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CNBC Cuts the Cord to Cover NYSE

Finance cable network moves to wireless coverage

by Tom Butts

NEW YORK

Ever since it launched in 1989, CNBC has probably done more than any other medium to bring the sights and sounds of Wall Street to TV viewers. However, advances in digital technology are allowing the network to now get even more "up close and personal" with the stock exchange.

In September, the cable network, which, during the daytime, broadcasts real-time financial news from around the world, began conducting interviews during trading hours on the floor of the New York Stock Exchange, the main trading market on Wall Street. This meant that the days of watching Maria Bartiromo gazing into the lens of a

CNBC, PAGE 14

DirecTV Nears Local HD Launch

LG tapped for MPEG-4 tuner box

by John Merli

WASHINGTON

DirecTV subscribers in some markets soon will begin receiving locally broadcast HD signals from their satellite dishes, proving that sometimes the shortest distance to local HD content is a straight line to space.

The DBS rollout comes closely on the heels of DirecTV's recent decision to tap LG Electronics as its chief supplier of HD set-top boxes, a move that is at least partly based on LG's proprietary video compression technology, according to both firms. LG said its HD-capable boxes will be configured for MPEG-4 satellite broadcasts.

The new LG box (Model H20) also will have the ability to process MPEG-2, which is how DirecTV's national HD and SD programming is currently delivered. The box also has a built-in ATSC tuner for terrestrial reception, since DirecTV will not carry all DTV stations in any market, at least to begin with. Eventually, all DirecTV subscribers will be converted to MPEG-4, although the conversion likely will not be completed until mid-2007.

The LG HD STB/receiver will provide up to 1080i picture resolution and be able to access Dolby 5.1 surround sound. Satellite HD, SD and terrestrial ATSC via the tuner will be integrated with DirecTV's current channels into one electronic program guide. The box offers full screen, stretched, letterbox, pillar box and cropping features, and the ability to customize viewing for native resolution HD and SD formats.

In October, DirecTV began testing its local HD services in the Detroit market. Los Angeles, New York, Chicago, Philadelphia, San Francisco, Boston, Dallas/Fort Worth, Washington, D.C., Atlanta,

DIRECTV, PAGE 8

everything needed to do the job

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Lens technology advances

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Charles W. Rhodes

Digital TV

In August, this column took up some aspects of the measurement of DTV transmitter power output. You might wonder why I used the phrase "DTV transmitter power output" instead of "effective radiated power," since ERP appears on your license... p. 26

Craig Johnston

Production Manager

I have a friend who has a particular discipline when it comes to dress ties—he always owns the same number of them, never more, never less. When he buys a tie for himself or receives one as a gift, he gives one to Goodwill.
It seems to me... p. 32

Jay Ankeney

Focus on Editing

Starting this month, editors will be presented with the most radical evolution in editing user interfaces since GUIs began to replace timecode-based EDLs back in the 1980s.
Sure, change is good, and innovation is liberating but... p. 34

FROM THE EDITOR

No More Schedules

The act of watching television based on a set schedule may not be dead yet, but it looks like it's on life support.

Remember in the '80s when it was predicted that VCRs would end the TV schedule as we knew it? Many predicted the same outcome when DVRs arrived in the late 1990s. And while the increasing penetration of those devices in the American home is having an impact on the way we watch television, several developments over the past few months have accelerated and expanded the options viewers now have to set the TV schedule on their own time.

Take the newest iPod, for example. Steve Jobs knew that it wasn't enough to introduce a video iPod on the market without compelling content. That's why many considered the real news that came out of Cupertino was Apple's deal with Disney to offer commercial-free downloads of popular primetime programs for 99 cents apiece.

Not to be outdone by ABC, CBS and NBC announced similar deals earlier this month. Commercial-free versions of popular CBS programs like "CSI" and "Survivor" will be available for 99 cents on Comcast's VOD offering within 24 hours after airing, while NBC programs will be available, also for 99 cents, on a similar schedule on DirecTV.

This is just the beginning of a trend that will accelerate as we move into 2006. What this means for the traditional broadcaster is yet to be seen; the concept of a shared viewing experience will still be there for fans of the Super Bowl, Olympics and other major sporting events, but the definition of a traditional primetime viewing audience is quickly being revised and even abandoned.

Meanwhile, TV Guide has redesigned itself to adapt to this new world; gone are the local listings in favor of national network and cable schedules, squeezed into hard-to-read grids in the back of the book.

These trends will continue whether we like it or not, but it does beg the question: What will we talk about around the office water cooler on Monday morning?

Tom Butts
Editor
tbutts@imaspub.com

LETTERS

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

DA Converters Need Performance Requirements

Dear Editor:

Congress will shortly set a firm date for the turn off of analog TV transmissions. At that time all of the millions of analog TV sets that are not connected to a cable or a satellite system will go dark. The political ramifications of not addressing this loss of service has convinced Congress to include some kind of financial subsidy to allow consumers to acquire a yet to be developed, digital to analog converter box.

If the taxpayer's money is to be spent to subsidize these converter boxes, Congress needs to instruct the FCC to set out minimum performance standards for the boxes to qualify them for the subsidy. Nothing that the federal government buys or finances is done in the "blind." Usually specifications are set forth that assures the buyer, the taxpayer, that the item purchased or financially supported actually does the job for which it is intended. This is done by creating a set of purchase specifications.

It is not therefore an unreasonable request that now that Congress is setting up a subsidy program for digital to analog converter boxes that they also take steps to ensure that the devices actually do the job; that is, allow reception of the digital signal using a simple indoor antenna when the broadcast signal is stronger then the minimum level defined by the digital system itself. This, after all, is what consumers can do today with their analog sets. Without such a requirement, the market, given the attitude of the CEA, may be flooded with inferior performing devices that can only disappoint the end user and spell the end of a viable over-the-air TV service, not to mention the political fallout from the government spending millions of dollars for inferior products.

The technology now exists to allow for indoor reception with simple antennas. It is known as the fifth generation chip. The CEA and its president, Gary Shapiro, may argue that the cost is too high to do it right but in consumer level quantities the cost can be made no more than what might be found in an inferior piece of equipment. Cost is just not a factor! CEA recently pronounced that only 12 percent to 20 percent of TV households rely on over-the-air TV. Surely, CEA would like to see all of those households be forced to buy new TV sets. How nice for the set makers and how unfortunate for the politicians who set the deadline for the end of analog over-the-air TV. Luckily for Mr. Shapiro, he does not have to stand for re-election.

Nat Ostroff
Vice President, New Technology
Sinclair Broadcast Group
Hunt Valley, Md.

Government Material

Dear Mario:

I enjoyed your column in the Oct. 19 issue of TV Technology ("It's Not the Frequencies, Stupid") regarding our government officials.

It has been my observation that people in government are not very bright.

The reason I know is because many years ago, I knew a girl who really didn't have much going for her. She wasn't very bright or pretty and she was overweight. And she came from a bad family. But she was nice to me! I asked her to marry me and she turned me down.

Well, I wondered whatever happened to her and I looked her up. I thought she was maybe dead or in jail. I found her and she is working for the federal government.

I decided to honor her by posting a picture of her with an old quad VTR (VR1000) on Chuck Pharis' Web site (*www.pharis-video.com*). It's in the viewer's photos section.

Always enjoy your articles.

Lou Johnson
Atlanta

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FCC Rules on EAS, DTV Tuners

WASHINGTON

The FCC earlier this month issued a ruling on the nation's emergency alert system, rejiggered a couple of tuner mandate deadlines and updated the list of out-of-market stations eligible for DBS carriage.

The FCC Report and Order on EAS consisted primarily of deadlines for digital implementation. As of Dec. 31, 2006, digital broadcast TV and radio; digital cable and satellite radio will have to comply with current EAS rules, i.e., compulsory carriage of nationwide, presidential alerts. DBS has until May 1, 2007.

Based on the staff description of the R&O, local and state level compliance will continue to be voluntary—an arrangement considered by several EAS experts to be a source of disarray in the system. Municipalities and law enforcement agencies can issue Amber Alerts and other local emergency notifications through EAS, but there are inconsistencies about who contacts TV stations and how alerts are activated. In some cases, Amber Alerts—child abduction notifications—are still circulated via fax machine. In other potential emergencies involving weather, hazardous chemical spills or wildfires, TV station news operations are often on top of the situation before authorities have thought to activate EAS.

The EAS system is a relay arrangement in which 24,000 local broadcast and cable systems monitor 550 other broadcasters who monitor 34 radio stations for national alerts. Because no national alert has ever been issued in the 50-year life of the system, and because local and state compliance is not required, receivers occasionally gather dust. In 2003, the FCC issued 80 fines for failure to install or maintain EAS equipment.

Michael Copps was the only commissioner who openly questioned the efficacy of having a voluntary EAS system.

"We need to realize that although EAS is a national system, it also affords state and local authorities the capability to provide emergency information on everything from weather emergencies to Amber Alerts that save abducted children. So we need to decide who exactly, and at what level, can activate this system," he said. "And does it make sense that employment of the system remains voluntary in most instances?"

A Further Notice of Proposed Rulemaking was initiated to deal with extending EAS capability to wireless and fiber-optic video services, and how to accommodate hearing and vision-impaired individuals and non-English speakers.

The FCC also bumped up the deadlines for when all TVs have to include the capability to receive and decode digital broadcast signals. As of March 1, 2007, all analog TVs, VCRs and DVRs will have to include digital tuners. Previously, the deadline was July 1, 2007, and it did not include sets 13 inches or less. Both the broadcast and the consumer electronics lobbies were satisfied with the proclamation, although the broadcast chief got in a poke at the other guys:

"We're pleased that Chairman Martin and his colleagues have established an even more aggressive timeline for DTV tuner compliance in smaller television sets. This pro-consumer action sends the unmistakable signal to set manufactures that further delays in rolling out DTV receiving equipment are unacceptable," said NAB President Eddie Fritts.

The Consumer Electronics Association was more conciliatory. A spokesman there shared the following statement:

"We are pleased that the Commission acknowledged the need to provide certainty to manufacturers by accepting March 1, 2007 as the date by which TV receivers 13- to 24-inch sets must contain digital tuners," the spokesman said. "This time period provides the certainty manufacturers need to plan and produce products to help complete the DTV transition."

Deborah D. McAdams

Federal Frequency

Sprint, Cable Make 'Quadruple Play'

NEW YORK

In a major convergence deal, Sprint Nextel has teamed up with Comcast, Time Warner Cable, Cox Communications and Advance/Newhouse Communications to offer a "quadruple play" of voice, video, wireless and broadband services.

As part of the 20-year deal, three of which are mutually exclusive, the companies must offer a $200 million financial commitment, half of which will come from Sprint and the other half from the other companies.

Beginning in 2006, the companies will offer any combination of bundled services including video, wireless voice and data services, high-speed Internet and cable phone service. They plan to develop co-branded wireless devices that will provide new and unique features that integrate cable and wireless service all on a single device.

Through Sprint retail stores, cable outlets and third-party distributors, the companies will sell and market these co-branded products and services.

Additionally, they plan to sell Sprint's nationwide high-speed Power Vision network and EV-DO-enabled (evolution data optimized) handsets and service packages that will enable customers to remotely program their home DVRs from a cell phone and use a single voicemail box that serves both home and wireless phones. The technology also provides new calling plans that allow for unlimited calls between home and the wireless device and more, according to Sprint Nextel.

Marketing

P2 Gets National Debut

SECAUCUS, NJ.

The PBS crime documentary "Gangland Graveyard" was shot with the tapeless Panasonic DVCPRO P2 camcorder, the first time P2 has been used to shoot a nationally televised program.

Described as "Six Feet Under" meets "The Sopranos," the true crime investigation features interviews with Joe Pistone (aka Donnie Brasco) and FBI special agents who solve murder mysteries. "Gangland Graveyard" premiered its fifth season Nov. 16.

On the camcorder, a PC card slot is provided to accept an MPEG-4 proxy video encoder and other options. Proxy video—available in three choices—may be recorded to P2 cards and SD memory cards; this proxy data recording and wireless LAN functions facilitate the transfer of low-resolution proxy AV streams with wireless ease for subsequent viewing on a producer/editor's PC or PDA.

Filmmaker Larry Engel shot in DVCPRO50 24p with Fujinon (superwide) and Canon (normal) lenses and edited with Final Cut Pro 5.

"What really sold me on the SPX800," the filmmaker said, "besides the fact that its tapeless, is the media proxy feature. This meant I could immediately have a low-res image with burnt-in time code that the executive producer could screen."

Production

New HD Chip Launched

GENEVA, SWITZERLAND

STMicroelectronics has announced the availability of it second generation high-definition AVC and VC-1 decoder.

The STB7109 supports greater compression ratios provided by AVC and VC-1 high definition content by embedding a high-speed Ethernet interface, enabling it to be a central part of the home network in cable or satellite devices, IP and terrestrial set-top boxes, DVRs, DVD players and recorders, home gateways and media servers.

The STB7109 also includes a high-speed interface to connect two devices together.

Additional connectivity options are provided by a serial ATA (SATA) interface and a USB2.0 port.

For security the chip supports Windows Media DRM 10 and the secure video processor standards, which both allow digital rights to be passed between consumer devices.

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Avid Launches Next Generation of Unity

Company touts ISIS' 'infinite' scalability, simplified IT-based design

by Tom Butts

NEW YORK

Avid Technology last month debuted a new version of its Unity storage system media production and broadcast. Avid Unity ISIS (Infinitely Scalable Intelligent Storage) uses a distributed intelligence architecture that avoids bottlenecks that can occur in storage systems that use centralized architecture. The new design enhances workflows by offering unlimited storage headroom, resiliency and vast client connectivity.

INFLUENCED BY NATURE

Comparing the design of ISIS with parallels seen in nature, Avid CEO David Krall described the new system as almost "lifelike."

"It's adaptable... it's got layered protection, it's intelligent and it's vast," Krall said at an unveiling in New York. "We think ISIS is the first in its class of an entirely new breed of storage architecture. It's a system that mimics nature to give incredible power with incredible simplicity."

Version 1.0 of Avid Unity ISIS comes equipped with storage capacity of up to 64 TB per system with the ability to link multiple Avid ISIS Engines to one another; connectivity of up to 100 clients working in real-time over standard Gigabit Ethernet, native compatibility with available Ethernet technologies, including products from Cisco Systems, and the flexibility to hot-swap any storage component, even in the midst of data transfer, to ensure uninterrupted access to information for all users within the facility.

"ISIS architecture solves the complexity of shared storage workflow in a way that gives it incredible resilience but maintaining incredible simplicity," Krall said. "With ISIS, we take four core elements: the disc, the CPU, memory and a switch and then we take those four elements and repeat them over and over to build a more powerful array."

DESIGN ADVANTAGES

Krall emphasized the advantages the ISIS hardware design.

"Our rigid blade design minimizes vibration," he said. "We're improving workflow, eliminating all internal cables, integrating switching. We're minimizing everything that could possibly go wrong."

Among the first customers for Unity ISIS is CBS News, which announced a multimillion dollar to install Avid digital newsroom systems in its New York City headquarters and London news bureau last fall. The first stage is currently underway and the entire project is expected to be complete by December 2006.

CBS began working with Avid shortly after Unity was introduced in 1999 and, being ahead of the curve in terms of storage demands, determined that any system it acquired would be "maxed out on day one," according to Frank Governale, vice president of operations for CBS News.

"Avid ISIS scalability was so important to us, because we'll have an infinitely growing [library] of low-res material for browsing. Our intention is to keep the high-res [material] on the production server on the ISIS system for two weeks to a month and then we'll push it to an archive; low-res will remain on ISIS indefinitely so we need to be able to grow that storage indefinitely."

At CBS News, 40 Avid Newscutter Adrenalines are connected to the Avid ISIS along with 20 ingest Airspeed channels and 18 Airspeed playout channels which comprise three "studios," (clusters of Airspeeds), for a total of 64 TB.

"We figure that will get us two weeks to a month's worth of storage in a regular news environment and probably 6-8 months of browse," Governale said.

Version 1.0 of Avid Unity ISIS comes equipped with storage capacity of up to 64 TB per system.

On the post production side, Avid announced that Avi-Drome, a leading Netherlands-based post production company is also installing Unity ISIS.

Pricing for Avid Unity ISIS begins at $106,995 and is now shipping. ■

DirecTV

CONTINUED FROM PAGE 1

Houston, and Tampa will be launched in early 2006.

THE TWEAKING STAGE

Ambitious in scope, with every local HD broadcaster in the country targeted for eventual carriage, DirecTV's plan will come in several deliberate stages in order to more easily and quickly tweak the system along the way where necessary.

"Initially, we'll just carry the four primary network stations in HD in each market—NBC, CBS, FOX and ABC," said DirecTV spokesman Robert Mercer. "Customers in these markets will require MPEG-4 receiving equipment, and a Ka/Ku-band dish, since these channels are being broadcast from Ka-band orbital slots at 103 and 99 degrees."

The HD dishes are slightly larger than the typical 18 to 20-inch DirecTV dish.

DirecTV plans to launch its new Spaceway 2 satellite in late November, affording it the additional spectrum to continue adding local channels through 2006. Within the next year, the company will launch two more satellites, and by the end of 2007, Mercer said his firm should have the technical capacity to carry the HD signals of all 1,500-plus local broadcast stations (though not multicast channels, per se), as well as about 150 national HD channels.

As an incentive to subscribers, consumers will be able to receive a DirecTV HD box/receiver for free with a $200 mail-in rebate. (Customers must agree to a two-year commitment to the HD package, which is about $11 monthly.) For customers who subscribe to a DirecTV package that already includes local analog broadcast channels, the HD stations will be added at no extra charge. The DBS firm also is offering new customers three months of its national (non-local) HD package for free.

Mercer does not foresee any major stumbling blocks to securing rights to local HD signals in the months ahead.

"The process is proceeding smoothly and we expect to offer the four primary broadcast networks in HD in each of the markets that we're launching this year."

LG Electronics, for its part, views its team-up with DirecTV as a significant stride towards the nation's gradual digital conversion, with a revised cut-off date now likely to be early 2009. That would make the start-to-finish DTV transition (using November 1998 as the launch date) slightly more than 10 years in duration.

The new MPEG-4 LG box (Model H20) will have the ability to process MPEG-2, which is how DirecTV's national HD and SD programming is currently delivered.

The new DirecTV boxes also represent the market launch of LG's celebrated fifth-generation VSB chip, which has achieved success in overcoming severe multipath environments (see "Is DTV Reception Problem Solved?, Sept. 8, 2004).

"What should be of special interest to local broadcasters is that these boxes are the first to incorporate LG's fifth-generation VSB chipsets for the ATSC tuners, which most broadcasters believe significantly improve indoor reception," said John Taylor, vice president of government relations at LG Electronics USA.

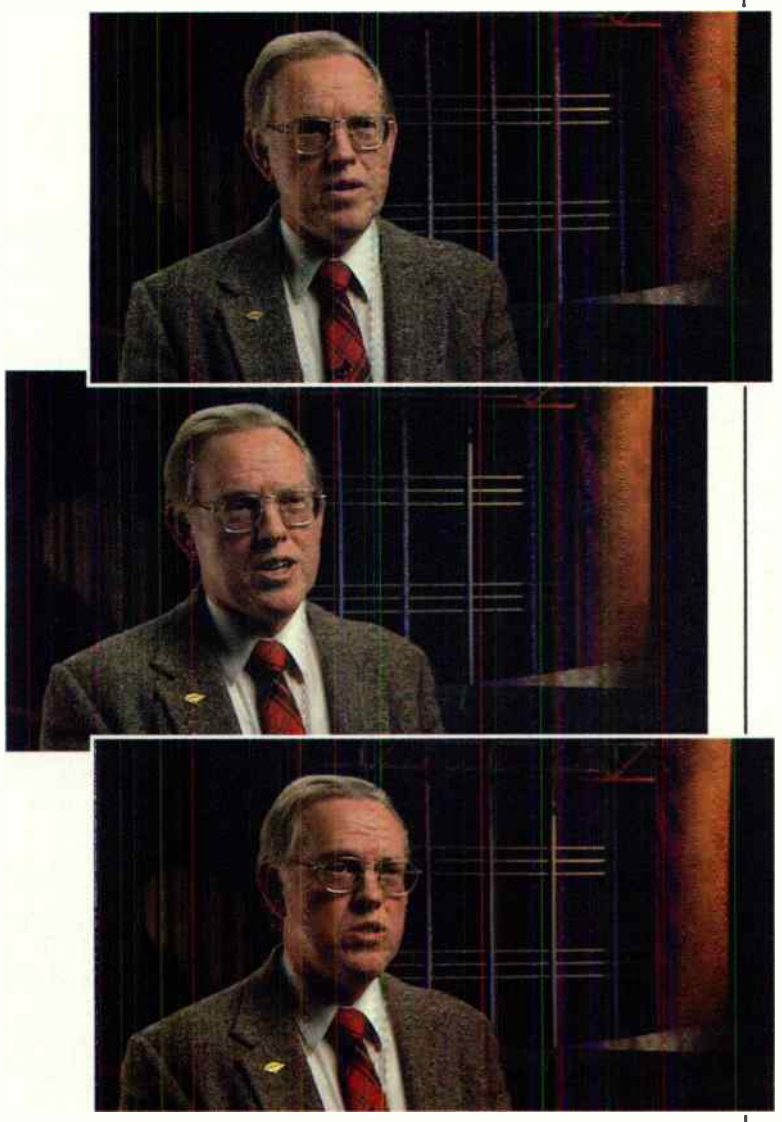
The built-in DTV antenna will allow viewers to capture some, if not all, local HD stations off-air, such as WB and UPN affiliates. LG's fifth generation VSB chipset won a CES Innovations Award in 2004.

The new HD boxes will be distributed under the DirecTV brand name and feature the DBS service's electronic program guide, security software, digital outputs (HDMI/HDCP) with simultaneous component/composite output, and a Linux operating system and USB port.

To date, DirecTV's most popular packages include every NFL game played each week. This season, more than 120 of those games are being fed by DirecTV in 1080i. ■

SONY

THE NEW WAY TO BROADCAST.



"We've been putting in three times as many head hours on deck as the typical commercial station."

Jim Gale,
Director of Engineering, KNME

Optical disc transforms the economics at KNME.

Tape-based studio operations are the old way of broadcasting. The XDCAM™ disc-based system is the new way. "The biggest challenge in public television is finding operating dollars, rather than equipment dollars," says Jim Gale, director of engineering and operations at Albuquerque's KNME. "We have to consolidate and become more efficient. We were desperate for a format that was very economical to not only use but maintain. That's a big reason why we fell in love with the XDCAM format. There are such great savings in operations. The media only costs $30 and lasts 50 years; there's no better bargain than that."

"Another reason we chose XDCAM decks: they have only three moving parts. We've been putting three times as many head hours on our decks as the typical commercial station. That's because we program every minute of the day, just like a network operator would do. We need a format, a video transport that is very reliable and easy to maintain. XDCAM delivers."

"The tests we've run have been perfect. In operations, there are no flaws whatsoever. I expected that when I saw the quality of the engineering in the product. And I've never seen *Mr. Rogers* look so good, because it looks like the satellite feed. It's really, quite frankly, the most exciting thing I've seen in my 30-year career."

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WSHM Ignites Local News

Springfield station first to air with Grass Valley production system

by Sanjay Talwani

SPRINGFIELD, MASS.

As broadcasters continue to consolidate and streamline news operations, WSHM, the CBS affiliate in Springfield, Mass., has started up a news operation from scratch, using Thomson Grass Valley's Ignite system to do things they couldn't have done just a few years ago.

"We would not have done news in Springfield if we could not have figured out a way to do it efficiently," said Tom Shelburne, WSHM operations manager.

And WSHM did it with little outside help and in less than 3,000 square feet in an office building. Local newscasts began Oct. 12.

The Ignite system essentially links news production with WSHM's news production system with the master control at WFSB, WSHM's sister station in Hartford, Conn.

"Basically [Ignite] gives us the ability to operate an entire control room with one person, from video transitions to audio transitions to the CG to playback of servers, sound effects—all that is being triggered thru the Ignite system," Shelburne said.

Victor Zarrilli, director of engineering for WFSB and WSHM, says that the growth in technology provided the only way for the station's parent company, Meredith Broadcasting, to start up a news operation profitably.

"We leveraged technology to put a great product on the air," he said. Ignite, the Associated Press ENPS newsroom system, and Vizrt graphics system—for lower-thirds and animation—work in tandem to get the product on the air with essentially one "technical producer" to operate the Ignite.

A BIG-MARKET LOOK

Ignite allows WSHM to pre-build effects and streamline the newscast's look using Transition Macro Elements, or timeline commands, sent to individual modules. "Basically you're going to know how your show is going to look before you even go to air because you have pre-programmed everything into your system," Zarrilli said.

At WSHM, reporters use Panasonic DV100 minicams (and Anton Bauer Stasis mounts) for fast, light, newsgathering; even sales execs carry the small, lightweight DV100s and can shoot B-roll as they travel around town. Reporters come in from the field, ingest at a central ingest station, and edit their segments on Grass Valley's NewsEdit NLE system. Edited content is then sent to the Grass Valley NewsQ Pro playout system, all driven by ENPS and the producer.

"It's amazing what we did in the space that we have," said Shelburne.

By sending the Ignite output to master control in Hartford, the station is able to leverage the resources from WFSB, such as satellite feeds. Through a little ingenuity, the DAL (Harris) automation system activates a voicebox at WSHM that cues the control room during commercial breaks ("90 seconds... 60 seconds...") taking the human factor out of yet another step.

"We would not have done news in Springfield if we could not have figured out a way to do it efficiently."

—Tom Shelburne, WSHM

SON OF PARKERVISION?

Alex Holtz, director of IPS product management at Grass Valley, says the Ignite system is also installed at KABC in Los Angeles, and interest in the product is rising. And despite some similarities, he notes that Ignite is not an automation system.

"In a lot of cases, people have a tendency when they hear term 'automation,' they automatically associate that with a time-driven system," he said. "We're an event-driven system." So it's applicable not just to news but to other live productions such as special events or election coverage.

What has become the Ignite product began to some degree with Grass Valley's acquisition of ParkerVision's Video Business Unit in 2004.

"Our philosophy from day one has been single-workflow, multi-distribution," said Holtz. This strategy provides the broadcaster with a workflow that touches content only once, and allows them to grow from traditional over-the-air distribution to a multi-distribution model that creates more revenue opportunities. Unfortunately, the former ParkerVision business was divided between TV and wireless with wireless getting the majority of the funding to move forward, said Holtz. With Thomson's Grass Valley division, they were able to integrate the vast realm of Grass Valley's switching and routing technology, enhancing the platform's hardware engine and funding the development of an entirely new modular software architecture.

"We basically learned from our installed base to create a new architecture with improved operational control, plus an easier to manage user interface," he said. "Since the acquisition, we've been able to change it dramatically, and take all the lessons learned to create the next generation."

These improvements also include the modular and scalable architecture. The system comes with from one to four M/Es and is scalable from 32 to 96 video inputs and 24 to 96 audio inputs, providing options for markets of all sizes. The system has an integrated video switcher, audio mixer and teleprompter. Optionally, the system can be purchased with CameraMan studio camera systems and the SHOT Director multicamera controller that can control up to 16 cameras. Broadcasters can also choose to integrate with third-party robotics such as Vinten. Ignite also integrates with CGs, still stores, video and audio servers, closed captioning systems, and most everything else in a newsroom.

"What Ignite does for small broadcasters is give them the ability, with limited resources, to look like mid-market stations," Holtz said. "When we get to the mid-market and high-market stations, then they're all about adding more dayparts without adding additional resources."

"It's more than just replacing the manual operations, it's really a strategic platform in a sense," he said, noting that Grass Valley plans to add modules for features like Internet video, 3G mobile video, and interactive television.

As for bringing operators up to speed, Holtz said Grass Valley has a philosophy of crawl, walk, and run. Operators need to first learn to use the efficiencies of the seamless workflow from acquisition to newsroom to control room. All the relevant data and information should be easily accessible to the operator for quick action; then they can expand on what they do

"Once operators learn and operate the system, we find that they never want to go back to a manual process," said Holtz. "Not only are they excited again about their work, but now they have a higher level of expertise. So whether they're a small, medium or large market, they have full creative control over the environment. If you talk to any of our operators, you'll get the same type of feedback. They say this makes production fun and exciting again." ■

(L to R): Adam Brooks, technical producer (Ignite operator), John Chambers, technical producer (Ignite operator), Michael McCarthy, on-site engineer

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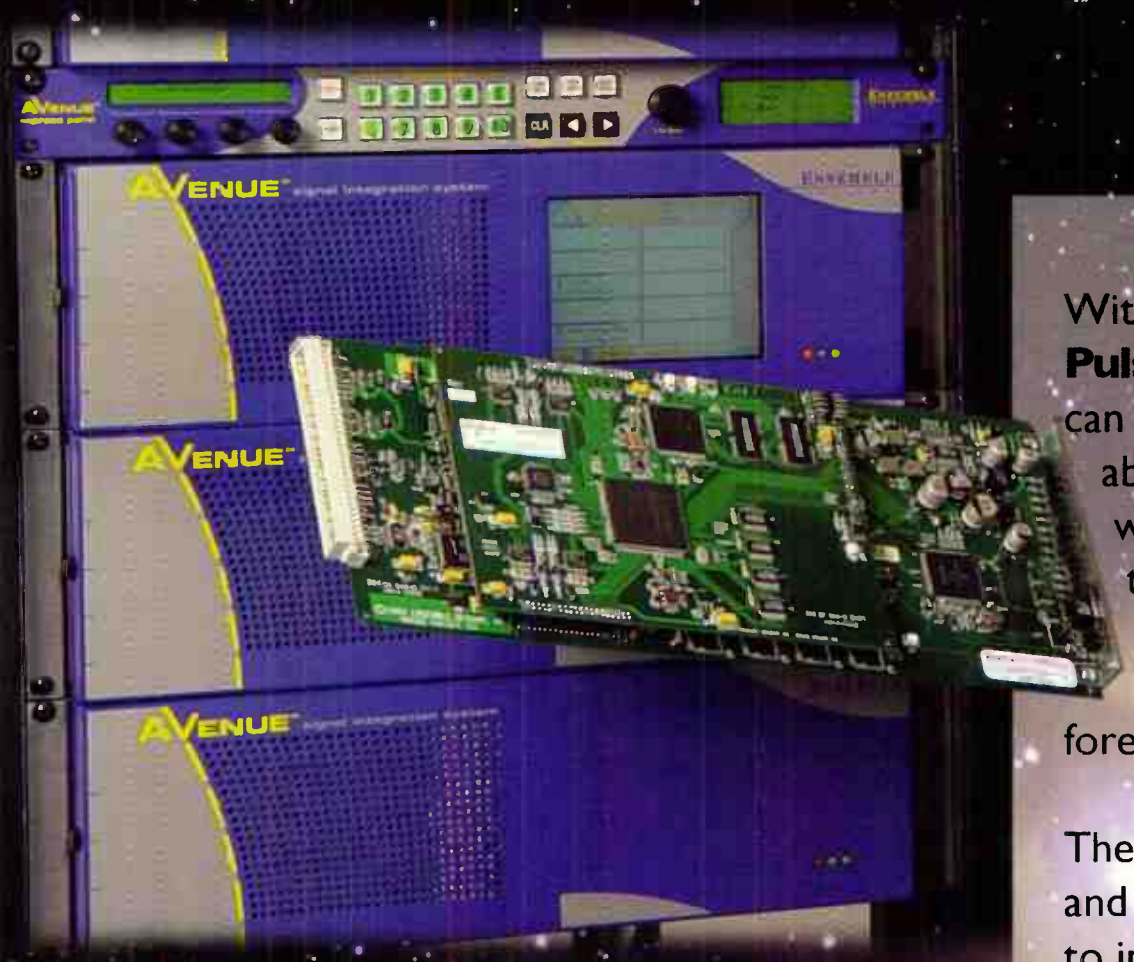

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Lensmakers Focus on New Technologies

Wider, more versatile and cost-effective lenses debut

by Craig Johnston

SEATTLE

Lens makers are racing ahead on a variety of fronts to bring new technology to the video camera market.

MULTITASK

Those seeking the economy of the so-called "pro video" grade of lenses will benefit from new introductions from Canon. The company's pro-video line will now include a 20-times zoom that widens to 8.5mm, and a wide-angle zoom that widens to 6mm.

"It's really a combination of the kind of glass that we can now use that wasn't available a few years ago, since there are now hundreds of types of glass we can use in pro-video lenses," said Gordon Tubbs, assistant director of the Canon Broadcast and Communications Division.

The Canon YJ20x8.5BKRS

"Coatings have improved over the years that allow us to reduce chromatic aberrations, distortions, those kinds of things."

Tubbs described the 20-times lens, formally named the YJ20x8.5BKRS, as a do-everything lens designed for corporate video, wedding photographers and even standard broadcast applications. He pointed out that while the 20-times zoom range is impressive in a lower cost lens, the wide-angle capabilities are where the real magic is.

"Typically I've always had a saying that 'wide-angle' and 'economical' never are used in the same sentence, because it's probably the most expensive feature in a lens we can design," he said. "This lens has a wide angle of 8.5mm, which is where our broadcast lenses were not too many years ago, yet we're still doing it for a lens that lists for just over $4,000."

The YJ13x6BKRS wide-angle zoom, is a 13-times zoom ratio that widens to 6mm. "It wasn't all that many years ago that our widest angle broadcast lenses were 6mm," said Tubbs. "This is a lot of bang for the buck."

PRECISION FOCUS ASSIST

Fujinon introduced Precision Focus Assist several years ago, designed to do just exactly that: assist the operator maintain focus in a tough, tight shot situation.

"When you're trying to follow a race car coming toward you and maintain focus, for example, or a horse at a horse race, it's very difficult to keep it in focus, especially in HD," said Dave Waddell, marketing manager for Fujinon.

Fujinon lenses captured last May's Kentucky Derby in HD.

He said operators are starting to accept the technology, though some were wary at first. "The first thing out of the box when you show it to a camera operator is 'I don't need that,' he said. "And then you start to explain to them what it actually is for, it's not to take their job away, it's not an automatic focusing system where you turn it on and you just pan the camera. It's there for them to be able to check focus, to assist them in focusing and help them do their job. If they don't want to use it they can turn it off. But in certain situations it's to their advantage to use it."

The focus assist technology uses a beam-splitter that allows two CCDs to sample the image coming through the lens. "The CCDs are mounted optically equidistant from the optical plane," Waddell said. "So as the focus changes, or the contrast changes, the output of these two CCDs change. And so when they're equal, the lens is focused. There's a computer in there that looks at the output of the two chips, and when they're equal it sends a signal that says that it's focused."

Waddell pointed to the sports market as early adopters, as well as stations using robotic cameras for their news shows.

VISION III

Debuting at NAB2005, the Thales Angenieux/Vision III V3 technology is designed to yield a 3D like effect on the television or cine screen without need for special glasses. They've now joined with rental house Bexel to jointly market V3.

"When the customer buys a V3-ready lens from us, they have an agreement with V3 for the leasing of the scanner, and they take the scanner, plug it into the lens and do whatever they want to do," said Thales Angenieux U.S. Sales Manager Chris Beauparlant.

The first V3-ready lens from Thales Angenieux is the 26x. "We started with the 26x because of its versatility for both studio applications, dramatic applications, and also documentary applications," said Beauparlant. "It's the most versatile lens out there."

Although the V3 effect works throughout the lens' zoom range, it works best on the tighter end.

"You see something profound from the tightest end of the focal range because that's where you can make the most dramatic differences," Beauparlant said.

Since the operator can vary the effect by adjusting V3, early adopters are doing a lot of experimenting.

"If you don't want it to be seen you can turn it up so much that it will have a little effect, or you can crank it way up so it will have a very dramatic effect," Beauparlant said. "That's if you stay steady. If you start to pan around of course, your eye is only drawn to the center, you don't see what's going on."

The first V3-ready lens from Thales Angenieux is the 26x.

CINE VERSUS VIDEO

Carl Zeiss has long specialized in cine lenses. Mike Bravin, chief technology officer for Band Pro, which markets Zeiss in the U.S., pointed to a number of differences between a cine lens and a standard video lens.

"Cine lenses are designed to make a picture the size of your house," he said. "ENG lenses are designed to make a picture the size of a window in your house, a TV set.

"A video lens is designed to fit on a camera that goes on your shoulder, and you have to be able to go from your minimum focus to your infinity focus with less than one rotation of the focus mechanism."

That's why video lens focus rings rotate about 150-degrees from minimum to infinity, where a cine lens will rotate around 300-degrees to allow for much more accuracy. Weight is another area that separates the two category of lenses.

"For ENG purposes, a lens needs to be physically lighter," he said. "So it has to have fewer elements, so there's fewer opportunities to correct aberrations. "It also has to meet a certain price-point, and it has to be physically compact in order to work well for ENG.

"A cine lens isn't constrained by that. The cine lens has to have as many pieces of glass as are necessary in order to get the most correct and square image, so you're not going to have pin cushion or barrel distortion. To minimize the aberrations as much as possible, it takes more care with the design. Those lenses are going to be heavier, they're going to be bigger, they're going to be more expensive." ■

Ikegami's HDK-79EC CMOS Camera:
SHOOT TO THRILL In Any HD Format.

HD

CMOS image sensors are now being incorporated into many of Ikegami's popular broadcast cameras. These include the new HDK-79EC, a multi-format, full digital HDTV camera system, supporting both triax and SMPTE fiber camera cable. CMOS is a "new" technology with many advantages over traditional CCD image sensors, including the ability to create "any flavor" of HDTV image (progressive or interlace) while also achieving superior picture quality, a wide dynamic range, and no vertical smear. Each pixel of the CMOS sensor has its own amplifier so it can perform amplification on a pixel basis. CMOS sensors allow for smaller camera size (with drive, amplification and 14-bit A/D inside the sensor itself), decreased power consumption, high-speed (fast frame-rate) capabilities, and multi-native format capabilities. CMOS imaging advantages are also available in several other new Ikegami cameras, including the new HDN-X10 EditcamHD, a tapeless HDTV camcorder, and the new HDL-40HS High-Speed HD box style camera, which can produce images at 1080/60p and 720/120p for slow-motion applications in conjunction with an EVS server.

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CNBC

CONTINUED FROM PAGE 1

distant camera were over; now reporters could provide a "traders-eye" view of the floor, bringing the hustle and bustle of the stock exchange into the living room and boardroom.

In a hectic environment like the NYSE, however, wired cameras were out; the network had to find a way to transmit from the floor without its wires getting in the way of traders.

COFDM CURE

Enter RF technology in the form of COFDM. The network employed a microwave-based system from U.K.-based Link Research to wirelessly broadcast audio and video from the floor. Steve Fastook, vice president of technical and commercial operations for CNBC became familiar with COFDM several years ago when NBC was looking for a way to provide more flexible coverage of the Macy's Day Thanksgiving Parade in New York.

"We had always used wireless cameras but they were the traditional camera with the pointer," Fastook said. "It was very clunky, however. And it was almost impossible to keep a good signal."

Using COFDM, however, allowed the network to broadcast from Broadway without requiring line of sight, freeing up production crews to get closer to the action.

"We got coverage as far uptown and downtown as we could possibly go and it didn't matter if it was line of sight or not," Fastook said. "It was so good that we decided to use the cameras for air; we didn't even set up the traditional analog microwave. That revolutionized the show."

NBC has since adopted COFDM for wireless capabilities throughout its newsgathering division. Bringing the technology to the floor of the New York Stock Exchange took a little more time, however. The influx of numerous new wireless technologies has turned the NYSE building into "RF hell," according to Fastook.

"All the traders carry these little wireless devices, plus there are special cell phones in there," Fastook said. "It's a very difficult RF environment."

Working with the NYSE after hours, CNBC and Link Research engineers used spectrum analyzers to test their system on the floor, using a special program created by the NYSE that sends out packets of false trades and then analyzes them for dropped packets.

"We took our cameras, fired them up and took them all over the place, any place, any possible scenario to see if there was any loss of packets or anything outside the spectrum, and then we locked ourselves into a frequency and hard-programmed the camera to that frequency."

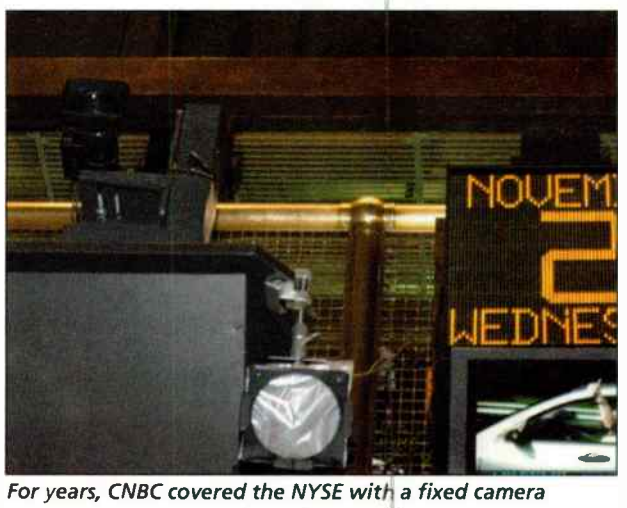
Early results from the trading floor were spotty however.

"There was so much interference in the air that we were getting very minute digital hits," Fastook said. "Our transmitter is a 10 milliwatt device, it's extremely low power, so the receiver's very sensitive. It would only happen when people were out there trading." Engineers fixed the problem by installing block filters around the operating frequency, and "we've been rock-solid ever since," Fastook said.

"We're very pleased to have taken this technology to the field for CNBC," said Newlin Warden, director for Link Research. "The stock exchange has thousands of wireless devices that they use for trading and it was absolutely critical that we not interfere with that operation."

FIRST, DO NO HARM

Currently, reports from the show floor occur during peak times of the day, around the opening bell and during mid-day, but the network hopes to expand its presence on the floor in the near future. And while the camera crew may not be currently eligible for combat pay, the risk of broadcasting from such a busy place has its own special hazards. Along with the cameraman and correspondent, a "spotter" is used to prevent accidental collisions.



For years, CNBC covered the NYSE with a fixed camera overlooking the floor. The network still uses the camera combined with its wireless coverage.

"The traders are very deliberate," Fastook said. "They're heading from one place to another, they don't really care what's in their way. They move quickly and they don't really look around, so we have to watch them. The number one thing is that we cannot affect what's happening on the floor."

Audio is also of particular concern. Producers use a combination of wireless lavs and stick mics but propagation delays can cause audio sync problems.

"We have to make sure that no matter what we do, we run the mic through the wireless so that it locks in sync with the video," Fastook said. "Otherwise you have lip sync problems. So if you use a stick mic or lav, it's received on the wireless."

Prior to September, CNBC's coverage of the NYSE floor consisted of a fixed camera attached to a wired robotic head on a perch overlooking the main trading floor. The camera is still used to intercut with the floor coverage, to provide perspective. This prompted some creative thinking on the part of producers who want to combine footage from both wired and wireless sources.

"It's okay as long as we know that the audio goes through the same path as the camera, or that the shot is wide and far enough apart that you can make out the details," Fastook said. "It's only half a second, but if you were doing closeup interviews and you were intercutting between a wireless and wired [source], you'd see a difference in audio sync."

Reaction from the NYSE has been very positive, according to CNBC correspondent Bob Pisani, who noted that the coverage has twice drawn kudos from NYSE CEO John Thain.

Although Internet trading hasn't made the stock exchange obsolete, trading organizations such as the NYSE are more aware of the need to promote themselves these days.

"This is a business and there is serious competition with electronic exchanges and the NASDAQ," Pisani said. "They've got to show people that this is a working, dynamic, functioning place."

The new setup has invigorated CNBC's coverage, echoed Fastook.

"We're bringing energy and presence to [the trade]," he said. "We're letting the world see the energy these guys have, which I think is their biggest value." ■

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Wireless Mics Search for RF Haven

Technology beefs up open frequency scanning

by Claudia Kienzle

HAMILTON, N.J.

For a more dynamic production style, TV shows increasingly depend on wireless microphones because they make it easier for on-camera talent to move around freely and for cameramen to follow them wherever they may go.

Viewers have become accustomed to seeing on-camera talent wearing a small body pack transmitter on their belt which transmits audio from their wireless microphone—such as a head-worn, hand-held, or lavaliere type—to a wireless receiver that feeds it to the audio mixer in the control room or truck.

Most wireless microphones rely upon the RF spectrum between 470 and 806-MHz in the UHF band. But vendors warn that this celestial real estate is becoming scarce as DTV stations, cellular phone providers, and other licensed users crowd in, leaving little room for wireless mic users. To meet this challenge, they've added more powerful scanning tools to help users find open frequencies.

SPECTRUM SATURATION

"The crowded RF environment is fast becoming a big problem," said Mike Torlone, marketing manager for AKG Acoustics in Nashville, Tenn. "In the next two to three years, it will become increasingly difficult for wireless mic users to find open frequencies to use because available spectrum is being auctioned off. Also, since DTV stations consume their entire 6-MHz channels, this leaves no room for wireless mic users to squeeze their signals in around the edges of the channels as they could with analog TV."

By only recognizing the rights of licensed users who paid for spectrum, the FCC's bandwidth allocation strategy leaves little room for unlicensed wireless mic operators and the billions of dollars of equipment they use everyday," Torlone said.

AKG's WMS 4000 wireless microphone system is designed to operate in this challenging, multi-user environment. It delivers the maximum RF output an unlicensed device can have, making it easier for the receiver to pick up the signal. WMS 4000 receivers are available in four separate 30-MHz bands, each of which contain 1,200 frequencies.

"This enables a minimum of 50 WMS 4000 wireless systems to operate simultaneously without interference," Torlone said. "This receiver also has powerful, built-in software that helps users locate usable frequencies by calculating inter-modulations and other types of interference using location data users input using the front panel interface."

RF WORLD

One of the most challenging RF environments is the Super Bowl where nearly 1,500 wireless microphones need to operate simultaneously. For the half-time show alone, performers use more than 24 wireless mics as well as in-ear monitors.

To coordinate scarce RF resources, SBE provides a frequency coordinator who uses a spectrum analyzer to sweep every transmitter coming into the arena, and if they have an open, interference-free channel, their antenna gets a red flag. Professional Wireless Systems also has served as RF coordinator for the pre-game, half-time, and post game entertainment for the last 10 Super Bowls. RF coordinators set-up their operations in an area of the stadium they call "RF World," which serves as wireless microphone central on Super Bowl day.

"It's real tight and nerve-wracking," said James Stoffo, wireless specialist at Professional Wireless Systems in Orlando, Fla. "During the half-time show, we often have to turn off wireless parabolic dishes and other sideline devices in favor of the entertainers' mics. This minute-by-minute coordination ensures flawless audio production."

BEHOLD THE HOLOPHONE

For the hi-def coverage of Super Bowl XXXIX in February, Stoffo said they modified the "Holophone" H2-PRO Surround Sound 5.1 channel microphone system by Toronto-based Rising Sun Productions Ltd to make it wireless. During Paul McCartney's half-time performance, Chris Chapman, an audio specialist with ATK Audiotek of Burbank, Calif., walked over to the stage and held up the wireless Holophone on a pole eight feet high to pick up all of the music and crowd sounds.

"The Holophone has a football-shaped housing containing eight DPA microphones, each pointed in different directions to capture discreet sounds in a 360-degree range," Stoffo said. "We broke those mic signals out so that they could be carried by wireless transmitters inside a pouch Chris was wearing."

RF ON THE SIDELINES

The NFL also hires Telex Electro-Voice to provide its BTR-600 wireless coaches intercom and the referee mics used to call the penalties from the field. "The number of wireless devices at the Super Bowl is going up dramatically every year," said Dave Egenberger, product manager for wireless microphones for Telex Pro Audio Group, in Burnsville, Minnesota. "We manage frequency coordination for over 30 wireless devices [for just 'coach comms' and referee mics] for most regular games plus the Super Bowl."

(L to R) James Stoffo, wireless specialist with Professional Wireless Systems helps Chris Chapman set up the Holophone microphone at Super Bowl XXXIX, which was the first time the surround sound microphone had been used with wireless transmission.

Telex offers the Electro-Voice RE1 that includes a high-quality receiver designed with dual-tune filters. "This system has four different 24-MHz bands, within which we can set up 1,200 different frequencies," said Egenberger. "For each 24-MHz band, we have two 12-MHz filters that work together to allow us to use more channels in less bandwidth."

YOU'RE WIRED!

Donald Trump's popular show, "The Apprentice," and its new spin-off "The Apprentice: Martha Stewart," both use wireless microphone gear by Sennheiser, including 200 channels of wireless transmitters and receivers supplied by Burbank, Calif.-based Audio Specialties.

"Both shows have dozens of ENG crews that cover whatever action takes place as the contestants run around the streets of New York completing that episode's challenging marketing task. Everyone in the cast is 'wired,' including Donald Trump and his associates Carolyn Kepcher and George Ross who join in the show's board room segments," said Steve Cormier, audio technician with Audio Specialties.

The wireless package includes Sennheiser SK250 miniature bodypack transmitters and MKE2 lavaliere microphones, as well as EM3532 dual-channel receivers, plus SAS432 antenna systems.

According to"The receivers in our 3000 and 5000 Series are very 'frequency agile' across the UHF spectrum, with inter-modulation interference rejection for very high reliability," said Chris Phillips, channel manager, Pro Audio/Wireless Mics for Sennheiser USA, in Olde Lyme, Conn. Also, our 'true diversity' design means that two receivers are working to

WIRELESS, PAGE 18

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Wireless

CONTINUED FROM PAGE 16

receive signals from a signal transmitter, and the system takes the better of the two."

With so much RF equipment in use, including TV channels and emergency services, Cormier said that mid-town Manhattan is one of the harshest RF environments in the U.S, and to compensate for this, they asked Sennheiser to tune some of the equipment to custom frequency ranges for better performance.

RUN AND GUN

Wireless microphone systems from Sony Electronics are also used extensively on "The Apprentice" and "The Apprentice: Martha Stewart," as well as "Survivor."

"One reason that reality TV shows like our wireless package is the receiver, the WRR-862B. It's one of the few products out there with two separate receivers in one chassis," said Paul Foschino, national marketing manager for Pro A/V Products, for Sony Electronics. "Because it's capable of picking up two separate microphone signals transmitted at two different frequencies, reality TV cameramen like it because having two receivers in one small box means they have a lighter load to carry."

Sony's WRR-862B, as well as the WRT-8B body pac transmitter, have a dual-diversity design that has two antennas, and two signal paths within the receiver, then analyzes the two signals to determine which one is stronger.

WIRELESS WONDERS

The Weather Channel, the 24-hour, Atlanta, Ga.-based all-weather cable channel, has updated its five-studio facility with new Lectrosonics wireless microphone equipment, including three Lectrosonics Venue Receiver Systems outfitted with a total of 18 VRS receiver modules and 18 UM400

Sennheiser wireless mics are used on "The Apprentice."

Digital Hybrid Wireless belt-pack transmitters, plus 18 channels of wireless IFB, R1a belt-pack receivers and T1 compact transmitters. The new equipment replaces older Lectrosonics equipment to stay updated on the latest technology.

"The Venue Receivers provide many enhancements," said Michael Smereski, chief engineer for The Weather Channel. "The Lectrosonics spectrum analysis tools, which will be hooked up to a computer for monitoring and logging purposes, will be a great asset. Having the ability to look and see what's out there, and what may be interfering with our signals, and being able to adjust that, is a great benefit to us."

Azden Corp. also has a broad range of cost-effective wireless microphone systems, including the top of the line Series 1000 Integrated UHF receiver. The Series 1000 includes four models: the 1000 URX standalone; the 1000URX/VM for use with V-mount batteries; the 1000 URX/AB for use with Anton-Bauer Gold Mount batteries; and the 1000 URX/SI slot-in receiver.

AKG WMS 4000 wireless microphone system

"Our slot-in receiver is designed to plug directly into specific models of Panasonic and Ikegami cameras," said According to Wayne Alonso, vice president of sales for Azden Corp., in Franklin Square, N.Y. "Our Series 1000 is a true diversity system with a digital display, and 121 user-selectable UHF (723-735MHz) frequencies, making it ideal for broadcast applications."

COMPACT DESIGN

Zaxcom's TRX 990 wireless microphone transceiver for boom pole and sports parabola applications incorporates a digital modulation wireless transmitter, built-in IFB receiver; 48-volt phantom power, and six hour internal audio recording with timecode into one compact package. A parabolic dish operator can transmit the audio from a "parab" as well as his talk-back channel while receiving direction via the built-in IFB receiver.

"The transmitter is unique in that it can transmit one or two audio channels on a single RF carrier," said Glenn Sanders, president of Zaxcom, in Pompton Plains, N.J. "This feature reduces the amount of bandwidth the user needs to employ by a factor of two. The ability to use a single transmitter in the place of two is very helpful in situations where you need to maximize available RF channels."

INTELLIGENT SCANNING

Audio-Technica offers the Artist Elite AEW 4000 and AEW 5000 series wireless microphone systems which incorporate IntelliScan technology. IntelliScan automatically finds and sets the best available frequencies on all linked receivers at the push of a button.

"This is done without the need for external networks or computer applications, making it ideal for productions that move from one location to another," said Steve Savanyu, marketing manager for Audio-Technica in Stow, Ohio.

"The biggest issue facing wireless mic users is the DTV transition," Savanyu said. "Since current wireless mics use frequencies in the UHF TV band, crowding and interference are becoming more prevalent." ■

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HD Sports Workflow Snags

Broadcasters and manufacturers acknowledge missing links

by Robin Berger

LOS ANGELES

A-List sports franchises like Major League Baseball pushed even the most reluctant broadcasters into getting serious about HDTV in the past year or so. Recent demands for HD coverage from content owners like the NFL are expected to drive more big-dollar purchases in the near future.

Ken Aagaard, CBS Sports senior vice president of operations and production services, said purchase decisions will "shake out" over the next six to eighteen months.

"We've got two years to get this planned," Aagaard said, noting that CBS currently broadcasts three NFL games a week in HD.

NFL spokesman Seth Palansky calculated that "well over 100" out of 267 games would be broadcast in HD during the 2005-06 season, with ESPN/ABC providing all of its games in HD. He expected Fox and NBC to deliver an all-HD lineup next season, and CBS thereafter.

Broadcasters anticipate that editing equipment will be one of the last pieces of the HDTV puzzle due to cost and complications, including the lack of interoperability between HD equipment from different vendors. A case-in-point is the gap between file servers and editing systems.

"Whoever figures out how to grab audio-visual files in the digital HD realm and manipulate them through an editing device will have a great product," said Jerry Steinberg, senior vice president for Field Operations at Fox Sports Network. "We kind of pushed Apple Final Cut Pro and EVS to work together for a common file format. If they come up with something, we'd be more than happy to beta test it."

Steinberg noted that Fox has been using Final Cut Pro and EVS Broadcast Equipment servers in its remote production units since the 2004 MLB season. Now, the network is also using this equipment for NASCAR and NFL coverage. The workflow is tapeless—melts are done in the background.

The two companies demonstrated the interoperability between EVS XT servers and Final Cut Pro HD at NAB2005. It was part of the EVS focus on HD interoperability with other manufacturers' systems via MXF-based exchange paths.

FILE COMPATIBILITY

EVS files were sent to XFile, where the company's mediaXchange application changed the wrapper from MXF to Apple QuickTime, making it compatible to Apple's FCP system, said Gregory Macchia, general manager of operations for EVS.

"Finished edits on the FCP system can then be rendered and sent back through the reverse process to be placed back on the XT servers," Macchia said.

He also noted that EVS servers work with Editware Fastrack via RS422 VDCP protocol, making it possible to view EVS clips on the Editware system.

But broadcasters pointed out that these editing systems accounted for just a fraction of the sports production workload.

At NAB2005, EVS and Apple demonstrated interoperability between EVS XT servers and Final Cut Pro HD.

"Pinnacle, Avid and Quantel all have proprietary file formats that need third-party transcoding software," said Dave Wheeler, senior coordinating director for the ESPN Studio Directing Department. "We're pushing the industry to share files more easily, because it's hurting the workflow."

At publication, Wheeler noted that ESPN had not yet done an editing box-to-server file transfer in the field, lacking a "comfort level with the workflow." But he noted interest in Telestream FlipFactory to connect ESPN's Avid Symphony editing system to an EVS server file.

Macchia concurred that "'til now" the fastest way to interface was real-time playout and ingestion from EVS into Avid equipment. But he is hopeful about third-party transcoders, indicating there are working beta tests that transfer files between EVS and Avid systems.

"We continue to develop with mediaXchange and third-party vendors such as Telestream to optimize this workflow," Macchia said. "These files can be imported into Avid but the process is slower than real time, about six to eight times."

THE MISSING LINKS

Others believe the missing links extend way beyond speed.

"I would challenge all of the vendors making HD production and post-production products to work towards the same interoperability capabilities in both metadata and file formats that we all grew to know and love in the SD world," said Dave Mazza, vice president of engineering for NBC Olympics. "Currently in SD, you can exchange video files with either DV25, DV50 or MPEG50 compression—and, if you wrap that in an MXF wrapper, all the better: you have a good chance of

being able to be compatible across different vendor platforms."

Mazza said he would love to ingest material into EVS equipment, edit it in a Sony XPRI or Avid or Quantel edit session, and then push it back to either an EVS or Avid AirSpeed or other play-out server without losing metadata or taking a picture-processing hit. Right now, he said, you can't even set up a reasonably jury-rigged alternative in HD.

"If [you] want to digitize from an EVS into an Avid, you play out of an EVS back to baseband—regular HD-SDI—and then you recompress it into your Avid—and in the process, you lose all your metadata, lose picture quality, and lose time," he said. "When you finish the product on the Avid and you want to send it out to play-out, you put it on a piece of videotape, and/or you play it from tape or Avid into the EVS and lose all your metadata, plus suffer several more encode/decode cycles."

As for using FlipFactory to transcode, Mazza noted that "flipping" in every step of the complex high-resolution production workflow could create bottlenecks as well as artifacts.

"In HD, we are already seeing picture degradation caused by concatenation of differing and multiple encode/decode cycles," he said. "This problem is exacerbated when that same material hits the ATSC coders in the distribution path. It is not pretty."

David Schleifer, vice president of Avid Broadcast and Workgroups, acknowledged there were problems stemming from proprietary formats. He noted Avid's initiatives to rectify the situation.

"The only free codec in the industry is DNxHD, which Avid created," said Schleifer. "This is why interchanging with vendors like EVS can often be reduced to HD-SDI. The good news is that when compatible codices are used on both sides, we will be able to quickly and easily pass MXF files between systems. We have everything already in place." ■

Big Blue to Manage NFL Films' Content

ARMONK, N.Y.

IBM is jumping into digital sports broadcasting, serving up solutions for Fox and NFL Films to manage National Football League content.

On Oct. 22, IBM announced the implementation of Digital Foundation, its "IT standard-based digital media solution," for NFL Films. It features IBM's Tivoli System Automation, WebSphere middleware, DB2 data management apps, and servers running Linux to catalog game footage and streamline PC searches, reviews, and selection of content. NFL Films expects to install IBM's Hierarchy Storage Management system next year.

The news followed the joint July 23 announcement of a three-year agreement naming IBM as the NFL's official information technology partner.

So far, the system is used by NFL Film staffers to review 16mm footage from the league's teams for production of the NFL Network's "Playbook" and "NFL Matchup" shows, said the NFL Systems Architect, John Cave. Cave envisioned the eventual extension of the system to include other sources, formats and distribution.

In September, Fox announced it had co-designed a new digital archive solution with IBM and Sirius Computer Solutions to help cut HD production costs for the 2005 NFL on FOX season, and provide on-demand content for further distribution. IBM reported that this solution is one of the first to integrate with the high-definition ASI transport standard.

Robin Berger

'Scripp'-ting the Next Big Thing

Scripps Network tackles VOD, broadband and interactive ads

by Robin Berger

KNOXVILLE, TENN.

Not content to rest on the laurels of its television success, Scripps Networks continues to look beyond the box to reach new markets.

The network is part of the EW Scripps Co. media conglomerate of TV broadcast stations, cable networks and print media. It operates Home and Garden Television (HGTV), Food Network, DIY Network, Fine Living, Great American Country (24-hour country music video network), and the Shop at Home Network (a 17-year-old nationally televised home shopping service).

Last summer, Scripps Network announced it had acquired Shopzilla, an online comparative shopping service, and in September, Verizon announced that Scripps was part its new FiOS TV network lineup.

Scripps' *www.living.com* broadband video service was nominated by the National Television Academy for the 2005 Advanced Media Technology Emmy for Non-Synchronous Enhancement of Original Television Content.

The online service was also chosen as a finalist for a 2005 Marketing and Interactive Excellence (MIXX) Award. Channing Dawson, senior vice president of Scripps' Emerging Media Group, got the company thinking multi-directionally when he took it online a decade ago. He had duly noted the advantage the company had in owning all of the content it distributes, which would save a lot of time otherwise dedicated to rights signoff.

"Our responsibility is to really take the cable properties into new platforms," said Harry Jenkins, vice president, Emerging Media. "Many of these new platforms offer service opportunities as well as content opportunities."

VIDEO ON DEMAND

Scripps sees VOD as "a work in progress." Hollywood held up its initial purpose as a fee-based movie distribution mechanism, but VOD's computerized processing, storage and transport capabilities now provide a good foundation for many other applications, said Jenkins. These capabilities are further enhanced by VOD's wide reach, which Dawson estimated at 27 million households by year-end. By then, Scripps' will be tailoring its product to the 18 million to 19 million VOD-enabled homes that are offered *free* VOD services, he noted, taking advantage of a notable increase in storage capacity to deliver its most popular fare whenever people want to watch it.

Photo credit: Patricia Barry Levy

Cariann Arkowski, featured interior designer and Jill Cordes, host of HGTV's "My First Place."

Comcast, for one, is talking about increasing storage capacity on a VOD server to tens of thousands of hours, said Jenkins, making the economics very favorable. Of course, he noted, as more content becomes readily available, navigation gets more complicated. Accordingly, he said, Time Warner and Comcast have big in-house initiatives to resolve this.

But Scripps believes the most important "next big thing" for VOD is advertising.

On demand ad insertion is much more complicated because it's generated from a local node, not directly uplinked from Scripps' headquarters to a linear cable property.

"We push our content out to our cable partners, and then they actually distribute it to very locally placed servers that sit at each node of their network," said Jenkins. "The advertising sits on those distributed servers and the instruction for placing those ads—the campaign logic—has to be messaged down to those machines."

Jenkins said that VOD server manufacturers like Concurrent Computer Corp., SeaChange, and nCube have fairly well developed systems to manage what he described as "the forward phasing ad delivery process." But these manufacturers are still perfecting the scaling of these operations over the vast networks offered by Comcast and Time Warner.

Further complicating delivery, Scripps VOD ads use a two-way stream: reporting comes back upstream. It's one more data processing challenge demanding resolution and scaling. The aforementioned VOD server manufacturers are pitching in to help, as are television data reporting services like Nielsen and Rentrak, which came out of the retail point of sales tracking business, Jenkins noted.

"Ad agencies are looking for much more specific information about how their ads are performing—are the users watching their ads, are they watching the whole ad, are they pausing or scanning through the ads," said Jenkins. "Rentrak is very familiar with dealing with thousands of servers, pulling those servers periodically for performance data, and aggregating it up to the MSO, content partners, and advertisers."

BROADBAND

Scripps VOD and database activities also set the foundation for a 2002 initiative that sliced up its TV fare into 120 video segments (two to five minutes in length) for successfully syndicated content broadband packages offered by MSN and Comcast.net.

"Success gave us proof that 1) people were watching a lot of video online and 2) they were specifically watching the kind of video that we do," said Dawson.

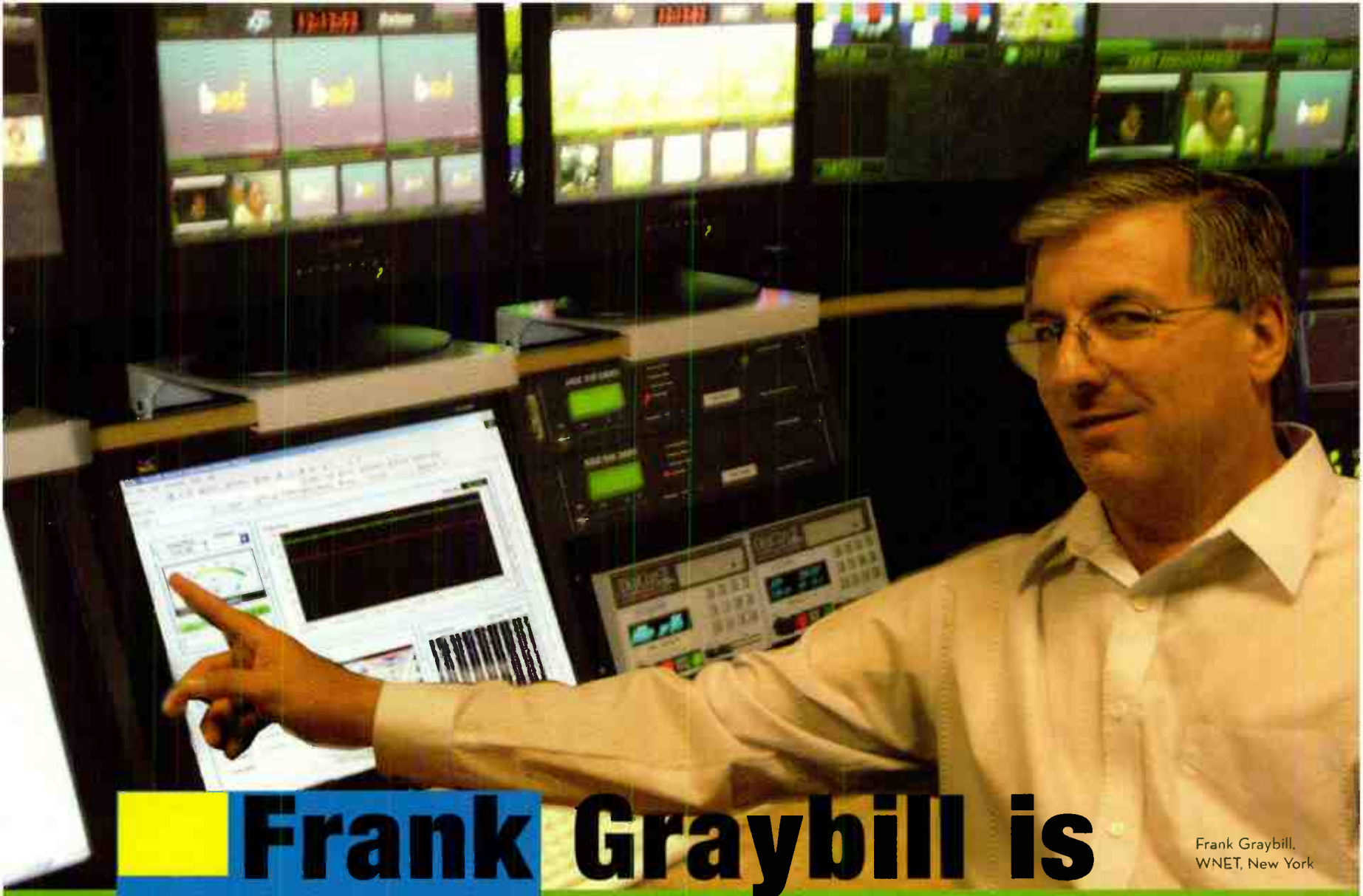
That success also served as an impetus to develop broadband channels. In May, Scripps announced it would launch 10 vertical channels aimed at niche audiences. As described by Dawson, the experience would be "a deep dive" for enthusiasts into their pet projects via video, animation, 3D, specially designed tools, and a vast library of articles.

"It would be impossible to launch a woodworking channel on television with any kind of economics," said Dawson, who foresaw a very plausible economic model in broadband, based on ad support, commerce and subscription.

Scripps has also experimented with broadband portals with the May launch of the award-winning *www.living.com*. The site boasts seven kinds of advertising: logo entitlement, interstitial ads, sponsored topical videos featuring advertisers' products, banner ads, sidecars, video showrooms for sponsors' products, and billboards. The company is also experimenting with enhanced billboards. Instead of a five second billboard in advance of a television show, the portal would offer an eight- to 10-second video featuring a product tip. For example, GM would provide a telephone number for viewers to find the best way to tie down lumber in GM trucks.

Dawson and Jenkins insist there's no ad overload, according to feedback provided by WebTrends, an off-the-shelf product, and The Platform, a Seattle-based service.

"Data back from the advertising is just as important as the creative presentation," Dawson said. ■



Frank Graybill,
WNET, New York

Frank Graybill is Choosey...

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Ready to go Hi-Def?

Content, delivery and displays dictate choices in HD production

by B. Sean Fairburn

CASTAIC, CALIF.

High definition is a natural progression for broadcasters and has been adopted by cost-conscious television and film producers as well. Blending these two distinct disciplines is a challenge on both sides of the production spectrum.

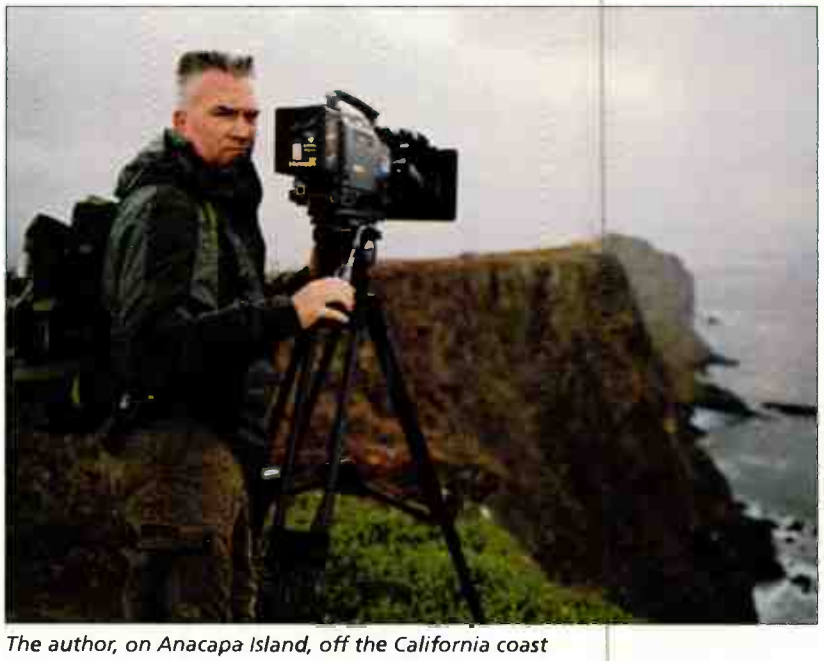
BRACKISH WATER

Lets face it: HD is really good video and really cheap film. I look at it as "brackish water," a mix of both salt and fresh. Most HD cameras today have the ability to do progressive frame rates as well as the more common interlace, greatly expanding your camera's flexibility to shoot the intended look. Note that your format deliverable does not need to be the same as what you shoot in the field.

Decide what you want the show to look like first as the footage will retain the look of how the images were born: interlace looks like video, progressive looks like film. Once captured that way, a 23.98 psf frame rate, for instance, will still look more like a film-originated frame rate even when delivered on a 1080i HD tape after the edit is done. Most broadcasting is still done this way even with actual film-originated shows; film is shot and transferred to 1080i HD for broadcast.

Q&A

I often ask production companies, if HD didn't exist, what format would you be shooting? Is it news or sports or some documentary program with real people, a magazine show or an exposé? Or is it a show with actors or an evergreen piece intended to convey more of a veil of fantasy and less reality?



The author, on Anacapa Island, off the California coast

If the answer is "we would shoot it on DigiBeta," I reply "Great! Then let's lean toward interlace as it will have the same look and feel of video in HD."

If the answer is "We would shoot this on film," I still say "Great! Then let's use progressive as it will look like grainless film and convey images that look much more like they were captured in film."

I would also ask the producer shooting on DigiBeta, "if money were no object would you shoot video or film?" If the answer is "we would shoot film if it didn't cost so much more for the same amount of footage," then I would recommend that they shoot 23.98 psf with the HD camera as it will give the same look of film's frame rate of 24 with a shutter of 180 degrees or 1/48th of a second. The cost of the camera and the tape is the same whether you shoot interlace HD or progressive HD, so go for the look of the show first.

Many industrials and local commercials, local or national sports or interview shows, game shows, all shoot interlace which is most appropriate for that type of programming. There is no need to change the way the audience sees those images, except to give them something better than NTSC for their new HDTV set.

THREE WORLDS

There are three distinct words to separate in your vocabulary: video, film and HD.

Video is NTSC interlace 4:3 aspect ratio Beta SP, DigiBeta, MiniDV or any other form of standard-def image capture using 525 lines. Frame rates include 25 frames (PAL) and 30 frames (NTSC).

Film is the celluloid illusion of motion that records distinct frames captured progressively at various frame rates and various aspect ratios, all derived from a full academy aperture of 4:3, but usually 1.85:1, cut from that full academy frame. It runs through a film camera and must be processed and color-corrected and transferred to a video medium or scanned at very high resolution 2K. Film supports multiple frame rates and is easily displayed with a film projector. Images move with light and screen until they are transferred to another medium.

High definition is 1080 x 1920 lines, 16:9 or 1.77:1, can be captured in interlace or progressive images available in multiple frame rates. HD can be color-corrected or left as is and is the future standard by which broadcasters will be required to comply.

Combining the speed and immediacy of video with the beauty and look of color-corrected film is the best use of HD. At its core, it's just really good video, but when its full potential is realized, it can take on an entirely new production and viewing experience.

DON'T BE INTIMIDATED

In my work teaching advanced HD cinematography, I see many different students with tremendous experience and background. It's incredible to see them take the medium and apply it to their type of shooting.

No one does anything at a professional level without tremendous testing and practice. HD should be no different. Don't rely on what you think you know about shooting alone to get you through. Take the time to test the camera's ability to handle over and under exposure. Look at the contrast control and color matrix to dial in what you want the images to look like. Become familiar with black gamma adjustments and see how they can help you control the image.

Once you become more familiar with all that your gear is capable of then you can feel more confident in properly employing the camera to get the job done at a much higher standard. Becoming an engineer is not required, but having a solid working knowledge of your professional instruments is required.

If you are capable of shooting very good video at the broadcast level, the transition will be easy to HD. Good lighting is good lighting and will help any medium look its best. Don't be afraid of the medium or how it will look; test it, test it, test it. Taking a group workshop is highly advised to allow you to concentrate on learning rather than having to get the shot for a client. A good HD cameraman is part camera operator, part engineer, part colorist, part shader. ■

B. Sean Fairburn is an officer in the U.S. Marine Corp Reserves, and a freelance director of photography in the entertainment business. He specializes in high definition cinematography and is also the owner of Role Model Productions, Llc. and HD Gunner, Llc.

Combining the speed and immediacy of video with the beauty and look of color-corrected film is the best use of HD.

DIGITAL TV

Charles W. Rhodes

More RF Power To the People

In August, this column took up some aspects of the measurement of DTV transmitter power output. You might wonder why I used the phrase "DTV transmitter power output" instead of "effective radiated power," since ERP appears on your license and that's what the FCC regulates.

ERP depends on the radio frequency power delivered to the transmitting antenna and the antenna gain. Antenna gain is always specified in azimuth and elevation, so ERP varies with the path over which a signal is transmitted.

The antenna manufacturer specifies gain of a product, so you are dependant on those numbers; likewise, the efficiency of your transmission line. The power output of your transmitter is under your control, so it must be measured by calculating your ERP.

DIGITAL VS. ANALOG ERP

The ERP specified by the FCC is the average power of the DTV signal—quite the opposite of how ERP for an analog signal is specified. With analog signals, the transmitter power output is maximum during synchronizing pulses, while its average power varies with the average scene brightness. It is then obvious why we measure peak power for NTSC.

The transient peak power of a DTV signal varies with time, nanosecond by nanosecond. If you have a LeCroy digital oscilloscope, you can capture your DTV signal and then find its transient peak power, but that is not what the FCC needs and incidentally may be about 6 dB higher than average power.

As I indicated in August, average power is the squared rms voltage across a dummy load resistor. Why rms volts? Because average power represents its heating power, and the fundamental technique to measure RF power is to measure the increase in the temperature of a known quantity of a known liquid by the heating effect of this power. This is known as the "calorimetric" method of measuring RF power. The dummy load dissipates the transmitter power output into a known quantity of a liquid whose specific heat is also known.

Being an out-of-service measuring procedure, this is usually employed by transmitter manufacturers. But there is a small catch to this. Your DTV transmitter must comply with the FCC DTV RF mask, which may limit your transmitter power output by the nonlinear distortions it produces. In other words, your transmitter cannot be operated to provide more average power output than its distortion products allow, nor can it be operated at a power output above which your calculated ERP would be exceeded.

The calorimeter method sounds tricky and perhaps messy at times. It *is* tricky because you are dealing with a large quantity of a moving liquid. It *is* messy if it leaks. It is also an out-of-service measurement technique. There are more convenient ways to monitor your DTV transmitter output power.

But first let's calculate the rms voltage corresponding to your average power output. Let us assume that your transmitter is rated to provide an average DTV power output of 10 kW. Its rms output voltage is 707 volts. That is an awful lot of voltage, so we sample a small known fraction of its power output. Let's assume we can obtain a sample of your RF power that is 1/1000th of the total RF power. Now the RF voltage is 22.36 volts.

Note that you must know this fraction of the RF sample, and you may have to depend on the measurement provided by the manufacturer of the RF sampling device.

There is also another problem. The transmitter power output goes up the transmission line towards your antenna, which will not have a voltage standing wave ratio equaling 1.00; it will therefore reflect some of that incident power, which has no place to go but back down the line towards the transmitter.

What you want to measure is the power from the transmitter into the line, so you need an RF sampling device known as a "directional coupler" that will sample only the incident wave from the transmitter to the transmission line. This may be your most important RF test equipment because its accuracy determines the accuracy to which you can calculate your ERP for the FCC.

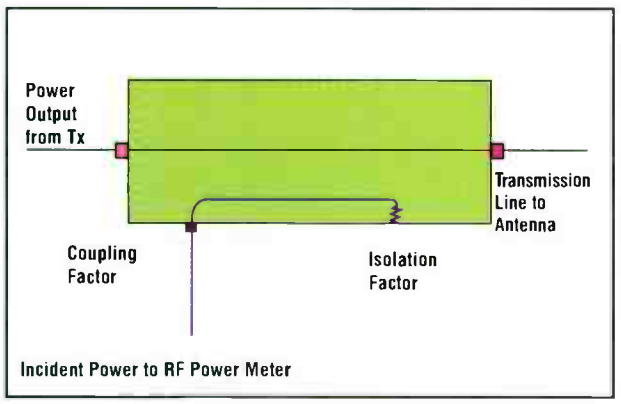


Fig. 1: Directional coupler to sample the power output of a transmitter as shown or by reversing it, measure VSWR of the antenna and its transmission line.

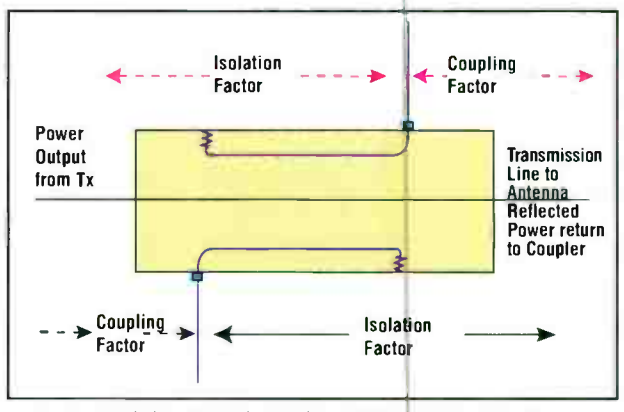


Fig. 2: Dual directional coupler which permits simultaneous measurement of the transmitter power output and VSWR of the antenna and its transmission line.

A directional coupler may be considered black magic because it is able to sort out the incident power coming from your transmitter from the reflected power being returned from the transmission line. It is actually a transformer with both inductive and capacitive coupling to the sample port as shown in Fig. 1. These two couplings are carefully arranged so that they are equal. The current flowing to the load induces a current in the sampling loop. This voltage and the voltage capacitively coupled to the sampling port are in phase.

Reflected power flows in the opposite direction so the inductive component induced in the sampling loop and the current capacitively coupled to the sampling port are out of phase. This is how the directive coupler sorts

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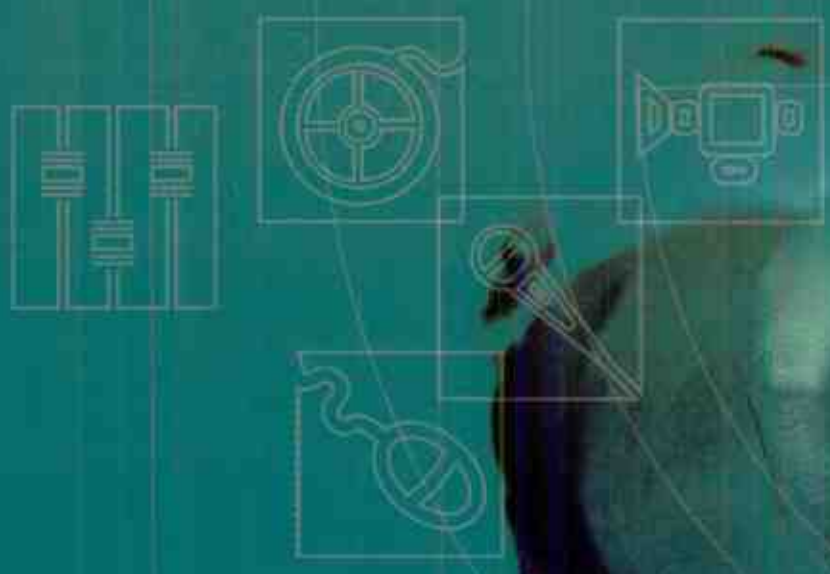

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Power

CONTINUED FROM PAGE 26

out the incident and reflected power.

If you want to measure the power being fed to the load, connect the directional coupler as shown in Fig. 1. If you want to measure the power being reflected back to the transmitter, turn the directional coupler around. This inconvenience can be avoided by using a dual directional coupler as shown in Fig. 2. It has two transformers and two coupled ports: One provides a sample of the incident power from the transmitter to the load, the other provides a sample of reflected power coming back to the transmitter.

The coupling to each sample port is the same, and the manufacturer provides this data for your channel. In any real directional coupler, some of the reflected power sneaks into the incident power sampling port. The ratio of incident-to-reflected power at this port is known as the "isolation factor," while the difference between the coupling factor and the isolation factor is known as the "directivity" of the directional coupler.

These three parameters determine how accurate your measurements will be. As your antenna will normally provide a low VSWR (good impedance match to the transmission line), very little power will be reflected. For a transmission line efficiency of, for example, 80 percent, 8,000 watts of power will arrive at your antenna. If the antenna reflects 160 watts, then the reflected power arriving at the directional coupler will be 128 watts. For a coupling factor of 30 dB, the reflected power at the reflected sample port would be 128 milliwatts.

Now consider the incident power, which should not be coupled to this port. The incident power is 10,000 watts, and the coupling factor is 30 dB, so there is 10 watts at the incident sampling port where it should be.

Your DTV transmitter must comply with the FCC DTV RF mask, which may limit your transmitter power output by the nonlinear distortions it produces.

If the directivity of the directional coupler is 40 dB, then 1/10,000th of the incident power will appear at the reflected sample port. This is 1 milliwatt of incident power where it should not be. However, this is quite small relative to the reflected sample, so the error is negligible. But if the directivity is only 30 dB, then there is 10 milliwatts of incident power at the reflected sample port.

If the incident power (10 milliwatts) and the reflected power are in phase at the reflected sample port, a power meter connected there would read 138 milliwatts, but if these samples are out of phase, the reading would be 118 milliwatts. This sample is usually indicated in terms of VSWR, so you see there is an uncertainty in measuring VSWR due to the phase of the signals arriving at the directional coupler. Given a directivity of 30 dB, this uncertainty is small, but if the directivity of your directional coupler is less than 30 dB, VSWR is less certain.

The effect of directivity upon the measured incident power is negligible unless there is a lot of reflected power. At the incident sample port, you have (in our example) 10 watts. With zero directivity, the reflected power of 128 watts will be attenuated by 30 dB (the coupling factor) to 128 milliwatts, which introduces a negligible error in measuring 10 watts of incident power.

Some broadcasters intend to use their NTSC transmitter on their NTSC channel for DTV in 2009, or whenever the sunset provision goes into effect. Will the directional coupler and antenna now being used for NTSC serve for DTV? Those directional couplers and antennas were designed for the NTSC signal, so the coupling factor and directivity and the antenna voltage standing wave ratio were specified at the visual carrier frequency and the color subcarrier frequency and at the aural carrier frequency.

As most of the power in NTSC signals is near the visual carrier frequency, the performance of a directional coupler or antenna intended for NTSC was optimized at the visual carrier frequency. For DTV, these particular specifications may not be sufficient. The DTV signal has its power distributed evenly across the channel, and the directional coupler and antenna for DTV signals should be specified differently.

I hope this gives you a better understanding of the operation of directional couplers and the vital role they play in the proper operation of your DTV transmitter. Stay tuned.

Charlie Rhodes is a consultant in the field of television broadcast technologies and planning. He can be reached via e-mail at charleswrhodes @worldnet.att.net.

INTO THE SOURCE

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THE MASKED ENGINEER **Mario Orazio**

Widescreen HD Gets Toasted by Cell Phones

You might not have noticed that Steve Jobs changed his mind. Let me put that another way: You might not have noticed that the most important thing about HDTV is NTSC.

Yes, I'm talking about the transition here, but not the one from analog to digital. That one is moving along, even if it ain't as fast as some folks had imagined. Okay, so it's moving at about the pace of a tranquilized snail with no heart to go on, but it's moving.

Even the Media Bureau staff of Our Beloved Commish, also known as the FCC, in their February report "Concerning Over-the-Air Broadcast Television Viewers," said, "assuming an outside useful life for analog sets, the switch-over date could be set for 25 years from the date the DTV tuner mandate is fully effective in 2007 (*i.e.*, 2032)." It ain't yet a sure thing that the 2007 date will include TV sets below 13 inches, but I'm reasonably convinced the DTV transition will be pretty far along by 2032.

That's the transition from analog to digital. The transition from plain old ordinary TV (POOT) to HDTV (huditvee) is a horse of a different resolution. First of all, unlike the rules and regulations of Our Beloved Commish forcing broadcasters to transmit digitally and TV makers to put in digital reception and the law requiring analog to shut down, there ain't a single rule, regulation, law, executive order, edict, bull or fatwa requiring any U.S. broadcaster to transmit any HD.

Now, then, that doesn't mean there ain't an HDTV transition going on. Broadcasters are moving that way on account of it making their pictures look better. I don't mean "look better" on HDTV sets. I mean "look better" period.

Chip-camera makers discovered a long time ago that oversampling increases sharpness. HDTV is one heck of a lot of oversampling over NTSC, and now there are even oversampled HDTV cameras, like the Panavision Genesis. That means that HDTV-shot stuff looks sharper than NTSC-shot stuff even on a 10-inch set fed from a worn out six-hour VHS tape.

SO-CALLED HDTV SETS

"But, Mario, aren't more and more people buying HDTVs?"

Hey, I'll grant that a bunch of folks are buying things labeled as HDTVs. As for how good the labels are, that's a whole other story.

I saw a store's ad just today that called Sony's 15-inch KLV-S15G10 an HDTV. I don't *think* that was Sony's fault. Sony doesn't call that 4:3 480-line model HDTV on its Web site. Heck, even the ad said it was "480p." But it also said it was "HDTV."

Nope, I can't blame Sony for that one. But, while I was on Sony's Web site doing my due diligence as an imaginary journalist, I happened to scroll a smidge to the 19-inch MFM-HT95. Sony sure-enough labels it as HDTV.

Now, then, near as I can recall, roughly from the beginning of modern time, HDTV has had two characteristics: more resolution and a wider screen. Being ancient, I remember the battles between Hollywood creative types wanting 2:1 and the forces of HD engineering wanting 16:9, and, being beyond ancient, I can even remember the earlier change from Japan's 5:3 to 16:9.

Well, now, Sony's MFM-HT95 is 5:4. Yes, you have calculated correctly. That ain't even as wide as POOT, though it *does* match a 1936 British standard that was called "high definition" back then, even though it had only around 377 active scanning lines.

That made me want to poke around Sony's Web site some more. The MFM-HT95 is 5:4; it's also 1280 x 1024. The KLV-S19A10 is 1280 x 768. Yes, your math is correct; it's 5:3. The VPL-HS51 is 1280 x 720 and good old 16:9. The KDL-40XBR1 is also 16:9, but it's 1366 x 768. The KDE-42XS955 is 16:9, but it's 1024 x 1024. Finally, the KD-SR60XBR1 is 16:9 at good old 1920 x 1080. My, my.

Oh, if you think your 1920 x 1080 HDTV camera has a pixel-for-pixel match with that last TV, guess again. TV manufacturers figure there ought to be some overscan in the picture to get rid of garbage at the edges, so they blow it up a bit.

Hey, I don't mean to pick on Sony. Panasonic's CT-32HL15 is labeled as HDTV; it's got a 4:3 screen. So is Toshiba's 32HF73, also labeled as HD. You can learn a lot by surfing manufacturer Web sites.

"But, Mario, what about Steve Jobs?"

It's his bagels, of course. Whenever Apple's head was asked about adding video to an iPod, he scoffed at the idea of anyone watching a movie on a teeny screen. Last year, he said if they added video, they might as well add toasting elements.

"I want it to brown my bagels when I'm listening to my music," he told a media conference call.

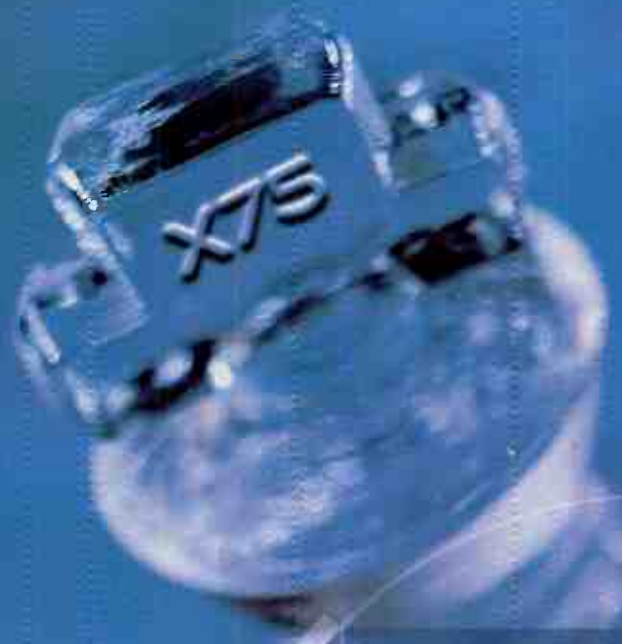
So he's changed his mind. The video iPod has a 2.5-inch screen that's 320 x 240. Yes, that's less than NTSC. And it ain't alone. The low-end model of EchoStar's Pocket DISH has a 2.2-inch screen that's 220 x 176 (though it looks square to me).

Hey, the idea of folks watching TV on tiny screens ain't exactly new. You might have noticed the TV-on-mobile-phones booth at NAB this year, you might own a little Casio or Epson LCD TV, or, if you're of an archeological age, like me, maybe you remember Sinclair's world-traveling Tiny Telly or the even older and smaller-screened Panasonic tube TVs.

What's new is Apple's deal to offer ABC TV shows at $2 a pop at 2.5 inches in the age of HDTV, on a 4:3 screen in the supposed age of 16:9, and at 320 x 240 when the world is theoretically heading towards 1920 x 1080. If your HD is shot so it looks good even on an iPod, you'll probably have an audience in any medium. If you think everyone is going to watch your stuff at 16:9 1920 x 1080, remember Jobs's word from last year: toast.

Mario Orazio is the pseudonym of a well-known television engineer who wishes to remain anonymous. E-mail him at Mario_Orazio@imaspub.com.

[King of Processors]



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PRODUCTION MANAGER **Craig Johnston**

More Isn't Always Better With Sports Graphics

I have a friend who has a particular discipline when it comes to dress ties—he always owns the same number of them, never more, never less. When he buys a tie for himself, or receives one as a gift, he gives one to Goodwill.

It seems to me that those commissioning sports coverage graphics could use a little of that kind of discipline themselves. There are enough graphics on most sports telecasts, so if you're going to add one, throw an old one away.

RAISON D' ETRE

Let me say that I like graphics on televised sports events and consider them critical to the broadcasts for two reasons. I follow sports and like to watch them on television, and I've been known to watch them in noisy bars.

So that I don't seem like the old-school coot that I probably am, I want to applaud some of the higher tech graphics, like the flags that follow NASCAR racing vehicles. I'm not the end-of-the-earth NASCAR fan, but it makes the sport easier to follow.

Let me be clear about the graphic that set off this little screed—the big fat red arrow laid on the NFL field to indicate how many yards to go for a first down. It's redundant.

All through the game, I've been taught where to look on-screen for down and distance. I know what direction the offense has to go. So why this? In the metaphor of my friend managing his ties, the red arrow needs to be treated like a Father's Day gift and sent to Goodwill without ever being worn.

Having appointed myself some kind of deity on sports graphics, I owe some ideas about rules on the subject.

So that I don't seem like the old-school coot that I probably am, I want to applaud some of the higher tech graphics, like the flags that follow NASCAR racing vehicles.

BECAUSE WE CAN

It's generally a bad idea to do something just because you can. The graphics people are only doing their jobs conjuring up new computer graphics and asking, "How do you like this?"

After telling them the new graphic is pretty, you have to ask yourself if it communicates something new, or if it's the best way to communicate that information, and does it clutter the screen.

If you are going to use a new graphic, come up with rules for its use. I'll give the red arrow people this point; they seem to use it only when it's third or fourth and long. Rules for a graphic shouldn't be set so tight that it's used only once or twice a game.

On-screen graphics are not a good place for humor in a sports broadcast. I've seen this mostly tried by color commentators using their telestrator. Note: You're not a comedian, and look what happened the last time a network tried using a comedian as a color commentator.

A telestrator's best use is when it tells the viewer what to look for. I'm not likely to see a guard pull unless he's circled beforehand, so this is a good use of the device. Likewise, I'm going to need help finding the race car that went sideways first in a wide shot of the first lap, so a circle or arrow helps here as well.

Don't use graphics to point out the obvious. If I'm watching Monday Night Football and can't hear the audio, I don't need to have a Batman-ish "Boom!" put on the screen to know that's what John Madden just said. If I want that, I'll turn on the captioning.

WHERE'S THE SCORE?

Don't cover up game action. There's only so much time between plays, and if an oversized graphic is designed to be removed before the ball is snapped or a pitch is thrown, it sure as heck is not going to happen all the time.

On a positive note, make sure the basics are in there. Balls and strikes, outs and innings, down and distance, time remaining and the play clock all keep the viewer in the excitement of the game. Any other graphic that covers up or removes those basics should be tossed out. (Think about the basics as the conservative tie you wear to a funeral.)

Don't try to squeeze things smaller, thinking that everybody has the high-def screens to watch the game on. They don't, and Congress isn't going to make them get one any time soon. Hey, even if we are watching it on a big screen, remember that some of us are in bars.

There are certainly more rules, but you can come up with some of them yourself. Go to a sports saloon, sit and watch the game, and take notes. If you want help, invite me. (Ed note: your company is buying.)

I get back to the basic tenet that there are enough graphics on sports telecasts today, so if you're going to add something, get rid of something. Also, newer isn't necessarily better.

Now the only question is, what's Goodwill going to do with all those graphics you've dumped in their bin in the middle of the night? They're struggling enough with all the Production Manager columns TV Technology has donated. And my friend's ties.

Craig Johnston is a Seattle-based Internet and multimedia producer with an extensive background in broadcast. He can be reached at craig@craigjohnston.com.

INSIDE BROADBAND

Will Workman

Digital Devices Duel for Supremacy

A whole decade ago, in a galaxy that now seems light years away, I was a neophyte tech reporter covering a TCI press conference.

TCI was the largest cable operator, and John Malone, its CEO, had just caused a major hubbub. With clear regulatory waters on tap from the anticipated 1996 Telecommunications Act, Malone and the cable guys were sitting atop billions in fat stock and a new fat pipe as well: hybrid fiber-coaxial, capable of true broadband 750 Mhz capacity.

In a speech he offered his dramatic dream—the 500-channel universe.

Malone had the elements of his strategy lined up, very much reflecting the engineering philosophy that dominated TCI and the other major operators: Lay that fat pipe into homes, hook it up to advanced digital set-top boxes, and content providers would prostrate themselves to get past the cable gatekeeper.

A few days later... another rival, another vision. This one from Bill Gates. Microsoft's chief architect may be singing a different tune now, but back then, Gates had just been blindsided and Microsoft was struggling with its Internet Explorer browser.

Unable or unwilling to see the logical evolution in mobility, storage and computing power of competing devices, Gates was fixated on preserving his Windows hegemony. Microsoft first tinkered with WebTV, an unqualified bust, but Gates would not waiver in boosting the PC as the digital home gatekeeper.

Fast forward 10 years and what happened? The Web, consolidation, tech bubble burst, cell phones, digital video recorders, HDTV, wireless, Napster, Google, eBay, Netflix, iPod... and so it goes.

Now the digital home domain teeters at another major tipping point.

Console gaming platforms like Xbox... merely need an attachment to add the ability to manage digital music and pictures, as well as software. It can already play DVDs.

OUT OF THE GATES

Analysts have been handicapping the prospects of various central control devices for broadband media content. While the cable box and PC are still frontrunners, they have some expected, as well as unlikely, company.

Microsoft and other major PC players are still pushing the home media center concept of a central "black box" that's essentially a server with a wireless connection to devices that access it.

DUEL, PAGE 36

FOCUS ON EDITING

Jay Ankeney

The Impact of iNEWS Instinct in the Real World

Starting this month, editors will be presented with the most radical evolution in editing user interfaces since GUIs began to replace timecode-based EDLs back in the 1980s.

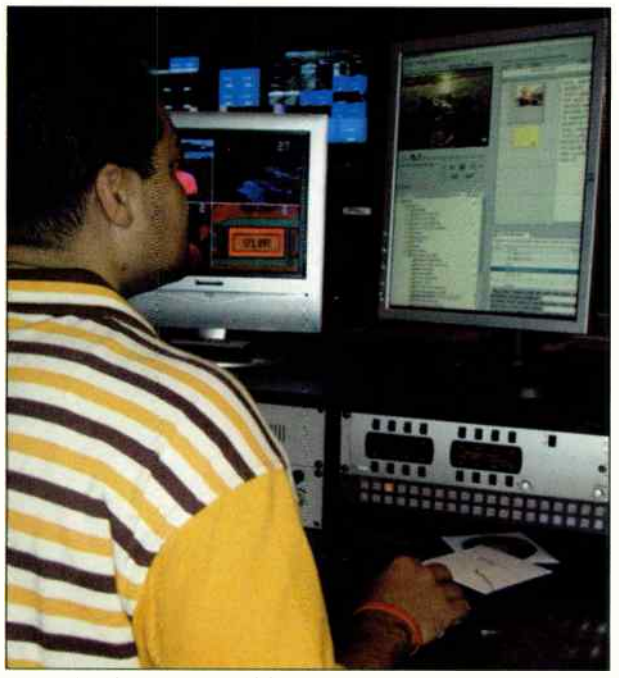
Sure change is good, and innovation is liberating, but the impact of this new method of working with an edit system may have influence the future of editing far beyond its user-friendly design implications.

This new age is coming with the first installation of the new Avid iNEWS Instinct system, which is getting its first real-world workout at WFTV-TV's newsroom in Orlando, Fla. But although Avid's initial target is the approximately 2,700 broadcasters worldwide with major newsrooms, once you digest the concepts behind iNEWS Instinct, it becomes obvious that iNEWS Instinct's way of working could affect many facets of what we call mainstream editing.

First, say goodbye to placing clips on horizontal timelines. Avid iNEWS Instinct is a script-based editing system that uses a combination of text, Sound on Tape soundbites (SOT), cover images (B-Roll) and narrative track (it's awkward to use the term voice-over, since in newsrooms, a V.O. is the video sequence played while the anchorperson reads live copy), to put together news packages that can be sent directly to air.

Currently, it's a cuts-only system, but you know that will quickly advance in subsequent updates. The point is that Avid's iNEWS Instinct earned its name from the reality that it takes less time to learn the system than it takes a reporter drink a cup of Starbucks.

There have been other tries at script-based edit systems in the past, most prominently the Ediflex, designed by post-production pioneer Adrian Ettlinger, The system won its manufacturer, Cinedco, an Emmy for "Design of Electronic Editing Systems" in 1986. But mainstream editors didn't take well to Ediflex's lack of engineering control over the editing pro-cess, and its requisite analog A/V signal parameters.



WFTV Producer Jason Balthazar creates a sequence and prepares to send it to the playback server using Avid iNEWS Instinct.

CRAFT EDITORS

Journalists, however, have no such prejudices to overcome, so in this day of digital ENG; iNEWS Instinct doesn't even include waveform monitors or audio meters. All of those concerns, if needed, can be left to what is being termed "craft editors," but more on that later.

For Avid, this is a new approach to an ongoing challenge.

"As we have been installing news systems for broadcasters in various markets, we discovered that there were a lot of people in the newsroom who had become disenfranchised because there was no proper tool for them," said David Schleifer, vice president of broadcast and workgroups at Avid Technology. "iNEWS Instinct is a word processor, a video shot selector and an editor all rolled into one. Actually, it's a new class of product."

The iNEWS Instinct desktop screen presents a vertically oriented workspace, scrolling the journalist's copy from top to bottom on which the journalist selects SOT and B-roll to fit over and around the text. The system has previously been told the speed of that individual journalist's narration, a process called Dynamic Visual Timing, so it can help determine the pacing of the cover video even before the track has been recorded.

iNEWS Instinct is smart enough to dip the level of b.g. audio for on-camera soundbites or stand-ups, and video splits are created by simply dragging the head or tail video of an A/V shot over the preceding or subsequent audio. All of this can be performed with full resolution video from the newsroom's shared storage server instead of the low-res "browse" video other journalist desktop systems have suffered from.

OUT OF THE BOX

The system seems to be exceeding its promises down at WFTV, where they plan to install up to 15 iNEWS Instinct desktop systems. Dave Sirak WFTV's news operations manager for its Eyewitness News broadcasts, appreciates the fact that iNEWS Instinct, at around $4,000 per seat, is really a media manager, iNEWS client and edit system all rolled into one.

"We were able to boot up, connect to our central storage, cut a test story, and transfer it to the play-out server within an hour of taking iNEWS Instinct out of the box," Sirak described. "I've had journalists who have never seen the system before sit down and start to cut video to their script within five minutes."

But how will this affect the role of the traditional newsroom editor? "I don't see iNEWS Instinct having a negative impact on most editors," Sirak insisted. "Their skills are still unique and valuable. But it will give newsroom journalists a closer understanding of what the editing process requires and how to tell stories with good pictures."

One of WFTV's photographer/editors, Bruce Wiley welcomes iNEWS Instinct's new capabilities.

"The producers will be able to access all of my video right at their desktop so they can select soundbites for teases and opens by themselves,"

Wiley said. "Specialist editors will only be required for the more intricate projects, and that's why we'll be calling them craft editors."

Pretty apparently, this distinction of craft editor" may be one of the byproducts of the advent of this new editing process. A craft editor has been defined by a person prominent in the iNEWS Instinct development as, "Somebody who is more focused on the pictures and sound than they are on the words and the storytelling."

But as opposed to the offline/online paradigm we have become accustomed to, the journalist at the iNEWS Instinct desktop has access to the same high-resolution video off the newsroom's shared-storage server as the craft editor will be using on a full-featured system such as Avid NewsCutter or Media Composer.

"I've had journalists who have never seen the system before sit down and start to cut video to their script within five minutes."

— Dave Sirak, WFTV

So that professional editing polisher with advanced engineering skills could be adding their tweaks and trims without necessarily understanding the context of the package or interfacing with the person behind its conception. Will that mean the skill set of technologically savvy editors for manipulating the quality of the audio/video building blocks will become divorced from the creative process itself?

EDITING FOR THE MASSES

Avid's Schleifer doesn't think that will happen.

"We brought editors into the process of designing iNEWS Instinct and quite frankly, most craft editors looked at it and said 'why would I ever want to use this?'" he said. "They realized Instinct is a tool designed for other users. What we are doing is getting better information to craft editors when it is needed, and letting other work go directly to air."

Schleifer is sensitive to the concerns some have voiced that this new system may result in fewer jobs for dedicated editors.

"We've found that most facilities aspire to improve their content," he said, "and the end result of putting our system into their newsrooms has been that people work harder with better tools to produce more and better product. Ultimately, with new distribution options such as the Internet, podcasting, or even cell phone video, this may result in more employment opportunities."

That may prove to be true in the newsroom environment where hitting deadlines sometimes trumps finesse. But consider how many other kinds of productions rely on the soundbite-to-B-roll structure of communication. Lots of producers making documentaries, training videos or even simple TV commercials will quickly appreciate the advantages of dumping NLE systems requiring weeks of training to adopt an approach as intuitive as the concepts behind Instinct.

We don't want to defend buggy whip-making Luddites standing in the path of digital progress here, but many young editors for whom newsrooms have served as a video boot camp may have to consider other entry-level avenues when anyone who can put pen to paper can cut a video package. They may even have to consider becoming journalists.

Jay Ankeney is a freelance editor and post-production consultant based in Los Angeles.

Duel

CONTINUED FROM PAGE 33

But Microsoft is also hedging its bets. Console gaming platforms like Xbox (see, Bill ain't all that dumb) merely need an attachment to add the ability to manage digital music and pictures, as well as software. It can already play DVDs.

Satellite operators, who have been adding subscribers at a faster clip than cable in recent months, have also been adding DVR-equipped set-top boxes; these have achieved a greater penetration percentage than their comparable cable competitors, and are also more likely than cable to be hooked up to HDTVs.

Speaking of HDTVs, HP has been bolstering its inventory of LCD screens that integrate digital media management.

And while it may sound batty, Motorola, Samsung and other cell phone manufacturers have been stepping up development of the ultimate handheld that can control thermostats and lighting or monitor video surveillance—in addition to handling e-mail, video, music or photo chores.

Samsung has gotten even more ambitious. Why limit yourself to a device when you can build a digital home from scratch?

In Korea the company has already sold more than 6,000 networked homes, and has partnered with two U.S. home builders to integrate networking gear, for up to $10,000 a pop.

NITS AND OTHERWISE

While all these options sound wonderful, they also beget a plethora of problems. The boom in online game playing has already triggered worries that broadband networks must evolve to retain carrying capacity. To this headache add a possible spike in video downloading, particularly feature film swapping—the FCC recently ruled this is legal within a given home network account—and broadband can get narrow pretty fast.

There have been increasing consumer complaints as well about the lack of upload capacity for home broadband accounts. Downloading may be a snap, but users who actually want to send their home digital video or photo album hit snags.

Finally the usual furor over standards rages unabated. Next generation DVD, wireless, and digital rights management issues are all under heated dispute.

Nonetheless, analysts expect a quickening pace of mergers and alliances involving unlikely partners. Netflix and TiVo recently put the brakes on their proposed merger after running afoul of Hollywood, but Google, AOL, Sony, Yahoo! and others are all casting about for dance partners (and of course Apple's got to find *something* to put in its video iPod).

While many of these companies offer amazing technologies and experiences, consumers remain remarkably fickle and sensitive, making any forecast cloudy.

I may have been naive when I heard Malone and Gates so long ago, but I do remember feeling vague doubts about their grandiose schemes, and not just because of the stench of hubris that pervaded the conference halls. I hadn't become so starry-eyed by my newfound reporter's perch that I failed to notice the brewing anger of consumers maddened by Microsoft's inflexibility and cable operators' abysmal customer service.

Entrenched players in the digital home may have first mover advantages, but if they can't provide transparent services *and* care for customers, then no amount of technical wizardry will enchant.

Will Workman is a former senior editor of Cable World magazine and editor of MediaView, a monthly newsletter for the Asian cable industry. You can reach Will at wworkman@aol.com.

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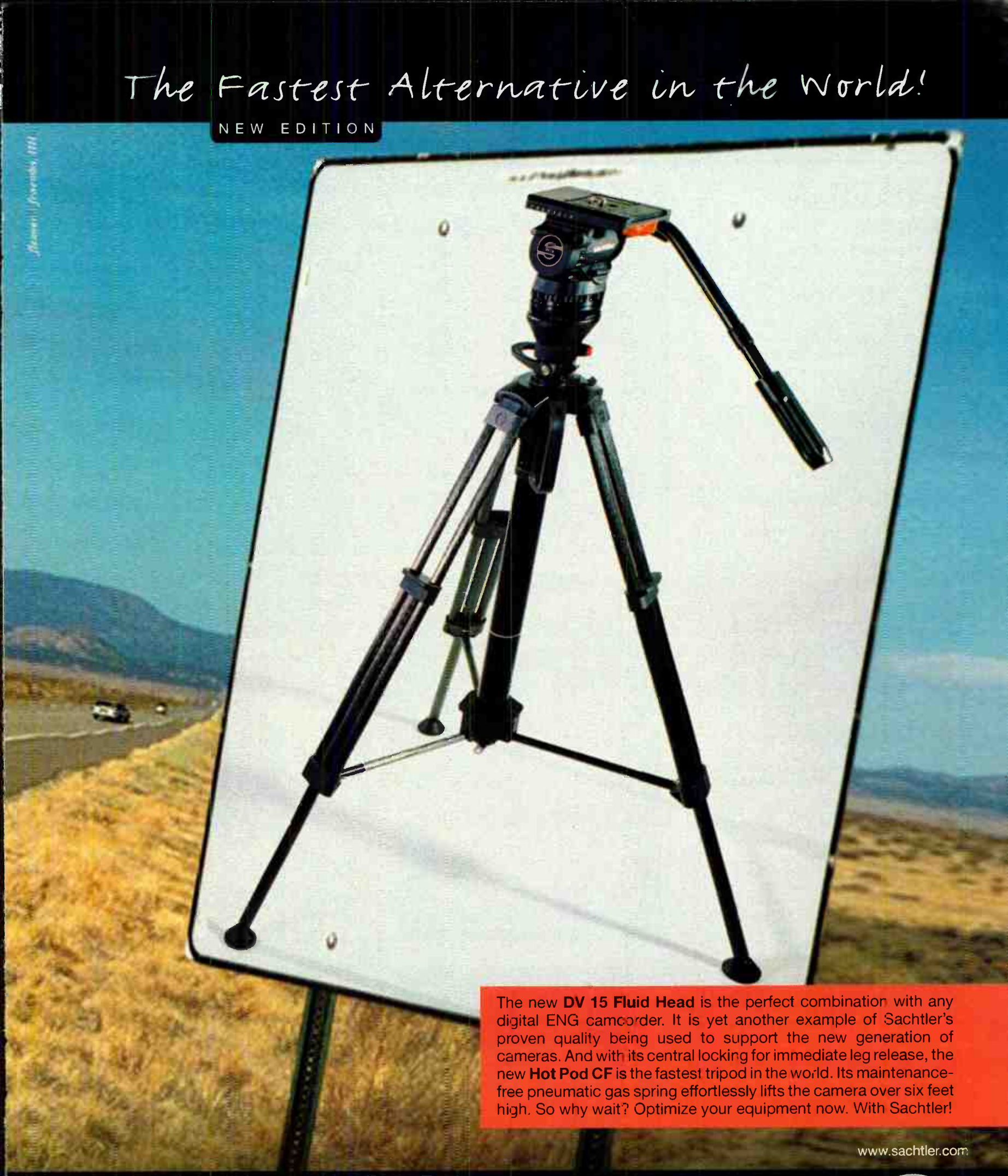

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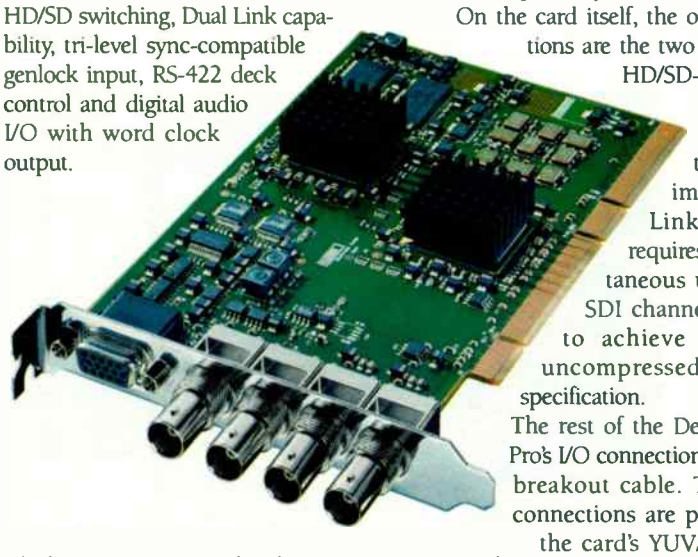
HIGH QUALITY I/O CARD

Blackmagic Design DeckLink HD Pro 4:4:4

by Stephen Murphy

Blackmagic Design's DeckLink HD Pro video I/O card establishes a new milestone on the road to affordable high definition production. The company crams an enormous amount of features and flexibility into its top-of-the-line card, including 14-bit component analog HD and SD outputs, two channels of SDI I/O with automatic HD/SD switching, Dual Link capability, tri-level sync-compatible genlock input, RS-422 deck control and digital audio I/O with word clock output.



Blackmagic Design DeckLink HD Pro 4:4:4 I/O card

FEATURES

The DeckLink HD Pro system is comprised of a PCI/PCI-X video card and I/O breakout cable. The included CD contains the installer application, user's manual and a variety of broadcast test pattern and chart files. Also included are several handy software applications including a simple deck control capture/print utility, a DeckLink-specific disk speed tester, and a live-insert alpha channel keyer.

The card is compatible with Mac OS X and Windows XP operating systems. For typical SD and offline purposes, most current desktop computers will work. To utilize the card's uncompressed HD capabilities, serious consideration must be given to configuring a top-notch system. Blackmagic Design's Web site lists requirements and hardware compatibility.

On the card itself, the only connections are the two channels of HD/SD-SDI I/O (on four BNC jacks). As the name implies, Dual Link operation requires the simultaneous use of both SDI channels in order to achieve its 10-bit uncompressed HD 4:4:4 specification.

The rest of the DeckLink HD Pro's I/O connections are on the breakout cable. Three BNC connections are provided for the card's YUV/NTSC/PAL component output. The analog out has 14-bit digital-to-analog conversion and can switch automatically between SD and HD. The analog output can also be switched to a composite mode when working in standard definition.

Other breakout cable connections are for blackburst genlock input, digital audio, word clock out and a serial port.

Most of the popular Mac OS X video applications are compatible with the DeckLink HD Pro, including Final Cut Pro, After Effects, Shake, Motion, Combustion, Cleaner and several DVD authoring systems. On the PC side, Premiere Pro, After Effects, Vegas and Nuendo are supported.

Blackmagic Design offers several lower priced DeckLink models. In a multi-user broadcast or post environment, several systems could be set up using the lower priced cards, reserving the HD Pro 4:4:4 system for master duties.

IN USE

A sign of the changing times is a piece of sophisticated video gear arriving by mail in a package no larger than a trade paperback. I installed the DeckLink HD Pro in a dual-Xeon 3.0 GHz PC running Windows XP Professional and then installed drivers. I wanted to use the DeckLink card on a short HD project in Sony Vegas 6. Setting up Vegas for use with DeckLink amounted to picking the card in the Preferences/Preview Device menu. In my project, the source files were raw HDV footage shot with a Sony HDR-FX1 camera, Photoshop-created graphics, some simple 3D track-motion animation elements and some pre-renders from After Effects. The analog image quality was very impressive.

Next, I worked on an audio mix for a SD corporate video project. The analog video outputs automatically switched to SD and everything worked flawlessly.

One of the things I like best about the DeckLink card is the level of support the company has shown beyond the hardware itself. One example is in the useful utility software provided with the DeckLink HD Pro. The Deck Control application provides capture and playback deck functionality via the RS-422 port. The included Live Key alpha keyer software allows the live insertion of graphics over the card's video outputs—very useful for live inserting of logos and bugs. It also includes a function for periodically fading in and out graphics, which could be handy for adding "Do not copy" warnings etc.

In addition to its general compatibility with most popular NLE and compositing applications, Blackmagic Design has developed tight integration with several of the most popular platforms including Final Cut Pro HD, Premiere Pro and After Effects to provide additional high-end features including real-time effects, renderless transfer of project files between applications, and 10-bit uncompressed RGB rendering.

FAST FACTS

Application
SD/HD post production

Key Features
Mac OS X and Windows XP compatible; simultaneous SD/HD playback; NTSC/PAL support; RS-422 control; HD tri-level sync

Price
$1,495

Contact
Blackmagic Design
702-257-237
www.blackmagic-design.com

SUMMARY

I found the DeckLink HD Pro easy to use and extremely stable across several different applications. The amount of support Blackmagic Design provides is most impresssive.

For those not yet working in HD, the card still provides an enormous amount of features and quality, and it should work just fine in your existing editing computer. When the time comes to make the leap to a full on uncompressed 4:4:4 HD editing system, the HD Pro puts you right on the threshold.

Stephen Murphy is a video editor and audio engineer with over 20 years of broadcast and production experience. Contact him at editor@smurphco.com.

VIRTUAL SET

Serious Magic Ultra2 Keyer and Virtual Set

by Geoff Poister

Ultra 2 by Serious Magic is actually two products in one: an intelligent chroma-keying software designed to help the guerrilla videographer overcome the evils of uneven lighting and portable backdrops, and a low budget way to use 3D virtual sets that include pre-programmed motion tracking camera moves.

Using virtual set libraries, one can take a simple subject shot against a colored background and place the person in an environment where the camera appears to crane down and dolly into the subject. The perspective and background angles change just like the expensive studio versions of virtual set software. The main difference is that the tracking moves are preset, and the effect must be applied in post production.

With Ultra 2, you can also provide your own 2D background images and program pans and zooms that alter the perspective of the background to match the motion on the subject.

FEATURES

At the heart of Ultra 2 is keying technology that creates clean mattes against imperfect blue or green screen backgrounds. The software works with DV, HD and HDV. It is built around Serious Magic's Vector Keying Technology, an algorithm that analyzes spatial, chromatic and temporal image information (as opposed to a range of colors) to key out imperfections on the backdrop screen. The aim is to provide pristine keying for people who must, at times, use low-budget materials and uneven lighting. Of course, if one can use a well-lit, high-quality backdrop with careful videography, the results will be superior.

Good keying is only part of Ultra 2's power. Most eye-catching is the ability to place subjects in elaborate 3D virtual sets. These are provided in three libraries and include sets that have pre-programmed camera moves.

For example, you can shoot a model standing in front of a blue screen in a small room, and in one click, key the model into a huge art gallery. The camera will swoop down from the ceiling and dolly in on the model as if she were photographed in a large studio with sophisticated camera tracking. You can also place video or images in background windows and place objects in the foreground. The model can walk from behind a pillar and stand in front of a desk or plant.

Composited images of this level were previously only achievable by using very expensive studio virtual set systems. Ultra 2 does not replace such real-time systems, but it simulates their performance through an ingenious post-production solution.

Panning and zooming are controlled by simple movement of the mouse on a control screen. Virtual shadows and reflections can be added to the scene, eliminating the time-consuming step of shooting to create one.

Keying the background is a simple, one-click operation if it is evenly lit. For unevenly shaded or contoured backgrounds, you can sample regions of the backdrop and tweak the keying. There are easy to use sliders for adjusting spill, color, saturation, shadow and highlights.

Studio model keyed over Ultra 2 virtual background.

Ultra 2 provides a handy "Mask Painter," which allows you to make stubborn areas of the input clip transparent. This, combined with the cropping tool, maximizes your ability to successfully key the subject.

The Live Preview feature enables you to test the settings while shooting.

Ultra 2 accepts a full range of clip inputs, so it is compatible with virtually all NLEs. Output files can be uncompressed AVI, DV, QuickTime, Flash and 24-bit or 32-bit AVIs with alpha channel for later compositing with any standard video editing system.

Ultra 2 is only available for use with Windows XP or 2000, but it can interface with Apple Final Cut Pro by transferring QuickTime files.

IN USE

I put the keying capability of Ultra 2 to the test by shooting a subject dressed in blue jeans against a poorly lit blue screen. I shot using a Sony PD-170 DV camera and captured the clips on Avid Xpress Pro. I then exported the clips as AVI files and imported them into Ultra 2.

The Ultra 2 interface is very graphic and intuitive. Most operations are drag and drop.

If you do a decent job of lighting your subject and background, keying can be a one-click job. Make sure you have some video of the backdrop alone without the subject, click the "Set Key" button, and you're finished. The same video with the subject in front of the backdrop should be almost perfectly keyed.

In my case, my shot was so sloppy that I had to use the more detailed method. By clicking and sampling several areas on the backdrop, it is possible to get a more accurate key. After doing this, I spent some time working with the 14 fine-tuning controls. They are well described in the manual. So well, in fact, that I was able to start with an atrociously lit set and end up with a well keyed subject.

I worked with "Master Sets Library 1," which has a variety of fancy studio settings and an outdoor garden. Each set has static shots for different camera angles and framing, and most have areas or windows where you can insert graphics or other video clips.

But the most fun are the ones with virtual tracking. I took a simple shot of a person in front of a blue screen, standing still with no camera movement. After adjusting the key, I placed the model in a huge museum where the camera swooped down and dolhed into a close up. The perspective of the model and backdrop were retained with stunning realism.

FAST FACTS

Application
Post production

Key Features
Keying software with virtual sets

Price
$495; (Virtual set libraries sold separately for $395)

Contact
Serious Magic Inc.
916-985-8000
www.seriousmagic.com

The most dramatic flying camera moves are pre-programmed and they may or may not suit your taste. If not, Ultra 2 works very well just with the pan and zoom functions. The supplied sets are very high resolution, so you can pan over to the subject and

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Serious Magic

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zoom in. The background changes perspective and gradually magnifies in a zoom, which is something ordinary keying software does not do.

When using the zoom feature, you do need to be careful to start with the model scaled down and zoom into the original image scale.

When I was satisfied with the clips, I rendered them out as AVI files. One minute of finished video with pans, zooms and motion tracking took about nine minutes to render on my computer, which has a 2.4 GHz Pentium 4 processor.

Finally, I imported the Ultra 2 clips back into Avid and viewed them on an NTSC monitor. The clips were most impressive.

SUMMARY

Ultra 2 is a revolutionary invention that can transform a simple standing model or talking head into a stunning visual experience. It emulates expensive virtual set software with a few caveats. The supplied virtual sets are computer generated and as such, lack true realism. But they are suitable for studio settings such as talk shows or news programs. Some are more convincing than others, so you need to select your sets according to your use. Many are designed for corporate, training or educational uses.

It is purely post-production software. Because all footage keyed to the backdrops must be rendered, the software is most suitable for short promos or intros.

This is a valuable tool for cable and university television stations or educational and corporate video producers who want to do something dazzling on a low budget. And for the price, Ultra 2 is incomparable.

Geoff Poister, Ph.D. is a member of the Film and Television faculty at Boston University and a regular contributor to **TV Technology**. *He may be contacted at* poister@bu.edu,

CAMERA PROTECTION

PortaBrace Shoulder Case and Travel Boot

by Carl Mrozek

Traveling with an expensive pro video camera on commercial airlines has always been a bit perilous and has gotten even more so since 9/11.

Based on my own experience, random hands-on inspections of pro video gear carried aboard, particularly cameras, have become almost automatic. Moreover, security personnel must now do these inspections without any assistance from the camera owner. This exposes such equipment to potential mishandling and damage. Add in the horror stories of baggage handlers stealing valuables—especially expensive electronics items—from checked baggage and it's clear that the convenience of air travel has become an annoying challenge at best and a minefield at worst for professional camera-toting travelers. Unfortunately, there are few good alternatives when carrying one's camera kit along.

An additional challenge after you're past security, is stowing the camera safely in flight. For several years I have used a large camera bag made by PortaBrace for transporting my DSR 570 and similar camcorders. On long trips with multiple connections and jets of varying sizes, there's always the issue of overhead compartment space, especially when you're in the last boarding group. Most luggage compartments in large jetliners can accommodate large camera bags. Nevertheless, on crowded flights I am often asked to check my camera bag. This also applies on the flights with compact or no overhead luggage storage.

Weary of these issues, I was determined to downsize my carry-on camera package for a recent trip to Jackson Hole, Wyo. The final leg of this flight is usually on a commuter jet with no overhead storage. The PortaBrace Web site offered a possible way to eliminate the bulky camera bag—a very compact camera "shoulder case" and another item called a "travel boot." The combination of the two would provide almost as much protection as a camera bag and much more than would be afforded a "bagless camera" when airlines officials insist that larger carry-ons be checked.

FEATURES

PortaBrace's camera shoulder cases are well-known among professionals. These are form-fitted, padded covers designed to protect specific camera/camcorder models. Custom tailoring and flaps and windows allow unimpeded access to camera controls and doors. Besides providing protection from precipitation, the cases also reduce the risk of damage due to scratches and jolts.

The PortaBrace Travel Boot provides a lot of camera protection with minimum bulk and weight.

The shoulder case outer shell is constructed of a soft waterproofed fabric. There is an inner nylon surface and a moisture-resistant foam layer sandwiched in between. Cases are designed to fit snugly, yet provide ventilation and circulation for fast drying, should there be exposure to precipitation. Zippers and Velcro keep the case snug. A permanently attached waterproof "Raintop" slicker and storage pocket are also part of the shoulder case. The slicker can cover the entire top of the camera, including the lens, to provide effective protection against rain, sleet and snow, dust and ocean spray.

The companion PortaBrace Travel Boot is designed to protect cameras in everyday transport, including air travel and airport security screenings. Like the shoulder case, the travel boot is made of nylon fabric with foam padding between layers.

Unlike the camera-specific shoulder cases, the travel boots come in only three sizes. PortaBrace provides a detailed Web site listing of cameras and boot sizes. Weighing barely a pound, the boot hugs the camera and lens and takes up little more room than the camera itself. While traveling, the boot provides padding and protection sufficient for overhead compartment storage. This makes it feasible to keep your camera well protected at all times. The boot covers the lens, camera body and base plate. A large canvas pocket holds a detached camera viewfinder. When the camera boot is combined with the shoulder case they form a "carrying case lite."

IN USE

The shoulder case arrived without instructions, but fortunately there is only one correct installation. This was determined by aligning the door flaps for the side control panel and the VTR door on the opposite side. When properly aligned, four plastic loops at the corners of the camcorder body cinch the case into place. This allows the two large door flaps to open and close without blockage. I managed to get everything semi-aligned on my first attempt. Once the door flaps are aligned, the rest of the shoulder case can be tightened with Velcro flaps and snaps. There is also a flap at the backside of the camera sized to accommodate a large brick battery and two wireless receivers. When using a smaller payload, the flap can be snugged up with Velcro.

With the shoulder case installed, I carried the camera through soggy vegetation and used it in light rain and

PORTABRACE, PAGE 44

FAST FACTS

Application
Professional camcorder and camera transport and use

Key Features
Water-resistant, padded camera protection

Price
Shoulder Case $359; Travel Boot $159

Contact
PortaBrace
802-442-8171
www.portabrace.com

PortaBrace

CONTINUED FROM PAGE 43

even wet snow without removing the Raintop slicker from its pouch. The camera never seemed damp. However, to err on the side of safety, I always air-dried it afterwards to guard against any damage from moisture.

Whenever I had to shoot in heavy or even steady light rain, I used the onboard "poncho." This fits snugly around a standard lens with the aid of an adjusting strap. With the strap fully tightened, using manual controls became a bit more difficult. However, things worked smoothly in "auto-mode" with the zoom rocker and adjacent VTR trigger. There was sufficient room underneath to switch from manual to automatic lens controls, and to access manual functions on the opposite side of the lens.

I seldom shoot in a downpour without partial protection, such as a door canopy. However, on several occasions I was dependent solely upon the Raintop for protection. On one of these, I had to perch the camera on a fully opened truck window frame, with the covered lens protruding into the rain. While the front lens element was splattered with raindrops, the barrel never got more than slightly damp. When the camera was removed to a dry location, the slicker dried quickly.

My main reservation about the slicker is the placement of its storage pouch immediately behind the lens handle. This leaves barely enough room for a slender hand to manipulate lens controls. My large right hand kept fighting the pouch. Possible solutions might include less lower stitching between the pouch and shoulder case or to make the Raintop pouch detachable, so it could be removed from the vicinity of the lens handle. Nevertheless, having the slicker handy is a godsend when shooting in steady rain.

The TB-2 travel boot I tested was designed for mid-sized professional cameras. Installing it on the DSR 570WS was almost as easy as donning a winter hat with earflaps.

AIRLINE TRAVEL

I would recommend removing the camera viewfinder when traveling on a commercial airline. The camera package is then much more compact and easy to stow in overhead racks, especially on smaller planes. The PortaBrace boot has a large pouch for secure viewfinder storage. The boot can also accommodate the camera with viewfinder attached. When not flying, I prefer this latter configuration. It effectively provides a compact and lightweight case, which is great protection when moving through brush or on rough terrain.

The travel boot proved invaluable on my multi-flight trip to Wyoming. I had to send my camera through the airport security X-ray machine, independent of the camera bag and I was not permitted to handle the camera. Although security personnel do not deliberately abuse equipment, I was definitely at their mercy. The travel boot provided padding for both the camera and my nerves during the security ordeal.

I had to check my carry-on camera bag on two of the connecting flights. Normally, removing my camera from its protective environment would have been cause for concern. However, with both the travel boot and shoulder case protecting it, I felt comfortable stowing the DSR 570 in the overhead compartment. Without the travel boot, I would have cradled the camera on my lap for most of the flight, rather than stowing it in the bin or placing it under a seat.

It was also a huge relief not having to lug a bulky camera bag around at busy air terminals.

CONCLUSION

I am a videographer who carries a bulky camera and accessories while tracking wildlife. Despite my best efforts, the camera inevitably gets knocked around a bit. Even with care, sometimes the camera takes some real abuse. With the shoulder case and travel boot, the potential for damage is greatly reduced.

The PortaBrace shoulder case provides excellent protection from scratches, light to moderate precipitation and gives decent protection from bumps and jolts. When using the onboard rain slicker, the camera is afforded adequate all-weather protection. By adding the travel boot, both camera and lens gain significant protection from everyday hazards, as well as those unique to air travel in the post-9/11 era.

The moderate cost of both items is money well spent by any professional who works outdoors or even frequently transports cameras to indoor shoots. The price of this protection is more than offset by increased camera resale value and reduced camera repair. The protection provided by the shoulder case enables me to work freely without fear of disabling damage to my camera. The travel boot makes it feasible to transport my camera and key accessories without a bulky camera bag. This makes travel easier and less stressful for me and my camera.

Carl Mrozek operates Eagle Eye Media, based in Buffalo, N.Y., which specializes in wildlife and outdoor subjects. His work regularly appears on the Discovery Channel, The Weather Channel, CBS, PBS and other networks. Contact him at eagleye@localnet.net.

EYE ON EQUIPMENT

Save Gas, Save Your Budget

by Bob Kovacs

The recent spike in gasoline prices has smacked a hole in planning and operating budgets for companies that operate ENG and SNG vehicles.

With the price of gasoline as much as 30 percent higher than it was at the beginning of the year, truck operators don't want the higher cost of fuel to prevent them from covering the news. The immediate good news is that there are a number of inexpensive steps you can take to maximize the gas mileage that your trucks get. In the long term, vehicle manufacturers are working on technologies to improve the efficiency of TV news trucks.

Now, more than ever, it's important to keep your ENG vehicle well maintained.

JUMP-STARTING EFFICIENCY

Truck integrators say that there is one word to remember when looking for high-efficiency vehicles: diesel. An ENG van based on a diesel chassis such as the Dodge Sprinter will typically get 25 miles per gallon, compared to a similarly sized gasoline powered truck that gets typically less than 15 mpg. Considering that diesel fuel is usually a bit less expensive than gasoline, that amounts to a big operational savings each year.

Assuming 20,000 miles per year on an ENG truck, a 25-mpg diesel model will use around 800 gallons of fuel. At a cost of $2.40 per gallon, that's $1,920 per year. A gasoline-fueled truck getting 15 mpg will use around 1,330 gallons. At a cost of $2.50 per gallon of gasoline, that's more than $3,300 per truck. A diesel truck will save about $1,400 per year in fuel costs, just taking mileage into consideration.

Keep in mind that in real-world use, the truck's engine can idle for hours at a time to keep the crew comfortable and ready for news to break. An idling diesel engine also uses less fuel than an idling gasoline engine. This means that the diesel/gasoline expense gap will be even wider.

Someone at your facility probably has records of how much gasoline your current trucks use each year. Take those numbers and lower them by one-third to get an idea of what you could be saving if you changed your fleet from gasoline to diesel power.

In addition to the diesel engine for the truck, the on-board generator can also be diesel, as these are more efficient than their gasoline-fueled

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Save Gas

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cousins. A diesel generator only makes sense on a diesel truck; otherwise you'd have to carry two different kinds of fuel. Therefore, you can't really hope to save anything by replacing your existing gasoline generators with diesel units.

Diesel engines have different characteristics than gasoline engines, so make sure that diesels are right for your application before signing the big check. In particular, diesels are generally harder to start in extreme cold than gasoline engines and diesel fuel can gel at low temperatures. However, there are ways to make diesels usable in even the coldest climate.

If you really want to improve mileage and show the community that your station is trying to reduce its use of foreign oil, you can get vehicles that operate on "bio-diesel," which is created from agricultural products. It's even possible to get engines that run on both diesel and bio-diesel fuels.

Before you do anything along these lines, check with local fuel suppliers to be sure that there is a steady, reasonably priced supply of the fuel that you need.

FLEET IMPROVEMENTS

If you already have diesel trucks, or if your gasoline trucks will not be replaced anytime soon, there are several things you can do to improve operating economy. Most of these are cheap and easy to do.

The number one way to ensure the best mileage from your vehicles is to make sure the tires are properly inflated. Every truck should be equipped with a tire pressure gauge (less than $5) and it should be used once a week. Tire pressure should always be checked when tires are cold; first thing in the morning is best.

Driving an ENG vehicle is a little like driving a sailboat down the highway and there's not much you can do about that.

If you don't know the correct air pressure for your truck's tires, look in the vehicle operator's manual or call a dealer. Never exceed the maximum pressure rating on the sidewall of the tire; however, it's perfectly acceptable to get close. Tires with slow leaks should be fixed promptly.

If your facility doesn't already have one, get an air compressor to help keep the tires properly inflated. A perfectly respectable compressor with all the hoses and fittings will cost less than $350. A compressor takes precious little space and will certainly earn its keep. With just a small amount of care, it should last for many years.

A properly running truck is an efficient truck, so performing regular maintenance is crucial. One of the most common mileage killers is a dirty air filter. This is usually both inexpensive and easy to replace.

In normal situations, replace air filters twice per year. If your trucks see a lot of dust, replace the filters every month. A dirty filter not only kills mileage, it also robs performance.

Regular oil changes are good for a vehicle's efficiency and synthetic oils can give a tiny boost to mileage. Dragging brakes will destroy fuel economy in very short order, so have them checked if there's a dramatic surge in a vehicle's fuel consumption.

POTHOLE CITY

Let's face it: ENG trucks get a lot of abuse. From driving too fast on potholed roads to chasing ambulances on stormy nights, your trucks are always hitting things that most drivers would

SAVE GAS, PAGE 48

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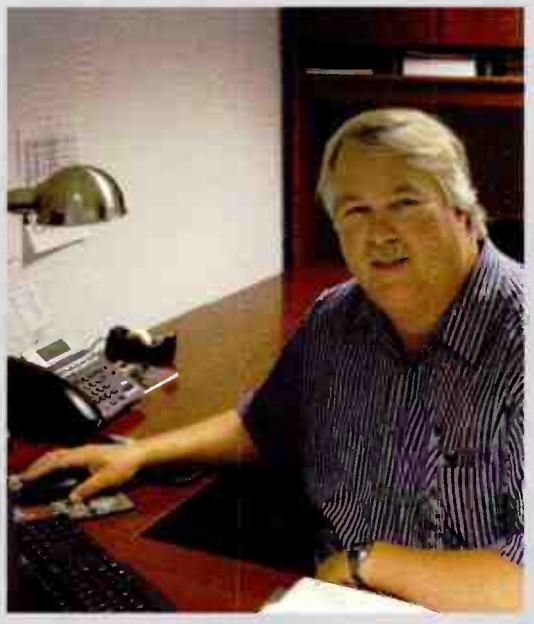

Jeff Steele
Systems Engineering Manager

Frontline Communications
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Save Gas

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normally avoid. This is hard on the vehicle's front-end alignment, which in turn hurts mileage.

Therefore, have the front-end alignment of your trucks checked annually and get them adjusted if they are out of whack. This will not only save fuel, it will also save tire wear.

You may also get a bit better mileage by putting your trucks on a diet. All that stuff requires fuel to move it around. The less stuff there is, the easier it is to motivate. Obviously, you need equipment to get the job done and having to double-back to the station to get a second tripod is far more wasteful than carrying a spare, but there may be things that can be removed. It doesn't hurt to take a look around every now and then. What about that set of tire chains that have never been out of their container? At least leave them at the station during the warmer months. As a rule of thumb, you will get a one-half mpg increase for every 100 pounds you can remove.

Don't count on new equipment being lighter and smaller than older gear. Although a lot of older microwave gear will be replaced in the Sprint Nextel BAS relocation project, the resulting savings—if any—will be minimal. Even an all-new truck designed from the ground up is likely to take advantage of the smaller size and lighter weight of new equipment by putting more equipment in the same space.

Running all the television equipment in a truck makes the generator work harder and in doing so, consumes an additional amount of fuel. Turning off non-essential gear will save a little fuel here and there, which may add up to a significant savings in a fleet of trucks over the course of a year. Even if a generator is running, it's burning less fuel when the load is small, so turn on the really heavy power users only when you need them.

An ENG vehicle's poor aerodynamic performance is one thing that can't really be changed. You need all that gear on the roof and there is no easy way to tuck it away. Any aerodynamic treatment given to roof-mounted gear is likely to complicate and slow the set-up and tear-down processes. This is something that can't be compromised in ENG trucks.

Driving an ENG vehicle is a little like driving a sailboat down the highway and there's not much you can do about that.

There is one other consideration if you want to lower fuel costs: Use hybrid vehicles such as the Toyota Prius for crew transport. The Ford Escape Hybrid SUV is even seeing some use as a light-duty spot-news vehicle. The public is fascinated by hybrid vehicles, so in addition to saving on gasoline costs, your station will be seen as doing its part to reduce dependence on petroleum. Sometimes it feels good to put your money where your mouth is.

BE A GOOD CITIZEN

No one is saying that you can't cover the news the same way you've been covering it, only that it's smart to save money by improving the fuel efficiency of your ENG vehicles. In addition, it's downright patriotic to use less fuel; this is one case where you can do well by doing right.

It's not just us in the United States, but others around the world who will benefit by reduced consumption of petroleum products. Every drop of oil not burned is that much less carbon dioxide produced.

Most analysts think that petroleum will be around in sufficient quantity for at least another 20 years, but it's clear that the days of cheap oil are over. You can protect your facility's exposure to uncertain oil markets by improving the efficiency of your vehicles.

Bob Kovacs is a broadcast engineer and writer, and has published several articles on automotive maintenance. He can be reached at pvreditor@yahoo.com.

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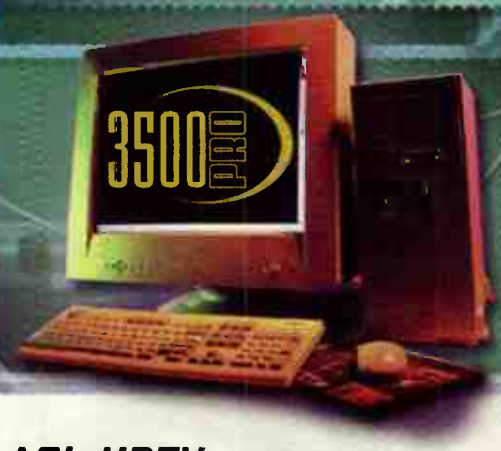

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AUDIO TOOLS

Metric Halo SpectraFoo and Channel Strip

by Michael Hanish

Metric Halo Labs has just released Macintosh OS X versions of its two indispensable audio applications: SpectraFoo and Channel Strip. They should be in every audio engineer's toolkit, and at the disposal of everyone who works with live, or recorded audio. While not specifically designed to work together, these two programs are such a natural complement to each other that they should be considered as a functional pair.

FEATURES

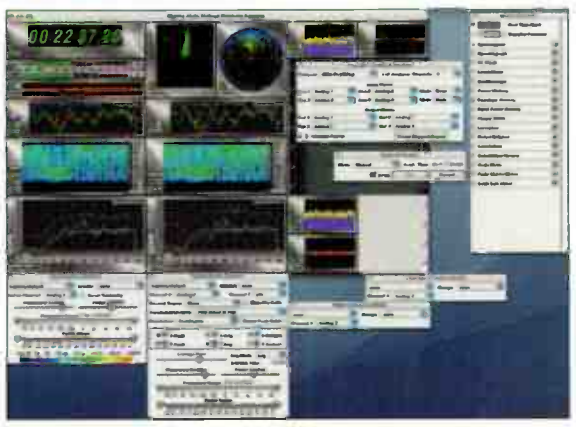
SpectraFoo, a software-based audio test and analysis suite, comes in two flavors: Standard and Complete. The Standard package contains every instrument needed to EQ a PA system, calibrate studio monitors, vet audio signal paths, or otherwise analyze any sort of live audio signal, all in real time. SpectraFoo runs on Mac OS X systems from 10.2.8 through the latest version of 10.4 (Tiger), with a minimum of 512 MB RAM. SpectraFoo's real-time analysis and display performance is greatly enhanced by OpenGL, available on all shipping Macs. I/O is handled by any CoreAudio-compliant device, internal or external, which makes this application extremely flexible and easy to deploy in a wide range of machines. Under the Tiger, CoreAudio has been expanded to provide "Aggregate Device Support," which means that multiple devices can appear as a single device.

Standard dual-channel instruments include configurable level meters (Peak, RMS, VU simultaneously, as well as European and AES PPM standards and K-system metering), spectragraph (spectrum analyzer with snapshots), an oscilloscope, timecode clock, power and envelope history, band power history (shows the history of a set bandwidth around a specified center frequency), power balance, Lissajous Phase Meter and stereo position modes. The unique Phase Torch displays phase as a function of frequency.

Instruments can be deployed individually or in groups, and channels can be linked to ensure that both channels use the same calibration. For convenience and flexibility, all instruments can be grouped in one window and positioned and sized as needed. It is quite nice to see all instruments providing analysis and display in real time and with high-resolution detail.

SpectraFoo Complete adds several instruments and analysis possibilities, including sample code metering tools, used to examine and analyze the bits of a digital signal, a two channel differential FFT analyzer and a delay finder. SpectraFoo Complete can also generate a wide variety of test signals.

Channel Strip, the other part of the equation, provides audio processing for digital audio workstations. It offers high quality EQ, gate and compression. Channel Strip functions include input gain/trim, polarity invert, expander/gate with sidechain filter, compressor with sidechain filter, six-band fully parametric EQ, user-adjustable 255 sample delay and output gain/trim. Metering is dependable, flexible and excellent. In addition, the plug-in interface can show gate, compressor and EQ parameter settings as graphed functions. These displays represent current parameter settings and allow quick adjustments.



The SpectraFoo multi-featured display screen can be configured by the user.

IN USE

I used SpectraFoo to get my studio monitors to sound more accurate in place. Thanks to the excellent SpectraFoo manual, I was able to use the signal generator, capture functions and analysis and comparison routines to greatly improve the overall sound of the monitors. Since SpectraFoo is a real-time analisis engine, it immediately reflected changes in my setup EQ for the monitors and is fully interactive.

The big use for both applications is in sound design and audio post for video. I use SpectraFoo to get a detailed spectral picture of the sound or mix, depending on the stage of the process. I use Channel Strip to improve the sound and/or mix. There may be other applications that will perform harmonic analysis of a sound file and can later be used as a basis for EQ and correction, but none that do it as accurately or as comprehensively. Channel Strip's EQ and compressor sound great—as good as or better than most dedicated hardware units—and the controls are very clear and easy to use.

FAST FACTS

Application
Professional audio testing, setup and operations

Key Features
Spectrum analyzer, phase meter, correlation meter, test signals and more

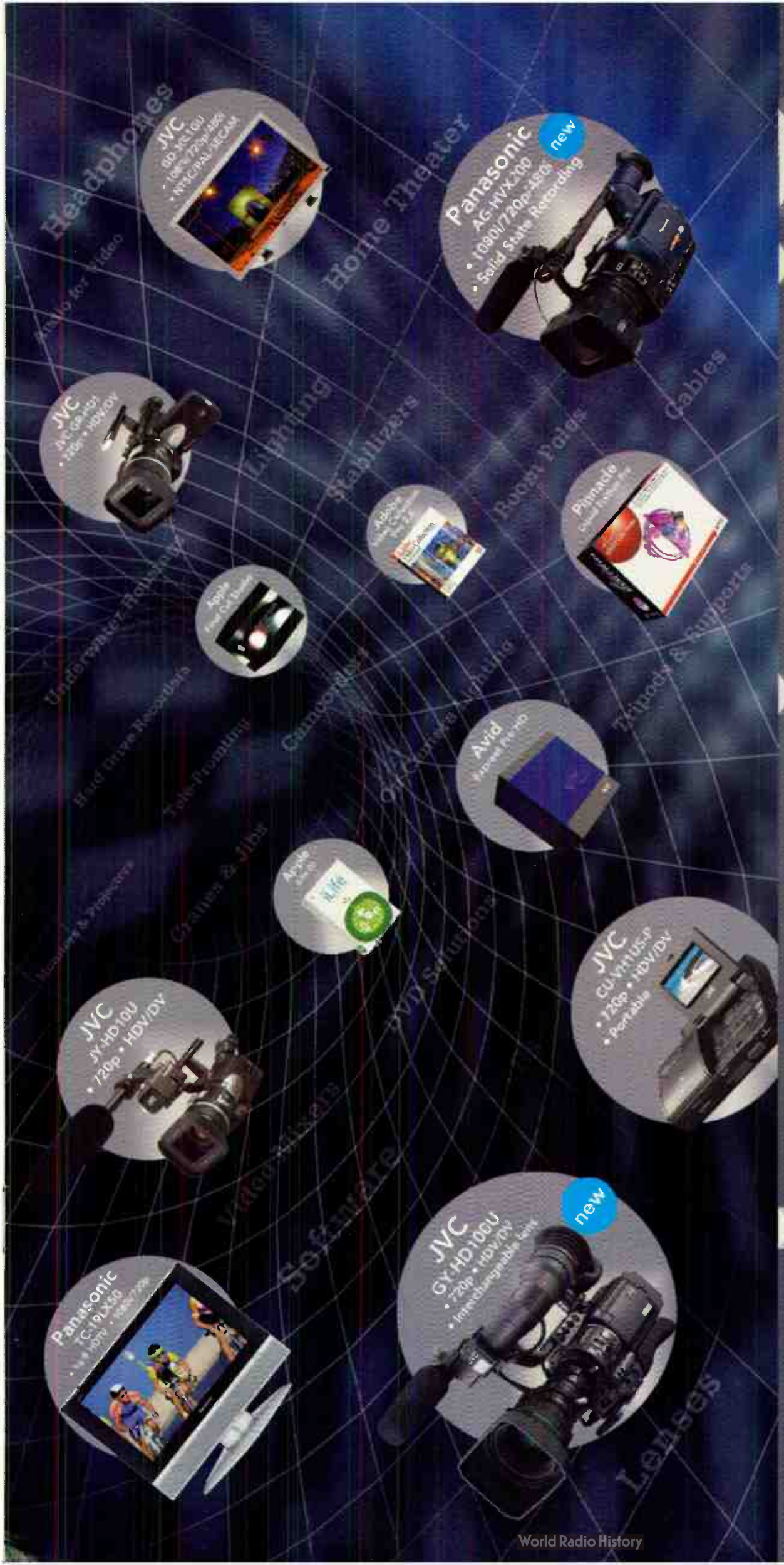
Price
Standard $400; Complete $800; Channel Strip $699; Native $345

Contact
Metric Halo Labs
845-223-6112
www.mhlabs.com

SUMMARY

To some, test equipment may not be the most exciting application software, but with one look at SpectraFoo you will be hooked. For live sound engineers, it can replace a whole rack of hardware and shorten set-up time greatly. For studio applications, SpectraFoo has numerous uses, all certain to save both time and money. For the record, there are still OS 9 compatible versions of these applications available, and they also come highly recommended. Whichever version you use, both are worth the time to try out. High praise to Metric Halo Labs for these fine applications.

Michael Hanish operates Free Lunch, a video/audio multimedia production house near Guilford, Vt. Contact him at mhanish@sover.net.



IN-DEPTH WITH HDV

What is HDV?

HDV is a new video recording format that enables **High Definition** video to be recorded onto MiniDV tapes. This revolutionary technology provides almost **6 times the picture information** of standard definition, while keeping the cameras **small & affordable.** Just like standard DV, the HDV signal can be transferred to your computer editing system via Firewire. This keeps the HDV edit workflow easy, familiar and manageable.

B&H: Your HDV Source

B&H offers every solution for your HDV video production: Cameras, Decks and Editing Systems. Our knowledgeable sales staff is on hand to help you make the best possible choice. For **Broadcast, Corporate, Event Videography** and **Digital Filmmaking**, B&H has the products needed to take you through editing, mastering and delivery.

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Pro Fluid Head

The 526 Pro Fluid Video Head by Manfrotto—created for the high-end ENG and EFP video market—can support weight loads up to 35.3 pounds.

The 526 features a fluid drag system, composed of three step settings for low to high drag levels and also features a no-drag setting for snap-pans and tilts.

Additionally, the fluid head contains an adjustable spring for camera weights for counterbalance and a built-in 100mm half-ball for adaptability. The 526 also features a removable pan arm rosette, allowing for small replacements in case of any damage to the side castings during use.

The fluid head is also available with the 350MVB tripod in a complete video kit. The tripod and head kit supports heavy ENG loads and comes with a padded tripod bag for protection and makes traveling easier.

For more information, contact distributor Bogen Imaging at 201-818-9500 or visit *www.manfrotto.com*.

Digital Console

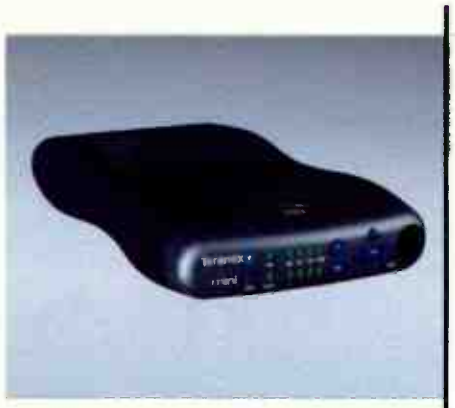
The C300 by Solid State Logic—part of the company's C-Series digital console range —is a compact, assignable console and is designed for a full spectrum of film and post-production applications.

The C300 Master Studio System integrated DAW control uses techniques pioneered with the AWS900 console. This brings the workstation into the console allowing interaction between console and DAW.

Other features include Dynamic Resource Allocation, more than 500 mix inputs and 80 mix busses, process linking and stacked channel grouping, integrated multi-machine control, integrated 128-input, multi-format surround monitoring and multi-user configuration from a single C-Series processor.

Additionally, the digital console offers multiple sample rates including pull-ups and pull-downs for international compatibility.

For more information, contact Solid State Logic at 212-315-1111 or visit *www.solid-state-logic.com*.



Format Converter

The Teranex Mini is a portable DTV format converter that can be used as a standalone portable4 DTV format converter or three can be rack-mounted on a 1RU shelf.

Applications include NLE ingest/playout conversions, SD camera upconversion, HD VTR donwconverion and driving plasmas and projects at their native rate (up to 1080p).

A second new platform, the XMR, is a companion to the existing XM modular platform. The XMR fits in the same Thomson Kameleon chassis as the original XM and uses the same Newton control panel, SNMP, and Web control infrastructures.

XRM configurations include up/down/standards/HD side conversion and animated logo insertion.

For more information, contact Teranex at 407-858-6000 or visit *http://teranexlive.dimentians.com*.

NLE Software

The former Pinnacle Liquid editing product line has now been rebranded as Avid Liquid after the company purchased Pinnacle Systems earlier this year.

The updated product line now includes Versions 7.0 of Avid Liquid and Avid Liquid Pro, both designed for users who want a single application for creation and delivery of tape, DVD and streaming media. New features include SmartSound integration, offering custom music creation directly inside Liquid; native editing support for WM9, DivX and MPEG-4; new effects, including TimeWarp, Stabilize, Dream Glow and 50 Commotion plug-ins; Avid Open Timeline and the ability to preview HDV in SD.

The product line also includes new configurations and pricing for the Avid Liquid Chrome HD (v. 6.1) product line featuring advanced SD and HD I/O hardware.

For more information, contact Avid Technology at 800-949-2843 or visit *www.avid.com*.

HDTV Scanner

The new HDTV/PC scan converter by AV ToolBox, a division of TV One, converts both PC and HDTV input to NTSC or PAL output and is designed for boardrooms, conference centers, classrooms and anywhere else requiring mixed format, multimedia conversions.

The converter makes composite, S-Video and component available at its outputs and features loop-through input. It supports PC input up to 1,600 x 1,200@60 Hz. The unit manages HDTV input up to 1080i as well as VGA refresh rates extending to 140 Hz.

Features include switchable PC or HDTV inputs, built-in test signals, image zoom, pan, a 2D flicker filter and a comprehensive aspect ratio adjustment. The AVT-3190HD is now shipping.

For more information, contact AV ToolBox at 800-235-3280 or visit *www.avtoolbox.com*.

Digital 4K Projector

The new market-ready digital Silicon X-tal Reflective Display (SXRD) 4K projector by Sony started shipping in October.

The new SRX-R110 model is specified at 10,000 ANSI Lumens and is designed for screens up to 40 feet wide.

The projector has 4K resolution—4096H x 2160V pixels at 1.85:1 aspect ratio.

The projector has a high contrast ratio for deep blacks, picture uniformity and signal processing, including 4:2:2 to 4:4:4.

The SXRD device used by the SRX-R110 and SRX-R105 is a 1.55-inch (measured diagonally) Liquid Crystal on Silicon-based imager.

Accessories include an analog input card, HD/SDI input card, 1.5x, 2x, 2.5x and 4x zoom lenses and more.

For more information contact Sony at 800-686-7669 or visit *www.sony.com/professional.com*.

Send new product press releases along with color photographs to:
Marketplace Editor, P.O. Box 1214,
Falls Church, VA 22041, USA

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CAMERAS

Want to Sell

Sony Betacam SP UVWB, 3 batts & chrgr/AC, comes w/hard case, 600 hrs, $2500. Glen, 208-735-1970 or 208-420-9779.

Sony DXC-537 w/BVV5 Beta back & Hi8 EVV9000 back, full setup, good lens, $5000 or will trade for or into loaded Mac laptop/desktop dual G5. Bruce, 406-542-2595 or bbbacres@bresnan.net.

Sony DXC-D30 w/PVV-3 docking camcorder, $9500; Panasonic AJ-D700 DVCPRO Camcorder, $2495; (4) Panasonic AW-E750 2/3" 3-CCD convertible camera w/lens, $5950/ea; Sony DXC930 color video camera, $2995. 818-788-4700 or www.tvprogear.com.

CAMERA ACCESSORIES

Want to Sell

Cartoni Beta Head & Single Stage Sticks, $1750; Sachtler Vario-Ped 2-75, $12500. 818-788-4700 or www.tvprogear.com.

CSR/Daiwa tripod w/TD35 titanium legs, ENG 30, hi-end head, beautiful fluid motion, for hi-end work, brand new cond, $4000 or will trade for or into loaded Mac laptop/desktop dual G5. Bruce, 406-542-2595 or bbbacres@bresnan.net.

Broadcast Audio/Video Equipment Auction

Digibeta, Betacam SP, Cameras, Scopes, Monitors, TBC's, & DA's

Joseph Finn Co. Inc. will conduct an auction of over 1,000 pieces of broadcast equipment Wednesday, December 7, 2005 in New York City. All items will be sold by catalog from the Holiday Inn at 440 West 57th Street (between 9th & 10th). An inspection and equipment preview will be held at 540 West 36th Street, 7th floor, Monday, December 5 & Tuesday, December 6.

Visit www.josephfinn.com for more detailed information and an auction brochure. On-line auction held at www.bidspotter.com

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Sony PVM1954Q, $1250; Sony PVM-20M4U, $1750; Sony PVM-20M2U, $1600; Sony PVM-1944, $1000; Sony PVM-1354Q, $600; Sony PVM-1351, $450; Sony PVM-14M4U, $1095; Sony PVM14L2, $1295; Sony PVM9L3, $900; Sony PVM8042Q, $400; Sony PVM8044Q, $500; Sony PVM8045Q, $700; Sony PVM5041Q, $450. 818-788-4700 or www.tvprogear.com.

SIGNAL PROCESSING

Want to Sell

Leitch FR-684 Dual PS 2RU Frame, $295; Leitch FR-884 Dual PS 2RU Frame, $295: Leitch Mix-7001 Multi-function digital frame, $400; Leitch 6804 Mounting Frame w/Pwr sply, $250; Leitch SPG-2602N Pulse Gen, $1,250, Grass Valley Series 8900 Frames w/redundant pwr sply, $600; GVG 8501 Video DA's, $125; GVG 8551 Audio DA's, $100; Sony BVX-D10/BVR-11, $3,990; Leitch DPS-290 Component TBC, $1,200; Leitch DPS-465 TBC/Digital Component Sync, $2,250; Leitch DPS-470 Digital Component AV Sync, $2,990; Leitch DPS-575 Digital Processing Sync, $4,750. 818-788-4700 or www.tvprogear.com.

STATIONS

Want to Sell

Class-A UHF TV station for sale in Muskegun MI, market 38. On-air for 14 years, owner retiring. Can be see on web at http://hometown.aol.com/wmkg/index.html, please submit all offers, asking $750,000. This station could possibly be moved to a larger city. Bud, 231-733-4040.

SWITCHERS

Want to Sell

Videotek Prodigy Component Switcher, $2995; Videotek RS-12DVA SDI Routing Switcher, $600; Miranda Digipath 16x16 SDI Router (w/remote panel), $3,500; Leitch 4x4 MB Routers, $175; GVG Ten X, $600; Kramer 5X4 A/V Switchers, new, $475. 818-788-4700 or www.tvprogear.com.

TEST EQUIPMENT

Want to Sell

Leader LV-5100D Component Digital Waveform, $3990; Videotek TVM-821D SDI Waveform/Vector, $3,295; Tektronix WFM601M SDI Waveform, $5,500; Tektronix WFM601i SDI Waveform, $5000; Tektronix WFM601 SDI Waveform, $3,990: Tektronix 1750 wfm/vec, $2250; Tektronix 1765 NTSC/PAL Wfm/vec, $3450; Tektronix 1730D SDI vector, $2000; Tektronix 764 Digital Audio Monitor, $1500; Tektronix 760a Audio Monitor, $1000; Videotek VTM-100 On Screen Monitor, $1,850. 818-788-4700 or www.tvprogear.com.

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VTRs/VCRs/ RECORDING MEDIA

Want to Sell

Ampex VPR 2B 1" VTR in console, was in gd wrkg cond when removed from service, complete w/TBC & spare VP 2 VTR & TBC for spare boards, these units are free for pick-up in Birmingham, AL; also the following VCRs for repair or parts, Hitachi VLS 100, Panasonic AG7400 S-VHS VCRs, Sony BVU 150 U-Matic SP VCR w/PortaBrace case & VO6800 U-Matic portable VCR, any offers considered. D Brennan, 888-823-0088.

TV TECHNOLOGY .COM

DSR-30, xlnt cond, full featured DVCAM VCR, can make letterbox of your widescreen footage, $2000; (2) Sony S-VHS editing decks, SLV-1000 & SLV R5U, both exlnt cond, cash or will trade for or into Mac dual G5 or hi-end Mac laptop. Bruce, 406-542-2595 or bbbacres@bresnan.net.

Sony UVW-1800 BetacamSP, $4950; Sony PVW-2800 BetacamSP, $5000; Sony BVW-70 from $5000; DSR-1500A, new, $5150; Sony DSR-45, new, $3895; Sony VO 9850 w/timecode, $1200; Sony VO 9800 w/timecode, $1000. 818-788-4700 or www.tvprogear.com.

HELP WANTED

Communications Engineering, Inc. (CEI) is seeking qualified applicants for opportunities which offer unlimited growth potential. As a recognized leader in the integration of broadcast systems, CEI offers a range of career opportunities to qualified individuals with various levels of education, expertise and experience. Opportunities at CEI include: **Senior Systems Design Engineer and Systems Design Engineer:** If you have a background in the analysis, design and management of media communications systems as well as knowledge of equipment, current trends and technical developments in the industry, then please contact CEI and let us know how you could make a contribution to our company. The positions are responsible for the design and functional checkout of advanced audio, video and software systems. **Broadcast Service Engineer:** Ability to provide technical repair and maintenance services to broadcasters, post production facilities and other A/V clients. This position requires working with clients to provide on-site and/or shop repair services. Applicants must have experience in the component level repair of broadcast cameras, video tape recorders and other production equipment. **Senior Systems Installation Technicians and Installation Technicians:** Duties include pre-wiring and preparing racked systems and furniture consoles for broadcast technical facilities. Must have experience in cable fabrication and termination, mechanical assembly, and rack & cabinet wiring and harnessing. Must have ability to understand and use wire lists, schematics and technical documentation. Please send your resume and communications to: Fax: (703) 550-5180 Attn: Shay Martello, **E-Mail shay.martello@commeng.com**; Mail inquiries to: Shay Martello, Communications Engineering, Inc., 8500 Cinder Bed Road Suite 100, Newington, Virginia 22122.

nep

NEP Broadcasting is seeking experienced Mobile Unit Engineers to monitor broadcast operations at remote sites, perform preventative maintenance, trouble-shooting, execute changes and engineering updates on the mobile unit. Degree, training, 3+ years experience in broadcast technology, equipment, facilities, and production or any combination will be considered. Maintenance engineering background a plus. Please send resume and salary history to NEP Broadcasting LLC, hr@nepinc.com, Fax: 412-820-6045, 2 Beta Drive, Pittsburgh, PA 15238. www.nepinc.com.

Mira Mobile Television is seeking engineers with proven experience in mobile television production broadcasts. MIRA has openings for engineers in charge (EIC) and "remote maintenance engineers" (E2). Applicants must have significant knowledge in broadcast television including standard definition analog/digital and high definition. Positions require regular travel on the west coast to sport and entertainment venues. Engineers must be capable of interfacing with clients under difficult situations while representing MIRA with a positive "can do" attitude. Applicants must have the skills to manage and maintain the operational state of mobile unit equipment. Good written and verbal communication skills as well as computer skills in program operations and network interfacing are required. Resume submissions should include education, industry training, detailed experience in broadcasting, employment and salary history. EOE. Please send resume and cover letter to: rkirk@miramobile.com or fax to 503.464.0897.

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TV TECH BUSINESS

Evertz to Acquire Quartz

BURLINGTON, ONTARIO & READING, U.K.

Evertz Microsystems is acquiring Quartz Electronics, a Reading, U.K.-based provider of routing and master control technology to broadcasters worldwide.

"The acquisition of Quartz innovative products and talented staff, coupled with Evertz marketing presence and infrastructure, will create an even more dynamic force in the broadcast technology industry," said Evertz President Romolo Magarelli.

Based in Burlington, Ontario, Evertz manufactures routers, keyers and logo inserters, timecode products, converters, film systems, fiber optics, monitoring solutions and closed-captioning gear. The company has a large multi-display installation in North America and is expanding to the U.K., Europe, Australia and parts of Asia. Established in 1990, Quartz has more than 450 master control channels installed worldwide.

Quartz develops routing products including its flagship Xenon mid-size line and the Topaz range of compact routers, designed for both the broadcast and professional video user.

RF Central Buys Total RF Marketing

CARLISLE & BENSALEM, PA.

RF Central has acquired Total RF Marketing in a deal that will result in more than 1,000 microwave radios available for rent and sale. The deal took effect Oct. 28.

With Total RF as a new division, RF Central now has more than 80 people on its employee roster and the company expects to grow it to more than 100 over the next six months.

Carlisle, Pa.-based RF Central supplies microwave gear to TV broadcasters throughout the United States and its business has been bolstered by the 2 GHz analog transmitter mandate from the FCC. Total RF Marketing provides broadcast wireless gear and services nationwide.

Jim Malone, co-founder of Bensalem, Pa.-based Total RF Marketing was promoted to chief technology officer of RF Central. As CTO, Malone will focus on new and emerging technologies and will support Total RF on its larger events. Fred Fellmeth will serve as the chief operating officer of Total RF—which will remain in Bensalem, Pa.—and will be responsible for the day-to-day operation of the business.

Level 3 Nabs WilTel for $310M

BROOMFIELD, COLO.

Network infrastructure provider Level 3 Communications has agreed to acquire WilTel Communications Group Llc from New York-based Leucadia National Corp. for $370 million in cash and 115 shares of Level 3 common stock (currently worth approximately $310 million).

Under the terms of the deal, Level 3 gets WilTel's $675 million SBC on-net service contract as well as the Vyvx video transmission business, which reported $120 million in revenue in 2004 and $59 million the first half of 2005. The acquisition does not include the WilTel building in Tulsa, Okla., nor the assumption of any of WilTel's outstanding debt or mortgage obligations. WilTel will also bring $100 million in cash, which in turn is included in Level 3's cash payment for the company.

Integration is expected to cost from $100 million to $150 million and take 15 to 18 months to complete. Job cuts were not specified, but Kevin O'Hara, president and chief operating officer of Level 3 said, "During the integration process, we will work hard to identify and retain the best employees from both companies in order to create the strongest possible integrated organization."

The deal is expected to close early next year.

CBS Inks CSTV Deal for $325M

NEW YORK

CBS is acquiring College Sports Television Networks, a 24-hour college sports network.

The deal, worth $325 million in CBS stock, should close by January 2006 after certain government approvals are met, and after the split of Viacom from CBS into two entities is complete, which should happen by the end of 2005.

CSTV, launched in April 2003, covers everything from baseball to less popular sports like rugby and water polo. The acquisition includes a digital cable network featuring 30 men's and women's college sports events and approximately 15 million subscribers by year's end, a network of more than 250 official college athletic Web sites, the www.cstv.com Web site, and the Regional College Sports Networks, to be launched in 2006.

Brian Bedol, CEO and founder of CSTV will run the new cable programming entity, reporting to CBS Chairman Les Moonves.

The acquisition brings a new dimension in sports and in digital, Moonves said in a news release announcing the acquisition.

"We're not only getting hugely valuable assets here, we're acquiring a superb management team that has a proven record in building lucrative sports television franchises," Moonves said.

Micronas Purchases WISchip

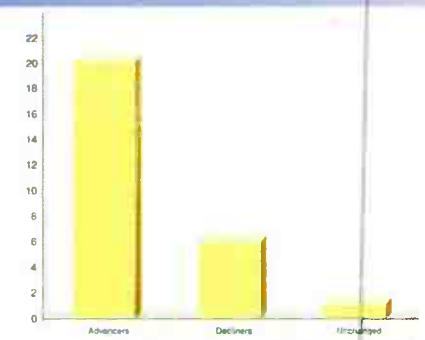
ZURICH, SWITZERLAND & SANTA CLARA, CALIF.

Zurich, Switzerland-based Micronas Semiconductor has inked an agreement to acquire all shares of privately held WISchip International of Santa Clara, Calif. for approximately $80 million in cash. The transaction is expected to close by the end of the year.

WISchip develops advanced audio and video system-on-chip IC and software solutions, implementing MPEG-1, MPEG-2 and MPEG-4, H.264 and VC-1, which are used to support the latest HDTV standards.

Zurich-based Micronas will add 104 WISchip employees to its staff roster, including 78 video and computer engineers, 32 of which are based in the company's Shanghai R&D facility.

WIN-LOSE RATIO



TOP ADVANCERS BROADCAST STOCKS
(Oct. 21 - Nov. 4)

Univision	+15.06%
Belo	+ 10.20 %

TOP DECLINERS BROADCAST STOCKS
(Oct. 21 - Nov. 4)

Nexstar	- 17.00%
Paxson	- 2.38%

TOP ADVANCERS TV STOCKS
(Oct. 21 - Nov. 4)

Avid	+ 26.68%
Scientific Atlanta	+ 15.44%

TOP DECLINERS TV STOCKS
(Oct. 21 - Nov. 4)

SeaChange	- 14.47 %

To have your company listed, contact Deborah McAdams at dmcadams@imaspub.com.

TV Tech STOCKS as of November 4

Company Name	52-Week Range	October 21	November 4	% Change
Avid	35.78 - 68.35	40.29	51.04	26.68%
Belden	17.65 - 24.59	19.35	20.3	4.91%
Ciprico	3.70 - 5.00	4.2	4.2	0.00%
Harmonic	4.08 - 12.40	4.15	4.6	10.84%
Harris	26.94 - 43.43	38.03	42	10.44%
Leitch	6.72 - 14.00	13.96	13.99	0.21%
LSI Logic	4.47 - 10.75	8.36	8.41	0.60%
Sci. Atlanta	26.73 - 39.89	33.03	38.13	15.44%
SeaChange	5.07 - 19.75	6.84	5.85	-14.47%
Tektronix	20.97 - 33.59	23.5	23.84	1.45%

Broadcast STOCKS as of November 4

Company Name	52-Week Range	October 21	November 4	% Change
Acme	3.30 - 7.45	3.9	4	2.56%
Belo	20.74 - 26.45	20.88	23.01	10.20%
Emmis	15.29 - 24.49	19.51	19.85	1.74%
Entravision	7.14 - 9.50	7.6	7.94	4.47%
Fisher	42.56 - 52.60	46.89	49.23	4.99%
Gray	8.83 - 15.74	9.91	9.59	-3.23%
Hearst Argyle	23.15 - 26.48	24.28	24.12	-0.66%
Nexstar	4.13 - 9.56	5	4.15	-17.00%
Lin TV	11.96 - 19.70	12.94	13.16	1.70%
Paxson	0.37 - 2.15	0.42	0.41	-2.38%
Sinclair	6.60 - 9.75	8.4	8.98	6.90%
Liberty	34.32 - 48.05	46.54	46.52	-0.04%
Univision	23.52 - 32.94	24.7	28.42	15.06%
Young	2.39 - 12.59	2.44	2.52	3.28%
Tribune	30.64 - 44.32	30.91	32.52	5.21%
Meredith	44.51 - 54.57	48.78	50.81	4.16%
EW Scripps	44.73 - 52.91	46	46.43	0.93%

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Production

OTHER SURFACES can share common audio resources

Studio 2

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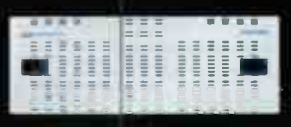
Engineering

Engineering



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