APRIL 2007

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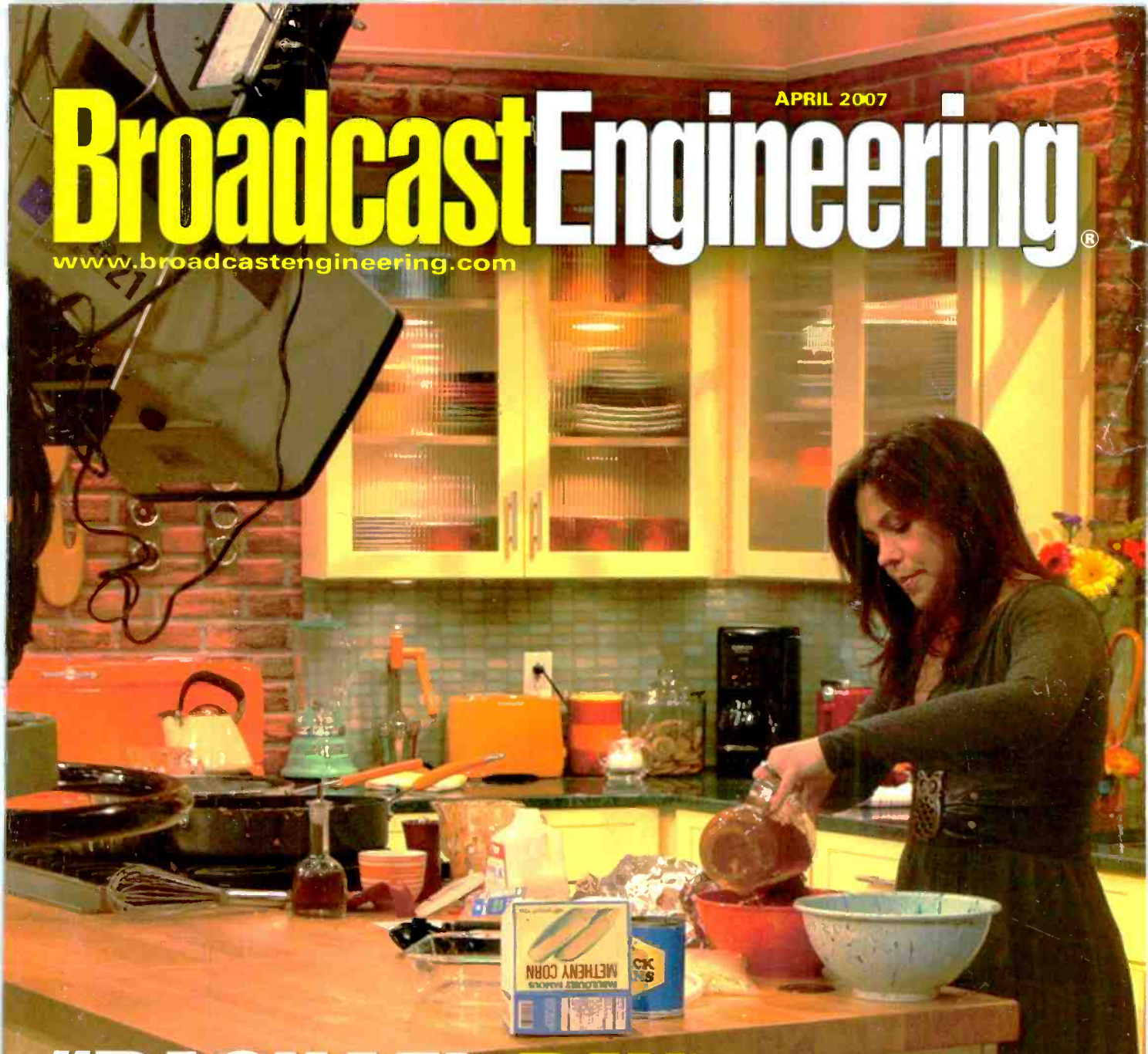

"RACHAEL RAY" STUDIO

New facility improves workflow

ALSO INSIDE:

TRANSITIONING FROM SD TO HD
Lots of choices, potential for pitfalls

NAB UPDATE
Latest new products

AUDIO MIXERS FOR LIVE
Real time means unique demands

A PENTON MEDIA PUBLICATION

D-12: Compact Enough for OB
Powerful Enough for Breaking News

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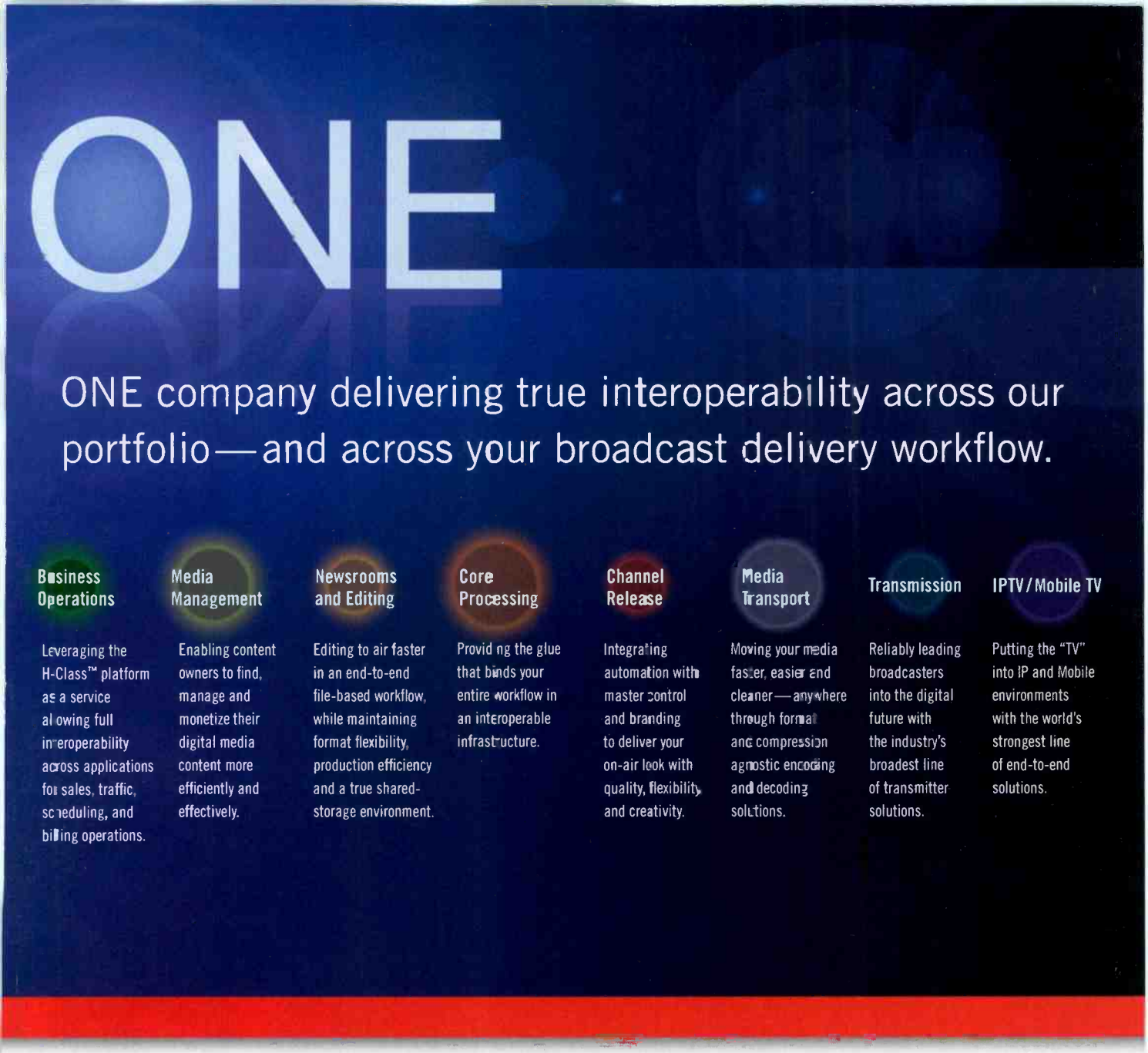

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The new digital audio boards for live broadcast maximize function in a small footprint.

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THIS MONTH'S FREEZEFRAME QUESTION

Find the six mistakes in the table to the right of video raster sizes. Information taken from "A Practical Guide to Video and Audio Compression" by Cliff Wootton, available from Focal Press.

Readers submitting winning entries will be entered into a drawing for *Broadcast Engineering* T-shirts. Enter by e-mail. Title your entry "Freezeframe-April" in the subject field, and send it to editor@broadcastengineering.com. Correct answers received by June 1, 2007, are eligible to win.

System	Visual width	Visual height	Aspect ratio	Raster width	Raster height	Scanning type
525i30	720	525	4:3	780	525	Interlaced
625i25	720	625	4:3	864	625	Interlaced
625i25Wide	780	576	16:9	864	625	Interlaced
720p60	1280	720	16:9	1650	750	Progressive
1080i25	1920	1080	14:9	2640	1125	Progressive
1035i30	1920	1035	17:9	2200	1125	Interlaced
1080p60	1980	1080	16:9	2200	1125	Progressive
1080p25	1920	1080	16:9	2640	1125	Progressive
1080p24	1920	1080	16:9	2750	1180	Progressive

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the beauty of the HPX500

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The shoulder-mount HPX500 features four card slots and can record 64 minutes in DVCPRO HD, 128 minutes in DVCPRO50, and 276 minutes in DVCPRO on four 16-gigabyte P2 cards. Its 4:2:2 sampling rate and intra-frame encoding ensure exceptional quality pictures, while its interchangeable lens, 50/60-Hz selectability and low power consumption assure superb flexibility. And best of all, the HPX500 is backed by an industry-leading 5-year warranty*.

Learn more about the HPX500 at **www.panasonic.com/broadcast** or call **1.800.528.8601.**

3.5" LCD monitor at rear facilitates audio monitoring

P2HD when it counts

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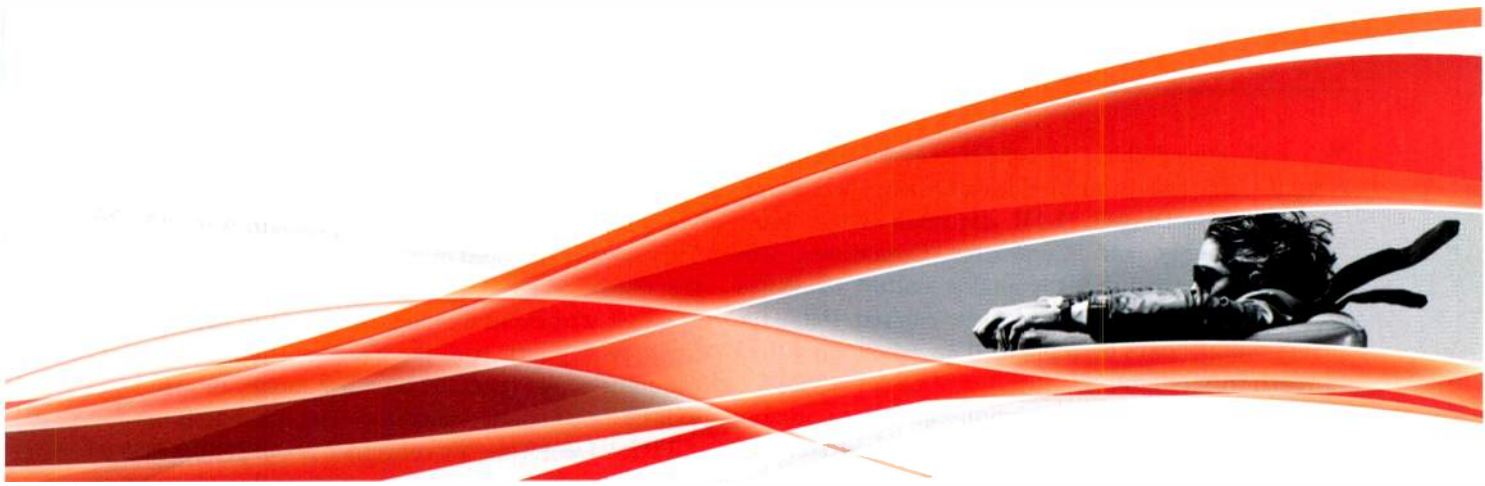
DECEMBER'S FREEZEFRAME ANSWER

Complete the following definitions:

- The acronym BNC stands for Baby N Connector.
- Cross luminance is sometimes called dot crawl.
- Aliasing is a picture defect typically caused by insufficient sampling or poor filtering of the digital video format.
- The scanning format that captures in one top-to-bottom scan is called progressive (or progressive scan).
- The Nyquist frequency is defined as half the sampling frequency of a discrete signal processing system.

DECEMBER WINNERS:
Scott Eugene, Mark Everett, Roger Wilcox

ON THE COVER:
In its EUE Screen Gems Studios home, "Rachae Ray" cooks up a hit captured by Sony cameras with audio mixes from a Solid State Logic C100 digital console. Photo by Eric Leibowitz.



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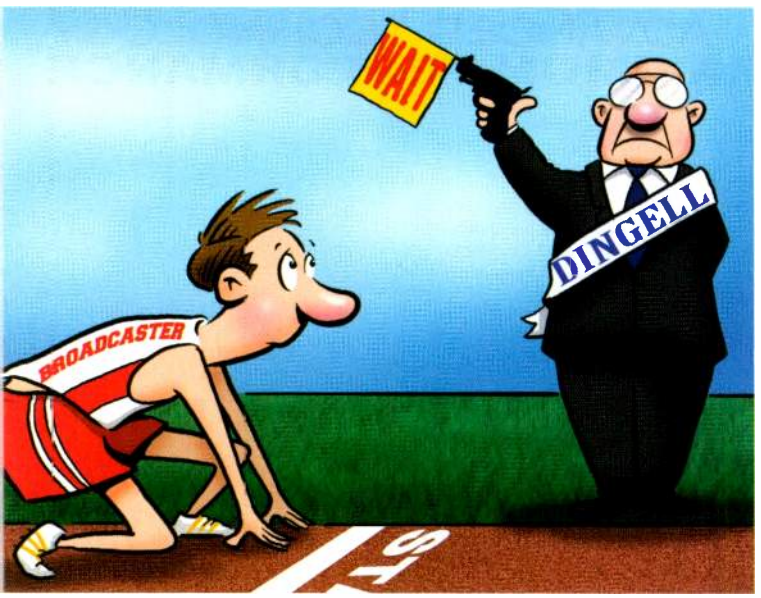
On your mark, get set — wait!

You could hear the collective gasp from the entire television broadcast industry when Rep. John Dingell, D-MI, chairman of the House Energy and Commerce Committee, offhandedly suggested that the analog shutoff scheduled for Feb. 17, 2009, might need to be delayed. Delay the analog shutoff that's been planned for, what, more than 12 years, with billions invested by TV stations? Why?

During a brief off-stage question-and-answer session, the *National Journal* reported that Dingell expressed reservations that all of the 1700 stations and millions of consumers might not be fully prepared for the death of analog broadcasting — as though he would know anything about the process. Dingell was, of course, referring to the Republican-created plan to offer two vouchers valued at $40 each to viewers without cable or satellite service, so they can purchase STBs. He claimed to be concerned that retailers might not have sufficient supplies or be able to properly redeem the STB coupons in a timely manner.



When asked about Dingell's comment, NAB spokesman Dennis Warton said, "We want to avoid a train wreck." That's Washington political speak for "We warned you about this in the beginning. But no, you wouldn't listen. And now you want us to bail you out? No thanks! You dug your hole. Now deal with it."

Dingell and his cohort on the Energy and Commerce Telecommunications and Internet Subcommittee, chairman Edward Markey, D-MA, have complained that the $1.5 billion planned for the STB program is insufficient. They say they just need more money. Where have we heard that line before?

So, what's behind this sudden change in heart? Wasn't Congress euphoric over the billions of dollars the spectrum sale would generate? So much money to spend and so little time to do so. Then why delay the shutoff now?

I think Democrats are concerned about getting blamed for the disaster resulting from 1200 analog transmitters suddenly going dark on Feb. 17, 2009. Can you spell "angry voters"?

It shouldn't surprise anyone that a member of Congress is afraid of being blamed for anything, let alone being held responsible for up to 21 million homes losing their television! Can you imagine the firestorm that would descend on Washington, D.C.?

There would be a million-viewer march on the capital so fast that the network satellite trucks couldn't get there first. All 540 members of Congress would be fighting each other for space in one of those D.C. bomb shelters to hide from angry TV viewers.

And, if the new president were, say a Democrat, the debacle would be blamed on her — ahem, or him. And that wouldn't be a good thing to happen early in a president's first term.

The truth is that Dingell and his cohorts are just posturing to throw more money at the problem, hoping that'll buy them some cover when the bottom falls out and millions of homes suddenly have no television. Changing the rules of the game isn't new to Washington politics. This time, however, Congress just might get the blame it deserves for its incompetence. BE

Brad Dick

EDITORIAL DIRECTOR

Send comments to: editor@broadcastengineering.com

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Body mass index

Dear editor:

Your December 2006 editorial introduced a term and a definition for BMI without mentioning that the abbreviation means body mass index.

The definition was in metric, which complicates the exercise a bit. I don't know of anyone among my colleagues who thinks in metric. It is possible to calculate BMI without converting to metric.

You can calculate BMI from weight and height in pounds and feet by multiplying the result you get by 4.88. You can calculate BMI from pounds and inches by multiplying the result by 703. I have put together a spreadsheet to illustrate this. (See spreadsheet below.)

Tom Norman, CPBE
Senior engineer
Burst

BMI CALCULATIONS

I know my height in feet and inches, but don't know it in meters. I also know my weight in pounds, not in kilograms. I calculated the metric from the English, then calculated the conversion factors so you don't have to. For feet, it's

Weight:	70.3203kg	155lb
Height:	1.7425m	5ft 9in
BMI:	**22.8937**	weight/(height x height)

BMI calculated from total feet:

Weight:	155lb	
Height:	5.75ft	
	4.688091	weight/(height x height)
	4.883364	conversion factor
BMI:	**22.8937**	

BMI calculated from total inches:

Weight:	155lb	
Height:	69in	
	0.032556	weight/(height x height)
	703.2044	conversion factor
BMI:	**22.8937**	

Who is Ben Wolfe?

Dear editor:

Recently my husband and I bought some aluminum records. One was labeled "Amos 'n' Andy," with the call letters WOW, a Nebraska radio station. The record does contain the beginning and ending of an episode of "Amos 'n' Andy," recorded on March 5, 1931. However, in the middle, after a station identification spot, it cuts to someone singing and playing piano, "from the home of Ben and Helen of the Homemaker's Club."

I looked in the census for Ben and Helen in that area. I found several, but Benjamin and Helen Wolfe stood out because his occupation was U.S. radio engineer. A Google search revealed that he was awarded an SBE Lifetime Achievement Award. My research suggests he may have passed away in October 1997. Can you help me out more information about him?

Sherry Troupe

Brad Dick responds:

Thank you for the interesting letter. There was a Benjamin Wolfe who worked for the FCC for many years until the early to mid-'90s. His signature appeared on every FCC operator license the commission issued.

Broadcast Engineering didn't begin publishing until 1964, so we don't have records back to the '30s. I examined our issues from June 1997 through February 1998, looking for any reference to his obituary. Unfortunately, I found no mention of him.

If you haven't contacted the station WOW, that might be helpful. A retired manager or chief engineer may be able to provide additional information. And if any readers can shed some light on the trail, please e-mail editor@broadcastengineering.com.

It's all electrons

Dear editor:

The following job description, listed in the JobZone section of the *Broadcast Engineering* Web site is for a person who builds electrical substations for Wisconsin Electric, a far cry from radio and TV: "The engineer's responsibility will include assignments in design of new substations and modifications to existing substations and related equipment."

John McKenna
Chief engineer
The YES Network

Brad Dick responds:

Heck, it's all electrons.

John McKenna responds:

Yeah. But ours go a lot faster!

Test Your Knowledge!

See the Freezeframe question of the month on page 6 and enter to win a *Broadcast Engineering* T-shirt.

Send answers to editor@broadcastengineering.com

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Acrimonious constraints

Off-limits encoding formats box in U.S. broadcasters.

BY CRAIG BIRKMAIER

Acronyms are a form of compression. They are the staple of standards organizations, video manufacturers and industry trade publications like *Broadcast Engineering*. For example, we are currently in the middle of the DTV transition, from analog NTSC to digital ATSC.

Remember Table 3 in the ATSC A-53 DTV standard? The table lists the video format constraints on MPEG-2, the compression standard on which ATSC is based. (See Table 1 at right and "Web links" on page 16.)

It is the only portion of the ATSC standard that the FCC did not include when they adopted the ATSC standard for DTV broadcasting in the United States. The standard, as adopted, constrains the use of MPEG-2, a compression standard that now seems almost as dated as the analog NTSC broadcast standard it's replacing.

The table includes 18 DTV video formats — technically 36, if you consider the six frame rate codes explained in the legend. These codes may be the ATSC's idea of data compression, but something tells me codes 2, 5 and 8 won't be used. And what happened to codes 3 and 6 — or MPEG-3 for that matter? Frankly, I haven't a clue, despite having been a participant in the ATSC meetings where the DTV formats were determined.

The previous century's legacy of interlace and noninteger frame rates lives on in this table, as do the ATSC format constraints that the FCC agreed were unnecessary. There was some talk about getting rid of the legacy NTSC frame rates at the end of the digital transition. Don't hold your breath.

Vertical size value	Horizontal size value	Aspect ratio information	Frame rate code	Progressive sequence
1080	1920	1, 3	1, 2, 4, 5	1
			4, 5	0
720	1280	1, 3	1, 2, 4, 5, 7, 8	1
480	704	2, 3	1, 2, 4, 5, 7 , 8	1
			4, 5	0
	640	1, 2	1, 2, 4, 5, 7 ,8	1
			4, 5	0

Legend for MPEG-2 coded values in table

Aspect ratio information: 1 = square samples 2 = 4:3 display aspect ratio 3 = 16:9 display aspect ratio
Frame rate code: 1= 23.976Hz 2 = 24Hz 4 = 29.97Hz 5 = 30Hz 7 = 59.94Hz 8 = 60Hz
Progressive sequence: 0 = interlaced scan 1 = progressive scan

Table 1. The restraints on compression formats

MPEG-3 was supposed to be the standard for encoding HD video until support for HD was added to the MPEG-2 standard. Support for HD video was added to MPEG-4 as well — despite the original intent of MPEG-4 being a standard for low bit rate encoding, such as for videoconferencing, Web and mobile video.

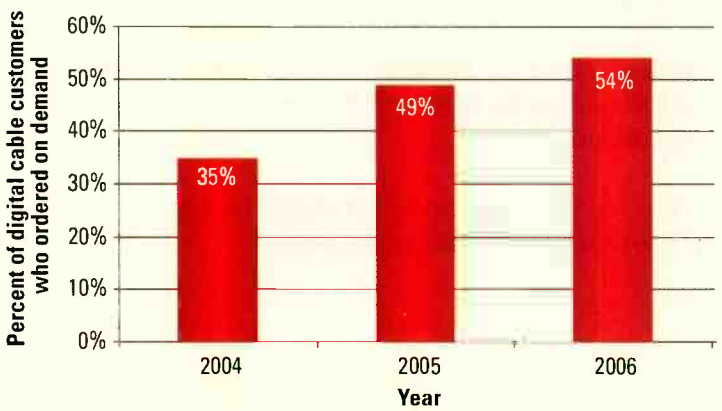
MPEG-4 Part 2 defines the video compression algorithms for the standard. It has been amended twice, adding support for high-quality HD video encoding. The MPEG-4 Part 2 Studio Profile is used in the Sony HDCAM SR format, introduced in 2003, to capture the full 10-bit 4:4:4 RGB outputs from a CineAlta HD camera.

MPEG-4 Part 2 is also dated, compared with MPEG-4 Part 10 (also known as H.254 or AVC), which offers a 50 percent bit rate reduction for the same image quality. U.S. broadcasters can use AVC in a range of HD video acquisition systems. Unfortunately, they cannot use AVC to

FRAME GRAB *A look at the issues driving today's technology*

Strong demand for HD on-demand programming

In 2006, 54 percent of DTV cable customers ordered on demand



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improve the quality or quantity of the video programs emitted from those DTV transmitters. The ATSC standard and a growing installed base of DTV receivers constrain broadcasters, even as competitors begin the transition from MPEG-2 to AVC.

The don't-convert program

The new advancements in HD video encoding can be used by broadcasters as they upgrade to HD production. The constraints of HD video encoding primarily apply to the bits emitted to those who do not subscribe to a multichannel TV service — the people who are still watching free-to-air TV.

In March, the NTIA released details of a government coupon program for the digital-to-analog boxes that will convert the DTV formats back into the interlaced 59.94Hz used by millions of legacy NTSC receivers. The legacy of interlace — noninteger frame rates and MPEG-2 — is being propped up by this converter program. To be fair, though, analog cable tiers are not likely to disappear by 2009, either. Meanwhile, the transition to digital HDTV continues to be as acrimonious as ever.

Consider the highly successful DTV transition in the United Kingdom. Almost half of the UK's 60 million TV sets are connected to a digital device. Most of those TVs are receiving Freeview, a free-to-air DTV service, or BSkyB, a DBS service and a Freeview partner, offering three of the DTV service's 40-plus channels.

In February, BSkyB announced intentions to use its bits on Freeview to deliver an upgraded pay-TV service. The service would use AVC compression to pack four channels in the space now occupied by three existing channels. The new programming would include movies, entertainment and live Premiership football. Subscribers would be required to purchase a new receiver with AVC and conditional access capabilities, in addition to the MPEG-2-based Freeview capabilities.

The ATSC standard and ... DTV receivers constrain broadcasters.

The other Freeview partners — BBC, ITV and Channel 4 — are reportedly set to tell media regulator Ofcom that BSkyB should no longer be a shareholder in the consortium. They say that with this move, BSkyB would no longer be supporting Freeview's commitment to providing UK consumers with access to as wide a range of free-to-view DTV channels as possible.

The BBC has conducted trials of HD DTV broadcasts using AVC compression. It is expected that a portion of the spectrum that will be returned after the shutdown of analog services between 2008 and 2012 will be used to support HD broadcasts.

Meanwhile, USDTV, a company offering a pay-TV service using digital capacity leased from U.S. broadcasters, is shutting down operations, forcing its 7000 subscribers to consider other multichannel offerings. USDTV followed the model of the original UK DTV service, OnDigital, a pay-TV service that was replaced by Freeview in 2001. This leads one to ask whether a Freeview-style service using AVC compression technology could attract viewers in the United States.

So long (GOP) HDV?

I believe two key issues will shorten HDV's lifespan: the limited quality using MPEG-2 MP@ML at 25Mb/s, and the complexity and quality implications of editing long-GOP MPEG-2. Despite these limitations, HDV has helped to bring HD acquisition to the masses, with a wide range of products costing less than $10,000. Now, it too is ready for replacement, thanks to AVC.

Last July, Sony and Panasonic set aside their sometimes acrimonious relationship to develop AVCHD, a consumer format that will use long-GOP AVC encoding to capture HD in both the 1080i and 720p formats. Many camera and editing system manufacturers have announced support for the new format. The bits will be recorded using a range of storage technologies, including recordable miniDVD discs, solid-state memory cards and hard disk drives.

At the other end of the quality/price spectrum, Panasonic has announced a range of professional products using AVC-Intra compression. AVC-Intra is said to be twice as efficient as the Panasonic DVCPRO HD codec.

The Panasonic AVC-Intra implementation of H.264 is flexible to user demands by virtue of its ability to switch between the AVC-Intra 100Mb/s mode and the more economical AVC-I 50MB/s mode. The AVC-I 100 mode provides full-resolution (no subsampling) HD. Both codec implementations are 10 bit. It is likely that there will be many other AVC product introductions at NAB2007 with the potential to offer high-quality recording of 10-bit 4:4:4 RGB for broadcast and digital cinema applications. BE

Web links

- The ATSC A-53 DTV standard
www.atsc.org/standards/a53.html
- NTIA releases converter box coupon program details
http://broadcastengineering.com/RF/ntia-converter-box-program-details-0315/index.html
- AVCHD information Web site
www.avchd-info.org/index.html
- Panasonic AVC-Intra white paper
www.serv.com.ua/img/zstored/File/AVC_Intra_White_Paper_Ver_1_3.pdf

Craig Birkmaier is a technology consultant at Pcube Labs, and he hosts and moderates the OpenDTV forum.

? Send questions and comments to: craig.birkmaier@penton.com

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Multibridge Pro

US$1,595

Learn more today at www.blackmagic-design.com

The Drawn Together images are courtesy of Comedy Partners.

Broadcast legislation

Rush Limbaugh and other programs may have to air contrary viewpoints.

BY HARRY C. MARTIN

The Democrats in control of Congress continue to focus on the war, peace and the economy. They're also taking another look at proposed legislation for media regulation.

MORA regulation

Some of the emerging legislative proposals are embodied in the Media Ownership Reform Act (MORA), which would, among other things, reimpose the fairness doctrine.

One of MORA's prime sponsors, Rep. Maurice Hinchey, D-NY, has voiced support for reimposing the fairness doctrine, which would force both conservative and liberal talk stations to air contrary views.

MORA also aims to force increased public service obligations on broadcast licensees and to reimpose certain multiple ownership restrictions. Those restrictions would limit future transactions, as well as require divestiture of stations if multiple ownership arrangements — once legal — no longer pass under the new law.

MORA was previously introduced when the GOP was the majority in Congress and had little chance of passage. Today, it is still not a priority item for Congress, but parts of the legislation are a threat.

Rep. Dennis Kucinich, D-OH, who is the new chairman of the Domestic Policy Subcommittee of the House Government Reform Committee, has been vocal on media issues, including a fairness doctrine rewrite. The Domestic Policy Subcommittee focuses on communications issues.

Loose ownership restrictions or freer reign?

More political pressure exists in Congress today to get the FCC to increase regulatory activity well beyond the agency's recent crusade to curtail dirty words and pictures.

For example, Sen. Byron Dorgan, D-ND, criticized FCC Chairman Kevin Martin at oversight hearings in February. Dorgan railed against loosening of ownership restrictions that he said have "emasculated" the public interest. In response, Martin said that public interest is made more "robust" by allowing market forces a freer reign.

The reality of the MORA

The entertainment industry remains one of the Democrats' most reliable sources of campaign money. While it is true that some parts of the entertainment community, such as some station groups, have interests on the Republican side, it seems that broadcasting companies would have considerable power if the fairness doctrine re-emerges.

It seems that broadcasting companies would have considerable power if the fairness doctrine re-emerges.

Politicians may find it expedient to attack the media, particularly given the sex and violence on television, but whether this rhetoric will bring back the fairness doctrine, imposing new public interest standards and blocking further media consolidation, remains to be seen.

It took Congress 60 years to rewrite the 1996 Communications Act. In an era of war, deficits, scandals, presidential politics and immigration abuse, it is unlikely much of MORA will ever become law. BE

Harry C. Martin is a past president of the Federal Communications Bar Association and a member of Fletcher, Heald and Hildreth PLC.

? Send questions and comments to: harry.martin@penton.com

Dateline

June 1 is the deadline for television stations in Michigan and Ohio to file their 2007 biennial ownership reports.

TV, Class A and LPTV stations that produce their own programming in the following states must place their annual EEO reports in their public files by June 1: Arizona, the District of Columbia, Idaho, Maryland, Michigan, Nevada, New Mexico, Ohio, Utah, Virginia, West Virginia and Wyoming.

The 2004-2007 TV renewal application cycle ended April 1. The next renewal applications are due on June 1, 2012, for stations in the District of Columbia, Maryland, Virginia and West Virginia.

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Displaying growth

Plasma competes with LCD to dethrone CRT.

BY ALDO CUGNINI

Some say we've gotten to the point where the venerable CRT is about to become obsolete. This month, we'll take a look at the existing and emerging display technologies and see what they bring to the professional and consumer viewing experience.

It's useful to look at consumer technology because it affects the ultimate presentation, as well as influences the design of professional monitors. In addition, as new technologies find their way into professional studios, it's important to understand their pros and cons. Before looking at different displays, it's useful to consider some of their measured and perceived characteristics.

Display characteristics

At last year's NAB conference, several video producers and cinematographers lamented that once their products get into distribution, they have no artistic control over the display device. Displays are also getting to the point where their quality may be second to the breadth of adjustment the user can apply. Compounding this is the vast array of devices that can affect the quality of the video — both for and against good pictures.

For faithful video reproduction, the most important characteristics of a display are resolution, peak brightness and black level (dynamic range), brightness linearity (gray scale), and color gamut (saturation). Unfortunately, manufacturers do not uniformly define the terms brightness and contrast.

As new technologies find their way into professional studios, it's important to understand their pros and cons.

In fact, many displays are mislabeled when it comes to these controls. The brightness control on most sets, for example, essentially sets the point of the black level. (The exception are LCD panels with a brightness control that varies the intensity of the back panel illuminator.) Similarly, the contrast control often sets the peak brightness of the set.

It is well known that CRTs do not produce luminance in direct proportion to the applied signal, but have a nonlinear transfer characteristic. This nonlinearity is quantified by the gamma (γ) of the display. (A true contrast control would change the gamma of the display, not the brightness.) From the signal standpoint, $V_{out} = V_{in}^{\gamma}$, with $\gamma = 2.5$, usually for CRTs.

When capturing video, the inverse of this characteristic is applied at the source, so the transmission medium will behave linearly. However, because of the phenomenon of simultaneous contrast, where the level of ambient lighting can affect the perceived screen contrast, NTSC engineers have standardized gamma precorrection to 2.2, or 2.8 for PAL systems.

Because gamma is caused by the CRT electron gun, plasma display panels (PDPs) and Digital Micromirror Devices (DMDs) have a linear characteristic ($\gamma = 1$), and a correction must be applied through signal processing in the set. (LCDs have an S-shaped transfer characteristic.)

Often, professional monitors have a control to change the gamma. Some consumer sets have this, too, but it is usually lumped into some preset label. (See Figure 1 on page 22.)

Long live the CRT?

Many analysts have already proclaimed the demise of the CRT, driven in part by a growing interest in larger screens. However, although it is impractical to build a CRT larger than about 40in (primarily because

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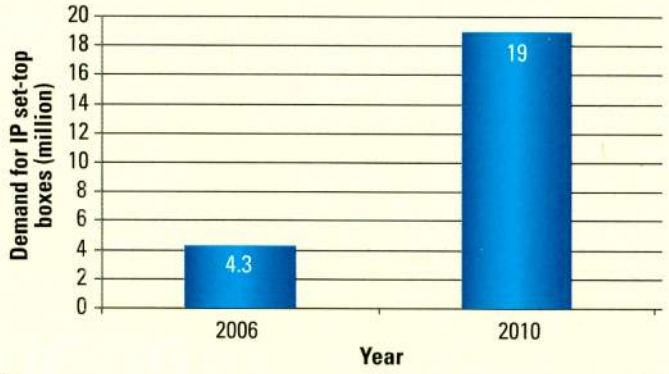

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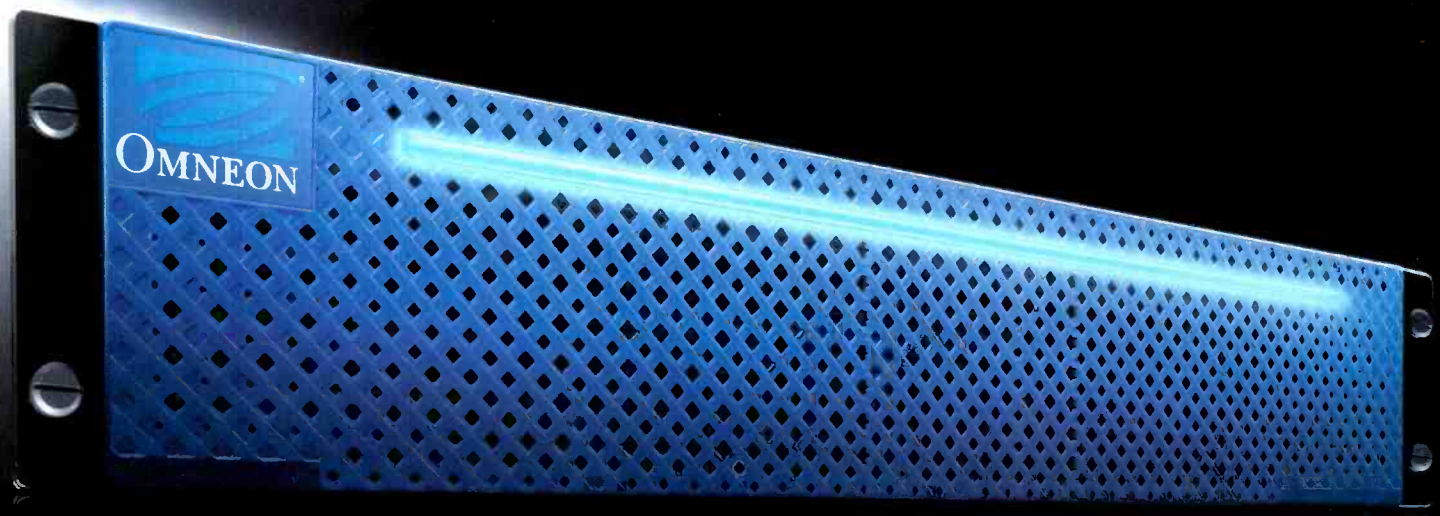

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of weight considerations), it is still believed by many to present the best quality display over many parameters, including color saturation, peak brightness and deep black level.

Of course, the perceived black level will depend on ambient lighting. And considering most viewers at home rarely view their TVs in a completely dark room, the CRT may lose its advantage, practically speaking, in many situations. In a broadcast studio, however, the lighting is usually subdued, so this characteristic will be more significant.

Another advantage of CRTs is scan agility. With multiple scanning formats now typical in the broadcast plant, a CRT is the only display device that can inherently change its scanning format to display the video in its native format. However, because of the increased cost of a more complex deflection system, this technique has been used almost exclusively in computer CRT monitors.

Another shortcoming of CRTs is the moiré pattern (aliasing) that can result when shadow-mask and dot-pitch frequencies are mismatched. The highest quality monitors therefore have a very fine dot pitch.

LCD, the future king?

LCDs have proliferated in the past five years. This is due in part to advances in manufacturing technologies. By using electrically variable twisted nematic cells sandwiched between polarizers and a flat back-panel illuminator, high-performance video displays are now possible.

Because the panel is essentially a large, single piece of silicon, a few defective pixels — while acceptable for computer displays — would result in inadequate video display. For this reason, displays larger than 40in are prohibitively expensive.

Also, the response time of the cells was initially a problem, causing smearing with moving images. Better panels have greatly reduced this artifact through a combination of active cells and clever signal processing.

LCDs provide the highest peak full-screen brightness of the display technologies, so this may be a factor in brightly lit situations. Viewing angle is still somewhat of an issue on LCDs, however.

And lack of deep blacks still limits the performance of some units. Nonetheless, the reproduction of good colors — and flat form factor — keep the units in favor with many consumers. By lighting the back panel with LEDs instead of a fluorescent lamp, a color gamut exceeding that of CRTs is now possible, and these units have begun to appear in professional video monitoring applications.

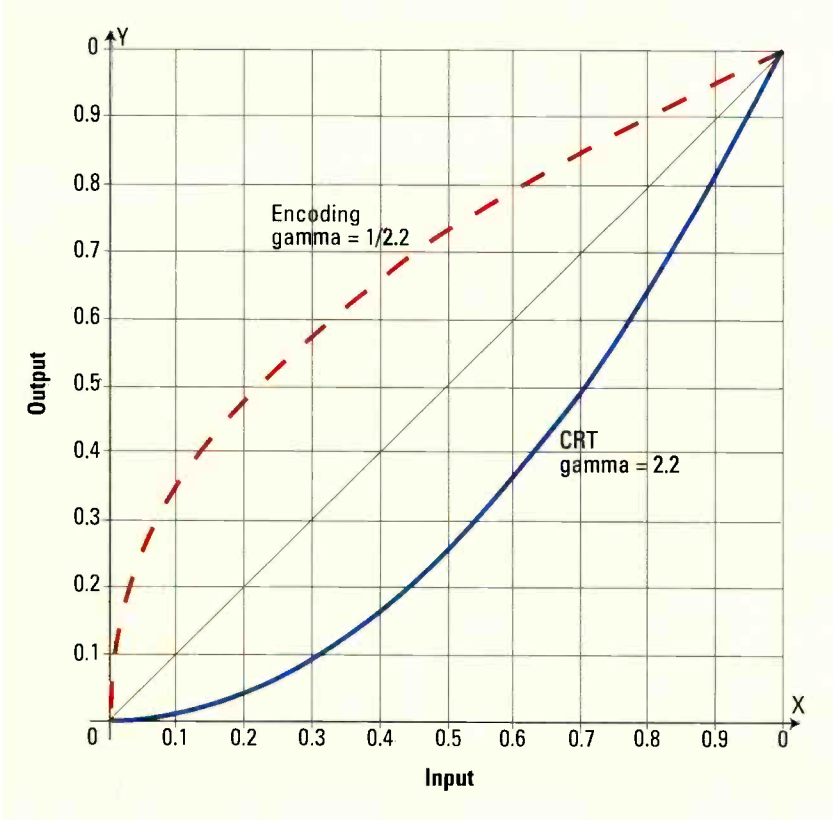


Figure 1. Gamma of the CRT is compensated at the image-generating device.

PDP's bid for the throne

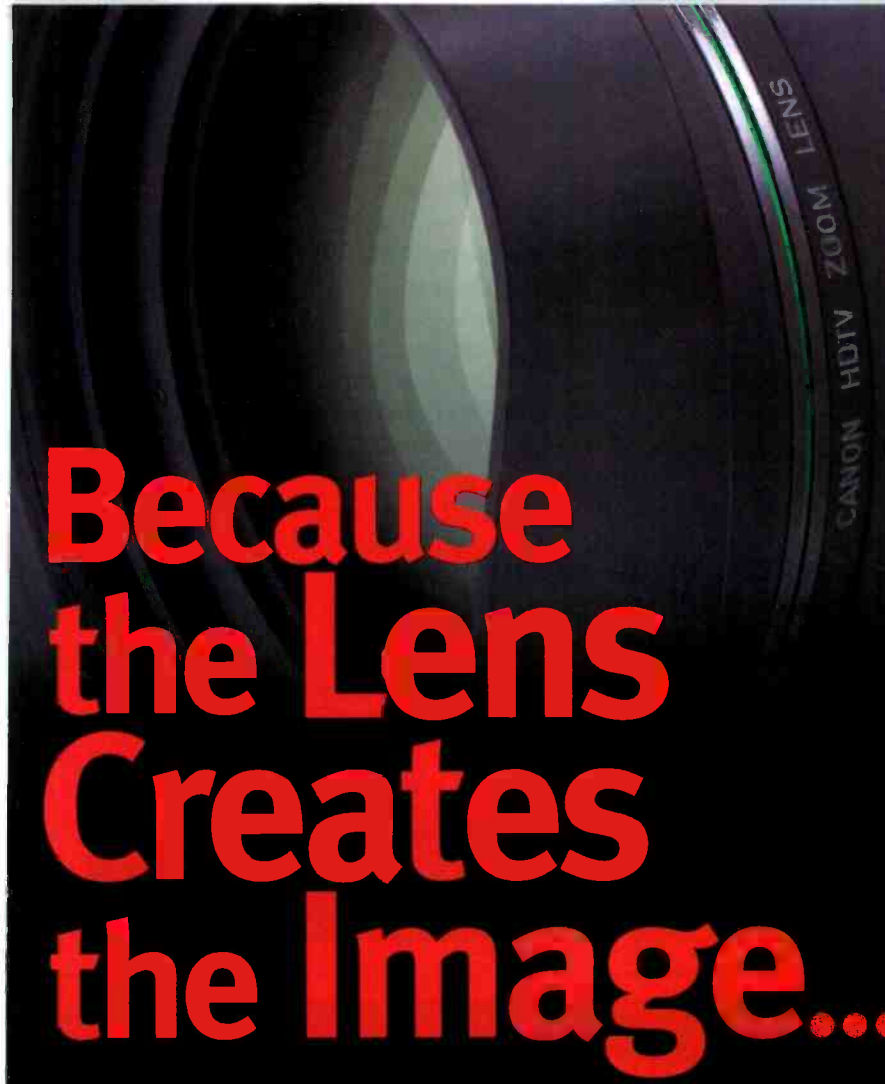
LCD's biggest competitor is the PDP. Plasma panels offer a combination of flat form factor, cost-effective large sizes and excellent color saturation, making them appealing to consumers. Wide viewing angles also make the displays practical in ordinary viewing situations.

The critical issue of display burn-in has largely been eliminated. Black-level performance, however, can vary widely in these units, and larger displays require a fan for cooling.

Another factor not realized by many owners is that plasma sets, because of power and heat dissipation, reduce the peak brightness depending on the average picture level. Thus, a PDP that can produce a certain peak white level over 25 percent of the screen may in fact be limited to less than half that when attempting to produce peak white over the entire screen. CRT and LCD technologies do not suffer this limitation.

Faux HD

PDPs and LCDs also carry another burden. Higher pixel densities carry a hefty price tag. And some manufacturers tout "HD" performance when the actual resolution is often less than that. These sets must then scale the



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Various companies are developing laser light engines for use in TVs.

HD inputs to the physical display — a process that can involve not only downconversion, but also deinterlacing and film mode conversion. Add to this the potential for transmitting 24p material, and the issue of scan conversion becomes a significant differentiator.

Tech on the horizon

Front- and rear-projection technologies, while not in the mainstream of television viewing, are becoming popular for those wanting a home theater experience. By using a DMD or LCD as the imaging device, full 1080p performance is now available to the consumer. These imaging technologies are capable of the deepest black levels and the highest dynamic range of any of the displays. And thanks to advances in compact light-engine technologies, the bulkiness of original sets is also giving way to nearly flat displays that can hang on a wall. Color reproduction is usually achieved by using a single DMD device with color wheel or by three registered LCD (or LCOS) devices.

A new development in video technology is the use of lasers or LEDs as the light source for front- and rear-projection TVs. By eliminating the filter wheel, these technologies hold promise for displays with breathtaking color gamut. Still to be achieved, however, is the manufacture of devices at the necessary cost and performance points. But it may happen soon enough.

Armed with the knowledge of what's important in choosing a display, the variety is still daunting. Just remember that, in growing numbers, your viewers may have better displays than you do! BE

Aldo Cugnini is a consultant in the digital television industry.

? Send questions and comments to: aldo.cugnini@penton.com

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Computer protection

Firewalls can reduce the threat to exposed networks.

BY BRAD GILMER

Security issues have evolved over the years. Early on, security was a simple matter. Access to a central mainframe was only available through dedicated, hardwired terminals. If anything bad happened to your system, it was not hard to track down the culprit. As standalone Mac and PC systems began to appear on desktops, the main security threat was through viruses acquired by downloading tainted software.

Today, many computers, even mobile ones, are connected to the Internet all the time. Almost all corporate networks have multiple connections to the Internet. It is much more likely that a computer system will be affected by tainted e-mail or by a break-in attempt over the Internet rather than from a virus distributed in a computer program.

Broadcasters are particularly sensitive to threats. This is because almost all the systems that create and play out programming are dependent on desktop operating systems and applications.

In many cases, computers are more useful when they are connected together than when they operate separately. But when computers are connected, they are exposed to security risks. To protect against these risks, you must first understand them.

Secure passwords

The first obvious threat is that someone gains access to your computer by guessing your password. You can easily reduce this threat by using the protection provided with your computer. Most computers have power-on passwords. Once activated, you have to enter the correct password before you can boot the system.

You can also use the password protection built into the operating system. Screen savers can be set to blank the screen after a set amount of idle time. Once the screen is blank, a password must be entered to return to normal operation. Many operating systems also require you to enter a username and password to sign-on to the computer.

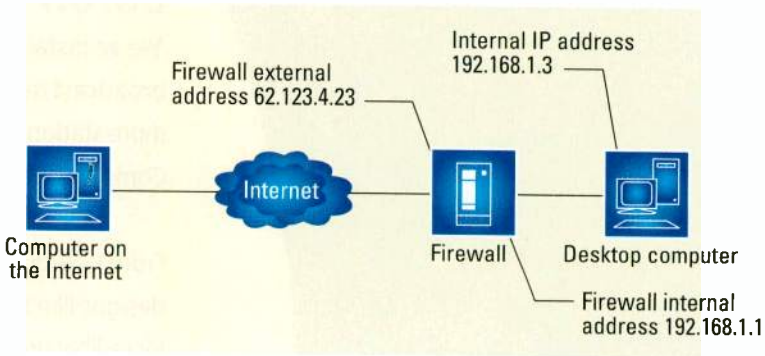

Figure 1. Network Address Translation hides the true IP address of a computer inside the firewall.

While the threat of someone using your computer is real, it is a relatively low-grade threat. The reason is that as networking technology has become more pervasive, it is not necessary to gain physical access to a specific piece of hardware. In many cases, the data you are trying to protect is not located on an office computer. Instead, it is stored on a server somewhere on the network.

An attacker's objective may not be to gain access to data at all, but instead to disrupt computer systems at a facility. The attacker does not have to be physically present to stage a successful attack.

A more serious problem is password theft, which offers access to a network containing confidential information. Usually this password can be used from any location whether inside or outside your facility.

How do people get your password? Professionals say that most of the time they get passwords by guessing them. Birthdays are a common choice, and so are the names of the person's children and pets.

To make your password more difficult to break, it should not be obvious, and it should include punctuation or numbers. If possible, you should choose a password that is not in a dictionary. If you have even basic knowledge of a foreign language, a non-English password can be a good choice as well.

Detect viruses

Viruses can cause major problems on your network. Viruses are most commonly passed via e-mail programs or embedded into documents.

One way to defend against viruses is to use antivirus software. When installed, this software patches into the lowest levels of the operating system, detecting incoming e-mail, disk operations and other functions. The scanners look for data patterns or signatures of viruses in files, and most of them also look for system behavior that might indicate that a system has been infected — sending out the same e-mail hundreds of times, for example.

Most scanners also detect potentially malicious activity, shutting down the offending application if it appears to

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be causing problems. These scanners automatically check files before your programs access them to ensure that they are virus-free.

Viruses mutate quickly, so all popular virus-scanning software comes with an update service. The updates train the program to recognize new viruses that have been identified since you purchased the original program.

Firewalls blocks

While stolen passwords and viruses can be serious internal threats, attacks also originate from outside your facility. Many companies and even home users employ firewalls to provide security from attacks over the Internet.

Firewalls perform several security functions. First, they filter all incoming Internet packets, allowing only authorized traffic to pass through. Second, they conceal the IP addresses of internal machines from the Internet using Network Address Translation (NAT). This makes it difficult to locate and attack a machine inside the firewall (although you should not rely on this exclusively to protect your systems).

NAT changes the source IP address of packets generated inside the firewall so it appears that the message originated from the firewall itself. In Figure 1 on page 26, you can see how any messages coming from the internal desktop PC with an IP address of 192.168.1.3 will be modified so that the PC on the Internet sees them as originating from the firewall with an IP address of 62.123.4.23.

A third way a firewall can protect computers is by concealing ports inside the firewall. It may do this by responding to port requests that come from the Internet in specific ways. For example, if the firewall uses stealth to hide ports, a computer making a request on the stealth port will not receive a response. Computers on the outside of the firewall cannot determine whether a computer associated with that port exists. Or, the firewall may respond to requests on all ports as if they were active, concealing the truly active ports in a sea of false-positive responses.

If you have a desktop system on your local network and you set it to share files with others in your group, without a firewall, that sharing will likely extend to the Internet. A firewall, which is programmed to block the ports associated with filesharing, will block requests from the Internet to that port on your computer, preventing people on the Internet from viewing your files. (See "Well-known port numbers.")

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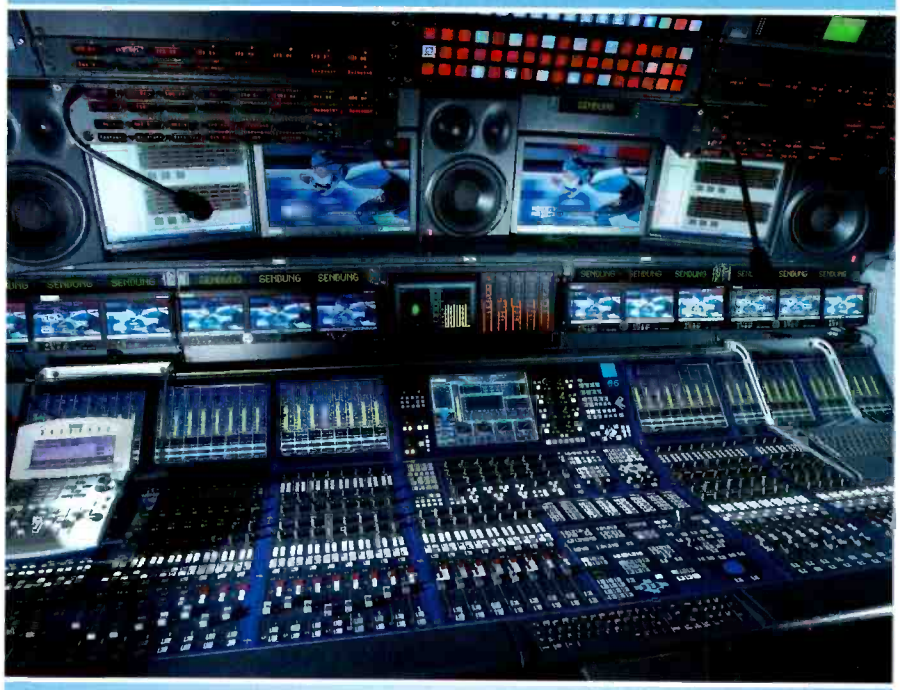

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your company's firewall conceals your desktop computer's identity? Then visit *www.grc.com*. Scroll down to the "Shields Up" link, and run the tests. These tests will reveal whether your computer is advertising its existence to other computers on the Internet. They will also identify whether the particular ports on your system are visible to the outside world.

The best way to protect broadcast operations networks is to avoid direct connections to the Internet. Unless there is a good reason to do so, on-air systems should not connect to the Internet.

Consider limiting interconnection of this network with any other office networks as well. If you have to connect your on-air network to the Internet, be sure to install a good firewall, and check the performance of the firewall regularly.

Take advantage of support packages that are available with many firewalls. These support packages include maintenance updates that improve the protection of the firewall system. BE

Brad Gilmer is president of Gilmer & Associates, executive director of the Advanced Media Workflow Association and technical facilitator of the Video Services Forum.

Well-known port numbers

Service	Port	Description
SSH	22	Secure Shell (secure terminal emulation)
Telnet	23	Telnet terminal
SMTP	25	Simple Mail Transfer Protocol
HTTP	80	Hypertext Transfer Protocol (Web)
Kerberos	88	Secure communications protocol
POP3	110	Post Office Protocol version 3

For a list of port numbers from the Internet Assigned Numbers Authority, visit *www.iana.org/assignments/port-numbers*.

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Sound steps

The new crop of digital audio boards for live broadcast maximize function in a small footprint.

BY GARY ESKOW

While the essential functions of broadcast boards are executed in 2007 much as they were in previous years, there are several significant differences in the way audio is handled in broadcast. The evolving needs of networks, the companies who serve them, and ultimately the mixer whose work is most critical to the success of a production, are forcing console manufacturers to rethink some of the assumptions they operated under even a year or two ago.

In one of Game Creek Video's trucks for FOX Sports' broadcast of the NASCAR Nextel Cup racing series, this Yamaha M7CL is used for the "Racer Radios" submix. Photos courtesy Jason Taubman, Game Creek Video.

Digital speed

One of those assumptions was the move to digital (not withstanding the analog input, of course, coming from talent and location mics). However, many console manufacturers made the false assumption that mixers would prefer boards with a small footprint and would consider scrolling through multiple layers a reasonable trade-off for this benefit.

Limiting the size of a component is a plus for those charged with building mix rooms in trucks. But the message from engineers has been heard loud and clear: "Give me more knobs and faders, and fewer layers!" Working under the strain of real-time delivery, and often moving from company to company, truck to truck and board to board, engineers rejected the deep layering concept that was built into the first generation of many digital production consoles.

Today's boards more closely resemble their analog forebears. Smaller, yes, but one of the keys to gaining a foothold in console manufacturing today is the ability to strike a balance between a reduced footprint and easy access to all functions.

Room enough

While we're on the topic of size, it's clear that network executives are no longer shortchanging the mix environment of the trucks they work in. The move to HD may have taken longer than many predicted, but it's in full swing.

The message from engineers has been heard loud and clear: "Give me more knobs and faders, and fewer layers!"

Affordable home surround sound systems have turned into a critically important part of the product that broadcasters deliver to their customers. That translates into larger mix spaces and more attention paid to the entire audio pathway.

For example, sports fans are spending lots of money on surround sound systems, allowing them to receive more information. Ron Scalise, an audio consultant for ESPN, says that everything leaving a remote site must be heard in the truck with total accuracy. It's essential to place a subwoofer in every truck that audio is mixed in.

Room treatment, speaker accuracy and the need for larger mix spaces are now critical factors. In the past, audio needs weren't considered in the expansion of trucks. Now, according to Scalise, an extra 8ft or 9ft is added specifically for audio.

In general, more focus is being put on audio. More time is spent working on bass management, Scalise said. For example, he makes sure the speakers are not placed under a bridge.

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Television Broadcast Top Innovation Award 2006

The Calrec Sigma shown here is being used for the track effects audio submix for FOX Sports' broadcast of the NASCAR Nextel Cup racing series.

Near field monitoring is critical at this point. Consoles are crucial. Engineers have to be able to check mixes on multiple monitors, for example, in an instant. They also need to switch between mono, stereo and surround mixes quickly.

Jason Taubman, vice president of design and new technology for Game Creek Video, agrees that there is more of a demand for consoles that can handle monitoring effectively. While all of the companies have different configurations, they are all based on a few key client demands. Engineers have made it clear that ample faders top their list of wants.

Monitoring is also an important issue. Mixers require accurate environments on boards that can quickly switch between sound formats, Taubman said. At the same time, they also have to monitor in the various delivery formats, such as Dolby Pro Logic and Dolby E. Consoles have to be able to shift between these formats quickly.

On the fly

On-board processing is another rapidly developing advancement in console technology. As the computers that run consoles become more powerful and robust, the need for external compressors, limiters, delays and surround encoders is declining. Console manufacturers operating in today's market must also consider the number and quality of processing devices that they offer.

The HD world has ... exacerbated the problem of delay, because audio travels faster than the highly detailed images being offered to the viewer.

The HD world has, for example, exacerbated the problem of delay, because audio travels faster than the highly detailed images being offered to the viewer. In today's market, consoles need to offer delay on each channel and easy accessibility to it.

Tom Sahara, senior director of remote operations and IT for Turner Sports, recommends keeping on-board DSP in mind when looking for a new console. Improved DSP functions on the consoles allow the mixer to execute all dynamic processing onboard without having to use external equipment.

Metering

Metering, according to Sahara, is another critical concern because each manufacturer has its preferred metering scheme. This can make it difficult for a mixer to maintain consistent levels when working on two shows that use consoles from two different manufacturers.

BS1770, the standard established by the ITU, is a universal metering benchmark that could remedy this issue. The various manufacturers, however, will need to adhere to it if the problem is going to disappear in the near future.

Back in the days when a tinny 4in speaker was the primary playback device, mixers didn't have to worry much about centering dialog. But things have changed considerably. Today, an engineer has to take into consideration the needs of the director, who has to hear the announcers and communicate with them directly. The director rarely cares much about the sound effects or music bed. To the director, communicating with talent is paramount, and if he's sitting right next to the engineer, there's a chance the mixer will have to conduct his full mix on the fly, as the opportunity arises.

Adding to the difficulty of the task is the fact that much of the audio processing can take place back in command central. Developing a product that remains consistent from mixer to the network and downstream to the viewer is more critical today than ever. A tuned room and a flexible board are essential.

Bells and whistles

While designing your ultimate broadcast console, don't forget to include a well-integrated spill down feature. Mixers need to create a 5.1 mix and assign it to a single, centrally located fader. You'll probably want to give

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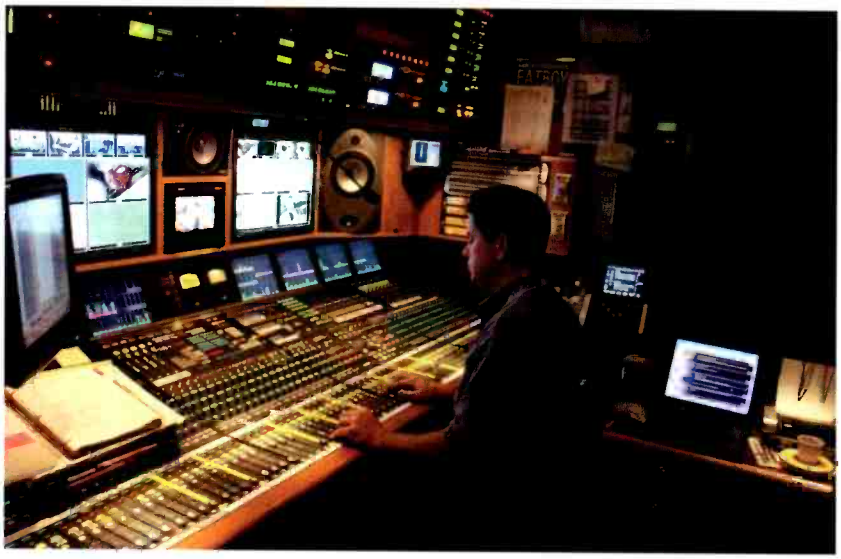

The main mix of FOX's NASCAR Nextel Cup racing series was made using a Calrec Bluefin Alpha.

mixers multiple options in this regard, because a director may want a mix that includes no announcers but has all of the location sound and another that includes talent but no location dialog. Give a director an inch, and he'll probably ask for easy access to yet another combination of audio sources, routed to a single fader.

At the end of the day, of course, there's always the price factor to consider. It's quite possible to take a list of features and build a console that includes them all. The trick for manufacturers is to analyze what is essential and deliver all the desired features at a competitive price, which is no easy task! Without a doubt, all of the companies that serve the broadcast industry are taking in feedback and working as hard as possible to satisfy their existing clients and increase their market share. **BE**

Gary Eskow is a composer and journalist.

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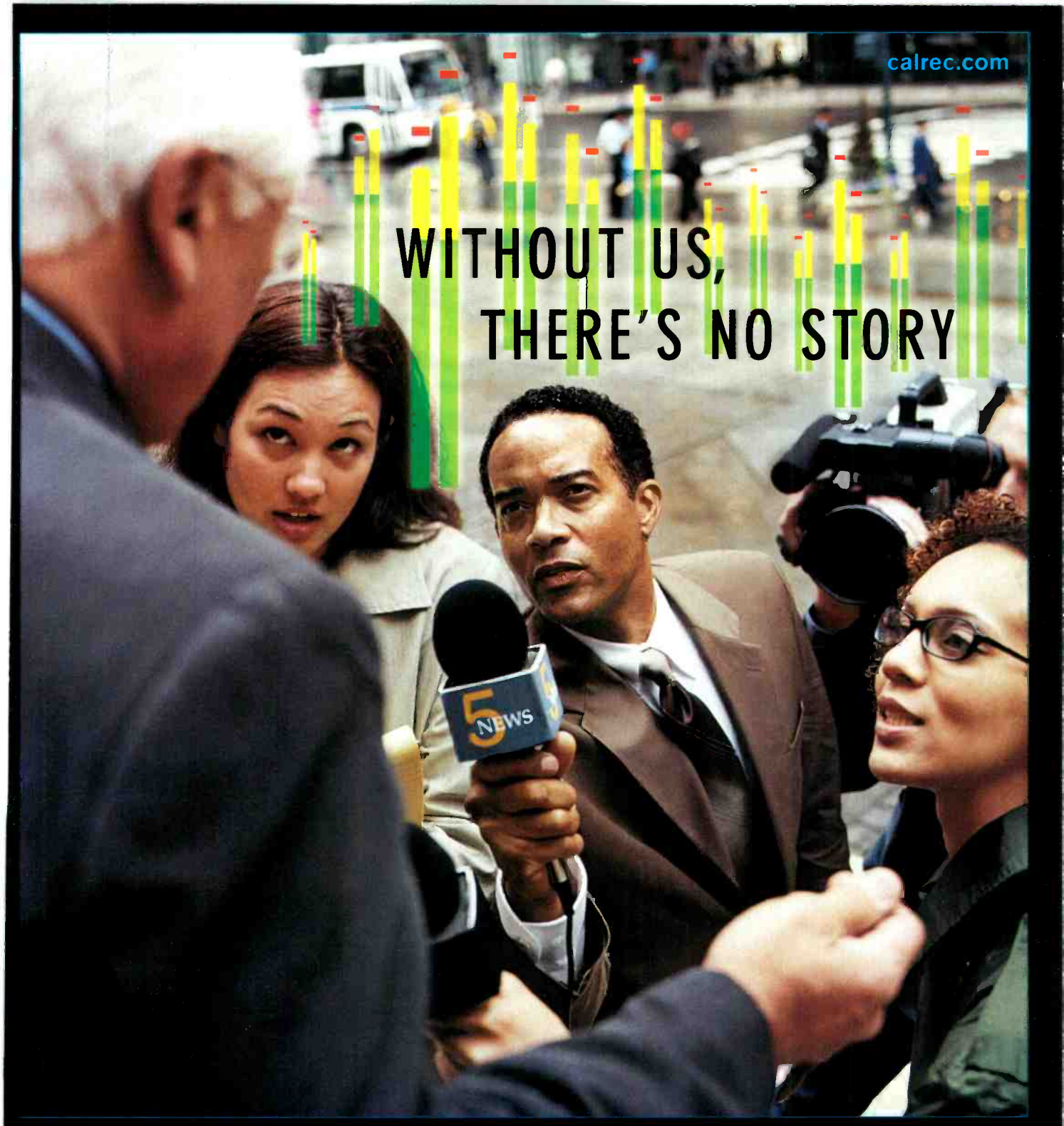

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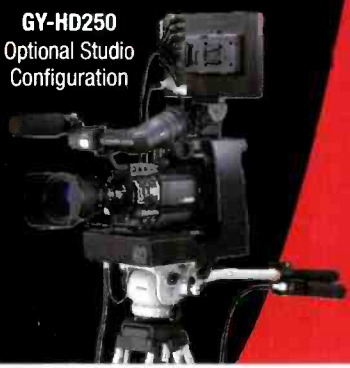

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SYSTEM DESIGN SHOWCASE

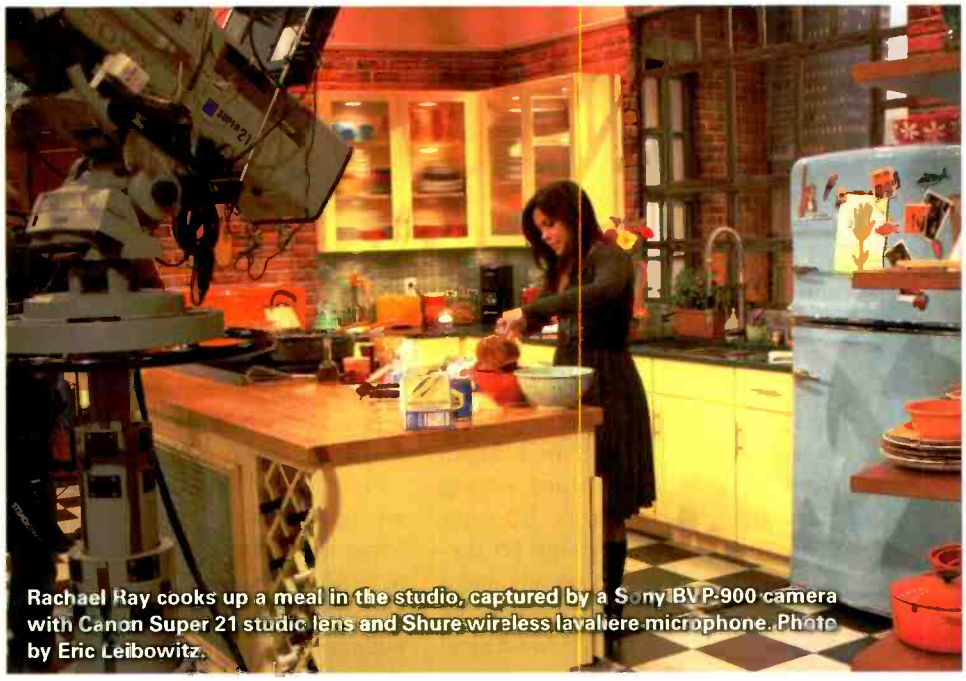
"RACHAEL RAY" SHINES BRIGHT

in EUE Screen Gems' new studio

BY MICHAEL GROTTICELLI

The all-digital video control room for Studio 6A at EUE Screen Gems Studios in New York features a Sony DVS-7350 video switcher and Mitsubishi LCD monitors displaying feeds via Evertz MVP multi-image software. Photo by Dave King.

A newly installed 48-input Solid State Logic C100 digital console mixes digital stereo audio for "Rachael Ray" today, but can easily handle true 5.1 sound when the show makes its move to HD in the future. Photo by Dave King.



Rachael Ray cooks up a meal in the studio, captured by a Sony BVP-900 camera with Canon Super 21 studio lens and Shure wireless lavaliere microphone. Photo by Eric Leibowitz.

"Rachael Ray" is a bona fide syndication hit for King World Productions. And studio landlord, EUE Screen Gems Studios in New York City, couldn't be happier. The show's host Rachael Ray is a seasoned TV chef with several popular shows on the Food Network. However, this new one-hour syndicated series moves Ray out of the kitchen to in front of a live audience. The secret ingredient to this new mix is hidden behind the four-layer Mexican bean dip recipes and trendy fashion tips (both were segments of a recent taping).

The show is taped in a sophisticated 9000sq-ft studio that EUE created specifically for "Rachael Ray" in its 125,000sq-ft four-floor Midtown Manhattan complex.

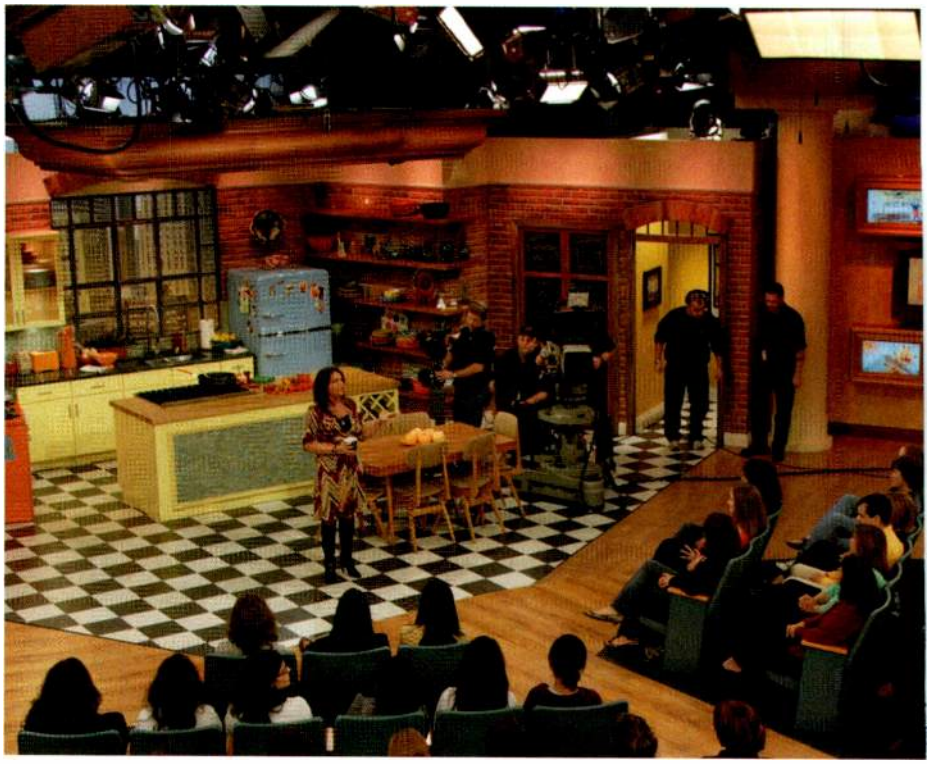
The Studio 6A space was home to the CBS soap opera "Guiding Light" for 20 years. Once CBS decided to relocate the soap to other facilities in 2005, Mitchell Brill, EUE head of corporate development, took the vacancy as an opportunity to upgrade the studio complex.

By the end of 2005, he and Doug Joseph, chief engineer, began designing a 50,000sq-ft studio and support space dedicated to "Rachael Ray." The result has been a pleasant surprise for all involved.

New control

No stranger to revolving clients, each with their own individual production requirements, the EUE design team worked with Rich Cervini, vice president of production and technical operations for King World, to make a home for "Rachael Ray." Timing was critical. In a mere three months — from demolition to first shoot day — the original Studio 6A and its control room were gutted and refitted with all digital equipment, new lighting equipment and a highly innovative, rotating audience platform.

The new control room features a Sony 3.5 M/E DVS-7350 digital video switcher (32 input with 13 aux busses), two Sony DME-5000 DVE units and 64 PatchAmp SDV/HD serial digital video DAs with analog test outputs. For confidence monitoring, there are several 14in and 20in Ikegami CRT monitors with SDI inputs and Leitch VTM-3100 SD LCD-based waveform and vectorscope rasterizers.



The brightly lit, 9000sq-ft Studio 6A space that EUE Screen Gems created for the "Rachael Ray" show features the studio audience on a revolving platform and an overhead Shuttle camera tracking system. The show produces two and sometimes three live-to-tape episodes per day. Photo by Eric Leibowitz.

Rotating audience

The main studio, where the show tapes two — and sometimes three — episodes per day for three days a week, features four distinct staging areas, one in each corner. It's complete with a working elevator for special guests to arrive on camera and a revolving audience seating area in the middle that allows for full 360-degree camera views. This creates a nice on-air ambiance for the show and ensures that the audience is always facing the action, no matter what corner of the studio Ray is performing from.

It's complete with a working elevator for special guests to arrive on camera and a revoloving audience seating area in the middle that allows for full 360-degree camera views.

A variety of large LG LCD screens are mounted throughout the facility. Some are fed by Sony MAV-555 video disks for on-set LCD screen loop feeds that serve as on-camera video wallpaper for the ever changing, creative and colorful sets.

The set was designed by Joe Stewart of Shaffner/Stewart and fabricated by Showman Design, with a lighting design by Alan Blacher that features a variety of fresnels, gels and fluorescent lighting instruments. The challenge was that the audience is sometimes on camera, so all areas of the studio have to be lit all the time.

Meridian Design Associates installed a professional prep kitchen and surrounded it within an audience holding area and talent support space adjacent to the studio. The show's team of 90 production execs, producers, researchers, coordinators, assistants and communications staffers occupy adjacent offices.

On the fourth floor, four editing suites with Avid Adrenaline workstations, (three for show segments and a fourth for on-air promos), along with four Apple G5 workstations, are networked to an Avid ISIS storage array that enables editors to share clips and retrieve elements digitized into the system. Daily roll-ins are handled directly from tape or are ingested into an Avid Thunder server. Six Sony DVW-M2000 Digital Betacam recorders are used for program and ISO record, as well as one DVW-A500 and one MSW-M2000 (IMX) for playback. Graphics are generated with a dual-channel Pinnacle Deko 3000 CG.

Some of the live remote interview segments are conducted through an Apple PowerBook running iChat software. This allows Ray to conduct a two-way A/V dialog via the Internet. These segments are recorded to videotape with a Matrox MXO unit, providing a cost-effective alternative to the traditional remote truck.

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Future-proof design

Joseph said his mandate was to design and implement a studio and production infrastructure that was serial digital today and could serve as a cost-effective upgrade to HD in the future. King World has tentative plans to move the show to HD sometime after 2008. Because of Joseph's preplanning and current equipment choices, the upgrade will only involve the installation of new HD cameras, a new HD production switcher and an HD-capable router.

This current design includes LCD monitors for distributing multi-image displays throughout the control and production areas. Using four Evertz MVP 12 SD, HD and analog rasterizers feeding four Mitsubishi MDT461S LCD control room screens, the design team has installed a system via Cat 5 wiring for digitizing and distributing groups of images to master control, audio, the tape room and the production bridge. This design also enables all sources to be displayed, including daily tally and naming changes, anywhere in the building. Signals are routed with a Sony HDS-X3700 serial digital router switcher (64 x 64 I/O), which handles serial digital signals with embedded audio.

The design team has installed a system via Cat 5 wiring for digitizing and distributing groups of images to master control, audio, the tape room and the production bridge.

Two Sony BVP-950 cameras with Canon 11 x 4.5 wide-angle and 16 x 8 zoom lenses are used hand held as well as on Steadicam mounts. Three Sony BVP-900 studio cameras with Canon Super 21 lenses are operated in the studio on Vinten fluid heads and studio pedestals. All cameras are on triax and are controlled with Sony camera control units. Some remote segments are shot in 24p.

The Shuttle, an overhead camera system made by Innovision Optics, offers overhead shots from a curved rail attached to the studio's lighting grid. The camera can be preprogrammed with pan, tilt and zoom capabilities, or operated manually, using a joystick and software interface. There's also a Sony BRC-H700 remote pan, tilt and zoom camera for shots over the kitchen range.

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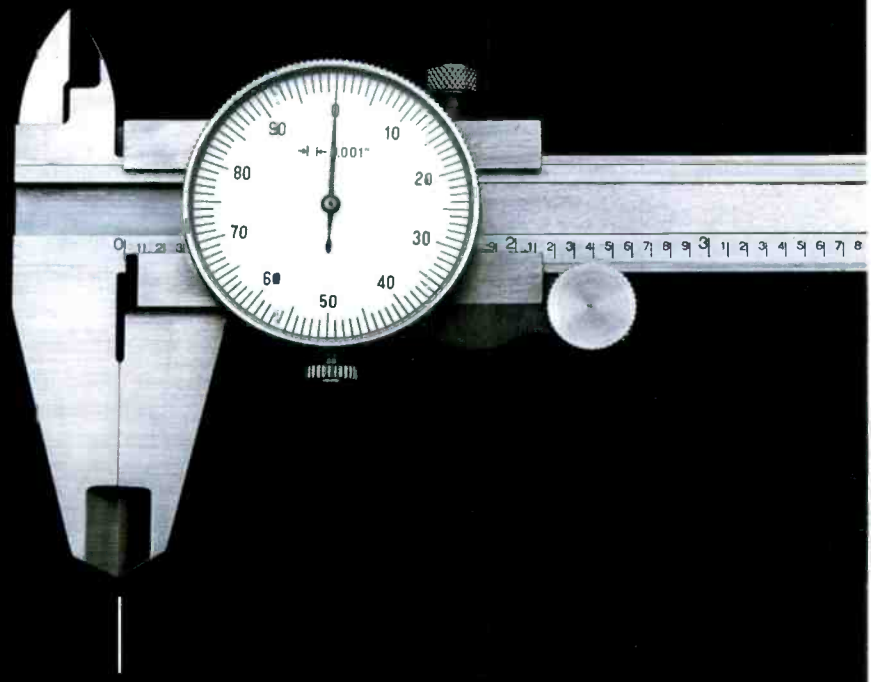
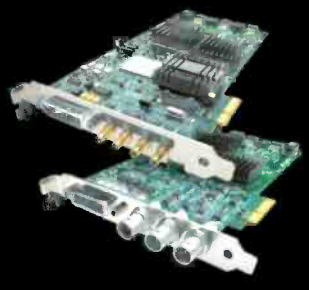
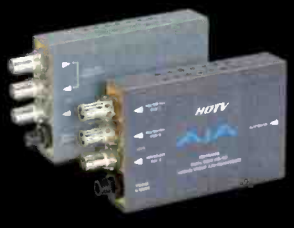


THE DIFFERENCE BETWEEN TOLERANCE AND ZERO TOLERANCE





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Sounding good

Stereo audio is recorded on a 48-input C100 digital console from Solid State Logic, with multiple ties to an elevated production bridge, where a Yamaha M7CL console is used to drive the speakers in the audience. The SSL board was chosen for its flexibility, which includes the ability to record full surround sound (5.1 channels), and the familiarity it offers to the freelance operators who work on the live-to-tape show.

Numerous HD-compatible DAs from PatchAmp and audio jackfields from ADC support the studio's traditional SD and analog infrastructure. The rotating audience seating platform employs multiple floor-mounted speakers that capture audience reactions and are often incorporated into the overall mix. Sixteen mics positioned directly above the audience are mixed by a Mackie 1604 board as a sub-mix, and then routed into the SSL C100 console. A full complement of Shure diversity UHF-R wireless mic systems provide wireless body pack and handheld mics for Ray, her guests and live audience questions.

The redesign of the studio for "Rachael Ray" is the first step toward a complete facility upgrade to a fully digital, multitiered environment.

The Digiplex concept

Brill said the redesign of the studio for "Rachael Ray" is the first step toward a complete facility upgrade to a fully digital, multitiered environment. EUE Screen Gems Studios designed the building space as a Digiplex for new media, offering the best of traditional production tools and experience for the benefit of emerging media companies like Google and Yahoo, with content destined for the Internet.

Within its midtown facilities, a forward-looking HD and IPTV initiative is currently under way, whereby significant resources are being committed to support new and existing clients. The company has also been one of the few qualified by New York City for a combined 15 percent refundable tax credit for below-the-line production costs. This will help attract clients concerned about rising production costs in New York.

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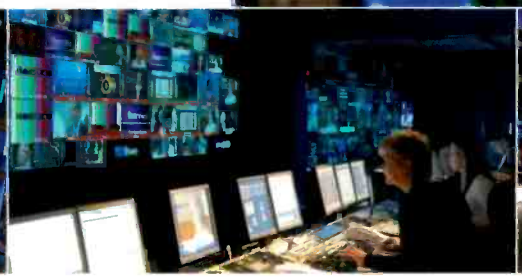

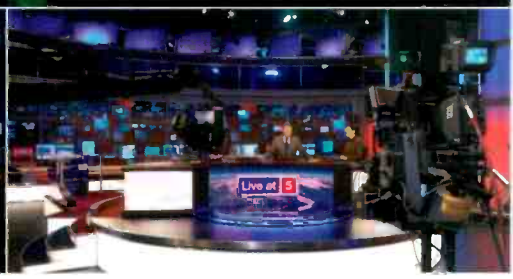

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and commercial production companies, EUE was able to handle the quick turnaround for "Rachael Ray" and stay within the limits of a predetermined budget. Talks are under way for an additional two years of "Rachael Ray," which is a sign that the new studio and support space design has been a success. BE

Michael Grotticelli regularly reports on the professional video and broadcast technology industries.

Design team

EUE Screen Gems
- George and Chris Cooney, studio principals
- Thorpe Shuttleworth, executive vice president
- Mitchell Brill, head of corporate development
- Doug Joseph, chief engineer

King World
- Rich Cervini, vice president of production and technical operations

Alan Blacher, lighting design
Shaffner/Stewart
- Joe Stewart, set design

Meridian Design Associates
Showman Design

Technology at work

ADC audio jackfields
Avid
- Adrenaline workstations
- Deko 3000 dual-channel CG
- ISIS storage array
- Thunder MX triple-channel stillstore

Canon
- 11 x 4.5 wide-angle lenses
- 16 x 8 zoom lenses
- Super 21 lenses

Evertz MVP 12 SD/HD/analog rasterizers
Genelec
- 8030A audio room speakers
- 8050A control room speakers

Harris Videotek VTM-3100 waveform rasterizers
Ikegami TM-14-17 14in and TM-20-90 20in CRT monitors with SDI inputs
Innovision Optics Shuttle camera tracking system
LG LCD screens
Mackie 1604 board
Matrox MXO unit
Mitsubishi MDT461S LCD control room monitors
PatchAmp SDV/HD DAs with analog test outputs
Samsung 21in LCD monitors
Shure
- Wireless microphones with diversity antenna system
- UR4D UHF diversity receivers

Solid State Logic C100 digital audio console
Sony
- BRC-H700 remote pan/tilt/zoom camera
- BVP-900 studio cameras
- BVP-950 handheld cameras
- HDS-X3700 serial digital router
- DME-5000 DVE
- DVS-7350 digital video switcher
- DVW-A500 and DVW-M2000 VTRs
- MAV-555 video disks
- MSW-M2000 decks

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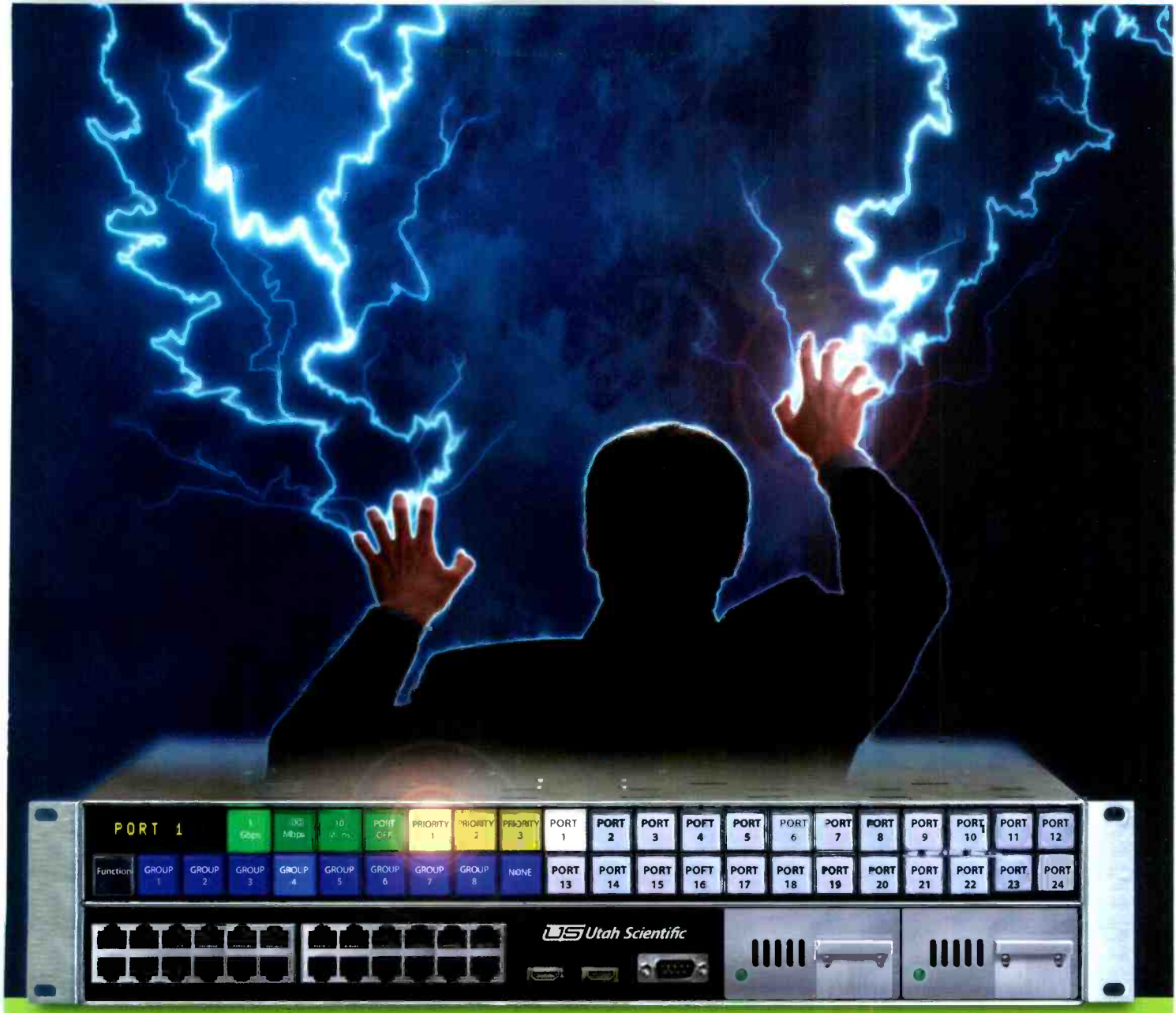
Yamaha M7CL mixer console



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SYSTEM DESIGN
SHOWCASE

WLS' second control room shares the electronics of the Kahuna production switcher with the first control room, which has been newly rebuilt. The switcher has four M/Es, so either room can function with all four M/Es used, or each room can use two M/Es simultaneously.

WLS shows HD's WOW factor to Chicago

BY KAL HASSAN

On Jan. 6, WLS-TV ABC 7 began broadcasting its entire local news and programming lineup in HD. The transition to HDTV presented the station with the opportunity to treat its audience to the wow factor that comes with such a high-quality viewing experience.

In the studio

The station acted as its own systems integrator for this project, which was beneficial because by the time the installation was complete, WLS was quite familiar with the systems. The station's engineering team worked for many months to integrate HD capability across the broadcast facility. The result of the overhaul is an all-HD infrastructure that includes HD control rooms, along with an HD studio and remote cameras, an HD graphics system, an HD weather system, and HD-capable live production trucks.

WLS upgraded 11 cameras in the studio to HD and added an HD

WLS uses Sony HD HDC-1000 1080p/720p studio cameras, which come equipped with a SMPTE-standardized optical fiber interface for connecting to the camera control unit.

production switcher. It also upgraded the plant router and a significant amount of infrastructure gear. In the process, the engineering team updated studio wiring for SMPTE fiber instead of triax.

Chicagoans and visitors alike can now walk past the facility for a front-row look at WLS' Emmy Award-winning State Street Studio set and watch studio operations in HD. Five of the new studio cameras are Sony HDC-1000s with Canon XJ25x6.8B HD lenses installed on Vinten robotic pedestals. The studio also includes a Sony HDC-1500 camera with a Canon HJ17ex7.6 portable lens, complemented by smaller Ikegami HDL-40 (720/60p) cameras used for weather and other out-of-studio shots.

Production

One unconventional element in the station's broadcasts is the use of an HDL-40 camera, installed more than a block away on a Macy's department store building. The camera sends outside images of the studio back to the station via Canon's DT-50/HD Canobeam Free Space Optics system.

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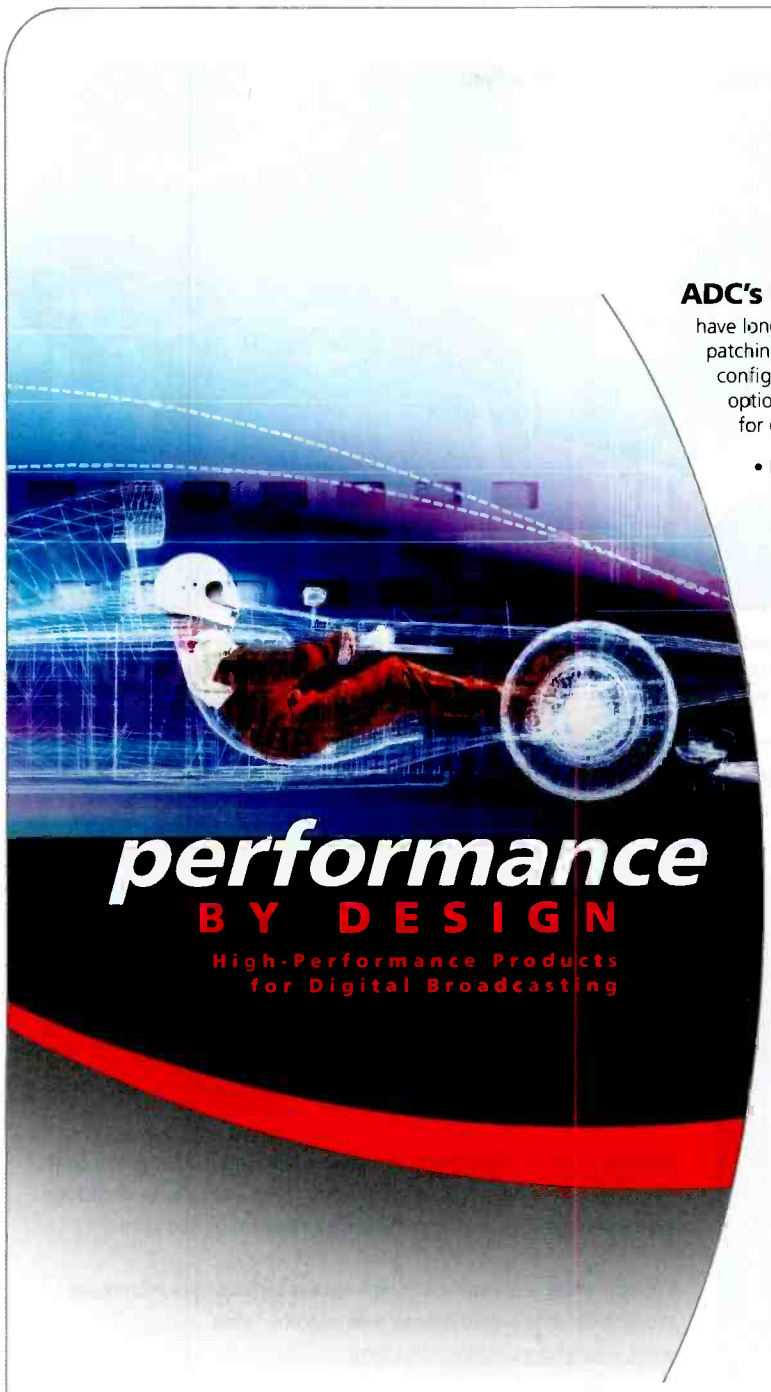

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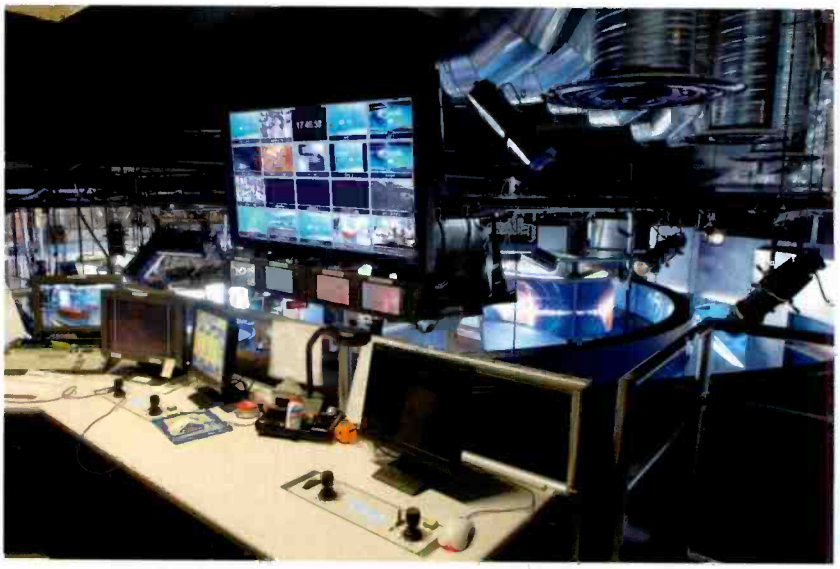
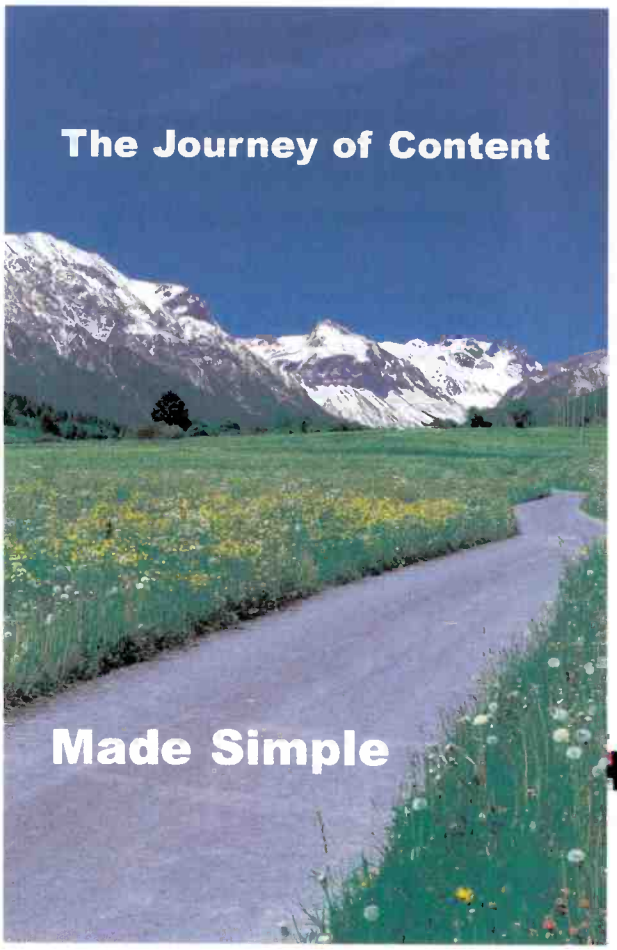
The station's graphics and weather systems are also generated in HD. Instead of simply upconverting graphics, WLS recreated all of the station's opens, bumpers, franchise animations and studio mixes. Although this process was labor-intensive, it ultimately gave station viewers a true HD experience. WLS' graphics systems include multiple two-channel Pixel Power Clarity 5000 HD units, complemented with a Grass Valley PVS 2000 HD clip player.

The station also implemented a fully loaded Snell & Wilcox Kahuna SD/HD multiform production switcher, a four-M/E system with eight channels of DVE. The switcher handles conversion internally, reducing the need for external conversion gear and allowing station operators to integrate SD satellite feeds, camera feeds and other SD inputs into HD programming without concern for format compatibility. The station configured the 11RU electronics of the switcher to serve two identical control rooms — one used for small productions and the other for news. This resource-sharing capability allows the Kahuna



The robotic operator position consists of two Vinten camera and robotic control positions for redundancy. The Vinten controls can be operated by the touch screen or mouse.



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mainframe to be shared between the news production and the production control rooms, each of which is equipped with its own console.

The facility upgraded to an HD/SD PESA Cheetah wideband 512 x 512 framed router, which was expanded to 384 x 384 to accommodate HD I/Os. The router is controlled by the existing Grass Valley Jupiter control system, which also controls the analog A/V levels and an NVISION 512 x 512 AES level.

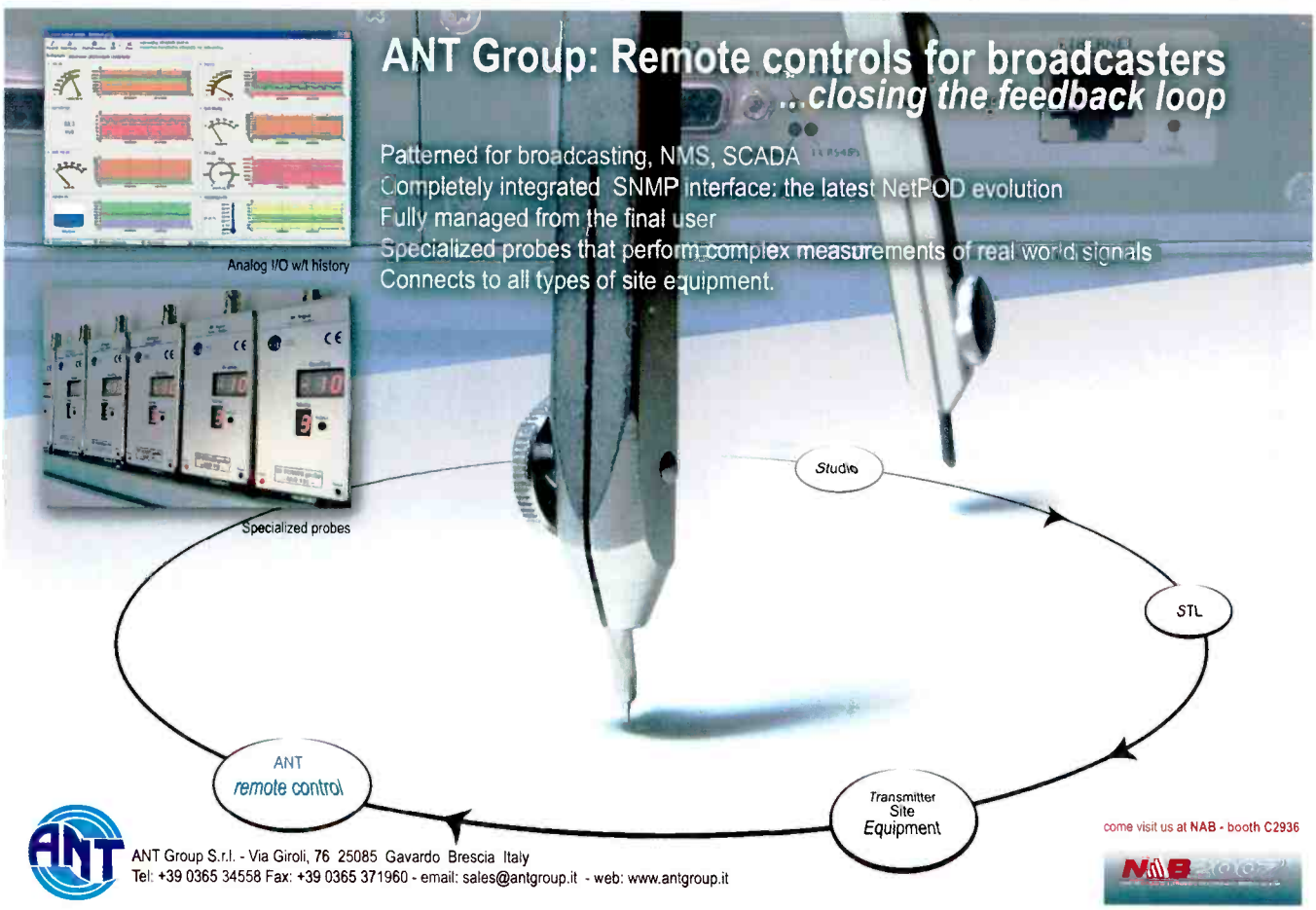
WLS also standardized on the Harris Leitch X75HD multiple converter and frame synchronizer, which extends the facility's options in terms of incoming and outgoing content. HD processing is split between Evertz and Miranda gear, with the control rooms featuring an Evertz MVP multi-image display processor and Miranda and Evertz DAs, upconverters and other infrastructure gear. Miniature standalone converters from AJA are used for monitoring purposes. The mini converters attach immediately behind monitors and convert video from HD-SDI to DVI, for example, wherever needed. A few additional AJA distribution amps are used throughout the facility as well.

The station invested in a top-quality audio system prior to the HD upgrade, so it was able to continue using its Solid State Logic Aysis Air digital broadcast console. The

Design team

WLS-TV

Emily Barr, president and general manager
Jim Begley, senior IT manager
CC Boggiano, news operations manager
Richard Bonsignore, controller
Phil Christopherson, technical
Lisa Clingan-Cruz, graphics director
Mike Davis, IT technical
John Decorah, technical
Jan Fedorenko, media manager
Jennifer Graves, VP and news director
Martin Hanks, technical manager
Kal Hassan, VP and director of engineering
Tom Hebel, VP of creative services and programming
Dave Hewitt, studio technical manager
Janet Hundley, assistant news director
Jan Janowski, technical
Jason Long, technical
Dennis McGuire, technical maintenance supervisor
Tim Osterman, technical construction supervisor
George Pearson, technical
Dave Spinelli, scheduling manager
Craig Strom, assistant director of engineering
Evan Thomas, IT and engineering
Joe Trimarco, director of operations



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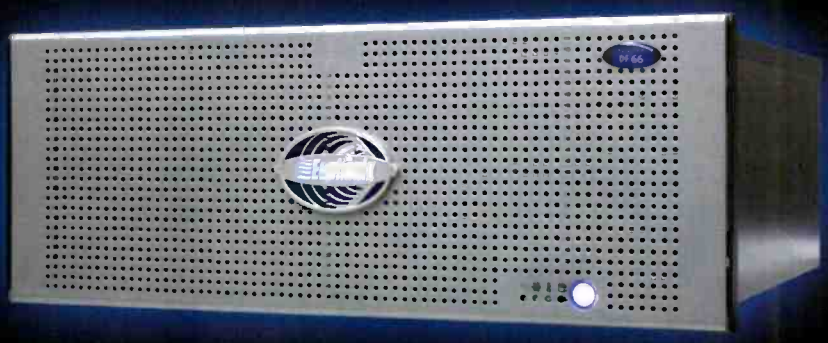

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all-AES system only required expansion of the number of audio inputs.

In the process of upgrading its news production, WLS also switched its newsroom automation to 16:9. The move proved just as much of a challenge as implementing HD but has been well worth the effort. Feeds from digital cameras in the field — shot at 16:9 and fed back via digital paths — look almost like HD content on-air.

The station also converts incoming feeds, such as those from CNN, NewsOne and other major networks, to 16:9, adding wings when necessary. News ingest, editing and playback are all performed in 16:9, making this a truly comprehensive shift to widescreen programming. The effect of this transition is that the continuity of the HD feel is carried throughout the show, even for material not acquired in or upconverted to HD.

Staff training

Converting the newsroom system to 16:9 was more than just a technical challenge because the change affected many employees, who had to learn to think differently about footage. They now edit all material in 16:9, including archived material, which is adapted as it is incorporated into the production workflow. To help staff members understand the visual difference in aspect ratios, the station set up a training facility in its studio.

The station's HD news program is created through Grass Valley newsroom automation run in 16:9 mode, as well as desktop journalist editing using Avid Media Browse. In the programming department, five Avid Media Composers have been converted to Adrenaline HD systems. And the station's Unity server has been replaced by a larger Avid ISIS system with 16TB of online storage to support post production of HD promos and programming.

Live HD shots

The station also invested in a new Weather Central 3D:LIVE HD

Technology at work

AJA HD/SDI to DVI converters
Avid
- ISIS 16TB online storage
- Media Composer Adrenaline HD

Canon
- DT-50/HD Canobeam Free Space Optics system
- HJ17ex 7.6B IRSE HD ENG lens
- XJ25x6.8B IED/D-01-DSS HD studio lenses

Evertz
- MVP multi-viewer processors
- Single-mode optical terminal gear with HD I/Os

Grass Valley
- Jupiter control system
- PVS 2000 clip server

Harris Leitch X75 frame syncs
Ikegami HDL-40 720/60p box cameras
JVC GY-HD250 CHU Pro HD HDV camcorder
Miranda Technologies
- Densité series HD DAs and downconverters
- HDV-to-ASI Bridge

NVISION 512 x 512 AES routing switcher
Panasonic AK-HC1500 720p/60 HD box cameras
PESA Cheetah HD/SD router
Pixel Power Clarity 5000 HD graphics units
Snell & Wilcox Kahuna HD/SD production switcher
Solid State Logic Aysis Air digital audio consoles
Sony
- HDC-1000 1080p/720p HD studio cameras
- HDC-1500 portable 1080p/720p HD studio camera

TANDBERG TT1280 and TT1290 decoders
Traffic.com HD software
Vinten robotic pedestals
Vizrt Curious software
Weather Central 3D:LIVE HD upgrade

system that gives weather a whole new look. It incorporates Landsat images, matched with aerial photography of the Chicago area, along with an upgraded Vizrt Curious Software map system that provides satellite imagery.

The Traffic.com graphics system for traffic reporting was also upgraded to HD. There are five traffic cameras, with three Panasonic AK-HC 1500G HD box cameras located at the Sears Tower and two at the John Hancock Center. A sixth camera located atop the Sears Tower captures time-lapsed SD video in a 16:9 aspect ratio. The Sears Tower and John Hancock Center have been linked to the station by fiber using Evertz single mode terminal gear. The station considers the timing of this upgrade less critical, as the use of the cameras comprises such a short period of airtime.

All of the station's microwave sites are capable of passing through HD. WLS launched Chopper 7 HD in April 2006 with one HD-capable site, and now all nine microwave sites are HD-capable. The station can do HD live shots with JVC GY-HD250U ProHD cameras from its ENG vans. A Miranda ASI Bridge converts the live 720/60p stream to ASI for transmission to the station, where it is decoded back to HD/SDI for production using TANDBERG TT1280 or TT1290 decoders. The station currently uses Harris Platinum CD VHF and Harris Diamond CD UHF digital transmitters.

WLS' HD launch continues its two-decade tradition of leading the Chicago market. And the cutting-edge technology gives the station a strong foothold for the future. BE

Kal Hassan is vice president and director of engineering for WLS-TV ABC 7.

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Flywheel's power

More stations are looking at the energy source's short-term load carrying abilities.

BY DON MARKLEY

While big generator capability is pretty well known in the industry, a short-term power supply source in the UPS business is quietly becoming popular for broadcast stations. The temporary energy source is the flywheel.

Flywheel history

As far back as the early '40s in Europe, motor-generator sets with big flywheels were used to provide continuous electrical energy. In the tube era, minor glitches weren't the panic that they are for solid-state electronics. Still, it was preferred that large radar and communication systems not go dark at inopportune moments.

To facilitate that operation, large motors were connected to a common shaft with a large flywheel. When normal electrical service was available, the motor simply kept the flywheel spinning up to speed. That was a small load given the use of good bearings. If the primary source failed, the flywheel kept spinning, turning the motor into a generator for a short while. This allowed a standby generator plant to start and be switched onto the line.

Obviously, it wasn't that simple because the connection to the primary source had to be broken and the generator connected and synchronized. Still, it was workable and provided standby power to many loads during World War II and shortly thereafter. Today the flywheel is being used in broadcast facilities in the place of batteries to power UPS systems.

As far back as the early '40s ... motor-generator sets with big flywheels were used to provide continuous electrical energy.

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Standard UPS systems

The first UPS systems used little packages for smaller loads such as small computer systems or light loads in areas such as medicine. Now, UPS systems take much higher loads, including full-power television transmitters.

A standard configuration consists of installing a large transfer panel immediately downstream from the station's main circuit breaker. That transfer panel is sometimes installed after some noncritical loads are split off from the main input distribution bus. The transfer panel then feeds the UPS, which, in turn, is connected to the remainder of the power distribution circuitry for the station.

The UPS does more than just provide continuous power. It provides

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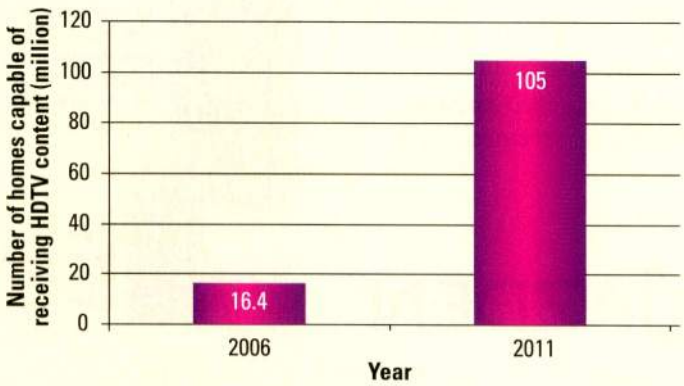

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clean, glitch-free power, which helps to improve the overall dependability of the solid-state systems in modern stations.

UHF stations need to ensure that the UPS can tolerate the enormous short-term load caused by a crowbar circuit. This is mainly handled now by circuitry that simply switches out the UPS and allows the main electrical service to bypass directly to the load until the high load passes. Then, the UPS returns to the task of providing power.

If the power fails, the UPS continues to provide energy for a short period of time while the generator is started and placed online. A bank of batteries provides the power to the UPS. Remember, the batteries only have to provide that energy for a few seconds because a modern generator system is capable of picking up the load that quickly. The disadvantage of this system is the necessity of a huge battery bank with the attendant service requirements.

The flywheels are the wild technology here. Some manufacturers still use steel flywheels weighing up to 600lbs.

The flywheel-powered UPS

Today's systems use a modern UPS with a flywheel generator for the short-term energy source. The heart of these systems is a flywheel supported by magnetic bearings. This greatly reduces the wear factor over years of operation. A motor operates the flywheel until the energy stored there is needed. Then, for a short period of time, the flywheel is used to generate energy for the UPS until the main generator comes online.

The flywheels are the wild technology here. Some manufacturers still use steel flywheels weighing up to 600lbs. Others use materials such as carbon fiber composites to build a lighter flywheel that can spin extremely fast, sometimes exceeding 40,000rpm. Remember, the energy stored in flywheels is a function of the mass and rotational speed. Therefore, a huge amount of energy can be stored in a fairly light and small flywheel if it is spun very fast.

The numbers for these devices are really interesting. Most have a rating of around 200kVa per flywheel, with the ability to parallel multiple

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The actual flywheels are enclosed in a sealed housing at the factory, and no field repairs are done. In the case of a failure, the entire assembly is simply returned to the factory. Remember, these are normally sealed with extremely delicate bearing and seal assemblies, and operate in a partial or near full vacuum. You don't fix that on the back bench with a pair of Channellocks. On the other hand, the flywheel assemblies are not huge. Some single flywheel models measure less then 3ft x 3ft x 6ft. They are quiet and can be installed immediately adjacent to the UPS equipment.

Coordinating the entire system

Before you get too excited, realize that these power sources and UPS systems aren't worth squat without the generators to go with them. It is imperative that the design of the power systems be carefully coordinated between the flywheel power system, the UPS and the generator manufacturers. Most manufacturers will have already done much of the work, including the design of coordinated control systems between the parts of the overall network. Small accommodations can made, however, for each particular project concerning loads and physical space available.

Before you get too excited, realize that these power sources ... aren't worth squat without the generators to go with them.

Stations don't need a big rack full of batteries with the attendant chargers, cables, buckets of acid, etc. The flywheel systems are both clean and quiet, causing only an acceptable low hum in the electrical equipment room. The new flywheel assemblies are small and appear to be quite dependable. Still, I flinch at the idea of a broken flywheel, still spinning at 30,000rpm, bouncing around inside the back room in the station. Such an occurrence is not likely, but wouldn't it be fun to watch? **BE**

Don Markley is president of D.L. Markley and Associates.

Send questions and comments to: don.markley@penton.com

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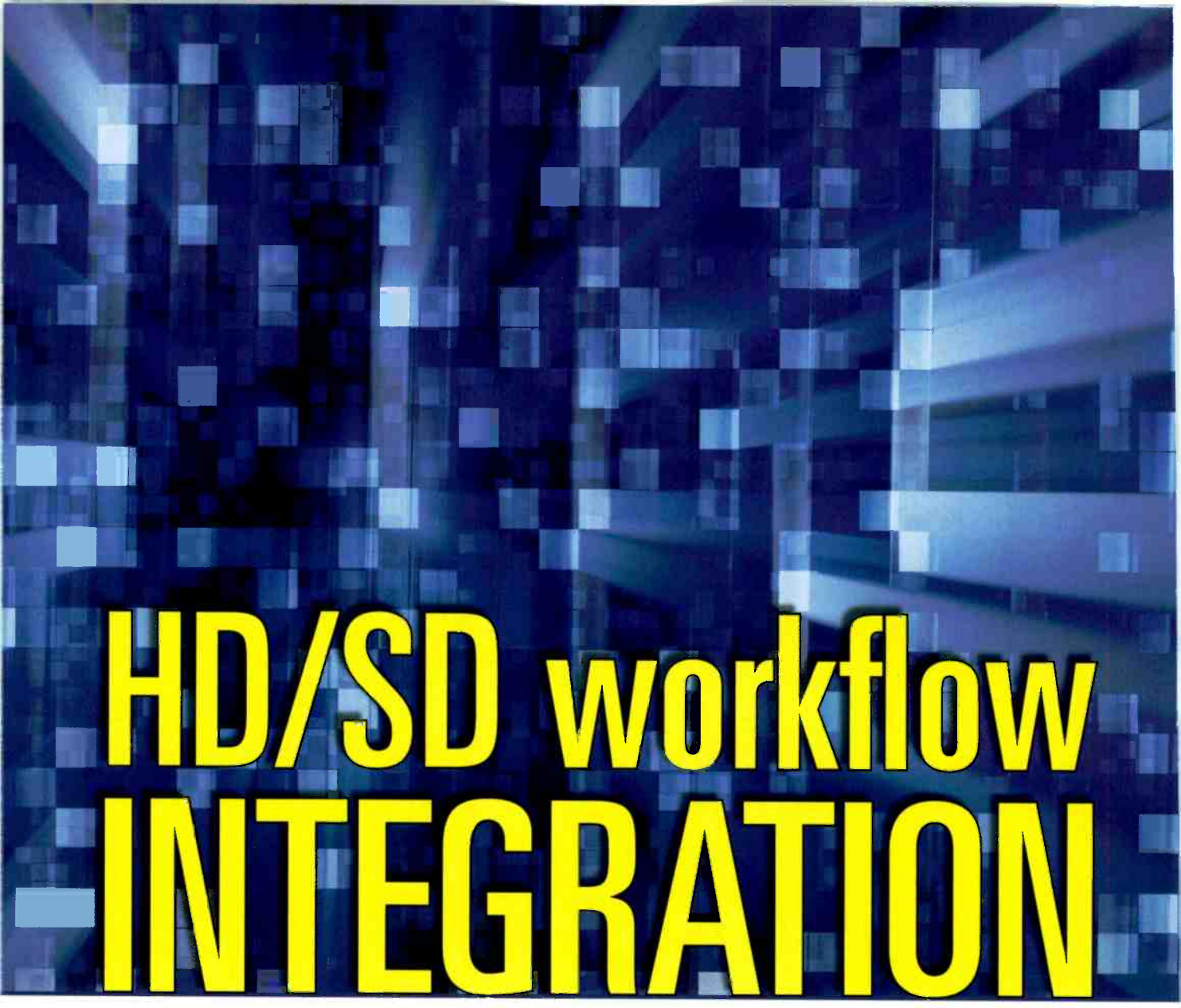

HD/SD workflow INTEGRATION

Compression conflicts can stymie the mix.

BY BOB FUNG

A highly integrated HD/SD processing infrastructure is becoming mandatory, while tight cost constraints remain a focal point as the HD "business case" continues to be validated. Tools that facilitate this transition for broadcasters include signal conversion, aspect ratio conversion and signaling, multichannel audio processing using audio metadata and video-to-audio timing test and measurement.

In addition, issues beyond conversion of the essence of baseband digital video and audio need to be addressed. An HDTV infrastructure introduces an entirely new level of data and metadata handling requirements. In the analog and SD era, data and metadata tended to be the domain of vertical blanking interval (VBI)-based information and its digital equivalent. In this new hybrid era, data and metadata elements go beyond closed captioning to maximize the consumer listening experience. The list now includes active format descriptor (AFD) for signaling aspect ratio and audio metadata required to signal stereo to multichannel transitions.

Significant issues and challenges face broadcasters that attempt to operate an HD/SD TV processing infrastructure in which digital video, audio data and metadata elements seamlessly interoperate together. Addressing these challenges is now critical because the approaching analog shutoff and the increased DTV awareness are forcing many broadcasters to rapidly implement a DTV transition plan. And an integral component of this plan is to design a facility that can accommodate HDTV and SDTV signal formats in a single-operation workflow environment.

Signal format conversion

A fundamental challenge in any facility transitioning to an HDTV

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infrastructure is the requirement to transparently handle multiple new signal formats. In addition to handling analog video and audio signals, a broadcast facility may be required to handle HDTV formats, including 720p, 1080i and 1080p signals of various frame rates.

Handling multiple signal types makes signal conversion — converting the ingested material to the facility's native format — difficult. Ingested material can be a mix of analog, HDTV and SDTV content. The standard solution is to use standalone HDTV up- and downconversion within the workflow. There are two issues to consider when incorporating HDTV conversion within the workflow: format detection and the application.

Ideally, an HDTV upconverter automatically detects the incoming signal type and reconfigures as needed to output the desired signal format. This functionality does not require external triggering when the input format changes and minimizes opportunity for error. However, if the upconverter does not incorporate automatic signal format detection, external triggering may be required. The preferred method for triggering upconversion is via the broadcast facility's automation system. Ideally, the automation system's traffic system would track the content's signal format so it could trigger the upconverter as required.

HDTV upconverters are typically offered in different varieties, each suited for different applications. Upconversion for on-air playout and transmission typically incorporates high-quality, motion-adaptive temporal HDTV scaling technology. Monitoring requirements within the workflow can be handled using lower cost HDTV upconverters, which use less expensive spatial upconversion technology.

Aspect ratio management

SD places minimal demands on aspect ratio management. HD content, however, introduces additional complexity to aspect ratio selection. HDTV content can be a mix of upconverted 4:3 SDTV content and native 16:9 HDTV content. There are multiple aspect ratios within the workflow that must be contended with. Standalone aspect ratio converters or aspect ratio converters embedded within other devices (e.g., within an HDTV upconverter or server system) require remote signaling or triggering to ensure correct aspect ratio configuration.

Many aspect ratio converters feature triggering via a General Purpose Interface (GPI). Aspect ratio triggering cues can be incorporated within the facility's traffic system, and triggering can occur via the automation system.

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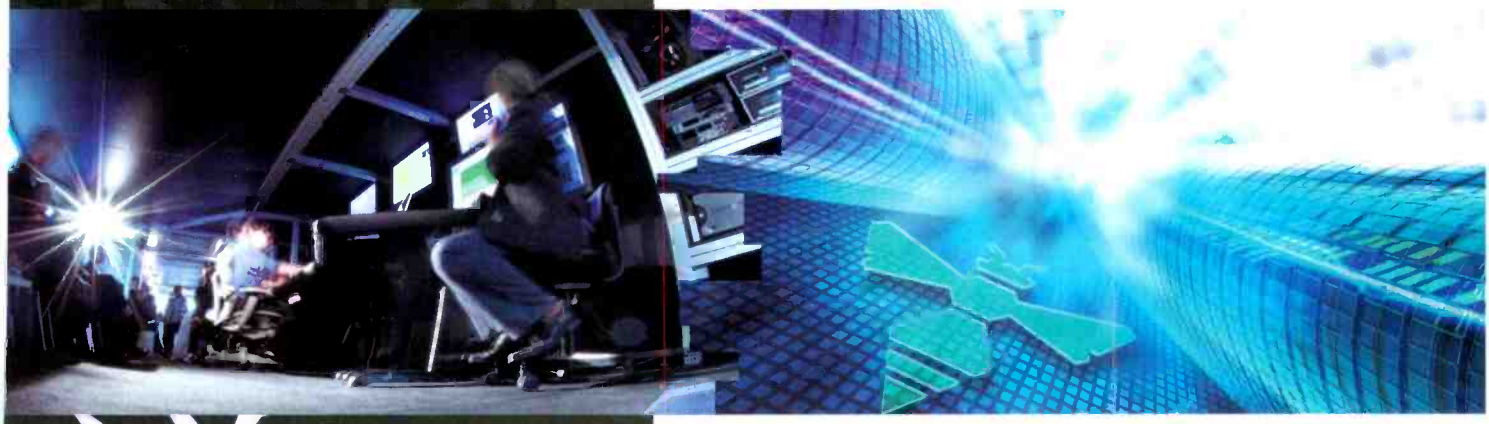

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(See Figure 1A.) GPI triggering, however, offers significant limitations. The GPI interface does not provide feedback to confirm a successful aspect ratio change. In addition, a GPI interface offers access to only a limited number of aspect ratio and control parameters, limiting the overall functionality of the aspect ratio converter.

A more comprehensive approach involves using aspect ratio signaling information embedded within the vertical ancillary (VANC) of the HDTV content. (See Figure 1B.) AFD metadata carries information regarding the aspect ratio of the active picture and can be used to trigger aspect ratio conversion devices.

Other existing aspect ratio signaling technologies, such as widescreen signaling (WSS), carry limited

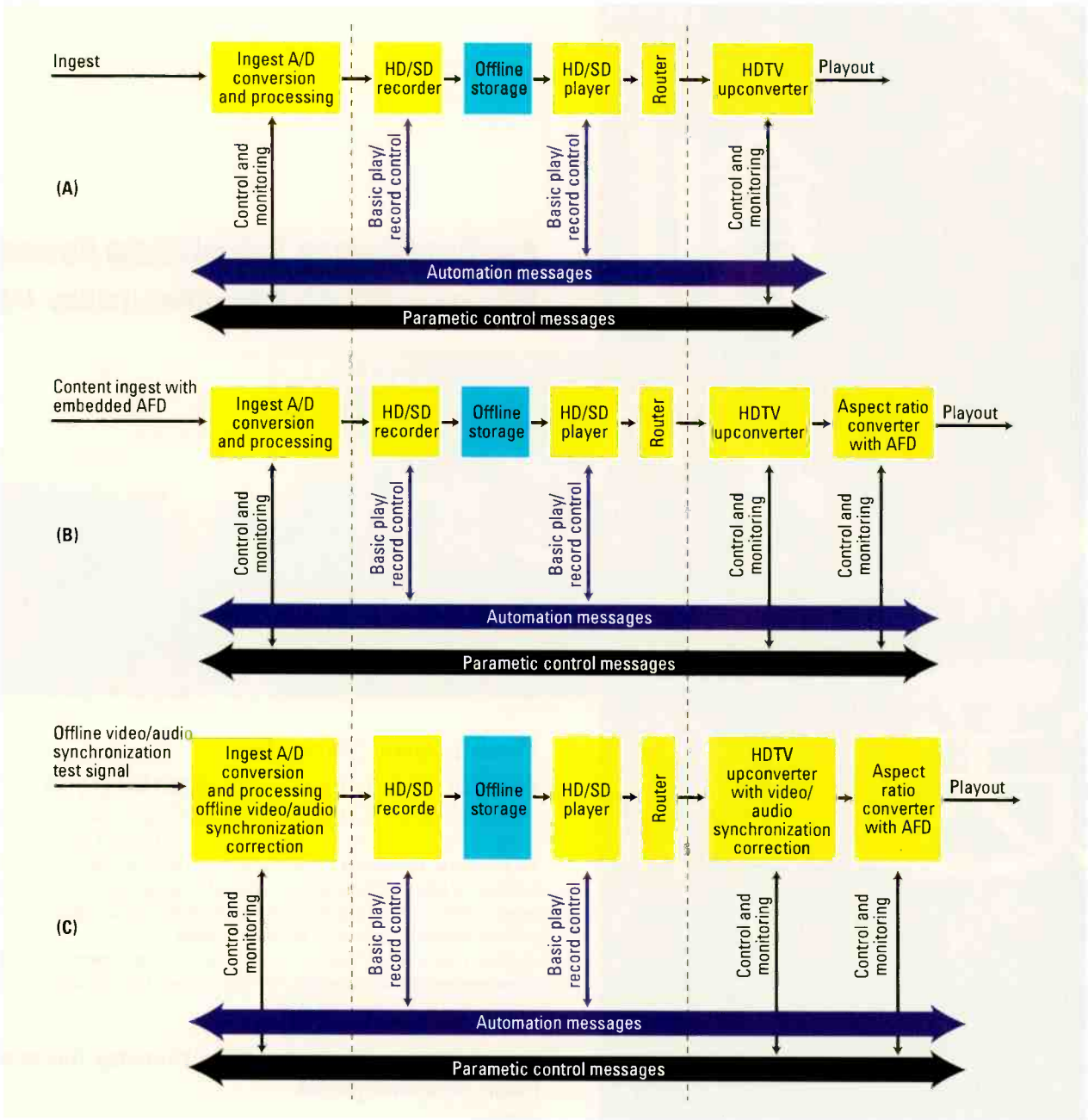

Figure 1. (A) In a typical HD/SD workflow, content is ingested and stored offline. HD and SD content is then routed to an HDTV upconverter for playout. HDTV upconverters with automatic input format detection seamlessly allow HD and SD content to play out without requiring external triggering. (B) For embedded content, AFD is ingested and stored offline. Storage systems must be capable of retaining the AFD metadata embedded in the VANC. During playout, downstream aspect ratio converters require AFD for aspect ratio triggering. (C) An offline video/audio synchronization test signal should be propagated through the ingest transmission path to determine if there are video and audio synchronization issues. They can also be used throughout the workflow to monitor and correct video and audio synchronization issues.

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information about the active picture and are used in the SD domain only. AFD will facilitate the transparent aspect ratio conversion of the various content within the HDTV workflow. An aspect ratio converter should be aware of both WSS (for legacy content) and AFD metadata to be used effectively in a hybrid facility.

Audio considerations

There are many types of audio employed in a hybrid facility today. It is important to understand the differences between two-channel (stereo) and multiple-channel (surround sound) audio processing.

A stereo signal that sounds like stereo may have inaudible surround sound information encoded in the stereo signal (e.g. Dolby Pro-Logic II or Neural Surround). Surround sound mixes can have four to eight channels, depending on the format. Typically, stereo and 5.1 mixes are used.

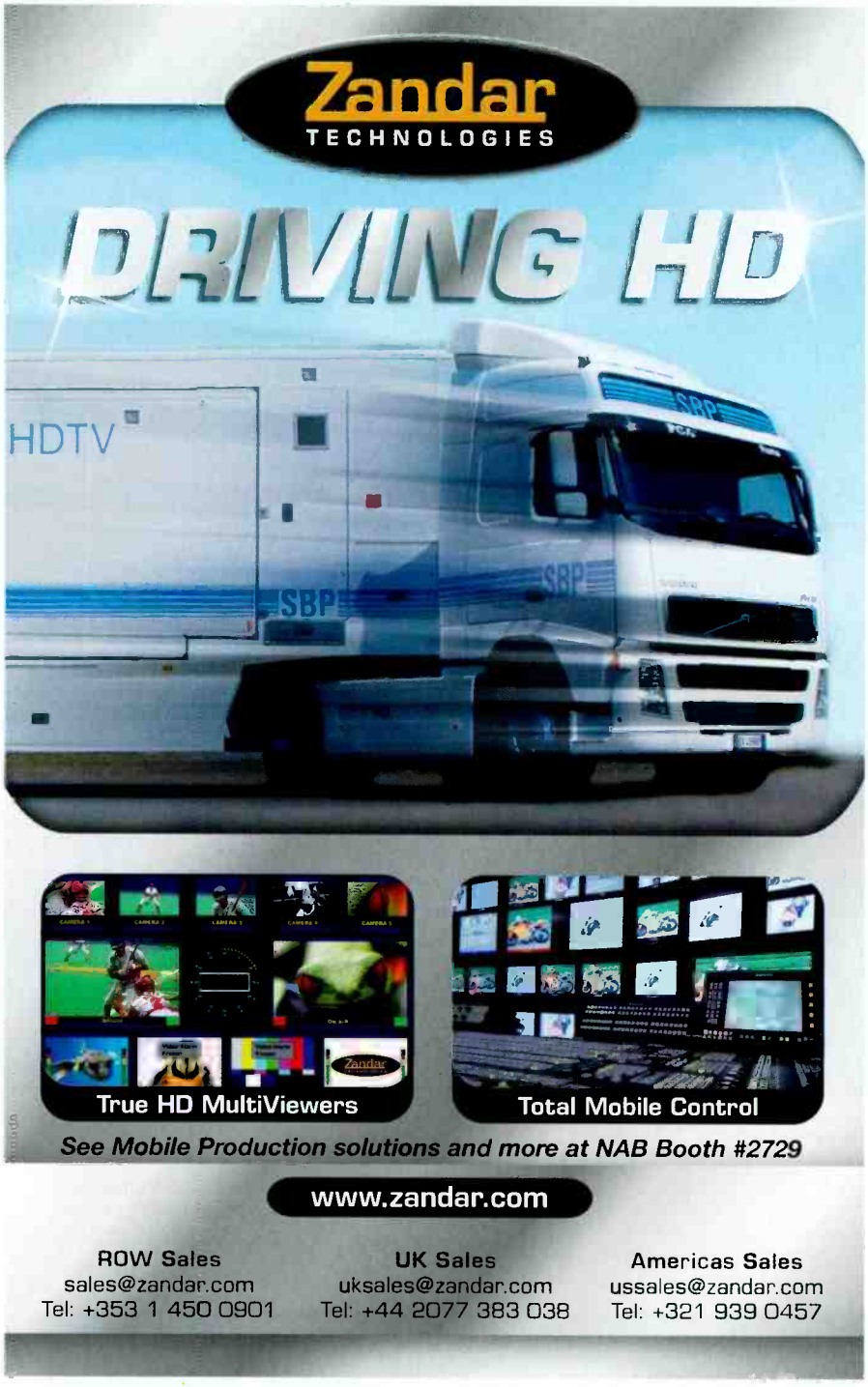
Additionally, audio content may be moved around a facility as separate, embedded or compressed signals. This adds a level of complexity similar to the processing of HD and SD video signals.

When embedding a compressed audio stream into an SDI signal, it is critical to ensure alignment of the compressed audio header with the SDI frame boundary. When encoding baseband audio for contribution purposes using Dolby E in a compressed audio stream, the audio content is delayed by one video frame.

The ideal strategy ... is to have incremental A/V synchronization integrity checking throughout.

For compressed audio embedding, the audio content delay varies depending on the alignment of the compressed audio. When the compressed audio packet header leads the video switching line by less than 10ms, it is delayed by one video frame plus the delay required to place the packet header at the appropriate location in the video. When the compressed audio packet header leads the video switching line by more than 10ms, it is delayed by the time required to place the packet header at the appropriate location in video (no video frame delay added). Therefore, the embedded audio content delay may vary from about 1/3 to 1 1/3 frames.

One approach to ease the transition to a hybrid stereo and surround sound facility is to use audio metadata and identify the associated audio as stereo or 5.1. When upconverted HD and SD signals are switched or mixed through master control, the audio metadata is used to signal the



Dolby Digital (AC-3) encoder. Another approach is to process the audio just before the AC-3 encoder by either passing 5.1 or upmixing stereo, matrixed (Dolby) or watermarked (Neural Surround) audio signals into a 5.1 signal.

Audio to video timing

Asynchronous processing delays in today's HDTV workflow have introduced the possibility of misalignment of audio and video with respect to each other. This is otherwise referred to as lip sync. The ideal strategy for dealing with this potential issue is to have incremental A/V synchronization integrity checking throughout the workflow. This minimizes the possibility that any single component within the signal path can contribute to A/V synchronization issues.

The use of embedded audio has minimized A/V synchronization errors but has not eliminated them entirely. Despite careful systemic attention to A/V synchronization, lip sync issues may still occur. Incoming content with asynchronous transmission paths may arrive with A/V synchronization errors. Addressing A/V synchronization issues can be done either online or via offline test signals. (See Figure 1C on page 68.)

Offline A/V synchronization correction can be accomplished through test signal generators with synchronized audio and video events. This synchronized audio and video test signal can be used by a downstream device to calculate relative A/V timing of the signal. The primary advantage of an offline A/V synchronizer is robustness. The offline test signal can be applied anywhere in the workflow and withstand any conversion or processing within the signal path. The main limitation of an offline A/V synchronization signal is that it can only be used in a signal path during a maintenance window when carriage of content is not required.

A/V synchronization can also be accomplished with online testing. This requires insertion of A/V markers within the program content. These markers must be invisible and usually take the form of watermarking. Online A/V synchronization is less robust, and various types of processing tasks may adversely affect online A/V synchronization markers. These include noise reduction, signal compression and image scaling.

Hybridization

Transitioning a facility to hybrid operations introduces many new operational requirements to a processing infrastructure. A careful understanding of the requirements is essential to optimize workflow efficiency. BE

Bob Fung is product manager for Harris Video Processing and Distribution.

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WRDW-TV in Augusta, GA, uses an Avid Unity MediaManager asset management system.

SPECIAL REPORT

Digital asset management

A guide to broadcast applications and considerations

BY TIM CLAMAN

During the last decade, broadcast systems have transitioned away from physical media and isochronous baseband signals and toward data-centric workflows supported by standard IT infrastructure. This evolution has promised many benefits, including improved productivity, greater efficiency and reduced operating costs.

Unfortunately, these potential benefits have been offset by a host of new challenges. Perhaps one of the most pervasive challenges facing broadcasters today is the direct result of a another promised benefit: the ability to repurpose valuable content easily. The new challenge is how to manage these increasing libraries of digital media files and metadata so that they can be easily accessed, reused and even redistributed by production teams. Once considered "a solution looking for a problem," digital asset management (DAM) has conclusively emerged as a key component of modern broadcast workflows. Broadcasters no longer question the need for DAM, but the process of selecting and deploying a DAM solution can be daunting.

DAM at the center

Simply put, DAM is the process of storing, organizing and retrieving electronic digital assets such as photographs, A/V clips and graphics. At the center of most DAM systems is a database that references a library of digital assets stored on one or more servers.

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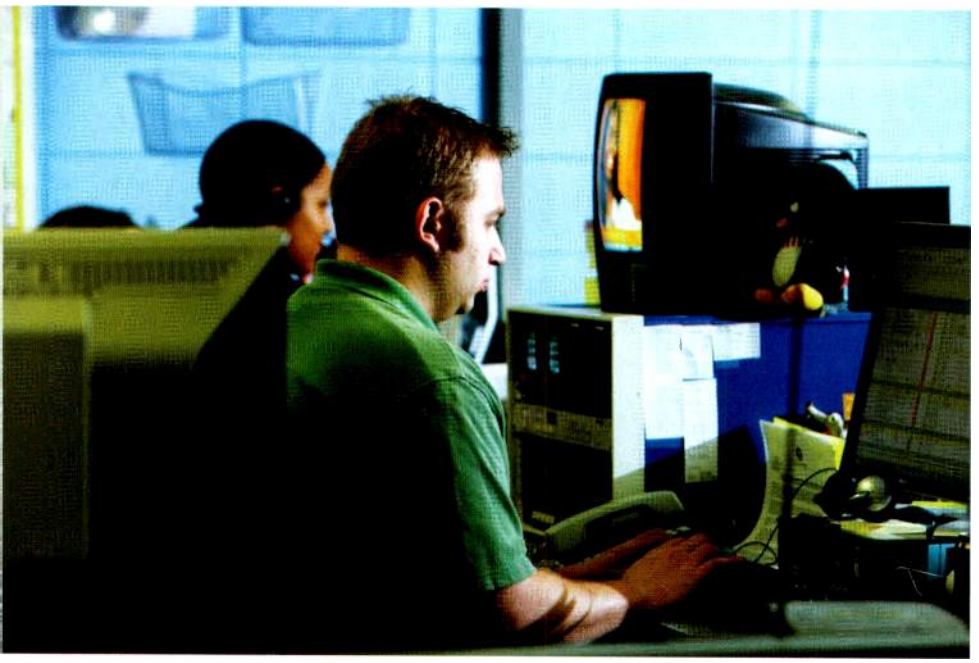
are typically deployed to manage digital assets used in the creation of programs (production asset management) or to manage the storage and retrieval of finished programs (library asset management). Now that they have made the transition to data-centric workflows, broadcasters are demanding that the DAM solutions they implement manage the entire content lifecycle process, all the way from planning through production to archive and distribution.



With a digital asset management system, a broadcaster can ingest content and search for assets within the database. The system helps by organizing the assets so they are easily retrievable.

Broadcast applications

In response, DAM systems have evolved to integrate many aspects of broadcast workflows, including:

- *Ingest* — capturing digital assets into the system. This may involve transforming real-time A/V streams into digital files or simply registering a pre-existing digital asset in the database.
- *Annotation* — tagging digital assets with metadata that describe their contents. Examples include adding text descriptions to assets, drawing graphical annotations and identifying areas of interest within A/V clips. Increasingly, DAM systems employ automated tools for annotation, including scene detection, facial recognition and speech-to-text indexing.
- *Cataloging* — creating logical groupings of assets. DAM systems typically offer virtual folders that can be used to organize and contain groups of related assets.
- *Searching* — finding assets within the database. Users can navigate through a hierarchy of logical folders or use search tools to locate assets. Searches are typically based on keywords or attribute values. DAM systems can also enable queries based on interrelationships between assets to find, for example, all the stories that used a particular graphic.
- *Browsing* — previewing assets within the database for evaluation. Most DAM systems provide client software that allows the user to view stills and graphics, as well as streaming A/V clips. Modern DAM systems support proxy-based browsing workflows where low-resolution copies of digital assets are employed to minimize storage and bandwidth requirements.
- *Rough editing* — basic assembly of digital assets for idea development and previsualization. Many production-oriented DAM systems offer tools for doing basic assembly of assets, such as shot selection and rough cutting.
- *Collaborative authoring* — sharing digital assets to enable dynamic, collaborative content creation. DAM systems are increasingly popular among production teams because they enable concurrent work. For example, multiple journalists can access the same pool of content to create different stories. Likewise, different disciplines can work simultaneously on the same story, creating graphics, editing clips and recording voiceovers simultaneously in a parallel workflow.
- *Review and approval* — providing stakeholders with access to finished programs for evaluation. DAM systems can expose works in progress to content stakeholders, such as producers, so they can offer feedback during the content creation process or sign-off on finished programs. Increasingly, DAM systems offer revision management capabilities so that each asset encapsulates the creative process that led to its current state.
- *Storage and media management* — managing the storage of digital assets. As digital assets proliferate, storage management becomes a major challenge. Perhaps the most valuable application of DAM systems is the ability to intelligently identify which assets can be purged from storage servers or transferred between online, nearline and archive storage.
- *Access control* — controlling users' access to digital assets. In many broadcast environments, not all users are allowed access to all content in the library. DAM systems typically enable system administrators to create groups of users and grant them access only to certain areas of the database. Increasingly, broadcasters ask DAM vendors to provide tools for enforcing complex digital rights management (DRM) rules.
- *Workflow automation* — streamlining workflow processes by introducing policy-based behaviors. Beyond simply

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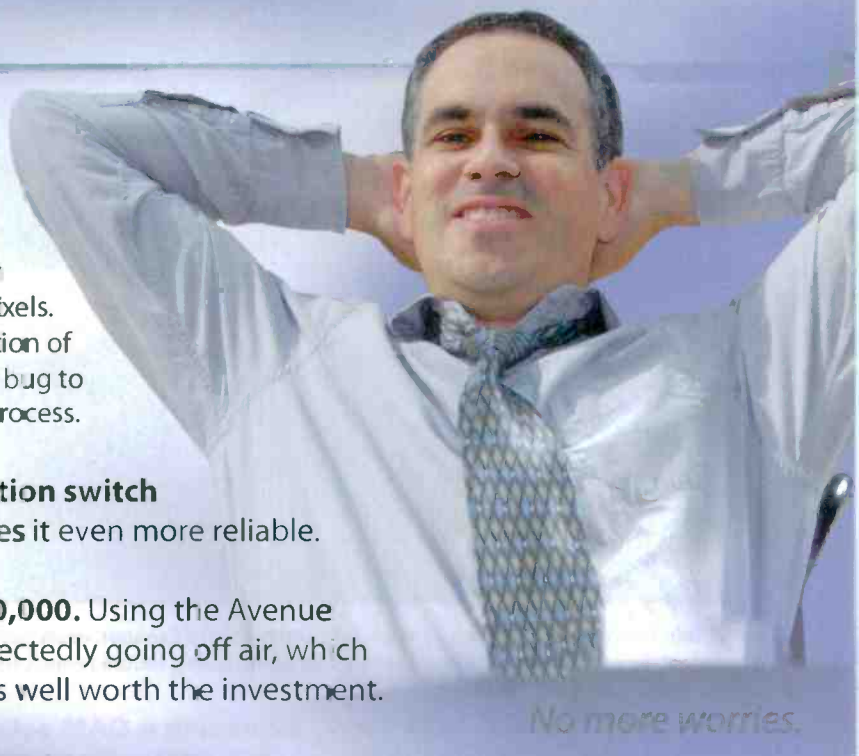

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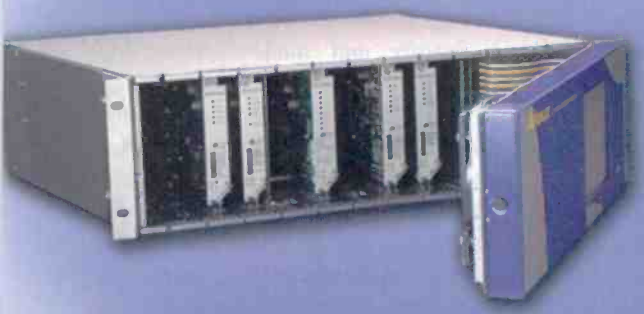

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Signal Processing and Infrastructure – That's All We Do

Within DAM solutions, such as with Avid Unity MediaManager, users can find, sort and retrieve media quickly and easily while maintaining secure project-level access control.

storing and managing digital assets, DAM systems are becoming increasingly sophisticated. Assets can be tagged with workflow status indicators to enable dynamic status reporting. Policies can be designed to automate workflow processes. For example, digital assets that have not been used actively for a specified period of time may be automatically archived. Programs may be sent to on-air servers automatically once stakeholders have signed-off. This is an especially exciting and innovative area of DAM development today.

Choosing a DAM solution

For a DAM system to provide tangible business benefits, it must be chosen carefully and tailored to suit the needs of the customer. There are many considerations that must factor in when evaluating DAM solutions, including:

- *Target users and workflows.* Ask yourself: Who is going to use the system? What are they going to use it for? Given all the possible applications for DAM systems, it can be difficult to focus on these — the most basic of questions. It may be beneficial to focus on the top one or two business benefits for the initial deployment and move on from there, rather than taking on too broad a scope.
- *Cost and ROI.* Ask yourself: How much will it cost to deploy this system? How can I be sure that it will offer good return on investment? DAM vendors should consult with you to model the business benefits of deploying their solution based on benchmarking your current workflow compared to real world deployments of their systems. If a DAM vendor is not forthcoming with customer references or ROI modeling tools, you may want to look elsewhere.
- *Integration with tools.* Ask yourself: What applications are used to create assets for the DAM solution? How will users access the system? To realize efficiency benefits, workflows must become easier, not more difficult. Unfortunately, many DAM solutions require cumbersome manual processes for checking assets into and out of the database. The best systems operate transparently in the workflow, organically aggregating and organizing file assets and metadata.
- *Integration with other systems.* Ask yourself: How do I integrate the DAM with other legacy systems I have in place? How do I migrate data into the DAM solution? Although DAM systems are evolving to encompass many different facets of broadcast workflows, most facilities have systems that need to integrate with the DAM system, including newsroom computer systems, traffic systems and on-air systems. It is important to consider the intersection point between the DAM system and other systems, and to identify what (if any) data must pass between systems or migrate into the DAM database.
- *Security and authentication.* Ask yourself: How do I control user access to digital assets? How do I integrate the DAM solution with my IT system for user management and authentication? Many DAM solutions are designed for small teams and do not provide access control mechanisms or integration points for standard IT authentication

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When choosing a digital asset management system, plan for the future by finding out which standards the system supports.

systems, such as Windows Active Directory or Lightweight Directory Access Protocol (LDAP).

- *Ease of deployment.* Ask yourself: How easy will it be for the target users to learn how to use the system? What services are available for consultation, customization and training? In broadcast facilities, DAM solutions typically require support and buy-in from the production teams as well as the IT departments.
- *System administration.* Ask yourself: How difficult is it to set up and manage the system on a day-to-day basis? Will I need full-time specialists to manage the system? How will we monitor the health and status of the system? Many DAM solutions, unfortunately, are very complex to configure and manage.
- *Future evolution.* Ask yourself: How will this solution evolve as needs change? How easy is it for me to scale up by adding users, storage and services? Does this system offer interfaces for customization? Does it support industry standard media and metadata schemas? These questions are important to explore if you want to ensure that the system you deploy today does not become another outmoded legacy system in just a few years.

Conclusion

As the broadcast industry becomes more dynamic and diverse, DAM systems are becoming more vital. Built around core IT database and services infrastructures, modern DAM systems form the centralized data hub for production teams, aggregating and transforming media and metadata throughout the content lifecycle. The rapid rate of evolution in DAM systems is nothing short of explosive, making DAM one of the most exciting and innovative technologies in the broadcast industry. BE

Tim Claman is director of product design for Avid Technology. Prior to joining Avid, Claman worked as a sound editor, designer and mixer in a variety of post-production environments.

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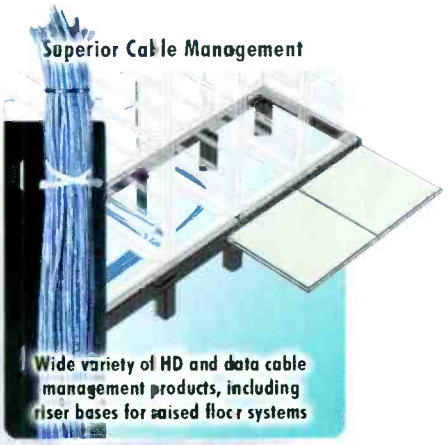

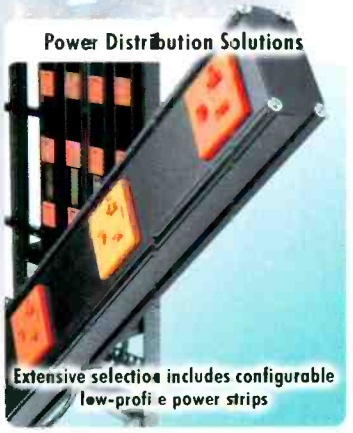

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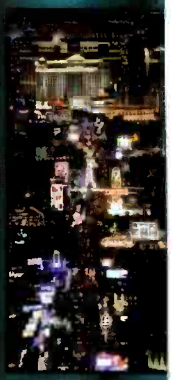

NAB2007 has finally arrived, bringing with it a deluge of new products and solutions for your facility. *Broadcast Engineering* is here to help.

Last month, we packed the magazine with NAB survival tools — a map of the exhibit halls and a categorized company listing to help you plan your trek. And for NAB

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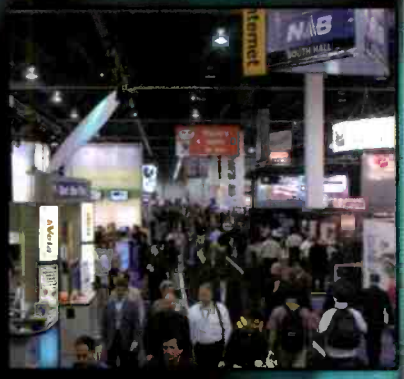

Photos courtesy Douglas Schwartz

attendees, as well as those not attending NAB but wanting to stay in the know, we included descriptions of 200 products that will be on display.

This month, we're happy to present more than 350 additional show products. Enjoy! Look for an NAB wrap-up, written by our experts who attended the show, in June.

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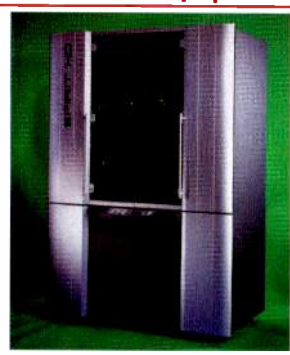

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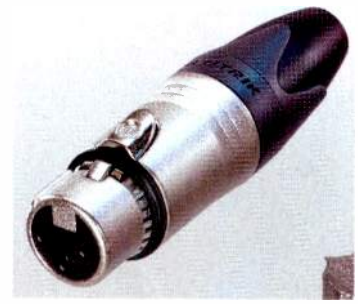

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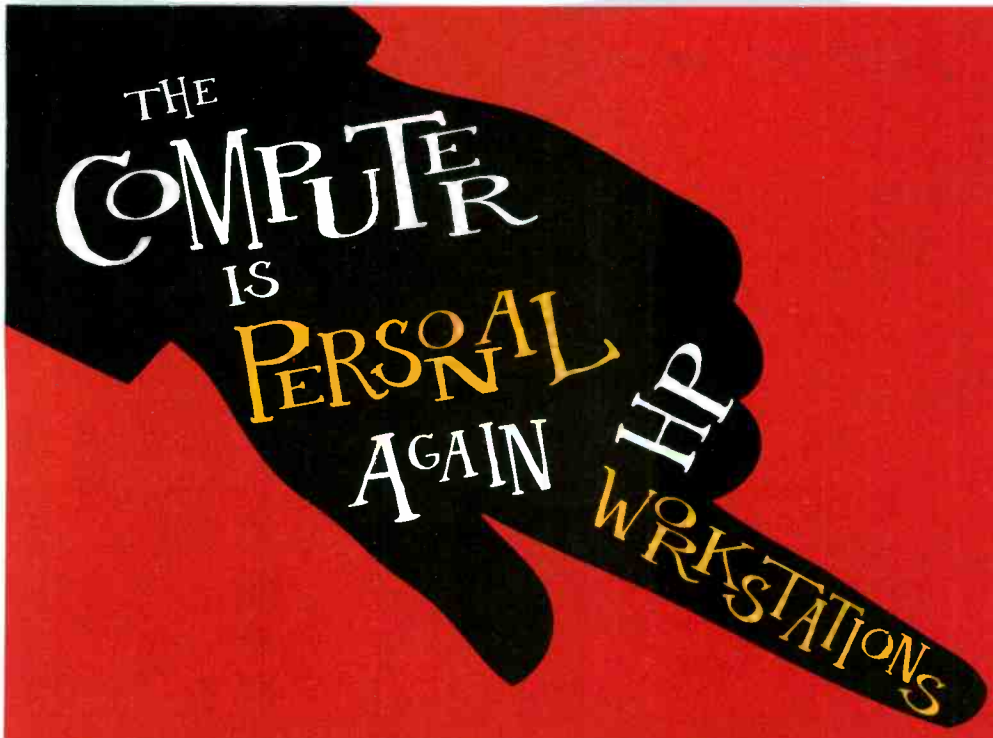

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WEATHERCENTRAL
ON-AIR. ONLINE. ON-DEMAND

In Local News, Weather is Becoming the Visual Attraction

As broadcasters make the transition to high-definition television, they're doing so with the understanding that local newscasts are their main revenue generator and that the weather forecast segment, with its 3-D immersive maps and forecast graphics, is the most visual entertaining part of the broadcast.

Weather Central, a Madison, Wisconsin-based company that supplies graphics systems and climate forecasting technology for local stations and broadcast networks, understands this better than most. The company showed the first HD resolution graphics system for weather in 1999 and today offers advanced systems that provide live, real-time, motion effects across its product line.

Within the past year, stations have begun to purchase HD-ready weather systems, even if they are not planning to move to HD right away. It just makes economic sense, because most stations normally upgrade their weather system (and many other production tools) once every five years.

The key for Weather Central was finding a computer platform that could provide the horsepower and flexibility that its sophisticated software requires. Its 3D:LIVE™, ESP:LIVE™, 3D:Traffic™ and ScreenWRITER® systems are designed to be resolution-independent. This means that the architecture was designed for HD from the start.

Moving to HD graphics processing was no easy task for Weather Central. What was needed was an architecture that could deliver high performance by separating the processing activities within the CPU (via multiple busses) and make them work in parallel to achieve real-time rendering speed in HD resolution. And it had to do it cost-effectively, avoiding the use of ancillary components.

Looking around the industry, Weather Central recognized it needed to provide its clients with real-time effects using an industry-standard PC workstation, available on the market today. It needed a video-centric architecture, one that could stand up to the rigors of daily processing and instant rendering in a live broadcast environment. It needed a powerful, proven platform that didn't make compromises when it comes to processing bandwidth-intensive 3-D HD imagery.

Enter the HP xw9400 Workstation, which is now paired with all of the HD-capable systems Weather Central ships. With its unique AMD-based, multi-core processing architecture, the xw9400 provides the high-capacity disc speed, processing bus throughout and a powerful graphics-rendering engine that Weather Central's systems demand. This helps avoid the data flow bottlenecks that can slow down a real-time rendering application, which is so critical to a presenter changing an on-screen map to show climate trends. In a highly rated live newscast, where up-to-the-minute data is being broadcast constantly, rendering speed helps avoid weather disasters.

"The HP xw9400 and all of the HP workstations are designed for high-performance visualization applications,"

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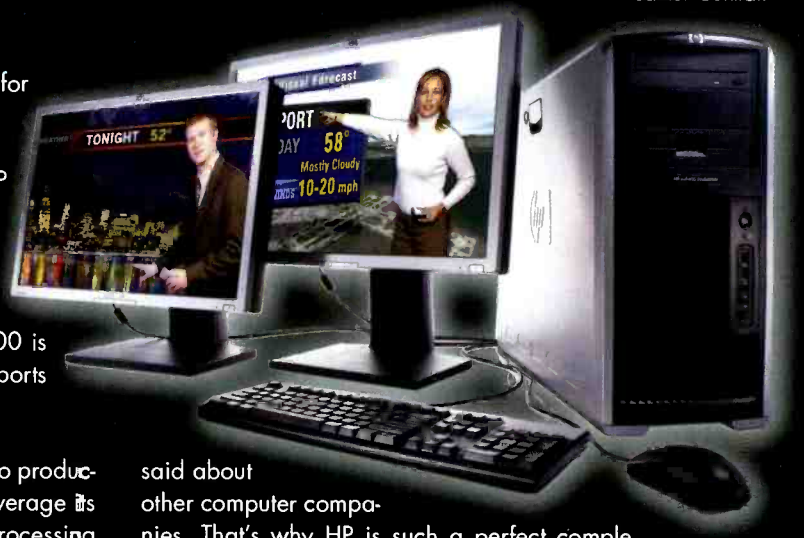
Screen images courtesy of Weather Central.



said Jeff Wood, director of product marketing for HP's personal workstation business.

Wood works out of Fort Collins, CO, where HP maintains a large R&D and quality control facility.

"Graphics has always been a very core competency for us," Wood said. "We've been driving a lot of very high-end solutions, and the HP xw9400 is the only tier-1 workstation on the market that supports two full, PCIe X16 3-D graphics output."

Hewlett-Packard is a company steeped in the video production industry, supporting many companies that leverage its hardware to make their respective HD image processing and nonlinear editing software systems work. This includes Avid Technology, Autodesk Media & Entertainment, Adobe Systems, Grass Valley (Thomson) and Leitch (Harris).

"HP has really stepped up to the plate and provided us with a platform that gives us a lot of flexibility to develop the kinds of applications our broadcast clients need," said Victor Marsh, vice president and CTO at Weather Central. "Because our system allows for graphics generation on top of live video, we have to move multiple streams of HD video content in and out of our box and across the busses without compromise. That's a tall order for many computer platforms."

The system design of the HP xw9400 also allows for rack-mounting, which is a key issue for stations with limited space. It also can be ordered as a liquid cooling system to reduce heat and with an innovative "whisper-quiet" fan design that enables the workstation to run much quieter. This comes in handy for stations that install their weather systems on the set, where noise can be problematic.

The xw9400 frame also provides ample room to allow Weather Central to add third-party graphics cards, from companies such as Blackmagic, Digital Video Systems and NVIDIA, which make their weather their systems sing. These cards facilitate new weather forecasting applications, such as the company's patented Mag cTRAK® technology, which allows on-air presenters–using a live camera feed and pre-built 3-D graphics elements to use their hand like a computer mouse to click around an on-air weather map, in real-time.

"We've really been happy with the support HP has provided us through our relationship," Marsh said. "I think the company really has a handle on the high-end video market and what it takes to make our applications run. That can't be said about other computer companies. That's why HP is such a perfect complement to what we are trying to do with our systems. And our customers appreciate this unique synergy as well."

Weather Central offers several ways for a station to make the move to HD. It can buy a full-blown 3D:LIVE™ HD system (including the HP xw9400 Workstation) and begin broadcasting in HD immediately. It can buy a lower-cost HD system (w/an Intel processor-based HP xw8400 workstation) and use it in SD mode until it is fully ready. Or, it can buy the HP xw4400 chassis and populate it with SD-only video cards and SD-only video out cards. These budget-conscience customers can then upgrade the system with HD-capable cards at a later date, using the same HP chassis, thereby protecting some of its investment.

"The important thing for us, and our clients, was to make our HD systems easy to use as the SD versions," Marsh said. "Every one of our SD customers has an expectation of how easy the system is to use. The HP xw9400 ensures that they will have the same success in HD."

Added HP's Wood, "From a market perspective, the broadcasting business is huge, and we feel we're the only computer company to address the industry with application-specific products for moving large amounts of data the way we have. In order to stay competitive, stations have to move to HD, either sooner or later, so we're ready to support them with cost-effective workstation hardware that will make the transition a success."

Thus far, about 360 stations use Weather Central system on-air in SD, and about 30 have deployed full HD weather systems (including ABC's "Good Morning America"). It's clear the potential for new business for both Weather Central and HP, this year and in 2008, is huge. ■

hp invent

See the new HP products in action for yourself. What: The HP xw9400 Workstations Where: On display in the Weather Central booth (#C5334) and the HP booth (#SL3820) at NAB (National Association of Broadcasters). Want more? Visit www.hp.com/go/dcc and www.weathercentral.tv

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781-221-7400; www.volicon.com
BOOTH: N3231

HDMI SWITCHERS
TV One 1T-HDMI series

Provide two inputs on the 1T-HDMI-821, four inputs on the 1T-HDMI-841 and eight on the 1T-HDMI-881; feature HDMI, HDCP and RoHS compliancy; enable control via front-panel push buttons, IR or RS-232 interface; support HDTV resolutions of 480p, 720p, 1080i and 1080p, as well as SD 480i.

859-282-7303; www.tvone.com
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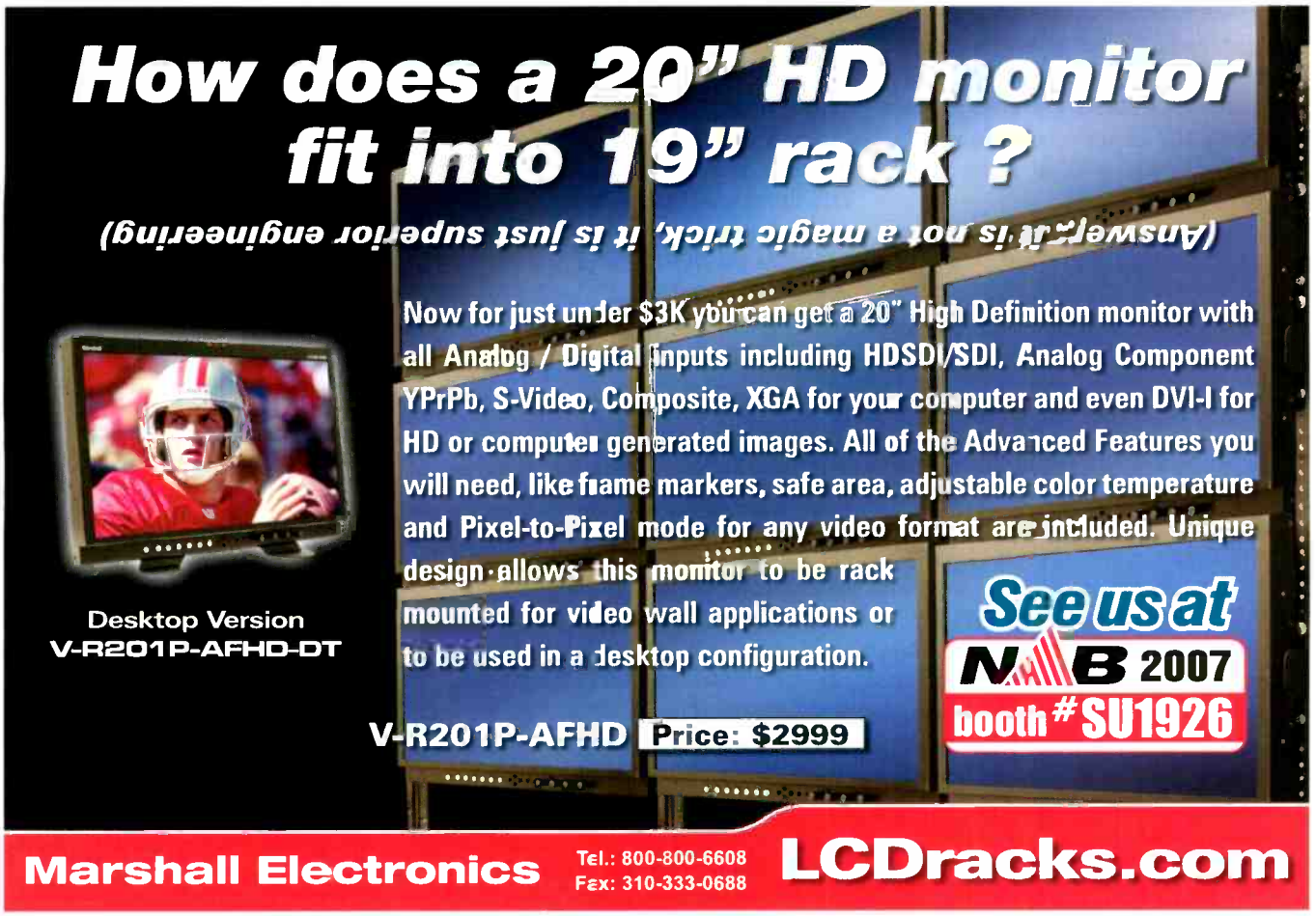
412-206-0106; www.brightlines.com
BOOTH: SU2422



TIME DELAY
360 Systems 2470 Broadcast Time Delay

Can be programmed to create any delay time from 20 seconds to 36 hours; the delay is set in day/hours/minutes/seconds/frames through a graphic user interface; will maintain single-frame accuracy over an indefinite period of time when connected to a genlock source; all settings are non-volatile and are automatically recalled each time power is applied.

818-991-0360; www.360systems.com
BOOTH: SU9120

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ADC Pro Patch

Designed for digital audio patching; features a patented system that includes individual front-access circuit programmability with a DIP switch, light weight and conversion to a 1.5RU space panel with larger designations; features a 2 x 48 bantam configuration and 2 x 32 longframe configuration, without using special patch cords.

952-917-0279; www.adc.com
BOOTH: N721

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Anchor Bay DVDO iScan VP50

Converts SD/HD (including 1080p) and PC signals from DVD players, HD-DVD players, Blu-ray players, HD DVRs, game consoles and PCs to any output resolution between VGA and 1080p; features HD Precision deinterlacing, Precision Video Scaling II, mosquito noise reduction, picture enhancement and gamma correction; converts input frame rate to optimal display frame rate; detects and removes chroma artifacts automatically.

408-379-9836; www.anchorbaytech.com
BOOTH: C7847

DUAL-PURPOSE ANTENNAS
Advent FlyDrive

Available in two modes: the 1.5m FlyDrive and 1.2m FlyDrive; supports X, Ku, DBS and Ka band feeds, as well as C band for the 1.5m; offers full three-axis motorized control with manual backup, satellite auto acquisition and tracking.

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AJA KONA 3

An uncompressed capture card for seamless operation with PCI Express (PCIe) Apple G5 Power Mac or Mac Pro systems and Apple Final Cut Pro; supports any uncompressed SD or HD format, including dual link and 2K; captures and plays back uncompressed 8-bit and 10-bit digital video and 24-bit digital audio.

530-274-2048; www.aja.com
BOOTHS: SL6113, SU7511

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ScheduALL ScheduLINK

New teleport package includes a contract manager, compatible resources verification, antenna array and trouble ticket reporting used in satellite resource scheduling; allows for detailed selection and setup parameters that enable rules and technical validation of uplink and downlink options using detailed control logic.

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Dielectric Low RFR Pylon Antenna

MobileMedia antenna is designed for applications where downward radiation is a concern; holds the power density at all evelation angles up to 50 percent of the MPE limit for occupational uncontrolled areas (based on 50kW ERP, 6ft observer and 15ft CR); available with horizontal, elliptical or circular polarization.

800-341-9678; www.dielectric.com
BOOTHS: C1907, N7421

SOUNDTRACK EDITOR
Abaltat Beat

Allows users to cut pictures first and then select the best-fit soundtrack by analyzing the EDL; suggests a series of possible fits by a comparative analysis of beats-per-minute and the edited rate of the picture; features adjustable time signatures of the drum patterns; exports in MIDI or QuickTime for further editing.

+353 91 504 688; www.abaltat.com
BOOTH: SL7424

CAMERA
Abel Cine Tech Phantom

HD model takes as many as 1000fps at 1920 x 1080 HD resolution, and 700fps when used in 2K applications; features a digital sensor equivalent in size to 35mm film and a PL lens mount; 65 model features a digital sensor equivalent in size to 65mm film; takes as many as 120fps at resolutions up to 4096 x 2440.

212-462-0100; www.abelcine.com
BOOTH: C7328

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814-235-8600; www.accuweather.com
BOOTH: C6412

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ADS Tech

A 1394a bidirectional device that converts DV audio/video to and from SDI video; can be used with a portable battery pack, making it ideal for on-location news and event broadcasts; provides a cost-effective means for Betacam transcoding, transporting content for NLE production and connecting to studio SDI network backbones or affiliate matrices.

562-926-1928; www.adstech.com
BOOTH: SL7910

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Allows broadcasters to completely monitor and control site equipment; connects any product and presents the collected data, alarms and events in a standard, comprehensive interface; all communication passes through the control center.

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800-422-3473; www.antonbauer.com
BOOTH: C5929

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Can harmonize light levels in a fixture array or switch tubes independently of one another from a DMX control board; the system includes a fixture, mounting plate, extension cable and Mega4Bank DMX Ballast; the Ballast operates 4Bank fixtures, double fixtures, single fixtures and the company's Blanket-Lite; the lighting is designed to run on high output 8ft and 6ft True Match lamps.

818-767-6528; www.kinoflo.com
BOOTH: C10213

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APWMayville Stantron E-Rack

The modular design allows users to configure their own rack systems; removable, quick-release side panels and cable chase panels provide easy access for cable management, reducing installation time for large-scale installations; multiple lacing points located every 6in along the rack support heavy bundles; other standard and customizable features include heavy-duty shelving, filler panels and temperature control.

800-558-7297; www.stantonracks.com
BOOTH: SU7220

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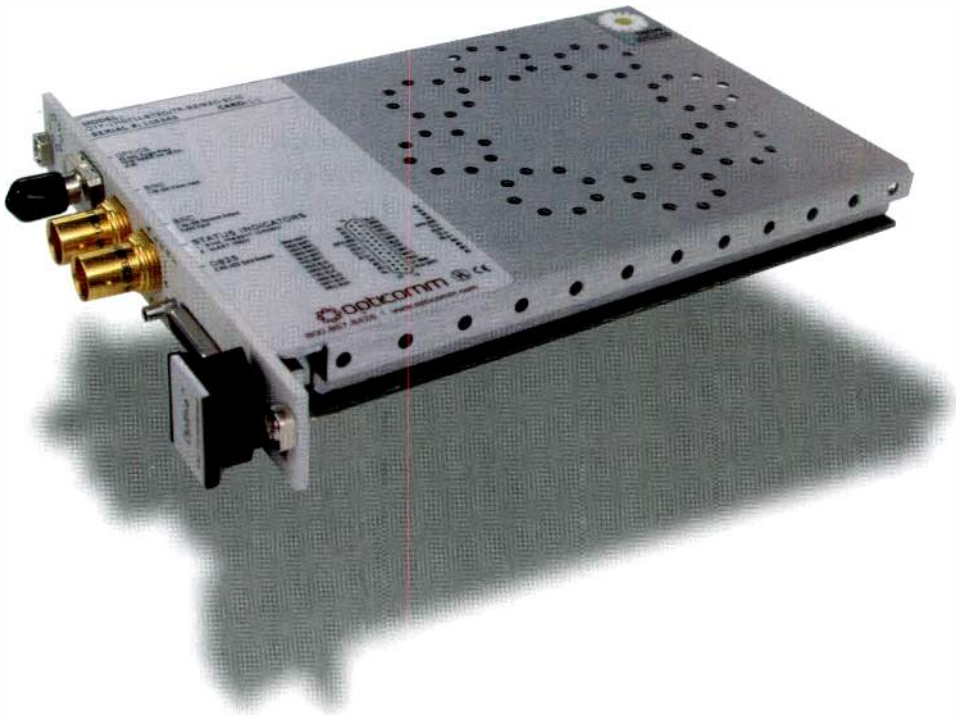

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Offers all AES/analog/time code or mix with 64 AES or analog inputs by 64 analog or AES outputs; features include Dolby E routing, soft switching and delay functionality in the input and output frames; delays an incoming frame-synced video signal coming into the router; allows processing delay in the video to be matched with audio output delay.

631-912-1301; www.qustream.com
BOOTH: N3418

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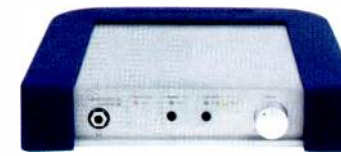

Provides headphone-based 5.1 surround-sound reproduction for broadcast, post production, recording studios, mobile recording and video game sound design; offers ultrasonic tracking system that locates the orientation of the listener's head with respect to the source material and adjusts the audio accordingly; offers an advanced room simulation program that allows the operator to create an ideal auditory space in which to monitor the surround audio.

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www.blackmagic-design.com
BOOTH: SL11020

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A video time and date inserter that references an internal standalone clock; the clock is line-frequency referenced; an internal DIP switch allows selection of a crystal time base reference; six digits of time and six digits of date are superimposed onto a video signal looped through the unit; on-screen menus allow time setting, adjustment of the display size and position.

310-322-2136; www.ese-web.com
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Broadcast Microwave Services TCII Media Router

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858-391-3050; www.bms-inc.com
BOOTH: C1607

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Provides full-motion, full-frame 1080i/720p HD broadcast video and audio in real time over satellite and IP-based networks; the HD encoder/HD decoder works seamlessly with the full range of Streambox systems and solutions; built on the company's ACT-L3 codec, which provides HD video quality at data rates ranging from 512Kb/s to 20Mb/s.

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Barco Networked Broadcast Monitoring System

Allows high-quality, low-latency distribution of video sources and metadata over an IP network toward multiple screens, even in different control rooms; consists of rear-screen projection modules or LCD panels, the NG System hardware and the Networked Broadcast Monitoring Suite software package; one rear-screen projection module is capable of simultaneously displaying multiple analog and digital video feeds together with related metadata, audio metering information and computer applications.

678-475-8000; www.barco.com
BOOTH: SL4320

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Broadcast Pix Slate series

New AutoAspect software enables 16:9 and 4:3 inputs, clips and graphics to be used interchangeably and mixed together in the same live production, while maintaining the native aspect ratio of each element, rather than stretching them; the new HD-SD I/O board enables all new and existing Slate switchers to add HD cameras and produce an HD show.

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BOOTH: N8529

HD STUDIO LENS
Canon DIGISUPER 22xs

Maintains size and weight commensurate to that of other portable production cameras, weighing one-third a typical HD box lens; features a 105mm input optical port, which produces a high sensitivity, high contrast, optimized uniformity of brightness across the image plane.

800-321-4388; www.usa.canon.com
BOOTH: SU3020

ENCODER/DECODER CARD
SAMMA Systems MJPEG2k

A video and audio encoder/decoder card; creates real-time lossless compressed video files and synchronized uncompressed audio files; lossless compression supported by the Motion JPEG2000 standard is a completely, mathematically lossless process on the video stream.

212-738-9417; www.sammasystems.com
BOOTH: SU7130

THREE-CHIP DLP HD PROJECTOR
Christie Roadie HD+30K

Features 30,000 ANSI lumens at 2K resolution (2048 x 1080), a split-body design, a scooped hood for improved airflow, built-in rigging points, and body handles or optional stacking/rigging frame.

800-407-7727; www.christiedigital.com
BOOTH: SL5413

CAMERA SUPPORT SYSTEM
Chrosziel MatteBox

A support system for DV and HDV cameras; features a modular configuration, which allows quick reaction; offers new supports and adaptor rings for the Canon XHG1, JVC GY-HD250 and Sony HVR-V1 series cameras; the adaptor rings protect against spill light and fix the proper alignment of the system; the vertical and horizontal adaptation of the support rod system aligns the MatteBox with the optical axis of the lens, preventing unwanted stress from the lens.

+49 89 90 10 91 0; www.chrosziel.de
BOOTH: TBA

AUDIO PROCESSOR
Linear Acoustic AEROMAX-DTV

Six-channel television audio processor; the fully integrated, entry-level unit controls loudness and ensures stable audio imaging for 5.1-channel broadcasts; accepts 5.1- or two-channel audio inputs, plus a dedicated EAS input via four BNC connectors; audio is processed by the DSP core; two-channel audio then can be mixed up if triggered by front-panel or GPI control.

717-735-3611; www.linearacoustic.com
BOOTH: C1048

CHANEOVER SWITCH
MicroFirst Engineering ICS-3200

Provides real-time redundant changeover control of two MicroFirst MPC-1600 and MPC-3200s; provides a series of 32 A/B switch ports; has an additional integral 10/100 Ethernet port, designed for residing on a standard network infrastructure; using the internal switchover design, a detected failure routes data to the other ports, thus passing the appropriate data at the exact moment required, providing a redundant-data system.

201-651-9300; www.microfirst.com
BOOTH: SU727

ASI TRANSPORT STREAM MANAGEMENT TOOL
Visual Europe Transflow

Provides stream conditioning and correction of ASI streams; reduces bandwidth and headroom requirements in MPEG-2 ASI transport streams; increases available bandwidth by buffering data in the transport stream layer without transrating or transcoding.

+44 1722 333074; www.visualeurope.com
BOOTH: C9844

PLAYOUT APPLICATION
Masstech MassChannel

Integrates with MassStore for transmission playout; stores file-based content and plays out frame-based content for automated environments; allows managed playout of content and automated playout; the playout device has full access to all file-based content in the facility.

905-707-2614; www.masstechgroup.com
BOOTH: SU12712

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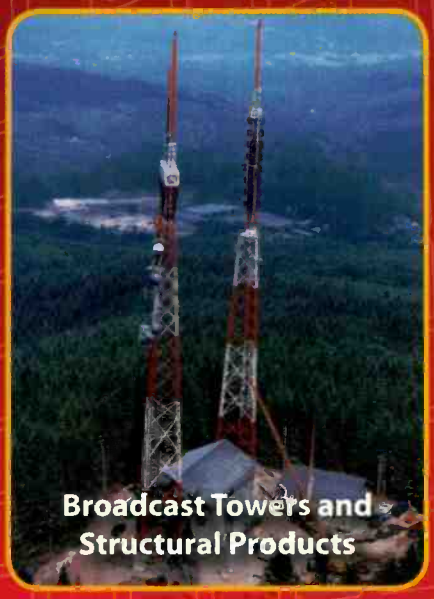

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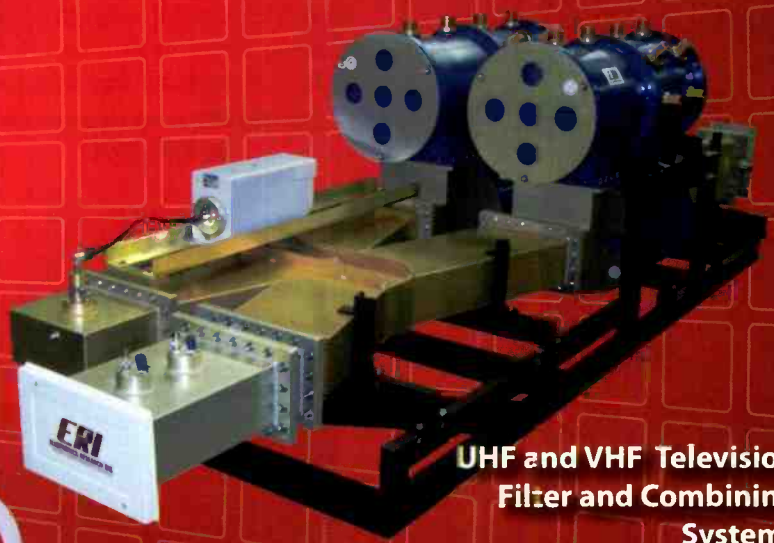

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AUDIO AND DATA MULTIPLEXER
Claratech CTP1000

Accommodates up to eight full duplex audio and data channels plus eight general-purpose inputs/outputs in 1U; these are multiplexed onto one optical channel for transmission along single-mode or multimode fiber; the single-mode version can also operate in duplex, enabling simultaneous bidirectional communication along a single fiber; ideal for carrying program audio; can also be used for intercom links.

+44 1234 271053; www.claratech.com
BOOTH: SU9307

WIDESCREEN LCD MONITORS
Sony LUMA

LMD-2030W 20in model features WSXGA+ 1680 x 1050 resolution, HDMI input connectivity for HDV camcorders and decks in portable applications; supports composite video, Y/C, RGB component as standard and optional DI-SDI; LMD-2450W 24in and LMD-2050W 20in models accept 1080/60P signals via a standard DVI input; feature 10-bit processing, waveform monitoring and audio level meter display; support composite video, Y/C, RGB, component as standard and optional SDI.

800-686-7669
www.sony.com/professional
BOOTH: SU906

HDMI TO HD-SDI SCALER
Gefen

Allows digital video sources equipped with HDMI connectors to link to HD-SDI displays; housed in a small box; accepts HDMI data and transmits it to the display using HD-SDI; works with multiple formats, including NTSC, PAL and SMPTE; the scaler is compatible with most LCD, plasma and HD displays that support SDI.

818-884-6294; www.gefen.com
BOOTH: SL2305

NETWORK INTERFACE CARD
Clear-Com E-FIB

Extension to the Eclipse range of products; offers users a nonblocking high-speed audio connection between isolated locations; a dual concentric fiber ring provides full redundancy while maintaining audio links, even if the main fiber pair is fully disconnected; runs at full audio bandwidth, allowing intercom matrices to share audio resources as if they were local.

510-496-6600; www.clearcom.com
BOOTH: C5912

BELTPACKS
Telex/RTS BP-319, BP 325 and BP-351

Portable user stations for use with RTS Two-Wire intercom systems; BP-319 is a microprocessor-controlled one-channel intercom beltpack; BP-351 is a microprocessor-controlled two-channel select intercom beltpack; BP-325 is a two-channel fully selectable intercom beltpack.

800-323-0498; www.telexintercoms.com
BOOTH: C5329

ROBOTIC HEIGHT DRIVE
Shotoku TI-12

Provides extra elevation and the ability to move and mount the height drive on a wide variety of legacy pedestals; its capability to extend the range of possible shots in robotic studios from a single camera position makes it ideal for news, sports, current affairs and virtual set studios.

310-782-8491; www.shotoku.tv
BOOTH: C7432

OUTDOOR TWT AMPLIFIER
MCL MT3600

Features an event log, remote and computer interface, auto power control and status and redundancy through a 1:1, 1:2 or phase combined system; supports applications at 125W, 150W, 175W and 250W; allows customization to include an L-band block upconverter, internal linearizer or internal Ethernet interface.

630-759-9500; www.mcl.com
BOOTH: C4741

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Enables users of Ikegami's Editcam and EditcamHD camcorders to transfer edited or camera-original video content via network interfaces to highly stable 300GB cartridges with all the advantages of tapeless nonlinear archiving and retrieval; offers high storage densities, fast transfer rates and a 50-year shelf life.

201-368-9171; www.ikegami.com
BOOTH: C4226

CABLES
Comprehensive XHD HDMI cables

Industry-supported, uncompressed, all-digital A/V interface cables provide signal transfer and a high-resolution interface between any HD A/V source and display; support standard, enhanced or high-definition video such as 720p, 1080i and 1080p, as well as eight-channel digital audio with bandwidth to spare on a single cable.

800-526-0242
www.comprehensiveinc.com
BOOTH: SL2520

DIGITAL VIDEO ROUTER
NVISION NV8256-Plus

A digital video router suited for mission-critical applications in which downtime is not allowed and where NVISION's HD-SDI super wideband signal transport technology is required; easily expands from 256 x 256 to 512 x 512 without distribution amplifiers; users can start with a single 256 x 256 frame and add a second frame to make the router 512 x 512; future-proofing includes support for HD-SDI, SDI and analog signals in either 525 or 625 line formats and 3Gb/s capability.

530-265-1119; www.nvision.tv
BOOTH: SU9605

CLOSED CAPTION SOFTWARE ENCODER
CPC

Cuts the cost of captioning videos, enhances the captioning process workflow and enhances the quality of captioned video, compared with the use of hardware encoders; runs on both Windows and Mac computers; allows the complete captioning process to be done on the computer, eliminating the need for videotape.

301-738-8487; www.cpcweb.com
BOOTH: C9436

ASPECT RATIO CONVERTER
Crystal Vision ARC-10MC

Offers 10-bit processing and motion-adaptive video deinterlacing; maximizes the picture's vertical resolution; chooses the best processing method based on the video content; performs conversions to 4:3 full screen, 14:9 pillarbox, 4:3 pillarbox, 16:9 full screen, 14:9 letterbox and 16:9 letterbox; has a one-frame fixed video delay.

+44 1223 497049; www.crystalvision.tv
BOOTH: N2935

MPEG TRANSPORT STREAM TIME SHIFTER
Pixelmetrix DVShift

Provides real-time user controllable delay of MPEG transport streams; features time delayed rebroadcast across time zones, international program distribution, real-time program screening and filtering, and two hot-swappable power supplies with automatic input voltage selection; includes either a 500GB or 1TB RAID disk array.

954-472-5445; www.pixelmetrix.com
BOOTH: SU12109

COLORED CODING RINGS
Neutrik USA XXR

For use with the XX series; provides faster and easier connections for audio and instrument applications; new coding rings expand to fill the void between the rear boot and the front shell/housing for a more secure, durable fit; insert does not have to be unsoldered to change the color coding.

732-901-9488; www.neutrikusa.com
BOOTH: N8526

PAN AND TILT HEAD
Shotoku S-DASH

Designed for shooting high-speed movement, such as sports, motor racing and horse races; its pan-bar controller takes the form of a small pan and tilt head that can carry a viewfinder monitor TV and standard lens hand controls; the other control option, the joystick, is a desktop unit for use in production areas, OB trucks and other confined areas.

310-782-8491; www.shotoku.tv
BOOTH: C7432

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With all the new HD video sources hitting the market, it only makes sense to have more HD-SDI inputs in a video processor. TV One's C2-7260 is a Dual Channel, 17 Input Video Processor that is perfect for the broadcast market. If the C2-7260 doesn't dazzle you with the 17 inputs alone just take a look at all the other features that it has to offer:

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MULTICHANNEL MONITOR RACK
Custom Consoles Media Wall

Incorporates height-adjustable horizontal beams suspended between 2m silver anodized aluminum supports; uses pivoting VESA and plasma-mount fittings for the attachment of large and small panels; enables expandable housing of power and video wiring with a horizontal cable duct beneath each monitor mounting beam routed to a vertical coil.

+44 1525 379 909
www.customconsoles.co.uk
BOOTH: SU9011

MOBILE 8VSB APPLICATION
Triveni Digital

Mobile infotainment system for in-car applications; distributes digital video content to mobile receivers and provides for local geographical coverage on a DMA basis at high data rates; the application is based on the content-distribution platform SkyScraper, which reaches more than 54 percent of the U.S. population over the existing DTV infrastructure.

609-716-3500; www.trivenidigital.com
BOOTH: SU8525

CONFORM STATION
da Vinci Resolve

Enables users to perform conforming, proxy-generating and QC processes from a fully integrated parallel workstation; quickly generates lower resolution (proxy) files using da Vinci's Transformer technology.

954-688-5600; www.davsys.com
BOOTH: SL2615

HD A/V MONITORING SYSTEM
Wohler Technologies VAMP AC-3/M

Features a 4.3in widescreen NTSC/PAL autosensing LCD monitor and video controls for color, tint/hue, brightness and contrast; monitors Dolby Digital, AES/EBU and HD-SDI/SDI video and audio; isolates individual channels of Dolby Digital and decodes Dolby Digital and AES/EBU embedded in HD-SDI/SDI.

510-870-0810; www.wohler.com
BOOTH: N3426

HD STANDARDS CONVERTER
Snell & Wilcox Alchemist Ph.C – HD

Offers HD frame-rate conversion for both 1080i and 720p standards; performs SD standards conversion between 50Hz and 60Hz material, and HDTV upconversion, downconversion and crossconversion; provides two outputs that can be used for transmission of program feeds in multiple standards or formats.

212-481-2416; www.snellwilcox.com
BOOTH: SU4220

OPEN MEDIA ASSET MANAGEMENT
Dalet Digital Media Systems
DaletPlus Enterprise Edition

Designed for open broadcast workflows; customizable to any media-driven environment; offers a range of production and media management functionalities; Web-services-based API allows integration to service-oriented architectures for users to embed digital media services within the corporate data backbone of their customers.

212-825-3322; www.dalet.com
BOOTH: SL4305

REMOTE NEWSROOM COMPUTER SYSTEM
OCTOPUS Newsroom Field Reporter

All incoming information, such as wires, Web feeds, media, faxes and e-mails, are organized and ready to be used as ideas for last-second news coverage; offers a global search engine, keyboard shortcuts for frequently used actions and saved screen layout recall; features a new service for transferring stories and whole rundowns, allowing channels to share their assets between offices around the world.

+420 221 181 511
www.octopus-news.com
BOOTH: N413

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DataDirect Network S2A9550

Designed for high-performance, high-capacity network storage applications; delivers 3GB/s and 560TB in one storage system; provides optimal block level and file system performance for highly scalable, open-system computing environments; offers eight plug-and-play FC-4 and/or InfiniBadn 4X DDR (SCSI RDMA protocol) host side connections and 20 Fibre Channel or SATA disk drives.

800-837-2298; www.datadirectnet.com
BOOTH: SU5605

MULTIFORMAT AUDIO MONITOR
Tektronix AMM768

A scalable platform that monitors analog, digital and Dolby audio; provides a picture display option to facilitate video and audio coordination; a four-tile display and a picture monitor of the video that's associated with the audio enables operators to make quick decisions to maintain the quality of the on-air material.

800-833-9200; www.tektronix.com
BOOTH: N2519

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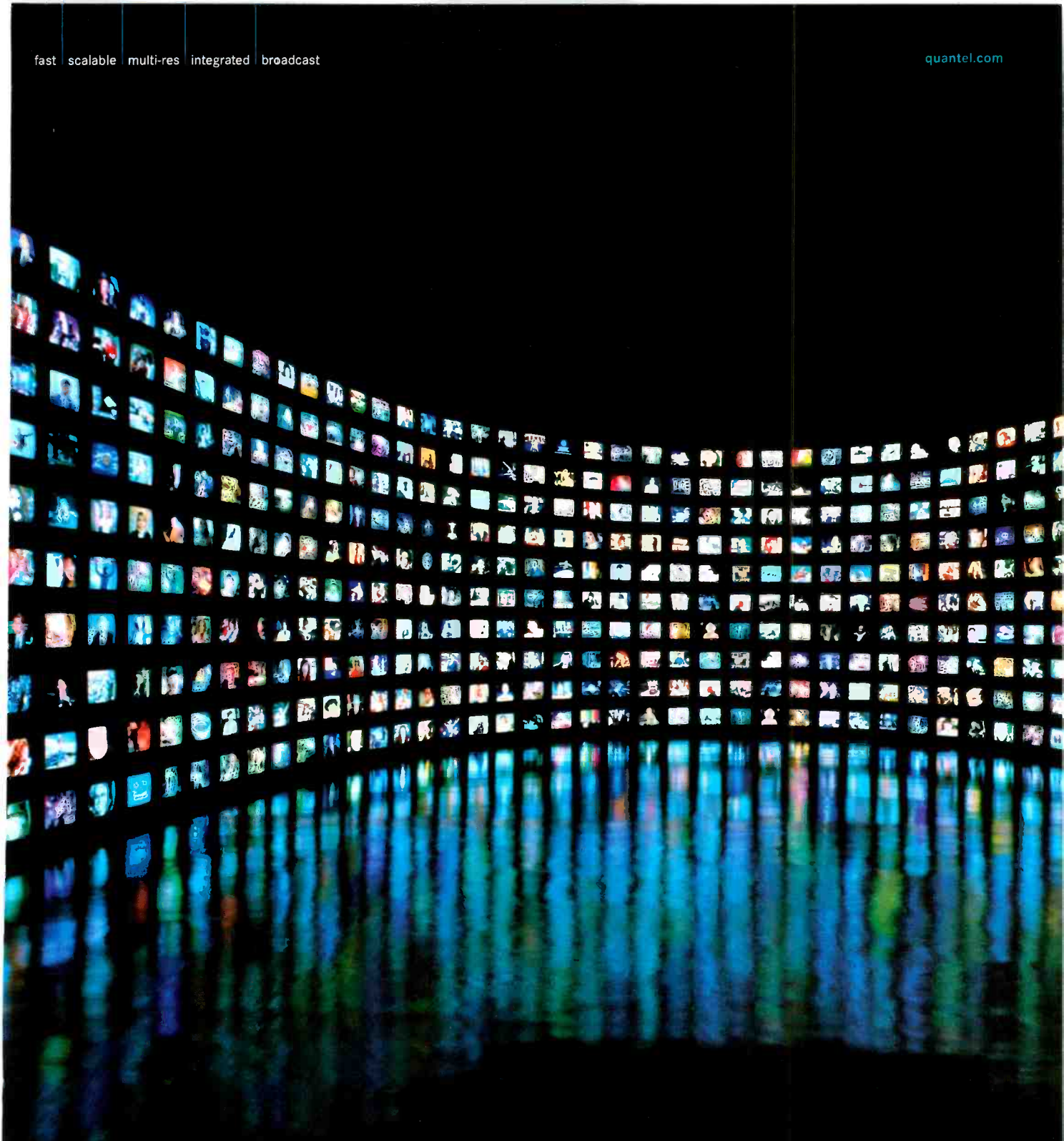

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HD PRODUCTION WORKSTATION
Dayang D³-Edit HD9

Performs five-layer HD stream playout in real time with 3-D DVEs active on the top four layers; incorporates 12b real-time chroma and luma key, graphics and title key matte extraction, including fine mask adjustment; provides four upconversion modes (window, box, margin and zoom) and three downconversion modes (box, margin and zoom); supports IEEE-1394 devices (miniDV, DVCAM and DVCPRO25/50), Panasonic P2/P2 HD and Sony XDCAM/XDCAM HD.

+852 2730 2117; www.dayang.com
BOOTH: SU10205

COMPRESSION PRODUCTS
Harris

The suite of HD MPEG-4 part 10 compression products address the contribution, distribution and transmission needs of the television industry; leverage the latest advances in compression algorithm technology; enable new applications and services by allowing lower-bandwidth operation of HD services over satellite, terrestrial and IPTV delivery platforms.

513-459-3400
www.broadcast.harris.com
BOOTHS: N3100, N2502

NEWS PRODUCTION CONTROL SYSTEM
Digital Broadcast NewsCommand

Automates the news production process by controlling production switching, cameras and pedestals, audio consoles and other ancillary equipment used in newscast production.

352-377-8344; www.digitalbcast.com
BOOTHS: SU13310, SU13510

RED-WHITE LED OBSTRUCTION BEACON
Dialight

The medium-intensity beacon is designed for marking broadcast and communications towers; offers a solid-state design that enables 20,000 candela flashing white combined with a 2000 candela steady or flashing red all-LED obstruction light; designed to withstand high levels of vibration and the most severe environments.

732-919-3119; www.dialight.com
BOOTH: N8035

PORTABLE SURROUND MICROPHONE
Holophone H4 SuperMINI

Comes equipped with an integrated multichannel preamplifier, monitor and encoder; offers six microphone elements with a bandwidth of 20Hz to 20KHz, a matrix-encoded stereo analog output and six line-level analog outputs, which are available at one per channel from three stereo 3.5mm female jacks.

416-362-7790; www.holophone.com
BOOTH: N6034

PLAYOUT SYSTEM
DNF Controls Flex Control Network Station Playout System

On-air commercial and program playout system for TV broadcast stations; provides control over one or more channels of video server playout; offers ingest, an as-run log and optional redundant operations.

818-898-3380; www.dnfcontrols.com
BOOTH: N1526

PYLON-STYLE ANTENNA
Dielectric Broadband Omni CP Pylon Antenna

A MobileMedia antenna suited for the lower 700MHz band; uses one-third of the radiators, feed systems and connections typically used in a panel-style antenna; designed with short element spacing; features a low RFR, a VSWR of less than 1.2:1 and low windload; incorporates discrete, circularly polarized, truncated broadside helical elements.

800-341-9678; www.dielectric.com
BOOTHS: C1907, N7421

AUDIO METER
DK-Technologies MSD 600M

New features include the latest LEG loudness measurement protocol, an upgraded Jellyfish surround-sound display that provides more information, improvements in Session Logging and LEG Logging and graphing with SMPTE time code, and improvements to DK-Level Read — the PC-based long-format logging and documentation software.

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ENCODER
Dolby Media Encoder SE

A cost-effective single-computer software encoding solution that offers the same level of high-quality encoding capabilities as the original Dolby Media Encoder network version; encodes all Dolby audio technologies used in packaged media applications, including Dolby Digital, Dolby Digital Plus, Dolby TrueHD and MLP LosslessTM; produces audio files for DVD-Video, DVD-Audio, HD DVD and Blu-ray Disc.

415-645-5000; www.dolby.com
BOOTH: N2513

HD VIDEO PLAYER
Doremi Labs NuggetPro

A standalone HD video player; plays back video from its internal hard drive to its HD-SDI video output; using the new Doremi Asset Manager software, users can transfer a variety of video clips, such as MXF, QuickTime and Windows Media; can be used in fixed install applications for playback to high-resolution projectors, LCD and plasma displays; can also be used to run a looping video clip or playlist.

818-562-1101; www.doremilabs.com
BOOTH: SU3608

INTERCOM SYSTEM
Riedel Performer CR-4

A 19in, four-channel, 1RU master station; any combination of beltpacks, split-boxes or desktop-panels can simply be plugged to the master station using XLR microphone cables; provides noise- and hum-free, high-quality digital audio with side-tone nulling; features integrated power supplies to power up to four beltpack lines.

818-563-4100; www.riedel.net
BOOTH: C9428

AUTOMATION SYSTEM
MicroFirst Engineering Digital Automation System (DAS)

Designed to provide efficient and reliable metadata management and device control; offers powerful media management, sophisticated logging functionality, integration with any traffic system, full-functioned graphical device control, distributed or centralized IP control, monitoring and maintenance of WAN television systems, and interfaces to nearline storage and archive management systems.

201-651-9300; www.microfirst.com
BOOTH: SU727

HD MPEG-2 TS ENCODER
DVEO NCoder HD

Compresses HD-SDI video from HD cameras in near real time; features IP output, DVB-ASI output or simultaneous DVB-ASI/IP output; encodes 1080i, 1080p or 720p HD; features compatibility with PAL or NTSC video formats.

858-613-1818; www.dveo.com
BOOTH: SU5026

DISPLAY PROCESSOR
e-mediavision.com X-View DPX range

New multiviewer range to X-View, a modular/scalable display processor that can be configured to provide up to 36 display outputs at resolutions up to 1600 x 1200 on each output, enabling an overall common wall display resolution of 57,600 x 43,200 pixels; enables 64 computer-based source inputs and 144 video inputs to be displayed as mosaic windows across the entire wall display.

+44 20 8755 2014
www.e-mediavision.com
BOOTH: C9538

DIGITAL SOLID-STATE UHF TRANSMITTER
LARCAN Magnum

Users can choose between 2.5kW, 5kW, 10kW, 15kW or other options; features versatile air-cooling and multiple regulated power supplies; includes intuitive advanced diagnostics and an extensive monitoring system designed to simplify maintenance; fits in 10kW of power in 25sq ft of space.

905-564-9222; www.larcan.com
BOOTH: C1916

CHANNEL INGEST
TV Magic i/oIngest

Offers users an ingest channel for capture of footage from tape- or file-based media; allows users to view the feed at the same time it is being recorded with Apple QuickTime, as well as add as many record, edit and playback channels as desired; captures direct-to-local or shared storage; can perform long captures at varying durations.

858-650-3155; www.tvmagic.tv
BOOTH: N406

WIRELESS CAMERA TRANSMITTER
Elber WLCT-01

A mobile transmitter, ideal in situations where portability and mobility is important; the system incorporates MPEG-2 and COFDM technologies; features an optional 36MHz IF frequency output and a frequency range from 2.1GHz to 2.5GHz; supports 6MHz, 7MHz or 8MHz bandwidths; features low-power consumption.

+39 0185 351 333; www.elber.eu
BOOTH: C1628

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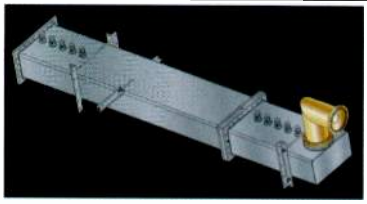
TANDBERG television

UHF TV ANTENNA
Electronics Research (ERI) AGW Quick Deploy Standby Waveguide



A low-cost emergency standby antenna for UHF television applications; the simple design can be tuned quickly to the desired operating channel; includes mounts and associated hardware; the antenna is constructed so it can be permanently mounted as a main or auxiliary antenna.

877-ERI-LINE; www.eriinc.com
BOOTH: N1119

MEDIA ARCHIVE
EMC AVALONidm v3.2

Includes an open, Linux-based archive and integrated transcoding; provides lower server platform costs to new clients using Linux Redhat to manage and transfer files; supports the MXF OP1A file standard, the SUN T10,000 tape drive, the Quantum SDLT600A tape drive and the Centera Universal Access node.

580-249-6207; www.emc.com
BOOTH: SU6824

ENCLOSURE SYSTEM
Emcor Enclosures ESQ

Houses electronic equipment; features fully welded construction and a load capacity of up to 600lbs; available in 19in, 24in and 30in panel widths; features seven vertical opening heights and three depths, including 30.75in; frame types include vertical, slope front, low silhouette, wedge, instrument, riser and turret; features adjustable front-to-rear mounting angles.

507-287-3535
www.emcorenclosures.com
BOOTH: TBA

HD/PC TO HDMI VIDEO SCALER
TV One 1T-AVPC-HDMI

Outputs resolutions up to 1080p; accepts analog PC inputs to WUXGA at 60Hz, analog YpbPr/YcbCr HDTV inputs to 1080p, digital HDMI and DVI-D signals up to 165MHz and digital PC RGB signals up to UXGA at 60Hz; features 3:2 pulldown, 2:2 pulldown detection/recovery and 3-D noise reduction; integrates analog stereo audio, PC stereo audio or an auxiliary stereo audio input into the HDMI output data stream.

859-282-7303; www.tvone.com
BOOTH: SU7226

SIGNAL INTEGRATION SYSTEM
Ensemble Designs Avenue

Includes HD video/downconverters, logo inserters, protection switches, audio embedders and video converters; an expandable, modular tray-based signal integration system housed in a 1RU or 3RU frame; allows any combination of HD video, SD video, DVB-ASI and audio modules in the same frame; PC software and touchscreens allow users to control and monitor every module from any location.

530-478-1830
www.ensembledesigns.com
BOOTH: SU2326

ROUTER
Evertz EQX

A 576 x 576 router, expandable to 1152 x 1152; accepts digital signals from 19.4 (SMPTE 310M) through SDI, ASI, HD/SDI and up to 3Gb/s; features a modular, hot-swappable, redundant design, independent monitoring bus, SNMP interfacing, advanced system control, and source-by-source intelligent autoconfiguration.

905-335-3700; www.evertz.com
BOOTH: N1713

CAMERA BATTERY
IDX System Technology ENDURA ELITE

Li-Ion V-Mount battery; designed for mobile, HD ENG/EFP broadcast, production and professional applications with 142WH capacity; features a replaceable twin power cartridge design that extends continuous operation time to 3.5 hours (using a 40W HD ENG/EFP camera); complies with current IATA and UN A45 aircraft security regulations.

310-891-2800; www.idx.tv
BOOTH: C5207

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Now, Morpheus Foundation offers all of Pro-Bel's automation expertise in a single, entry-level system which delivers best-of-breed capabilities at an entry-level price. Morpheus Foundation is an out-of-the-box solution which provides no-compromise channel automation. It comes pre-configured to drive your choice of video server, logo generator and closed-captioning system. Interfaces for Store and Forward solutions and EAS are supported as well as a wide variety of scheduling systems. Morpheus Foundation is flexible and scalable and offers a variety of options for advanced redundancy and media management as well as a choice of ingest tools. And the price will certainly give you something to smile about!

To find out more visit www.pro-bel.com

Engineering The Broadcast Future

ARCHIVE SOFTWARE
EVS XFile

The latest software module of the Xfile delivers IMX OP1a media files onto removable HDD during the feed record in the XT[2] video production server; as soon as the recording process starts, the material is simultaneously ingested on the XT[2] server and transferred on the station's shared storage; the Xfile acts as a gateway to post production and is responsible for all copy and transfer requirements during ingest.

+32 4 361 70 00; www.evs.tv
BOOTH: C3607

BNC CONNECTORS
Canare BCP-PC

The 75Ω connectors are designed for SD-SDI applications; include a longer body, making them easier to grip; feature a three-piece crimp design, making assembly and field-replacement easy; models are available for several industry-wide popular cables, with 26dB or less return loss at 1Ghz and 20dB or less at 1.5GHz.

818-365-2446; www.canare.com
BOOTH: SU4805

RACK-MOUNT TEMPERATURE DISPLAY
Middle Atlantic TEMP-DEC Decora

A rack-mounted temperature display; monitors internal enclosure temperature and provides an LED readout; fits into any Decora-style opening; features adjustable over-temperature setting and local and remote over-temp notification.

973-839-1011; www.middleatlantic.com
BOOTH: SU7826

AUTOMATION
Florical Automated Join in Process (JIP)

Featured in the AirBoss presentation controller; fully automated to provide potentially unattended join in progress of local recorded programs based on a remote signal from the network.

352-372-8326; www.florical.com
BOOTH: SU720

HD-SDI DATA LINK
Eyeheight enigmaHDi

Allows RS-232 data to be transported via an HD-SDI link and carrier lines to be blanked to conceal data from downstream devices or viewers; applications include camera pan/tilt data forwarding to effects equipment, caption data forward and tape metadata delivery.

+44 208 255 2015; www.eyeheight.com
BOOTH: SU2823

DIGITAL AUDIO WORKSTATION
Fairlight SatelliteAV

Features integrated video, plug-ins and mixing designed to streamline and simplify all aspects of the audio for video post-production process; now includes the company's CC-1 media engine, which can deliver up to 230 channels each with eight bands of EQ, three stages of dynamics, 192 track recording and editing, as well as a complete multiformat mixing system.

+61 2 9975 1777; www.fairlightau.com
BOOTH: SL4010

AUDIO ROUTING PANEL
Telex/RTS ARP-32

Audio routing panel establishes audio input and output paths by forcing crosspoints across an intercom system; works closely with the crosspoints screen in AXedit to allow users to enable, force or inhibit ports in an easy-to-use interface.

800-323-0498; www.telexintercoms.com
BOOTH: C5329

DIGITAL VIDEO RECORDER
Fast Forward Video Xi series

Delivers broadcast-quality digital video in either single- or dual-channel models; offers fixed or removable SATA hard drives, optional SDI, full variable speed playback control and USB 2.0 download ports; all models in the series feature QuickTime file formats, composite and Y/C I/O, RS-422 control and scalable motion JPEG compression rates from 4:1 to 20:1.

949-852-8404; www.ffv.com
BOOTH: C9720

DUAL HD MONITOR SET
Marshall Electronics V-R72P-2HDA

Features high-resolution, 1.2 million pixel screens with digital signal processing; designed specifically for analog applications; accepts DVI and HDMI computer or video signals, and all SD and HD analog video standards and signal types.

800-800-6608; www.lcdracks.com
BOOTH: SU1926

IMAGE-PROCESSING TOOLS FOR SHAKE
The Foundry Furnace 4

Version 4 offers a suite of more than 30 image-processing tools for use with Apple's Shake, many of which automate time-consuming processes in the creation of digital effects.

+44 20 7434 0449; www.thefoundry.co.uk
BOOTH: SL14413

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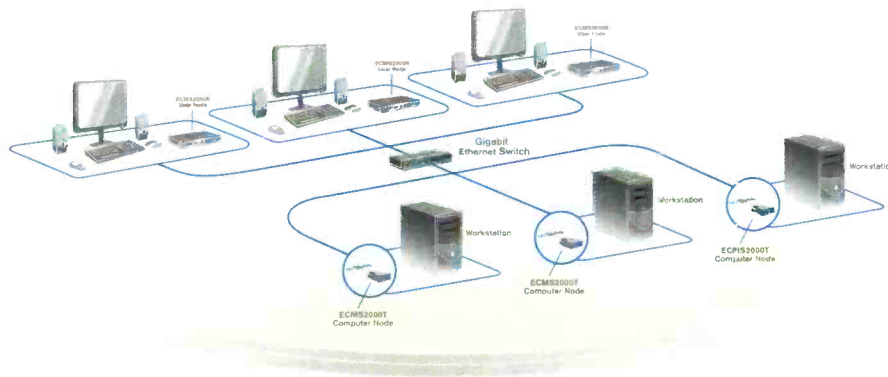
- Prevent bootleg media from leaving the edit suite
- Seamless extension of dual-channel CD quality audio



Visit us at NAB 2007
Booth # SL13016

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Visit www.avocent.com/broadcast for details.

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SIGNAL PROCESSOR
FOR-A FA-9100

A new HD/SD FA series signal processor; a more advanced version of the FA-9000; supports all formats, including HD, SD, analog, digital and audio; uses 12-bit internal processing for high-quality images; features numerous options such as an upconverter, downconverter, color corrector, median-based noise reduction, logo generator and Dolby E decoder.

714-894-3311; www.for-a.com
BOOTH: C4234

CHANNEL BRANDING
Orad 3DPlay

Combines 3-D real-time graphics, videos and audio in one solution; offers a turnkey, easy-to-use multichannel control over multiple downstream and upstream channels; enhances a station's graphics and its workflow efficiency; promotes asset reuse for images, video clips, audio and animations; offers a consistent graphical appearance and operator interface while defining multiple networks.

212-931-6723; www.orad.tv
BOOTH: SU3614

HDTV CAMERAS
Hitachi Z-series

Employ the latest generation of 2/3in CCD imagers with full raster HDTV resolutions (1920 x 1080 or 1280 x 720) without compromising resolution performance or picture fidelity.

516-921-7200; www.hitachikokusai.us
BOOTH: C5017

FIBER-OPTIC TRANSMISSION SYSTEM
Communications Specialties Pure Digital Fiberlink 7500 Series

Transmits all single-link DVI resolutions up to 1920 x 1200 and stereo audio over one single-mode, nonproprietary fiber; supports distances up to 15km; features a DVI loop-thru for monitor and EDID; provides two DVI outputs.

631-273-0404; www.commspecial.com
BOOTH: SL2826

NEWS SYSTEM
Quantel Newsbox HD

The self-contained news system is ready to go on-air straight out of the box; available in both HD-now and HD-upgradable configurations, allowing broadcasters to manage their HD investments; works with all the latest HD acquisition formats; allows users to ingest material, view rushes, choose shots, edit stories, review finished pieces and play them out to air.

+44 1635 48 222; www.quantel.com
BOOTH: SL720

UHF ANTENNA
ERI TRASAR UHF

Dual-channel transmitting antenna; allows stations with N+1/N-1 or adjacent DTV assignments to share one antenna; can be top- or side-mounted, or used as a structural member in the company's STACKER optimized antenna structure solution; offers 12 azimuth patterns to choose from; features a maximum of 6MHz per channel for NTSC.

812-925-6000; wwww.eriinc.com
BOOTH: N1119

DIGITAL WORKSTATION EXTENDER
Avocent ECM2000U

Provides hardware-based digital extension of video, keyboard, mouse, USB media and audio signals over UTP cabling; part of the company's Emerge series; consists of a computer node and user node interconnected point-to-point at GigE rates using IP over a single UTP cable; allows backrack broadcast-quality servers without affecting post-production operations.

800-275-3500; www.avocent.com
BOOTH: SL13016

HD FILTERS
Formatt Filters

HD Clear Soft filters soften with minimal loss of detail and contrast; HD Soft Gold Enhancing filters subtly soften the image with great skin tone enhancement; HD Supersoft Gold Enhancing are designed for skin tone and facial enhancement, as well as for the removal of hard lines and blemishes.

+44 1685 870 979; www.formatt.co.uk
BOOTH: C5917

CONTENT STORAGE MANAGEMENT
Front Porch Digital DIVArchive

Software middleware enables interoperability between large digital media storage devices, video servers, editing systems and digital media workflow applications; enhancements include broader interoperability with Front Porch Digital's key partners' emerging technologies, enhanced performance for network-based API clients, file-system-interface refinements and enhanced error messaging.

303-440-7930; www.fpdigital.com
BOOTH: SU14915

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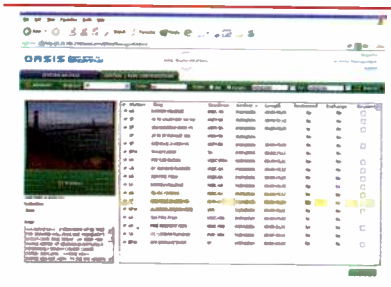
www.fujinon.com

SIGNAL MAPPING
Z Technology DSS5800 DriveTest

New software release for DSS5800 DTV signal coverage measurement and mapping system, which incorporates an NIST traceable field-strength meter, ATSC/8VSB decoder, WAAS-enable GPS receiver, 12VCD/AC power system and a Windows laptop running DriveTest; runs in Windows Vista; provides signal coverage measurement and mapping for analog and digital signals.

888-613-9832; www.ztechnology.com
BOOTH: C3039

INTERFACITLITY MEDIA SHARING
BitCentral OASIS



A file-sharing program for broadcast news production that facilitates user collaboration and media sharing; blends client/server distribution with peer-to-peer distribution; enables streamlined filesharing between HD and SD stations within a group; uses any commodity storage to inexpensively archive at a cost far lower than tape.

800-214-2828; www.bitcentral.com
BOOTH: SL7715

PORTABLE HMI LIGHTING
Frezzi

The line is designed for newsgathering and field production, and for stations and networks converting to the HD format; includes the sleek, lightweight 18W and 24W HMI as well as the highest output 200W and 400W HMI lights; balanced for natural daylight at 5500K with a 92-color rendering index.

973-427-1160; www.frezzi.com
BOOTH: C5422

HD TELEPHOTO LENS
Fujinon XA88x8.8BESM

Features 88X magnification with the widest focal length of 8.8mm to 777mm telephoto; ideal for large sporting events; captures wide-angle shots or long-range close-ups in 16:9, 4:3 HD or SD; comes equipped with Fujinon's GO-Technology, which improves image resolution and chromatic aberrations at all focal lengths.

973-633-5600
www.fujinonbroadcast.com
BOOTH: C4208

MICROWAVE RECEIVER
MRC MDR-2

A portable, dual-diversity digital microwave receiver that may be rapidly deployed to cover sports, news and outside broadcasts from ground locations, from the air, or from a moving vehicle; the ideal companion to a camera-mounted COFDM transmitter; uses the latest maximal ratio combining technology to optimize the quality and usable range of the transmitted signal.

978-671-5700; www.mrcbroadcast.com
BOOTHS: OE300, C2907

MULTIUSER KVM SWITCH
Fujitsu Components America FS-8000

Allows up to eight remote users to access up to 32 servers over Cat 5 UTP cabling between the main unit and the user console unit; enables remote users to access servers up to 300m away while maintaining support for XGA and SXGA monitors, and from 200m away for UXGA monitors; supports PS/2, USB, SUN MD8 and SUN USB server interfaces, as well as keyboard hot-key switching and on-screen display.

408-745-4900; http://us.fujitsu.com/kvm
BOOTH: C7807

TRANSCODING
Telestream FlipFactory MetaFlip

Helps content owners capitalize on new revenue opportunities by meeting the unique data requirements of iTunes, RSS and CableLabs VOD workflows; transforms metadata along with video and audio files for submission to content aggregators and distributors; offered as a standard feature with FlipFactory Mobile and an option for all other FlipFactory workflow automation applications.

877-257-6245; www.telestream.net
BOOTH: SL9214

VIDEO-OVER-IP PLATFORM
Hewlett Packard HP IPTV

A standards-based video-over-IP platform; enables service providers to deploy a high-quality video delivery service that enables subscribers to watch live broadcasts or on-demand video content.

800-752-0900; www.hp.com
BOOTH: SL3820

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- Automated Up/Down/Cross Conversion
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- HD Color Correction
- HD Legalizer
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Based on its patented digital signal processing, Integrity delivers to HD the same uncompromised signal quality you have come to expect from Fortel DTV. Available in 1RU or modular configurations, Integrity HD can be tailored to meet any user need. Our comprehensive range of conversion products are controlled by the full-featured Integrity Control System — a responsive, easy to read, and intuitive interface for operator control. ***When only the best will do: HD by Fortel DTV.***

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Integrity HD 1RU frame supports the full line of feature-rich signal processing cards

Rugged, easy to read Control Panel

Integrity HD frame holds up to 18 cards in 4RU

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THREE-CHIP DLP HD PROJECTOR
Christie Roadster HD18K

Delivers 17,500 ANSI lumens; features a HD 1920 x 1080 engine and 1600-2000:1 full-field contrast ratio; offers built-in stacking and rigging points for easy setup for redundancy or to increase brightness and user-replaceable low-power-consumption bulbs.

800-407-7727; www.christiedigital.com
BOOTH: SL5413

MEDIA STORAGE NETWORK
Avid Unity ISIS

Features four-way scalability, from 8TB to 192TB of storage and redundant, hot-swappable system components; supports up to 150 dual-stream 50Mb/s clients and up to 1000 user accounts; delivers real-time SD and mastering-quality DNxHD media in formats up to 145Mb/s; employs standard GigE technology.

800-949-2843; www.avid.com
BOOTH: SL106

WIRELESS HEADSET INTERFACE
HME HSI6000

A headset interface for use with the DX series wireless intercom systems; allows users to connect a standard 2.5mm cordless or cell phone headset to an HME BP200 beltpack; this adapter makes it more cost-effective for users of the HME DX series systems to replace headsets or add new users.

858-535-6060
www.hme.com/proaudio.cfm
BOOTH: C11632

HD-SDI TO HDMI SCALER
Gefen

Enables a direct connection between HD-SDI sources and HDMI displays; provides a cost-effective alternative to using SDI displays; HD resolutions are scaled and supported up to 1080p.

818-884-6294; www.gefen.com
BOOTH: SL2305

MCR DEVICE CONTROL SYSTEM
Pharos Communications Pilot

Allows operators to deploy settings instantly for SD, HD or multidefinition broadcasting via a single touch-screen, including aspect-ratio switching, A/V synchronization and audio channel manipulation; features include HD/SD tone and bar enabling via GPI, presets for A/V timing, color correction, ARC and up-/downconversion, and audio monitor switching between Dolby 5.1 and stereo.

+44 118 950 2323
www.pharos-comms.com
BOOTH: SU8905

MIC SNAKE
Holophone Side Winder-6

When used in combination with any Holophone mic, the unit easily encodes a 5.1 surround recording into a stereo recording; a 3ft Monster cable attached to the side of the mic snake terminates in six Neutrik 6-pin XLR connectors; the matrix-encoded surround output created by the module can be transmitted, shared and processed via any surround infrastructure.

416-362-7790; www.holophone.com
BOOTH: N6034

PLAYLIST AND CUE MANAGER
Hi Tech Systems Q-Tracker

A VDCP controller based on the Q-Tracker touch-screen interface; intuitive control surface for non-technical operators; enables fast, easy playlist building from up to six video sources; cue capture is achieved by touching the source display; the cue is stored as a thumbnail image with user-definable metadata.

+44 1256 780880; www.hitechsys.co.uk
BOOTH: N710

TELECINE EDIT PACKAGE
da Vinci Telecine Pre-Programmer

Controls a telecine's transport and color parameters in a dailies environment; leverages the telecine's own color capabilities; includes a complete telecine edit package.

954-688-5600; www.davsys.com
BOOTH: SL2615

COMPACT FLUORESCENT LIGHTING UNIT
Videssence P110-255BX Power Key

Provides 110W coverage using two 55W Biax lamps; features a simple adjustment mechanism that moves the lamp within the fixture for 60-degree, 70-degree or 90-degree spread, and an adjustable rotating mounting yoke; available in dim and nondim configurations; UL/CUL/CE approved.

626-579-0943; www.videssence.tv
BOOTH: C8212

Continued on page 119

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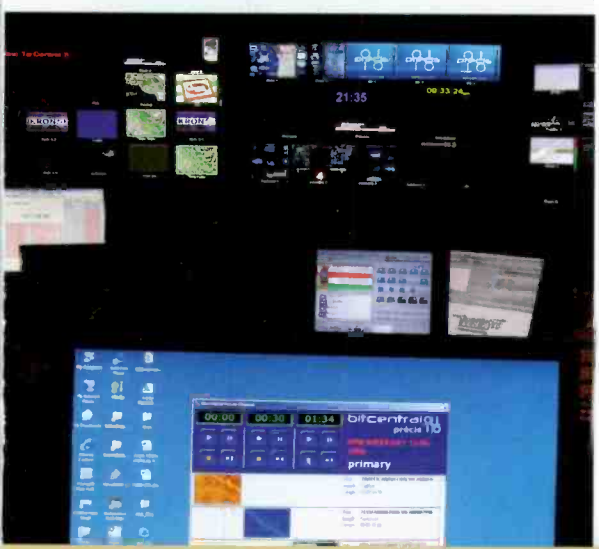
5 Great Reasons Your Station Needs Bitcentral NOW!

1. Upgrade to a complete, nonproprietary digital solution – ingesting, editing, newsroom integration, play-out and archiving
2. File stories faster – Edit on notebooks, submit stories anytime, anywhere, over broadband or microwave
3. Produce for multiple platforms – TV, mobile phones, websites, video on demand, 24-hour dedicated news channels, etc.
4. Distribute and share HD/SD content with anyone, anywhere – quickly and easily
5. Archive using inexpensive commodity storage devices



Go Digital with us and see what your newsroom's been missing.

In a sudden turn of events, newsrooms across America are discovering the incredible new opportunities created by Bitcentral's exciting nonproprietary, digital news production system. From ingest and edit to newsroom integration and archiving, Bitcentral gets stories on-air faster and manages the news easier than ever before.

Precis – Bitcentral's fully integrated, end-to-end, open architecture solution – eliminates videotape and dozens of expensive, time-consuming steps. With Precis, field contributors are able to edit stories on laptops then submit them, ready to air anywhere, via broadband.

Precis lets stations distribute and manage the news across multiple platforms and formats. So now it's possible to simultaneously deliver stories to anyone and everyone, anytime and anywhere – all with just a click of a mouse.

Oasis – Bitcentral's digital archiving and distribution system – makes it easy for newsrooms to archive their stories on digital storage devices and then instantly and automatically share them across groups or across the country via broadband.

It's simple to schedule an onsite or online presentation plus receive a FREE GIFT* – a $170 value, just call 800--214-2828 and speak with a representative, or visit us at NAB BOOTH # SL 7715

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Precis transforms digital news production – makes remote contribution simpler and faster

In a move that's revolutionizing the news industry, Precis from Bitcentral is taking stations out of the videotape age and into the digital millennia.

Suddenly, news managers are able to get their stories on air faster, easier and from more places than ever before.

Precis' fully integrated, end-to-end, non-proprietary digital system will provide newsrooms with a totally complete solution – one that includes ingesting, editing, newsroom integration and cost effective archiving.

"We thoroughly surveyed the market and found no other competing product to be as comprehensive, easy to install or attractively priced as Precis."

Dan Billings, Director of Engineering & Technology, Waterman Broadcasting

With Precis, field contributors can edit stories on location using notebooks, then submit those stories immediately over broadband or microwave – ready to air from anywhere.

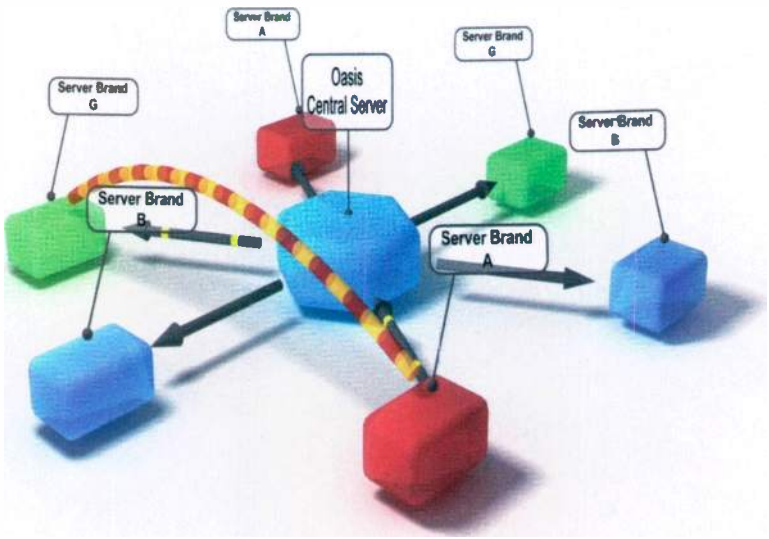
Precis also allows broadcasters to produce for multiple platforms, including TV, mobile phones, websites, video on demand, and 24-hour dedicated news channels. Stories can be distributed simultaneously to anyone, anywhere, all at just the click of a mouse.

Precis also simplifies story management by using a single interface for national and local stories. Plus it integrates with the most popular newsrooms systems, including iNews, ENPS, and all editing software.

Additionally, the system offers the first true end-to-end HD news production system.

Get an Onsite or Online demo by calling 800-214-2828 – or visit us at NAB Booth # SL 7715

Oasis stuns newsrooms – dramatically improves distribution and archiving [Simplifies Sharing, Slashes Costs]



Oasis, Bitcentral's digital sharing and archiving solution has burst on the scene, and news managers everywhere are being wowed by its ability to leverage their news assets.

With Oasis, newsrooms are able to quickly, easily and cost-effectively share stories across groups and across the nation – all at the click of a mouse.

Oasis connects with existing news production systems (whether they are proprietary or tape-based) and saves stories as digital files on commodity storage devices, allowing journalists to instantly and automatically share stories over their existing bandwidth without the traditional dub and feed process.

"For the first time – Oasis makes it practical to share video content across a region and the nation"

David Folsom, Vice President, Technology, Raycom Media

Advanced search features automatically tie scripts and slugs to the video. And there's a visual directory of all available news assets, making it easier than ever to locate and share stories with participating stations.

Oasis also allows newsroom groups to share content between HD and SD stations.

Because Oasis archives stories digitally on commodity storage devices – instead of videotape and restrictive, proprietary equipment – stations are reaping incredible savings in time, money and physical storage space.

And since Oasis' stories can be transmitted using a station's existing bandwidth, there are even greater savings. As a result, newsrooms are seeing a return on their investments in just a few short months.

Bitcentral's onsite & online demonstrations are available immediately by visiting us at NAB Booth # SL 7715

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news. anytime. anywhere.

"Precis doesn't just digitize the workflow – it redefines the workflow."

Craig Porter, Director of Engineering, Broadcast Systems KRON4/Young Broadcasting

WRAL in Raleigh NC, the nation's leader in HD news, uses Precis to simultaneously produce for multiple platforms. This includes their 24 hour a day cable News Channel pictured above.

Let Bitcentral introduce you to the innovative world of DIGITAL NEWS PRODUCTION! [NAB BOOTH # SL 7715]

Continued from page 114

HD BOX CAMERAS
Ikegami HDL-45 and HDL-45P

Feature advanced 14-bit analog-to-digital conversion; are designed to deliver superb 1080i and 720p HD image-capture, respectively; feature a built-in servo-filter that enables insertion of a neutral density or other filter by remote control.

201-368-9171; www.ikegami.com
BOOTH: C4226

MEDIA SERVER
Omneon MediaDeck

Integrates media storage, system management, GigE connectivity, and SD or HD video I/O modules in a 2RU package; consists of eight 500GB SATA disk drives with dual-parity RAID, providing 3TB of usable storage with protection even in the event of two drive failures; is designed for small stations and other users requiring a standalone server that is affordable, reliable and compatible with existing automation systems.

408-585-5000; www.omneon.com
BOOTH: SU1326

GRAPHICS SOFTWARE
Vizrt Viz|Video Wall ER

A software solution that automatically distributes scenes from any Vizrt graphic software application to a shared cluster of Viz|Engine renderers; the Viz|Engines output graphics of unlimited resolution to a large-scale video wall for live operation; can be used interactively in a live broadcast.

212-560-0708; www.vizrt.com
BOOTH: SL4810

DIGITAL VIDEO RECORDER
Fast Forward Video Omega HD

Records SD and HD video with high-quality JPEG2000 compression up to 300Mb/s; allows users to simultaneously record, play and store multiple SD and HD video files; allows users to create video clips, loops and playlists using the front panel for many applications, including graphics and key fill, spot insertion, and sports/instant replay.

949-852-8404; www.ffv.com
BOOTH: C9720

QUAD SPLIT VIDEO PROCESSOR
Image Video VxV-4HD

The processor is powered by Gennum VXP technology for unmatched de-interlacing and upconversion; features HD-SDI/SDI inputs, frame rate conversion of 50Hz sources for DVI output, and embedded audio metering for HD-SDI and SDI sources; is compatible with Image Video tally controllers.

416-750-8872; www.imagevideo.com
BOOTH: SU3305

VC-1/WM9 ENCODER
Inlet Technologies Spinnaker

Designed for live media delivery, including broadband TV, Web streaming and IPTV enterprise; is compatible with existing cable, broadband and streaming infrastructures, as well as with new IPTV middleware; supports resolutions from Web to HD quality; provides real-time encoded output delivered in the SMPTE VC-q and Windows Media formats.

919-856-1080; www.inlethd.com
BOOTH: SL10410

PLAY-TO-AIR STORAGE SYSTEMS
SeaChange MediaLibrary BML6000ex and BML24000ex

Ensure reliable playout without failure; provide centralized online access to any video or audio file on any device, which helps to streamline operations from capture to on-air; real-time video I/O bandwidth is guaranteed by the company's streaming engine over IP accelerator GigE ports; the systems scale by adding nodes for incremental increases in bandwidth and storage.

978-897-0100; www.schange.com
BOOTH: SU10812

PORTABLE ENCODER
ViewCast Niagara GoStream

A portable, streaming encoding appliance designed to make capturing and streaming video a simple, easy-to-use process; this single-channel encoder is designed to allow even novice users to operate it; features three EZStream buttons that allow users to select from predefined encoding profiles.

972-488-7200; www.viewcast.com
BOOTH: N2131

NEWSROOM EDITOR
JustEdit vsnscenes

The low-cost editor allows low-resolution proxy preview in variable speeds directly from the chosen format (XDCAM or P2) and a selection of a list of clips or subs; automatically uploads high-resolution content to shared video servers.

+34 93 734 99 70; www.vsn-tv.com
BOOTH: N717

PROTECTION SWITCHER
ISIS Group HD-212

A 2 x 2 HD, SDI and ASI protection changeover switch for network, transmitter inputs, or satellite and cable headend operations; detects signal presence on both its A and B inputs and transfers to the offline input upon failure of the primary feed; provides relay bypass protection of the A input to the main online output in case of power failure or processor board removal (with the return-to-A function providing automatic return to the primary input signal upon its restoration).

888-622-4747; www.isis-group.com
BOOTH: SU3313

OMNI-DIRECTIONAL ANTENNA
Jampro JLCP

Includes stacking harness and 2in pole mount; features a helix design and VSWR 1.5:1 or better +/-150kHz; is field tunable from 88MHz to108MHz; applications include low-power FM, translator and booster stations.

916-383-1177; www.jampro.com
BOOTH: C2515

HDTV UPCONVERTER
Snell & Wilcox Quasar Ph.C

Uses motion-estimation techniques to produce HD outputs from a variety of SD inputs; combines four Snell & Wilcox technologies in a 1RU package, including Ph.C motion estimation, DEFT 3:2 cadence correction, Prefix compression preprocessing and FormatFusion HDTV conversion.

212-481-2416; www.snellwilcox.com
BOOTH: SU4220

COLOR ANALYZER SET
DK-Technologies PM5639

Measures both CRT and LCD monitors; includes an LCD probe, a CRT probe and a display unit; the LCD probe has a stand to hold it steady in front of the monitor screen; the CRT probe comes with a suction cup to secure it to the screen; is packaged in a suitcase, making it easy to transport and offering it protection when it is not in use; ideal for facilities making the switch from CRT to LCD monitors.

800-421-0888
ww.dk-technologies.com
BOOTH: N1835

DIGITAL AUDIO MIXER
Euphonix System 5-B

Comprises a control surface, digital processing core, digital and analog interfaces, and a system management software application called eMix; designed for high-quality sound, with full support for 24-bit I/O and internal processing at 40-bit floating point; 96kHz sample rate operation is available.

650-855-0400; www.euphonix.com
BOOTH: N4021

DIGITAL MPEG TEST PLATFORM
JDSU DTS

New test capabilities include the ability to log DPI-related events, trigger stream capture on DPI events and trigger report generation on events; performs comprehensive analysis of all SCTE-35 metadata and messaging in the transport stream, allowing users to validate DPI, digital ad splicing systems and equipment.

317-614-8027; www.jdsu.com
BOOTH: N926

WIRELESS AUDIO INTERFACE
JK Audio Daptor Three

Uses Bluetooth wireless technology; allows balanced and unbalanced connections to the user's cell phone; connects the user to a cell phone like any other Bluetooth wireless technology-enabled headset; also connects to any other product, such as a laptop, that allows a similar headset connection.

815-786-2929; www.jkaudio.com
BOOTH: N9426

LIP SYNC MEASUREMENT
K-WILL QuMax-2000

Automatically detects video and audio errors in real time, including lip sync; can tell how far off lip sync has drifted, down to the frame level, with room for up to 12 input boards, several samples can be taken.

310-512-6910
www.kwillcorporation.com
BOOTH: N1531

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INTERNET/INTERCOM INTERFACE
Production Intercom IP900 Connect

Provides any Internet-capable device the ability to become part of the user's intercom system; the remote party can communicate with the click of a mouse, stylus or any input device; easily connects to an intercom system with three-pin XLR; connects to the LAN/WAN using Cat 5 cable; software is provided on a USB memory stick.

800-562-5872; www.beltpack.com
BOOTH: N2235

CAMCORDER
JVC GY-HD110U

The latest version of the HD100 series of Pro-HD camcorders; features the same design and features as the GY-HD100U; additional features include a black-and-white viewfinder display mode, simultaneous use of both eyepiece viewfinder and tri-mode LCD display when powered by an Anton/Bauer or IDX battery system, selectable mirror mode on vertically flipped LCD display and adjustable setting of focus assist function.

800-526-5308; www.jvc.com/pro
BOOTH: C4217

iTV GENERATOR
Strategy & Technology TSDeveloper

Provides an integrated solution for generation and playout of interactive TV applications in the authoring, applications development and test environments; is housed in a portable desktop unit; accepts output from authoring tools; generates an RF output that connects directly to target receivers and set-top boxes with support of DVB or OCAP/ETV standards.

303-926-4933; www.s-and-t.com
BOOTH: SU9306

UP-, DOWN- AND CROSSCONVERTER
Crystal Vision Up-and-down-A

Combines up-, down- and crossconversion for HD or SDI sources containing embedded audio; upconversions are SD to 720p and 1080i at both 50Hz and 59.94Hz; downconversions are 720p and 1080i to SD at 50Hz and 59.9Hz; crossconversions are 720p to 1080i and 1080i to 720p; will pass two groups of embedded audio, de-embedding the two lowest numbered groups and then re-embedding them with the same group number.

+44 1223 497049; www.crystalvision.tv
BOOTH: N2935

STUDIO LIGHTING
Kino Flo VistaBeam 600 and 300

Large area studio soft lighting fixtures; feature DMX control systems and ability to produce daylight or tungsten balanced light from the same fixture and flicker-free, remote operation; VistaBeam 600 delivers the equivalent of a 6000W spacelight, but uses only 10 amps of power.

818-767-6528; www.kinoflo.com
BOOTH: C10213

ACTIVE CONTROL MONITOR
Klein + Hummel M 52 D

Offers a flat frequency response and a common mode rejection ratio of more than 50dB; includes switchable inputs for both analog and digital signals in AES/EBU and S/PDIF formats; features front-panel controls, a transformer-balanced XLR connector, a DC connector for use with 12V to 20V, clear high-frequency reproduction, low-distortion bass reproduction and a reference monitor for broadcast vans.

860-434-9190; www.klein-hummel.com
BOOTH: N7117

DVB ANTENNAS
Kathrein, Scala Division, DVB-T and DVB-H antenna series

Lightweight, low windload, vertical polarized, UHF omni antennas; available with 3dBd up to 7dBd gain; designed for low- and medium-powered applications.

541-779-6500; www.kathrein-scala.com
BOOTH: C2213

3GB/S CAPABILITY
Harris

Enables broadcasters to migrate from the existing 720p and 1080i HDTV standards to the emerging 1080p format; is available throughout Harris' signal processing and distribution products, including the X75 HD multiple-path converter/synchronizer, distribution amplifiers in the 6800+ modular core processing platform, the Panacea routing switcher, and the Platinum and Platinum MX routing switchers.

513-459-3400
www.broadcast.harris.com
BOOTHS: N3100, N2502

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LOW-POWER UHF TRANSMITTER
LARCAN MXi Series

Supports analog, digital, DVB and DVB-H standards; outputs 10W to 200W digital; touch-screen LCD display provides telemetry and control; is frequency agile; features a broadband design using LDMOS amplifiers and regulated power supplies; its compact housing with integrated cooling system supports operation under extreme conditions.

905-564-9222; www.larcan.com
BOOTH: C1916

CONSOLE
Lawo MC²66

Broadcast and production console has lightweight construction, low-power consumption and compact dimensions; in combination with the routing matrix integrated in the core, it offers maximum flexibility for I/O interfaces and DSP resources; has a matrix capacity of 8192 mono inputs and outputs and 512 DSP channels.

+49 7222 10020; www.lawo.de
BOOTH: N7030

ARCHIVE MANAGEMENT
Front Porch Digital DIVAnet

Allows users to leverage DIVArchive to provide content replication, disaster recovery and business continuance functionality across multiple facilities; provides a toolset for content-lifecycle control for effective multi-site content storage management.

303-440-7930; www.fpdigital.com
BOOTH: SU14915

RASTERIZER
Leader LV7700

The multiformat SD and HD-SDI rasterizer conforms to 17 SD and HD standards; accommodates two SDI inputs; waveform, vector, audio, picture and data monitoring functions can be displayed individually or in several screen combinations; XGA output provides for excellent display clarity and resolution; error detection and error logging facilities include gamut detection and settable error limits.

800-645-5104; www.leaderusa.com
BOOTH: C5022

AUDIO WIRELESS TRANSMITTER
Lectrosonics SM

"Super Mini" transmitter delivers 107dB signal-to-noise ratio and flat frequency response to 20kHz; in native Digital Hybrid Wireless mode technology, both 24-bit digital audio and analog FM signal transmission methods can be used to encode a digital signal into an analog format for transmission over a UHF FM carrier; receiver captures the signal and DSP circuitry recreates the original digital audio.

800-821-1121; www.lectrosonics.com
BOOTH: N8116

TELCO SOLUTION
TANDBERG

Offers an IPTV headend video processing solution that includes MPEG-2 SD encoding, MPEG-4 AVC HD and SD encoding, MPEG-2 to MPEG-4 transcoding, MPEG-2 transrating, and picture-in-picture service generation; is designed to deliver bandwidth improvements of up to 50 percent over previously deployed MPEG-4 AVC units.

+44 2380 484000; www.tandbergtv.com
BOOTH: SU4211

DATA TAPE DRIVE
Quantum ProVideo A-Series

With a built-in GigE port, drives are network-attached so they can be directly connected to any network and accessed by every edit workstation, networked server, graphics device and other computer-based video equipment on the network; is MXF-aware, allowing videotape-like access to subclips by time code.

719-536-5263; www.quantum.com
BOOTH: SU13809

TV AUTOMATION SYSTEM CONTROLLER
LEIGHTRONIX TCD/V3

Allows users to manage up to 16 channels of digital video playback; interfaces with the LEIGHTRONIX TCD/NX, as well as third-party servers; controls a wide variety of resources, including DVD players, recorders and VCRs; includes WinLGX network management software for scheduling, immediate system control, user account management, system configuration and site management.

800-243-5589; www.leightronix.com
BOOTH: SU3811

SERVER CONTOL ADDITION
Hi Tech Systems Stacks

An enhancement to the Flier range of server controllers; allows sub playlists of up to 99 clips to be inserted into a playlist; a stack can be assigned to one key on a shotbox for easy playout of multiple clips with one keystroke.

+44 1256 780880; www.hitechsys.co.uk
BOOTH: N710

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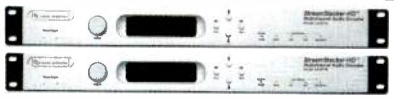
www.daleproaudio.com

MEDIA MANAGEMENT
MESoft SELECT

The software allows users to store, manage and access their media simply and powerfully; features and easy-to-use client interface on the front-end and MESoft's patent-pending server technology on the back end; is designed to deliver reduced production process costs and increased post-production speed.

818-260-0858; www.mesoft.com
BOOTHS: SL1413J, SL13505

AUDIO DISTRIBUTION SYSTEM
Linear Acoustic StreamStacker-HD High-Density e2



Allows up to 16 channels of audio and associated data to be kept together in a single, easy-to-manage package; the StreamStacker-HD bitstream can be edited on AES frame boundaries; keeps audio and video tightly synchronized via built-in compensating video delay; emission rate audio programs such as AC-3 can replace some or all of the PCM channels, allowing a custom mixture of formats most suited for a given application.

717-735-3611; www.linearacoustic.com
BOOTH: C1048

WIRELESS CAMERA SYSTEM
Link Research L1500

The unit is to replace the company's existing range of 2GHz, 3.5GHz and 7GHz wireless camera systems; its base unit is an SD wireless camera transmitter with a keypad and display similar to Link's previous wireless camera systems; high definition is added with a simple software upgrade; offers a choice of user-exchangeable RF modules.

+44 1923 474060; www.linkres.co.uk
BOOTH: C2907

HD DOWNCONVERTER
LYNX Technik C DX 5624

Multiformat module offers both analog and digital video and audio outputs; auto-detects/senses and self-configures to the input signal (SD or HD) it is connected to; integrates embedded audio processing; conserves Dolby E audio quality.

611-251-8600; www.lynx-technik.com
BOOTH: SU15209

MPEG-2 TS ANALYSER
Manzanita Systems MP2TSA v3.0

MPEG-2 transport stream analyzer now includes H.264 support, user-configurable profiles for CableLabs, DVB and ATSC compliance verification, and enhanced visibility into the transport stream.

858-679-8990
www.manzanitasystems.com
BOOTH: SU7524

MEDIA SERVER
Omneon Spectrum HD

Combines high-quality HD playout capability with flexible features to allow facilities to efficiently migrate to HD broadcasting; MediaPort playout modules can support one or two channels of HD MPEG playout of 4:2:0 and 4:2:2 material at bit rates up to 78Mb/s; handles DVB/ASI streams, so the user's network feed can be ingested directly into the media server for playout.

408-585-5000; www.omneon.com
BOOTH: SU1326

ARCHIVE AND ASSET MANAGMENT
Masstech MassStore

Now features commercial assembly to automate the flow of satellite-delivered content into the broadcast environment, including automatic preparation of content (e.g. trimming, color bars, slate); offers increased transcoding capability, supporting intelligent transcoding of all popular formats; now supports Avid Unity and Interplay, as well as Final Cut Studio.

905-707-2614; www.masstechgroup.com
BOOTH: SU12712

COAXIAL CABLE TEST KIT
White Sands Engineering

Designed to simplify the testing and remote identification of coaxial cable assemblies; adapter cables enable the tester to be used with a variety of A/V connectors, including F, BNC, RCA and SMB; includes a TSTL-3A cable tester, seven adapter cables, one F-female adapter, one AAA battery and a carrying case.

623-581-0331
www.whitesandsengineering.com
BOOTH: C1736

HD VIDEO MONITOR
Matrox Electronic Systems MXO

Provides portable HD monitoring for Final Cut Pro; turns a cinema display into an artifact-free video display; offers frame-accurate, broadcast-quality HD/SD output, real-time HD to SD downscaling and WYSIWYG video output from QuickTime-based applications.

514-822-6364; www.matrox.com/video
BOOTH: SL2015

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VIDEOCASETTE
Maxell HDCAM

Uses binder systems to achieve durability and exceed the compulsory storage performance demands of long-term archiving; incorporates super-fine ceramic armor metal particles (0.1µm) to surpass the low-noise requirements of HDCAM's 7:1 compression algorithm; lineup includes 6-, 12-, 22-, 32- and 40-minute cassettes; large cassette lineup includes tapes that run for 34, 64, 94 and 124 minutes.

800-533-2836; www.maxell.com
BOOTH: C7736

MULTI-IMAGE PROCESSOR
Miranda Kaleido-X

Allows unlimited signal repetition over eight monitors; all the multi-image outputs can be grouped to create large, highly integrated monitoring systems; can be controlled independently for multi-room environments, using one or more remote control panels; layout configurations can be changed instantly; can monitor up to 2304 channels of audio, including embedded, discrete AES or discrete analog.

514-333-1772; www.miranda.com
BOOTH: SU5220

DIGITAL AUDIO ROUTER
NTP Technology 625

The multinorm audio routing matrix can be installed either as a master control room matrix system or associated to user surfaces and/or control panels for use in studios.

+45 4453 1188; www.ntp.dk
BOOTH: N3213

CAMERA LIGHT
Anton/Bauer ElightZ

A 6V on-camera light specifically designed to work with a handheld camera battery without power converters, adapters or cumbersome belt packs; weighs 6oz; draws 10W (both 5W and 15W bulbs are available) and outputs more than 75ft candles at 5ft; its folding design features a two-stage arm that can be adjusted to a wide array of positions in order to adjust light angles and avoid lens shadowing.

800-422-3473; www.antonbauer.com
BOOTH: C5929

OUTDOOR TWT AMPLIFIER
MCL MT2300

Features an event log, continuous attenuator adjustment in decibel and available redundancy in 1:1 and phase combined configurations; allows customization to include L-band block upconverter and internal linearizer; supports Ku-band applications at 125W or 200W.

630-759-9500; www.mcl.com
BOOTH: C4741

TURNKEY WEATHER SYSTEM
AccuWeather Severe Weather Warnings Decoder

Monitors the National Weather Service's NOAA WeatherWire and NOAAport as delivered over five different data channels, including both satellite and terrestrial; processes 122 types of watches and warnings for immediate display as soon as they arrive; allows local broadcasters to turn on or off the display of certain types of warnings depending on location.

814-235-8600; www.accuweather.com
BOOTH: C6412

MASTER CONTROL
Media 3 BureauCam BCS-3500

A redesigned audio board digitizes all incoming signals at the point they enter the system and keeps them in the digital domain until the point they leave, resulting in dramatic improvement of the sound quality; a new monitor panel features two 8in, high-resolution SD 16:9 aspect ratio LCD monitors; the GUI has been reconfigured for simpler operation.

212-983-5200; www.liveshots.com
BOOTHS: C10514, C10613

ASSET MANAGEMENT
NETIA Manreo

Allows for ingest, digitization, archiving, indexing, intranet search and browsing of all types of audio and video files; users can publish this content directly to multiple formats, such as the Internet and mobile phones, as well as to third-party systems, and can define their own rules for automatic publishing of content; can be set up so that publishing triggers automatic encoding of the video to the proper target format, such as video formats used in mobile phone applications.

+33 4675 90807; www.netia.com
BOOTH: N5721

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LIGHTWEIGHT MATTE BOX
ARRI LMB-15

Accommodates horizontal use of standard 4in x 5.65in filters; features include compatibility with LMB-5 filter trays, adapter backs and light shields, and a new clamping back to allow the use of clamp-on adapter rings from the ARRI MB-20 system.

845-353-1400; www.arri.com
BOOTH: C10017

LIGHT PEDESTAL
Vinten Osprey Light

A 40kg (88lbs) capacity pedestal; improves wheel/floor interface with crab-only steering for creative shot development; has the ability to be broken down into skid and column modules; is easy to transport; can be pressurized in any location with its manual integral pumping system and also comes with standard four-bolt interface, allowing simple attachment of any flat base head or bowl adapter for spherical based heads.

954-572-4344; www.vinten.com
BOOTH: C5923

STATISTICAL MULTIPLEXING SYSTEM
Modulus Video StatmuxIP

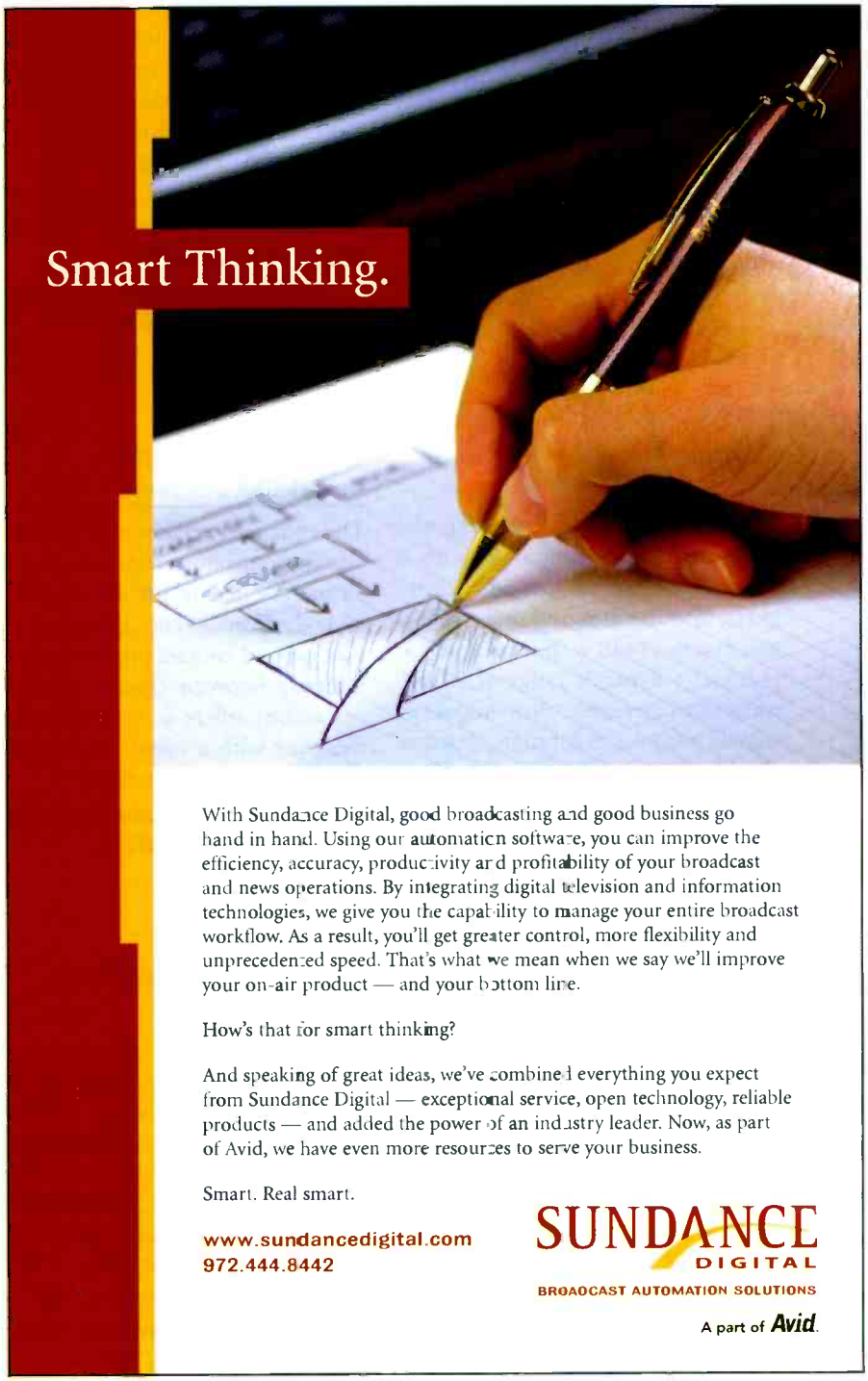
Designed for the ME2000 family of HD/SD MPEG-4 AVC video encoders from Modulus Video; supports both HD and SD operations; delivers efficiency improvements of up to 40 percent for multiprogram transport stream applications such as direct-to-home satellite distribution.

408-245-2150; www.modulusvideo.com
BOOTH: SU14909

CONTROL SYSTEM
MicroFirst Engineering Near Line Storage (NLS)

Automates the hierarchical storage and retrieval process of video clips existing on nearline networked attached storage (NAS) disk arrays and on professional online video file servers; automatically decides what media needs to be stored on the NAS, as well as when media should be copied from the NAS to a video server in time for playout based on the digital automation system program schedules.

201-651-9300; www.microfirst.com
BOOTH: SU727



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MULTIFORMAT VIDEO ROUTER
Network Electronics SL-HD3232

Compact 32 x 32 video router supports SD-SDI and HD-SDI; offers reclocking on all standard video rates; includes support for dual-link 3G for 1080p50 and 1080p60 HDTV formats; supports 1.5Gb/s HD formats, including 720p50, 720p60, 1080i50 and 1080i60.

800-420-5909
www.network-electronics.com
BOOTH: SU10605

STUDIO CONDENSER MICROPHONE
Neumann TLM 49

Mic has a linear frequency response up to the upper midrange, with a presence boost up to 3dB above 2kHz; operates at sound pressure levels of up to 114dB without distortion; provides a dynamic range of 102dB; transmits extremely low-frequency signals without coloration; features elastic suspension EA 3 and a rubber shock-mounted capsule.

860-434-5220; www.neumannusa.com
BOOTH: N7117

STREAMING VIDEO CARD
Barco

Supports multiple vendor and compression standards; allows digital streaming video simultaneously within the controller; nonstandard compression techniques and other stream transport can be ported to the platform; may be used alongside Barco's other interface cards, allowing for simultaneous deployment of multiple video technologies.

678-475-8000; www.barco.com
BOOTH: SL4320

HANDHELD WIRELESS RECORDING SYSTEMS
Zaxcom TRX800 and ZFR800

The ZFR800 handheld wireless recorder and TRX800 handheld wireless microphone with internal recording provide internal recording capabilities for applications where sound quality and mobility are equally important; the mic uses digital modulation and produces a time code-referenced recording that serves as a back-up; offer audio quality equivalent to AES audio on a hard-wired cable.

973-835-5000; www.zaxcom.com
BOOTH: N9017

CHASSIS CONNECTORS
Neutrik USA DLX series

The enhanced version of the DL XLR chassis connectors features compact, all-metal housing for RF protection and electromagnetic shielding; duplex ground contact provides contact integrity between chassis and cable connector; offers a male connector designed with a metal retention bar for improved pull-out force.

732-901-9488; www.neutrikusa.com
BOOTH: N8526

VIDEO-DRIVEN SOUNDTRACK COMPOSER
Abaltat Muse

Exploits artificial intelligence by measuring different selected elements in a moving picture and composing music to them; uses a combination of picture windows, timelines and keyframes to compose music; plays composed music out using a MIDI sampler and virtual instruments.

+353 91 504 688; www.abaltat.com
BOOTH: SL7424

TAPELESS RECORDING MEDIA
Maxell Professional Disc for XDCAM

Optical media for XDCAM high-definition video systems; is designed for professional video and broadcast direct-to-disc tapeless recording; provides 23.3GB of high-capacity storage, fast transfer rates and a high-precision polycarbonate plastic cartridge to protect against dust, scratches and fingerprints; offers 122 minutes of record and playback time in the MPEG HD LP mode, more than 65 minutes in the MPEG HD HQ mode, about 45 minutes at 50Mb/s in the MPEG IMX mode, and up to 85 minutes in the DVCAM mode.

800-533-2836; www.maxell.com
BOOTH: C7736

MEDIA SERVICES
Ascent Media

Provides integrated outsourcing solutions for the technical and creative requirements of its clients, from content creation and other post-production services to media management and transmission of the final product to broadcast TV stations, cable system headends, and other destination and distribution points.

310-434-7000; www.ascentmedia.com
BOOTH: SU6811

MEDIA ANALYSIS SERVER
Harris Videotek QuiC

Now features data-analysis parameters and file-correction tools; enables customers to analyze files during ingest, correct certain file problems on-the-fly with no operator intervention; is designed to improve workflow efficiency.

513-459-3400
www.broadcast.harris.com
BOOTHS: N3100, N2502

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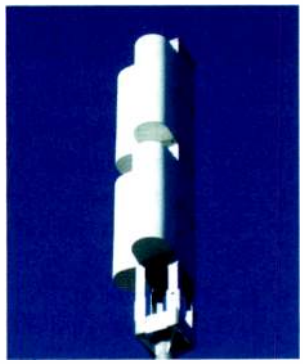
CIRCULARLY POLARIZED ANTENNA

Dielectric Broadband CP Panel Antenna

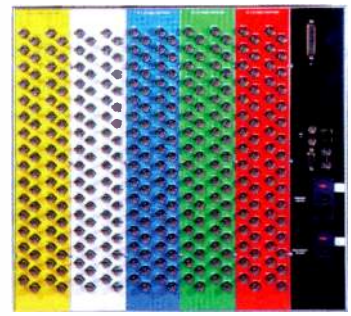


A high-power, circularly polarized UHF MobileMedia antenna; has up to a 16kW average input power rating; covers the entire lower 700MHz band; uses multilayer parasitic patch technology to transmit a high-power circularly polarized signal; features a low windload and VSWR of less than 1.1:1.

800-341-9678; www.dielectric.com
BOOTHS: C1907, N7421

440MHZ ROUTING SWITCHER

Sierra Video Systems Sierra Pro XL



Routing switcher features IP connectivity for control via a standard TCP/IP socket connection; offers five-channel video measuring 450MHz at -3dB in matrix sizes from 8 x 4 to 32 x 32; frames can be five-channel RGB-HV, four-channel RGBS, three-channel RGB/YUV, two-channel S-video (Y/C) systems or a custom video-only configuration.

530-478-1000; www.sierravideo.com
BOOTH: SL6105

MOBILE WORKSTATION

NextComputing NextDimension Evo HD

Enables on-site mobile video capture, editing and streaming; features an integrated high-resolution 1920 x 1200 display, four PCI/PCIe slots for video capture and playback and graphics cards, hot-swappable hard drives to 320GB, up to 2.3TB of storage, dual-core AMD Opteron processors and up to 16GB of RAM.

603-886-3874; www.nextcomputing.com
BOOTH: TBA

Legendary Teranex Processing

VC100:Frame Synchronizer & Format Converter

Exceptional Up/Down/Cross Conversion & Noise Reduction
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Legendary Teranex processing in a space saving one rack unit frame.

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Come See Our Latest Innovations at NAB North Hall, N2531

DATA ENCODER
Norpak TES9 HD-SDI VANC

Adds multilanguage captioning support and automatic data module configuration; enables the insertion of two languages from a single caption server or from multiple caption servers; inserts audio metadata, a broadcast flag, active format descriptors and captions; adapts its data encoding to the input video type automatically.

613-592-4164; www.norpak.ca
BOOTH: C2230

DUB STATION
NVerzion NGest

Dubs content frame-accurately from one media form to another, including between tape and digital file formats; users assign the source, destination, encoding rates and other clip-specific values into the system; the system then automatically creates the digital video files.

801-293-8420; www.nverzion.com
BOOTH: SU4228

ROUTER CONTROL SYSTEM
NVISION NV9640

The X-Y/multidestination control panel provides extensive control and status display capabilities in a 2RU package that is less than 2.5in deep; features next-generation LCD buttons capable of showing three lines of display with up to eight character mnemonics on each line; flexible panel configuration allows the user to choose from many button colors.

530-265-1119; www.nvision.tv
BOOTH: SU9605

DEDICATED VCS
NVIDIA Quadro Plex Visual Computing Systems (VCS)

System is available as a desktop or dense 3RU configuration; can power multiple streams of 4K high-definition video, 3-D styling, design and rendering, and visual simulation applications.

408-486-2000; www.nvidia.com
BOOTH: SL325

IP FILE TRANSFER SYSTEM
Nucomm Messenger

Supports native file transfer for ENG applications; supports both raw and edited news footage, while also making it possible to transmit live video and file transfers simultaneously over an ENG truck line.

908-852-3700; www.nucomm.com
BOOTH: C2529

NEWSROOM COMPUTER SYSTEM
OCTOPUS Newsroom OCTOPUS5

All incoming information, such as wires, Web feeds, media, faxes and e-mails, is organized and ready to be used for last-second news coverage; offers a global search engine, keyboard shortcuts for frequently used actions and saved screen layout recall; features a new service for transferring stories and whole rundowns, allowing channels to share their assets between offices around the world.

+420 221 181 511
www.octopus-news.com
BOOTH: N413

LIGHTING FIXTURES
Brightline CycSeries

Saturate cyclorama walls as wide as 16ft with even color values; feature a lamp life to 10,000 hours; are dimmable to 1 percent through standard protocols, including DMX-512 and DALI; offered in six- or 12-lamp models that use 28W or 54W RGB, single-phosphor T5 lamps with color sleeves; include optional automated 48- or 144-channel, programmable DXG playback controller.

412-206-0106; www.brightlines.com
BOOTH: SU2422

MULTIFORMAT BROADCAST MONITORING
OmniTek TQ

Designed for a broadcaster's video, audio and metadata needs; contains high-res waveform and vectorscope displays, full audio monitoring capabilities, audio and video delay measurements, error logging and MPEG macroblock detection; features touchscreen controls for simple, flexible operational control.

+44 118 988 6226; www.omnitek.tv
BOOTH: SL9705

HD VIDEO PATCHBAY
Switchcraft MVP series

Features two rows of 34 jacks (rated to 3GHz and for 30,000 mate/unmate cycles) in a 1RU patch panel; options include normalled or non-normalled with 75Ω termination or non-termination.

773-792-2700; www.switchcraft.com
BOOTH: C7507

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MXF TOOLKIT
OpenCube Technologies MXFTk Toolbox

Version 2.0 includes new features that give users the ability to rapidly handle the MXF format as defined by SMPTE; these functions include the management of MXF files with external references, the support of MXF D-Cinema formats based on MXF DCP creation, and guaranteed interoperability with most camcorders, NLEs and broadcast servers.

+33 561 285 606; www.opencubetech.com
BOOTH: SU8530

EDITING SETUP
TV Magic i/oEdit

Base configuration includes two Apple Mac Pros with Final Cut Studio installed; is available with shared storage option using Apple's Fibre Channel solution or the latest GigE technology; integrates with other modules of the company's i/o product line using a TCP/IP connection.

858-650-3155; www.tvmagic.tv
BOOTH: N406

KVM EXTENDER
Opticomm RGB-4000 series

A multifunctional KVM extender offering RGB H/V (VGA), stereo audio, keyboard and mouse, and RS-232 serial data, all over one fiber; ideal for high-resolution video applications; simplifies cabling infrastructures and provides LED indication for optical link status, signal status and power monitoring; features multimode or single-mode operation; reduces fiber count from five to one fiber.

858-450-0143 ext. 242; www.opticomm.com
BOOTH: N2931

TRIAX CONNECTOR
Fischer Connectors 1053

A fiber-optic HDTV connector; combines the technology of Fischer broadcast triax connectors with the technology of Corning UniCam fiber-optic contacts; is simple, convenient and economical for assembling HDTV camera connectors in the field in only 30 minutes.

800-551-0121; www.fischerconnectors.com
BOOTH: N409

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- Available in:
  - BNCFPSL6B - RG6
  - BNCFPSLC59B - RG59
  - BNCFPSLCB - Mini RG59

Specifications

Electrical	Physical
Impedance: 75±1.5Ω	Body Material: Brass, Dark Nickel Plating
Return Loss: -26dB max at 3GHz	Contact Material: Gold-Plated Beryllium Copper
VSWR: 1.1@ 3GHz	Cable Retention Force: 40 lbs. min.
Voltage Rating: 500 Vrms	Center Pin Retention: 150 grams, min.
Frequency Range: 0-4.5GHz	

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1-800-JUMPERS www.whitesandsengineering.com

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HD/SD VIRTUAL SET SYSTEM
Orad ProSet

An HD/SD virtual set system; relies on Orad's HDVG video graphics rendering platform, which allows complex virtual sets to run in real time; up to eight full scene anti-aliasing samples and other sets of graphic features ensure photo-realistic results; integrates seamlessly with all of Orad's tracking systems; features seamless integration between virtual set and on-air graphics both controlled from the same application, up to six full-resolution HD video inputs and up to 12 SD inputs.

212-931-6723; www.orad.tv
BOOTH: SU3614

3-CCD HD CAMERA
Panasonic AK-HC3500

A 2/3in 2.2-megapixel 3-CCD camera designed for studio and electronic field production usage; the 9.9lb camera features an advanced single-channel transfer system and spatial offset processing for reduced aliasing and higher HD resolution (1100 horizontal lines); offers pristine HD images in 1080/59.94i and 1080/50i signals; features a newly developed 38-bit digital signal processor (DSP), 14-bit A/D converter and 12-axis color matrix to ensure exceptional image quality.

201-392-4127
www.panasonic.com/broadcast
BOOTH: C3613

JIB ADAPTER
Panther Broadcast Foxy Jib

Euro-Foxy adapter allows any existing Foxy crane to be used like a jib arm; for use with Panther dollies as a base, such as the EvoPlus, Evolution, Classic or Super Panther; overall maximum length is 4m (13ft); can carry as much as 65kg (143lbs).

+49 89 613 900 33; www.panther.tv
BOOTH: C7328

GLOBAL EXTENSION
Pathfire On Demand

A new extension for the Pathfire Digital Media Gateway (DMG); allows content to reach a global audience and remain available for as long as the content is needed; combines the Pathfire DMG with online archives, allowing users to request content on demand and have it sent directly to an existing Pathfire system; for non-Pathfire DMG users, provides access to a multitude of file formats suitable for use by any media outlet.

770-619-0801; www.pathfire.com
BOOTH: SU7405

TRANSCEIVER SYSTEM
Telecast Fiber Systems Telethon

Combines the functionality of Telecast's Python II series of transmitters and receivers with the CWDM wavelength functionality of the company's Teleport system; accepts both optical and electrical digital signals, ranging from 19.4Mb/s up to 1.5Gb/s uncompressed HD/SDI; multiplexes the signals for transmission in either or both directions, with up to 16 optical signals on one fiber.

508-754-4858
www.www.telecast-fiber.com
BOOTH: C4937

DIGITAL NEWSROOM SYSTEM
JustEdit vsnnews

News management system allows text and video to be edited in the same application; integrates the rundown planning and assigning of resources, text editing, material ingest, storage and cataloging, archive integration, and shared editing of video and audio with voice-over from journalist workstations, graphics in real time and the automatic publication of news on the Web; integrates with most NLEs.

+34 93 734 99 70; www.vsn-tv.com
BOOTH: N717

TRANSPORT CASE
Pelican Products 1630

Features nearly 8250 cubic inches of storage space with two double-hand side grips and dual sets of rugged polyurethane wheels with stainless steel ball bearings and nylon hubs and an extension handle; includes a lid equipped with a polymer O-ring for dust-proof and waterproof seal, an automatic pressure equalization valve that keeps moisture out and prevents vacuum lock and stainless steel reinforced padlock protectors.

800-473-5422; www.pelican.com
BOOTH: C9125

CELLULAR DIVERSITY RECEIVE HUB
Nucomm

Hub is capable of receiving up to four ASI receiver inputs simultaneously; auto-selects the best ASI stream at the packet level and passes that to the built-in all-format low-latency MPEG-2 decoder; can be configured to receive two separate video feeds, making it ideal for multifeed news operations; also offers built-in spectrum monitoring of all receive antenna systems, any of which can be viewed at master control over an Ethernet or RS-232 connection.

908-852-3700; www.nucomm.com
BOOTH: C2529

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MAM SYSTEM
Pharos Communications Mediator

Features MPEG-4-based video browsing, automated robotic ingest and a virtual VTR; enhances stored media by the addition of components, such as extra audio files to support multiple language soundtracks; allows generation of specific management reports, such as ingest lists, picklists for transmission, transferred items or missing material.

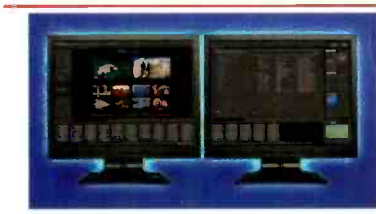
+44 118 950 2323
www.pharos-comms.com
BOOTH: SU8905

DUAL-CHANNEL DIGITAL DOWNCONVERTER
LYNX Technik D VD 5602/5604

Offers two fully independent downconversion channels on one card; accommodates up to 20 downconversion channels in one 2RU frame; includes three mixed modes of operation: dual-channel HDTV/SDTV reclocking distribution amplifier, dual-channel downconversion plus reclocking distribution amplifier and dual-channel multiformat digital video test generator.

611-251-8600; www.lynx-technik.com
BOOTH: SU15209

REMOTE STATION MONITORING
Miranda iControl RSM



Enables a network operations center to monitor multiple regional stations using rich visual and acoustic monitoring; uses Kaleido-Alto-HD multiimage processors at each remote station for signal monitoring and probing, with the signals streamed back using Allegro encoders as full-motion video and audible audio to the desktop monitoring station; can be expanded to all monitoring of up to 16 locations.

514-333-1772; www.miranda.com
BOOTH: SU5220

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TEST STREAM GENERATOR
Pixelmetrix DVStorIP-Gen

Features a Web-based GUI control; generates up to seven unique transport streams simultaneously and up to 900Mb/s of IPTV traffic; supports single-program TS and multiple-program TS generation as well as both UDP and RTP streaming; streams TS at the original bit rate based on its PCR time stamp or at a user-defined bit rate.

954-472-5445; www.pixelmetrix.com
BOOTH: SU12109

PORTABLE JIB-ARM
Polecam

Polecam is a single-operator, lightweight, portable jib-arm and broadcast system; features a 5ft to 20ft reach; weighs a maximum of 44lbs; can be rigged in 10 minutes and de-rigged in five minutes with no setup tools; mounts on a standard lightweight tripod/dolly or on the supplied body harness for complete mobility.

973-812-3858; www.polecam.com
BOOTH: TBA

HIGH-RES DISPLAYS
Zandar Technologies Predator HD MultiViewers

HD4, HD8, HD12 and HD16 offer HD images, driving high-resolution displays up to 1080p with auto-detect of SDI and HD-SDI signals; include audio and video monitoring, UMD and tallies, clock display, and LAN control; offer control options, such as the Z-Configurator layout editing software, on-screen display, GPI and ZRP remote pane; can output dual HD across two displays at various 50Hz resolutions using the ZdHT Zandar dual-head display feature.

+353 1 450 0901; www.zandar.com
BOOTH: SU2729

VIDEO ARCHIVEAL
Primera Technology Bravo SE Disc Publisher

Automated duplication and printing systems for CDs, DVDs and Blu-ray Disc formats; uses a robotic arm to burn the disc using the built-in Pioneer DVR-111 DVD±R/CD-R recorder; prints full-color, photo-quality images directly onto the surface of the disc; is compatable with Mac OS X and Windows 2000/XP/Vista.

763-475-6676; www.primera.com
BOOTH: SL12405

UHF BROADBAND PANEL ANTENNA
Propagation Systems PSIUP1266C-46

Antennas are stacked in a customizable array to fulfill a customer's pattern requirement; models include directional and nondirectional, using panels and slots for television and panels; features include pattern optimization, customization, multistation antennas, filters and combiners.

814-472-5540; www.psibroadcast.com
BOOTH: C1920

ROUTER
Pro-Bel Cygnus

Compact, 1080p 3Gb/s native router; offers up to 576 x 576 routing in 26RU housing (including PSUs) with industry standard BNC connectors; a 288 x 576 in 18RU is also available; features redundant crosspoints and dual-redundant power supplies and controllers, as well as four reference inputs for multistandard operation.

631-549-5159; www.pro-bel.com
BOOTH: SU8511

ACS HEADSET
Production Intercom DMH 948 ACS

Features durability, lightweight comfort, concealed wiring, adjustable head bow and trimness of design; the ear speakers have pleasing frequency response; the muffs are deep and covered with a plush material for superior comfort; includes a supply of washable or disposable covers.

800-562-5872; www.beltpack.com
BOOTH: N2235

ENCODING PLATFORM
Scopus UE-9410

The second-generation H.264 encoding platform features improved compression capabilities, enhanced picture quality, and DVB-S/S2 and IP transmission schemes; is part of Scopus' UE-9000 universal encoder series.

609-987-8090; www.scopus.net
BOOTH: SU5408

MATTE BOX
ProSource/BMI MB-450

Designed for HD and film cameras; can accommodate lenses up to 144mm; front hood features a rigid compartment that can house a matte, a fourth filter frame or an optional tilt-shift tray; a 138mm fifth filter, is mounted inside an adapter, which attaches to the rear of the system; patented eyebrows can be operated and locked from the outside of the carbon fiber hood.

203-335-2000; www.prosourcebmi.com
BOOTH: C9735

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AUTOLOADER
Quantum SuperLoader 3A

Holds up to 16 tape cartridges; provides up to 4.8TB of removable networked storage in a 2RU chassis; each 300GB cartridge, which can hold more than six hours of 100Mb/s HD content, is accessible by navigating the file directories with any browser or FTP tool of choice; MXF-aware capabilities permit video tape-like access to subclips by timecode.

719-536-5263; www.quantum.com
BOOTH: SU13809

HEADSET
Riedel AIR

The ultra lightweight, single-ear headset is designed for digital intercom applications; the Coolmax exchangeable ear cushions provide comfort for long hours; the rotatable gooseneck allows the microphone to be worn on either the left or right side.

818-563-4100; www.riedel.net
BOOTH: C9428

WIRELESS AUDIO SYSTEM
Beyerdynamic Opus 900

Offers a wide variety of transmitters, including the DM 960 S, DM 960 B and the DM 969 S dynamic transmitters, the EM 981 S and the CM 930 B condenser transmitters, and the TS 900 M and TS 900 C pocket transmitters with rechargeable contacts — which are also outfitted with an ACT infrared interface for frequency setting; offers three receivers with 99 preprogrammed frequencies, including the NE 900 S single channel, NE 900 D dual channel and the NE 900 Q quad channel.

239-283-7880; www.beyerdynamic.com
BOOTH: N9014

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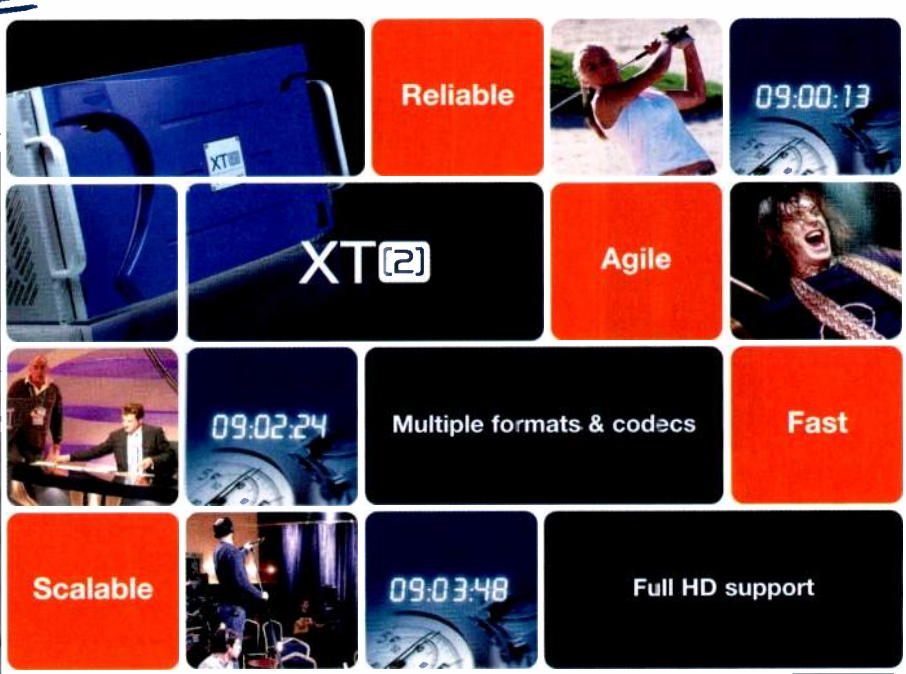

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A-TO-D/FRAME SYNC INPUT CONVERSION CARD

QuStream PESA Cheetah I/O Conversion Card

Converts analog NTSC/PAL to SDI at the input to extend the analog gear life; corrects and locks all signals coming into the router on the input card when the frame synchronizer option is added.

631-912-1301; www.qustream.com
BOOTH: N3418

ASPECT RATIO CONVERTERS

Evertz 7710ARC and 7710ARC-F

Assist in transitioning SD widescreen and SD/HD facilities; with the 7710ARC, users can take an SD source in and convert it to a properly configured widescreen; with the 7710ARC-F, users can add a fill input for side-panel keying; both products are modular, support WSS and VI, and can be configured through SNMP.

905-335-3700; www.evertz.com
BOOTH: N1713

L-BAND PANEL ANTENNA

Radio Frequency Systems

Designed for digital video broadcasting-handheld and digital audio broadcasting applications; is vertically polarized; supports applications across the entire broadcast L-Band — 1452MHz to 1675 MHz; features a high-power handling capability (up to 750W); is available in 65- or 90-degree horizontal beamwidth with multiple mounting arrangements.

877-737-9675; www.rfsworld.com
BOOTH: SU13809

SATELLITE MODEM BOARD

Radyne DMD1050

Operates in the 950MHz to 2050MHz L-band range; supports data rates from 2.4Kb/s to 20Mb/s in single-bit steps, as well as BPSK, QPSK, OQPSK, 8PSK and 16QAM operation; includes input connectors for BUC and LNB voltages, built-in MIL 188-114A and Ethernet data interfaces and optional DVB to EN301-210 and EN300-421.

602-437-9620; www.radyne.net
BOOTH: SU5529

TRANSCODING APPLICATIONS

Rhozet Carbon Coder and Carbon Server

New versions of the Carbon line incorporate several new features, including multi-machine rendering for faster performance and new device support for Panasonic P2, Sony XDCAM and Avid MediaStream; these formats are supported for both import and export and will manage SD and HD video.

408-246-3338; www.rhozet.com
BOOTH: SL3716

ARCHIVAL AND STORAGE SYSTEMS INTEGRATION

Crispin ArchiveManager

The archival and clip retrieval tool now integrates with the Omneon MediaGrid active storage system; provides a view of video server and archive content through an integrated database; allows for quick drag-and-drop asset transfers.

919-845-7744; www.crispincorp.com
BOOTH: SU6205

OPERATIONS MANAGEMENT SOLUTION

ScheduALL

New advanced tool set manages and integrates media and asset management systems with intradepartmental scheduling applications.

954-334-5406; www.scheduall.com
BOOTH: SL2308

DVB-ASI TO IP CONVERTER

DVEO ASI2IP

Converts DVB-ASI to IP, allowing users to broadcast MPEG-2 transport streams over dedicated IP networks; accepts an incoming single or multiprogram DVB-ASI MPEG-2 stream, converts the stream into UDP IP packets and sends it out over a 100BASE-T Ethernet connection; supports IP unicast and multicast.

858-613-1818; www.dveo.com
BOOTH: SU5026

TAPE CLEANER

SAMMA Systems Cleaner

Robust tape cleaner-inspector system is designed to delicately clean older master tapes quickly; reports cleaning problems as metadata via USB; the cleaner contains several types of optional sensors to detect many types of tape problems, from stuck hubs, to broken leader, to stretched or folded tape.

212-738-9417; www.sammasystems.com
BOOTH: SU7130

UMD/TALLY

Image Video IMD-HD

Features HD/SDI input, HD/SDI 525/625/output formats, HD/SDI DVI ouput, embedded audio demux/metering for HD/SDI sources, in video keying of UMD/tally data and audio meters, and user-adjustable transparency; is fully compatible with Image Video tally controllers.

416-750-8872; www.imagevideo.com
BOOTH: SU3305

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HD/SD VIDEO EDITOR
Matrox Electronic Systems Axio

Integrates with Adobe Production Studio; features Windows Vista support and real-time HDV 1080p editing at 23.98fps, 25fps and 29.97fps for the Sony HVR-V1U and in 24f and 30f mode for the Canon XLH1.

514-822-6364; www.matrox.com/video
BOOTH: SL2015

MIC HEAD
Sennheiser MD 5235

Designed for Sennheiser's SKM 5200 RF wireless microphone; is rugged; cuts through high on-stage levels; can be used with all handheld transmitters of Sennheiser's 5000 series; combines powerful sound with exceptional feedback rejection.

860-434-9190; www.sennheiserusa.com
BOOTH: N7117

UHF STEREO TRANSMITTER
Screen Service SCT 100U/S 10W

Transmitter has a modular construction, conventional cooling, and AGC and ALC controls; features three-slope linearity pre-correction; can program the local oscillator from the front panel; has a preset for precision OFFSET; offers a soft-start circuit, low power consumption, a SAW vestigial filter and Sync restore.

+39 030 3582225; www.screen.it
BOOTH: C1624

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CABLES
Comprehensive XHD VGA/UXGA cables

Provide HD performance; the X3V VGA/UXGA cables use an oxygen-free copper center conductor construction to ensure low attenuation and maximum signal transfer — even over long distances; heavy-duty HD15 connectors with 24k gold precision machined contacts provide maximum conductivity and reduce distortion caused by inferior connectors; multiple individual high-resolution shielded coax cables transmit video signals to deliver bright and vibrant images on HD plasma and LCD monitors.

800-526-0242
www.comprehensiveinc.com
BOOTH: SL2520

SERVER CODEC
SeaChange MediaClient 6000

Codec is built for SD; can establish an HD-powered transmission server for an economical migration path to HD; is optimized to harness the power of Intel's dual-core Xeon 5100 series processors to drive bit rates up to 80Mb/s with MPEG-2 4:2:2 Long GOP; consumes half the bandwidth typically required by solutions that use Intra-frame coding.

978-897-0100; www.schange.com
BOOTH: SU10812

AVC HD DECODER
Scientific Atlanta D9854

Supports PowerVu and multiple third-party conditional-access systems; for IP-centric headends, delivers MPEGoIP capabilities to support delivery of IP video streams; DVB-S2 modulation functions help expand the content capacity of existing satellite bandwidth by up to 30 percent.

800-433-6222
www.scientificatlanta.com
BOOTH: SU9613

POV HD CAMERA
Iconix Video HD-RH1

High-definition POV 3-CCD remote camera system features a 1/3in progressive 16:9 image sensor, backed by a 1/3in 3-CCD prism system for optics, using 14-bit quantization at the A/D conversion and processing steps; prism leverages an asynchronous signal processing architecture that runs the CCD imagers at a different clock rate from the output signal; captures and outputs video in NTSC and PAL formats in all HD resolutions, while supporting frame rates of 24fps, 25fps, 30fps, 50fps and 60fps.

800-783-1080; www.iconixvideo.com
BOOTH: SU15512

STORAGE CONTROLLER
DataDirect Network S2A8500

Designed for large-scale video broadcast, post-production and film DI; delivers 1.5GB/s of sustained throughput, with scalability, reliability and management capabilities.

800-837-2298; www.datadirectnet.com
BOOTH: SU5605

HD MONITOR
Marshall Electronics TFT-MegaPixel

Provides high-pixel density for 10.4in to 3.5in displays in one-, two-, three- and four-screen configurations; newly developed proprietary technology delivers a completely digital image process onto each screen; features improvements in brightness, contrast ratio and viewing angles; configurations are available with HD-SDI, SDI, DVI, component HD/SD and composite video inputs.

800-800-6608; www.lcdracks.com
BOOTH: SU1926

ON-CAMERA UHF WIRELESS SYSTEM
Azden 300LT

Consists of the 300UPR receiver and 30BT bodypack transmitter; is designed for small DV cameras; provides a choice of 240 UHF frequencies in the 794MHz to 806MHz band for interference-free performance; features a mini-jack balanced mic-level output, a headphone monitor output and an LCD display that provides information such as frequency selected, reception quality and battery life.

516-328-7500; www.azdencorp.com
BOOTH: N4826

Color indicates advertisers

TEST SECTION
Jampro JTS

Allows access to either the antenna or the coax system without a tuned elbow complex; includes fixed bullets for input/output, one O-ring, hardware set, pass-through connection and test turn; available for low-band TV, FM, high-band TV and UHF TV.

916-383-1177; www.jampro.com
BOOTH: C2515

CAMERA MOTION CONTROL SERIES
Shotoku CMC-400

Allows pan-and-tilt heads to be integrated with the most current Shotoku systems, eliminating the compatibility and support issues commonly associated with legacy equipment maintenance; is designed to be a cost-effective upgrade; interfaces with other manufacturers' pan and tilt heads by directly accessing the existing motor and potentiometer connectors.

310-782-8491; www.shotoku.tv
BOOTH: C7432

ANALOG ROUTING SWITCHER
Sierra Video Systems Lassen XL

Improves on the previous models of Lassen analog switchers with the addition of an IP port for Ethernet connectivity and improved video boards with increased bandwidth; improved XL video boards allow for increased bandwidth to 300MHz at -3dB; is available in sizes from 12 x 4 to 32 x 32, with redundant power supply optional in 32 x 16 and 32 x 32 models.

530-478-1000; www.sierravideo.com
BOOTH: SL6105

VIDEO STORAGE
SGL FlashNet 6

Designed to provide a scalable system with unlimited storage capacity, redundancy and resilience; the clustered architecture of the system is fully scalable to serve the smallest call-letter station or the largest of global entertainment companies; is the archive provider to Avid Technology's Interplay nonlinear workflow engine.

+44 1635 44991; www.sgluk.com
BOOTHS: SU8607, SL1413E

DIGITAL VIDEO ROUTER
NVISION NV8288

Ideal for mobile production trucks or facilities, the router incorporates NVISION's HD-SDI super-wideband signal transport technology; delivers density with exceptional signal quality; can be future-proofed with 3Gb/s capability; HD-SDI and SDI composite monitor outputs offer complete format flexibility; a 288 x 576 router in 10RU and 12in of depth in a standard EIA 19in rack; 576 x 576 requires 20RU.

530-265-1119; www.nvision.tv
BOOTH: SU9605

SCHEDULING AND MANAGEMENT SYSTEM
SintecMedia OnAir

Manages airtime sales and traffic operations, as well as content acquisition, broadcast rights, long-term and detailed schedule planning, and promotion planning; new features include an automated sales proposal generation tool that makes better use of inventory, automated brand allocation functionality and virtual inventory.

866-746-8321; www.sintecmedia.com
BOOTH: N2535

AUTOMATED CONTENT REPURPOSING WORKSTATION
Snell & Wilcox iCR

Enables users to create high-quality digital masters of their content and repurpose them for distribution on multiple, revenue-generating platforms; integrates image conditioning, content mastering, quality control and content repurposing functionality; features concurrent processing capabilities that eliminate the need for separate encoding and transcoding, and performs these functions as part of a single workflow.

212-481-2416; www.snellwilcox.com
BOOTH: SU4220

MPEG OVER IP GENERATOR
Sencore MIP 1664

Plays out hundreds of media streams simultaneously from the system RAM or directly from the system hard drives; features seamless looping, easy stream duplication, network stressing capabilities to ensure system QoS, and timestamp capturing; applications include verifying VOD server performance, monitoring IPTV and digital cable QoS, and network stress .

800-736-2673; www.sencore.com
BOOTH: C1646, N1113

OEM MODULATOR
TeamCast MFL-1000/2000

Features full compliance with FLO technology, efficient TS input management for redundancy, high modulation performance (MER, RF stability, shoulder level and low phase noise), nonlinear digital precorrection, three compact sizes for easy OEM integration and a single 12V voltage supply.

312-263-0033; www.teamcast.com
BOOTH: C2639

ON-AIR SWITCHER
Sonifex RB-OA3

The 1RU unity gain on-air switcher is capable of switching four stereo pairs between three studios; each studio can control the transmission path, two peripheral paths for equipment such as a codec or hybrid, and a last studio to offer bus; a sustain mode also allows for a sustaining system, such as a PC automation system, to control the broadcast.

+44 1933 650700; www.sonifex.co.uk
BOOTH: N4928

DIGITAL CONSOLE UPDATE
Soundcraft Vi6

A new processing card brings Lexicon effects and BSS audio equalization to the console; card uses eight custom Lexicon DSP engines to provide eight mono or stereo effects units, which may be patched to aux bus outputs and then back into a channel input, or inserted into input or output channels; card provides a 30-band graphic EQ on every output (35 outputs), controlled by the first 30 channel faders once the output graphic EQ icon is pressed.

818-920-3212; www.soundcraft.com
BOOTH: N7715

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CAMERA
Sony F23 CineAlta

Uses three 2.2Mb 2/3in progressive CCDs and a 14-bit A/D converter; supports 1080/23.98P, 24P, 25P, 29.97P, 50P, 59.94P, 50i and 59.94i formats; captures and records variable speed images from 1P to 60P (1P to 30fps at 4:4:4 and 1P to 60fps at 4:2:2) at 1920 x 1080 HD resolution.

800-686-7669
www.sony.com/professional
BOOTH: SU906

HDTV CAMERAS
Hitachi SK series

Employ 2/3in CCD imagers with full raster HDTV resolutions of 1920 x 1080 or 1280 x 720; feature 24, 25 and 30 progressive frame capture modes and improvements in sensitivity (F11 at 2000lx), signal-to-noise (greater than 56dB HDTV) and resolution (greater than 1000TVL in 1080i, greater than 700TVL in 720p); the SK-3200 model features 10 optical filters on two turrets and is designed for use with large box lenses; the SK-3020P is a lower cost version with four optical filters on one turret; the SK-32B comes without intercom, program audio, dedicated viewfinder and analog video output options.

516-921-7200; www.hitachikokusai.us
BOOTH: C5017

MICROPHONE SYSTEM
Soundfield DSF-2

Provides both the surround and stereo soundscape at large-scale outside broadcast events; the multichannel audio it generates from a single point source is completely phase coherent; this enables the broadcaster to collapse the surround to stereo or mono for TV feeds without loss of information, frequency imbalance or any other phase problems associated with spaced microphones or multi-capsule dummy head arrangements.

+44 1924 201089; www.soundfield.com
BOOTH: N9421

BROADBAND DIRECTIONAL COUPLERS
SPINNER

Cover attenuation ranges of 3dB, 6dB, 10dB, 20dB and 30dB; feature water/corrosion resistance, stable passive intermodulation values of less than -160dBc, a power rating of up to 1000W and a three-stage design that ensures flat attenuation behavior from 800MHz to 2500MHz; applications include mobile communication base stations.

+49 891 2601 0; www.spinner.de
BOOTH: C8828A

FIELD MIXER
JK Audio RemoteMix 4

The four-channel field mixer and headphone amplifier features a phone line hybrid and keypad, a PBX handset interface, and a 2.5mm cell phone interface; is ideal for sports remotes; can be used as a phone line hybrid, calling into the user's studio talk show hybrid; can also be used as a front end mixer for the user's POTS, ISDN or IP codec.

815-786-2929; www.jkaudio.com
BOOTH: N9426

PLAYLIST DELIVERY
NVerzion NControl

Playlist software directs digital feeds by serving them to air in a controlled sequential order of events; automatically rolls through video server or VTR content and produces a continuous stream of aired video; allows users to control audio playback devices for voice-overs, downstream keyers, logo inserters and more from within the playlist.

801-293-8420; www.nverzion.com
BOOTH: SU4228

RACK
APWMayville Stantron Presentation Rack

Ideal for pro AV facilities and also useful as a broadcast rack in smaller facilities and backup applications; available in two models; both models are fully customizable to fit the requirements of integrators and end users; front- and rear-door access simplifies equipment reconfiguration and routine system care; features vertical lacing bars for efficient cable management.

800-558-7297; www.stantronracks.com
BOOTH: SU7220

BROADBAND POWER SPLITTERS
SPINNER

Feature a frequency range of 330MHz to 2700MHz, an even split, a flat frequency response, a low VSWR and stable passive intermodulation values of less than -160dBc; split up to 450W and resist voltage spikes up to 1800V; include integrated lightning protection on the antenna side and DC break on the input side; are available for splitting ratios of 1:2, 1:3 and 1:4.

+49 891 2601 0; www.spinner.de
BOOTH: C8828A

OPEN STANDARD MODULATOR
Radyne DM240XR

Includes DVB-S2 CM, VCM and ACM mode support, and DVB-S and DVB-S2 compliancy; enables data rates up to 250Mb/s; features a Pro-MPEG GigE interface; supports ASI, DVB Parallel, HSSI and G.703.

602-437-9620; www.radyne.net
BOOTH: SU5529

SATELLITE MULTIMEDIA BROADBAND SYSTEM
Newtec America Sat3Play

The two-way satellite multimedia broadband system is designed for optimizing the delivery of fast Internet access, VoIP telephony, and video and audio services; makes it possible to offer services to consumers in areas where no terrestrial infrastructure is available at a competitive price.

203-975-4491; www.newtecamerica.com
BOOTH: SU11023

TRANSPORTER
Strategy & Technology TSBroadcaster

Allows a broadcaster or network operator to configure and automatically generate MPEG-2 transport streams containing DSM-CC object carousels for interactive TV; the solution is fully compliant with DVB and OCAP standards; supports MHEG, MHP, OCAP and ETV-compliant applications.

303-926-4933; www.s-and-t.com
BOOTH: SU9306

VIDEO TRANSPORT SYSTEM
Streambox SBT3-5200

The 1RU video transport system uses the company's ACT-L3 codec and advanced proprietary compression technologies; enables customers to transmit broadcast video in real time over any IP- or satellite-based network for live news broadcasts or distribution to cable headends; measures 1.75in x 19in x 16.25in.

206-956-0544; www.streambox.com
BOOTH: SU15515

VIDEO CARD
AJA XENA 2K

The video card for Windows XP delivers uncompressed SD, HD and dual link HD; enables customers to work with 2K frames in a flexible and future-safe architecture.

530-274-2048; www.aja.com
BOOTHS: SL6113, SU7511

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MPEG PORTABLE ANALYZER
Tektronix MTX100B

Now includes real-time monitoring and offline analysis in addition to the existing MPEG transport stream generation and recording capabilities; is small, light and robust; is ideal for field installation, commissioning and debugging of complex MPEG transmission systems.

800-833-9200; www.tektronix.com
BOOTH: N2519

WALL MONITOR SYSTEM
TBC Consoles TracWall

Uses a gird of structural t-slotted aluminum to facilitate many variations of monitor wall arrangements and upgrades; features a variety of fixed, tilt/swivel and articulating mounts for holding displays from 15in to 65in; channels cables directly into base cabinets, which also provide space for equipment and power supplies.

631-293-4068; www.tbcconsoles.com
BOOTH: SU5405

DOLBY E DECODING OPTION
Studer D21m

For use with the Studer Vista and OnAir 3000 ranges of digital consoles; a single optional I/O card accepts any AES/EBU stream containing signals encoded with Dolby E or Dolby Digital, decodes the stream within the input stage and then provides up to two sets of eight channels to the console; one D21m I/O frame can take up to 12 of these cards in a 3RU space; each card may contain up to two decoders, making it possible to decode up to 24 Dolby E streams.

818-920-3212; www.studer.ch
BOOTH: N7715

AUDIO MASTERING SOFTWARE
Dolby Media Producer

Support all Dolby audio formats used in mastering DVD-Video, DVD-Audio, HD-DVD and Blu-ray disc formats; supports multichannel non-real-time encoding and real-time file decoding of Dolby Digital Plus, Dolby Digital, Dolby TrueHD and MLP Lossless formats via an intuitive user interface; is comprised of three separate software products: Dolby Media Encoder, Dolby Media Decoder and Dolby Media Tools.

415-645-5000; www.dolby.com
BOOTH: N2513

AUTOMATION SYSTEM
Sundance Digital Titan v3.0

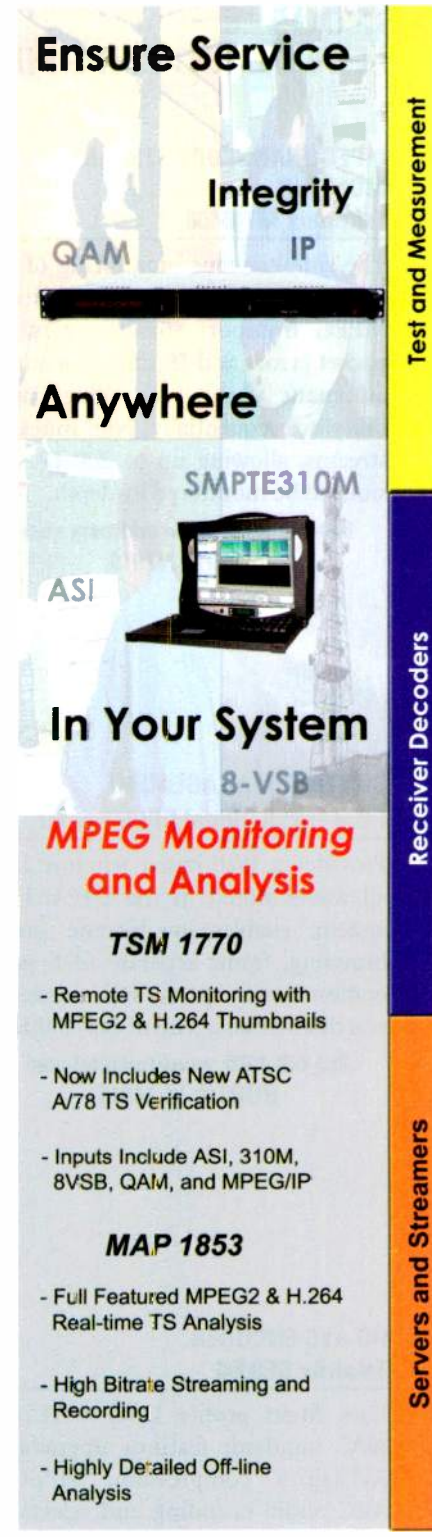
Features remote control functionality, streamlined GUI and the capability to control hundreds of playout channels within a single facility or playlists at multiple remote locations; offers operator interfaces in French, German, Italian and Spanish,supports BXF SMPTE 2010 Standard, including real-time dub order, content management and as-run status updates.

972-444-8442
www.sundancedigital.com
BOOTH: SL1410A

DISTRIBUTION SYSTEM
Pathfire Direct

A point-to-point distribution solution providing easy integration and installation with capture and playout devices; flexible format options; interface designed for TV professionals; selectable signal or multiple receive destinations; uses MXF-compliant metadata; uses dynamic bandwidth to optimize simultaneous encoding sessions.

770-619-0801; www.pathfire.com
BOOTH: SU7405



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www.sencore.com
1-800-SENCORE(736-2673)

MPEG TRANSPORT STREAM MONITOR
Tektronix MTM400

The simultaneous monitoring of up to 500 IP sessions includes critical MPEG transport stream errors, IP packet errors and IP timing; features automatic channel changing capability to sequentially poll multiple streams, allowing up to 200 IP sessions to be monitored in-depth.

800-833-9200; www.tektronix.com
BOOTH: N2519

CONTENT MANAGEMENT
Front Porch Digital DIVAdirector

Provides a Web-based window into all assets stored in the DIVArchive system; enables low-bit-rate proxy browsing, frame-accurate EDL generation and export, and metadata search and management capabilities.

303-440-7930; www.fpdigital.com
BOOTH: SU14915

HD AVC ENCODER
Telairity BE8000

Uses Main profile Level 4 H.264/AVC standard; features upgradable AVClairity compression, MPEG-4 AAC audio encoding and selectable constant or variable bit-rate encoding options with bit rates ranging up to 20Mb/s; accepts 720p and 1080i (4:2:2) uncompressed HD video and up to four channels of embedded HD-SDI audio inputs; outputs on an MPEG-2 TS via DVB-ASI or 100BASE-T Ethernet; achieves low latency and low bit rates of 6Mb/s to 10Mb/s for high-motion sequences.

408-764-0270; www.telairity.com
BOOTH: SU13615

VERIFICATION RECORDER
Digital Broadcast MediaView

Stores up to a year's worth of off-air feeds per station; provides ongoing verification and simultaneous comparison of multiple station off-air feeds; allows the user to search the feeds by date and time, and scrub and burn materials to a CD or DVD.

352-377-8344; www.digitalbcast.com
BOOTHS: SU13310, SU13510

HEADSET
Riedel PRO

Features an efficient neodymium magnet system, high reproduction precision and a balanced sound; the soft circumaural earcups and the fully adjustable padded headband are extremely comfortable; can be optimally positioned with the flexible gooseneck; the hypercardioid polar pattern provides an extremely high gain before feedback and noise cancellation.

818-563-4100; www.riedel.net
BOOTH: C9428

TRANSPORT STORAGE AND PLAYBACK SYSTEM
Pixelmetrix DVStor

Augments DVStation family by providing long-term, continuous loop recording and playback of MPEG-2 transport streams; provides up to 1TB of storage, but is also available in a 500GB configuration; uses a 1.8GHz Pentium CPU and Red Hat Linux 8.0; features two hot-swappable power supplies with automatic voltage selection.

954-472-5445; www.pixelmetrix.com
BOOTH: SU12109

2K PROCESSOR
Panasonic AJ-HDP2000

Records and processes quality 2K and HD images to D-5 VTRs for editing, interchange and distribution; is designed specifically for use with telecine systems and especially within the rapidly growing DI workplace; uses JPEG2000 compression; accepts 12-bit 4:4:4 2K 2048 x 1080 resolution film image data, or 12-bit 4:4:4 sampled 1920 x 1080 HD images; records to the AJ-HD3700H, AJ-HD3700A and AJ-HD3700B D-5 HD VTRs for editing, archiving and distribution.

201-392-4127
www.panasonic.com/broadcast
BOOTH: C3613

PAN/TILT HEAD
Telemetrics PT-LP-S3

Heavy-duty bearings and motors with isolation mounts provide quiet operation; manual smooth motion is accomplished using digital servo controls, with RS-232, RS-422 or Ethernet for serial control; 255 presets are available, memorizing pan, tilt, zoom, focus, track/televator, dolly, iris and master pedestal; lens connector provides direct connection and interface-to-lens functions.

201-848-9818; www.telemetricsinc.com
BOOTH: C4937

ANALOG AND DIGITAL AUDIO TRUNKING
Telecast Fiber Systems Adder II BoothPak

Handles analog audio and digital AES audio while converting between them; features an integrated signal generator and analyzer, as well as facilities for data, intercom and optical redundancy; is designed for easy setup.

201-848-9818; www.telemetricsinc.com
BOOTH: C4937

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MICROWAVE TRANSMITTER SYSTEM
Nucomm GoPac2

Supports high data rate HD and SD feeds in COFDM bandwidths from 5MHz to 16MHz; is a multipurpose transmitter with amplifier docking station that can be used for virtually any ENG application; can be detached and used on an HD or SD camera or attached to its companion high-power amplifier for tripod or ENG vehicle applications.

908-852-3700; www.nucomm.com
BOOTH: C2529

PROGRAM OPTIMIZER
Dolby DP600

Allows cable, satellite, IPTV and terrestrial broadcasters to automatically analyze and correct program loudness; the codec options provide faster than real-time encoding, decoding and transcoding of the most common broadcast media files and audio formats; normalizes the loudness of audio programs with no impact on their original dynamic range.

415-645-5000; www.dolby.com
BOOTH: N2513

ASSET AND WORKFLOW MANAGEMENT
OBOR Digital Zeus

For physical asset management, tracks equipment using identifiers such as name, description and location; for technical workflow management, provides ticket generation and management, automatic routine ticket generation, interdepartmental communications, shift notes and service scheduling; for workforce management, offers personnel scheduling, assignment of duties, time card management and safety integration; for overall management, offers budgeting tools, key performance indicators, safety reports and training overviews.

407-352-6501; www.obordigital.com
BOOTH: N6730

FIBER-OPTIC TRANSCEIVERS
Telecast Fiber Systems G2 CopperHead

The camera-mounted transceivers are available in, and convertible to, several configurations, including 40-pin SDI, 50-pin HD/SDI, component/composite analog ENG and digital cine through a change of input/output mounting sleds.

508-754-4858
www.telecast-fiber.com
BOOTH: C4937

CAMERA TROLLEY SYSTEM
Telemetrics TeleGlide

Is designed primarily for use in studio or sports applications; consists of a single or dual trolley for optimal load stabilization; the track is a dual rail system with connecting brackets; is fully servo controlled for smooth operation, with location feedback for preset positioning and motion control; can be floor-, wall- or ceiling-mounted.

201-848-9818; www.telemetricsinc.com
BOOTH: C4937

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HDV/DV EDITOR
Matrox Electronic Systems RT.X2

Provides professional real-time native HDV/DV editing; features Windows Vista support and real-time HDV 1080p editing at 23.98fps, 25fps and 29.97fps for the Sony HVR-V1U and in 24f and 30f mode for the Canon XLH1.

514-822-6364; www.matrox.com/video
BOOTH: SL2015

MULTIFORMAT MEDIA ENCODER
Telestream Episode series

The multiformat media encoding solution for Mac users is comprised of scalable desktop- and server-based batch encoding applications; features support for an extensive range of SD and HD file formats; optimized codecs plus hundreds of filters and fine-tuning compression capabilities enable users to generate excellent picture quality with fast conversion speeds using Mac hardware; expands Telestream's encoding solutions for Web, DVD, podcast and mobile markets.

877-257-6245; www.telestream.net
BOOTH: SL9214

TS MONITOR AND ANALYZER
Manzanita Systems TSMon

Monitors and analyzes live transport stream signals in real time; core analyzer software engine is based on MP2TSA's new v3.0 software analyzer.

858-679-8990
www.manzanitasystems.com
BOOTH: SU7524

ENCODER/TRANSCODER
Telestream Flip4Mac 360 Systems Components

Moves professional MXF content in and out of Apple's Final Cut Pro systems for editing; Flip4Mac's new import/export components for 360 Systems' Image Server 2000 now add seamless file transfer between 360 Systems' broadcast server and Final Cut Pro.

877-257-6245; www.telestream.net
BOOTH: SL9214

PHONE MATRIX
Telex/RTS TIF-4000

Frame of up to 12 digital telephone interface cards with a redundant power supply features compatibility with ADAM, ADAM CS, Cronus and ZEUS intercom systems; provides bidirectional communication between the intercom matrix and an analog telephone line; allows the phone to access all crosspoints of the matrix, as well as dynamic party lines and IFB circuits.

800-323-0498; www.telexintercoms.com
BOOTH: C5329

SERVER SYSTEM
Thomson Grass Valley MediaEdge2

Is a LAN-based video delivery system using standard TCP/IP networks and displays; is designed to offer a cost-effective method for distributing video content to multiple PC and set-top box clients, including preprogrammed broadcast, live streaming and full-featured interactive video-on-demand.

503-526-8150
www.thomsongrassvalley.com
BOOTH: SL2020

INTERCOM SYSTEM
Production Intercom AS-100

Is designed to allow the announcer to broadcast and communicate with one headset; intended to be associated with a compatible intercom or IFB system and will normally draw its power from that system; where no intercom or IFB exists, a power supply is available that will power the AS-100 and up to 10 beltpacks or IFB packs connected to the AS-100 rear panel.

800-562-5872; www.beltpack.com
BOOTH: N2235

ARCHIVE SYSTEM
Digital Broadcast MediaVault

Features blue laser technology that provides up to 50TB of media storage and a high-speed searchable index based on file metadata; allows archived material to be played at any access-granted desktop computer.

352-377-8344; www.digitalbcast.com
BOOTHS: SU13310, SU13510

SET-TOP-BOX FORENSIC MARKING
Thomson Technology NexGuard for STBs

Video watermarking technology is designed for set-top-box companies, conditional-access system vendors, and VOD and push-VOD operators; works with compression codecs, including MPEG-2, MPEG-4/AVC and VC-1; has been integrated into STMicroelectronics' STx7100 family of System-on-Chips (SoC); deters illegal copying and distribution of all forms of broadcast content delivered via IPTV, satellite, cable or traditional broadcast and viewed with digital STBs.

818-260-3683; www.thomson.net
BOOTH: N413

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SATELLITE-TO-TERRESTRIAL TRANSCODER
DMT NABLA

Can deliver up to 100W Rms with a modular and versatile structure, featuring a built-in satellite receiver and advanced control systems; interface connections, power supply and cooling air circulation have been designed to comply with the operational requirements and constraints typical of telecom stations.

856-423-0010; www.dmtonline.com
BOOTH: C2915

PROMPTER
Autocue MSP08

One of the smallest daylight-readable prompters available; when combined with the QNxt, it untethers from the control PC and the camera, enabling the camera operator to get the best shots and the presenter to look more fluent and professional.

203-406-1400; www.autocue.com
BOOTH: SU14612

PSIP GENERATION SYSTEM
Triveni Digital GuideBuilder

New, enhanced features include centralized PSIP and redundancy capabilities; provides mission-critical operational capabilities for both content providers and network operators by generating accurate PSIP data; intuitive interface for managing program event information and flexible architecture ensure smooth operational integration.

609-716-3500; www.trivenidigital.com
BOOTH: SU8525

CONNECTOR
Electronics Research (ERI)

A 4-1/16in connector for Andrew HJ11-50 4in air HELIAX; is compensated for low return loss; can be assembled without special tools; is available in both gas pass and gas barrier versions.

877-ERI-LINE; www.eriinc.com
BOOTH: N1119

BROADBAND RF TRANSPORT
Emcore 1310nm and 1550nm

Provide broadband RF transport for CATV, FTTx video overlay and private network applications; 1310nm transmitters are available with a wide range of optical output powers up to 15dBm, in either standalone modules or rack-mount configurations with SNMP management; 1550nm transmitters are offered in short-, medium- and long-haul rack-mount configurations and provide SBS suppression of up to 23dBm with SNMP management.

626-293-3428; www.emcore.com
BOOTH: N2238

VHF TRANSMITTER
LARCAN M series

Includes a full range of TV broadcast transmitters, from 250W to 80kW; features highly linear solid-state broadband PA modules, high-power stripline combining techniques and rugged linear power supplies; versatile pull-through cooling system design is engineered to simplify installation.

905-564-9222; www.larcan.com
BOOTH: C1916

ANALOG/DIGITAL CENTRAL RECEIVE SITE
Broadcast Microwave Services Central-DeCoder II

Detects and adjusts COFDM, MPEG-2 transmission parameters, data rate, modulation, guard interval, code rate, GOP structure and bandwidth pedestal; contains COFDM, MEPG decoding and analog FM demodulation; features 6MHz RF bandwidth capability for signal reception in congested RF environments.

858-391-3050; www.bms-inc.com
BOOTH: C1607

IMD TECHNOLOGY
TSL In-Monitor-Display (IMD)

Allows dynamic UMD information and dual tallies to be displayed directly in-picture on flat-screen monitors; a fully integrated addition to the TallyMan system to give a new monitoring option positioned between multiviewers and traditional Under Monitor Displays; works with both 4:3 and 16:9 sources and displays.

+44 1628 676 200; www.tsl.co.uk
BOOTH: SU14615

AUDIO MONITORING
TSL AMU1-BHD

Compact audio monitoring system is ideal for desk mounting or where rack space is at a premium; features an auto sensing HD/SDI video input, 2X balanced AES/EBU and four stereo analog inputs; the unit also offers dual high-resolution 106-segment tri-color bar graphs and a powerful integrated amplifier, all in 1RU.

+44 1628 676 200; www.tsl.co.uk
BOOTH: SU14615

SYNCHRONIZER, TRACKER AND EMBEDDER
Crystal Vision SYNNER HD

Features a video synchronizer, tracking audio delay, an embedder and de-embedder, and an audio processor in one 4in x 10.5in board; with timing from SD or HD analog syncs, it will synchronize the video, de-embed up to two audio groups, mono route the audio channels and pass them through a tracking audio delay, resampling them to match the synchronized video; it then finally re-embed the two groups.

+44 1223 497049; www.crystalvision.tv
BOOTH: N2935

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Imagica FOX
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Discovery
Modern VideoFilm
Moving Picture Company
NBC LaserPacific
KDDI Qualcom
Game Creek
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NFL Films PBS

Photo courtesy of Professional Communications Systems, inc. and WMFE-TV

BROADCAST NETWORKS

Centralized broadcast operation centers (BOC) improve efficiency, yet significantly increase the impact of system failure. The 3Gb/s-enabled NV8256-Plus, with patented redundant crosspoint technology, provides affordable, error-free video routing that protects you from single point failures. Major networks worldwide depend on NVISION synchronous audio and HD-SDI routers in their BOCs for 100% reliability and proven performance. Built-in system features such as integrated video encoders and decoders, MADI, and audio mono routing add significant value. Using the NV5128-MC Master Control switcher, you have a complete integrated system for program play-out in any format – analog, digital, SD or HD. And, upgrades are easy by simply replacing hot-swappable modules.

#1 in Design and Performance

With NVISION systems, broadcast networks and post production facilities get best-in-class router, router control, and master control systems, including +100 Synapse modular products, for error-free video and audio signal processing and distribution. This means faster installations and lower operation costs.

Our forward-looking designs leverage your investments and help you avoid costly replacements, recabling, or ground-up installations. You can expand capacity or upgrade capability quickly and cost-effectively with simple, front-plane module replacements. High product quality and strict control of manufacturing ensure that NVISION products continue running reliably, year after year.

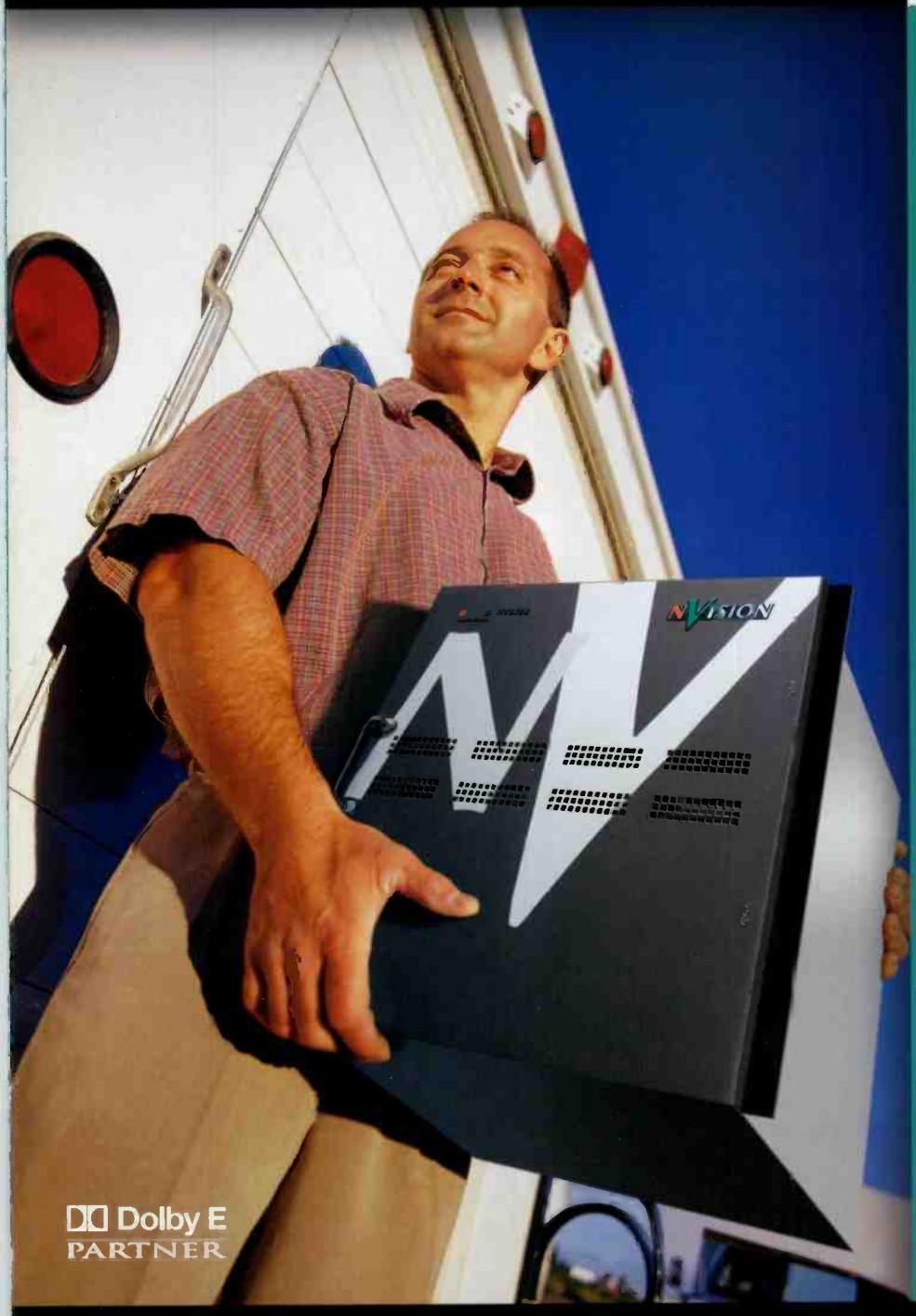
#1 in HD

Simplify HD with NVISION for the ultimate in precision routing and master control. NVISION pioneered, and continues to set the standards for serial digital HD-SDI routing and multi-channel, multiformat master control. You benefit from best-in-class systems, reliable 24/7 operation, and a non-stop HD viewing experience for audiences.

NVISION router, router control, master control, and Synapse modular equipment.

NV8288: The *smallest* big router in the world.

NVISION®



NV8288:
Large scale, error-free routing at:

Half the size.

Half the depth.

Half the weight.

Half the power consumption.

- *288 x 576 in 10RU*
- *576 x 576 in 20RU*
- *Future proof 3Gb/s enabled*
- *Seamless integration with NVISION router control*

Call us for a demo at
1-800-860-HDTV
Or visit
www.nvision.tv

Learn more.
For detailed product information and technical specifications for all NVISION products, visit our website. Then let us help you plan your next installation. Call toll free and talk to a real person who knows routing. Put NVISION behind the scenes and you'll always be ahead of your time.

NVISION
Moving pictures and sound around, perfectly

125 Crown Point Court
Grass Valley, CA 95945

ound the globe depend on us to keep the wo

LOCAL STATION GROUPS

DTV is a legal requirement and costs are a concern. NVISION helps you make the transition to digital while protecting your investment in analog equipment. The NV5128-MC switcher is the first product ever to combine in one frame digital master control, 3Gb/s-enabled multiformat routing and conversion, and fully integrated Dolby E decoding with delay management that seamlessly handles full 5.1 channel audio. The NV5128-MC provides flexible support of analog audio and video, AES, SDI and HD-SDI input and output signal formats. Upgrade to HD-SDI or increase the number of master control channels by simply adding modules to the frame. Multi-channel control and programmable panels increase plant reliability, simplify distributed facility design, and reduce service and support costs.

POST PRODUCTION

Demanding post production schedules require efficient, multiformat, signal management. Join Ascent Media, ILM, LaserPacific, Modern VideoFilm and a long list of prestigious studios that choose NVISION. NVISION helps you manage signals flawlessly and securely, regardless of complexity. Our video routers handle any data rate from 3Mb/s to 3Gb/s and manage all digital video formats inside one frame, simultaneously. With n-on-1 crosspoint redundancy, the NV8256-Plus is a bullet-proof 256x256 video router, field expandable to 512x512. Front-serviceable plug-in modules enable easy expansion and updates – no forklift events! Our digital audio routers handle AES, analog, and MADI signals, with a host of advanced features like full mono-channel routing. The Java-based NV9000 Router Control system offers the ultimate in system power and flexible operation.

#1 in Dolby E

NVISION is the only vendor that fully supports and controls your program material for Dolby E and Dolby Digital Audio in router, modular, and master control equipment. Dolby compatibility and well-managed signal flow ensure low-cost and robust video play out.

#1 in Router Control

3 year maintenance agreement, full replacement included…really!!

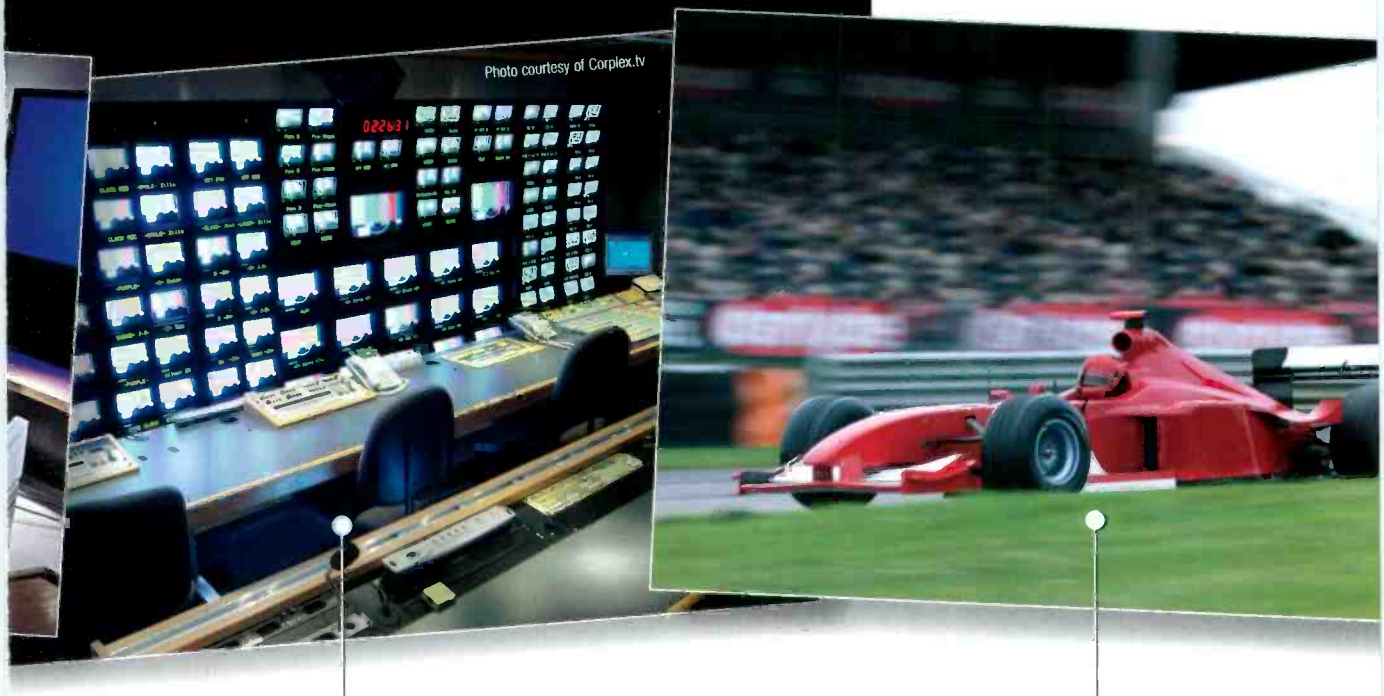
The NV9000 Router Control system has a robust and scalable architecture, and all new Java-based configuration utility for a simplified, intuitive, and powerful interface. The economically priced NV9000 hardware/software maintenance agreement (HSMA) is an industry standout – the first to include 3 years of extensive benefits, hardware warranty, software updates, and a new replacement product at the end of 3 years.

#1 in Compact Routers

Enabled with 3 Gb/s HD/SDI operation, the expanded CR Series of Compact Routers offers new intuitive GUIs and delivers NVISION quality and performance for budget-conscious applications in broadcasting, mobile trucks, and post-production, and where compact size and operational simplicity are critical factors.

ork flowing, flawlessly.

NVISION®



MOBILE TRUCKS

Does size matter? For mobile video production it's critical. So NVISION offers any size router, for any size mobile truck, in any format you need. NVISION routers are designed for the harsh environment of a mobile truck, so you can depend on trouble-free operation when the pressure is on. And we protect your capital investment. To scale up, simply add more feeds or capability with front-serviceable modules. For the ultimate in truck routers, test drive the new NV8288, the smallest big router in the world. It houses an ultra-high density 288x576 system in a 10RU frame just 12 inches deep, supports HD/SD, and expands to 576x576 in only 20RU. Extremely low power consumption and front-to-back forced air cooling make it the perfect fit for your truck.

TELECOMMUNICATIONS

IPTV is challenging cable and satellite for a share of the pay TV market, thereby requiring a quality viewing experience for customers with precise and reliable transmission of content. Telecommunication leaders, like Verizon, Qualcomm, and KDDI in Japan are ramping up for IPTV with NVISION's NV8256-Plus router. Its redundant crosspoint technology, recognized for high reliability and superior quality, is the obvious choice for backbone signal transmission and bandwidth provisioning. The NV5128 Multiformat Router is ideal for error-free signal distribution of SDI, HD-SDI and composite video. Both routers protect your installed equipment base and enable a cost-effective upgrade path that extends the life of capital investments. The Java-based NV9000 Router Control system provides a unified command and control environment with a uniform control layer distributed over secure VPN links.

#1 in Synapse Modular Broadcasting Systems
Choose from + 100 modules for HD/SD/audio signal processing and transmission that can be cost-effectively integrated into one powerful media system over time. Users can also integrate Synapse modules with any other NVISION router, router control, and master control products to add specific features, increase system functionality, or lower overall costs.

#1 in Total Cost of Ownership
Installing intelligent and innovative NVISION router, router control, and master control systems in your facility today paves the way for an upgrade path in the future. NVISION's forward-looking, scaleable designs future proof your investment and help you avoid costly replacements, recabling, or ground-up installations.

#1 in 24/7 Customer Support & Local Service
You can rely on local service and customer support from real people. Located across three continents, NVISION's customer service, support team, and world-class, third-party system integrators are committed to helping you with rapid response to answer your technical questions, keeping your system on air or in production around the clock.

Behind the scenes.

Ahead of the times.

As the technology leader in video and audio routing systems, NVISION specializes in the development and manufacture of the most innovative router, router control, and master control systems, as well as new technologies for flawlessly managing signals point to point. NVISION's best-in-class systems are more efficient, reliable, and cost effective than any other on the market.

Since 1989, the biggest names in TV broadcast, satellite, entertainment and post production, as well as government agencies, have trusted NVISION's technology innovation behind the scenes to keep them years ahead of the times. NVISION's industry breakthroughs include:

- ***FIRST*** *hw/sw maintenance to include new replacement product (NV9000), 2007*
- ***FIRST*** *3Gb/s & HD-enabled full product line of routers, 2006*
- ***FIRST*** *Dolby modular products, 2006*
- ***FIRST*** *large-scale digital video router small enough for mobile trucks, 2005*
- ***FIRST*** *integrated multi-channel master control switcher and multiformat router, 2003*
- ***FIRST*** *large-scale HD-SDI router (US patent awarded),1998*
- ***FIRST*** *bi-directional machine control router with dynamic port management (US patent awarded),1996*
- ***FIRST*** *time code router with digital signal processing (US patent awarded),1992*
- ***FIRST*** *synchronous AES router for audio,1992*

Keep your eye on ***www.nvision.tv*** *for new, advanced technologies: next-generation master control, HD H.264 encoding, Synapse modular signal processing (includes up/down/cross conversion), and a broader range of panels and compact routers.*

The key to our success and the high satisfaction of our customers depends upon our understanding of each facility's unique needs and budget. We create a best-in-class routing solution for every customer, even when others say it's impossible.

Continued from page 150

CONTROL PANELS
Utah Scientific UCP-1 and UCP-DT

The UCP-1 is a full-featured X-Y panel in a compact 1RU package; the UCP-DT is a desktop version of the company's UCP-MM multimode panel, which was introduced last year; these new panels join the UCP panel series, a complete and flexible range of router control panels for every application.

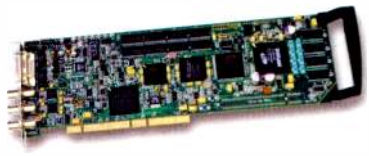
801-575-8801; www.utahscientific.com
BOOTH: N4321

AUTOMATION SOFTWARE SYSTEM
VCI Solutions autoXE

Manages the entire content lifecycle, from point-of-sale to point-of-air; enables scheduling, monitoring, managing and playback; is designed to manage one, 25, 50 or more channel streams with ease; allows transparent integration and interoperability with other broadcast systems such as Pathfire and Omneon.

413-272-7200; www.vcisolutions.com
BOOTH: SU11620

VIDEO DECODER
Vela CineView HD Pro decoder



Decoder with HD/SD-SDI delivers advanced features for professionals working with both HD and SD video content; can simultaneously send video in both SD and HD formats; users can also upconvert SD materials to HD or downconvert HD to SD format, eliminating the time and expense of re-encoding assets; also allows users to frame-accurately combine SD/HD file formats from a single decoder.

727-507-5344; www.vela.com
BOOTH: SU5111

IMAGE ANALYSIS
OmniTek XR

Image analysis system designed for colorists and post-production editors in high-definition environments; offers "extreme resolution" waveform and vector displays for total image analysis; real-time color histogram displays in a variety of different gamuts; offers support for all 2k and dual-link input formats with user-programmable LUTs to correct nonlinear inputs, as well as support for XYZ color space inputs.

+ 44 118 988 6226; www.omnitek.tv
BOOTH: SL9705

ENCODING STATION
SAMMA Systems LES 2

Uses Motion JPEG2000 standard compression; Motion JPEG provides mathematically lossless compression; users can realize approximately three-to-one compression of uncompressed video; maintains uncompressed video quality without the bandwidth and storage requirements of uncompressed video.

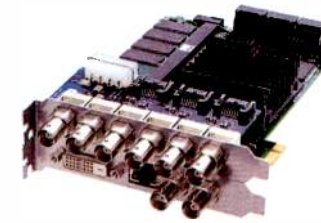
212-738-9417; www.sammasystems.com
BOOTH: SU7130

MACHINE CONTROL SYSTEM
Videoframe PoE GPI 12/12 VNODE VF0075

Has 12 inputs and 12 outputs; features Power over Ethernet (PoE) technology, which allows products to be powered over the same Ethernet link that supplies the network communications link; its small 3.5in x 4in x 1in size and new line of assorted mounting hardware options increase system flexibility.

530-477-2000
www.videoframesystems.com
BOOTH: SU7108

AUDIO PRODUCTION ENGINE
Fairlight Crystal Core (CC-1)



Based on the latest field programmable gate array (FPGA) silicon technology; obsoletes DSP/time slice bus architectures and delivers quantum performance gains by shrinking hardware into a single purpose-built media processing chip; enables 200-plus channels of audio recording, editing, mixing, I/O and plug-ins, with extremely low latency and full processing capability on every channel.

+61 2 9975 1777; www.fairlightau.com
BOOTH: SU9306

VIDEO SERVER
360 Systems Image Server MAXX

The high-performance, three-channel broadcast video server with graphic store and key and fill supports MPEG-2 video up to 50Mb; inputs MPEG-2 and DV over GigE from Apple FCP and Avid, as well as TARGA files from graphics programs; includes frame sync, SDI video ports, AES/EBU, digital, analog and embedded audio.

818-991-0360; www.360systems.com
BOOTH: SU9120

MULTIVIEWERS
Avitech VCC-8000 series

Allow broadcasters to visually monitor video as well as DVI/VGA (computer) inputs on the same display; the distributed intelligent architecture enables an unlimited expansion for inputs; a facility has the ability to purchase and use only what is required at present, with the option to expand the system as the facility's monitoring needs grow; a single module provides up to eight inputs..

877-284-8324; www.avitechvideo.com
BOOTH: SU13215

STREAMING MEDIA ENCODER
ViewCast Niagara Pro

Rack-mountable streaming media appliance designed for high-quality and high-resolution video capture and streaming; ideal for IPTV, webcasting, video archiving and training applications; also a solution for video content creation as repurposing video for Internet and Intranet distribution; the dual-channel media encoder features three EZStream buttons that are preprogrammable using the Niagara configuration Web interface.

972-488-7200; www.viewcast.com
BOOTH: N2131

HD STORAGE AND RETRIEVAL
Volicon Observer-HD

Supports large numbers of simultaneous users, with 24/7 access to live and archived HD content from the desktop using a Microsoft Internet Explorer-compatible interface; allows broadcasters to record, store, search, retrieve and view HD material in real time from multiple broadcast sources and from any desktop within the broadcast facility.

781-221-7400; www.volicon.com
BOOTH: N3231

TAPELESS NATIVE FIELD RECORDER
Ikegami HDE-X11

The portable, tapeless Avid DNxHD native field recorder enables producers to record to FieldPak2 or RAMPak media from any HD camera or source, 1080i or 720p; offers more than two hours of full HD recording to 160GB FieldPak2 or RAMPak media, compatibility with Avid HD editing systems, and RetroLoop and TimeLapse recording.

201-368-9171; www.ikegami.com
BOOTH: C4226

ENCODER BOARDS
Vela Argus 200/250

Encoder boards designed for a broad range of applications where low cost is important; both boards encode a variety of resolutions from QSIF to full resolution MPEG-2 and MPEG-4 formats; the intuitive Microsoft GUI allows for ease of operation within a higher user-friendly environment; a powerful 32-bit Windows Common Object Model (COM) SDK is available, making the functions of the encoder available to the developer.

727-507-5344; www.vela.com
BOOTH: SU5111

CABLING ASSEMBLIES
Wireworks AES/EBU direct cabling assemblies

Available in 3.05m and 4.57m versions and with a wide variety of XLR connector combinations, including all male, all female, mixed genders or TRS connectors; include tails/tails, DB25 analog or digital fanouts and DB25 trunks, supporting either analog or digital wiring standards; are designed to be rugged and flexible.

800-642-9473; www.wireworks.com
BOOTH: C7617

AUDIO PATCHBAY
Switchcraft StudioPatch 6425

Connects to I/O interfaces with common DB25 cables; includes phantom power and changeable normaling positions that can be set at full normal, half normal or non-normal modes.

773-792-2700; www.switchcraft.com
BOOTH: C7507

CHARACTER GENERATOR
Orad Maestro

The HD/SD switchable 3-D character generator and on-air graphics solution features plug-ins to newsroom and NLE systems; features virtual channels capabilities; can load and take on-air multiple graphic scenes, also referred to as channels; these new functionalities are coupled with existing 3-D capabilities, unlimited scene layer control, math functions, scripting free database connection, local preview, multiple video insertions and HD/SD capabilities.

212-931-6723; www.orad.tv
BOOTH: SU3614

AUDIO MONITORING SYSTEM
Wohler Technologies ATSC/DVB-3/M

Monitors Dolby Digital, AES/EBU and HD-SDI/SDI; isolates individual channels of Dolby Digital and decodes Dolby Digital and AES/EBU embedded in HD-SDI/SDI; features a tri-LED phase indicator.

510-870-0810; www.wohler.com
BOOTH: N3426

ON-AIR RADAR SYSTEM
AccuWeather SelectWarn v2.0

Delivers on-screen weather graphics and video; uses the National Weather Service's official storm-based warnings; features an enhanced graphics toolkit, extensions of StormVision to track storm movement, and precise lightning forecasts and AccuRain to deliver neighborhood-specific rainfall amounts; plots storm-based warnings and local storm reports in real time.

814-235-8600; www.accuweather.com
BOOTH: C6412

Color indicates advertisers

DIGITAL SIGNAGE MANAGER
X2O Media Xpresenter Suite v2.0

Streamlines the process of creating digital signage projects; includes Xpresenter Content Manager (enables users to create playlists of content, schedule content and distribute the content to all players from a single interface), Xpresenter Template Builder, Xpresenter Player, Template Library (includes ready-to-use, customizable graphic templates), Xpresenter server, Remote Manager, Xpresenter Agent, Data Parser and Web-Based Management Tools.

888-987-7557; www.x2omedia.com
BOOTH: SU11229

DIGITAL CONTENT AID
TV Magic i/oCast

For distribution of digital content; helps users prepare finished products for podcasting, VOD and RSS feeds via Internet and Web-accessible cell phones; integrates with other modules of the company's i/o product line using a TCP/IP connection.

858-650-3155; www.tvmagic.tv
BOOTH: N406

TELESTRATOR AND PRESENTATION SYSTEM
e-mediavision.com POINT-HD version 3.0

HD/SD broadcast graphics telestrator for sports and news presenters; new version adds Targa-based animation to its current range of tools to allow broadcasters to create eyecatching telestration sequences; new tool allows the highlight and zooming of HD source signals while maintaining clarity and definition.

+44 20 8755 2014
www.e-mediavision.com
BOOTH: C9538

MULTIDEFINITION LEGALIZER
Eyeheight legalEyesMDi

Accepts 1080i and 720p HD and 625i PAL and 525i NTSC SD; enables users to ensure that the level of their video signals remains within the strict tolerances required for HD/SD transmission to air and DVD mastering; monitors levels continuously and manually or automatically corrects them; includes hard and soft clipping levels, luma and chroma gain, and black level user adjustments.

+44 208 255 2015; www.eyeheight.com
BOOTH: SU2823

VIDEO SERVER AND SYSTEM CONTROLLER
LEIGHTRONIX MINI-T-NX

Offers full station automation for single-channel operations on a budget; includes digital video playback, video messaging and digital signage, DVD and VCR control, and video and audio switching.

800-243-5589; www.leightronix.com
BOOTH: SU3811

BUG AND LOGO INSERTER CONTROLLER
DNF Controls Flex Control Network GTP-32 GPI Tally Processor

Provides bug and logo inserter control; with combinatorial logic option, users create simple or complex rules that automatically turn bugs and logo inserts on or off based on external GPIs or tallies. also allows users to change the on and off rules on the fly; interfaces to the Grass Valley M2100.

818-898-3380; www.dnfcontrols.com
BOOTH: N1526

DTV DEMODULATOR MEASUREMENT
Z Technology DM1010

Now simultaneously monitors distributed transmitters from multiple locations, providing remote Web-based transport stream data monitoring and video thumbnail displays from dispersed terrestrial transmitters; TSR hardware/software option analyzes the transport stream outputs and reports a full complement of TS information, such as PAT, PID, PMT, data rates, data errors and stream allocation statistics.

888-613-9832; www.ztechnology.com
BOOTH: C3039

VIDEO INTERFACE
Claratech CTP2100

Houses up to eight SD/HD optical receivers or transmitters in 1U; features include automatic rate detection, cable length equalization and re-clocked outputs; each module provides multiple SDI outputs on BNC connectors; the rack unit also offers four 2 x 2 routers to allow functions such as routing and fiber protection switching; a built-in Web server alleviates the need for special software.

+44 1234 271053; www.claratech.com
BOOTH: SU9307

SWITCHERS
Brick House Video Callisto

Updated range of switchers includes chroma keyer and hot-cut, which enables the user to switch asynchronous signals directly on the program bus with no freeze frame on the output.

+44 1962 777733
www.brickhousevideo.com
BOOTH: SU6806

STEREO ADAPTER
Zaxcom STA100

Stereo adapter for the company's ZFR100 and TRX900/900AA; integrates with the ZFR/TRX to provide a balanced stereo audio input that eliminates ground loop problems; time code input synchronizes the time code generator inside the ZFR/TRX and supports automated loading of audio onto the memory card; this enables an exact match of audio recorded on the ZFR or TRX and audio/video recorded on camera.

973-835-5000; www.zaxcom.com
BOOTH: N9017

SWITCHERS
FOR-A HVS-38SSAM and HVS-600HS

The HVS-38SSAM adds video playback and expanded still store functionality to FOR-A's SD/HD switchable, multiple bit rate HANABI HVS-3800HS; the HVS-38SSAM will be available as an option for the HVS-3800 2M/E HANABI model switcher.

714-894-3311; www.for-a.com
BOOTH: C4234

PORTABLE RECEIVER
Sennheiser EK 3241

Uses a 36MHz switching bandwidth that is tunable in 5kHz increments to generate 7200 frequency options; is designed for location sound recording; weighs just 7oz; can be powered from a camcorder or via a rechargeable battery that delivers between nine hours and 18 hours of continuous operation.

860-434-9190; www.sennheiserusa.com
BOOTH: N7117

PORTABLE WIRELESS RECIEVER
Lectrosonics UCR401

Has a digital hybrid wireless design that overcomes channel noise by combining digital audio with an analog FM wireless link; features SmartSquelch technology that adjusts squelching behavior; a DSP-generated ultrasonic pilot tone from the transmitter controls the receiver audio muting and eliminates thumps, pops and other transients.

800-821-1121; www.lectrosonics.com
BOOTH: N8116

UPCONVERTER
Evertz 7711UC-HD

An all-in-one upconverter features auto-sensing HD/SD inputs, a built-in frame sync, noise reduction, aspect ratio conversion, metadata extracting, and re-embedding and color correction; this two-slot module is also offered with a discrete AES option and is SNMP-enabled for monitoring and configuration.

905-335-3700; www.evertz.com
BOOTH: N1713

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AUDIO ROUTER
Lawo Nova73 HD

Scalable up to 8192 mono channels; synchronous system has defined latency of few samples; features a variety of interfaces and direct ATM link; is 96kHz and Dolby E compatible with integrated signal processing; features STAR2 architecture and redundancy options; operation during servicing or refitting is not interrupted; hot-plugging is no longer restricted.

+49 7222 10020; www.lawo.de
BOOTH: N7030

MPEG OVER IP CROSSLAYER ANALYZER
Sencore MIP 1860

Provides real-time monitoring of hundreds of MPEG/IP streams to ensure QoS; features embedded TAP for monitoring without disrupting service, combined IP/MPEG-2 transport stream measurements and live video decoding of any transport stream locally or remotely; records any content stream at full-line rate for later analysis.

1-800-736-2673; www.sencore.com
BOOTHS: C1646, N1113

MINIATURE DIGITAL MICROPHONE
Neumann KM D

Permits the output stage to be combined with various passive microphone capsules — onmidirectional, cardioid or hypercardioid; receives the output signal directly from the microphone capsule and digitally performs level matching; features a three-pin XLR connector; supports standard sampling frequencies from 44.1kHz to 192kHz.

860-434-5220; www.neumannusa.com
BOOTH: N7117

CONTENT MANAGEMENT
OmniBus Systems OPUS 2

Moves the content process from specialized hardware to a standard IT platform; features soft-XML support for customized logging and annotation, frame-accurate proxy generation and viewing, full-text indexing and searching, seamless integration with production editing systems such as Avid and Final Cut Pro, and standardized Web services data exchange with adjacent systems.

+44 8705 004339; www.omnibus.tv
BOOTH: SU5413

UNIVERSAL ENCODER
Scopus UE-9810

Features ASI and IP outputs as well as integrated, advanced multiplexing capabilities; offers a smooth migration path from MPEG-2 ST to H.264 SD to H.264 HD encoding formats; is available as 1RU for broadcast, satellite, cable and IP contribution applications, as well as in a SDNG version.

609-987-8090; www.scopus.net
BOOTH: SU5408

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HENRY STEWART XVII

Formerly known as the Digital Asset Management & Marketing Operations Management Symposium

Best Practice Case Studies, Actionable Advice & Networking with Over 1200 of Your Peers

Tuesday June 5 - Friday June 8, 2007 • The Javits Center, New York

Speakers Include:

Chrichton Limbert
Head of News Production Modernisation
BBC

Mitch Oscar
Executive Vice President
Carat Digital

Dan DiPierro
Exec. Director of Archives
CBS News

Paul Woidke
VP Technology
Comcast Spotlight

Kevin Loftis
VP of Content Management Systems
& Carin Forman
Director of DAM
Discovery

Mukul Krishna
Senior Industry Analyst
Frost & Sullivan

Paul Botto
Head of Analytics Sales
Google

David Clark
EVP Global Advertising, General Mgr, North America
Joost

Pete Sgro
VP/GM Ops & Engineering
Lifetime Networks

Kevin Comerford
Senior Media Archive Mgr
Microsoft Studios

Joe Inzerillo,
SVP Multi Media
MLB Advanced Media

Banafsheh Parsee
Associate Director Media & Technology
National Geographic Channel

David Julian Gray
Snr Architect, Content Systems
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Janet Gardner
Founding Partner
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Mary Yurkovic
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Playboy Enterprises

Cynthia Francis
CEO
Reality Digital / ClipShack

Chuck Hurst
VP Software
Scripps Networks

Skiff Wager
Principal
SEW Consulting

Paul Nicholson
VP Print & Broadcast Production
Showtime Networks

Christopher Grakal
VP Photography DAM
Turner

Stan Scoggins
VP Worldwide DAM
Universal Studios

Tim Padilla
Director of DAM
Warner Bros.

Richard Kosinski
Category Development Officer
Yahoo!

Sound Familiar?

Do we own the rights to that?

Is there a version for mobile? IPTV? HD?

What archive footage do we have on this subject?

How will sites like Joost affect us?

Has this been approved for broadcast yet?

Has the newsroom still got boxes of tapes under their desks?

Can I use this software in production and marketing?

Can we encode this ready for playout in the same system?

Can we get some stills over to marketing?

Can we automate ad placement in this?

Did the producer put the metatags on it?

This event will help you get the right answers, quicker.

Platinum Sponsors

Adobe

Aprimo
First to market First to value

Gold Sponsors

corbis

ID manager

Lead Consultancy Sponsor

MarketSphere CONSULTING
Good Thinking at Work

Silver Sponsors

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Unica.

Bronze Sponsors

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ClearStory

Saepio

VYRE

Media Partners

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More information @ www.DAMusers.com

MULTIPLEXER AND DE-MULTIPLEXER

Network Electronics
FR-2RU-DWDM-MUX40-C

40-channel DWDM multiplexer and de-multiplexer features C-band 100GHz channel spacing according to ITU-T G.694.1, as well as 0.5dB channel uniformity; signals can be uni- or bidirectional; is signal- and bit-rate-transparent.

800-420-5909
www.network-electronics.com
BOOTH: SU10605

SINGLE-FORMAT HD CAMERA

Thomson Grass Valley
LDK 4000 Mark II

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www.thomsongrassvalley.com
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Allows unlimited lateral positioning of critical monitors via front and rear device tracks; features easily upgradeable rack bay turrets and removable vented abs panels; includes a full range of articulating arms for distance, height and tilt control for mounting flat-panel monitors, speakers, phones and task lighting.

631-293-4068; www.tbcconsoles.com
BOOTH: SU5405

DSP PLATFORM

Studer SCore Live

For use with the Vista range of consoles; provides for up to 10 DSP card slots; can hold up to 12 I/O cards of various formats and additional GPIO; occupies 6RU; is user-configurable to maximize the use of the DSP in different applications; maintains full redundancy.

818-920-3212; www.studer.ch
BOOTH: N7715

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800-473-5422; www.pelican.com
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Pro-Bel Masterpiece

Offers HD and SD switching, advanced audio processing, and flexible keying and DVE options; upgrades include the addition of an HD DVE, as well as the option to install Dolby E decoders and logo storage; now benefits from four keyers and has the ability to handle audio mixing.

631-549-5159; www.pro-bel.com
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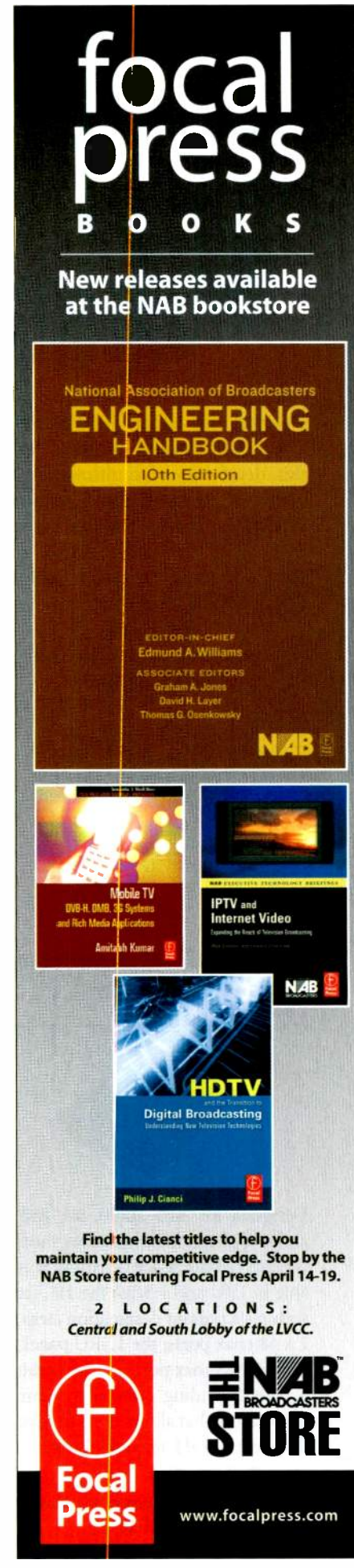

CAMERA
Sony HDC-1400

Operates in either 1080/59.94i or 720/59.94P mode; includes three-skin detail control, multimatrix color control and high-quality SD downconversion capability; features compatibility with the HDVF-C35W color viewfinder; applications include HD studio broadcasts and live events.

800-686-7669
www.sony.com/professional
BOOTH: SU906

HIGH-DENSITY PATCHING SYSTEM
ADC Super High-Density Coax (SHDC)

Designed for AES audio, 5.1 and 7.1 audio applications where coax medium is preferred but space is critical; is available in 1RU and 1.5RU; the 1RU panel features a pullout designation strip and 2 x 48 coax ports; the 1.5RU panel features 4 x 48 coax ports; the jack features a patent-pending switchable termination feature that allows users to select or de-select a 75Ω termination function on each circuit pair.

952-917-0279; www.adc.com
BOOTH: N721

AVC HD ENCODER
Scientific Atlanta D9054

MPEG-4/H.264 toolset delivers high-quality HD and SD video at bandwidth-saving bit rates; features a flexible stat mux architecture to enable content distributors the ability to mix SD and HD content in MPEG-2 and MPEG-4 formats.

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www.scientificatlanta.com
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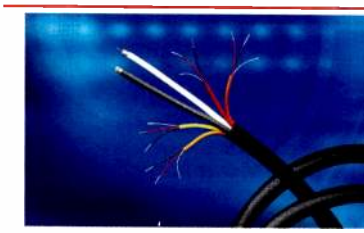
973-633-5600
www.fujinonbroadcast.com
BOOTH: C4208

DATA MANGEMENT SOFTWARE
Quantum StorNet

Creates multi-tier storage archives, automatically moving data between different disk and tape resources to allow users to build highly scalable storage systems and reduce costs; is designed to be platform-independent; offers high-performance heterogeneous access to shared pools of images, media content and other key digital.

719-536-5263; www.quantum.com
BOOTH: SU13809

CAMERA CABLE
Belden Brilliance Composite Camera Cable



Uses two Belden A/V coaxial cables and four audio pairs; ideal for the interconnection of digital remote field cameras in SDI/HDTV applications; the coaxes are sweep tested from 5MHz to 1600MHz, achieving minimum return loss values of 23dB and 21dB, respectively.

765-983-5815; www.belden.com
BOOTH: C9441

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www.ensembledesigns.com
BOOTH: SU2326

OPTICAL SWITCHING PLATFORM
Opticomm Optilinx OLX-3000

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www.opticomm.com
BOOTH: N2931

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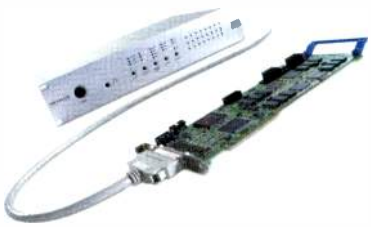

64-channel PCI audio interface for PCs is designed to be used with the Xlogic Alpha-Link audio converter range; when combined with the Alpha-Link converter range, Mixpander offers ultra-low latency audio monitoring with plug-in processing in place; up to four cards can be used in a single PC.

212-315-1111; www.solid-state-logic.com
BOOTH: N2526

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408-954-0500; www.blackmagic-design.com
BOOTH: SL11020

COMPACT DIGITAL CONSOLE
Calrec Audio Omega with Bluefin

Small digital console with high-density signal processing and 160 mono DSP paths; features 8 x 5.1 surround, stereo or audio groups, and 20 auxiliary outputs (20 mono or 10 stereo) and 48 outputs for multitrack or general-purpose feeds; comes in three frame sizes with 24, 32 or 48 faders.

+44 142 284 2159; www.calrec.com
BOOTH: N8529

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Doremi Labs MCS-HD

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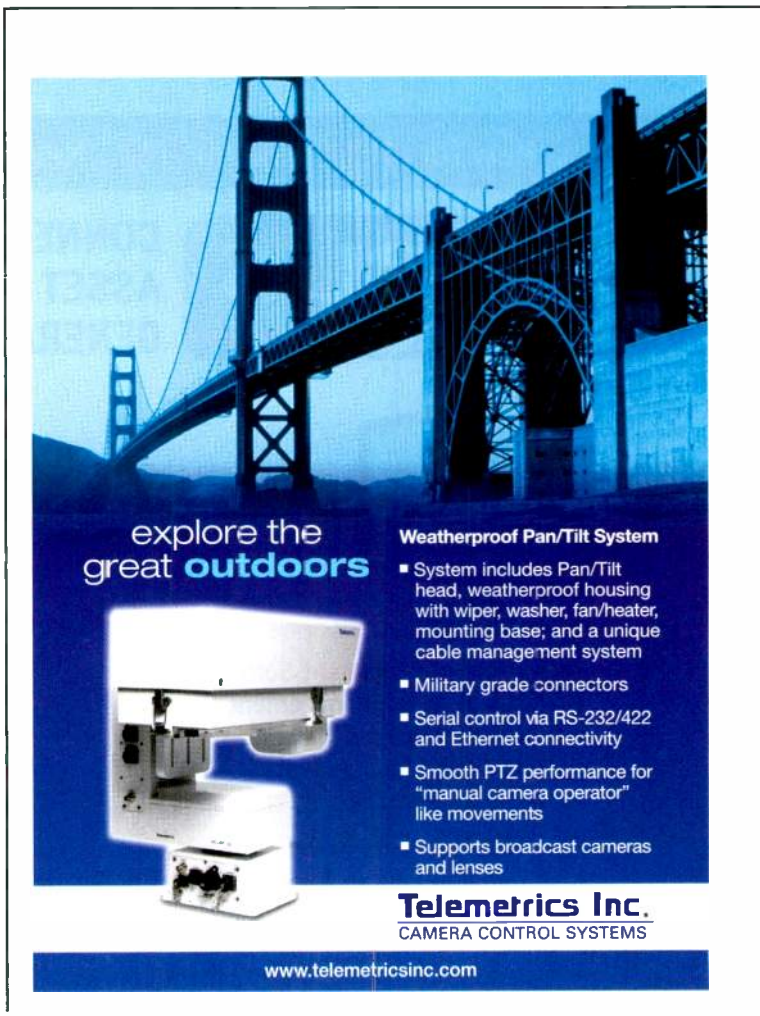
818-562-1101; www.doremilabs.com
BOOTH: SU3608



CAMCORDER
JVC GY-HD251E

Offers live, uncompressed 1080i/60 and 720p/60 via HD-SDI with embedded audio; features optional KA-HD250E studio adapter with full 26-pin camera control alongside the HD-SDI and SDI output; operates at 12V DC via either the built-in battery V-plate or the four-pin XLR input; features include BNCs for genlock, time code in/out, SDI and HD-SDI out, and a six-pin connector for remote control.

800-526-5308; www.jvc.com/pro
BOOTH: C4217

COFDM DIGITAL TRANSMITTER
Broadcast Microwave Services Truck-Coder II

Meets rugged environmental needs of ENG/OB operations; provides 100 presets that can be entered through front-panel controls or downloaded through a front-panel Ethernet port; includes a 2RU controller and antenna-mounted RF unit configured to operate in the 2GHz frequency band; features 6MHz RF bandwidth capability for simultaneous transmission of two signals within a 12MHz channel.

858-391-3050; www.bms-inc.com
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DIGITAL ROUTING SWITCHERS
Utah Scientific UTAH-400 series

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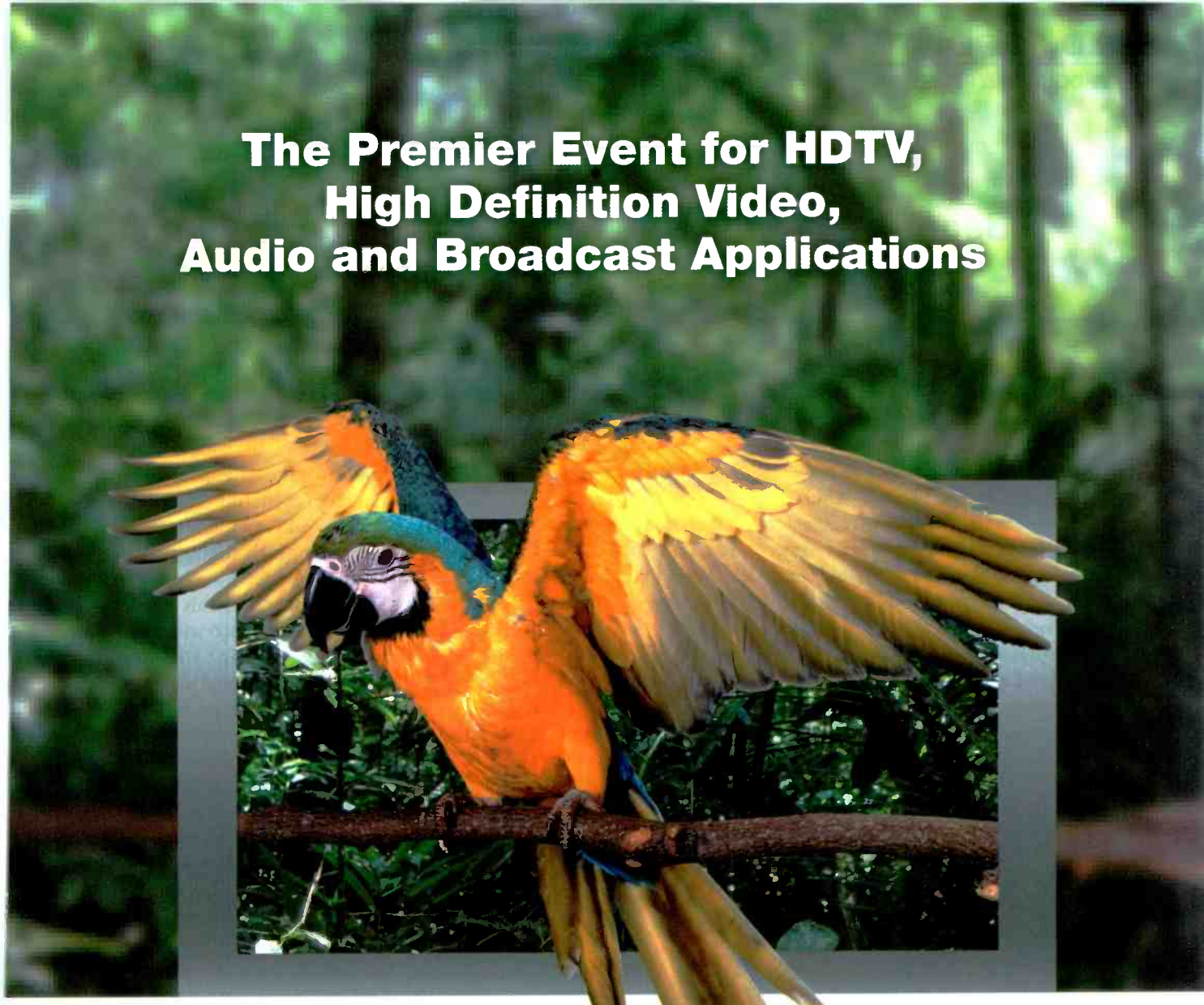

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Sony's PDW-F350

Bands of ill-tempered monkeys and desert heat can't stop this camcorder.

BY BARRY BRAVERMAN

Last August, director Wes Anderson ("Rushmore," "The Royal Tenenbaums" and "Life Aquatic") asked me to shoot the behind-the-scenes show for his latest feature project, "The Darjeeling Limited," which he planned to shoot in India over the fall and winter. Owing to his unique style and sensibilities, the director didn't want a typical behind-the-scenes show. Instead, he suggested a far more personal, engaged approach, one in which my presence as a shooter and interlocateur would figure prominently.

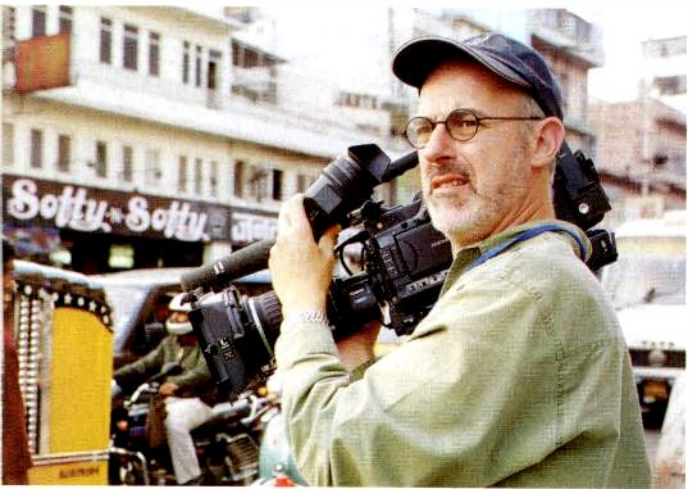
The right camera for the job

My assignment in India had multiple components, including a one-hour HBO program and a 30-minute behind-the-scenes show for DVD, in addition to podcasts and electronic press kit (EPK) interviews featuring members of the cast. All of journey we and hundreds of technicians and craftspeople embarked on aboard a specially constructed Indian Railways train chattering across the Rajasthani desert.

High-contrast balance

The low humidity and perpetual cloudless skies contributed to a harsh natural look, the unattenuated midday sun of the Rajasthani desert being reminiscent of the cursed summer light in southern California.

Shooting high-contrast exteriors is a major challenge for any camera regardless of format, and this was certainly the case for the F350 with its diminutive 1/2in imager. High-resolution chipsets in a reduced size configuration tend to sacrifice a degree of speed and highlight latitude in exchange for the extended definition. While such compromises were evident, scrupulous attention to the camera's knee setting greatly mitigated the deleterious effect visible on screen.



Behind-the-scenes footage, EPK interviews, Web videos — the Sony PDW-F350 proved to be a versatile workhorse that could do it all. I shot HD exclusively at the highest quality (35Mb/s) for my diverse assignments for "The Darjeeling Limited."

The Sony PDW-F350 exhibited surprisingly good highlight latitude for a 1/2in 3-CCD camcorder. Shooting in low light, I felt remarkably unencumbered, a critical and most welcome feeling for any documentary HD shooter.

Anderson and I worked together 15 years ago on an early version of "Bottle Rocket." And he wanted to use the same off-screen interlocateur approach in the behind-the-scenes show because he thought it would highlight the project's authenticity. Indeed, the demand for authenticity was central to the entire production. Throughout the project, I strove to capture the essence of the larger project and the this demanded a versatile workhorse that could handle the rigors of four months of virtually non-stop production. In this context, my chosen camera — Sony XDCAM HD PDW-F350 — had to meet many environmental and operational challenges, not the least of which were searing desert heat, persistent blowing sand and marauding bands of ill-tempered monkeys.

Coming to grips with the midday exteriors, I initially pushed the camera knee upward in order to maintain clean clear whites in the brightest highlights. I had noticed in my first days that the default knee of 85

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tended to produce dingy gray whites, especially in Anderson's white linen jacket, his customary wardrobe on and off the set. While setting the knee to 98 ameliorated the off-white condition, the elevated knee also increased the incidences of clipping, a fate worse than the compromised whites I was trying to avoid.

In the end, I concluded it was best not to second-guess the F350's default knee value. When shooting in uncontrolled conditions like those encountered in the Rajasthani desert, the default value of 85 produced the best results without clipping — a major consideration in HD when the finished program is likely to be magnified many times on a large-screen display.

The F350 produces gorgeous images, particularly at dusk, so shooters should look for opportunities late in the day. The unit uses a high native resolution 1440 x 1080 chipset. The increased resolution, however, comes at the expense of somewhat reduced low-light response and highlight latitude.

The Sony XDCAM menu system has a logical arrangement. It uses a series of thumbnails to facilitate navigation and review of clips.

Low light capability

Shooting alongside the Panaflex GII with Cinemascope lenses and 5218 stock, the camcorder captured a roughly comparable gray scale in low light. In general, where the film camera struggled, so did the F350, producing a kind of common ground in the two media types with respect to digital noise and film grain. A night campfire scene, for example, posed a particularly tough challenge as it was captured without supplemental fill light. The film camera's struggle for traction closely mirrored the F350 is bright enough to draw the eye away from swirling noise (or film grain). The actual speed of the camcorder appears to be approximately ISO 80 - 160. I used this as a working reference with the camera shutter turned off.

The devil in the details

As most shooters are aware, an appropriate detail setting is critical for capturing tasteful professional images. In Sony camcorders, the factory default is invariably set too high, leading most shooters to lower the detail setting to -10 — a conservative but prudent setting given the anticipated large-screen presentation of my long-form program.

For the EPK interviews featuring the principal cast, including Anjelica Huston, I opted to further lower the master detail to -15 along with reduced skin detail. The camcorder's logical albeit reduced set of menu offerings facilitates this kind of tweaking, underlying the versatility and inherent value of the camcorder for shooting EPKs, behind-the-scenes and similar-type work.

Going tapeless in pubic

This is not really as risqué as it sounds. The XDCAM's disc-based workflow proved to be highly efficient in the field. Despite the daily thick coating of sand and grit that formed on the camera, lens and me, the disc-based recording system operated flawlessly in the cramped quarters of "The Darjeeling Limited" and in a range of arduous environmental conditions.

The easy review of recorded clips accessible through the thumbnail menu facilitated the creation of a meltdown reel, greatly reducing the clutter of miscues and other unwanted footage entering the pipeline. I shot more than 150 hours of XDCAM HD over the course of my three-month assignment. I hardly needed to handle and manage an additional 40 or 50 hours of junk I knew I'd never use.

The disc-based XDCAM system also facilitated the technical checks I conducted each evening, as focus, backfocus, color balance and audio quality for each clip could be verified in seconds. Moreover, the camcorder's noiseless operation on set proved to be

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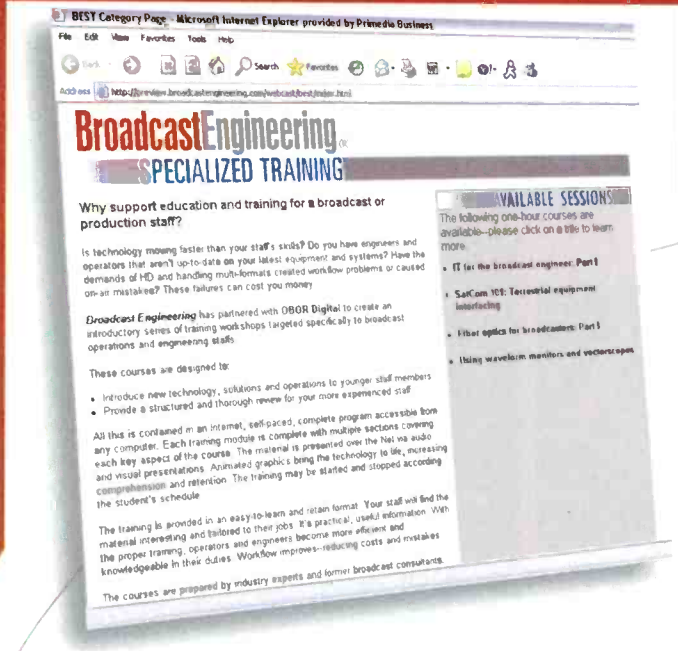

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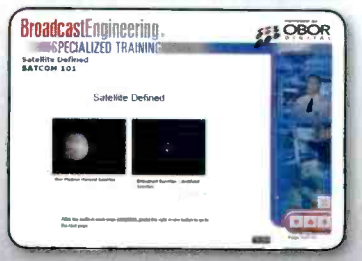

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a real boon, as the production boom and mic would frequently sweep by inches away.

An operational perspective

I used the camcorder's iLink/Firewire output to capture SD into Final Cut Pro for assembly of sequences and subsequent authoring of screening discs inside DVD Studio Pro. The long-form file naming convention enabled by a recent software update proved to be a godsend as it permitted a highly efficient management of more than 125 hours of recorded footage.

Of course, not every shoot and assignment is peaches and cream with respect to camera gear. Several of my peeves are not specific to the F350. One is the inability to see critical focus in the viewfinder. Not only are today's viewfinders, regardless of manufacturer, woefully inadequate for practical use, but also the focus markings on the lens are blocked by the finder. Therefore, zone focusing is not even an option without removing one's eye from the camera.

The famed documentarian Albert Maysles once addressed this issue by extending a makeshift plastic pointer from the focus ring to facilitate viewing. Shooting behind-the-scenes or documentary fare requires fast and efficient operation with minimal fussing. Not seeing clear focus in the viewfinder and not seeing focus marks on the lens barrel is a miserable scenario that leads to many missed and out-of-focus shots.

The F350, like other camcorders in its class, could use an integrated dust cover over the left-side toggle switches. This is logical given the exposed nature of these switches and the relative ease with which they can be inadvertently repositioned.

In the SD black-and-white viewfinder, it's not immediately obvious (despite the on-screen characters) if the white balance switch, for instance, has moved. This leads to my criticism of the single rotating filter wheel in the camcorder. The camera uses a recessed push button to engage the daylight filter. In bright daylight, the status of this button is not at all apparent. Nor is the effect visible in the viewfinder notwithstanding the characters displayed in the finder that can be too easily missed.

In addition, the record tally in the viewfinder is also positioned too far off-axis. This makes it easy to overlook in the heat of battle.

All in all, the PDW-F350 performed beautifully, and its outputted images have received rave reviews from the director and studio executives. Operationally, the camera is extremely robust with a solid workflow as exemplified by the XDCAM menu system and iLink/Firewire connection. BE

Firewire (IEEE 1394) output is becoming increasingly critical to accommodate the range of deliverables expected from today's digital shooter. In the F350, output via iLink/Firewire is limited to standard-definition DV resolution at 25Mb/s. In file access mode, the camcorder can be mounted directly on the PC or Mac desktop for easy offloading of files and import into the NLE.

Barry Braverman is a veteran cinematographer with more than 20 years experience in feature films, documentaries and music videos. He is currently serving as a digital media expert and consultant to major studios. His latest book, "Video Shooter," is available from CMP Books at www.cmpbooks.com.

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Pixel Power's Clarity

Combining newsroom functions into one system streamlines production.

BY JAMES GILBERT

Isolated broadcast solutions are set to give way to increased consolidation between various products that until now served only a single function. For many broadcasters, making a separate investment in each piece of equipment for a discrete function, such as switchers, character generators, A/V mixers and server-based clip/still stores, is a necessary evil. These systems are often expensive to buy and maintain, and they cause broadcasters to deal with multiple suppliers for technical support during the fault-finding and diagnostic process.

Switchers, for example, were essential in the editing function, so broadcasters were forced to invest in them. Switchers are no strangers to consolidation, first with the computer-based nonlinear editing that followed the advent of digital. These new, more streamlined editing technologies supplanted standalone production switchers, which have consequently been removed from most edit suites. Yet they remain a staple of studio operations. Whether cutting sources to air, providing the DVE capacity for over-the-shoulder graphics or the keying to layer captions and straps over live pictures, a production switcher is a familiar part of the news studio. Now comes a move to eliminate them from news studios, too.

Consolidating functions

The move to automate the entire news production process — including the studio — continues. Broadcasters are considering whether an operator-driven device like a production switcher is even needed. The same effects can now be achieved within a graphics device, linked closely to the newsroom system using the standard MOS protocol. With functions almost identical to those of character generators, it makes sense to consolidate — and automate — production switchers.

In an automated newsroom with a dual-channel graphics system, such as the Pixel Power Clarity, templates stored in the character generator software are populated by an XML link to the automation, so that all the graphics are generated automatically. Each program's style sheet within the graphics unit stores DVE moves and other effects, while the built-in clip store holds preloaded video sequences, either for stings or for story packages.

The benefits of streamlining workflows from multiple, isolated products into a single box are clear. The device is easier to support and maintain, and typically at lower costs.

Streamlining workflows

As a practical example of how consolidating these functions would work, imagine a dual-channel system that provides live broadcasts several times a day. A client using an ActiveX control plug-in allows newsroom staff to create a news story. The plug-in has details of all templates, stills and clip content stored on the graphics system. Storage locations on the graphics system are defined on a specially configured control center with automated content ingest. These are scanned automatically to maintain a database accessed by the ActiveX control plug-in.

The character generator stores predefined templates configured to use combinations of video inputs from which the newsroom staff can choose. Users can select foreground clips and fill text fields as they would using any other system.

Completed stories are inserted into a rundown and manipulated by a rundown manager on the playout client. Rundowns are stored on the newsroom server, which makes the rundown for that particular program MOS active just before the broadcast begins. It then instructs the graphics system to load the job before cueing and preparing template pages on both channels within the central news system, including video clips from the internal video server.

Throughout the news program, channel 1 is typically used to play video clips, either as backgrounds behind the presenter's desk or preproduced package stories. Channel 1 is fed to the background input of a chroma keyer, which can then superimpose the anchor if required by the template.

Once the output is mixed from the different sources, it is fed into the input of channel 2, where its keyer adds foreground graphics, such as captions, lower third straps, and over-the-shoulder graphics and clips. Channel 2 can also mix in a live feed from a remote reporter, typically via a satellite link.

Based on templates, the graphics system accommodates last-minute changes and live updates. A touch screen control panel allows live control of video sources and graphics for breaking news. Facilities for embedded and discrete digital audio ensure that paths match and keep sound and picture together.

This system also has dual-channel internal video and audio architecture, enabling fully customizable routing of SDI video, embedded audio and discrete AES/EBU digital audio to and from all system inputs and outputs — everything an audio mixer would do. Similarly, its internal clip store offers reliable, streamlined ingest, storage and playback of audio and video content in conjunction with the control center, making a separate video server unnecessary.

Finally, the consolidated solution offers the functionality found in an isolated graphics solution or character generator. It has fully featured software with integrated, advanced CG capabilities that work easily both under automation and remote manual control via the use of prebuilt template pages.

Consolidated solutions also complement wider industry trends, such as telecom operators seeking to provide mobile content. They represent a cost-effective, all-in-one system that can create content — and graphics — in any output format required at a lower equipment and production cost than traditional routes.

Combined advantages

The benefits of streamlining workflows from multiple, isolated products into a single box are clear. The device is easier to support and maintain, and is typically available at a lower cost, as broadcasters only need to deal with one supplier for technical support. It also allays concerns over interoperability and confusion over who is responsible for fixing any problems that might arise.

Such a system remains flexible to accommodate future enhancements and is easily integrated into an existing broadcast environment. It also makes configuration quicker and more straightforward, while maintaining a customizable interface that is reliable under both automation and remote manual control.

Finally, and perhaps most attractively, it costs one-quarter of a non-consolidated system built around a switcher, while providing all of the high-quality functionality. It also reduces reliance on the number of people required to run such a workflow.

While isolated solutions may retain their place for isolated functions, an automated news broadcast deems them unnecessary. Investing in multiple solutions and dealing with various suppliers and contracts is clearly no longer the necessary evil it once was. BE

James Gilbert is managing director of Pixel Power.

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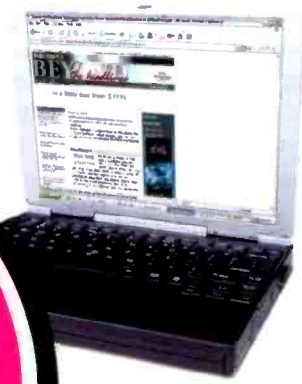

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Genesis' fiber link

Portable Bandwidth Services and IRIS offer flexible and controllable bandwidth transmission.

BY PAUL DUJARDIN

With a global video-over-IP fiber-optic network, it's now possible for broadcasters, news networks and content originators to feed content around the globe more reliably and cost-effectively than by satellite. A network that provides local and international transmission services over fiber offers the considerable cost and integration benefits of video-over-IP.

Phone dependency

Until recently, securing bandwidth and accessing the required content through it has been just as hazardous with fiber as with satellite because of the ad hoc nature of the provisioning process. Provisioning by either satellite or fiber-optic network is a haphazard, nerve-wracking operation, prone to human error. Operators managing the uploading of content work under a lot of pressure, especially in breaking news events when there is fierce competition for access to coverage of a feature story. And operators can make mistakes.

The traditional way for a broadcaster or news agency to be sure of getting the content is to continually check — by phone — with the originator that it is on its way. (See Figure 1.) This seat-of-the pants approach also leaves the receiver open to the possibility that they will be at the back of the queue to secure the content they want and may miss out because bandwidth is no longer available at the time they need it.

The traditional way for a broadcaster or news agency to be sure of getting the content is to continually check — by phone.

In the case of a news story unfolding in a remote part of the world (a natural disaster, for example) it is unlikely that a broadcaster will have existing network arrangements that will allow it to access footage from the scene, which may come from a variety of sources. In the conventional approach, as soon as a broadcaster becomes aware that footage is available, the race starts to secure the transmission by phone negotiation. And the phone calls don't end there but are repeated to check that no problems have arisen with the feed, the network or the hardware.

Broadcasters usually maintain a barrage of calls to the supplier until the content is safely received. In addition, there is no way to verify the material until it is fully received. Only then can the broadcaster ensure it is the right footage and make sure the quality is acceptable.

Traditional satellite uplink

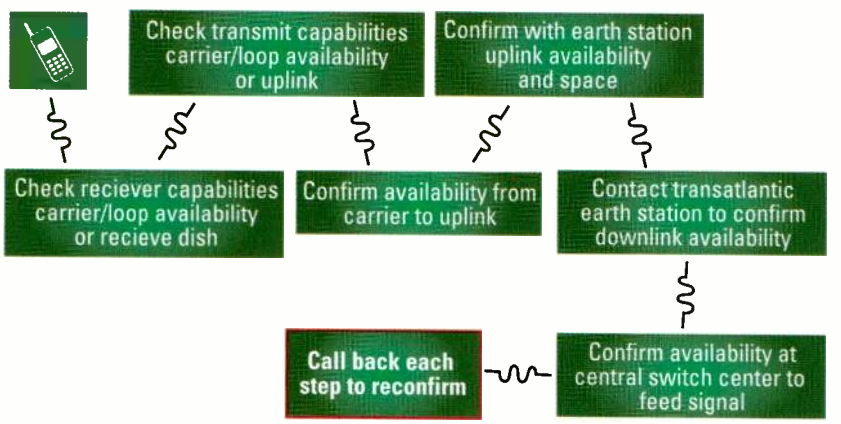

Figure 1. Content delivery requests are typically handled via telephone, requiring constant follow-up and human interaction.

Traveling bandwidth

For the industry to fully benefit from the advantages of a global video-over-IP network, it needs something more controllable than this. Genesis Networks has pioneered two important developments that put the customer in complete control of transferring material around the globe: Portable Bandwidth Services and the IRIS provisioning system. (See Figure 2.) With these two technologies, the process of managing bandwidth, routing and scheduling of video transmission services becomes less like trading on the floor of a stock exchange and more akin to attaching a file to an e-mail and sending it, with the broadcaster in control of every stage.

The bandwidth service allows Genesis network subscribers to monitor and shift bandwidth anywhere on the network when requirements change, making the most of the cost advantages this offers. This allows a news agency

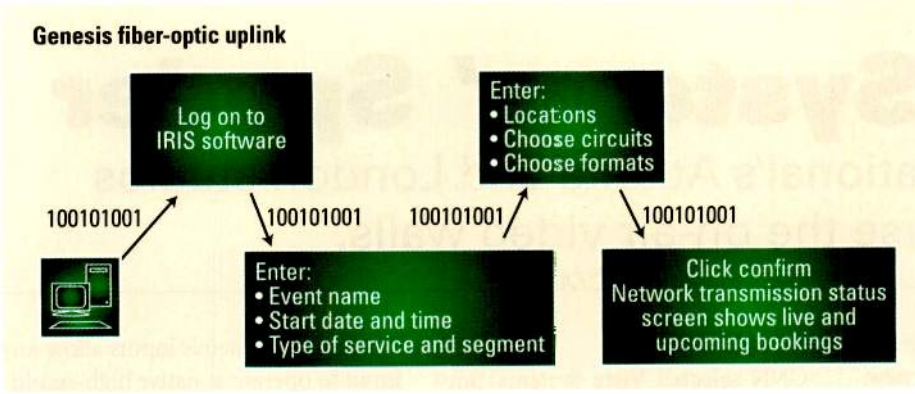

Figure 2. Using Genesis Networks' IRIS software and Portable Bandwidth Services, fiber network content can be managed electronically.

providing a video delivery service to broadcasters to move as the news moves, borrowing capacity from one or more bureaus to boost bandwidth between the bureau where the event is unfolding and the master control room.

A direct link in

The IRIS application gives customers software control from any Web-enabled computer, and allows users to book, reserve and monitor their own network and occasional video services in real time. The software serves as a database management application tied to the Genesis provisioning system that automatically reserves the bandwidth, equipment and resources necessary for each of the client's services in real time.

Customers can control their video transmissions in their own master control studio — a crucial advantage in fast-breaking news situations — or from anywhere else using the software on a laptop connected to the Web. Because all major gateways are accessible from one center, the customer benefits from interconnections on a local, national and international scale.

In the busy production environment, any time saved in booking is a bonus, and here the template function allows IRIS users to book recurring services with minimal input. Templates contain the customer's details and subject names, the transmission start and finish times, origin and destination, time zone conversion, format conversion requirements and data details. The operator need only add the date before making the booking.

Because the IRIS software provides comprehensive information about network availability, broadcasters can manage their scheduling, booking occasional video transmission feeds and Portable Bandwidth whenever it is needed. Users can view the network in real time, determine when bandwidth is available on any given route and inspect the status of all the equipment selected for each video feed, with real-time network diagnostics and alarms identifying potential failures.

In action

Broadcasters are also seeing the considerable advantages fiber transmission can offer in picture quality and reduced time delay. Genesis recently provided coverage for the Australian Open and major award shows worldwide. The fiber service provided superior quality and reduced delay over satellite transmissions. This was a considerable bonus for production staff overseeing commercial insertion for these live events. These advantages, combined with reduced costs — sometimes around half the price of a satellite feed — make compelling arguments for using fiber.

The level of flexibility offered by Portable Bandwidth Services over the Genesis fiber network with the complete control IRIS allows users to shift content around the globe more reliably and rapidly, in many cases developing new business opportunities via traditional broadcast and online environments. **BE**

Paul Dujardin is president and CEO of Genesis Networks.

Vista Systems' Spyder

CNN International's Atlanta and London studios use the on-air video walls.

BY VICTOR VETTORELLO

When CNN International designed new sets for its Atlanta headquarters and London studios, the cable network needed a widescreen set solution that would enable it to create widescreen pixel spaces easily and efficiently in a live environment. All of CNN International's Atlanta and London programming comes from the new sets, which are distinguished by large, seamless, rear-projection screens. The programming produced at the studios includes "Your World Today," "Insight," "CNN Today," "Business International," "World Business Today" and "World Sport."

News broadcasters today are challenged to craft innovative electronic sets that stand out from the competition. The need for a lot of media on the set is a given, and it requires a system that can handle a mix of sources and react quickly in the live arena of news.

The solution

CNN selected Vista Systems' Spyder image processor as its solution. One major reason for choosing this system was because it is designed for use in live environments and excels at creating widescreen pixel spaces.

Another reason for choosing it was because the network had previous success with the system when it was used for on-air, broadcast news applications at CNN New York, where "Anderson Cooper 360" and "Paula Zahn Now" originate.

The image processor enables CNN to control multiple pixel spaces and display devices on-set from the same control.

Spyder allows CNN International's Atlanta studio screen to display 3200 x 1040 pixels total.

Features

Spyder offers the flexibility to mix sources in multiple windows, greater signal processing clarity, seamless widescreen displays and real-time compositing for high-resolution applications in a modular, scalable package. It can be deployed alone or combined, like building blocks, to accommodate applications using a single plasma screen or multiple screens.

All of the system's inputs allow any input to operate as native high-resolution channels, scaled PIP, scaled background or key channels. Inputs can also be switched easily from any of the modes during normal operation. The system's resolution independence allows multiple projectors to be used to increase pixel space and resolution beyond what a single display device can handle. The image processor offers up to 6.5 million pixel display capacity from a single frame, up to 2048 x 1200 resolution on each input and output, 12-bit scaling for the highest quality images, and aspect ratio correction.

Any output can be an operator's monitor, displaying preview and program for a given pixel space simultaneously on a single output. The image processor provides a fully integrated test pattern generator on each input, output and pixel space, as well as powerful frame-stacking capability, with the expansion option, which allows I/Os from other Spyder

systems to contribute and view a single pixel space.

Given these capabilities, the system was the perfect solution to permit CNN International to take in digital and analog sources with different resolutions, formats and aspect ratios, and display them at any size, anywhere on the large pixel canvas presented by the seamless rear-projection screens. The image processor also provides a scalable solution that can grow along with CNN International's needs.

Proving its worth

The image processor had already proved itself live with its support of various types of display devices for high-profile news and sports programs. It supports an LED wall for "NFL on CBS," projection cubes for "NBC Sunday Night Football," and a combination of plasma monitors, LED walls and rear-projection screens for "The CBS Evening News with Katie Couric."

The system can also be paired with innovative peripherals to aid the technical directors who are responsible for both switching the cameras on shows and controlling the image processor. In this kind of configuration, the technical directors can simplify their workflow and react quickly to changes during the show.

Spyder's ability to create widescreen pixel spaces, its intuitive software, scalability, on-air track record and ability to combine with other products to streamline the workflow all contributed to making the image processor the ideal choice for CNN International's Atlanta and London studios. McCann Systems provided the install and integration for both locations. Currently, the system works with Christie 1400 x 1050 three-chip DLP projectors and DNF controllers to produce a two-projector blend in London and a three-projector blend in Atlanta across the screens' seamless surfaces. BE

Spyder offers a luminance and color keyer on every input and supports 32 independent windows or 16 mixers.

Victor Vettorello is the director, application engineering, for Vista Systems.

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Splicing MPEG

Compressed digital video's lossy nature complicates the process.

BY JOHN LUFF

Although the motive for compressing all files is the same (i.e. to make them smaller and easier to transmit and store), compressing digital video is quite different than other compressed files. Video compression can be lossy, which means that it does not allow the retrieval of the original signal. And we are OK with that.

Frankly, it is a good thing we are not too picky, because DTV and all forms of modern media would simply not be possible if baseband were the only solution. With active picture data in HDTV occupying 1.24Gb/s, we simply could never entertain implementation and distribution.

The nature of MPEG

MPEG is highly statistical in nature. It throws away content that you are "unlikely" to miss. It does this nondeterministically, so that only the statistical data rate is constant.

In fact, taken over a long period of time, the number of frames transmitted in one second will be 29.97 frames. But taken in an arbitrarily short period of time, the number of frames in the transmission pipeline is only close to 29.97fps.

I point this out because this simple fact of the physics of television has delivered complications we never would have thought about 30 years ago when bit rate reduction was being studied in labs and universities worldwide. Take, for example, the simplicity of cutting between two NTSC signals. You simply have to find the 10th line after vertical interval and execute a switch between the two signals. Any vertical interval suffices, so long as the cadence of fields and color framing is preserved, and of course the signals are synchronous and time-aligned.

Analog and digital work the same way in uncompressed video. Unfortunately, this is not the same with MPEG.

Splicing MPEG

Because of the distinctly different nature of MPEG compressed frames, you can't simply identify vertical interval and switch to an incoming stream.

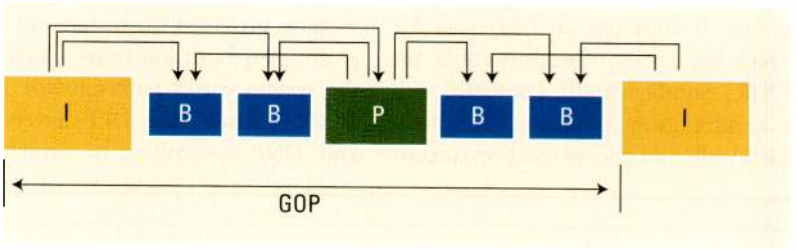

Figure 1. MPEG frames must reference anchor frames to be decoded.

I-, P- and B-frames have widely different characteristics, including the number of bytes, as a result of transmission time. (See Figure 1.)

You can't cut one stream on a B-frame and enter the next on a P-frame, because the references — forward and backward in the case of the B-frame — are no longer sensible. The MPEG cadence is therefore broken, and a decoder receives an invalid bit stream, which it cannot decode.

However, it may well work to cut from a P-frame to an incoming I frame because I-frames are internally consistent and don't reference externally to permit decoding. The decoder could simply ignore the forward reference in the P-frames when it receives the incoming I-frame. (See Figures 2 and 3.)

Thus, the simple edit in NTSC must become a splice in MPEG. The splice must be constrained to keep the MPEG stream syntax intact. The simple cut in NTSC can be defined in a few words. But the parameters developed by SMPTE to allow splicing fills 12 pages of standards language in SMPTE 312M 1999.

The good news is that it is possible and, in fact, done every minute of every day. Commercials are spliced into MPEG programs at every cable headend. Special purpose splicing systems deliver HDTV to FOX affiliates all the time.

The splice point indicators are a routine part of ANSI/SCTE 35 2004 messages carried in many compressed programs. SCTE 35 facilitates program switching and commercial

MPEG is highly statistical in nature. It throws away content that you are "unlikely" to miss. It does this nondeterministically, so that only the statistical rate is constant.

insertion by carrying commands related to the splice in a separate packet ID. This allows critical metadata about program intentions to pass through splicers — even when video and audio are manipulated.

Complicated processing

MPEG is statistical, so how would it be processed in more complex ways? Many people assume that it is possible to complete most, or all, of the functions related to manipulation of programs during transmission without decoding the compressed MPEG back to baseband.

MPEG is highly statistical in nature over long periods of time. Within each frame, it is highly organized. Slices, macroblocks and individual samples are constrained by the complex language of MPEG to a manageable range of values. It is therefore a predictable structure at the frame level.

Take, for example, inserting a logo into an MPEG stream. Making such an insert possible requires creating new macroblocks that will precisely replace existing ones. These macroblocks must also show the keyed-in logo when they're decoded. One option is to partially decode the background, add the key in and re-encode the area affected.

I am sure that by the end of this decade, conventional baseband manipulation for emission will be a thing of the past.

With an understanding of the mathematical representations of foreground and background, it is mathematically possible to analyze the content and create new macroblocks without fully decoding the content. The entire signal must be subjected to some additional latency to allow the calculations to proceed and the full set of macroblocks to mesh back together again. Other transformations, including squeezeback, dissolve between MPEG programs.

Now that processing power is cheap and ubiquitous, other effects are also possible. It is worth noting that compressed audio shares many characteristics with picture content.

Transrating

Another important, frequently performed post process is transrating, or changing the bit rate of a stream after it is coded. This allows high bit rate distribution rate signals to be reduced for final emission, either as part of a DTV multiplex or as cable or satellite signals.

MPEG-4 Part 10, also referred to as H.264 or AVC, makes all of this more complex because of the many coding options available. Variable size macroblocks, intracoded portions of a frame and loads of other tools that maximize picture quality add complexity but do not fundamentally change the playing field.

Fully compressed transmission systems that do not use baseband video are now on the market. Playback of local content and splicing with live streams is routine, and keys (bugs, ratings info, etc.) and other local manipulations are no longer a problem. Even statistical multiplexing of separately coded signals is possible, by transrating all signals under the watchful eye of management software. I am sure that by the end of this decade, conventional baseband manipulation for emission will be a thing of the past. BE

John Luff is a broadcast technology consultant.

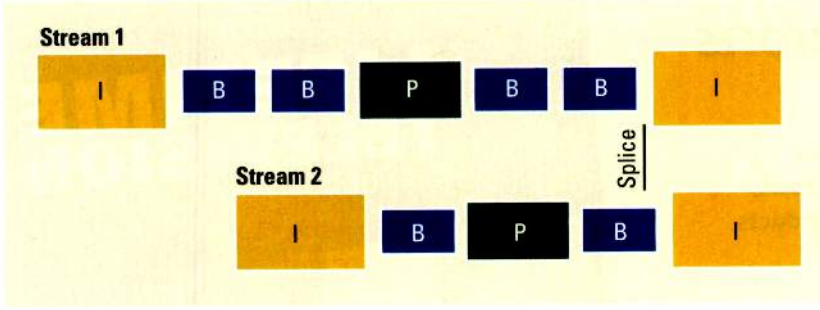

Figure 2. An example of a valid splice because there is a valid incoming anchor frame

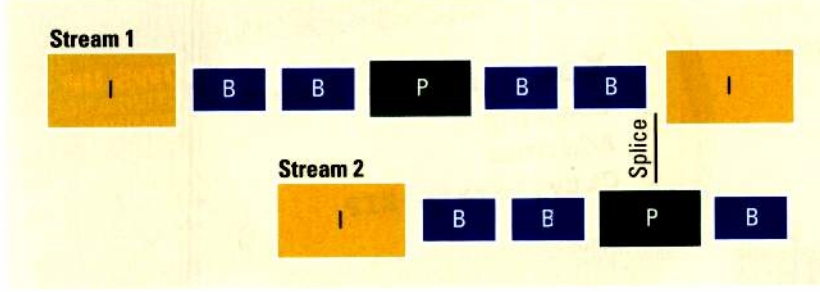

Figure 3. An example of an invalid splice because there is no incoming anchor frame

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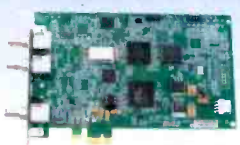
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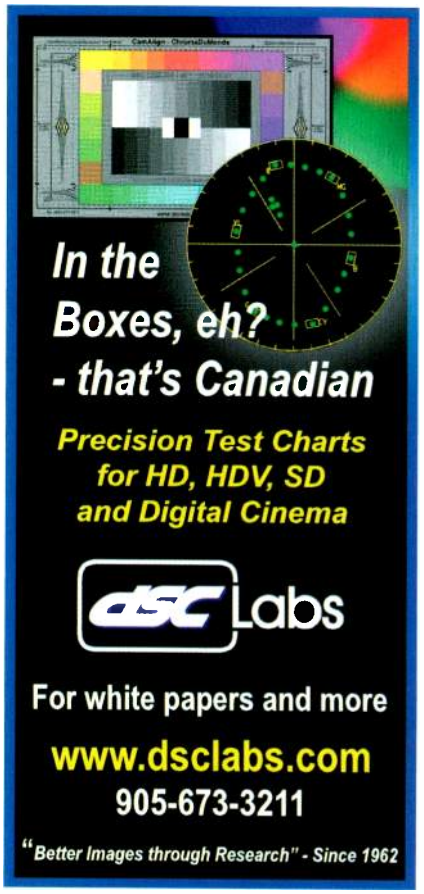

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Essential Functions include:
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- Assist Senior Engineers and Managers in the development phase of new engineering projects, improvement of existing systems, equipment procurement requirements specification, and other architectural aspects of broadcast systems implementation.
- Supports Manager, Resource Management Services in dialogues with equipment manufacturers and vendors regarding technical equipment designs and evaluation prior to purchase for use the company broadcasting facilities.
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Broadcast Engineer wanted for our Pueblo studio. Requirements: 5 years experience in commercial television broadcasting maintenance, live television news production, and electronics repair. Working knowledge of analog and digital video/audio signals, video servers, RF, and satellite receivers a must. Must be able to lift up to 50 pounds. Intermediate knowledge on networking, and all Windows operating systems required. A General Radio Telephone FCC License or SBE Technician Certification is required. Please send resume to: KOAA-TV, Attn: Quentin Henry, Chief Engineer, Source Code: _____, 2200 7th Avenue, Pueblo, CO 81003. No phone calls, please. E.O.E.

Help Wanted

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14 WFIE-TV, Raycom Media's NBC affiliate located in Evansville, IN is interested in reviewing resumes for consideration for the position of Chief Engineer. The Chief Engineer is a departmental management position and has the responsibility and authority over all studio operations, technical maintenance, building facilities and security and information systems. The position entails scheduling, hiring, training and evaluating department personnel. Also responsible for departmental operation and station capital budget preparation and management. Applicant's background should include a minimum 3 to 5 years experience, knowledge of and compliance with FCC rules and regulations and use of CAD to draw diagrams of system interconnections for installation of new equipment. Microwave, UHF transmitter, building and information systems planning and management knowledge is essential. You should have a minimum of two years technical schooling with a preference for an ASEE or BSEE. Please mail a resume and salary requirements to: Engineer, 14 WFIE-TV, P.O. Box 1414, Evansville, in 47701. EOE/MFHV

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WKRN-TV an ABC affiliate in Nashville, TN is seeking a broadcast television Maintenance Engineer. The successful candidate should have 3-5 years experience as a broadcast Maintenance Engineer and must possess a working knowledge of SD and HD equipment. The duties include equipment installation, support of ENPS news room system, server based news editing systems, VCI broadcast automation, Grass Valley master control and production switchers, audio mixers, microwave transmitters and receivers, satellite receivers, master routing systems, SX/SP tape machines, news production equipment, SNG and ENG trucks, Final Cut and Avid nonlinear editing, and all other associated broadcast equipment. SBE, MCSE, or other certifications desirable but not required. This position requires the individual to be able to lift and move up to 50 pounds and mobility is required If you are a highly motivated individual, enjoy working with new technology, and possess a high attention to detail, then this position is for you. Please submit resume to: gparker@wkrn.com or mail to WKRN-TV, 441 Murfreesboro Rd., Nashville, TN 37210 Attn: Chief Engineer. No phone calls please!! EOE

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Help Wanted

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April 2007, Vol. 49, No. 4 (ISSN 0007-1994) is published monthly and mailed free to qualified persons by Penton Media, Inc. 9800 Metcalf Ave., Overland Park, KS 66212-2216. Periodicals postage paid at Shawnee Mission, KS, and additional mailing offices. Canadian Post Publications Mail Agreement No. 40597023. Canada return address: DHL Global Mail, 7496 Bath Road, Unit 2, Mississauga, ON L4T 1L2. POSTMASTER: Send address changes to Broadcast Engineering, P.O. Box 2100, Skokie, IL 60076-7800 USA. CORRESPONDENCE: Editorial and Advertising: 9800 Metcalf, Overland Park, KS 66212-2216 Phone: 913-341-1300; Edit. fax: 913-967-1905. Advert. fax: 913-967-1904. © 2007 by Penton Media, Inc. All rights reserved.

TV's doomsday nears

Bill Gates predicts that television viewing will die out in five years.

BY ANTHONY R. GARGANO

At the recent World Economic Forum in Davos, Switzerland, Microsoft's Chairman Bill Gates reported on the imminent doom of television because of Internet-distributed content. His television doomsday timeline was within the next five years.

When Gates speaks, everyone listens, which is a byproduct of being one of the world's richest men. History reveals, though, that Microsoft's incredible success was not built on Gates' prognostications. Rather, his fortune and Microsoft's preeminence is owed early on, it seems, to sheer good fortune and later to incredible marketing genius.

Gates' crystal ball

In 1981, when IBM could not reach an arrangement with Gary Kildall to use his CP/M operating system for IBM's soon to be introduced desktop computer, the company approached a fledgling Microsoft. Gates then purchased the rights to QDOS (Quick and Dirty Operating System) from Tim Patterson for some $50,000, evolved it into MS-DOS and convinced IBM to allow Microsoft to retain the rights. The rest, as they say, is history.

But, let's get back to Bill's expertise in predictions. In one of his first books written in the mid-'90s, "The Road Ahead," the first draft hardly mentioned the Internet. This gross omission was subsequently amended in later versions.

Several years ago in a newspaper interview, Gates indicated his belief in the coming demise of Apple's iPod when he said, "I don't believe the success of the iPod is sustainable." Apple's latest quarterly report indicates that, as of January 2007, iPod sales are close to 90 million units.

At the 2001 Comdex Exhibition in Las Vegas, Gates' comment about the tablet PC was, "It's a PC that is virtually without limits, and within five years, I predict it will be the most popular form of PC sold in America." And, to the great relief of those in attendance at the 2004 World Economic Forum, Gates said that the spam problem would be resolved within two years. So much for Gates' prowess as a seer.

Competing for eyes

While clearly the PC screen competes for eyeballs with the television display, they are very different experiences. A PC session is typically a task, communications or information-oriented session where most of the video experience is clip-based. Television, on the other hand, tends to be a sit-back, entertaining medium, viewed in program-length segments.

Then there is the whole matter of distribution. Think HD. Along with broadcasters' investments to deliver HD, the public has made huge investments in large screen displays to view it. But can HD be delivered over the Internet? Not today. Within five years? I don't think so.

Google, which recently acquired YouTube, doesn't think so either. OpenTV's former CTO, Vincent Dureau, who is now head of TV technology for Google, in a speech in February, said the Internet was not designed for television. "The Web infrastructure, and even Google's [infrastructure], doesn't scale. It's not going to offer the quality of service that consumers expect," he said.

While viewers will certainly be watching more Internet-sourced video in the next five years, it will just as certainly not replace the lean-back-and-entertain-me HDTV experience. A lot of that Internet video will be watched on handheld and mobile wireless devices. And here, too, the broadcaster has a role to play — not just with supplying content, but also with delivering that content. For example, during a demonstration at CES in January, DTV content was transmitted using proposed ATSC A-VSB technology and delivered to viewers with handheld devices.

While viewers will certainly be watching more Internet-sourced video in the next five years, it will just as certainly not replace the lean-back-and-entertain-me HDTV experience.

Time to get back to my e-mail. There is a lot of spam to delete. BE

Anthony R. Gargano is a consultant and former industry senior executive.

? Send questions and comments to: anthony.gargano@penton.com

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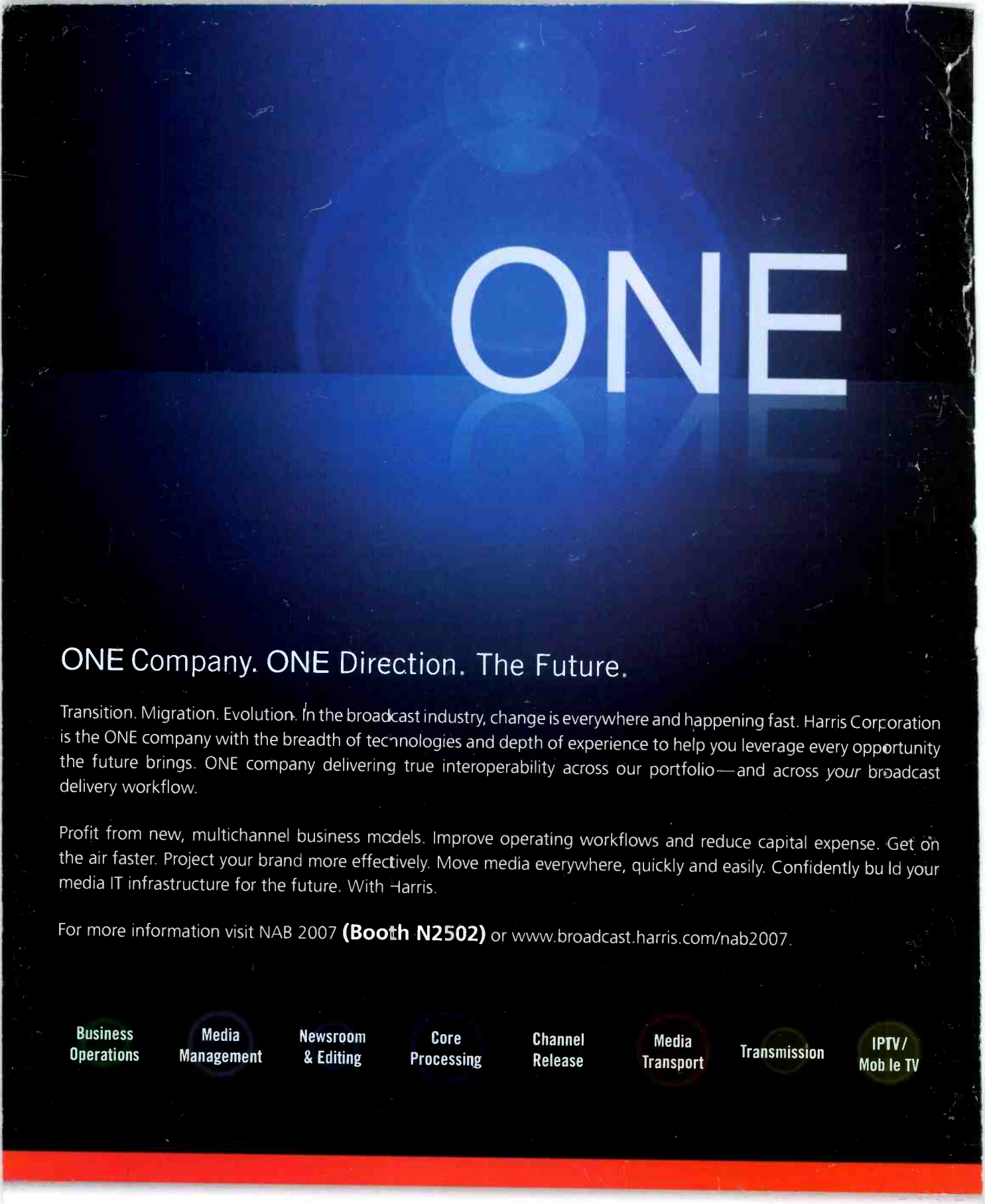

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