD monitor for HDTVs and SDTVs introduced by ERG Ventures offered an active 1,024x768 resolution LCD and a display of 16.7 million colors through 8 bits per RGB. The company also showcased the HDM-EV80D's gamma correction function, which lightens an image when ordinary monitoring cannot properly display darkness. ERG's 6-inch HDM-EV35D HD also was on display.

Avitech debuted a module for its Media Command Center (MCC) virtual monitor wall system that handles four simultaneous inputs ranging from composite video to HD-SDI, with an output resolution from 800x600 to 1,600x1,200. The company's Cosmos control system with a GUI for configuration and editing of the MCC also was featured.

Continuing the trend of multi-input units was Marshall Electronics with



Robin Richards of Sony likes the company's new LMD-320W LCD monitor.

its portable 6.5-inch HD/SD LCD monitor for widescreen applications. The V-R65P-HD features standard inputs with active loopthrough on each connection for HD SDI/SDI and composite video with PAL/NTSC recognition. The company's V-R18P and V-R18PSD were also introduced at the show, each offering eight 1.8-inch LCD color TFT displays in 1 RU of space. The BV-R18P-SDI is intended for use with digital signals, and the display face of both models can be tilted up to 90 degrees.

Wohler Technologies' video division, Panoramadtv, launched its RM

Series of rackmounted LCD video monitors, offering two composite video inputs per screen and an optional module providing an SDI input channel with a reclocked SDI video output and a converted composite video output. In addition to its new RM series, Panoramadtv also featured the MON8-1 LCD video monitor, with eight 1.8-inch LCD screens, a composite video input, loop-through output and termination switches in 1 RU.

MOMENT IN THE SUN

A standout among the monitors,

YOU HAVE ONE SHOT AT CONVERTING YOUR ANALOG TO DIGITAL — WHY WOULDN'T YOU CHOOSE THE HIGHEST QUALITY?

- Analog to Digital Converters
- A/V Synchronizers
- Color Correctors
- Legalizers

www.fortelDTV.com
800.530.5542

FORTEL DTV

PERFECT SIGNAL. IDEAL CONTROL. CLEAR VALUE.

and making its international debut, was the Hummingbird sunlight-viewable series from IMP Electronics. Available in 6.4-, 10.4- and 15-inch sizes, with resolutions of 640x480, 800x600 and 1,024x768, respectively, the monitors feature LCD panels modified to eliminate glare by way of a precision lens bonded to the front of the assembly.

Also touting sunlight visibility were the 5-, 6.4- and 7-inch NebXL series of TFT/LCD monitors from Nebtek, featuring anti-reflective screens for outdoor viewing. The Neb 50XL is intended for use with the Canon XL camera series, and includes NTSC/PAL auto-switching, with coaxial DC input, stereo mini-jack and two feet of RCA cable to the camera's video output. The Neb 70XL, a modified Panasonic TC7-WMS1, is 16:9/3:4 switchable.

With I/O functionality of up to 72 inputs displayed per output, and the addition of VistaLink (SNMP) support, the 6 RU, 15-slot framed MVP multi-video display processor from Evertz distinguished itself from the number of monitors exhibited at NAB2004. As the user's signal monitoring and display needs increase, a display package with 8, 16 or 24 video inputs can be upgraded to include computer input and audio input modules, as well as multi-display output modules.

Glidecam Industries presented three of its model L7-Pro, weighing 1.8 pounds. Featuring a 16:9/4:3 switchable TFT active matrix and daylight-viewable color display, the unit works as a remote viewing monitor on the base platform of the Glidecam's V-16, V-20 or Gold Series professional camera stabilizers.

Pro-Bel showed its Vutrix VX line of TFT monitors, ranging from 15- to 40-inches and sharing the Pixel-to-Pixel common electronics processing system, which posts incoming video streams from SDI. Pro-Bel also showed a 40-inch widescreen TFT with a 500-candela display, native 1,280x768 and integrated VuWall software, and its VDSI distribution system.

Motorola Broadband showcased HD plasma display monitors by Moxell Technology, including 42-inch 16:9 flat panels with advanced digital video scaling technologies.

Data Check presented a combined test instrument/monitor as well as a 17-inch multi-format HDTV LCD monitor at the show. The Model 21170 features HD-SD input, processes practically all HD and SD formats, front panel on screen controls, 5-plus years LCD backlight, adjustable vertical tilt and multiple computer interfaces as well as HS/SD and HD/SDI large-screen video monitors.

Sony expanded its new Luma series of professional LCD monitors with two models optimized for full-motion video



Shauna Sudbury of Nebtek is happy to embrace the company's monitor product line.

in broadcast and post-production. The 32-inch widescreen 16:9 LMD-320W featured high brightness and contrast and improved black reproduction; the 21-inch 4:3 LMD-210 is intended for production, research and industrial markets. Both monitors accommodate SD and HD analog and digital signals, and will be available in July.

Sony of Canada unveiled its LocationFree portable broadband LCD TV system, featuring a 12.1-inch touchscreen monitor and using dual-band wireless transmission technology.

PICTURE PERFECT

Spain-based Kroma Telecom exhibited its triple five-inch TFT monitor with high view angles, vibrant color range and low picture delay. It includes 12 inputs; two analog and two digital per each screen. The company also showed TFT monitors from its LM50XX series in 9-, 15- and 18-inch models.

TV One Broadcast Sales showed the LM-1042R, a dual 10.4-inch LCD monitor in a 19-inch rack-mount case. The company also presented its array of LM Series Professional LCD monitors, available in standard 19-inch rack-mount configurations.

Ward-Beck offered triple and quad versions of its A/V monitor system. VMS33 features three high-resolution (960x234) LCD displays, 28-segment stereo VU/PPM meters and five-segment correlation meters in a 3 RU panel, while the VMS44 has four 480x234 displays, VU/PPM meters and five-segment correlation meters in a 2 RU panel.

Astro Systems displayed the portable WM-3004 6-inch HD/SD waveform and vectorscope monitor, as well as lightweight portable HD/SD LCD monitors, the 6-inch DM-3005 and DM-3000B, and the 10-inch DM-3303C. All models tout a sharp viewing angle and easily accessible front-panel functions.

Transvideo displayed its 6-inch Cinemonitor III and the 6-inch

with more than 750 lines of horizontal resolution, a built-in slot for optional component and SDI input cards, professional features, including blue check, color off, underscan and more. JVC also introduced the DT-V1710CGU/DT-V1910CGU HDTV monitors that are switchable from HD to SC with three expansion slots that can accommodate any combination of input cards. The monitors also offer audio monitoring features that display the audio levels from the audio embedded in the SDI and HD SDI on the screen, generating audio level meters that move back and forth with the sound.

New rack mounted LCD monitors were introduced from Tote Vision. The LCD 641 series 6.4-inch LCD-641D and LCD-641-V monitors are PC-compatible and include up/down and left/right image reverse and an on/off key to easily toggle between composite, S-Video and PC modes. The company also introduced the 7.9-inch active matrix LCD-800N and LCD-800D color LCD monitors featuring mirror image picture control and remote control capability. ■

Over 946,080,000 seconds of precision timing



WHEN you require the best, most accurate in precision timing look only to ESE. Designed for "Precision Timing", ESE Master Clocks & Accessories have been the industry standard for over three decades.

Whether using GPS, WWV, Modem, Crystal or line frequency accuracy – all ESE Master Clocks can drive digital or analog slave clocks, as well as interface with video and/or computer based systems. Call or visit our web site for more details.

• 3-Year Warranty •



142 Sierra Street • El Segundo, CA 90245 USA
Phone: (310) 322-2136 • Fax: 310.322.8127

www.ease-web.com



By Bob Kovacs

There was a lot of heavy metal on the floor of the NAB2004, enough to keep the massive convention center from blowing away in the occasionally gusty desert winds.

The heavy metal took the form of large transmitters in several varieties, heavy enough that some were fitted with massive grappling loops on top to simplify loading and shipping. Manufacturers were clearly gearing up for a return to high-power, after a brief dalliance by broadcasters with low-power transmitters to fulfill their DTV obligation.

Harris had two large transmitters on the floor demonstrating this "bigger is better" theme, with its top-of-the-line PowerCD, a high-power UHF DTV unit that features the company's eCDI network monitoring and control system. The 35 kW PowerCD works with e2v's depressed-collector IOT, which boosts

the transmitter's efficiency for substantial savings in monthly power costs. The PowerCD transmitter in Harris' display was sold to WLWT in Cincinnati.

Right next to the PowerCD was the Atlas Analogue, Harris' latest solid-state UHF transmitter for NTSC broadcasting. The Atlas Analogue uses liquid-cooled LDMOS FET broadband power amplifier modules that simplify channel changing and ease the transition to digital transmission.

Both solid-state and tube amplifiers from Harris are compatible with the company's eCDI control and monitoring system, which makes it possible to use the Internet to view the transmitter's operating parameters and make adjustments.

Ai, the transmitter brand of Acrodyne, had a spacious booth that it used to highlight the continuing reign of analog television transmission. Topping the news from Ai was that its Quantum line of IOT transmitters can now use the depressed-collector ESCIOT from e2v for analog service, resulting in significant electricity savings compared to other UHF transmitter technologies. Of course, the Quantum can also serve as a DTV transmitter, using either standard IOTs or the energy-saving ESCIOT.

The buzz in the Ai booth is that a 240 kW analog Quantum with the ESCIOT is saving a station up to \$200,000 in electricity costs per year, enough to pay for the entire transmitter in four years. And a switch to digital involves swapping a card in the transmitter's encoder.

Ai also displayed medium-power solid-state transmitters from Rohde & Schwarz, part of a marketing arrangement that lets Ai sell Rohde & Schwarz in the U.S. and gives the German manufacturer access to Ai's high-power transmitters for European customers.

Both solid-state and tube-based transmitters were featured at the Axcera booth, with the top-of-the-line UHF Visionary DT being shown with both L-3 and e2v MSDC IOTs for high-



Rich Schwartz of Axcera demonstrates the GUI on the new Innovator HX transmitter to Karl Merenda of Incospec Communications.

power DTV broadcasting. A Visionary DT with an L-3 CEA-130D MSDC IOT was installed immediately after NAB2004 at WLPB-DT in Baton Rouge, La., which decided to go with the Visionary DT because of the transmitter's ability to work with a variety of output tubes.

Also new in the Axcera booth was the Innovator HX high-power solid-state VHF transmitter that features the company's programmable control system that monitors and adjusts the HX with standard, off-the-shelf components. The Innovator HX uses the latest MOSFET high-gain power amplifiers that can be driven directly from the transmitter's frequency-agile exciter.

Keeping in mind the thousands of UHF TV translators in operation, Axcera introduced a frequency-agile DTV translator/booster based on the company's Innovator LX low-power transmitter line. And on the subject of translators, Axcera also showed its latest refinement of its single-channel distributed translator system for DTV that uses a synchronized network of small transmitters to cover a wide area.

FIRST ON-THE-AIR

More heavy metal made the trip to Las Vegas from Thales Broadcast, the transmitter arm of the international

conglomerate. Carrying the most weight was the company's high-power UHF DCX Paragon, which is available with any manufacturer's IOT and can be used for either analog or digital broadcasting.


The DCX Paragon was the first transmitter to go on-air using an MSDC IOT and the unit features Soft Arc technology that eliminates the need for a crowbar protection circuit, adding to the unit's efficiency. The transmitter supports both water and oil cooling technologies.

The new ADAPT IV exciter also added... um, excitement to the Thales booth. Featuring the company's digital adaptive precorrection and a front-panel interface, the ADAPT IV can correct for distortions caused by RF combiners, will accept either ASI or SMPTE 310M inputs and supports future E-VSB and synchronized transmitter standards.

Also featured at the Thales booth was the company's Optimum-CA solid-state common-mode VHF transmitter.

Over in the Larcen booth, the company was focused on its new Eclipse analog solid-state UHF transmitter that operates in a range of power outputs up to 40 kW. Using broadband amplifiers, the Eclipse does not require tuning, and its touchscreen GUI provides

World's First!



HD/SDI
SD/SDI

Patent: US 6,493,024B1

NEW

Flexiscope...

HD and SD waveform, vector and audio, measurement and monitoring using Patented all digital processing - ALL in the PALM of your hand!

IT'S ALL YOU EVER WANTED!

Covers ALL HD, SD, SDI standards, plus CAV, Composite, YC and DV with plug in options.

You can Exceed your Expectations

HAMLET

EXCELLENCE IN VISION

TEL: (949) 916-1070 TOLLFREE: 866-4-HAMLET E-Mail: sales@hamlet.us.com Web site: www.hamlet.us.com

UK Tel: +44 (0) 1494 729 728 Freephone (UK): 0500 625 525 E-Mail: sales@hamlet.co.uk Web site: www.hamlet.co.uk

a simple way to monitor the transmitter's operation. An Eclipse puts 20 kW of output power onto less than 25 square feet of space.

Larcen also introduced its new 8VSB Regen Transcoder, a device that provides a simple means of distributing a TV station's DTV signal through its translator network, providing both analog and regenerated digital output for the local low-power transmitter. The 8VSB Regen Transcoder features the latest Zenith receive technology to enable solid reception of the DTV signal.

Rohde & Schwarz brought its medium-power solid-state transmitters to NAB2004 but the biggest RF news in its booth was its NX7000 adaptive digital equalizer (ADE) software that works with the company's popular SV700 ATSC exciter. The ADE software compensates for linear and non-linear transmitter distortion by precorrecting the exciter to automatically optimize the output signal. Existing transmitters using the company's SV700 exciter can be upgraded to the NX7000 ADE software.

The other big transmitter announcement from Rohde & Schwarz was that the company will directly market its broadcast products in the U.S., while at the same time maintain its OEM status with Ai for domestic distribution.

Superior Broadcast was showing its new common-mode solid-state transmitter available in power ratings up to 6 kW. Built up from 700-W common-mode modules operating at reduced power for long life, the transmitter is frequency-agile and works for either analog or digital operation.

Superior was also showing its television slot antenna for digital or analog broadcasting up to 120 kW.

When low-power DTV became an option a couple of years ago, KTech Telecommunications made a name for itself with its low-cost, low-power transmitter. KTech showed the current version of its low-power DTV transmitter and also displayed its Xtreme-3000 series 8VSB on-channel booster for translator applications. The Xtreme maintains the carrier's phase coherence and produces an output of either 1 W or 10 W.

Components for solid-state transmitters were on display at the Pineapple Technology booth, including the company's VHF and UHF cards and modules. The company also has a 5 kW solid-state UHF transmitter that can be used for either analog or digital broadcasting, depending on the exciter.

Astre Systems displayed its Digitalplus high-power IOT UHF transmitter. Featuring L-3's constant efficiency amplifier (CEA) IOT, the Digitalplus has a large LCD touchscreen to control all the transmitter's operating parameters.

Over in the "radio hall" was Armstrong Transmitter, which has a

variety of solid-state analog and digital television transmitters from 2 W to 16 kW. The SCT-132UB is a 1 kW UHF transmitter that be used for either analog or digital transmission, and it consumes just 15 RU. The unit features group-delay and linearity pre-correction, as well as LDMOS technology for optimum linearity.

COMPONENTS

The cooling war is... er, heating up in the high-power IOT and MSDC IOT business. There are two cooling systems for the multistage depressed collector (MSDC) IOTs that are now storming the market: water-cooled and oil-cooled.

At the moment, oil and water do not mix well, at least at tube vendors—

some companies manufacture only water-cooled depressed-collector IOTs while others produce only oil-cooled models. No company produces both.

L-3 Communications is one of the oil-cooled tube manufacturers—its recently developed constant efficiency amplifier (CEA) IOT was the first

TRANSMISSION, PAGE 100



K2 IOT and K3 MSDC IOT's from Eimac

EASE OF USE

No IOT system is easier to tune and maintain than the Eimac K2 and K3 MSDC IOT amplifiers.

K2 tube replacement and maintenance can be handled by one person without removing the cavity assembly from the cabinet.

RELIABILITY

Oil-cooled K3 MSDC IOT

- no electrolysis with oil.
- minimal maintenance.
- low pressure, low flow rate operation.

K3 three stage MSDC design simplifies the power supply requirements.

- simplicity = reliability

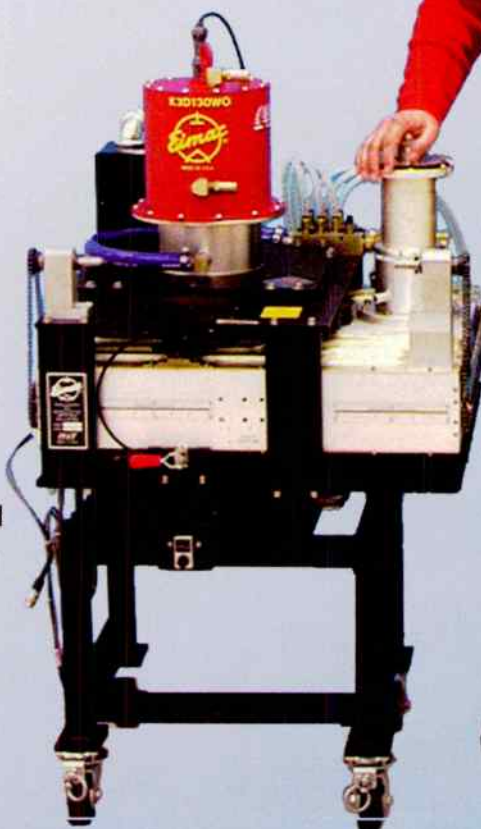
Eimac IOT's have documented lifetimes of up to 70,000 hours or more.

EFFICIENCY

Eimac's Klystron IOT pioneered high efficiency UHF-TV power amplifiers.

The K2 continued this leadership with enhanced ease-of-use.

The K3 three stage MSDC IOT demonstrates efficiency of up to 58%.



Eimac Division
301 Industrial Road
San Carlos, CA 94070
tel 650.592.1221
fax 650.592.9988
email.iot@cpi.com
www.eimac.com

ISO 9001:2000 Certified . Made in USA

PRODUCTS & SERVICES SHOWCASE

New HD Rackmount Converters

10-bit broadcast quality

RH10MD—HD-SDI to SDI and analog downconverter, 1x4 HD/SD reclocking DA. \$2395

RH10UC—SDI to HD-SDI upconverter with motion adaptation, genlock, selectable output modes, accurate SD to HD colorspace conversion, and 4 HD-SDI outputs. \$3500



AJA

800.251.4224
530.274.2048
Grass Valley, California
www.aja.com

HOW MUCH TIME?



Torpey Timers Drive Multiple Displays, So Everyone Can See!

Call Bob At

TORPEY TIME

SCARBOROUGH, CANADA

CALL TOLL FREE: 1-800-387-6141

OR (416) 298-7788 FAX: (416) 298-7789

www.torpeytime.com

"We get a great picture with crystal clear sound ... when you call Bext, you talk to management and engineering without hassle."
"If I needed a transmitter today, I would call Bext!"
(WFNY TV 49)

BEXT
Transmitters from 4W to 60kW
Digital and Analog, VHF / UHF

1 888 239 8462
www.bext.com

COMPIX

CHARACTER GENERATORS

Affordability
Broadcast Quality Output
Broadcast Operational Logic
Broadcast Reliability
Genlock

www.compixmedia.com

Xintekvideo
INC.

Lets NTSC Be All It Can Be!

Presenting The VIP Product Line

The most advanced Random Noise Reduction System on the market is now available in the **Model VP10**. Its **VIP** (Video Improvement Processor) engine delivers more than 9 dBs of luminance and/or chrominance noise reduction without the objectionable artifacts introduced by other noise reducers. Compare the **VP10** with other random noise reduction systems selling for \$5K, \$10K, or even \$20K. If you are not completely satisfied, return it for a full refund. List price \$1100.

The Video Processor/Noise Reducer **Model VP100** with the **VIP** engine provides the same noise reduction as the **Model VP10**. In addition it provides means to correct color phase and chroma gain, Y/C delay errors, differential gain, HF response and video level. At \$1995 it's a great buy.

The NTSC Color Corrector **Model VP900A** is now available with the **VIP** engine. The Color Corrector permits control of chroma gain and phase, plus fully independent adjustment of R, G, B levels and pedestals. Priced at \$1995 with the **VIP** engine, or at \$1250 without **VIP**.

For the *ultimate in compression quality and efficiency* we are offering the **Model VP3000 Pre-Compression Processor**. Based on the teachings from 5 different Patents, it provides superior luminance/chrominance separation, linear color demodulation, **VIP** technology at 12 bit accuracy, multidimensional correlation filtering for impulse noise and dropouts removal, analog and digital input and output interfaces. Priced from \$2795.


Other **VIP** products include the **VP50 Ghost Buster**, the **VP700 Color Decoder**, the **HQ** and the **VP1000 Picture Quality Restorers**; the **SDI-10 Digital Noise Reducer**.



XINTEKVIDEO Inc. 35 West Broad Street, Stamford, CT 06901-4624
www.xintekvideo.com

PRODUCTS & SERVICES SHOWCASE


Television Antennas from **ERI**



Broadband Panel Antennas

UHF TV Antennas

VHF TV Antennas



UHF Side Mount

Electronics Research, Inc.

812.925.6000 | www.ERInc.com | sales@ERInc.com

Cobalt Digital • Video Conversion Products

Modular 8-Bit (input) Products

4012	4:2:2 SDI to Analog Composite Converter w/ Re-clocking SDI Distribution	\$295
4030	4:2:2 SDI to Analog Composite & S-Video Converter	\$245
4040	4:2:2 SDI to Analog Composite / S-Video & Component Converter	\$350

Multi-Purpose Card Cage Products (Fits Industry Standard Frames)

5002	SDI Re-clocking Distribution Amplifier	\$295
5015	Dual SDI Monitoring Distribution Amplifier w/ Re-clocked SDI	\$895
5018	Quad SDI to Analog Composite Converter	\$980
5040	Single SDI Monitoring Distribution Amplifier w/ Re-clocked SDI	\$495

Modular 10-Bit Conversion Products

6040	4:2:2 SDI Converter to Analog Composite / S-Video (Y/C) or Component	\$495
6540	4:2:2 SDI to Analog Composite, Y/C and Component/ Optional Genlock	\$895
6590	Analog to Digital Converter w/ 4-line adaptive comb filter. Converts Y/C or Component to multiple 4:2:2 SDV with EDH	\$995
HD8019	10-bit HD SDI to Dual Output Analog YPbPr/RGB/SVGA w/ safe area reticules	\$1995

Five Year Warranty

COBALT

800.669.1691 • www.cobaltdigital.com

Professional Lens Add-ons



Lower Cost. Century Quality.

For lenses including: 18X/19X Canon IF Pro and 18X/20X Fujinon Pro Classics

New 1.6X Tele-converter
Extend the reach of your zoom without exposure compensation. Slip it on the front of lenses without internal doubler for more telephoto range even in lower light situations. Or add it to lenses with internal doubler and your lens becomes a super-telephoto!

List Price \$995 each
(Includes 85mm clamp ring)

New .8X Wide Converter
Discover the high-quality, economical way to expand a lens' angle of view while retaining the zoom function. Century's new professional .8X Wide Angle Converter simply mounts to the lens front. Then zoom on for incredible 20% greater coverage at wide angle, telephoto or anywhere between.

1-800-228-1254 Ph 818-766-3715 • Fax 818-505-9865
Century optics **www.centuryoptics.com**



Accuracy you can trust




NTSC SD HD

DSC Labs **www.dsclabs.com**
1-866-DSC-LABS

'Better images through research'



Bolder Branding, Better Ratings, Bigger Revenue!

One Person, One Screen, simple to use and cost effective

- Attention Grabbing Promos, "Fly In" Animations with Sound EFX Creative "Squeeze Backs" and "Ticker" Crawls.
- Add free promotion time and maximize spot avail.
- Real time Character Generator.
- 8 hours Audio/Video storage, Expandable to 50 hours.
- "DUOPOLY" Branding Iron: A Cost Effective Solution.
- **CENTRAL CASTING?** Use Branding Iron for local commercial breaks.
- Automation Protocols; VDCP, Odetics, Sony.
- Superior channel branding increases viewer retention and revenue.

Branding Iron gives you the competitive edge.
888.246.4127
www.spencer-tech.com

SPENCER "Where Creativity and Technology Meet"



Transmission

CONTINUED FROM PAGE 97

depressed-collector IOT to be on-air and remains one of the most installed MSDC tubes. The CEA promises power amplifier efficiencies in the 60 percent range, making it perhaps the most efficient of the depressed-collector IOTs. L-3 showed its CEA tube, as well as its standard IOT.

Also in oil-cooled territory is the **CPI-Eimac K2D130W**, a standard IOT boasting an output of 31 kW in DTV operation. The company showed its **K3D130W**, a three-stage MSDC IOT with DTV output power of 32 kW and compatible with both DTV and analog broadcasting.

Thales Components actually has an air-cooled IOT, the TH 730, which has a power output of 10 kW in DTV applications. However, the highlight of the company's booth was its new water-cooled TH 770 E CD and TH 792 CD, both depressed collector IOTs.

The TH 770 has been a mainstay in the company's IOT line and this year it received an ion pump to improve internal vacuum. This and other improvements resulted in the new designation of TH 770 E—"E" for "enhanced." The TH 770 E CD is the depressed-collec-

tor version of the standard IOT for greater efficiency, with the same 25 kW DTV output power. The new IOTs atop Thales' line are the TH 792 and TH 792 CD, the standard and depressed collector versions of the company's highest-power tubes.

Thales also showed a revised trolley that supports the company's IOTs, featuring a very compact water-to-water heat exchanger that keeps the tube's internal coolant separate from the external cooling loop. This maintains the quality of the water circulating around the tube for a longer time, the company said.

e2v technologies' water-cooled depressed collector IOTs made quite a... um, splash, with their cost saving performance in analog as well as digital applications. Although most of the talk has been how depressed collector tubes work efficiently for DTV broadcasting, e2v and Ai showed that there is also considerable savings from using the energy-saving collector IOT (ESC IOT) in analog operation.

The company also showed its "build-up" D2100 series IOTs, as well as its D3100 plug-in IOTs.

ANTENNAS

It was a veritable jungle-gym of antennas at NAB2004, with every



Buzz Miklos of L-3 poses with the company's Constant Efficiency Amplifier (CEA) MSDC IOT, an oil-cooled tube that promises efficiency as high as 60 percent.

shape, size and capability of antenna represented.

ERI, which recently acquired the broadcast antenna division of **Andrew**, had an interesting display showing the company's tower and antenna expertise.

In the booth was a model of a tower standing some 20 feet tall, topped by a candelabra with panel, slot and batwing antennas.

Highlighting the display at the **Dielectric** booth was the company's

Digital Video Automation



TCD/IP Network-Managed Video System Controller

New!

- Drag and Drop Scheduling
- Digital Video Messaging with Transitions
- Digital Video Program Guide Display
- Web-Based System Control
- Web-Based Program Guide Display

info@leightronix.com ♦ www.leightronix.com ♦ (800) 243-5589

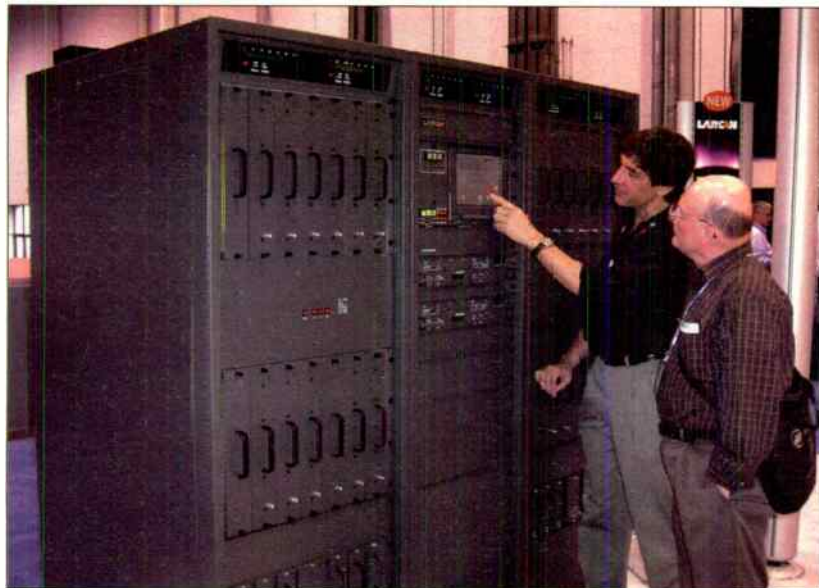
TCD R/P Digital Recorder/Player

- All-Digital MPEG-2 Playback and Recording
- 160GB Hard Drive—70+ Hours of Storage at 5Mb/s
- Simultaneous Playback and Record

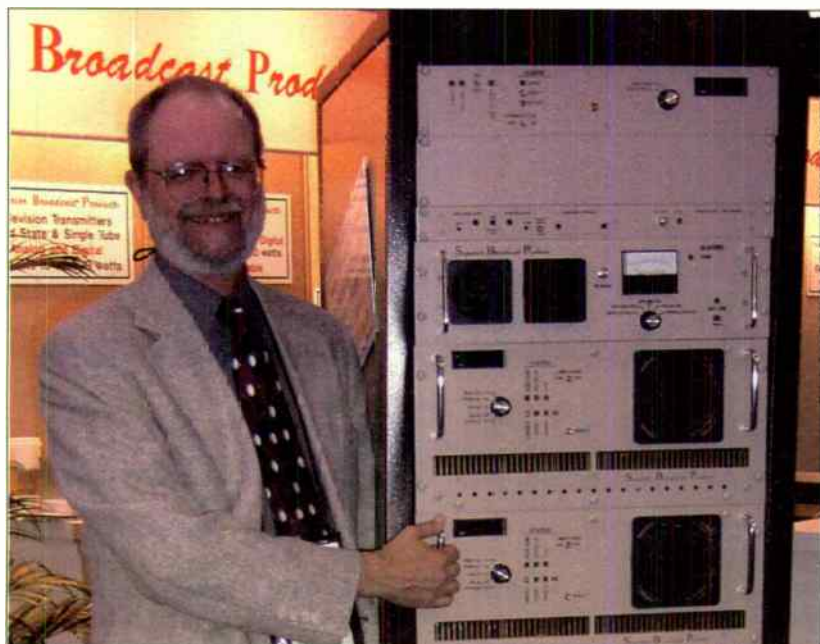
InfoComm Booth #1831

Affordable ♦ Versatile ♦ Reliable
Cable/Broadcast Automation

LEIGHTRONIX, INC.
CONTROL PRODUCTS



John Tremblay (l) of Larcen steps through the features of the company's new Eclipse 20 kW UHF solid-state transmitter.



Jim Malloy of Superior Transmitter has a firm grip on the company's new 3.5 kW solid-state UHF transmitter.

new wideband TFL pylon high-power UHF antenna. With a bandwidth of 180 MHz for multichannel operations and high power handling, the TFU has a variety of patterns and options.

Dielectric also showed its new foam-filled FLEXLine transmission line, which is available in sizes up to 1-5/8 inches.

New from RFS was its Super Turnstile UHF antenna, which is available in four-bay increments up to 16 bays. With a circular azimuth pattern, the Super Turnstile from RFS supports up to 20 kW input. RFS also featured its new fully radomed UHF panel antenna and a waveguide combiner for multi-channel UHF applications.

As the supplier of the low-band VHF DTV antenna on the Hancock Building in Chicago, Jampro has considerable experience with antennas in unusual locations. At NAB2004, the company displayed its line of low- and high-power antennas, including the JAT

batwing model that is used for WBBM-DT in Chicago.

The company also has slot and panel antennas for UHF applications, as well as its JTC spiral antenna for both UHF and VHF frequencies. This last model consists of a supporting pole around which stainless-steel spirals are wound at specific pitch angles. The array acts as a traveling-wave antenna and it produces an omnidirectional azimuth pattern. Electrical beam tilt and null fill are standard with the Jampro JTC.

Kathrein-Scala has a very wide range of both receive and transmit antennas, and many were on display in the company's booth. On the broadcast side, the company showed its UHF Paraslot antenna for low- to medium-power applications. The Paraslot is available in single- and multichannel versions, and has options for null fill and beam tilt.

For higher power, Kathrein-Scala

TRANSMISSION, PAGE 102

[Jelly-Fish™ Surround Sound Monitor]

New



MSD600M++ Enhanced Version

- Improved Image Quality • Fast Signal Processing • Embedded Audio via SDI • 96 kHz Input • User Configurable up to 32 Input Channels • Signal Generator w/White and Pink Noise • Advanced Future Options • RS232 Comm. Port



DK-AUDIO AMERICA Inc.

4417 East Villa Rita Drive • Phoenix, AZ 85032 • USA
Tel.: +1 (602) 765-0532 • Call Toll-Free: +1 (800) 421-0888
• Fax: +1 (602) 765-1473 • jdt@dk-audio.com

www.dk-audio.com

[VariTime™ Sync Generator]



New Compact PT5202 Generator for half 19" rack

- Front Panel Operation • Moving Text • 3 Black Burst in VariTime™ resolution, 8 PAL or 4 NTSC fields • TSG/Black Burst Analogue • 1 TSG/Black SDI



DK-AUDIO AMERICA Inc.

4417 East Villa Rita Drive • Phoenix, AZ 85032 • USA
Tel.: +1 (602) 765-0532 • Call Toll-Free: +1 (800) 421-0888
• Fax: +1 (602) 765-1473 • jdt@dk-audio.com

www.dk-audio.com

Transmission

CONTINUED FROM PAGE 101

showed its Superturnstile antenna, which has an input power of 5 kW.

A combined UHF/VHF antenna with a radome and dual input was featured at the SWR booth. Stuffing the company's Clarion UHF and dipole panel VHF antenna into the same structure, the combined assembly is ideal for stations that have both VHF and UHF channel assignments.

On its own, the Clarion from SWR is

available in power ratings up to 240 kW.

For high-power UHF broadcasting, Propagation Systems Inc. (PSI) showed its USH series of waveguide slot antennas. The USH is available in top- or side-mount versions and has options for beam tilt and null fill. A large selection of patterns is available and the antenna can accept up to 240 kW.

Also on display was the PSI USM series of UHF antennas that are designed for DTV broadcasting.

A dummy load is a critical part of the RF signal path at most TV stations. At

NAB2004, Altronic Research displayed its line of RF dummy loads, including air- and water-cooled models.

For UHF DTV applications, the company focused on its Omegaline 6700 HDTV series of air-cooled RF coaxial load resistors, the biggest of which can dissipate 15 kW. The 6700 HDTV series are rated up to 1 GHz. The company has a range of other loads suitable for UHF and VHF frequencies.

TOWERS

It's been a strange couple of years in the tower business, as familiar names seemed to disappear only to reappear at NAB2004.

One of the pleasant surprises was the booth occupied by Stainless and Doty-Moore, back from their recent absorption into SpectraSite. Returning as separate but related companies, Doty-Moore will provide construction, engineering, maintenance and modifications for towers, while Stainless will manufacture towers and related components.

Allied Tower was at the show to promote its line of solid-rod towers, which is available in both guyed and self-supporting versions. For broadcast applications, Allied showed its "knock-down" guyed towers that can be built to heights above 1,000 feet. Each tower is custom built to the customer's needs from bolted sections, and has a climbing ladder and cable runs inside the tower's structure. The company also has a welded guyed tower for broadcast applications where a shorter tower is needed.

If you need a tower but aren't interested in developing, engineering and maintaining it, you could contact American Tower. At NAB2004, the company used its background in broadcasting to explain how it could provide tower services for DTV and other broadcast applications.

As mentioned earlier, ERI had a model of one of its tall towers, complete with tri-cornered candelabra, in its booth in the Central Hall. ERI not only manufactures the tower components, it does the site preparation, construction and antenna installation.

Kline Tower, a division of Dielectric, was featured in the Dielectric

booth. With its antenna and transmission line connections, Kline can handle a turnkey tower and antenna installation from site preparation to proof-of-performance testing. As the manufacturer of the world's tallest tower, Kline specializes in tall towers.

Fresh from its recent acquisition of Rohn Tower, Radian Communication was at the show to highlight its tower design, manufacture, construction, repair and project-management services. The company can supply both self-supporting and guyed towers, and even has experience in tower esthetics if you need something that looks a little out of the ordinary.

Another long-standing name in the tower industry was also at the show: Richland Tower. Richland's booth featured an elegant model of one of its tall towers with a candelabra antenna structure on top, all stabilized by lacy guy wires. In addition to designing and building tall towers, Richland provides tower facility operation and management services, and can provide leasing arrangements to help manage costs.

Just like previous years, NAB2004 provided a cornucopia of products for broadcasters. In fact, things like transmitters, antennas and towers are the very essence of broadcasting—without them, broadcasters would not be casting very broadly at all. ■

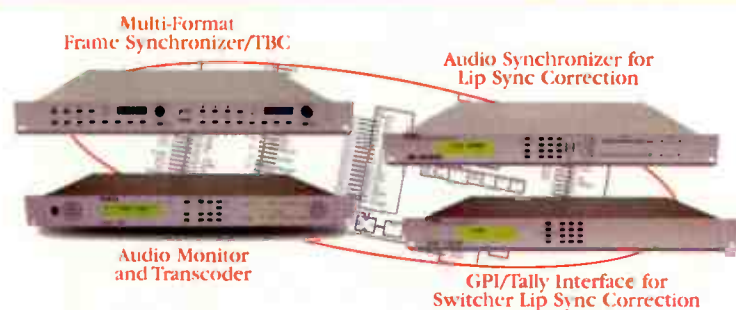


Jason Rieg (l) of Harris explains the graphical user interface of the the company's PowerCD ESCIOT UHF transmitter to Yul Lem of CTV Television.



David Edmiston, Jr., of SWR poses with the company's dual-feed stacked-aperture UHF/VHF antenna assembly.

Keeping Video and Audio In Sync



The DG-1200 interprets up to 12 GPI and tally signals from a production switcher with internal DVEs and generates steering pulses for AD-3100 tracking delays. Any time DVEs are on-air, appropriate delays are automatically added to the audio path. Automatic pitch correction in the AD-3100 allows rapid delay change without unwanted artifacts.

Other products include: multi-format frame synchronizers, audio delays, audio monitoring and sample rate converters.

Call today to learn more.

PIXEL
INSTRUMENTS CORPORATION

info@pixelinstruments.tv
www.pixelinstruments.tv
+1 408 871 1975
fax: +1 408 871 1976

Maintaining signal quality is of such importance that NAB2004 dedicated an entire session of the Broadcast Engineering Conference to Quality Control for DTV. On the exhibit floor, attendees saw QC in action for audio, video, MPEG, video over IP, and RF. A growing trend in monitoring systems was the ability to install probes at critical points in the signal path and monitor the signal and system components through network-controlled architecture.

Astro Systems released the new portable WM-300M HD/SD waveform monitor and vectorscope, with peaking

feature useful for camera setup, as well as a four-in-one display function which shows the waveform, vectorscope, image and sound information at the same time.

Audemat Aztec showcased its Goldeneagle Analog TV, designed as an off air monitoring system with remote control capabilities. From one antenna, the system monitors automatically, in real time, the quality and continuity of up to 40 TV programs and notifies the

relevant person of any problem by sending an alarm.

Axion exhibited the SIM10, SDI distribution amplifier with signal integrity monitoring. Useful for generating monitor wall displays, the unit generates a monitor output that shows reported errors and indicates several metadata values plus audio levels.

Danish manufacturer DK-Audio introduced several new products at NAB2004, including the PTO660M, a



Chris Poulain (l), Sophie Lion-Poulain (c) and Nicholas Boulay of Audemat-Aztec pose with the company's new Goldeneagle TV off-air monitoring system.

multitrack meter for up to 32 channels; the DK-Audio PTO660M master stereo display; the MSD600M-INPUT-HD/O HDTV de-embedder module for the MSD600M++, PTO600M and PTO660M. For the U.S. market, DK-Audio unveiled the MSD600M-Input/2 and the MSD600M-Output/2 modules for the MSD600M, PTO600M, and PTO660M. DK-Audio also launched a remote sensing platform for its modular MSD600M family of audio meters.

Dolby Labs showcased the new LM100 remote software application that provides the ability to log short- and long-term speech loudness values in real time, while storing the loudness history data for later analysis.

TEST & MEASUREMENT, PAGE 104

Zero to soft light
in 60 sec.

Compact, Quick, Beautiful

Join the thousands of pro's who've discovered the magic of Rifa-lite®. Go from kit to lit in less than a minute, for beautiful wrap-around light quality that's virtually fool-proof. Now added to a wide range of Lowel kits, Rifa is everything you'd expect from the world leader in location lighting.



lowel®

lowel.com 800-334-3426

Test & Measurement

CONTINUED FROM PAGE 103

Dorrough exhibited its range of loudness meters including the digital 12-AES.

Hamlet unveiled the Flexiscope, a prototype palmtop waveform monitor with an integral 3.8-inch TFT XGA display that shows the picture in 4:3 or 16:9. Audio can be monitored on the internal speaker or via headphones. Hamlet's half-rack LCD Scope 292WVA is an HD waveform monitor and vectorscope, and it also had its U.S. debut.

Horita introduced the "Pocket PA" PC-based wireless logging system that allows users in a video or film shoot environment to capture time code and record a quick note or comment associate with the time. The logging system consists of an off-the-shelf commercially available Pocket PC with built-in Bluetooth wireless technology, the Horita "PDA-LOG" logging program and the Horita LTC-Bluetooth wireless transmitter, which transmits the SMPTE time code from the source, such as a TV camera, to the Pocket PC.

Horita also showed its TCC-100 Time Code Comparator and the "Script Kit" PA Logging Clipboard plus soft-

ware that combines the Horita PTR portable LCD time code reader and WTS100M wireless time code system into a field logging system.

K-Will demonstrated its Video DNA products for the first time in the U.S.



Walter King (l) of KOMO-TV watches as Jewel Pinkstaff demonstrates the Hamlet Digi Scope rasterized test & measurement system.

Video DNA is a patented three-layer noise weighting technology that uses proprietary algorithms to monitor and measure digital video and audio quality, as well as perform error detection and measurement of compressed and uncompressed MPEG-2 video and

audio at the macro block level, in real-time.

Leader Instruments introduced the LV 5750 multiformat SDI monitor with a color XGA (1024x768) LCD screen. Standard modes include waveform,

vector, audio, picture and status monitoring. SDI inputs support auto detection of multiple standards, formats and frame rates. The LV 5750 is equipped with a standard tripod.

Magni showed its full line of test equipment at NAB2004, including the

AVM-510A-T automated video monitor and SDM-560M SD/composite monitor with measurements.

Modulation Sciences exhibited production models of its Spidervision surround sound visualization monitor, which images the entire sound field, delivering a unique picture of the direction and amplitude (vector) of the dominant sound sources.

OmniTek unveiled v. 3 software for its PC-based digital video test and measurement platform. v. 3 is a single desktop application enabling the user to mix and match from a range of test and measurement functions. OmniTek also launched an advanced option for its PC-based digital video test and measurement platform, and introduced.

Rohde & Schwarz debuted a new compact audio analyzer, the UPV. The analyzer handles digital sampling rates up to 192 kHz, and is capable of performing multiple measurements with the results presented as graphics. The unit is equipped with an integrated PC and monitor and includes LAN and USB connections. Additional audio interfaces like I2S, can be installed.

RTW unveiled the SurroundControl 30900, eight-channel surround display device with analyzer and monitoring controller. The unit includes a 1/3 and



**Frezzi Charges the Batteries,
Powers the Cameras,
& Lights the News.**



2000 Emmy
Award Winner



Frezzi HMI Mini-Sun Guns
18W, 24W, & 50W



Frezzi 200W HMI
Super-Sun Gun



Frezzi M2100A Advanced
Battery Management System



Frezzi Dimmer Mini-Fill
& Camera powered by
BP-14MHEG 130Wh Battery



Frezzi's Micro-Fills
Dimmer / on-off / HMI's

Frezzi
ENERGY SYSTEMS

5 Valley Street
Hawthorne, NJ 07506
(973) 427-1160 Fax (973) 427-0934
<http://www.frezzi.com>

Contact Frezzi for information on a specialized power & lighting solution for your requirements (800) 346-1000



Thomas Loichinger (l) of Rohde & Schwarz explains the company's Adaptive Digital Equalization to John Spaugy of BAE Systems.

1/6 octave spectrum analyzer, an integrated sound-level meter, a microphone pre-amplifier and a noise signal generator. A compatible microphone is also available.

SyntheSys Research demonstrated the BitAlyzer HD292 HD-SDI test system, which operates at a serial data rate of 1.485 Gbps and supports various frame rates. SyntheSys Research also showed the BitAlyzer MVA3000 multi-format (HD, SD, or ASI) video analyzer with automatic standards and format detection, eye diagram, FFT jitter spectrum, waveform, vectorscope and picture displays and more.

Tektronix introduced the WFMNLE, a software waveform monitor plug-in for the Avid Media Composer Adrenaline, Avid Xpress Pro, Media Composer, and Symphony non-linear editing systems. Tektronix demonstrated the new, faster multiformat capability of its VM5000 automated video signal analyzer, and added H.264 and WMV9 to its AD953A MPEG test system.

Television Systems Ltd (TSL) exhibited its range of audio metering and monitoring products. TSL has improved its representation in the U.S. with new local sales and sales support.

Torpey Time showcased its vast line of digital master clocks, including the CLK-50, designed for installations needing an inexpensive, compact and accurate Master Clock. Also on hand was the STW-12 for newscasts, STW-5 and STW5R Master Timers, STW-8 and STW-10 special purpose countdown timers and the Model STW-9R up/down timer.

As Videotek celebrated its 30th anniversary this year, the company introduced new products at NAB2004, including the Videotek VTM-440 HD/SD on-screen monitor that supports all popular HD and SD signal formats with auto-detect capability, and the DL-850HD digital legalizer which makes HD SDI legalizable to HD, SD (525/625) color space and/or encoded (NTSC or PAL).

The big news from Videotek is that Leitch Technology acquired the company just as NAB2004 began. Tim Thorsteinson, president and CEO of Leitch, said that Videotek test and measurement products would retain the Videotek brand name, while the company's other products would be brought under the Leitch brand.

Ward-Beck Systems exhibited its SLM series of loudness meters, portable desktop units that display the average (VU) and peak content of an audio signal simultaneously.

Wohler Technologies introduced the AMP2-E8MDA Dolby E audio monitor and converter with discrete outputs. The 2 RU unit included a self-powered loudspeaker system and eight 53-segment level meters. Wohler also debuted the AMP2-E8MDA/DSP with data stream processor. Along with the features of the AMP2-E8MDA, the DSP version allows modification of Dolby metadata to match the audio delivered without having to re-author the entire audio program.

MPEG

Acterna introduced the DTS-330 digital broadcast test platform that offers multiple combinations of MPEG-2 (DVB and ATSC) transport stream generation, capture, stream creation and analysis. The company also introduced enhancements to its DTS product line of MPEG analyzers, and is now shipping QAM RF interfaces for the DTS MPEG-200 transport-stream analyzer.

Pixelmetrix unveiled its DigiCipher-II interface module for DVStation as well as a set of three QAM interface modules. The QAM modules provide real-time RF monitoring of key RF performance parameters for most international markets.

Pixelmetrix also introduced the ConsolidatorPlus management and reporting control system for DVStation. ConsolidatorPlus utilizes SNMP connectivity built-in to every DVStation to manage a large number of devices. Collecting and consolidating measure-

ments, telemetry and alarms from a network of DVStation monitors, Windows-based ConsolidatorPlus presents users with a graphical display of operational status.

Pixelmetrix and Omnitek teamed up to produce Quality Auditor for monitoring and analyzing digital video, embedded audio and metadata. The combination of Pixelmetrix' picture quality analysis software with OmniTek's PC-based solution provides real-time evaluation of video compression quality for every frame, with individual alarms able to be set for each component. Applications include both ingest and layout.

Finally, Pixelmetrix announced support for the new standard for digital program insertion (DPI)—ANSI/SCTE 35 2001. Version 4.0 of the standard DVStation software displays and decodes DPI messages, and the software comes as part of a no-charge upgrade for DVStation.

Rohde & Schwarz added to its DVM family of MPEG analyzers with the introduction of two products at NAB2004.

The DVM50 is the lower-cost model designed to monitor one or (option-

ally) two MPEG-2 transport streams, with data rates up to 214 Mbps. The DVM50 offers most of the functionality of the existing R&S DVM100, but requires an external PC. The analyzer monitors standard parameters of the first, second and third priority defined by the TR 101 290 Measurement Guidelines, plus other parameters such as data rates, alterations in the transport stream, conditional access information and specific parameters of single-frequency networks. The unit also performs analyses of PCR jitter, table contents, and packet headers.

At the other end of the spectrum, Rohde & Schwarz introduced the DVM400 MPEG-2 analyzer with built-in PC. This compact unit has three slots for plug-in boards. With a broadband recorder and generator board installed in the first slot and a fast MPEG-2 analyzer board in the second, up to four transport streams can be simultaneously monitored. If both boards are combined, further features become available; for example, a recorded signal can be sent directly to the analyzer.

The other big news from Rohde & Schwarz is the DVM500, which is designed to monitor up to 16 transport streams simultaneously. **TEST & MEASUREMENT, PAGE 106**

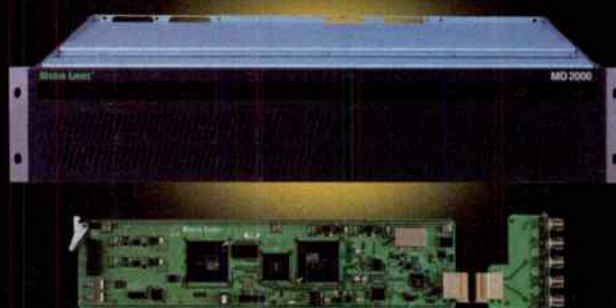
Introducing the MD2000 2RU MEDIA LINKS HD Digital Processing System.

With 8 high quality, low cost modules to choose from and 20 available slots the MD2000 is the most versatile compact HD/SD signal processing system available.

Features :

- Easy maintenance hot swappable architecture.
- SNMP management and monitoring.
- High quality up and down conversion.
- Wide selection of multi-rate signal processing modules.

MD2000



MD2000 HD/SD Signal Processing modules :

- | | |
|--------------------------------------|---|
| HDTV high performance Down Converter | HDTV high performance Up Converter |
| HDTV monitoring Down Converter | SD SDI / Composite Analog Converter |
| HD/SD multi-rate Audio Embedder | Composite Analog / SD SDI Converter |
| HD/SD multi-rate Audio De-embedder | HD/SD multi-rate Distribution Amplifier |

MEDIA LINKS SYSTEMS

Toll Free : 1-800-608-8802

www.medialinks-systems.com info@medialinks-systems.com

Test & Measurement

CONTINUED FROM PAGE 105

Schwarz is that the company is now responsible for its sales, maintenance and support in the U.S., and no longer has a marketing agreement with Tektronix.

Snell & Wilcox demonstrated its Mosalina automated video quality-control technology as part of its Comet open-standards ingest system.

Thales showcased its new Digital Program Insertion (DPI) monitor that checks the quality of the received signal on up to eight transport streams. Key features include SCTE35 detailed analysis, high-level views of cue-tone activity, Web-based monitoring, MPEG monitoring including TR101290 priority 1 and bitrate monitoring, SNMP agent for integration into a network management system, and long-term logs of cue tones.

Thales also demonstrated its line of MPEG-2 monitors and analyzers including the Granite monitor, Mercury analyzer, Cobalt data broadcast analyzer, Cobalt MHP real-time analyzer, Copper video streaming analyzer and Garnet handheld MPEG-2 analyzer.

Triveni Digital debuted the next generation of its real-time DTV transport stream monitor and analyzer family, the StreamScope MT-30. Retaining all the features of the company's MT-25, the MT-30 provides a new in-depth RF monitoring feature that analyzes the strength and quality of an 8VSB signal. The MT-30 can receive and remotely supervise multiple concurrent sources

from diverse physical locations. A visualization station can be configured to monitor the multiple systems over an Intranet or Internet connection. StreamScope MT-30 can display HD and SD audio and video programs in all ATSC, DVB, and SCTE formats.

IneoQuest Technologies introduced Argus, a real-time, remote streaming-video monitor that checks content in an IP network. Argus allows users to inspect video-over-IP, including viewing the actual program content, from remote Argus units through the network back channel. Argus is an extension of the IneoQuest Singulus product line and supports SNMP v.2 for remote monitoring of streaming networks and integration with other network management tools. Argus provides the same monitoring features as Singulus, but at a reduced cost.

IneoQuest also unveiled Aspectus, a portable MPEG-2 decoder/monitor device. Aspectus can connect to two MPEG-2 transport streams for visual monitoring on a high-resolution, seven-inch, LCD display. Picture impairments such as blockiness, noise and freeze frames can be detected. Aspectus can be used with the IneoQuest Singulus G1-T as an interface into a Gigabit network.

Sencore introduced the TSM 1770 ATSC/DVB transport stream monitor. The TSM 1770 also provides the ability to view the Electronic Program Guide (EPG), is capable of capturing and recording 256 MB of content on-the-fly or by a configured event trigger, and features extensive error logging capabilities for future analyzing needs. It can be operated, controlled and configured locally or remotely over a Web interface.

RF

Sencore debuted the IRD 3381 8VSB receiver decoder. The unit can tune to any UHF/VHF or CATV channel and provides a lock status of the receiver to indicate that a good signal is received. The input level indication is adjustable and also provides an alarm when the signal is too low. The IRD 3381 also provides information about the decoded video and audio that can be used to verify that the decoded video is being delivered as expected. Video and audio bitrate, native aspect ratio of the incoming video and other useful information is displayed.

Sencore also unveiled the IRD 3385 that allows the user to install only the types of inputs required. Input types that can be chosen include 8VSB, QPSK, 8PSK, 64/256 QAM, SMPTE-310M, and DVB/ASI with either 60 Mbps or 120 Mbps. Output choices



Larry Melling (l) of Tektronix describes the new WVR-611A rasterized waveform/vector display to Michael Kern of Walt Disney.

include SMPTE-310M, DVB-ASI, RGB, YPbPr, NTSC and HD-SDI. For digital audio, Dolby AC-3 or PCM is standard, with an optional Dolby E output. The unit provides two audio processors to individually select audio PIDs and also includes closed-captioning capabilities.

The company also howed the SLM 1456 handheld signal level meter with all-channel tuning from 5 to 870 MHz. The unit performs both analog and digital signal measurements, along with signal-leakage testing and ingress testing.

Rohde & Schwarz unveiled a new test transmitter for digital transmission, the SFU. The unit features the new transmission standards DVB-H for handhelds and DMB-T (TDS-OFDM) being developed in China, as well as the current range of standards. The SFU can generate a wide range of internal measurement signals and transmission parameters including signals with defined errors to simulate transmission problems. As an option, bit error rate (BER) can be added for all modulation modes.

Videotek introduced the DDM-800 Quad 8VSB frequency agile demodulator. The base unit is capable of receiving HD and SD 8VSB DTV signals and converting them to standard DVB-ASI output format. The front-panel display of the unit indicates current channel number and either signal-to-noise ratio or bit error rate associated with the signal inputs.

Z Technology introduced the AV1010 commercial ATSC/DTV receiver for high-quality TV translator or cable headend reception. The unit is commercially packaged with added hardware, cooling and signal-output conditioning for greater reliability than a consumer set-top box. The AV1010 includes front-panel programming with IR lockout and automatic recovery after a power failure. The unit receives ATSC/DTV signals from Channels 2 to 69 and converts any of 18 ATSC formats automatically to a selected line/field rate. An optional SMPTE 259M SD-SDI output is also available.

Z Technology also exhibited its new DM1010W professional 8VSB digital television demodulator. The unit is outfitted with an RF front-end

designed for instrumentation performance. Several DTV metrics can be monitored using a Windows-based application on an attached PC. These can be displayed and analyzed as they are sampled, or can be recorded over time to provide trends analysis.

Demonstrated

at the Z Technology booth was the R-507 portable and programmable field-strength meter. Using the supplied Windows Swept Spectrum application, the R-507 can display signal strength vs. frequency on a PC screen for any 5-, 10- or 20-MHz band between 5 and 1000 MHz. High-speed streaming is available with an option that provides signal strength vs. time information to capture signals present for as little as 5 ms, typical of intermittent signals.

Also at Z Technology was the DSS5800 automatic drive test system with 8VSB decoding.

GENERATORS & CHARTS

Burst Electronics demonstrated its line of color pattern generators, video generators, logo inserters, converter products and loss of signal detectors.

New for NAB2004 was the DG-3 color pattern generator, at a lower cost than the company's PG-3. Unlike the PG-3, which is field programmable, the patterns in the DG-3 are factory programmed, which safeguards the patterns.

For NAB2004 attendees who were thinking small, **Panoramadev** (the video-product division of **Wohler Technologies**) showed its PenPal-SDI, a shirt-pocket digital video signal generator. The PenPal-SDI includes 26 10-bit test signals, including color bars, black, staircase, solid fields and pluge.

Esser Test Charts exhibited its HD Set Kit of test charts. Included were the TE 232 log grey scale chart, TE 233 color chart with 24 colors and four skin tones, and the TE 234 color graduation chart.

Tentel displayed its DVCPRO mechanical test kit as well as new test fixtures for DVCPRO VCRs. Test fixtures include chassis adapter mounting plates (CAMP) and a five-piece toolkit (CHAT) to provide help for changing the cleaning roller and spring, changing the video head, removing cut washers and to help remove and re-install the fragile flat head cables.

Also shown were Betacam test instruments and information about Tentel's DVCPRO and Betacam training classes. ■

Tower Elevator Systems, Inc.

Replacement for wireless elevator controls. Finally, an end to the battery charger, broken induction cables, and unreliable control problems.

Our new system is hard-wired and reliable. Included is a dial tone telephone/intercom for secure emergency communications and ASTM 17.1 code compliance.

Put a stop to the maintenance costs and liability exposure. Fix the controls once and for all. Easy installation, your crew or ours.

Call Jim Tiner 954.771.7180
Patent Pending

NAB 2004 saw a great many companies offering products to take video and correct it, time it, encode or decode it, make it digital or make it analog.

ABE Elettronica introduced its SD MPEG-2 encoder and multiplexer, featuring up to four analog or digital audio/video inputs and transport stream output.

Adtec Digital launched its new Edge-3000 transport stream multiplexer and digital media router, designed for DTV, satellite and cable systems. The unit aggregates MPEG-2 transport streams from DVB-ASI inputs and IP data services, and is capable of providing support for ASI, SMPTE 310M and IP transport.

A new version of the popular Kona capture cards was introduced at the AJA Video booth. Kona 2 is a new dual rate HD/SD 133 MHz PCI-X capture card that supports uncompressed 10 bit SDI, HD-SDI and dual link 4:4:4 HD at both 10 and 12 bits and also features 8 channel AES audio, HD/SD component analog video output and broadcast quality HD/SD hardware up/down conversion.

AJA also announced two new software upgrades for its Io product line, offering RGB V-out support for popular compositing and graphics applications and the Io Control Panel OS X software, turning it into an "anything in, anything out frame synchronizer."

Analog Way showcased its HD Scan, a computer-to-HDTV scan converter that allows conversion of workstation, PC or Mac graphics up to 1,600 x 1,200 pixels into HD video in real time.

Astro Systems unveiled its SC-2055 multiformat converter, capable of driving up to eight input/output inter-

face options and supporting resolutions up to 2,560 x 1,580 pixels. With assorted modules it supports HD-SDI, NTSC/PAL, RGB/YpPr, DVI, audio and HDMI.

Aurora Video Systems released its PipeHD video capture and editing card at NAB2004. This addition to the Aurora Pipe product family allows users to take advantage of the RT Extreme capabilities within Final Cut Pro, while providing the option to work in either high definition or standard definition.

Axon Digital Design showed off its new HDW10, an HD/SDI-to-VGA converter for the Synapse modular range. The unit features multistandard inputs (HD/SDI and SD/SDI) and multiresolution pixel outputs, ranging up to 1,920 x 1,200 pixels.

Several new HD products were introduced from Blackmagic Design, including DeckLink HD Pro, a Dual Link HDTV 4:4:4 12 bit SDI capture card with built in multi-standard analog video monitoring. The Australian company also showcased HDLink, which connects post production quality SDI video directly to any supported DVI-D based LCD computer monitor for true HDTV resolution video monitoring.

Brick House Video introduced Neptune, a compact dual-SDI frame synchronizer, developed for use in a wide range of studio, edit suite, OB and transmission environments. It consists of two independent SDI frame-store synchronizers in a 1 RU chassis.

Broadcast International debuted its CodecSys, a multicodec system that employs real-time artificial intelligence to manage libraries of standard and specialized codecs. The system dynamically changes codec settings on the fly and on a frame-by-frame basis, to optimize video and audio compression for video-on-demand, videoconferencing and live broadcast.

Canopus Corp. lifted the curtain off MediaEdge2, the latest version of its

network-based video distribution system. It supports MPEG-1, MPEG-2 and MPEG-4, and provides a multichannel, multilocation video delivery solution using standard TCP/IP networks and display devices.

CaptionMax demonstrated its new HD captioning system, proficient in 708 requirements and software conversion capabilities.

Chromatec showed off its LipSync 1 stereo analog audio delay synchronizer for resynchronizing audio with video. The unit is designed for constant sync corrections in fixed installations or location use, and features up to 2,700 ms of delay (81 NTSC frames).

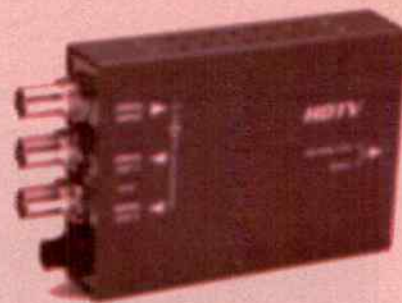
Cobalt Digital introduced its HD8022, a low-cost, high-quality



Allison Parks of Cobalt Digital shows off the new HD8022 format converter.

up/down/cross converter. It features dual-rate digital inputs, dual-rate digital outputs, as well as both analog HD and SD outputs. The unit incorporates embedded audio pass-through with delay correction.

Crystal Vision showed off its COCO Controller, a dedicated 1 RU control panel for up to eight COCO



BY CRAIG JOHNSTON

color correctors and legalizers. The cards allow adjustment of hue, chroma gain, RGB gain and pedestal, YUV gain and pedestal, luminance and chrominance timing, and horizontal and vertical cropping.

Color enhancement experts da Vinci debuted its Resolve software-based color correctors at the show. The product line includes the Resolve FX, Resolve DI and Resolve RT configurations, optimized for use in visual effects, digital intermediate and real-time 2K processing applications. The company also demonstrated its Nucleus and Server Interface Option software with SGI visual workstations.

Delta Digital Video introduced its 4400 Series A/V encoders/decoders, featuring MPEG-4 video compression, stereo audio, bi-directional audio and data Ethernet IP T-1/E-1. The units can be powered by AC or 12/28/48 VDC.

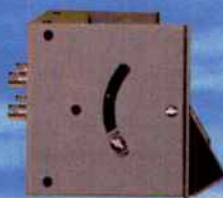
Doremi Labs spotlighted its new Orca MPEG-2 HD encoder PCI card, designed to encode HD video at rates up to 200 Mbps. Orca provides a choice of encoding parameters such as GOP structure, 4:2:0 and 4:2:2 encoding profiles, and compression bit rate.

DVEO, which is the new broadcast division of Computer Modules, premiered its HD Maestro, capable of encoding MPEG-2 streams at 50 Mbps at HD resolutions. The HD Maestro offers numerous expansion options and

SIGNAL PROCESSING, PAGE 110

New range of Compact Rack Mounted LCD Video Monitors

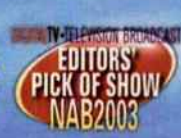
- Two Composite Video Inputs per Screen
- Front Panel A/B Switching
- Controls for Color, Tint/Hue, Contrast & Brightness
- Compact Chassis, RM2440 : 2U | RM-3358W : 3U
- RM-3358W has a 16:9 Native Aspect Ratio, Switchable to 4:3
- 3.2" deep (excluding BNCs)
- 110 degree tiltable front panel
- SDI Modules Available



RM-2440 Quad 4" LCD Monitor - 2U



RM-3358W Triple 5.8" Widescreen LCD Monitor - 3U



See us at
infoComm booth #1922
June 9-11 2004

Check Out Our Award Winning Products at www.PANORAMAdtv.com!

www.PANORAMAdtv.com sales@wohler.com Toll Free (U.S.) 1-888-5-WOHLER +1-650-589-5676 (Int.)

PANORAMA dtv
THE VIDEO DIVISION OF WOHLER TECHNOLOGIES

PRODUCTS & SERVICES SHOWCASE

COMPUVIDEO CO., LTD. TEST & MEASUREMENT



MADE IN USA



Waveform / Vectorscopes

- Composite \$1425
- Composite, Y/C \$2025
- Composite, Y/C, Component \$2425
- Composite, Y/C, Component and 4:2:2 - SDI \$4525
- 4:2:2 - SDI, Component \$2625
- HDTV - Analog, Component \$3799
- HDTV - SDI, HDTV - Analog \$9999

"PocketGen" A/V Generators

- Composite \$379
- Composite, Y/C \$525
- Composite, Y/C, Component \$1025
- Composite, Y/C, Component R.G.B. 2-CH XLR Bal. Audio \$1225
- Composite, 2-CH XLR Bal. \$425
- Composite, Y/C, R.G.B.H.V.S \$699
- HDTV - Analog \$2999

Rack Mount A/V Generators

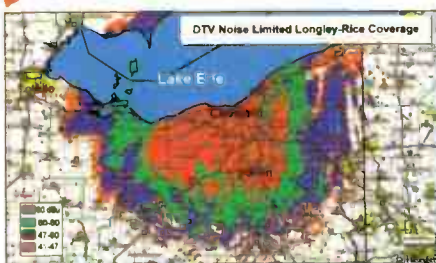
- Composite, Y/C \$825
- Composite, Y/C Component \$1225
- Composite, Y/C, Component R.G.B. 2-CH XLR Bal. Audio \$1525
- Composite, Y/C, Component R.G.B.H.V.S, SC, GS, 6-Black 2-CH XLR Bal. 4 - 4:2:2 - SDI \$3999
- HDTV / SDTV / PC / Mac \$2499
- HDTV - SDI, HDTV - Analog \$9869

TEL. (561) 733-4780

FAX: (561) 733-2125

www.compuvideo.com

V-Soft Broadcast Engineering Propagation Software



Professional software packages for FCC applications and predicting coverage.

- Create stunning "real-world" coverage maps and interference studies using Longley-Rice, PTP, Okumura and others with Probe II.
- Use Probe II to handle the FCC's complicated OET 69 DTV interference rules.
- Search for TV, DTV, and LPTV channels with SearchTV's instant mapping capabilities.
- Plot STL paths over 3D terrain with Terrain-3D.

Visit our website at www.v-soft.com or call us at (800) 743-3684

apw RACK IT UP !!

...into Stantron's new "Broadcast Rack"

BROADCAST

- 24x7x24 (40, 48, 52, 60")
- 4 bays (25, 30, 34, 36")
- 22" width
- 14 bays (14 bays total)
- Broadcast specific design: cable management save installation time
- Cost effective, modular design
- Easy to access, easy to use

STANTRON

AUDIO/VIDEO & BROADCAST

(800) 558-7297

www.apw.com/enclosuresolutions

"Equipment is expensive. Rack it up and don't worry. It's protected by Stantron"

RemoteVue® Remote Control Systems

Monitor and Control Remote Equipment Over Your Network or the Internet

RemoteVue Remote Control Systems raise the bar on the reliability, ease of use, and cost efficiency that end users with SCADA, RDAC and broadcast remote control applications will come to expect - even under the harshest conditions.

RemoteVue runs on the Internet over TCP/IP. Anywhere you can access a web browser, you can monitor and control your remote equipment. No complex operating system used.

Supports a wide range of solutions for the broadcaster's need to be in compliance with FCC regulations regarding EAS, Modulation Monitoring and Transmitter Control, as well as peripheral broadcast equipment control.

Standard Input/Output Includes:

- 0-10 volt Analog Monitoring
- Protected Status Inputs
- Relay Outputs
- Fixed or Expandable Systems to 128 I/O Ports

RemoteVue by Digidata Controls Inc.

2475 Chandler Ave. Las Vegas, NV 89120 phone: 702-740-5234
For more information, visit our website: www.airshowtv.net/remotevue



Newstore™

One Screen, One Person, One Box

For a Great Newscast

- OTS Graphics with moving background
- Transparency Keying
- 3D transitions
- News Crawl Character Generator
- Live Boxes with moving background
- News Tease Squeeze Backs
- Stores News stories, Opens, Franchises, Bumps, Promo's and Graphics with key
- Intuitive Touchscreen for speed
- VTR Control
- Camera Robotics
- With 24/7 technical support

Newstore™ gives you the competitive edge.

888.246.4127

www.spencer-tech.com



"Where Creativity and Technology Meet"



PRODUCTS & SERVICES SHOWCASE

All-Weather HMI's

by Bron Kobold



Available
as focusing
openface or
PAR in 200 and 400 watts.

bron kobold USA
Bron Kobold USA
866-504-2766
info@bron-kobold-usa.com
www.bron-kobold-usa.com



BDL AUTOSCRIPT

Prompting Professionals

BDL-Autoscript,
Unit A8 Poplar Business Park, 10 Prestons
Road, London E14 9PL
Telephone: +44 (0) 207 538 1427
Fax: +44 (0) 207 515 9529
email: sales@bdlaautoscript.com

BDL-Autoscript Inc,
PMB 294, 3280 Sunrise Highway, Wantagh,
NY 11793, USA
Telephone: +1 516 799 3869
Fax: +1 516 799 0448
email: ussales@bdlaautoscript.com

TFT Promoters

- Robust and lightweight
- 6", 10.4", 12.1", 15.1" and 18.1" screen sizes
- EMC/FCC approved
- Automatic back light sleep function
- Menu controls
- Hi-brite options

+ WINPLUS +

- Standard newsroom interfaces
- Runs on Windows 95, 98, 2000, Me and NT
- Multiple languages and fonts
- Dynamic run-down management
- Laptop version available

ES-SloMo

Universal Instant Replay Controller

- Control Up To 4 VTRs, DDPs or Server Channels
- 200 Cue Locate Points
- Programmable T-Bar
- Compact Design
- Professional Quality
- Supports RS-422 P2, Odetics and Doremi



Order
Now
\$1999.95

www.jlcooper.com

Introducing the world's most affordable portable 6.5-inch Wide Screen HD Monitor



V-R65P HD

- > Accepts any type of HDSDI/SDI
- > Accepts all Analog HD/SD formats
- > Operates on 12-17 Volt D.C.
- > 6 Frame marker overlays
- > Zoom for focus function
- > Direct access for all adjustments
- > Three LED tally, optional Battery Pack

Marshall Electronics

\$3799.00

Toll Free: 800-800-6608 **LCDRacks.com**

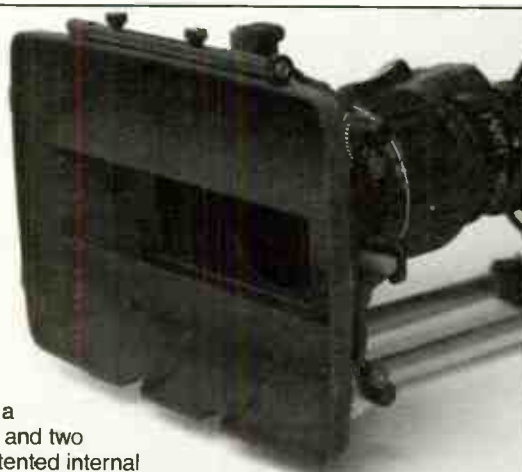
Go Wide.

The new MB-350 wide angle mattebox from Vocas features two *independently* rotating filter trays and one non-rotatable horizontal tray. It can accept an additional 4x5.6" filter in the hood for a total of four stages! This fourth stage can also be used with a variety 4:3 or 16:9 mattes.

For lenses wider than 5.0mm the mattebox can use a 4.5x4.5" rotatable filter or one 4x4 non-rotatable filter and two

horizontal filters. The patented internal eyebrow system allows the user to adjust the matte or mask to the zoom position of the lens. The MB-350 can be used as a clip-on mattebox or may require the MBS-100 support and bars adapter for use with standard 15mm rails.

PROSOURCE © 203.335.2000 © 203.335.3005
FILM & VIDEO PRODUCTION EQUIPMENT
www.prosourceBMI.com



DA3100 Audio and Video Distribution Amplifiers

are one input and eight output modules for wideband analog, serial digital, stereo audio, and AES/EBU. Up to ten modules can be installed in a 2RU frame that includes internal removable power supplies.



Signal Processing

CONTINUED FROM PAGE 107

supports encoding of the major ATSC resolutions.

DVS Digital Video unveiled its Centaurus PCI-X bus capture card for SD, HD and 2K, for OEM and systems integrators. This PCI-X board has been designed for handling uncompressed SD, HD and 2K video streams, and supports all popular formats, color spaces, frame rates and resolutions up to 2,048 x 1,556 pixels.

ENCO Systems showcased its new Guardian automated profanity elimination and spoken word logging system at the show. Guardian can be used as a traditional broadcast delay, automated or a combination of the two. The company also introduced enCaption, a real-time, automated speaker independent speech recognition based closed-captioning system.

Envivio introduced its 4Caster Broadcast 4500 Series MPEG-4 real-time MPEG-4/H.264 encoder for media transport. It accepts inputs of SDI, IEEE-1394, S-Video, composite and component analog, as well as analog unbalanced and balanced audio and AES/EBU digital.

Ensemble Designs demonstrated its Avenue 7500 HD frame synchronizer and proc amp with optional eight-channel audio processing. This module is compatible with any HD format, and is capable of introducing delay and controlling color and other characteristics of the video.

ESE, timecode and master clock specialists, unveiled its PC-471PCI

timecode interface card. It takes exact time from a master clock and synchronizes a PC to that time so that its timecode generation is correct. It reads ESE, SMPTE or EBU timecode.

Evertz marched out its 7710XC-HD high-definition cross-converter, providing conversion between HD formats. It features one reclocked HD serial input and two reformatted serial digital outputs.

Eyeheight added the canaletto line to its product mix. The canaletto color corrector provides 10-bit processing for color correction and one panel can control up to six canaletto channels, allowing overall luminance, chroma gain and black level adjustments as well as gamut legalization.

Florical Systems debuted its MediaTrans Plus, designed for economical delivery of video and audio signals between two locations using MPEG-4 technology.

For-A introduced its DCC-70HS HD and SD color correction system, offering 14-bit, 4:4:4 component signal processing circuitry and the ability to control black, white and gamma levels individually or as a group.

FortelDTV presented its FS-516 A/V synchronizer, a single-board solution for transcoding, synchronizing and processing a variety of source types, including NTSC, PAL or SDI with ana-

sets, digital comb filter, gen-lock and dual channels. A 1 RU rack-mountable chassis is available.

IPV Limited unveiled its SVPClcard, a dual-channel, SDI input, MPEG-1 and MPEG-2 encoder PCI card with external LTC timecode input. The product compliments IPV's SpectreView Shadow Browse technology and can also be used as a stand-alone encoder.



Deirdre Smith of Zandar poses in front of a monitor wall created with the company's Fusion Pro multi-image processors.

log, AES, embedded or Dolby audio.

Harmonic introduced its DiviCom MV 100 standard-definition encoder, featuring MPEG-2 encoding and support for next-generation codecs such as MPEG-4/AVC and Windows Media 9.

Hotronic demonstrated its model AT551 (NTSC or PAL) full-bandwidth TBC/frame synchronizer. It features front-panel adjustment, proc amp pre-

JVC Professional Products demonstrated its DM-JV600 HD MPEG-2 encoder, which allows HD content to be transmitted over existing microwave channels. In concert with Broadcast Microwave, JVC transmitted bi-directional HD content across the exhibit hall on a single microwave channel.

Keywest Technology introduced its LogoSTAR II logo generator, available in analog and SDI. LogoSTAR II features moving logo capability, non-linear digital video effects and an enhanced graphical user interface.

Laird Telemedia spotlighted its Inertia LTM-6000C DV media converter, which not only offers bi-directional DV-to-analog conversion but also SDI, component, Y/C and composite video conversion between formats independent of DV.

Leitch Technology demonstrated its DPS-575 digital processing synchronizer, an all-in-one system offering maximum functionality and flexibility in 1 RU. It boasts digital noise reduction, bi-directional analog-to-digital transcoding, linear keying, SDI audio embedding/de-embedding and time-base correction.

Ligos Corp. premiered its MediaRig Encoder, a PC-based real-time MPEG-2 encoding system, including software for encoding and management with a PCI I/O board. The product can be easily updated as new technologies become available.

Link Electronics introduced a 2000 Series signal processing line and showcased the Multi-Flex 2000 mounting

Audio Distribution Done Right

Modular SYS10K

MIC	Line
Analog	Digital
Balanced	Unbalanced
Active	Transformer
Metered	Monitored
	VCA

Hear why more Engineers and Installation Professionals are specifying ATI.

Call us at 1-800-922-8001 or visit ATI on the Web.

www.ATIaudio.com

frame, which holds four modules and features a small LCD video monitor display on its face. The company announced that 14 new cards will be available in the 2000 series.

LINK Electronics showcased its new TVLinX automated PSIP solution, which was developed in collaboration with Liberty Corp., a station group with 15 network affiliates. TVLinX was demonstrated in the Crispin booth interoperating with Crispin automation and a standalone demonstration of the technology was shown in the Tandberg booth.

Two new products from its MCP-601 line of scan converters were demonstrated in Magni Systems' booth. The MCP-601-A targets customers working in analog Composite or Component video environments, while the MCP-601-D is for use in converting VGA graphics to serial digital format.

Marshall Electronics demonstrated its BC-0301-10 precision digital-to-analog module. It can be configured for a variety of applications, features two simultaneous composite video and S-Video conversions, and comes with a built-in colorbar generator.

Media Links presented its MD2000, a 2 RU HDTV modular processing system that includes a high-quality upconverter, downconverter, D/A, A/D, distribution amplifier and audio mux and demux modules.

Miranda Technologies launched its Imaging Series XVP-801i HD/SD universal video and audio processor, a single module offering up-, down- and cross-format conversion, as well as HD/SD signal processing, frame synchronization, and 16-channel audio processing. It accepts SD and HD at either 1080i or 720p, and simultaneously outputs SD and HD, at either 720p or 1080i.

Modulus Video debuted its AVE-SD video encoder for H.264/MPEG-4 AVC, a real-time, standard-definition encoder working at full resolution, supporting Main Profile@Level 3 at up

to three times the bandwidth efficiency of MPEG-2.

Network Electronics created a new housing for its signal processing ConQuar and flashlink card: the N-Box. Four N-Boxes can be mounted on a 1 RU shelf to accommodate applications requiring multiple N-Boxes, and they can also be stacked upon each other using desktop brackets.

nVision launched its 4000 Series, including the SD4230 analog-to-digital converter for component and composite analog video, with 10-bit conversion and a built-in frame synchronizer. It features four outputs, automatic line-rate selection between NTSC and PAL and separate reference inputs for each format.

Optibase demonstrated its VideoPlex HD decoding board, which offers playlist support for back-to-back seamless playback. It supports MPEG-2 MP@HL video decoding covering all 18 ATSC formats, and has the ability to choose mapping or allocation tables from MPTS files.

PatchAmp put the spotlight on its multirate wide-band digital DA, featuring automatic reclocking and cable equalization for SMPTE 292M, SMPTE 344M and SMPTE 259M. It supports data rates of 143, 177, 270, 360, 540, 1483.5, 1485 Mbps, with single 1 x 9 or dual 1 x 4 operation.

Peak Communications launched its EMC7002 encoder module, providing a compliant MPEG-2 transport stream supporting multiprofile and multilevel video, low encoding delay and MPEG-1 Layer 2 audio.

Pixel Instruments brought its DG-1200, designed to correct lip-sync errors introduced by production



Link Electronics' Bob Henson (l) demonstrates the 2000 series to Mark Ireton of St. Louis University.

switchers with internal DVEs. The product interprets pre-programmed GPI and/or tally outputs from the switcher and generates delay control pulses to control up to five Pixel Instruments AD-3100 audio synchronizers, automatically eliminating the lip-sync errors.

Pixelmetrix Corp. launched its DVShift-HD delay unit that provides a profanity delay for SD- or HD-SDI signals. The system supports all SD and HD formats and has an intuitive Web interface.

Pro-Bel showed its ICON modular products for digital and analog signal processing. The card-frame system supports any combination of ICON's extensive card types, and separate slots for the optional Cosmos controller permit remote configuration and status monitoring of the ICON cards.

Radyne ComStream debuted its SE4000 DVB MPEG-2 encoder for mobile broadcast applications as well as network and cable head-end use. It

features modulated 70 and 140 MHz IF and L-band outputs to directly connect to low-cost upconverters, and an L-band monitor port with F-connector attaches directly into an IRD.

Ross Video showed a couple of additions to its GearLite compact terminal equipment line: the DAC-9213 multidefinition digital-to-analog converter and the SRA-9201 multidefinition reclocking DA. Also new from Ross Video was the ADC-8035 dual-analog composite-to-SDI decoder and the ADC-9033 universal analog-to-SDI decoder that accepts standard-definition composite, component or Y/C analog input.

Scopus launched its Codico E-9000 UniversalEncoder, which is compatible with MPEG-4, Windows Media 9 (WM9), SD and HD encoding formats. The UniversalEncoder provides broadcasters with a migration path from MPEG-2 to new compression algorithms, and supports both SD and HD with various compression schemes on the same platform.

Sigma Electronics debuted its DV5515 HD/SD frame synchronizer, featuring built-in embedded audio management and delay compensation. It is designed to keep audio and SD/HD video in perfect time.

Skymicro exhibited the Merlin2003 DV and MPEG-2 recorder and dual-stream decoder board. The half-size PCI card is designed for broadcast, video distribution, authoring and non-linear editing, and is compatible with previous Merlin models.

Snell & Wilcox added 17 products to its IQ modular broadcast infrastructure line, including converters, synchronizers, distribution amplifiers, routers and audio modules—all capable of operating in either standard-definition or high-definition resolutions. The company also introduced HDTV converters.

Tandberg Television introduced its Intelligent Compression Engine (ICE), a platform for MPEG-4 part 10 and

SIGNAL PROCESSING, PAGE 112



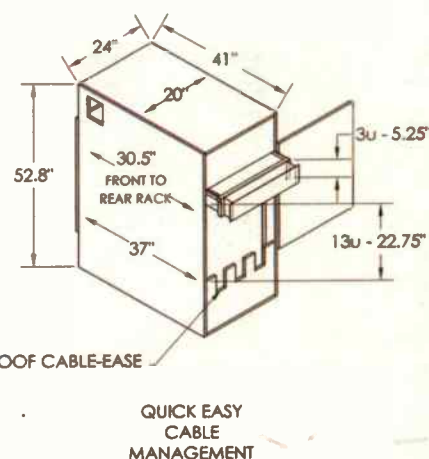
2003 (NAB)
Mario Award Winner



Quietest Cabinet In the World

"Hear Yourself Think Different in the Video Suite"

Introducing the **Quietly Cool vCab™** designed to meet the specific needs of broadcast studio suites. This enclosure has 13u's of rack mounting and the addition of 3u's more on top which slide to the rear for easy cabling to your I/O panel or any other equipment you choose.



Noren Products Inc., 1010 O'Brien Drive,
Menlo Park, CA 94025
www.acoustilock.com (650) 322-9500

Signal Processing

CONTINUED FROM PAGE 111

Windows Media 9 series encoding. The ICE card is included in Tandberg's new EN5930 MPEG-4 part 10 video encoder and the EN5920 Windows Media 9 encoder, both also launched at the show.

Teleste Video Networks demonstrated its BLUEbox platform for compressed digital video, audio and data, which provides a standards-based MPEG-2 video networking solution for customers in education, healthcare, broadcast, homeland security, and other corporate and enterprise campus settings.

Telestream unveiled its MAPone system, an IP transmission application to transmit news stories from the field to the station over IP networks, including WiFi. It is designed to improve time-to-air by enabling journalists to transmit news stories directly from ENG laptops, and is combined with the company's FlipFactory product back at the station.

Teranex showcased its Volare 220 video processing and multiformat converter, offering format conversion (SD and HD), MPEG artifact removal, noise and grain reduction in a 2 RU form-factor. Its future-proof design permits updates as requirements change.

The ISIS Group unveiled its SC-108 eight-signal converter, which delivers analog video-to-digital broadcast-quality conversion from composite NTSC or PAL to SDI. It features eight independently configurable channels housed in a 1 RU frame.

Thomson Broadcast offered a range of signal-processing products, from the multi- and single-function Kameleon and Gecko lines to the Newton Ethernet-based modular control system and NetCentral software for SNMP-based remote monitoring.

Triveni Digital unveiled its GuideBuilder family of PSIP and DVB-

SI generation systems that support the distribution of SCTE 35 digital cue tones and network program information to allow networks and their affiliates to synchronize splicing between

rates up to 80 Mbps. The compact, one-half length form-factor board includes audio support for AAC, AC-3, MPEG and Dolby digital, as well as VTR machine control.



Robert Tibbs of Teranex (c) explains the Volare converter to Adam Garza (l) and Mark Dunham, both from KXAN-TV in Austin, Texas.

local and national programming.

Tut Systems debuted three new Astria content processor platforms: the Astria CP 100, 200 and 400. They are a range of small form-factor platforms designed for deploying IP-based digital video transport networks.

TV One added new features to its C2-770 universal video scaler and introduced the C2-775-IP universal video processor, its SDI-capable cousin. The upgrades to the 770 include the ability to stack and save preset parameters.

Vbrick Systems introduced its new VBXcast MPEG-4 encoder for streaming and Webcasting live events over LANs or the Internet. A server can support up to 120 viewing sessions and is capable of both multicasting and unicast.

Vela demonstrated its CineView HD LE decoder, designed to enable frame-accurate playback of 4:2:0 in both SD and HD profiles and supporting data

VideoBank debuted its Multi-Channel Encode System, featuring desktop browser control of MPEG encoding of a single video feed or hundreds of video feeds simultaneously. The device is designed for capturing multiple live-video sources, indexing the content and securely storing the content in an archive.

Video International introduced the Sync Pro 10, designed for audio/video synchronization. The unit has 10-bit video processing, SDI audio handling and the ability to embed, extract and listen to the audio associated with the video.

Videoframe rolled out its new VF1000, a flexible remote control system that can control the Terayon BP5100 ASI Splicer from any distance. The company also introduced two new economical VTECS control panels as well as three new Interface Series VNODES, designed to interface with

the GVG TEN-XL router, Snell & Wilcox RollNet devices and Snell's SwitchPak switcher.

Videotek showed a new DL-850HD HD serial digital legalizer for HD-SDI to HD, SD-RGB and composite color space. It features an HD gamut error monitoring option.

ViewCast introduced its Osprey-300 capture, control and edit card for streaming video applications. The Osprey-300 adds the features of a standard IEEE-1394 card to become a DV capture card with control capability and OHCI compliancy for a range of popular applications.

Vistek, with a family of more than 100 signal processing cards for its modular system, added some new members this year, including the V6402 HD frame synchronizer and the V6404 HD downconverter. Also joining the Vistek line was the V6406 HD upconverter.

Vitek Multimedia premiered its TwinPEG Pro MPEG encoder, featuring SDI and YUY inputs, AES/EBU and embedded audio in SDI, dual encoding supporting MPEG-1, MPEG-2 and MPEG-4, and transport stream as well as program stream.

Xintekvideo presented its SDI-900MX color corrector/video processor for video serial digital data. The unit provides simultaneous and independent correction of red, blue and green gains and pedestal, luminance gamma correction, brightness and frequency response.

YEM International demonstrated its SRC1080 HDTV scan rate converter on a PCI card, which converts a 1,920 x 1,080 DVI signal into an 1080i HD-SDI signal.

Zander Technologies added new features and options to its FusionPro high-resolution display processor. They include support for HDTV in the form of dual channel HD-SDI input processor cards, and new user interfaces to improve control, configuration and maintenance of a virtual monitor wall. ■

SYNAPSE: HD/SD

When it comes to digital infrastructure:
choose from our growing family of over 90 hot swappable cards.

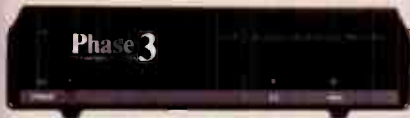
www.axon.tv E-mail: info-usa@axon.tv, PHONE: (408) 450-7973

AXON
Digital Design

PRODUCTS & SERVICES SHOWCASE

VDA

Video Distribution Amplifiers



Broadcast quality throughout. No compromises.

The VDA series of video distribution systems are available for desktop or rackmount, and occupy only 1/2 rack space. Internal power supplies eliminate the need for external AC adapters.

VDA-108 (shown): 1x8 Analog Video (composite)
VDA-204: Dual 1x4 Analog Video (composite)
VDA-SDI: 1x8 SDI Digital Video
VDA-SVHS: 1x4 SVHS Video
New! VDA-ASI 1x4 Digital Video

VIDEOQUIP
RESEARCH LIMITED

www.videoquip.com

Phone: 416-293-1842
Fax: 416-297-4757
Toronto, Canada
TOLL FREE 1-888-293-1071

79,507 SIZES...IN STOCK!



Stacking Racks



Server Racks



19" Racks



The "Cube"



Entertainment Center



LAN Work Station

A New "Patent Pending" Rack Design Assemble Any Size Rack Using Only 3 STOCK Parts

3 precisely engineered parts when connected together form Wiggle-Free equivalent strength and integrity of fully assembled welded rack enclosures. Choose any width, depth, & height of dual-tapped E.I.A. rack rail from one of 43 sizes in 1-3/4" rack unit increments.

Ships knocked-down in 3 small cartons. Build all kinds of neat stuff!

4 RU 13" Deep - \$159.85

43 RU 30" Deep - \$264.85

Shop Online

www.starcas.com/rack.htm

(800)822-STAR (7827)

(800)782-CASE (2273)

question: What's Missing? answer: YOUR AD

TV Technology's
Products & Services Showcase
is an effective and cost efficient
way to advertise your product.

For more information, call
Caroline Freeland at
703-998-7600, ext. 153
or e-mail:
cfreeland@imaspub.com

Peter
lisand
machine corporation

PETER LISAND LCS CAMERA SUPPORT

- Precision-machined camera support
- Lightweight
- Flexible
- Secured with padded belt
- Camera mounts directly to plate or optional quick release
- Stable and steady even on rough terrain



352 Old River Road
Edgewater, NJ 07020

PH: 201-943-5600 • Fax: 201-943-6913

www.peterlisand.com

EtherneTV Media Distribution System



MPEG Based
Live
Streaming
and Video-
on-Demand
to PCs and
TVs

VBrick
systems, inc.

Call us for a free demonstration

Toll free: **1-866-VBrick-1**

www.VBrick.com

Frame Synchronizer.....by **LINK** ELECTRONICS, INC.



FRAME SYNCHRONIZER, Model PFS-875

The model PFS-875 is a 12-Bit Frame Synchronizer featuring infinite timing with inputs and outputs of DV, SDI, Composite, Component and Y/C. The unit is housed in a one RU chassis. Optical encoder to adjust all parameters. Infinite timing with finite adjustment within 150 pS. Full digital PRC controls. RS-232 controlled.

www.linkelectronics.com over 200 products

LINK Electronics, Inc. * 2137 Rust Ave. * Cape Girardeau, MO 63703 * Ph: 573-334-4433 * Fax: 573-334-9255

1-800-776-4411

MARKETPLACE

Highlighting the latest products available to professionals in the video industry.

TECHNICAL FURNITURE



Forecast Consoles' new MasterRail furniture system creates an infinite number of potential layouts and design configurations for custom and modular technical furniture.

The system incorporates precision laser-fabricated parts and third-party accessories into a pre-engineered steel frame superstructure with a proprietary aluminum extrusion serving as the "spine" of the console. All devices mount universally anywhere along the rail and are completely independent of each other and the rest of the structure, allowing the consoles to be completely reconfigured, re-purposed and re-used quickly, easily and inexpensively. A variety of finished materials can be applied to the framework to achieve any desired look or style.

For more information, contact Forecast Consoles at 631-253-9000 or visit www.forecast-consoles.com.

PATCH JACK

Trompeter's newly enhanced J314 Series dual patchjacks are available as individual units or loaded into panels.

The J314 Series includes the J314W and J314WT (terminated and non-terminated versions) jacks as well as a smaller J314MW and J314MWT jacks for the miniWECO plug standard.

The enhanced J314 Series is designed with a forked actuator to enable multiple contact points for robust normal-thru interconnection in high non-conductive particulate environments. The robust 75 ohm design offers extended bandwidth of 1MHz to 3GHz with return loss performance of 20dB @ 2.2 GHz in the normal-through condition. The design of the J314 Series is lighter and constructed with fewer moving parts than other designs on the market.

For more information, contact Trompeter at 805-497-6400 or visit www.trompeter.com.



TEST EQUIPMENT

The VP21S from K-Will Corporation is designed for equipment manufacturers and production studios to perform objective evaluation of standard definition (SD) video in real-time, utilizing double-stimulus monitoring. The system is especially valuable for codec evaluation, quality-assurance (QA) verification and TV broadcast system performance measurements.

The VP21S can also be used for debugging encoder/decoder operations, quality evaluation of broadcast systems, automatic dubbing, DVD authoring and DVD playback.

For more information, contact K-Will Corporation at 310-297-9205 or visit www.kwill-corporation.com.



PRODUCTS & SERVICES

SHOWCASE

MATCO

For over 25 years, MATCO has been delivering affordable and reliable automation products to the broadcast industry. The versatility of our systems and their low cost of ownership has made them favorites of operators, managers, and engineers.

MATCO

.....

Automation

- Internal or external switching
- Legacy support
- Traffic interface
- Remote access

Storage Systems

- Capacity from dozens to thousands of hours
- Storage Arrays and Storage Servers
- Ethernet or Fibre Channel
- Redundant power
- RAID 5
- Hot-swappable drives

Video Servers

- Industry standard MPEG-2
- Capacity from dozens to thousands of hours
- Single or multiple play and record channels
- VTR control for ingest
- Internal automation optional
- Redundant power
- RAID 5
- Hot-swappable drives

www.matco-video.com • sales@matco-video.com • 800.348.1843

Audio

CONTINUED FROM PAGE 81

Its on-board battery is a standard Sony-compatible L- or M-type Lithium Ion cell. The 722 and 744T easily interconnect with Windows and Mac OS computers for audio data transfer and backup.

Tascam unveiled the CD-RW750 CD recorder, a budget-minded rack-mountable CD recorder, with unbalanced I/O and S/PDIF digital I/O in optical and coax formats. It has a RAM buffer for skip-free playback, 24-bit A/D and D/A converters and a digital fade in and fade out from 3 to 30 seconds. Its monitor section allows it to be used as a stand-alone A/D converter or sample rate converter without the need to place a blank disc in the tray.

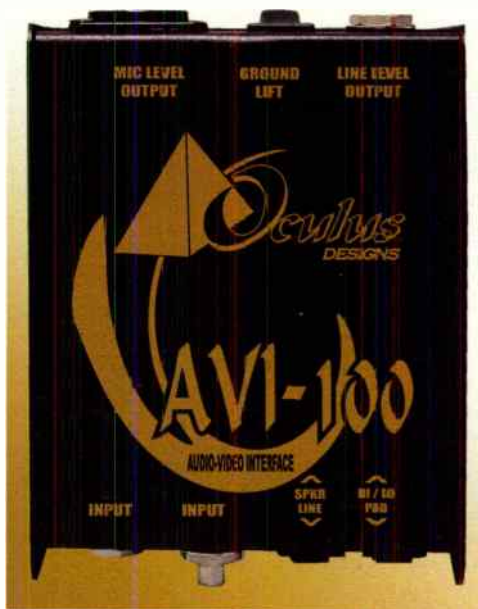
Zaxcom Inc. showed its next generation of Deva multi-track location audio recorders, the Deva V. Up to 10 tracks can be recorded at sample rates up to 192 KHz. Features include a color touch screen interface, eight analog microphone or line inputs with 48V phantom power, 15 seconds of pre-record, simultaneous multi-disk recording, FireWire interface port, an internal 80 gigabyte hard drive and full support of metadata entry without external hardware. Optional accessories shown include an Internal DVD-R option, Deva Flash Drive and Deva Mix-8 Fader Pack.

Replacing the Cameo II LRC is the Zaxcom Deva Mix-12, a control surface that integrates directly with the Deva IV and V and features a QWERTY keyboard to allow metadata to be entered. Its 16 inputs and 18 outputs perform 192 KHz mixing and monitoring utilizing the Mix-12.

Also introduced was the Deva Mix-8, a compact fader panel for the Deva IV & V hard disk recorders.

Zaxcom also unveiled the Deva Flash Drive for use with the new Deva hard disk recorders. The Flash Disk uses up to six compact flash cards currently holding up to 36 gigabytes of audio. Compact flash memory is supplied by the end user, four cards are fixed and two cards are removable. This Deva Flash Drive can replace the hard drive in the Deva IV, Deva V and Deva Fusion. When used in the Deva Fusion, the drive can produce two transcription-recording outputs. These Compact flash cards can be made with time coded Broadcast WAV or MP3 files.

The Deva Fusion "fuses" a mixer, recorder and a stereo RF transmitter into a single unit. Features include four mic/line inputs mixed to six outputs, high pass filter, compressor, delay, 140 dB input dynamic range and a four-channel auto mixer. On the Deva Fusion, audio can be recorded to a hard drive or Deva Flash Drive. Fusion can also output files directly to an



The AVI-100 from Oculus Designs is a portable interface to connect consumer equipment to pro audio systems.

external FireWire compatible DVD drive without the use of external computers.

SIGNAL PROCESSORS

Dolby unveiled the Dolby Digital Plus technology, an enhancement to Dolby Digital that is designed to meet four qualifications of a next-generation broadcast audio codec, namely, backward compatibility, spectral efficiency, cast savings, and compatibility with future formats. On April 2, the ATSC elevated Dolby Digital Plus (Enhanced AC-3) to Candidate Status as part of its work on next-generation broadcast and transport systems.

Eventide announced a 40-second version of its delay unit, the BD500.

The BD500 is Eventide's fourth generation broadcast profanity delay that features configurable delay and dump functions. Included is the company's Sneeze function which prevents throat clearing and coughing from going out over the air as well as the Rebuild function which seamlessly rebuilds the delay buffer after a portion of the audio has been removed.

Harris introduced the NeuStar DTV sound surround system that delivers 5.1 sound by automatically converting audio into surround sound regardless of format. The process can transport audio over an existing stereo backbone and play it back as surround sound at the receiver.

Linear Acoustic was in the Sigma Electronics booth this

year showing its OCTi-MAX 5.1 DTV audio processor along with the new upMAX 2251 5.1 channel surround-field synthesizer. The OCTiMAX 5.1 protects against loudness shifts due to missing or incorrect metadata, while the new upMAX 2251 helps create and maintain 5.1 channel audio from two channel sources.

Oculus Designs, a division of VTG Holdings introduced the Oculus AVI-100, an audio/video interface that gives technicians a variety of input/output options. The AVI-100 can be used with audio or video recorders, classroom smart boards, projectors, portable public address systems, phonographs, tape players, etc. The AVI-100 takes virtually any type of input and converts it to

balanced mic level output.

Orban/CRL rolled in its Mobile Broadcast Laboratory, Support Vehicle, and Listening Booth to the NAB2004 show floor and introduced new products.

For TV, the Optimod-FM 2300 is the newest generation of Optimod products that now offers new ITU 412 multiplex power density control and provides built-in Ethernet support. Key new features include stereo enhancement, built-in Ethernet and RS232 serial connectivity, full-featured remote control through any Windows 2000 or XP PC, standard AES/EBU digital input/output, Orban's patented "Half-Cosine Interpolation" composite limiter, and a multiplex power controller for countries required to meet the ITU-R BS412 standard. The 2300 uses Orban's latest-generation dual-band technology with window gating. This technology allows the AGC to correct gain riding errors quickly without increasing the density of material that is already well controlled in level.

Solid State Logic (SSL) displayed the Xlogic line of 19-inch rack-mounted outboard signal processing units. Products shown were the Xlogic 5.1 Compressor, Xlogic SuperAnalogue Mic Amp, Xlogic Channel, and the Xlogic G Series Stereo Compressor.

The Xlogic Multichannel Compressor features a circular "Max" display that shows which channel is contributing the most to the side chain, plus separate trim controls for the different channels, and dual stereo mode.

The Xlogic Channel includes SuperAnalogue pre-amp with mic, line

AUDIO, PAGE 116

A promotional graphic for the MicroFirst Digital Automation System. The background is a dark, abstract image with green and blue lines. At the top left is the MicroFirst logo with the tagline "Automation that Works". In the center, a list of features is presented in a vertical stack of boxes: "Modular Expandability: Schedules, Devices, Workstations", "Comprehensive Intuitive G.U.I.", "Context Sensitive On-Line Help", "Remote Control, Diagnostics, and Upgrades", "Dynamic Logging, Error Checking, and Alarming", "24/7/365 Technical Support", and "Interface to any Traffic System". Surrounding this central list are four circular callouts with quotes and names: "Easy to use!" by Paul Byers, "Flexible, reliable, & stable!" by Mike McGraw, "It really works!" by Bill Ziegler, and "Far more efficient!" by Joe Glynn. At the bottom left is the website "www.microfirst.com".

Audio

CONTINUED FROM PAGE 115

or instrument inputs and switched gain; twin-curve dynamics; high and low pass filters; and G series and E series "Twin-Curve" EQ—4-band parametric EQ, with variable Q on both mid bands and shelving/bell high and low bands.

SRS Labs introduced the CSE-07D digital encoder and its companion the CSD-07D digital decoder. The DSP-based units provide the ability to encode and decode up to 6.1 channels of discrete digital program material for transmission over any consumer stereo medium.

Symetrix debuted the AirTools 6200 Digital Voice Processor. A dual-channel unit, the 6200 provides two discrete audio pathways capable of processing microphone or line-level sources, independently or as a stereo pair. Combination jacks on the inputs accept XLR or 1/4-inch TRS connectors. Audio signals are converted to 24-bit 48 kHz digital immediately after passing through the analog pre-amp stage. From there, the user can define the types and order of processing to be applied. All parameters are accessible via front panel controls, or a software application on the user's Windows PC. Control of the 6200 is available via RS-232/485, USB or Ethernet. The 6200 offers onboard processing with functions that include filtering, downward expansion, de-essing, parametric equalization and compression.

Symetrix showcased the 6100 Broadcast Audio Profanity Delay at NAB2004. The 6100 is a 24-bit digital delay unit designed for live broadcast that prevents profanity or unwanted com-



SSL introduced its AWS 900 analog workstation at NAB.

ments from reaching the airwaves. As the program begins, the 6100 gradually and unobtrusively delays, or "stretches out," the program until up to 20 seconds of full-bandwidth stereo audio is stored in memory. Users prevent offensive material from broadcasting by dumping the 6100's buffer. After the "dump profanity" button has been pressed, the 6100 automatically begins to stretch (time expand) the program audio again.

Symetrix also showed its 322 DSP Engine that houses a 24-bit Motorola DSP and high quality 24-bit A/D and D/A converters. Its front panel display features system status LEDs to indicate selected preset, clipping, signal presence, bypass, communications and power. Audio Workplace control data streams through a front panel RS-232 port, leaving the 322's chassis tamper-proof. Audio signal I/O connections are rear panel Euroblock terminal strips. Additional connections include two remote pot inputs, which can control

volume or up to four internal parameters, contact closures for remote preset selection, and an RS-485 port for control of multiple units. Up to 16 Symetrix 322's may be daisy-chained using their RS-485 ports. Non-volatile flash RAM stores all presets.

LOUDSPEAKERS

Data Check showcased its model 22020 12-channel dual-speaker monitor that operates either independently or in conjunction with any combination of the company's video monitors.

Television Systems Ltd (TSL) introduced the SLS-1P to the U.S. market at NAB2004. The 1RU unit SLS-1P is a self-powered loudspeaker unit that can be rack-mounted or used free-standing. The launch model features one stereo pair of analog inputs, headphone output volume control and a power indicator. Further models are currently under development.

Genelec demonstrated a number of

its powered loudspeaker products.

For surround sound monitoring, the 1029 LSE PowerPak system consists of five Genelec 1029A two-way bi-amplified active monitors, one Genelec 7060A LSE Series Active Subwoofer, and a Genelec Acousti/Tape frequency/wavelength measuring tape. In addition, a Genelec 1029 LSE PowerPak setup guide is included for speaker placement, wiring, and fine tuning.

The 7060A LSE employs Genelec's proprietary Laminar Spiral Enclosure (LSE) technology. In addition, the 7060A incorporates Genelec's new 6.1 bass management system which has six signal input and output channels, plus a discrete LFE signal input with a selectable 85/120 Hz low-pass filter and a summed signal output. The bass management system splits the six main channel input signals into low and high frequency components, accurately dividing the input signal between the subwoofer and main speakers.

Tapco by Mackie exhibited a new family of active studio monitors. The 5-inch Tapco S•5, introduced last September at the PLASA show in London, now has a new larger sibling, the eight-inch Tapco S•8. The Tapco S•5 and S•8 are compact, two-way, bi-amplified monitors that feature dual high-precision internal amplifiers that deliver a total of 120 watts RMS (60 watts each for both the woofer and the tweeter). Both incorporate the same one-inch waveguide-loaded silk-dome tweeter. Rear panel controls on the S•5 and S•8 allow for acoustic tailoring with low-frequency boost and high-frequency cut/boost switches. Inputs include 1/4-inch TRS/XLR balanced and RCA unbalanced. ■

Markertek Unique Product of the Month!



LTM-LNF MSRP \$295.00
Discount Price \$279.00

markertek.com®

MARKERTEK VIDEO SUPPLY

The Broadcaster's Time & Money Saver!

Find any lost cable wirelessly in any install.

Designed exclusively for the broadcast professional.

Heavy duty, long life unit.

BNC, XLR, TRS, IEEE1394 Firewire, USB, RJ11 and RJ45 (Cat 5) connections.

Pays for itself instantly.

Get Our Free 368 Page Catalog!
www.markertek.com 800-522-2025



As expected, much of the power source talk of the show was about the Jadoo Power Systems NAB-II hydrogen fuel cell power for portable cameras. The battery-brick shaped Power Converter attaches to the back of a camera or camcorder like a conventional battery. The Power Converter has a hole to accept interchangeable Fuel Cartridges—2.5-inch diameter, 4.5-inch long cylinders that hold the hydrogen.

upgraded A-E2DT-V-Mount Camera Adapter with 2-pin Power Tap, designed to provide V-Mount compatible cameras with a 2-pin Power Tap connector for use with on-board lights. Another such accessory, the Uniplex A-UWR Wireless Receiver Adapter, sported a new mounting bracket to rear-mount a wireless receiver on cameras using an IDX P-V or P-VS V-Mount mounting plate.

PAG USA presented its Power Circle Li-Ion Batteries, economical Li-Ion ENG batteries in capacities of 95 and 65 W-h. Both incorporate a micro-driven coulometric capacity indicator, called the PAG Power Circle, which displays charge status in percentage. The company also showcased its Freelancer Charger, an all-chemistry, two-channel, ultra-compact charger for location use.

Phyllion Battery Company of China showcased an entire line of

NP, AN, BP and PK series video camera batteries and chargers at this NAB. The company specializes in Lithium-ion battery technology, with designers from the Chinese Academy of Science.

VFGadgets.com rolled out its WhiteLighting block power battery pack, containing two 14-Volt, 7Ah packs, which can be operated as a single 28-Volt, 7 A-h battery or as two 14-Volt, 7 A-h batteries. The batteries have an LED bar graph to indicate remaining battery capacity.

LIGHTING

Airstar Space Lighting launched its Infinity lighting balloon system, which allows light balloon modules to be zipped together in an infinite number of configurations. The modules can be filled with helium if they need to float.

Anton/Bauer introduced a UL Dimmer accessory for its UltraLight on-camera lighting line-up. The unit allows the output of any UltraLight to be controlled from 0 to 100 percent output, and a memory function lets the user pre-set a high and low

output for instant adjustment to existing lighting conditions.

Arri introduced its new Sky Panel, a daylight-balanced soft-light based on Osram's flat Planon source. The Sky Panel measures approximately 14 x 17 inches, is just 2 inches thick and can be docked with other Sky Panels. The result is a fixture that can be built into a large panel array to produce broad light that looks like daylight, without color correction.

Arri also showed its Studio Cool line of fluorescent studio lights,

LIGHTING, PAGE 118



BY CRAIG JOHNSTON

A Refill Station, connected to a compressed hydrogen bottle, can recharge four Fuel Cartridges at once in an hour, and the Cartridges can be hot swapped in and out of the Power Converter to supply continuous power. The company estimates one Fuel Cartridge holds the amount of power of three conventional brick batteries.

Anton/Bauer Inc. premiered a gorilla of a camera battery this year with the Dionic 160, which can handle loads up to 140 W, about three times that of most lithium ion batteries. It can run a typical ENG camera for well over five hours and handle on-camera lights.

Frezzi Energy Systems took the cover off its Frezzi Advanced 130 W-h On-Board Ni-MH battery for the high drawing HD cameras. When two of the 130 W-h batteries are teamed through the company's dual brick adapter, they can be used to power an HMI 200 W light.

IDX System Technology Inc. introduced peripherals that fit between its batteries and the camera, including an



Mike Jones (c) of Arri, explains the company's lights to Jeff Weiss (l) and John Ahrens.



David Mazur of Mazur Lighting discusses colors with Linda Roberts Mills of Cotech at the Cotech booth.

Lighting

CONTINUED FROM PAGE 117

including two new models: Studio Cool 2 and Studio Cool 2+2. In addition, the company also introduced two tungsten fixtures for flood- and cyc-lighting applications,

the Flood 1250 and Cyc 1250.

Balcar SA showed that fluorescent source lights can be more than soft lighting with its Balcar Spotflux 2 and 4, fluorescent fixtures, which can be used to create shadows and generally increase contrast. For lighting over longer distances, the company presented the Balcar Powerflux

for production studios with high-grid systems, either as main light, fill light or cyclorama light.

Barger-Baglite displayed its GT-6, a six-bulb fixture, which fills the Quartz Chimera front screen with only one of its six individually switched lamps burning. It can operate on 15-Amp home outlets and

needs no speed-ring.

Bowens introduced its new StudioLite range of fluorescent lighting, using economical and long-lasting 55 W lamps in various choices of light output and color temperature. The company rolled out the four-lamp SL 455 and the eight-lamp SL 855.

Brightline showed up with two redesigned lighting fixtures. It has doubled the number of fluorescent tubes in its CycSeries fixtures, which offers twice the amount of light from the same sized fixture. And it rolled out its Series Two fixtures, which feature twice the amount of blue tubes to solve the problem of not enough blue light on the cyc.

Bron Kobold debuted its DW 800, an all-weather 800 W focusable Openface or PAR HMI fixture featuring easy access for lamp change with bayonet reflector mount, and utilizes the Bron Kobold EWB 400-575-800 All-Weather electronic ballast.

Coemar showcased its Fiera Pars, moving lighting fixtures built into lightweight and compact plastic housings.

Cotech introduced itself to the U.S. market with hundreds of gel colors. The company featured a Pro Filter Lighting Kit, which includes a dozen 10.5 x 12-inch sheets of filters.

Chimera unveiled its Octaplus Banks, including the 7-foot, 6-foot and the 3-foot Octaplus, a stand-alone eight-sided bank. Chimera Octaplus Banks are compatible with strobes and continuous light sources.

Cool-lux premiered its SL3000, a combination softlight/broadlight fixture for mounting on a camera or on a stand. It utilizes a double-ended 78mm length lamp, and can be powered from 12, 13.2 or 14.4 VDC, or by 120 or 240 VAC using different lamps.

Dedotec USA Inc. unveiled its Dedolight DLH200D 200-W HMI light head, which sports a 20:1 focusing range. Both AC and battery ballasts are available, as well as projection attachments.

DeSisti Lighting showed its CD fresnel lighting fixtures using the new Philips Ceramic ST HR bulbs that use one-quarter the power (and produce one-quarter the heat) of the same light-output halogen lamps they replace. The company also displayed its power-limiting 1.2K and 2.5K ballasts.

Electronic Theatre Controls (ETC) displayed the Source Four Revolution moving light system for theaters. The fixtures are modular to allow the addition of iris, static wheel, rotating wheel and shutter modules. The fixture's lens allows a

LIGHTING, PAGE 120

Conference June 5-11 | Exhibition June 9-11 | Georgia World Congress Center | Atlanta

On Demand; In Demand Streamed Media at InfoComm 04



Video On Demand and Streamed Media are among the many technologies media professionals can explore at InfoComm. From the exhibition floor featuring the Streaming Media Pavilion, to the in-depth training at the conference, you will find what you need at InfoComm.

More than 20,000 people gather at InfoComm each year -- join them!

Who attends InfoComm?

- Manufacturers
- Production Professionals
- Presentation Professionals
- Technology Managers
- Rental & Staging Professionals
- Systems Integrators
- Independent Design Consultants

...and many others involved in audiovisual communications!

The InfoComm Exhibition: See, Hear, and Connect

On the Show floor, where more than 600 companies exhibit their video, projection, display, audio, controls, interfacing, and lighting technologies, Primedia's Streaming Media Pavilion reflects a growing interest worldwide in using the Internet to distribute video footage.

Topics for the FREE panel sessions include:

- Webcasting from the desktop
- Video production process
- Creating rich media presentations
- Streaming DVD or HD-quality video
- Using on-demand streaming for corporate communication

For in-depth training **InfoComm Academy** on streaming, nothing beats the three-day Institute for Professional Development June 5-8. Technology-savvy producers, learn to develop, specify, implement and use streaming technologies and solutions!

The InfoComm Academy Conference Program, presented by experts in the industry, offers a choice of basic, intermediate and advanced courses ranging from two hours to three days.

- Encoding, authoring, and serving streaming
- Media projectors
- Streaming fundamentals
- Efficient and economic communications with streaming video
- Image quality in a digital world
- Video production for streaming
- Streaming video for corporate events

MCA-I's Pro Track™ June 9-11

The Media Communications Association International (MCA-I, formerly ITVA) is offering courses for production and communications professionals, including:

- The DVD World: Simplifying the Confusion
- Visual Communicators as Problem-Solvers
- Interactive Design
- Power Self-Marketing For Visual Communicators
- E-Marketing: Websites, E-Zines, Chat Rooms, and Blogs

Networking at InfoComm

Don't miss the FREE Opening Welcome Reception on Tuesday, June 8 at 6:30 p.m. Following the reception, try to attend the ticketed Awards Banquet (ICIA member cost \$50), cosponsored by Systems Contractor News, ARCHI-TECH Magazine, and Rental & Staging Systems Magazine, on Tuesday, June 8 at 8:00 p.m. where winning design projects and AV products will be recognized. In addition, the Distinguished Achievement Award and PETC Educator of the Year Award will be bestowed at the Awards Banquet.

Also, plan on joining an AVolution Technology Tour to a state-of-the-art Atlanta AV facility! Find out more about the AVolution Awareness Campaign and how you can advance your business at www.AVolution.info.

Register today at www.infocomm.org.

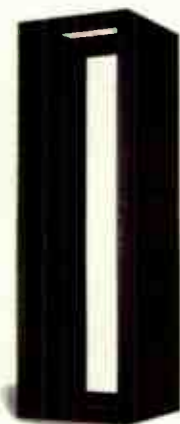
Sign up to receive the InfoComm Weekly e-News at www.infocomm.org/subscribe/.

infoComm04

See Hear Connect

MARKETPLACE

Highlighting the latest products available to professionals in the video industry.



EQUIPMENT RACK

Winsted has added nine new sizes to its Pro Series II line of vertical equipment racks and the entire line has also been granted UL approval.

The models are all-welded with mar-resistant black finishes for strength and long service life. All have leg levelers as well as corner uprights, independent lift-off side panels and open pedestals to facilitate wire management. In addition, all Pro Series II models have larger upright frames for improved load carrying capacity.

Winsted makes a wide range of other equipment racks, as well as consoles, cabinets, shelves and other technical furniture. The company offers off-the-shelf and custom-designed products.

For more information, contact Winsted at 800-447-2257 or visit www.winsted.com.

BROADCAST SERVER

Sgi Media Server for broadcast supports the most popular broadcast digital formats and handles operations such as multichannel ingest and playout under automation control. The system is well suited for any traditional broadcast application, including acquisition, play-to-air, commercial insertion and server-based news editing. Sgi Media Server for broadcast is compatible with the company's CXFS SAN storage infrastructure and supports up to eight standard-definition MPEG-2 video channels, with up to eight audio channels per video channel. Compression rates of up to 50 Mbps provide flexibility in the choice of picture quality and editing flexibility. Optional networking connections include Gigabit Ethernet and ATM.

For more information, contact SGI at 800-800-7441 or visit www.sgi.com.



SHAKE ELIMINATOR

The new For-A IVS-700HS helps take the shake, rattle and roll out of SD and HD video images shot with too much vibration or from a long distance with a telephoto lens. Supporting HD and 525/60, 625/50 signals, the IVS-700HS features 10-bit processing and image enhancement circuitry that stabilizes images that are recorded with shaking images. The unit will also work with live images, such as those from aircraft or pole-mounted cameras. The compact 1 RU IVS-700HS has composite, component and SDI inputs and outputs. Built-in embedded audio features are standard, providing a delay function of three frames that is compatible with blurriness correction delay of the IVS-700HS.

For more information, contact For-A at 714-894-3311 or visit www.for-a.com.



SDI Frame Synchronizer AY86

\$2,500.00



- SDI Input/Output
- Standard Analog Composite Video Output
- Gen Lock
- User Friendly Proc Amp
- Rackmountable
- 10 bit video/24 bit audio

- Can be upgraded to more features
- Optional Analog Composite head-end
With this option, the AY86 will be A/D, D/A both way conversion
- Optional digital/analog audio delay and video delay up to 21 seconds

H HOTRONIC, INC.

1875 S. Winchester Blvd., Campbell, California 95008 USA
Tel: 408-378-3883 Fax: 408-378-3888
Web Site: www.hotronics.com E-mail: sales@hotronics.com

Lighting

CONTINUED FROM PAGE 118

16-36-degree zoom capability, and it has a patented mechanism designed to make its motors run silently.

SMALLER, LIGHTER

Element Labs premiered its Versa Tile, an edge-lit LED tile capable of RGB color mixing to create a wide spectrum of colors. The 5-by-5 or 10-by-10 tiles can be used to create color-changing backgrounds, and since each Versa Tile represents one pixel on the screen of a PC or Mac, content can be created using any graphics program or adapted from available stock imagery.

Frezzi Energy Systems added a new line of smaller quartz and HMI lights tailored for smaller cameras. The professional line of ultra-small fixtures included the Standard (on/off) and Dimmer Control Micro-Fills, and the HMI Micro-Sun Gun. The lights can be configured with all of the commonly requested connectors.

LightPanels introduced its new LitePanel family of daylight balanced lighting systems, employing efficient LED technology to produce a soft and projected light. The LitePanel has a compact head that can easily mount on the camera, and offers flicker-free, 5600K output of 80 foot-candles at two feet. It is three times more efficient than a conventional tungsten camera light.

Kino Flo added LED fixtures to its line of fluorescent lights this year with its Koloris DMX system. The

fixtures are capable of producing 1.6 million colors at low power-consumption and low-heat levels.

K5600 introduced its BlackJack 400 W, a compact daylight balanced focusable Fresnel instrument offering the ability to project large patterns and Gobos. K5600 also debuted newsroom and small studios lights. Its 800 W Joker-Bug was shown working on special DC power-packs with K 5600's own DC ballast.

KW/2 Lighting Products introduced a line of "Smart Lights," designed to allow converting of standard fixtures to analog, voltage, or DMX dimming by switching out the modular ballast housing at the back of the light. This allows the lights to change with dimming needs.

Lee Filters unveiled its Frosted Color Glass dichroic filters, designed to fit Mole Richardson's MR16 fixtures. The filters come in 12 tints, and are designed to reduce halation and soften the light beam, while converting it to daylight color balance.

Licht-Technik Vertriebs GmbH showed off its Mini Bag-o-Light super soft light accessories, designed to fit a variety of lamps but optimized for the Arri Mini Sun and several Arri Par fixtures. The inflatable white bags offer very diffuse lighting and are designed for use shooting complex reflective surfaces, such as the exterior of an automobile.

New fluorescent lighting products highlighted Lowel Light's booth. The e-studio line of non-dimmable studio fluorescent fixtures offer an efficient light source in tungsten or



PAG introduced its 95 W-h Li-Ion battery and Freelancer Charger at the show.

daylight temperatures. Three models were introduced, housing two, four or six T-55 W lamps, with a collection of control accessories and a unique stand or lighting grid mounting system based on Lowel's Caselite products.

Matthews Studio Equipment launched its Max Menace Arm, a roll-around light stand with built-in arm that allows light fixtures up to 175 pounds to be suspended horizontally up to 9 feet from the stand (88 pounds up to 17 feet), or at any angle upward to as high as 24 feet. It can also dip down to a negative 15 feet below the surface.

Mole-Richardson unveiled a monster of a light, its Type 6801 12/18K Daylight Fresnel, updating the Mole's previous big fresnel with a redesigned ventilation system that increases reliability and bulb life. The design also achieves nearly no spill light. The company also showcased its Molescent Biax light fixtures, which come in five sizes.

PAG USA introduced its Paglight L24, a compact and portable 250-W location light modeled after PAG's on-board camera light. The fixture is mounted on a detachable power base that incorporates a flying lead terminated with a XLR-4 connector which can be used to power the light from a 24V Pagbelt IC2 battery belt.

Photoflex showcased its HalfDome2, which pro-

duces a focused highlight while maintaining overall softness. It has a small profile making it easy to shoot over when used as a foreground light, and its baffles keep it from spilling light when used as a fill. It features Photoflex's proprietary silver lining.

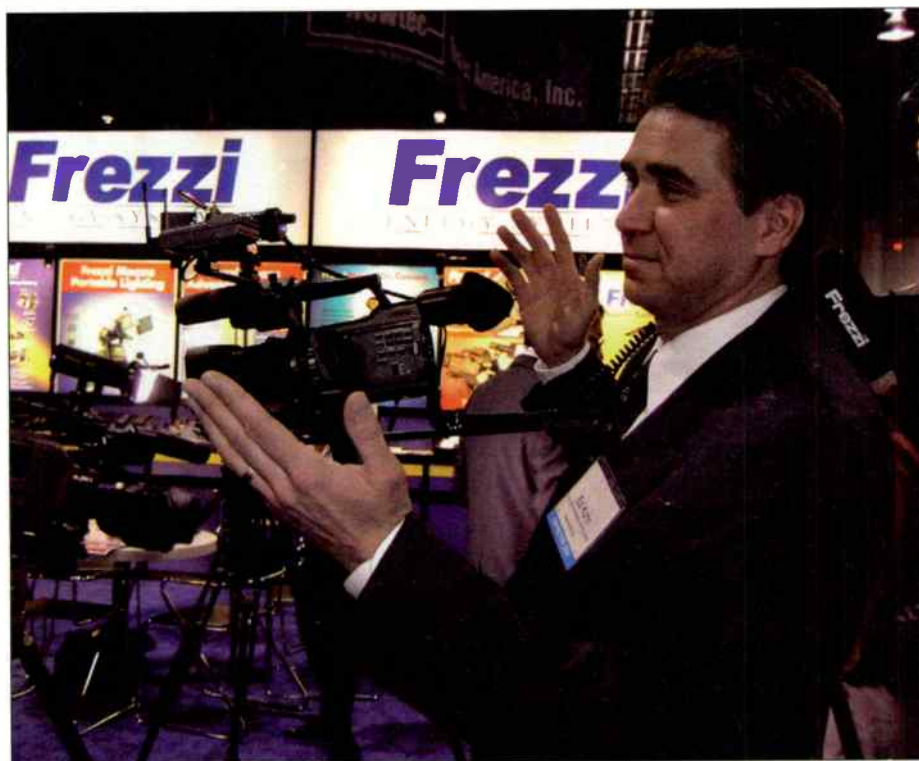
Sachtler trotted out the company's first PAR light fixtures, a 200-W and 400-W HMI. Sachtler also introduced its Pilot system to fully automate its Luminair studio light fixture functions, including focus, pan and tilt as well as barndoor operation.

Strand Lighting introduced its new HMI 575 W daylight fresnel fixture, featuring an internal ballast to eliminate the difficulty of dragging the ballast along with the light during location changes. The company also showed Ceramic Discharge lamp based fixtures.

Tokina Company brought its Fluorescent Light Banks to the show. The company offers models utilizing linear tube types as well as spiral tube types, and offers cool illumination with minimal dissipation of heat.

Videssence took on field production with the introduction of the Baby Base, an 84-W instrument featuring intense light output from a lightweight, 9 x 5 x 6-inch housing, with an adjustable, lockable mounting yoke. The Baby Base uses two 42-W Triple Tube high-color rendering fluorescent lamps, with an integral dimming control provided for the 0-10 Analog Dimming option.

Westcott Co. added a new Video Broadcast kit to their Scrim Jim modular diffusion and 72 x 72-inch large Scrim Jim frame along with several scrim nets, clamps and grip heads. ■



Ed Kuhn of Frezzi Energy Systems shows off the company's new Stable Cam camera support and power system. The battery on the shoulder mount helps balance the camera.

Cable

CONTINUED FROM PAGE 76

nated the J314 series, are a true 75-Ohm design and boast a frequency response of 1 MHz to 3 GHz. The J314 series jacks are also lighter and have fewer moving parts than most other patch jacks, which also help to eliminate possible failures and make the product more desirable for weight-sensitive applications.

Trompeter also showed its highly regarded video connectors, including its line of 75-Ohm BNC fittings.

Programmable audio patch jacks were the news at the ADC booth. The company announced a new Pro Patch programmable product that uses a WECO-compliant Bantam jack and a DIP switch to quickly change normals and grounds.

The programmable Pro Patch is a high-density panel that is 48 jacks wide. It is the only programmable Bantam jack audio patching system that passes stringent military specifications for vibration and environmental conditions.

Also new from ADC were new reversible ProAx triax connectors for connecting cameras to production trucks. In addition, the company showed a new normalised-through optical patch panel.

Programmable audio patch panels were the featured item at the Bittree booth. The company's 489 Series boasts the ability to change the normalizing and grounding of individual circuits by switching the shunt arrangement under the panel's designations strips.

The process is easy: Simply remove the two strips, rearrange the vertical (normalizing) and horizontal (grounding) shunts, and your patching system is reconfigured. The 489 Series is available in 1.5 and 2 RU enclosed chassis and a jack configuration of 2x24, with a variety of other options. The 489 patch panel is AES/EBU compliant, using balanced 110-Ohm internal wiring.

Bittree also has a variety of video and component patch panels. New this year is the company's five-wire RGBHV component patching system, which is available in both WECO and mini-WECO versions.

HIGH IN FIBER

Telecast Fiber Systems was at the show with its new Mamba family of fiber-optic connection products. Mamba combines patchbays, media converters and fiber-optic components into an integrated system to connect control rooms, trucks, venues and other production facilities.

Mamba uses familiar mini-WECO and Bantam jacks and patchbays to

interconnect with a fiber-optic system, resulting in a package that is smaller and lighter than coaxial cable. The system can be used with SDI, HD-SDI, AES/EBU digital audio and analog audio.

At NAB2004, Telecast announced that it was now shipping its DiamondBack II video multiplexer that can transport eight broadcast-quality analog video signals—each with two audio channels—over fiber-optic cable. The DiamondBack II also can accommodate a ninth input for audio, intercom and data signals.

As professional camcorders are getting smaller, it makes sense for things that attach to such camcorders to get smaller, too. Therefore, Camplex Corporation introduced the PRO-X1, a coax/triax camera adapter for "prosumer" camcorders and cameras.

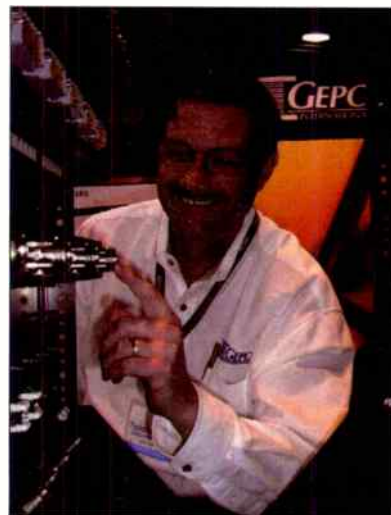
Using the PRO-X1, most popular small digital camcorders can be operated from as far away as 3,000 feet for live, remote applications including multicamera shoots. The system works with either standard coaxial cable or with triax, and return video, audio, intercom and tally signals are provided back to the camera.

In addition to the new PRO-X1, Camplex also showed its CP-601 and CP-301B analog coax camera connection systems.

Another company looking at increasing the convenience of using fiber for remote camera operation is Telemetrics, which displayed its new HFT-BS and HFT-CA hybrid fiber/triax adapter. Working with HD cameras, the system connects the camera to a triax adapter, which is in turn con-

nected back to the studio or production truck using one single-mode fiber.

Many vendors showed their products for fiber optic interconnection, which provide the ability to send broadcast-quality video and audio as far as 50 miles in a single run. These systems are ideal for studio-transmitter links (STLs), inter-building connections, venue cabling and any location where the signal must travel more than 500 feet or so.



Todd Harrington of Gepco points out the new hybrid-fiber distribution box.

Miranda Technologies exhibited the FIO-18x1 family of fiber-optic modules, part of the company's Densité series. FIO-18x1 modules fit in a Miranda Densité 2 RU frame and offer SDI-to-fiber and fiber-to-SDI modules for SD and HD, as well as compressed bit-streams, and support any data rate from 5 Mbps to 1.5 Gbps.

The modules provide reclocked SDI

video from 143 Mbps to 1.5 Gbps. FIO-18x1 series modules are available in 11 different configurations, and can provide single- or dual-fiber bidirectional video.

Another company featuring its fiber-optic products at NAB2004 was Network Electronics. New in the company's fiber-optic line is the N-Box, a compact single-card housing for its flashlink series of modules. The N-Box can hold any flashlink card except for the company's DWDM module.

In addition to a new housing, Network debuted its flashlink CWDM-16, a single-fiber 16-channel CWDM multiplexer that works with the company's video, audio and data modules. Also introduced were the AVA-MUX and DMUX modules for analog video and audio to fiber conversion.

Opticomm had a new logo this year, as well as several new fiber-optic products. Topping the list is the Multiverse platform, which uses the company's Multiple Division Multiplexing (MDM) series of multiplexers to get up to 144 channels of analog or digital video down a single fiber.

The company focused on both quality and security, at the same time packing as many signals as it could onto a single fiber to maximize efficiency. As a result, the Multiverse platform can send anything up to HD signals for as far as 40 miles, while claiming that the signal can't be tapped without immediate detection. The system can be used to simultaneously send 64 HD-SDI signals down a single fiber.

Other new products from

CABLE, PAGE 122

IBIS

SprinTx

an essential link
for news and
sport broadcast

In the mayhem of news
and sport broadcasting,
speed to air is essential.
SprinTx links straightforward,
user-friendly operations
with proven reliability
and cost effectiveness
— to make every second count.

IBIS — Clever doesn't have to be complicated

INTEGRATED BROADCAST INFORMATION SYSTEMS LIMITED. T +44 (0) 1483 280208 E INFO@IBISTV.CO.UK W WWW.IBISTV.COM

Cable

CONTINUED FROM PAGE 121

Opticomm include 8- and 10-bit digital video/audio modules in its FDV series. The FDV-1000 is a 10-bit fiber module that can provide simplex or full-duplex video with 24-bit audio, leaving a slice of bandwidth for data and control signals.

Incorporating fiber-optic modules into its production equipment is one of the ways that **Grass Valley** uses to stay competitive. At NAB2004, the company showed its tiny fiber-optic modules that fit into the Kameleon line of acquisition, production, storage and playback products.

With the new fiber modules, the output of a Grass Valley HD switcher can be directly fed to a control room or master control switch that is several kilometers away, without the need for any intermediary equipment. About the size of a pack of chewing gum, these fiber-optic modules slide into pockets on the rear of the Kameleon products.

Gefen makes a variety of "black box" devices that can be used to send a wide range of signals down commonly used Category-5 computer networking cable, including such signals as USB, FireWire and HDTV. For example, the company's EXT-HDTV-141 is an HDTV repeater that extends the length of any HD DVI signal for up to 150 feet, while maintaining 480p, 720p and 1080i resolution.

Another of these interesting conversion/extension devices shown in the company's booth was the EXT-FW-141

FireWire repeater, which can be used to extend FireWire devices for as far as 250 feet, using standard FireWire cables. The box can even be remotely powered if you use six-pin FireWire cables; imagine having that bank of noisy drives located in another room for some editing peace and quiet!

Video-over-IP was bubbling in the consciousness of many NAB attendees and one of the companies providing production in this area is **Path 1**, a supplier of IP routers for broadcast applications. The company's new Chameleon vidXwan is a multiport, bidirectional real-time IP router that can distribute live MPEG-2 video in both SD and HD formats.

Using fiber networks, the vidXwan incorporates standards-based encapsulation and forward error correction to support the ProMPEG code-of-practice for live broadcast applications. The Chameleon vidXwan can transmit and receive up to four output and input feeds simultaneously.

NETWORKS

There's a bigger picture when it comes to transporting signals and several companies exhibiting at NAB2004 were there to talk about how they can deliver your content around the continent and across the planet. With a web of fiber-optic circuits supported by geosynchronous satellites, these companies deliver video from war zones and catastrophes, large sporting events and coronations.

Probably the best-known name in the U.S. is **Vyvx**, a division of communications giant **Wiltel**. Vyvx has a footprint that reaches more than

11,000 television and radio stations and the company transmits more than 12 million video minutes per year.

At NAB2004, Vyvx promoted its new HD VenueNet service, which is used to backhaul HD sporting events from venues to broadcasters. The latest addition to the HD VenueNet family is the San Diego Padres baseball team, which is now able to provide Cox

Communications in San Diego with HD feeds from its home field, as well as away games in Los Angeles, San Francisco, Phoenix and Denver.

Vyvx also announced that it can now provide MPEG-2 service at up to 18 Mbps to locations in Canada and the U.K., including Calgary, Edmonton, Montreal, Toronto, Vancouver and London. For the U.K., the new service offers full PAL pass-through for seamless handling of international broadcast standards.

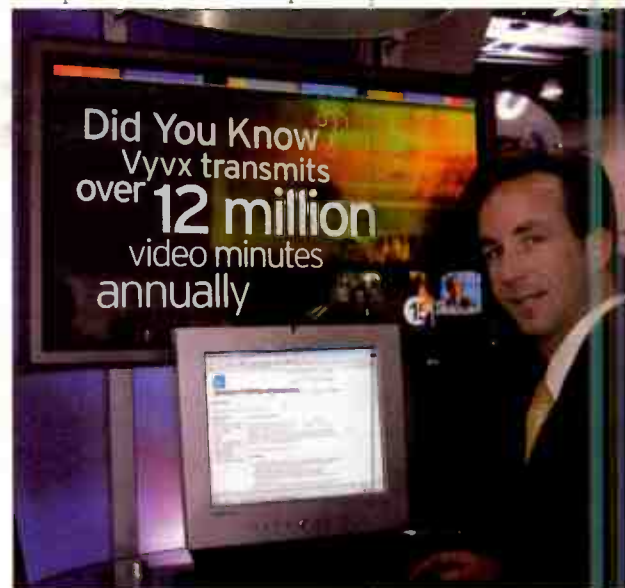
Sports are also on the mind of **Intelsat**, which is now carrying the international feeds for Major League Baseball (MLB). As many as 40 MLB games per week will be carried internationally on Intelsat and the package also includes the annual All-Star Game. Going in the reverse direction, Intelsat was the carrier for this year's centennial Le Tour de France bicycle race.

Shortly before NAB2004, Intelsat announced that it had completed its acquisition of the North American satellites and related customer contracts of **Loral Space & Communications**. The purchase added full coverage of North America to Intelsat's reach and expanded its customer base in broadcasting and cable television.

Another major player in international and domestic signal transport is **BT Broadcast Services**. At NAB2004, the company announced that it was launching the industry's first global end-to-end HD networking capability. BT Broadcast has its own trucks that it can roll into sports and entertainment venues, which are then connected to the company's network of international fiber pathways and satellite teleports.

For news backhaul, BT Broadcast announced **Mediarelay**, a partnership with **Pathfire** to enable international transfer of prerecorded segments for

news and entertainment programs. Also announced at the show was a partnership with **Media.net** to create an international network for sharing media for video and television productions. This partnership will provide a secure channel for filmmakers in London to use special effects from a Los Angeles-based company, for example.



Derek Smith, vice president of Vyvx, demonstrates the company's new HD VenueNet high-definition services.

Pathfire, the popular service for news feeds and backhaul in North America, announced the release of Version 3.0 of its Digital Media Gateway (DMG). Pathfire's DMG connects broadcast facilities with content providers, enabling them to access and manage content from their desktops.

Enhancements to DMG include the release of Browser DMG for News, which allows broadcasters to access the same Pathfire-delivered news content using a standard Internet browser. The company also said that it would release its new version of VNR Master Locator by the end of the year. Version 3.0 of VNR Master Locator will let news producers access VNR (video news release) and related material from various suppliers.

The big news for **PanAmSat** at NAB2004 was its sale by the **DirectTV** Group to **Kohlberg Kravis Roberts & Co.**, for a reported \$4.3 billion. As part of the transaction, DirectTV agreed to enhance certain agreements between itself and PanAmSat, in order to assure continuity of services for its Hughes Network Systems and DirectTV Latin America subsidiaries.

The company also celebrated its 20th anniversary at NAB2004, announcing new HD "anywhere-to-anywhere" services. Some of the content providers already signed up for PanAmSat's HD services are ESPN HD, HBO HD, HDNet, HDNet Movies, Cinemax HD, STARZ! HD, TNT HD, Bravo HD+, Encore HD and The WB HD. ■

What are you looking for?



To find what you're looking for, use ProductionHUB, the online resource and industry directory for film, television, video and digital media production.

ProductionHUB.com

Where Production meets the Internet.

The Professional's Source



JVC GV-DV5000U



Anton Bauer Quad Charger



ARRI SoftBank D1 Kit



Panasonic AG-DVC200



Shure UC Wireless System



Sony DSR-1500A



Fujinon A20X Video Lens



Leader S5870 Monitor



Miller Head

Sachtler Pedestal Tripod



Cool-Lux LK2333 Softlight Kit III



Panasonic DMR-T1040



Kata Camcorder Cases



The B&H on line
SuperStore
is open 24 Hours
for your Convenience



420 Ninth Ave.

Between 33rd & 34th Streets,
New York, N.Y. 10001

For Orders Call:

800-947-9907 • 212-444-5007

or Fax (24 Hours):

800-947-7008 • 212-239-7770

Store and Mail Order Hours:

Sun. 10-5, Mon. thru Thurs. 9-7
Fri. 9-1, Sat. Closed

We Ship Worldwide

EQUIPMENT EXCHANGE

Cameras • Camera Accessories • Receivers • Transmitters • Tapes • Carts • Reels • VCRs • VTRs • Tubes • Video Production Equipment • Help Wanted

TV Technology's Equipment Exchange provides a FREE listing service for all broadcast and pro-video end users. Brokers, dealers, manufacturers and other organizations who sell used equipment on an occasional basis can participate in the Equipment Exchange on a PAID basis. All free listings run at the discretion of the publisher. Call 1-703-998-7600 for details. Submit your free listings on your letterhead and state the make, model number, a brief description, sale price and complete contact information and mail it to: TV Technology, PO Box 1214, Falls Church VA 22041

USED EQUIPMENT



We buy, sell & trade
Broadcast Television Equipment
BUY OUT COMPLETE STUDIOS or Single ITEMS
IMMEDIATE \$CASH.

www.videoused.com

425-649-8848 Fax 425-649-8836

ANTENNAS/ TOWERS/CABLES

Want to Sell

Bogner B16UO antenna on TV chnls 28 & 29, vgc, return loss tested good, \$7000; Scala SL-8 on TV chnl 66, vgc, return loss tested good, \$500; 8' grid dish with mount, \$300; 10' solid dish with mount, \$400. A Martin, 218-765-4321.

AUDIO PRODUCTION

Want to Sell

Arrakis 500 SC analog mixer, 8 stereo chnls, ideal for small on-air production or new studio, like new, well maintained, \$800. A Martin, 218-765-4321.

Mackie CR1604 VLZ, \$950; Sony WRR862, WRT822, WRT847, new, \$3000; Apogee AD-8000 digital audio converter, \$2000; Otari DTR 90 DAT, \$2500; Lexicon 312 3-chnl amplifier, THX rated, \$1450; Lexicon 212 2-chnl amplifier, THX rated, \$950; Tascam DA-88 8-trk w/sync card, \$1250; Sony PCM-7040 DAT, new, \$3995; Bag End Infrassub 18" subwoofer, \$750. 818-788-4700 or www.tvprogear.com.

Symetrix 628 digital processor, \$575; Valley People "dyna-mite", \$175; Shure FP-42 audio mixer, \$425; Orban 622A, 1-chnl EQ, \$225; Sony MPX-2900, 21x4 audio mixer, \$1200. 203-322-3000.

Videotek ADA-16, 1 input, 6 output, balanced audio distribution amp, like new, \$75; Russco DA2418 4-output stereo distribution amp, balanced, xlt cond, \$80; Spotmaster AD1B 5-output, mono distribution amp w/manual, VU meter, xlt cond, \$50. A Ross, 425-775-8853.

CAMERAS

Want to Sell

- NEW - DEMO - USED -

* CAMERAS * VTR'S * EDITING EQUIPMENT * MONITORS *
Buy or Sell - Call us First.

ARMATO'S PRO VIDEO

www.armatos.com (718)628-6800 armatos@armatos.com
Service and Support is our Priority!



**SPACE IS
AVAILABLE!**

Sony DSR-300 digital video camera w/Canon YH18x6.7 18X zoom lens, new cond, 128 total hrs, incl PortaBrace CO-PC camera case, PortaBrace SCD-300 carrying case, Sony LC-424TH hard case, NRG 129004 AC pwr sply, Sony BP-L90 Lithium Ion batt, Sony BC-L50 batt chgr, Bogen 3191 tripod, Bogen 3066 tripod head, \$6800. redfrog3@earthlink.net.

Sony DXC-3000A 3-chip video camera, \$800. 202-285-3548.

Want to Buy

THE HI-TECH We buy
TRADING COMPANY it all!

Buy, Sell or Trade Used Video Equipment

1 Piece or Entire Studio

For more information call **1-888-463-9805**

CALL OR EMAIL FOR OUR EQUIPMENT LIST OR NEWSLETTER FILLED WITH WEEKLY SPECIALS.

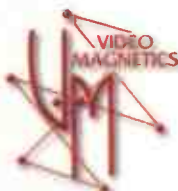
Visit us www.videoequipment.com or email us at hitech@videoequipment.com for more details. Calls are NOT answered by voice mail during business hours.



VIDEOMAGNETICS, INC.

We would like to thank everyone
who stopped by to visit us at the NAB

Full service specialists in Betacam
Cameras, Recorders and Studio decks
BETACAM SP, DIGITAL BETACAM, DV CAM



SINCE 1976

REFURBISHED

VIDEO HEADS AND SCANNERS

3970 Clearview Frontage Rd.
Colorado Springs, Co 80911

Toll Free: 800-432-3887

Phone: 719-390-1313

Fax: 719-390-1316

E-MAIL vmi@csprings.com

www.Videomagnetics.com

USED VIDEO/AUDIO EQUIPMENT



Bexel's BVG is the only call you ever need to make!

We offer the largest inventory of used
Broadcast Video and Audio equipment in the USA

Buy-Sell-Trade. Appraisal services. Fully interactive website with
complete inventory - updated daily.

800.842.5111

801 South Main Street Burbank, CA 91506

www.broadcastvideogear.com

CAMERA ACCESSORIES

Want to Sell

Canon J14aX8.5BIRS broadcast lens, B4 mount, 2X extender, internal focus, \$2500. Alex, 727-595-6050.

Cartoni Beta head & sticks. \$2350; Sachtler Video 18 head. \$2500; Sachtler DV 4 II System. \$950. 818-788-4700 or www.tvprogear.com.

Century Precision .8X zoom-thru wide angle converter w/85mm adapter ring & a 4x5.6 Sunshade w/one filter slot, barely used, like new, \$1500. Alex, 727-595-6050.

ENG/EFP Gear

prosourceBMI.com

TV TECHNOLOGY
COM

The names you trust
have the equipment you need!

**Dale Storz and
Catherine Obradovich**

Leading the Industry in...

- Resale of Broadcast Equipment, Quality Gear at the Best Price
- Always In Stock: Digital Betacam, Beta SP, DVCAM, DVCPR, U-MATIC SP, Scopes, DAs, TBCs, Patch Bays and Much More!

ph: 818.841.1242

fax: 818.688.3280

www.ResourceVideo.com

sales@resourcevideo.com

RESOURCE VIDEO

"Your Resource in the Broadcast Industry"



June New & Used Equipment Liquidation

Used items go through a rigorous reconditioning process and have a 60-day warranty.

Cameras, Tripods, Lights



Sony BVW 400a
with a Fujinon
15 x BEVM lens.
Only \$10,500

Sony DXF51 Viewfinder NEW	1,250
Sony SDI cards for DXC D50	2,395
Sony PVV-3 Beta back	3,500
Ari Softbank I kit NEW	2,495
Sachtler Vid18 hd&carbon legs	3,250
Sachtler Airped & 30 head	10,990
Sachtler 60 pod and wheels	3,000
Sachtler DV-4, legs & case	1,050
Cartoni Beta head, legs, case	2,350

Hi-Def, Digital & Beta SP VCRs



Sony DVW A500
Digi-Betacam with
new drum&head.
Only \$31,500

Sony BVW-70 or 75	7,000
Sony BVW 60 or 65	3,250
Sony BVW 50 Beta SP	3,500
Sony PVW 2800 Beta SP	6,500
Sony PVW 2600 Beta SP	2,750
Sony PVW 2650 Beta SP	3,250
Sony UVW 1800 Beta SP	5,000
Pana. AJ-HD2700 (rebuilt)	20,000



Sell your equipment now

Turn your surplus equipment into instant cash by selling it to us. We are always in the market to buy cameras, recorders, test gear, monitors, switchers, and Avids.

Editing Equipment



Avid 9000xl with
current board set,
latest software.
Only \$25,000

Avid Symphony-new version	35,000
Avid 73 gig LVD fixed drives	650
Axial 3000 edit controller	8,500
Sony Vegas on 3ghz PC	1,900
Media 100 i/LX	1,500
Media Raid 1.8 terabytes	2,500
Seagate 180gb LVD SCSI	350

Monitors - CRT & LCD & VGA

Sony PVM 1944Q Mon.	1,150
Sony PVM 1953md 20"	1,150
Sony PVM 14M2u	850
Sony PVM 8045Q Like new	850
Sony BVM-1911	1,400
Sony BVM-1310	895
Mistubishi 22" hi-res VGA	325

Audio Equipment



A new Sony
PCM 7040 dat
Only one of
these at \$4,995

Otari DTR90 Dat (t/c chase)	1,995
Sony DVW A510	1,250
Tascam DA-88 8-track	1,250
Apogee AD-8000 convertor	1,750
Wholer Amp 1APF	695
Sony new wrt862-wrt822-wrt847	3,000

DV, DV-Cam & DVCPRO VCRs



Sony DSR 2000
new b-stock with
1-year warranty.
Only \$9,500.

Sony DSR-45 NEW	3,750
Sony DSR-1500	2,900
Panasonic AJ-D950	11,950
Panasonic AJ-D955 NEW	15,950

3/4" U-matic & VHS VCRs

Sony VO 9850 with t/c	2,000
Sony VO 9800 with t/c	1,250
Sony BVU 950/tc/tbc	2,500
Sony BVU 900 with t/c	1,250
JVC BR-S622U S-VHS	1,250
Pluto DDR	1,500

Switchers and Routers



Sony DFS-700
with two channel
DVE and more-
only \$12,500

Sony 2000c digital switcher	17,500
GVG 200 Switcher	3,500
GVG 110 Switcher	2,500
GVG 10xl	495
Pesa Bobcat 2X12	495
Miranda Digipath-2 panels	5,000
Kramer 5X4 router	295

Test and Measurement



Tektronix TDS
3054 oscilloscope
just like new.
Only \$5,250

Tektronix 601m digital scope	5,250
Tektronix 1780R wfm/vc	4,995
Tektronix 1740a wfm/vc	2,500
Tektronix 1740 or 1750 wfm/vc	2,000
Tektronix 1720 & 1730 combo	2,000
Tektronix 300a component wfm	1,500
Tektronix 764 (new b-stock)	3,000
Leader 5850c & 5860c combo	2,250

Signal Distribution TSG&TBCs



Miranda Symphonie with
2xVDA-101i 1xSDM-101i
4xASD-111i 1SDM-201i
1SDA-121i Only \$7,500

Tektronix SPG-422	1,150
Tektronix TSG-271 PAL	2,500
Tektronix TSG-170a	1,250
Tektronix TPG-625 PAL	2,000
Tektronix ECO170a	6,250
Sony MPUF100 TBC/Fr Sync	1,250
DPS 275 TBC/Frame Sync	1,750
DPS 170 TBC	1,000
Leitch 6804 with 10-6801DAs	3,000

818.788.4700
www.tvprogear.com

TV PRO GEAR
Equipment, Service and Integration

CAMERA ACCESSORIES (WTS) Cont.

At 130 watt hours, the Frezzi BP14-MHEG provides 100% more run time than any other camera battery. Designed to handle high power requirements demanded by today's ENG and EFP crews, the BP14-MHEG operates a 25 watt camcorder for 5 hours. Key features include built-in Energy Gauge providing capacity readout and excellent reliability.

Frezzi
ENERGY SYSTEMS

Tel (973) 427-1160 Fax (973) 427-0934 www.Frezzi.com frezzi@frezzi.com

Call for more information

The Highest Capacity Batteries for Professional Broadcast



BP14-MHEG

00A Charger

Paglight - Superior Camera Lighting

Cool-running and lightweight construction
Soft, even light
Easy lamp changing
Spot to flood

250W 24V location fill-light

Quick-change 20-100W 12V halogen or HMI camera light

10W-35W 12V DV camcorder mini-light



Paglight L24



Paglight



Paglight M

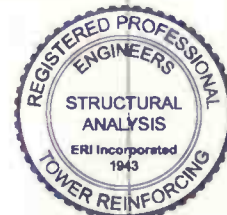
PAG
ADVANCED BATTERY SYSTEMS
USA
A Division of Ste-Man Inc.

E mail pagusa@aol.com Tel 1-888-PAGUSA-1 / 818 760 8265 Fax 818 760 8805 www.pagusa.com

SERVICES

Structural Analysis

ERI



Electronics Research, Inc.
7777 Gardner Road
Chandler, IN 47610

(812) 925-6000 | www.ERInc.com

EDITING EQUIPMENT

Want to Sell

Accom Axial 3000, good for hi-def, \$10000; Accom Axial 2010, \$2500; Sony RM-440, \$200; Sony RM-450, \$850. 818-788-4700 or www.tvprogear.com.

Mention this ad for free shipping on your first order!



30 day warranty standard (even on brokered items)

All formats represented from entry-level to high-end

Same quality, lower prices (a few examples)

PW-2800: \$5,250

HDW-700A: \$22,500

DSR-40: \$2,400

DSC-1024HD: \$2,500

contact Kevin@

www.broadcastbaron.com

800-303-9265

After Oct 27, 2004: 951-303-9265

Vinten Vision SD-12 tripod head & Sachtler single extension tripod legs w/floor spreader, \$1750. Alex, 727-595-6050.

DIGITAL EFFECTS

Want to Sell

Abacus A-52 DVE, single chnl, \$800; Abacus, A-53D-DVE, single chnl, key chnl, \$1800; Abacus, A-72 CG, 2-chnls, \$1500. 203-322-3000.

Abekas A72, \$2500. 818-788-4700 or www.tvprogear.com.

A VIEW TO SAVINGS

Great Gear at the Best Prices!

Why buy new when you can save thousands with our quality guaranteed used video equipment?

• View current stock online at www.usedvideogear.com

• Worldwide coverage. iExportmost!

• 30 day parts and labor guarantee

• We also BUY and TRADE. We pay immediate cash for single items and complete studios

We carry all major brands

Call us today for stock and pricing

Se Habla Español

Se Habla Español

ENHANCED VIEW SERVICES

Mon-Fri 9AM-5PM Tel: (951) 971-2916
www.usedvideogear.com • e-mail: sales@usedvideogear.com

What are you looking for?

- Production professionals?
- Production equipment?
- Production services?

Find it all at **ProductionHUB**

www.productionhub.com

RF CENTRAL

RF extreme

Completely Wireless Digital Microwave Systems

Digital ENG with Mobility for as low as \$2000 a month*

Purchase for \$49,000

::::: Complete System :::::
TX-RX, Auto-tracking!



Get the picture!

* Rental / Lease Agreement



jeff.winemiller@rfcentral.com

717-249-4900

www.rfcentral.com

EDITING EQUIPMENT (WTS) Cont.

ESE 261 SMPTE LTC generator w/manual, mint cond, \$95; Horita VLT-50, reads VITC & translates into LTC time code, like new, \$75. A Ross, 425-775-8853.

Media 100 i/LX on Mac, \$2000; Final Cut Pro Ver. 4 on dual Mac G5 w/AJA I/O, \$6000. 818-788-4700 or www.tvprogear.com.

LENS REPAIRS

Focus Optics. Service and repair of broadcast video lens. Fujinon, Canon, Nikon, Angenieux, etc. We have the fastest turnaround in the country. We also repair lens that have bad impact damage. Call Stuart at 800-234-lens or www.focusoptics.com.



Lens Service

Repair and Maintenance of SD/HD Zoom and Prime Lenses, Lens Adaptors and Accessories. We service Canon, Fujinon, Angenieux, Nikon, etc. Call 1.800.251.4625 or george@lvrrusa.com. EMERGENCY TURNAROUND SERVICE AVAILABLE.

SPACE IS AVAILABLE!

To advertise, call for current rates & deadlines!

703-998-7600, ext. 153.

BROADCAST STORE

BUY CONSIGN SELL

LA 818-551-5858 NY 212-268-8800
VISIT US ON THE WEB: WWW.BCS.TV

BROADCAST STORE

LOW PRICE GUARANTEE

ON SELECTED PRODUCTS*

BROADCASTSTORE.COM

BROADCAST SERVICE

TECHNICAL OPERATIONS, INC.

- Maintenance
- Equipment service for all your Broadcast and Industrial needs
- System Integration
- Multimedia Service
- A/V Rentals

454 West 41st Street • New York, NY 10036
(212) 465-1318 • Fax: (212) 465-2318

2235 Fairbanks Avenue • Winter Park, FL 32789
(407) 628-2555 • Fax: (407) 628-5506

<http://www.tech-ops.com>

email: support@tech-ops.com

Toll Free: 877-420-1600

LIGHTING

Want to Sell

Mole Richardson Type 2771 1K Molorama quartz cyc-light/direct mount frame, filter frame, hanger & C-clamp. 10 units, like new, \$175/ea; Dove System Controlmaster TS24-SS48 w/2 ETC L86/EM24 wall packs, \$1200 complete. 203-322-3000.



You're in the right place!



For more information, Call Caroline at 703-998-7600, ext. 153 or e-mail: chreelana@unaspub.com



LUCKE'S CAMERA SERVICE, INC.

Full-service pixel repair specialists

Pixel Repair

Lucke's Camera Service repairs the defective pixels on your camera at a substantially lower cost than buying a new or refurbished CCD block. We have developed software that can restore the defective pixels on the following SONY CAMERAS:

DSR-500, DNW-7, DNW-9
DXC-M7, DXC-537, 537A, 637
DXC-D30, D35
DVW-700, 709, 790
BVP-7, 7A, 70, 70IS, 90, 370, 375, 550,
BVP-570, 750, 950
BVW-300, 300A, 400, 400A, D600



We also work on the wide screen versions of these cameras. We are continuing our development in order to offer this exclusive service on other types of Sony cameras. In addition to the lower cost, choosing repair over replacement also maintains the "look" of your camera because there is no need for re-alignment.

We warranty our pixel repairs for one (1) year as part of our service.

1320 Terri Lane, Woodland Park, CO 80863

• Toll Free: 800-497-0341 • Phone: 719-687-9154 • Fax: 719-687-3284
E-mail: LuckesCam@aol.com • Internet Address: www.LuckesCamera.com

SIGNAL PROCESSING

Want to Sell

Dynair MINI-MOP video EQ, can equalize up to 4000' of coax, \$45; Dynair 1510B, 1 input, 4 output, video distribution amp, xint, \$50; Hedco VDF-110 rack frame containing 10 video DA cards each w/6 outputs, like new, \$250. A Ross, 425-775-8853.

Leitch Mix-7001 multi-function digital frame, \$500; Leitch FR-683 video DA w/4 Leitch FR-6804-1 w/ten VSE-6801 Serial DAs, \$3990; PDA-680s, \$300; Novasync 900S, \$900; Truevision Madras Transcoder, \$2000; DPS RC-265 remote cntrl, \$200; Snell & Wilcox MDD-500 multi-standard digital decoder, \$400; Sony BVX-10 component color corrector w/remote, \$600; GVG 9505A Source sync gen, \$400; GVG 9510A reference sync gen, \$595. 818-788-4700 or www.tvprogear.com.

Sigma BTS-414 b/b timing, \$100; Sigma VDA-100A, \$175; Lenco PCE-466 color encoder, \$100; ADC audio patch bay, \$200; ADC video patch bay, \$200; Tektronix 1410 sync gen, \$125; Sigma System 500 video & audio DAs, \$150; Evertz Edit Code Master 3700, \$225. 203-322-3000.



SWITCHERS

Want to Sell

GVG Ten X, \$800; Kramer 5x4 AV switchers, \$295; GVG 110, composite, \$3250; GVG 200-1 composite switcher, \$6250; Adrienne Electronics VS-1VAA video stereo audio switcher, \$400; Sigma Electronics Series SLX 16x1 video router, \$500; Sigma DVS-1616 serial digital router, \$1195; Dynasty router 32x32 composite video & audio, \$1000. 818-788-4700 or www.tvprogear.com.

Telemation TPS 8x2 8-input composite two bus switcher, fader, xint cond, \$125. A Ross, 425-775-8853.

TAX DEDUCTIBLE EQUIPMENT

A non-profit 501c3 Christian Ministry, Emmanuel House of Prayer Inc is desperately in need of your tax deductible donation of a BetaCam rcdv VTR or BetaCam SP, this equipment will allow our television ministry to continue, please help! Ray Lenahan, 954-421-1167 or Marcia Police, 954-255-1634.

A non-profit 501c3 Christian Ministry, seeks tax deductible donations of working pro grade audio/video cameras, tripods, lights, mics, monitors, soundboards, TBCs, switchers, editing & other equip for pre/post production, also need xmtrs, translators, transmission lines & antennas to be used in our Youth Media Ministry Training Program, all donations will receive a tax deductible receipt & God's blessings for their donations. Minister Dr. R. Hodges, 916-721-3285 or info@CFWM.org.

TELEPROMPTERS

Want to Sell

Affordable - Professional Teleprompters



SPACE IS AVAILABLE!

To advertise,
call for current rates &
deadlines!
703-998-7600,
ext. 153.

TEST EQUIPMENT

Want to Sell

Magni signal gen, \$500; Rod-L M25 ground continuity tester, \$895; Rod-L M100DC Hipot tester, \$1095; HP 1650A logic analyzer, \$900; HP 1650B logic analyzer, \$950; GVG 9505A source sync gen, \$395; GVG 9510A reference sync gen, \$395. 818-788-4700 or www.tvprogear.com.

Tektronix 601M serial component monitor, \$5250; Tektronix 1780R serial component wfm/vector, \$4995; Tektronix 1750 wfm/vector component, \$2250; Tektronix 1740A wfm/vector component, \$2500; Tektronix 1720 & 1730 combo w/case, calibrated, \$2350; Tektronix 764 digital audio monitor, \$3995; Tektronix 300a wfm component & composite, \$1500; Tektronix TDS 3054 oscilloscope, \$5250; Tektronix 2445A oscilloscopes, \$1050; Leader 5850C & 5860C wfm/vc, \$2250. 818-788-4700 or www.tvprogear.com.

Tektronix WVR500 waveform/vector rasterizer, like new, shows waveform & vector displays on any monitor/TV, line select, lines 6-40 NTSC or PAL standards, amplitude alarm capability, adjustable colors & intensity for display and graticle, comes with manual, \$900; Tektronix 149A NTSC test signal gen, \$400; Tektronix rackmount for (2) 1720, 1730 or any other 1700 Series waveform or vector monitors, like new, \$100. A Martin, 218-765-4321.

Videotek TVM-720, component, composite, waveform & vectorscope, \$1200. 203-322-3000.

TRANSMITTERS/EXCITERS

Want to Sell

TRANSMITTERS-Used TV transmitters from Harris, Acrodyne, RCA, Emcee, TTC. Antennas, microwave, feedline, etc. See transmitterwarehouse.com or call 954-792-7207.

NEW - REBUILT
TRANSMITTERS
1w - 1kw
LPTV - TV - FM TRANSLATORS
SELL - BUY - TRADE
DARWIN HILLBERRY
1-800-697-1024

EMCEE Communications

Same Name, Same Employees, New Ownership
Transmitters and Translators
MMDS, ITFS, UHF
100 to 1,000 Watts,
New Sales,
Repairs, Service,
Spare Parts
We Also Buy Used
EMCEE Equipment
(480) 315-9283

sales@emceecom.com
www.emceecom.com

Looking to buy or sell used equipment?

Look no further,
you're in the
right place!



Call today for
current
rates & deadlines!

703-998-7600, ext. 153

TRUCKS

Want to Sell



2002 GMC Chassis

Wolf Coach Uplink Truck



Rebuilt - \$165,000
or make an offer!

\$5,500 a month with 36 month Lease

For more details 717-226-3535 jeff@psen.com

TUBES

Want to Sell

Thomson TH331 used 100% power when taken out of service, \$980; 4CX250BC used tube in gd cond & made 100% power when last used, was kept as standby, \$85; 4CX250 BC, new tube, \$120; 9017 good used tube w/new fingerstock kit, tube in gd cond and made 100% power when last used, was kept as standby spare, \$1200. A Martin, 218-765-4321.



Check
out our
web site!

E-mail:
cireland@imaspub.com
to advertise.

Going Somewhere?

Make sure that TV Technology goes with you!

Send change of address
information to:

TV Technology
P.O. Box 1214
Falls Church VA 22041

And never miss an issue!
e-mail: kkeenana@imaspub.com

EMPLOYMENT

HELP WANTED

TV TECHNOLOGY

RECRUITMENT ADS

GET THE JOB DONE!

For information, rates and deadlines, contact Caroline Freeland

Phone: 703-998-7600, ext. 153
Fax: 703-671-7409
or e-mail: cfreeland@imaspub.com.

Photographer/Editor: Boston's NBC affiliate seeks news photographer/editor with 2-5 years experience in medium/major market. Thorough knowledge of all ENG practices, demonstrated ability to work under pressure, meet deadlines; ability to operate Microwave trucks preferred. Non-linear editing a plus. Broadcast Communications degree and clean driver's license required, knowledge of New England preferred. Send tape and resume to Human Resources, WHDH-TV, 7 Bulfinch Place, Boston, MA 02114. An EOE.



www.tvtechnology.com



weather.com

DIGITAL VIDEO ENGINEER

This position will maintain and test development systems, as well as verify quality of digital video signals and compressed digital video formats. In addition, this position is responsible for system design and changes related to the test and development systems used by the Engineering department. Must have knowledge in UNIX, Mac OS, and MPEG technology. **Required:** 10 years of experience with video systems, and a minimum of 5 years working with digital video including experience with analog to digital conversions as well as format conversions.

Come join our team! Candidates must apply online at www.weather.com/jobs.

The Weather Channel, 300 Interstate North Parkway, Atlanta, GA 30339

ADVERTISERS INDEX

While every care is taken to ensure that these listings are accurate and complete TV Technology does not accept responsibility for omissions or errors.

PAGE	ADVERTISER	WEB SITE	PAGE	ADVERTISER	WEB SITE	PAGE	ADVERTISER	WEB SITE
21	Accom	www.accom.com	48	ERG Ventures Co. Ltd.	www.erg-ventures.com	102	Pixel Instruments	www.pixelinstruments.tv
7	ADC Broadcast	www.adc.com/broadcast	95	ESE	www.es-web.com	72	Pixelmetrix	www.pixelmetrix.com
66	Aheadtek	www.aheadtek.com	33	Euphonix	www.euphonix.com	23	Prime Image	www.primeimageinc.com
34	AJA Video	www.aja.com	32	Focus Enhancements	www.firestore.com	122	Production Hub	www.productionhub.com
98	AJA Video	www.aja.com	92	For-A Corp	www.for-a.com	93	ProMax Systems	www.promax.com
130	Altronic Research	www.altronic.com	94	Fortel DTV	www.fortelDTV.com	109	ProSource Film & Video	www.prosourcebmi.com
16	Analog Way	www.analogway.com	104	Frezzolini Electronics	www.frezzi.com	56	Quartz Electronics	www.quartzus.com
39	Angenieux USA	www.angenieux.com	9	Fujinon	www.fujinon.com	79	Radyne ComStream	www.radn.com
55	Anton Bauer	www.antonbauer.com	96	Hamlet	www.hamlet.us.com	83	Riedel Communications	www.riedel.net
108	APW Enclosure Products	www.apw.com/enclosuresolutions	57	Harmonic Inc.	www.harmonicinc.com	47	Rohde & Schwarz	www.rohde-schwarz.com
110	ATI	www.atiaudio.com	1	Harris	www.broadcast.harris.com	45	Sachtler Corp. of America	www.sachtler.com
5	Avid Technology	www.avid.com/broadcast	119	Hotronic	www.hotronic.com	76	Scopus	www.scopus.net
69	Axcera	www.acxera.com/tvtech	121	IBIS	www.ibistv.com	31	SeaChange International	www.schange.com
112	Axon Digital Design	www.axon.tv	14	IDX Technology	www.idx.tv	89	Sencore	www.sencore.com
50	Azden Corporation	www.azdencorp.com	17	Intelsat	www.intelsat.com	71	Sennheiser Electronics	www.sennheiserusa.com
67	B&H Photo-Video	www.bhphotovideo.com	109	J.L. Cooper Electronics	www.jlcooper.com	117	Shotoku USA	www.shotoku.tv
123	B&H Photo-Video	www.bhphotovideo.com	61	JVC	www.jvc.com/pro	10-11	Sony Broadcast	
109	BDL Autoscript	www.dblautoscript.com	54	K5600, Inc.	www.k5600.com		& Professional Company	www.sony.com/xdcam
30	Belden Wire & Cable	www.belden.com	18	Knox Video	www.knoxvideo.com	75	Sound Devices	www.sounddevices.com
15	Bell Canada Enterprises	www.enterprise.bell.ca	77	Leader Instruments	www.leaderusa.com	99	Spencer Technologies	www.spencer-tech.com
98	Bext	www.bext.com	100	Leightronix	www.leightronix.com	108	Spencer Technologies	www.spencer-tech.com
90	Bittree, Inc.	www.bittree.com	35	Leitch	www.leitch.com/nexio	113	Star Case Mfg. Co., Inc.	www.starcase.com/rack.htm
38	Bogen Imaging	www.bogenimaging.us	74	Linear Acoustic	www.linearacoustic.com	25	Telecast Fiber Systems	www.telecast-fiber.com
109	Bron-Kobold USA	www.bron-kobold-usa.com	113	Link Electronics	www.linkelectronics.com	40	Telemetrics	www.telemetricsinc.com
78	BUF Technology	www.buftek.com	70	Linx Electronics	www.linxelectronics.com	86-87	Teletream, Inc.	www.teletream.net
62	Calrec Audio Ltd.	www.calrec.com	103	Lowel Light	www.lowel.com	13	Telex Communications	www.rtsystems.com
42	Camplex Corporation	www.pro-xi.com	116	Markertek Video Supply	www.markertek.com	49	Thales Broadcast	
36	Canare Cable	www.canare.com	109	Marshall Electronics	www.lcd racks.com		& Multimedia Inc.	www.thales-bm.com
19	Canon Broadcast	www.canonbroadcast.com	114	Matco	www.matco-video.com	98	Torpey Time	www.torpeytime.com
53	Canopus	www.canopus.com	105	Media Links Systems	www.medialinks-systems.com	106	Tower Elevator Systems, Inc.	www.townernetwork.com
99	Century Precision Optics	www.centuryoptics.com	115	MicroFirst Engineering	www.microfirst.com	113	Vbrick Systems	www.vbrick.com
99	Cobalt Digital	www.cobaltdigital.com	80	Modulation Sciences	www.modsci.com	20	Venue Services	
98	Compix Media	www.compixmedia.com	81	Modulation Sciences	www.modsci.com		Group/National Mobile TV	www.vsg.tv
46	Comprompter	www.comprompter.com	88	Network Electronics	www.network-electronics.com/us	63	Video Technics	www.newsflow.tv
52	Computer Modules	www.siveo.com	111	Noren Products	www.acoustilock.com	91	VideoFrame	www.videoframesystems.com
108	Compuvideo Test Instruments	www.compuvideo.com	82	Nucomm, Inc.	www.nucomm.com	113	Videoquip Research	www.videoquip.com
97	CPI/Eimac	www.eimac.com	85	NVISION	www.nvision1.com	108	V-Soft Communications	www.v-soft.com
41	DAWNco	www.dawnco.com	65	O'Connor Engineering Labs	www.ocon.com	132	Wheatstone	www.wheatstone.com
108	Digidata Controls Inc.	www.airshowtv.net	44	Omneon Video Networks	www.omneon.com	37	WitTel Communications	www.vvix.com
101	DK Audio A/S	www.dk-audio.com	73	Opticomm Corporation	www.opticomm.com	24	Wohler Technologies	www.wohler.com
99	DSC Labs	www.dsclabs.com	2	Panasonic Broadcast	www.panasonic.com/p2	68	Wohler Technologies	www.wohler.com
64	Editware	www.editware.com	43	PESA Switching Systems	www.pesa.com	107	Wohler Technologies	www.wohler.com
99	Electronics Research, Inc.	www.eriinc.com	109	PESA Switching Systems	www.pesa.com	98	Xintekvideo	www.intelvideo.com
29	Ensemble Designs	www.ensembledesigns.com	113	Peter Lisand Corporation	www.peterlisand.com	131	Zaxcom, Inc.	www.zaxcom.com

ADVERTISING SALES REPRESENTATIVES

U.S. MIDWEST, SOUTHWEST,
NEW ENGLAND & CANADA:
VYTAS URBONAS
1-708-301-3665
Fax: 1-708-301-7444
vytas@imaspub.com

U.S. NORTHWEST
PAUL DACRUZ
1-707-537-7769
Fax: 1-707-537-7739
pdacruz@imaspub.com

U.S. SOUTH EAST AND
MID-ATLANTIC:
MICHELE INDERRIEDEN
1-301-870-9840
Fax: 1-301-645-8090
minderrieden@imaspub.com

PRODUCT SHOWCASE
CLASSIFIED ADVERTISING:
CAROLINE FREELAND
1-703-998-7600
ext. 153
Fax: 1-703-671-7409
cfreeland@imaspub.com

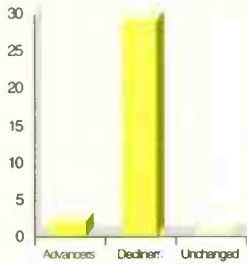
EUROPE/MIDDLE EAST/
AFRICA:
DEREK GREGORY
+44-1761-420-123
Fax: +44-1480-461-550
dgregory@imaspub.com

JAPAN:
EIJU YOSHIKAWA
+81-3-3327-2688
Fax: +81-3-3327-3010
callesms@msn.com

ASIA/PACIFIC:
WENGONG WANG
+852-2787-4727
Fax: +852-2787-4041
wgg@imaschina.com

TV TECH STOCK INDEX

WIN-LOSE RATIO



To have your company listed, contact Deborah McAdams at dmcadams@imaspub.com.

TOP ADVANCERS BROADCAST STOCKS (April 16 - April 30)

None

TOP DECLINERS BROADCAST STOCKS (April 16 - April 30)

Paxson -16.67%
Acme -11.46%

TOP ADVANCERS TV STOCKS (April 16 - April 30)

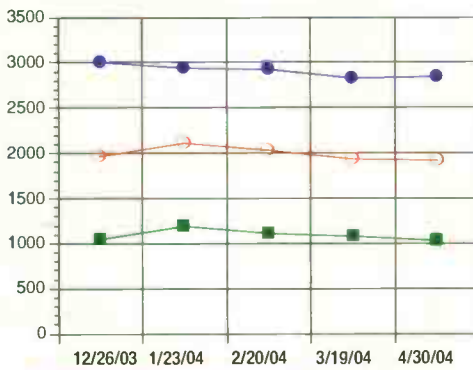
Leitch +3.75%
Scientific-Atlanta +2.63%

TOP DECLINERS TV STOCKS (April 16 - April 30)

Harmonic -23.67%
Parkervision -18.57%

TV TECH TREND

TV TECH AVG. NASDAQ COMPOSITE BROADCAST AVG.



1051	1192	1110	1077	1033
1973	2124	2038	1940	1920
3006	2939	2921	2822	2843

TV Tech STOCKS as of April 30

Company Name	52-Week Range	Apr. 16	Apr. 30	% Change
Avid	26.14 - 59.77	50.63	47.66	-5.87%
Belden	11.65 - 22.87	17.82	17.49	-1.85%
Ciprico	4.35 - 7.21	4.91	4.71	-4.07%
Harmonic	3.18 - 13.75	8.62	6.58	-23.67%
Harris	27.40 - 51.19	48	45.05	-6.15%
Leitch	N/A	5.07	5.26	3.75%
LSI Logic	4.50 - 12.90	8.85	7.44	-15.93%
ParkerVision	5.25 - 12.30	5.87	4.78	-18.57%
Pinnacle	6.60 - 13.80	8.95	7.88	-11.96%
S-A	15.34 - 38.59	31.56	32.39	2.63%
SeaChange	7.42 - 21.88	13.45	11.62	-13.61%
Storage Tech	21.96 - 31.12	27.04	26.27	-2.85%
Tektronix	18.00 - 34.89	31.86	29.6	-7.09%

COMPANY FOCUS

Political Ads Fuel Broadcasters' Q1

A healthy increase in Q1 political advertising in key battleground states helped fill the revenue coffers of two major broadcast groups while a third group struggled to keep costs in line.

Paxson Communications, the nation's largest station group reported a Q1 loss of \$48.68 million (89 cents per share), based on revenue of \$83.58 million in the quarter ending March 31. This compares to a loss of \$185,000 (35 cents per share) on revenue of \$82.67 million for the same quarter a year ago.

The company blamed the higher loss on several factors including a \$6.29 million extinguishment of debt and \$14.37 million paid as dividends on mandatory redeemable preferred stock. Paxson CFO Richard Garcia said he expects operating costs to rise in the second quarter due partly to an increase in DTV build-out expenditures.

Sinclair Broadcast Group reported \$158.3 million in net broadcast revenues, a 4 percent

increase compared to the same period a year ago. The Baltimore-based station group cut its net losses to \$2.3 million (3 cents per diluted share), down from \$3.9 million (5 cents per diluted share) in Q1 2003.

Sinclair executives noted that the quarter got off to a slow start due to severe weather on the east coast and late political ad spending but said that a late surge in automotive and presidential election ad spending became more robust as the quarter progressed. The company expects to invest \$27 million over the next several years in transmitter, building and tower projects.

Granite Broadcasting posted \$26 million in net revenue in Q1, a 5.4 percent increase over the same period last year.

"Net revenue was positively impacted by an incremental \$1.1 million of political advertising, the vast majority of which was generated in just three of the six states in which we provide local news: California, Illinois and Minnesota," said Granite COO John Deushane.

—Tom Butts

Broadcast Stocks as of April 30

Company Name	52-Week Range	Apr. 16	Apr. 30	% Change
Acme	6.68 - 10.21	7.59	6.72	-11.46%
Belo	21.62 - 29.90	28.68	28.46	-0.77%
Emmis	18.00 - 28.65	24.16	23.32	-3.48%
Entravision	8.00 - 11.88	9.5	9.13	-3.89%
Fisher	43.95 - 52.50	51.45	50.4	-2.04%
Granite	1.33 - 3.70	1.7	1.6	-5.88%
Gray	10.55 - 16.22	15.37	14.82	-3.58%
Hearst Argyle	22.08 - 29.25	27.25	26.25	-3.67%
Nexstar	26.00 - 31.10	12.5	12.31	-1.52%
Lin TV	10.63 - 14.50	23.44	22.49	-4.05%
Paxson	20.23 - 27.49	3.6	3	-16.67%
Sinclair	2.60 - 6.99	13.31	12.36	-7.14%
Liberty	9.63 - 15.43	47.46	44.9	-5.39%
Univision	40.46 - 51.79	34.94	33.85	-3.12%
Young	27.19 - 40.05	18.22	17.7	-2.85%
Tribune	44.28 - 53.00	49.28	47.88	-2.84%
Meredith	41.59 - 53.47	51.57	50.94	-1.22%
EW Scripps	80.75 - 109.30	108.56	105.55	-2.77%

ALTRONIC RESEARCH INC.

Performance By Design



MANUFACTURER
OF RF COAXIAL LOAD RESISTORS.

DUMMY LOADS FROM 1 KW TO 1500KW,
AVAILABLE IN AIR, WATER OR SELF
CONTAINED HEAT EXCHANGERS.

HIGH POWER NON-REACTIVE CERMET
RESISTORS FROM 1 OHM TO 20 MEGOHMS.



ALTRONIC RESEARCH INC.

P.O. Box 249 • Yellville, Arkansas 72687 870-449-4093 • Fax: 870-449-6000

E-mail: altronic@mtnhome.com Web Site: <http://www.altronic.com>

WHEN WILL SOMEONE MAKE A 2 CHANNEL ENG WIRELESS SYSTEM?



NOW!

ZAXCOM PRESENTS A REVOLUTIONARY NEW
2 CHANNEL DIGITAL ENG WIRELESS SYSTEM
WITH AUDIO QUALITY, TRANSMISSION RELIABILITY AND ADVANCED
FEATURES NO OTHER SYSTEM CAN MATCH.

F E A T U R E S

- Transmission of two full bandwidth audio channels with one receiver and one transmitter using one 200 KHz RF channel
- No intermodulation
- Audio quality superior to FM wireless
- Encrypted transmission
- 100% digital modulation
- No demodulation of interfering signals
- Digital dropout protection
- Clothing noise reduction algorithm
- Transmitter remote control

To find out more please visit www.zaxcom.com

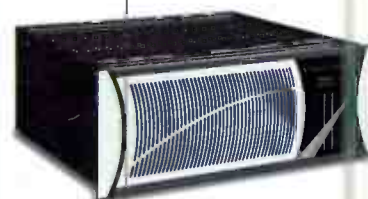
230 WEST PARKWAY, UNIT 9, POMPTON PLAINS, NEW JERSEY 07444
PHONE: 973.835.5000 • FAX: 973.835.6633

World Radio History

Digital Audio Network Router

The Bridge

The Bridge Router can hold all the electronics you'll need for a small console: I/O cards, mix engines, and DSP processors. Naturally it can also have automatic fail-over DSP and CPU cards to keep you on-air. You can expand the system with a simple cage-to-cage interconnect.



It's not just a Digital Console, It's AN ENTIRE AUDIO INFRASTRUCTURE

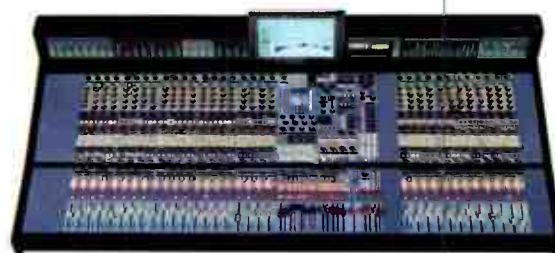
YOU CAN START with a simple AES router with analog and digital inputs and outputs. From there you can add logic I/O cards and scheduling software; you can link multiple master bridge cages together to achieve thousands and thousands of I/O ports; you can create a custom system that includes multiple smaller remote satellite cages— with everything interconnected via CAT5 or fiberoptic links.

BUT THAT'S JUST THE BEGINNING: you can also add mix engine cards, interface to your automation system; you can choose from two different WHEATSTONE series control surfaces (D-9 or D-5.1), each specially configured for production room, on-air or remote truck applications. We also provide a full complement of Ethernet protocol remote router control panels, as well as a complete family of plug-in modules that interface the routing system to existing Wheatstone digital and analog standalone consoles.



**The D-9 is
Compact yet Powerful:**

It can route, generate and monitor 5.1 surround signals and produce simultaneous 5.1 and stereo master signals for your dual broadcast chain. The console also provides extensive, rapid communication paths throughout your entire Bridge system. Motorized faders and control setting storage and recall make show-to-show transitions fast, easy and accurate.



Wheatstone Knows Live Audio. The D-5.1 is loaded with MXMs, foldbacks, and clear easy-to-read displays. You'll have all the power you need when the news breaks! Its intuitive layout helps your operators work error-free, and it can handle and generate all the 5.1 content and simultaneous stereo capability any large or medium market station could need.

 **Wheatstone**

the digital audio leaders

600 Industrial Drive, New Bern, North Carolina, USA 28562
tel 252-638-7000 / fax 252-635-4857 / sales@wheatstone.com



Made in USA

www.wheatstone.com

Copyright © 2003 by Wheatstone Corporation