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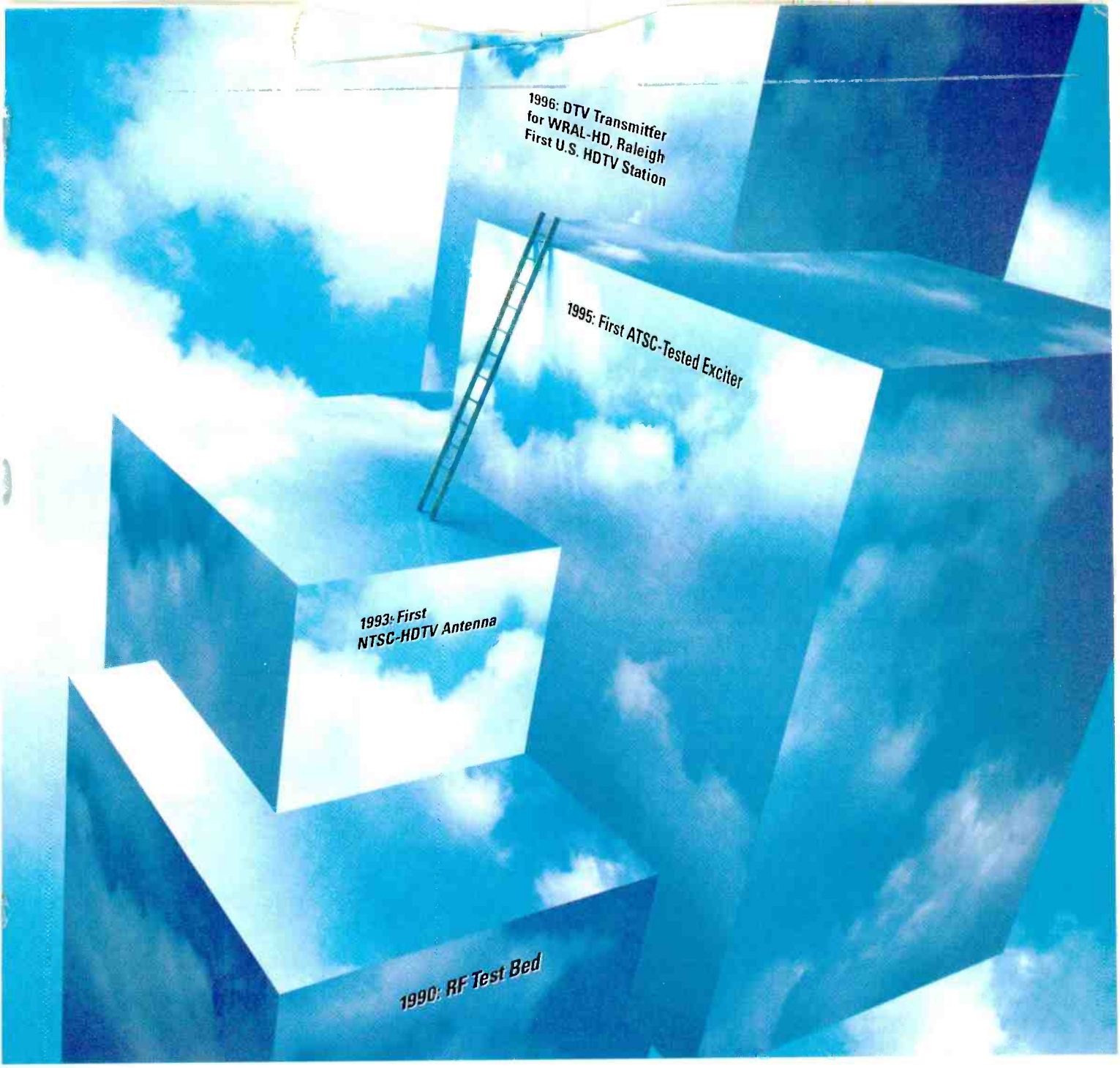

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BROADCAST ENGINEERING®
March 1997
Volume 39, Number 3

features

NAB Preview

NAB Preview 46
Conference Tables 48
NAB Extra: Sneak Peeks (includes convention tips) 64
Word Wiz 172
Exclusive *BE* FASTTRACK 175
Exhibitor Floor Map 201
Exhibitor's Showcase 218

columns

FCC Update 12
The spectrum auction debate: Hundt's hard road agenda

Transition to Digital ... 14
MPEG: What's it all about?

Management 22
Sparking the creative drive

Computers & Networks . 24
Metadata: What is it, and why do you care?

Production Clips 28
Communicating with the field

Cabletec 32
New trends in local cable production

Interactive 36
Bigger data pipes: What's possible?

ATV Update 42
Accelerate or not? That is the question

Transmission 273
Antenna pattern design

Field Report 280
CNNfn implements the latest in graphics technology

Field Report 281
Avid Technologies' Media Composer

Perspective 282
The video disk game: A technology perspective

Digital Basics 302
Cable modem deployment

departments

Editorial 06
Letters to the Editor ... 08
News 10
Classifieds 293
Advertisers' Index ... 300

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ON THE COVER: The countdown to NAB has begun and this year the convention is bigger than ever. This issue of *BE* gives you a running start with a winning combination of product coverage and hot tips, so you can successfully navigate this year's show.

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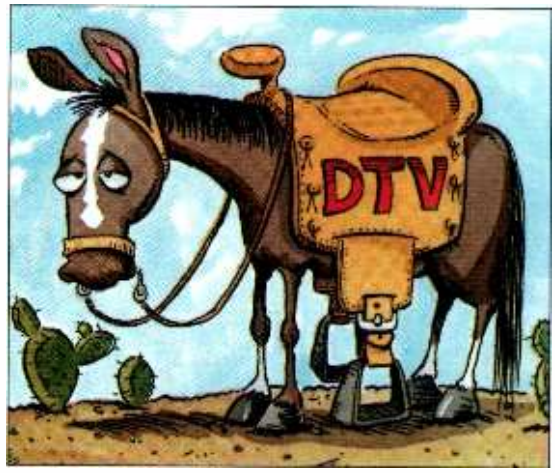
editorial

DTV: A new saddle on an old horse

The spin doctors are hard at work for digital television. No longer able to sell the idea of HDTV, they're putting a new saddle on an old horse and calling it DTV. This is the latest (and at least third) term for this anchor around the broadcaster's neck. The frenzy being created by the consumer electronic industry is beyond misleading, it's damn dishonest!

One of the latest groups calling for the FCC to quickly approve DTV, this time under the guise of saving American jobs, is the IBEW. It's easy to see why the IBEW supports the adoption of DTV. After all, they want its members to be the ones who will build these supposed millions and millions of sets. While I'm all for American jobs, it's just too bad the unions aren't being honest with their members about *where* these new sets will really be manufactured.



As evidence, consider that just last month, Thomson Consumer Electronics, the nation's largest maker of televisions announced it was cutting more than 1,500 jobs from its two U.S. TV factories and moving the work to Mexico where labor is cheaper. Thomson, which makes sets under the RCA, GE and ProScan labels, will close its Bloomington TV-making plant, laying off 1,100 people. It will also cease production at its TV cabinet plant in Indianapolis, cutting 420 jobs. The IBEW claims the plant closings will affect almost 2,000 jobs.

Just a couple of years ago at an NAB press conference, I recall where the mighty Joe Clayton with Thomson Consumer Electronics chastised me and the rest of the press for "fostering the notion" that Thomson and other set makers were manufacturing most of their televisions outside the United States, rather than in America. He touted that his sets were U.S. made and that HDTV was an important development because it would increase the number of jobs in his U.S. factories. Clayton then trumpeted how "American" his company's TV sets really were; his sets used CRTs made in Missouri (the factory was really owned by Zenith, not Thomson and now it has been moved to Mexico), the cabinets were made with wood from U.S. forests and assembled in Indianapolis. My God, by the time he was done, I felt so patriotic I wanted to stand up and salute or maybe sing "God Bless America!"

However, as Clayton continued dancing like Fred Astair around the real question, the truth became obvious to anyone paying attention. Here was a good politician touting the corporate line. While it sounded good, what was said hid the real truth. Most TV sets are not made in America and the adoption of DTV won't change that.

The consumer electronics industry realized early on that it would be much easier (and more politically acceptable) to force 1,200 TV stations to spend billions implementing DTV than it would be to tell the American public the truth, which is their TV sets are going to become obsolete — not because today's NTSC technology is obsolete, but because TV set makers need DTV to sell new sets. The real issue shouldn't be how old NTSC is, but rather does the American public want DTV. I believe the answer is no.

To paraphrase an old adage, you can show the viewer a new digital TV set, but you can't make him buy it — that is, unless you can force the entire broadcast TV industry to turn off their NTSC transmitters. Then, the poor viewer will have no choice.

Tell me, what do you think?

Brad Dick

Brad Dick, editor

READER FEEDBACK

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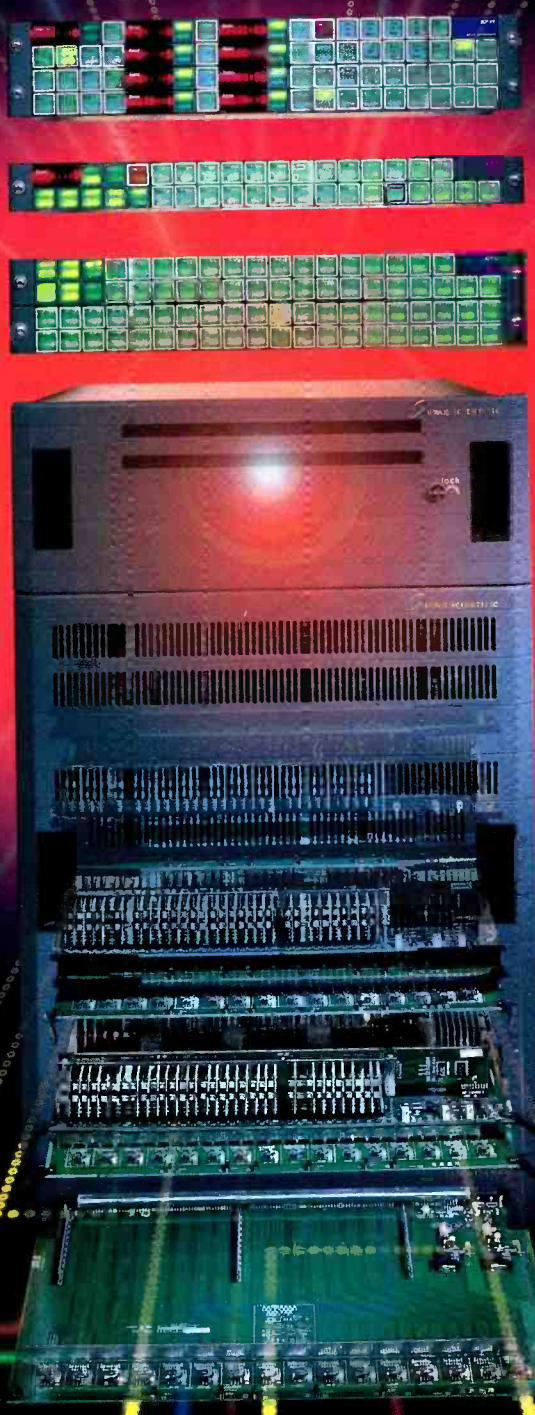

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letters to the editor

Bye bye Vegas?

Isn't it time that NAB got on its wagon and rolled to a new city? It's not that I don't like Las Vegas — it's a great city. It's compact and clean and safe. But the citizens of Las Vegas are getting greedy. Not content with the income from 90,000 visitors for the week, plus all the setup staff, they are now surcharging room rates for the week of the show. Typically, there is a U.S. $200 surcharge — and that's only on a three-star hotel.

From England, we are prohibited from using a package deal — and even if you choose these, you are being surcharged. The hotels will not let you arrive on Saturday. You either have to come on Friday and pay for an extra night in a hotel or arrive Sunday and waste two hours queuing for the show on Monday morning. When the rates were good, that was OK, but not now. Not with these new surcharges. Of course, the venue is no longer ideal, being split over two sites. As we have found in Europe with the Montreux exhibition, merely complaining does no good. If NAB votes with its feet and moves elsewhere for a few years, Las Vegas will quickly decide that it would love to have us back — at our price.

ARTHUR MOOR
NOTTINGHAM, ENGLAND

Dear Arthur:

It's common for organizations to get a kickback on every room booked for a convention. That's why you can usually get a cheaper rate by not going through the booking agency. At, let's just say, $20 to $50 a room per night, an organization can rake in hundreds of thousands of dollars just on the hotel rooms used by its attendees. Although this sounds like a big rip off, it's all part of the convention business.

Brad Dick

Let TVs be TVs

Your editorial on the Frankenstein TV was right on the mark. The simple TV still does what it needs to do very well. It provides entertainment for any sized group from one to many. The whole family can sit down to watch Wheel of Fortune *or a movie. Most people do not want to interact with the TV, other than occasionally talking back to it. Any work, other than flipping channels, while I watch TV would be an unwanted hindrance.*

The PC, on the other hand, is best-suited for work or play for one person at a time. My family seldom sits at the computer together to do word processing, except maybe a Christmas letter. Using Quicken to do the family finances or surfing the web are normally done solo. Even computer games are usually played by only one person at a time. I often watch TV while I work on the computer, but I don't want to tie up part of my computer screen for that luxury.

Let TVs be TVs and let PCs be PCs. Just because they both have screens does not mean they need to be merged into one unit.

PAUL CARYL
BROADCAST ENGINEER

Dear Paul:

I couldn't agree more, having said that, we may be in the minority. Comstream this month is releasing a plug-in PC card that continues to proliferate the exact scenario you describe. It will be offering the TVPC card, which takes the downconverted output from a satellite dish and feeds it to the computer and generates separate VGA and composite feeds for an external TV. The system makes the TV a slave to the PC.

When I asked about the obvious need to move the PC into the living room, I was told that was happening anyway, with more stylistic and ergonomically friendly PC designs. Hey, maybe for you, but I'll be keeping my PC in the den. I want to be able to separate my tasks, not combine them.

Brad Dick

Send your thoughts to the editor at
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When it comes to "widest angle" lenses, Canon's J9aX5.2 IRS/IAS is the lens of choice. From camera people to rental houses, more people trust Canon's J9aX, the proven standard in widest angle ENG lenses.

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news

By Dawn Hightower, senior associate editor

Consumer/labor coalition calls for HDTV action

A coalition of labor, consumers and senior citizen groups are urging the Federal Communications Commission to complete the channel allocation process for digital television.

According to the coalition, the FCC and Congress need to recognize these developments and allow for commercialization of this technology as soon as possible, lest they delay the creation of thousands of U.S. jobs and threaten existing ones.

The coalition's statement was prompted by budget proposals by the administration that will single out local TV stations for premature surrender of their analog channels and spectrum taxes on their digital channels; and that the FCC or Congress may hold up the process of allocating digital channels to free, over-the-air-broadcasters.

Itelco and BBC develop a DTT modulator

The British Broadcasting Corporation (BBC) and Itelco have announced a collaboration agreement for the development of a digital terrestrial TV (DTT) modulator conforming with ETSI specifications pr I-IS 300 744.

The BBC is one of the first broadcasters in the world that is implementing digital video broadcasting technology. It has been broadcasting pilot transmissions to the DVB-T specifications since April 1996.

SMPTE Conference slated for July

The Society of Motion Picture and Television Engineers (SMPTE) will be staged in Halls 1 and 2 of Sydney's Darling Harbour Convention and Exhibition Center from July 1-4, in Sydney, Australia.

The theme is "New Technology, New Opportunities," and more than 60 major companies will be exhibiting.

For more information on the conference, contact John Allonspach; phone 612-9977-0888; fax 612-9977-0336; E-mail exhibitions@exevents.com.

WavePhore supports Microsoft's PC/TV convergence technologies

WavePhore is participating with Microsoft Corporation in introducing new technologies for the emerging PC/TV market.

WavePhore's consumer distribution network will automatically broadcast filtered multimedia content without the need for an Internet connection or modem. By embedding datastreams into existing broadcast TV signals using the vertical blanking interval, WavePhore's consumer division will leverage its partnership with PBS National Datacast. WavePhore will transmit data over the broadcast signals of the 250 PBS member stations, reaching more than 99% of TV households in the United States and in Canada through its partnership with the Canadian Broadcasting Corporation (CBC).

NAB Law & Regulation Conference to offer invaluable info

The sixth annual NAB Broadcasters' Law and Regulation Conference is the broadcasters' road map for regulatory compliance. It will provide information on the latest news, regulations and obligations affecting the industry.

The sessions are designed to alert broadcasters to their legal obligations and save them time and money. The conference runs from April 6-9.

FCC chairman Reed Hundt will be the featured speaker at the FCC's Chairman's Breakfast. Hundt and FCC commissioners James H. Quello, Susan Ness and Rachelle Chong will make special presentations at the start of several of the conference sessions.

NAB 97 and Multimedia World exhibits exceed '96 record

This year's NAB and MultiMedia World have already exceeded last year's record of 648,965 square feet. This year's reserved space exceeds more than 720,000 square feet. With the addition of Hall A, the Sands exhibits will now occupy Halls A, B and C.

New exhibit areas this year include the Satellite & Telecommunications Pavilion located at the Sands. Also at the Sands will be a new radio/audio exhibit area and the Intranet Business Theater. The Intranet Business theater will be located in the Internet@NAB.97 area.

Joel Brinkley to address NAB luncheon

Joel Brinkley, Pulitzer Prize winner, political editor for *The New York Times* and author of "Defining Vision: The Battle for the Future of Television," will speak at the NAB Technology Luncheon, April 9.

Brinkley's talk is entitled "Defining the Future of Television," and he will chronicle the technological odyssey over the last decade devising the standard for the next generation of television. ■

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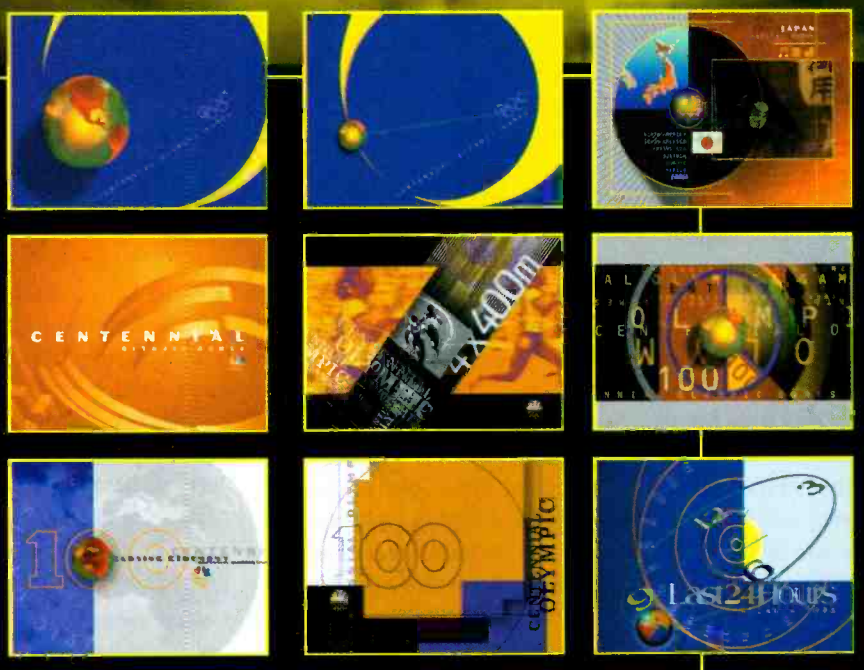
Hal is creative



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By Harry C. Martin and J. Todd Metcalf

The spectrum auction debate: Hundt's hard road agenda

On Dec. 26, 1996, FCC chairman Reed Hundt released a document entitled, "The Hard Road Ahead — An Agenda for the FCC in 1997." In it, he set goals for addressing and resolving a series of issues, including methods for awarding new analog broadcast licenses. Hundt concluded that the commission must reform the comparative hearing process and/or develop an alternative to it.

Harry Martin

Since the 1993 Bechtel decision by the DC Circuit, the comparative criteria previously used by the commission has been suspended, causing a massive backlog as the commission struggles to determine a reasonable way to fairly allocate new broadcast licenses. Currently, there are 710 applications for new TV stations alone, covering 91 markets.

In the interim, in an effort to alleviate the backlog, Hundt stated he could see only three ways to solve the crisis. First, Hundt suggested that Congress grant the commission authority to put the available channels on the auction block. Hundt endorsed this method over his other two suggestions by describing the auction process as the fastest and fairest way of getting licenses into the hands of those who will put them to the best use. Should Congress not approve auctions, Hundt would consider either employing the non-integration comparative criteria, which was not invalidated in Bechtel, or giving new analog broadcast licenses to applicants whose programming will contribute most positively to their communities. Hundt described successful applicants under this proposal as those who can present specific, quantifiable evidence that they are willing to provide free air time for political candidates, children's programming, material geared toward minorities and other underserved segments of the community. Finally, the commission could concede defeat and simply give analog licenses away randomly by lottery.

Senator McCain's retort

Chairman Hundt's suggestions raised the hackles of Senator John McCain (R-AZ), chairman of the Senate Commerce Committee, the Senate Committee with responsibility for telecommunications policy. In a Jan. 9 letter to Hundt, McCain intimated that he too favors putting new analog broadcast licenses on the auction block. In the letter, the senator called on the commission not to set any new comparative standards for assigning the TV licenses inasmuch as he plans to introduce legislation that will free the FCC to auction the analog broadcast spectrum. McCain derided Hundt's suggestion that the commission give away the licenses based on programming commitments as unconscionable and called Hundt's lottery proposal indefensible.

Representative Tauzin weighs in

At odds with the idea of auctioning the broadcast spectrum is Representative Billy Tauzin (R-LA), chairman of the House Telecommunications Subcommittee. In a January speech to the Association of Local Television Stations (ALTS), the congressman made clear his unequivocal opposition to spectrum auctions. He argued that such auctions threaten the status of free over-the-air television as no other public policy proposal does.

Moreover, Tauzin stated that Hundt's agenda was quite disturbing to him. Tauzin worries that the commission is creating policies rather than implementing the will of Congress. He found Hundt's agenda to read like a public policy document even though the FCC is subject directly to Congress. The congressman made it clear that the commission does not have the right to write its own laws or otherwise set the national telecommunications agenda. What emerges from arguably three of the most influential voices in telecommunications policy is a muddled prescription. The only certain thing is that there finally are efforts under way to alleviate the backlog of TV license applications. It's impossible to predict whether legislation will emerge to resolve the current dilemma or whether the FCC will again be left to its own devices. ■

Harry Martin and J. Todd Metcalf are attorneys with Fletcher, Heald & Hildreth, P.L.C., Rosslyn, VA.

dateline

On May 31, all stations must file their 1997 Annual Employment Reports (FCC Form 395-B). On June 2, TV stations in Michigan and Ohio must file their renewal applications. Also on June 2, TV stations in the following states must file their annual ownership reports: Arizona, Washington DC, Idaho, Maryland, Michigan, Nevada, New Mexico, Ohio, Utah, Virginia, West Virginia and Wyoming.

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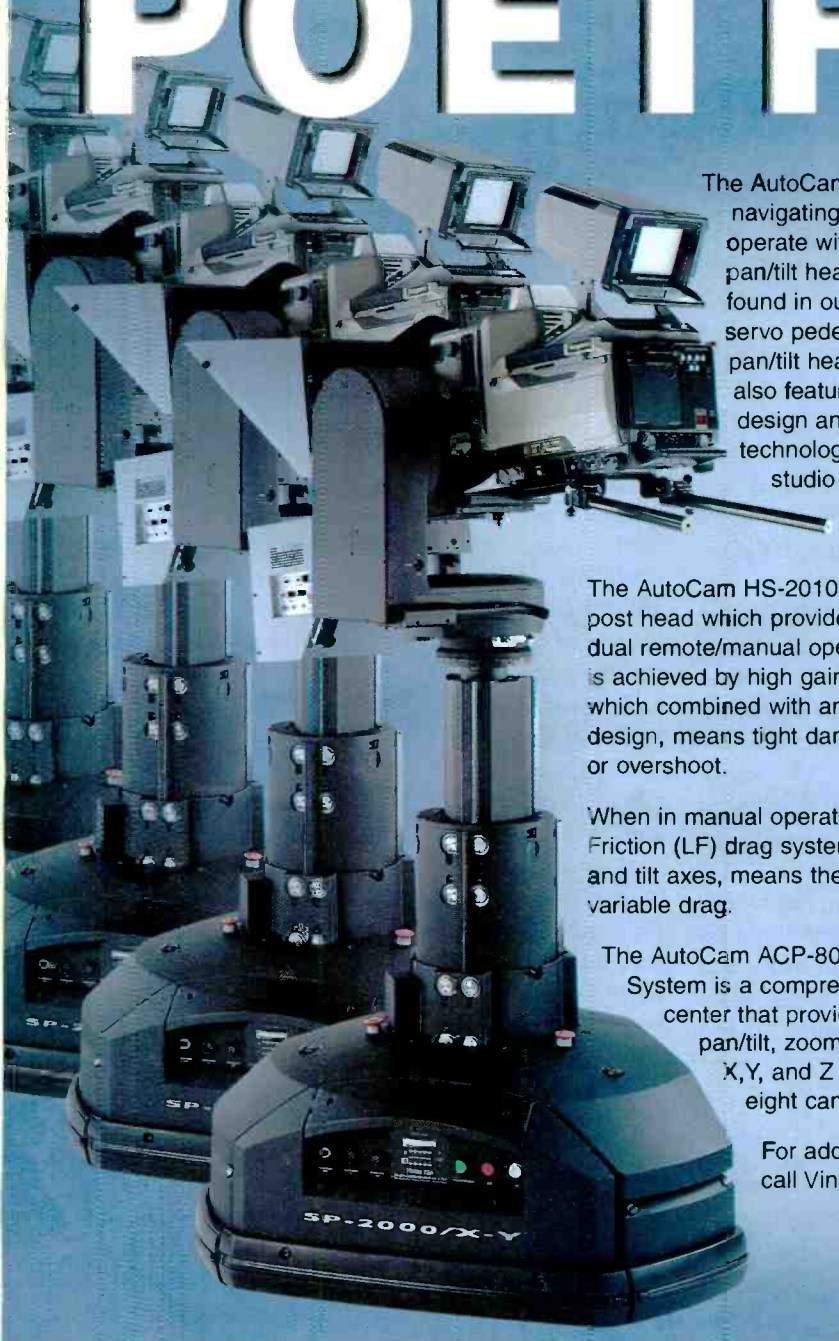
POETRY IN MOTION



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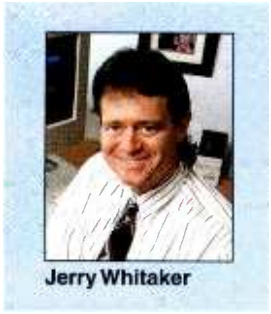
By Jerry Whitaker, consulting editor

MPEG: What's it all about?

With the past two columns in this series, we have covered the fundamentals upon which the MPEG group of video compression standards are built. This month, we will begin our examination of MPEG itself.

The Moving Pictures Experts' Group (MPEG) was founded in 1988 with the objective of specifying an audio/visual decompression system, comprised of three basic elements, called *parts*:


Jerry Whitaker

Part 1, Systems: Describes the audio/video synchronization, multiplexing and other system-related elements.

Part 2, Video: Contains the coded representation of video data and the decoding process.

Part 3, Audio: Contains the coded representation of audio data and the decoding process.

The basic MPEG system, finalized in 1992, was designated MPEG-1. Work then began on MPEG-2, with the first three stages (system, video and audio) agreed to in November 1992. The MPEG standards have achieved broad market acceptance. As you might expect, the techniques of MPEG-1 and MPEG-2 are similar. Therefore, after noting a few basic differences, we will describe both systems in sequence.

MPEG-1

When trying to settle on a specification, it is always helpful to have a target application in mind. The definition of MPEG-1 was driven by the desire to encode audio and video onto a compact disc, defined with a constant bit-rate of 1.5Mb/s. With this constrained bandwidth, the target specifications were:

- *Horizontal resolution:* 360 pixels
- *Vertical resolution:* 240 pixels for NTSC, 288 for PAL and SECAM
- *Frame rate:* 30Hz for NTSC, 25 for PAL and SECAM and 24 for film

Figure 1 shows a typical MPEG-1 encoder card, and Figure 2 is a typical MPEG-1 decoder. MPEG uses the JPEG standard for intraframe coding by first dividing each frame into 8x8 blocks and then compressing each block independently using DCT-based techniques. Interframe coding is based on motion compensation (MC) prediction that allows bidirectional, temporal prediction. A block-matching algorithm is used to find the best-matched block that can belong to the past frame (forward prediction) or the future frame (backward prediction). In fact, the best-matched block can be the average of two blocks, one from the previous and the other from the next frame of the target frame (interpolation). In any case, the placement of the best-matched block(s) is used to determine the motion vector(s); blocks predicted on the basis of interpolation have two motion vectors. Frames that are bidirectionally predicted are never used as reference frames.

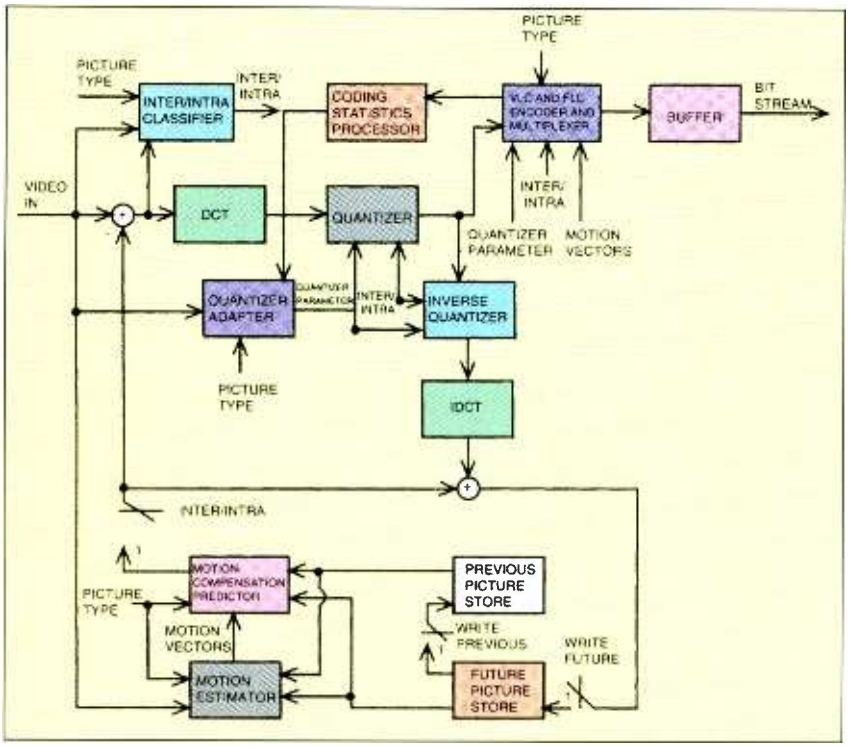


Figure 1. Block diagram of an MPEG-1 encoder.

Motion compensation

At this point, it is appropriate to take a closer look at MC prediction. For motion-compensated interframe coding, the target frame is divided into non-overlapping, fixed-size blocks, and then each block is compared with blocks of the same size of some reference frame to find its best match. To limit the search, a small neighborhood is selected in

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the reference frame, and then the search is performed by step-wise translation of the target block.

To reduce mathematical complexity, a simple block-matching criterion, such as the mean of the absolute difference of pixels, is used to find a best-matched block. The position of the best-matched block determines the displacement of the target block and its location is denoted by a (motion) vector. Block matching is computationally expensive and, therefore, a number of variations on the basic theme have been developed. A simple method, known as OTS, is shown in Figure 3. First, the target block is moved along one direction and the best match is found, and then it is moved along the perpendicular direction to find the best match in that direction. Figure 4 portrays the target frame in terms of the best match blocks in the reference frame.

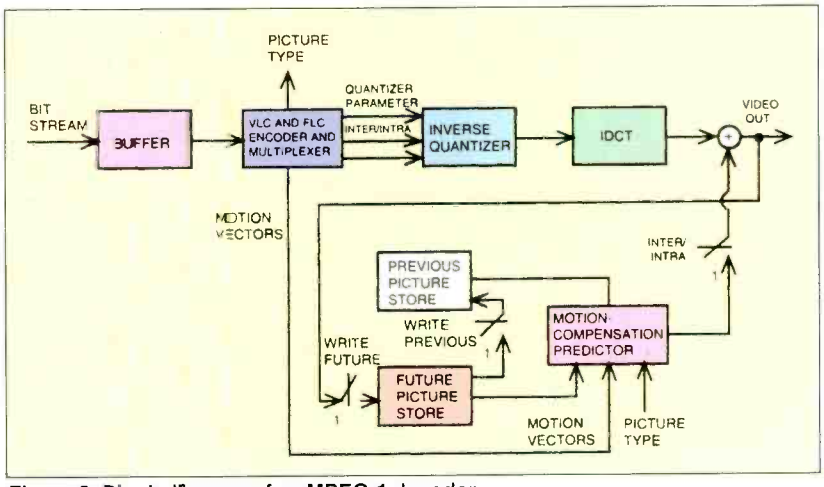


Figure 2 Block diagram of an MPEG-1 decoder.

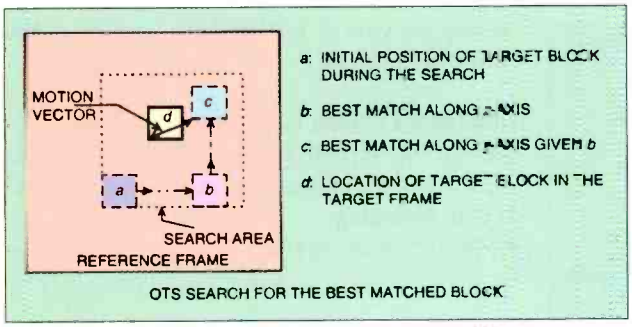
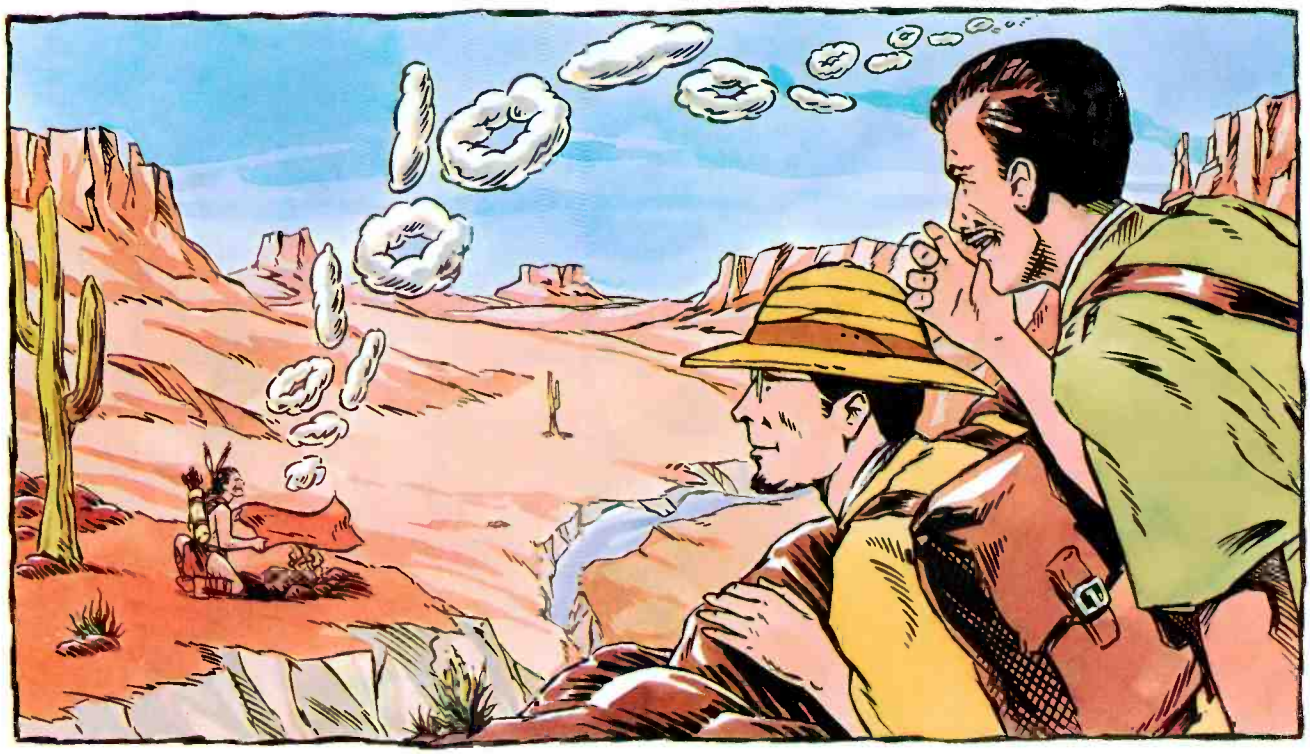


Figure 3. A simplified search of a best-matched block.

Putting it all together

MPEG is a standard built upon many elements. Figure 5 shows a group of pictures (GOP) of 14



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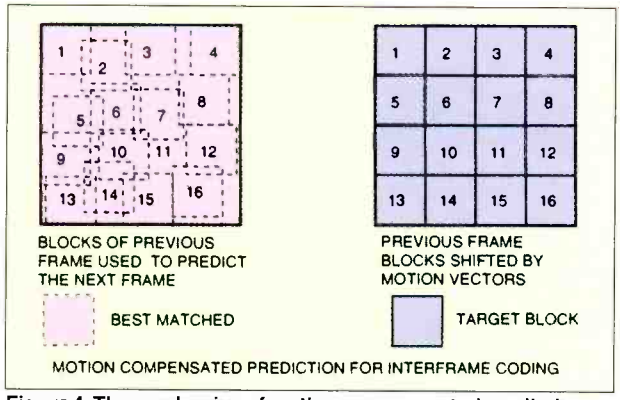


Figure 4. The mechanics of motion-compensated prediction.

frames with two different orderings. Pictures marked I are intraframe coded. A P-picture is predicted using the most recently encoded P- or I-picture in the sequence. A macroblock in a P-picture can be coded using either the intraframe or the forward-predicted method. A B-picture macroblock can be predicted using either or both of the previous or the next I- and/or P-pictures. To meet this requirement, the transmission order and display order of frames are different. The two orders are also shown in Figure 5.

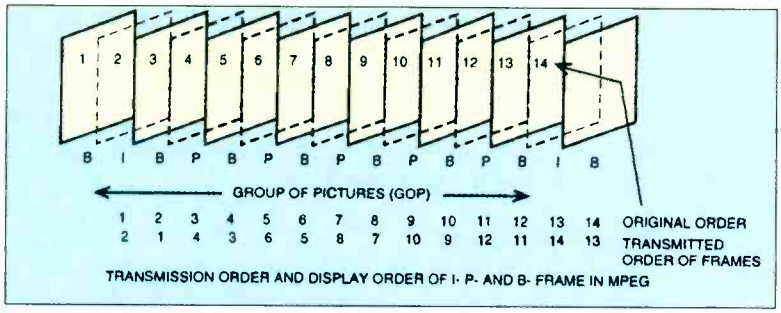


Figure 5. Bidirectional prediction in MPEG coding.

The MPEG-coded bitstream is divided into several layers. The three primary layers are:

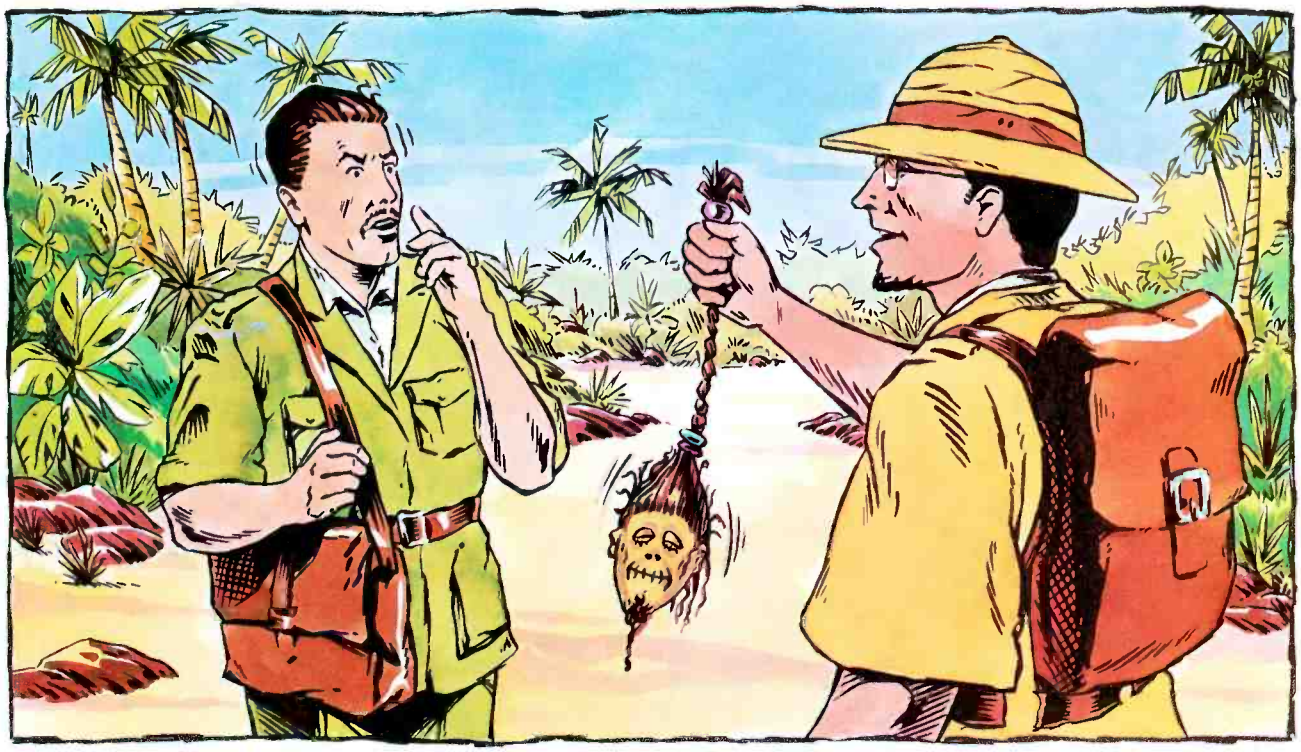
1. Video sequence, the outermost layer, which contains the basic global information, such as the size of frames, bit rate and frame rate.
2. GOP layer, which contains information on fast search and random access of the video data. A GOP can be of arbitrary length.
3. Picture layer, which contains a coded frame. Its header defines the type (I, P, B) and the position of the frame in the GOP.

Differences among compression schemes

There are several major differences between MPEG and other compression schemes (such as JPEG), including:

- MPEG focuses on video. The basic format uses

Continued on page 278



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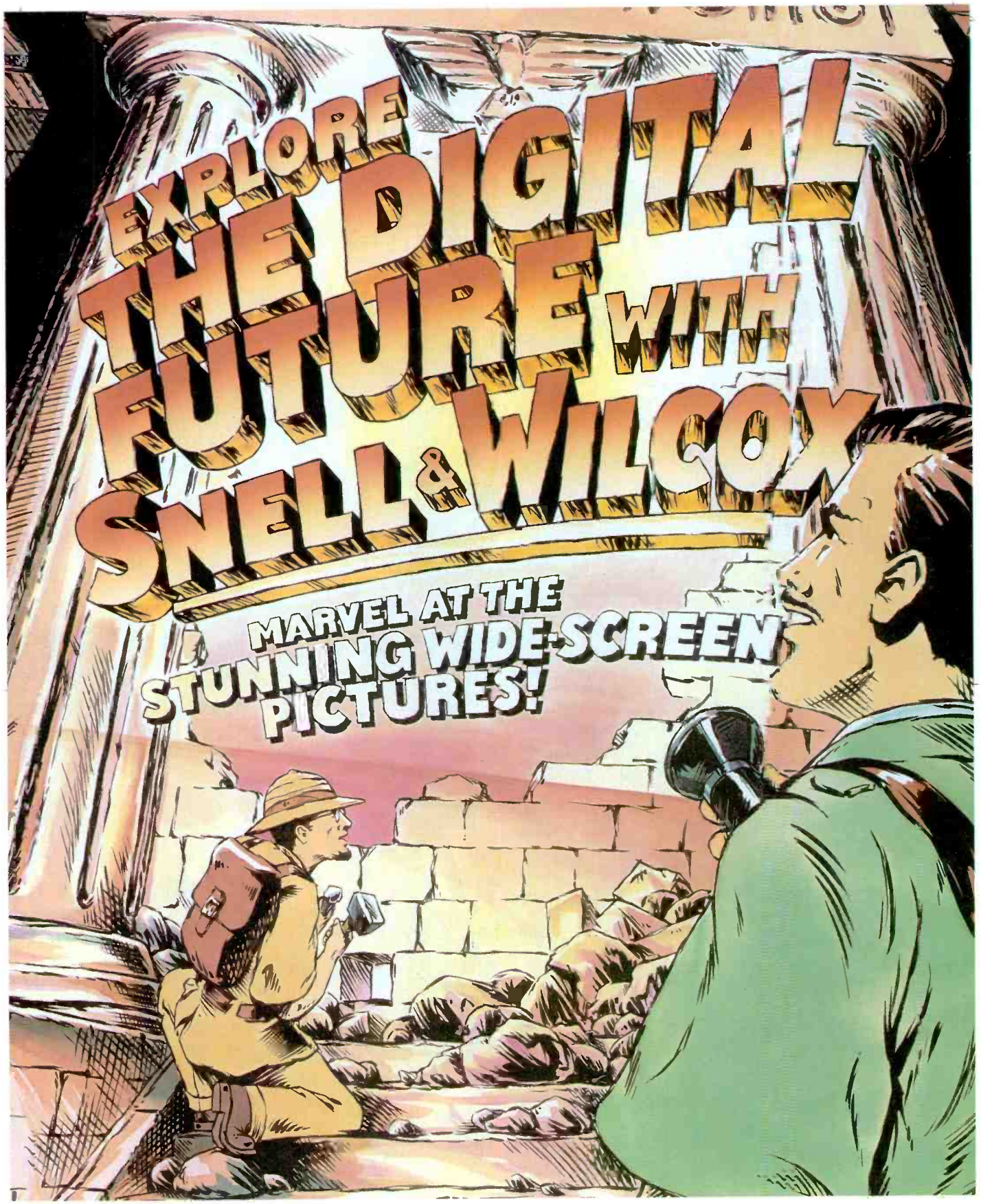

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By Michael Erbschloe

Sparking the creative drive

You want that competitive edge, don't you? You love it when your company is racing forward, generating new ideas, beating out the competition and making money. You enjoy managing the process, watching your staff at their peak performance — working as a well-groomed and motivated team.

This does not always come easy. Your staff can be a great source of ideas. However, some of your staff may be reserved about jumping in with ideas or solutions to problems. Several tactics can be used to get your staff moving and keeping them motivated. Not all of them will work with each individual, but combined, they can help you create an environment where your staff can grow.

Michael Erbschloe

If you are a micromanager, have all of the answers and tell people what to do each minute of the day, you need to back up and STOP! It's time to approach things differently.

Tip No. 1: Don't have all of the answers. When one of your staff members asks you something that you think they should know, throw the question back to them. Ask them what are the options? Make them choose a path of action. Don't answer them, just guide them.

Tip No. 2: Encourage staff participation in work group or departmental meetings. Instead of running the meetings yourself, have others do it or at least have your staff direct parts of the meetings. It may be difficult for some managers to let go. Your goal, however, is to get people talking, communicating and comfortable making suggestions.

Tip No. 3: Always get input from your staff. If they are not speaking up, ask them what they think. Be persistent and get them to participate.

Tip No. 4: Give people credit and recognition for what they do. Once you start opening your staff up and getting them talking, you need to encourage them to contribute.

Also make sure that individuals get credit for their ideas and contributions — don't let any one individual hog the credit if there were others that helped.

Tip No. 5: In addition to informal recognition, create a more formal system of rewards. Spend money doing this. It could be a night out for accomplishing goals, a press release on accomplishments or paid trips to professional conferences.

It's hard to let go

This can be hard work. Much harder than making all the decisions yourself and much harder than letting your staff become bumps on the organizational log.

But once you get rolling and really get the team clicking, your job will become easier. Your company will also become more successful and your boss will think you are doing a great job.

Warning: There are no silver bullets

Be careful about how you mix and match approaches. Many silver bullet-type of management approaches have failed because they were overly simplistic and not genuine in their treatment of employees. A few traps to watch out for include:

Trap No. 1: The suggestion box. Don't use it. Your goal should be to create an environment where people openly communicate. Suggestion boxes are a closed and secretive way of communication.

Trap No. 2: Some of the reward systems that have been used in the past have backfired. Whatever you do, be careful about fragmenting your work place. Individual creativity and accomplishment is important, but so is team work and communication.

Trap No. 3: Don't confuse participation with democracy and equality. Your employees are not equal to each other in skill or in their contributions. There will be times when one person outshines all of the rest. There may be resentment on the part of some staff members. It happens, let it and don't apologize. This situation, however, can be neutralized if you continue to put forth efforts to recognize the contribution of each individual regardless of how small it may seem to others.

Trap No. 4: The world is not fair. You cannot control every situation and when, for example, reorganization plans or budget cuts come down from above, you need to be careful how you handle the situation. People may react with shock and dismay because they were not warned or consulted. Just take this step-by-step. Work through each of the circumstances and keep people communicating and participating.

Remember, managing is a tough road, especially when you are in the middle. ■

Michael Erbschloe is a management consultant, author and technical editor and teaches management courses at Oklahoma State University.

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By Brad Gilmer

Metadata: What is it, and why do you care?

A few months ago, I was introduced to a new term — *metadata*. One of the guys at work dropped this on me, using the word as if it was part of casual dinner-table conversation. At the risk of appearing to be completely clueless, I asked him what it meant. Ignoring my ignorance, he explained that metadata is the stuff that accompanies your data. Well, I asked him a number of questions, did some more digging, and came to the conclusion that he is on to something fairly significant. Let me share what I learned.

Brad Gilmer

I have since refined his definition a little bit — here it is. Metadata is "data about the data." This is not the most stellar definition you've ever heard, but I don't know how else to put it. Let me try to explain.

As we have discussed in earlier articles, video is big, and it does not travel alone. These two characteristics make finding things in the video world cumbersome if you are using older database designs.

In the old model, a program would retrieve all the data contained in a particular record set of the database. It would then look through the data to find the part you want; perhaps a specific house number or a description. Retrieving whole records with large elements can take a lot of time. The concept of metadata addresses this problem.

The value of metadata

If a program could retrieve a description of the data, without actually retrieving the data itself, this would give a vast improvement in performance. Because metadata is a description of the video and everything else that accompanies it, it is much smaller than the data (video) itself, and is much more quickly searched. This is the value of metadata; it greatly improves our ability to search databases quickly.

Here is another example of the concept, using existing technology. In a conventional cart machine, you can think of the database contained in the cart controller as metadata. Using the database, you can search for an item without actually having to load the tape. If you had to load every tape just to look for a particular house number, you would have a pretty impractical system.

A formal definition of metadata

OK — now that you have some idea of what metadata is, let me give you a couple of descriptions of metadata on a more formal level. (If you have a formal definition of the term, I would be interested in hearing it. I looked for the term in Microsoft Bookshelf '95, a *Funk and Wagnalls Desk Dictionary*, and two shelves of computer books, but could not find anything.)

In *Database Technology and Management*, Robert Goldstein writes, "A single database may be used by a variety of different users or groups of users, each of whom may have very different needs and interests. Because users typically expect the system to supply information in a form that is relevant to their work, metadata provides a means of interpreting the database contents for specific communities of users.

"It is important to note that simply by accessing the metadata a user or user application can determine if there is a need to access the data, frequently the metadata alone provides enough information to rule out access data. Metadata can provide a form of "compression," since you did not need to access the file, you did not have to send it, and the network's bandwidth capabilities were not as consumed in the process. Without the metadata you might have no other choice but to swamp the network with access requests for data that you did not need."

Why do you care?

The biggest reason you care about metadata is that you will likely be using it to retrieve video in the near future. Knowing about the concept of metadata can help you understand why server systems are designed the way they are. It can also help you participate in the discussion that is going on in the industry at the moment about what metadata should contain.

In the end, it is discussions about what metadata should contain that will set the stage for future capabilities of computer-based systems. If you have the opportunity, you should participate in these discussions. I think that I have gotten a glimpse of the future, and a large part of it revolves around databases and how they work. Metadata will certainly play a part. ■

Brad Gilmer is director of advanced network operations & technology for Turner Entertainment Networks.

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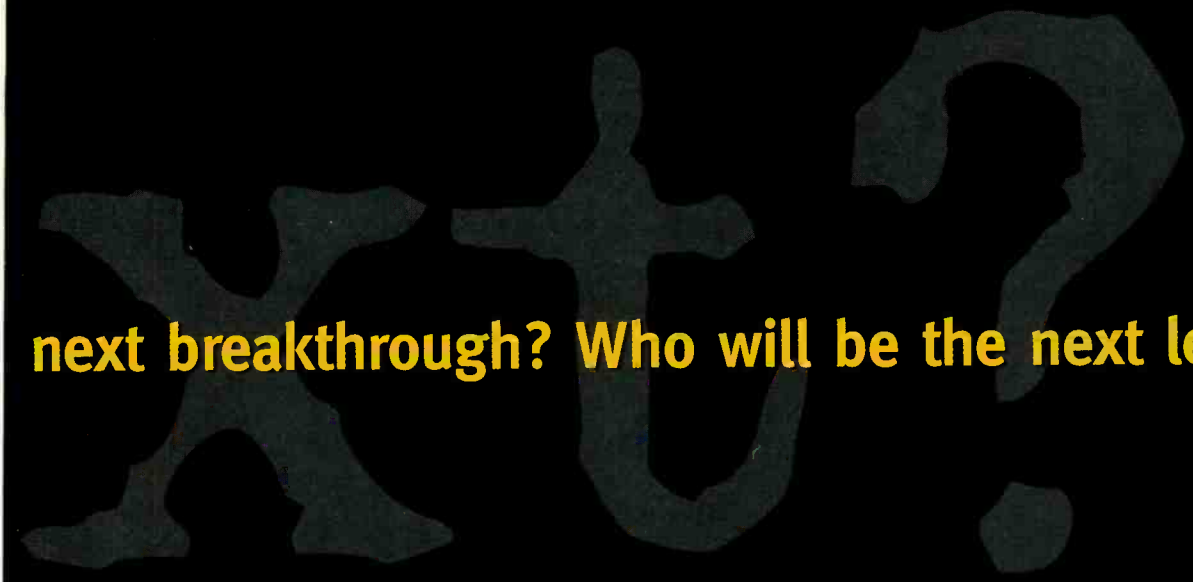

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By Marvin C. Born

Communicating with the field

Broadcasters always think hard about how they can get a signal from the remote site to the studio. They spend thousands, even hundreds of thousands, of dollars on equipment to transport signals from the field. Of course, this is important — no signal equals no remote. But communicating back to the remote site often gets short shrift, with little study and a budget line in the hundreds of dollars.

In some cases, after an extensive installation or remote setup, a reality check may set in. It takes the form of a longer range on your microwave transmitter than on your two-way radio. In other words, the studio can see the remote feed, but can't talk back to the site.

The Mobiq land mobile satellite telephone from British Telecommunications is the size and weight of a notebook computer. It provides high-quality voice, fax and data communications from almost anywhere.

Communicating with a remote site is arguably the most important aspect of a remote. If the remote crew can't hear you, you can't set up the remote and you can't cue them. Lose either of these two functions and you have no remote.

Times have changed

When broadcasters started doing microwave remotes, everyone used two-way radios or phone lines as communication devices. If you knew the exact location, you ordered a line. If it was a spot news remote, you communicated on the radio. Then came a variety of mobile telephones. Today, there are a few more choices, with cellular and satellite phones. In fact, you can have three or four of these, plus a couple of two-ways in an ENG truck, along with a number of scanners.

A typical studio facility today sends program audio and talkback to a wireless IFB system. Not only will the buttons on the panel route the appropriate audio to a two-way radio system, it will select a particular tone to be encoded on the radio carrier. This allows only the matching receiver to open squelch in the field so only one reporter will hear the comment or cue. Although this may sound complicated, it is not uncommon for some stations to have eight or 10 remotes in one newscast.

A normal setup involves the remote truck calling the station's engineering control center to be assigned a microwave channel and to set up the shot. They will then change frequency to the production channel with the multiple audible tone encoder.

An alternative system uses multiple cell phones in the truck — one to handle the setup and another for IFB. Recently, another cell-phone circuit has been added for a data channel assigned to a laptop at the remote site. Using this computer, a reporter will write and edit a story in the field, then connect directly to the newsroom computer and download the scripts. This puts the script into the station's closed-captioning system, and allows station production staff to key up the supers and stills that will be associated with the story while setting up the timing for that segment. If the station is using digital video recording, the edit system will want access to a phone line to transmit the edit decision list back to the newsroom for hand-off to the video server.

A fourth cellular phone would be used for a PL line from the director to the field-camera operator. Of course, the actual program audio and video is sent via microwave link to the station.

SNG systems

SNG trucks require a different arrangement. Typically, each SNG remote will require a separate audio "mix-minus" if any Q&A will occur between the studio and the remote (or remote to remote). Each mix-minus feed will go to an input on the IFB selector, which is assigned to a phone coupler for the truck to call.

When designing a remote communications package, plan the communications system as a primary system — one of equal importance to the actual microwave backhaul system. If they can't hear you, no one will see them. ■

Marvin Born is vice president of engineering at the Dispatch Broadcast Group, Columbus, OH.

FOR MORE information

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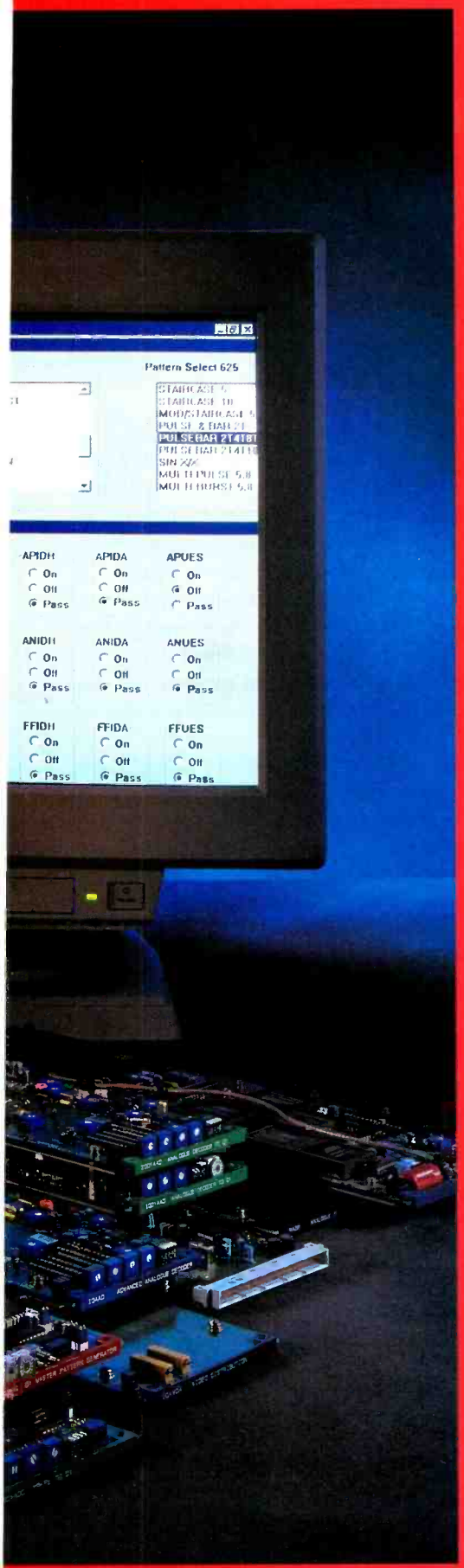

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cabletec

By Ken Freed

New trends in local cable production

Cablecasters originating local programming are developing new production system design strategies. The latest configurations reveal the trends shaping cable production. Cable operators usually have franchise requirements to build and support public, educational and government (PEG) access centers where community producers are trained and certified to use the PEG center's studios and equipment to create non-commercial programming.

Ken Freed

To offset PEG center costs, cable systems can run a for-profit "local origination" (LO) facility and channel, which may be advertising-supported. LO and PEG operate from common facilities, but that's changing.

LO as a production house

Alan Hayden is production manager for TCI of Colorado. TCI separately owns and runs a central LO production facility next to Mile High Stadium. Apart from helping on high-end PEG production, the LO facility is managed as a TCI profit center. TCI is integrating open-architecture computer-based systems to keep down overall costs, Hayden reports. "We'll eventually go totally digital, but some workhorse equipment, like a 3/4-inch VTR, can be rebuilt." "The less you invest in equipment," Hayden says, "the more you can invest in having the right people in place. Good producers find ways around not having the best equipment by being creative and innovative. It's a balancing act."

LO as a local TV station

Jones Intercable has embraced a different business model in California. "We've taken our LO channel and begun to run it as a local TV station," says Patricia Fregoso, production manager for the Jones system in Palmdale. The LO "station" shares Channel 3 and operates from 4 p.m. to 10 p.m.

"We don't have a local TV station," she says, "so the cornerstone of our business has become local news, produced by a staff of journalists. We just took delivery on a four-camera microwave ENG truck that can do remotes within 50 miles of our studio."

Shows in the studio are shot in Betacam SP, edited at 3/4-inch, then bumped back to SP. Field footage is shot on S-VHS and edited at 3/4-inch. Fregoso says their production costs are $700 per edited minute compared to more than $1,200 in the LA basin.

A station upgrade

The Cox cable system serving Long Island, NY, also acts as an independent TV station. Says Mike Kohler, an LO manager, "We produce the best local programming we can, mostly sports and entertainment events, then use syndicated programming for the rest."

The balance between people and equipment? "All we need are a couple of staff producers who head up freelance crews. We have master control timed so carefully that we rarely need make-goods on commercials. The channel's quality has improved so much that people see it as a viable local station."

The Cox system uses Digital Betacam for master control and retrieving satellite feeds. An automated ad insertion has been installed and a non-linear editor was bought for break tapes. "In the long run," says Kohler, "new equipment will improve our quality, which will boost revenues, and we'll save money with lower labor costs."

Full-court press

An even more expensive approach is being demonstrated by the Comcast Network, which delivers two channels of local content to 1.2 million homes in Philadelphia and 15 New Jersey communities.

"We create shows and forums on the channels for the localities and the whole region," says general manager Pat Scanlon. The network hub in Union City, NJ, is a high-end production facility linked by fiber with 10 satellite studios. The network shares six remote trucks, half equipped for five-camera shoots. The network built digital links to major regional sports and entertainment venues, thereby eliminating satellite transmission costs.

"Instead of having all these independent production units on hand," says Scanlon, "we decided to pool our remote equipment and personnel resources in Union City and Jersey City, 20 minutes apart. The end result is better, more attractive productions at less cost." ■

Ken Freed is a technical writer specializing in cable and interactive television, and is based in Denver.

What's the winning combination of talent and technology for your own cable operations? Different business plans call for different system designs. Tell us about your innovative cable technology solutions and they may be reported here. Fax to: "Cabletec," 913-967-1905.

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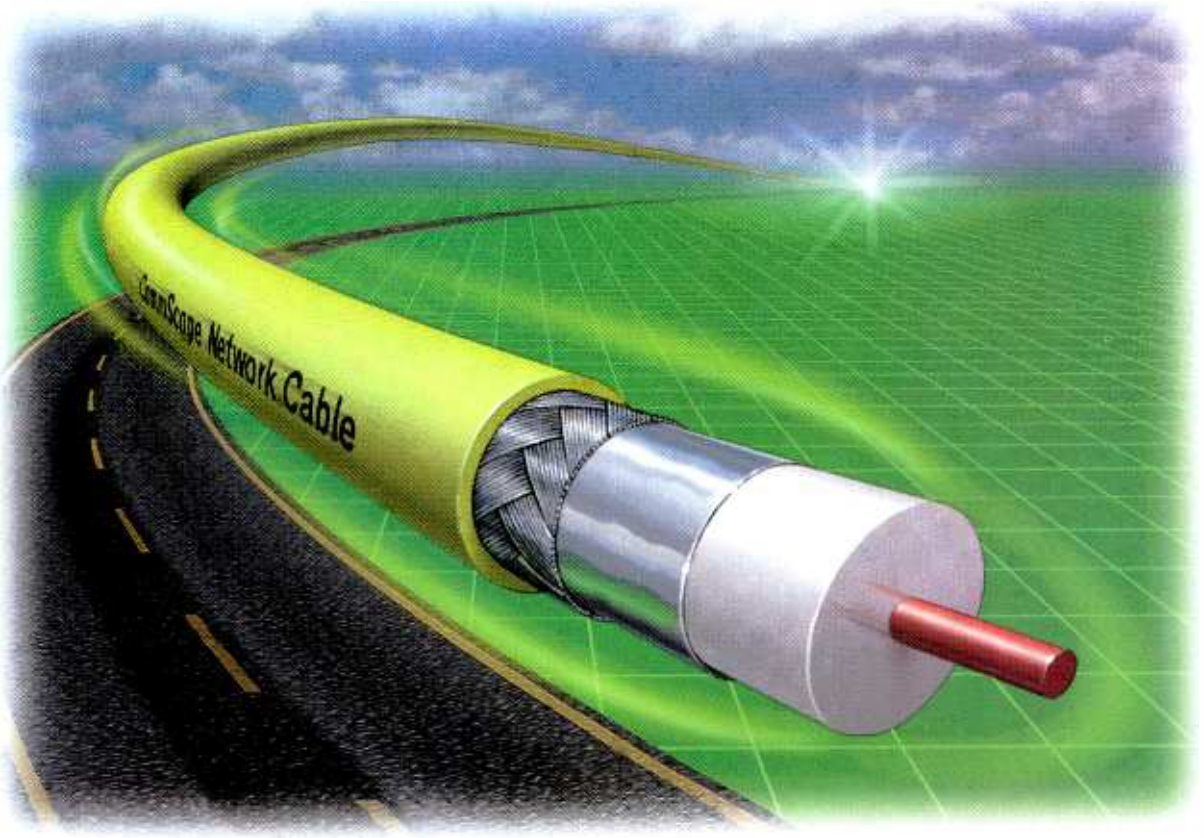

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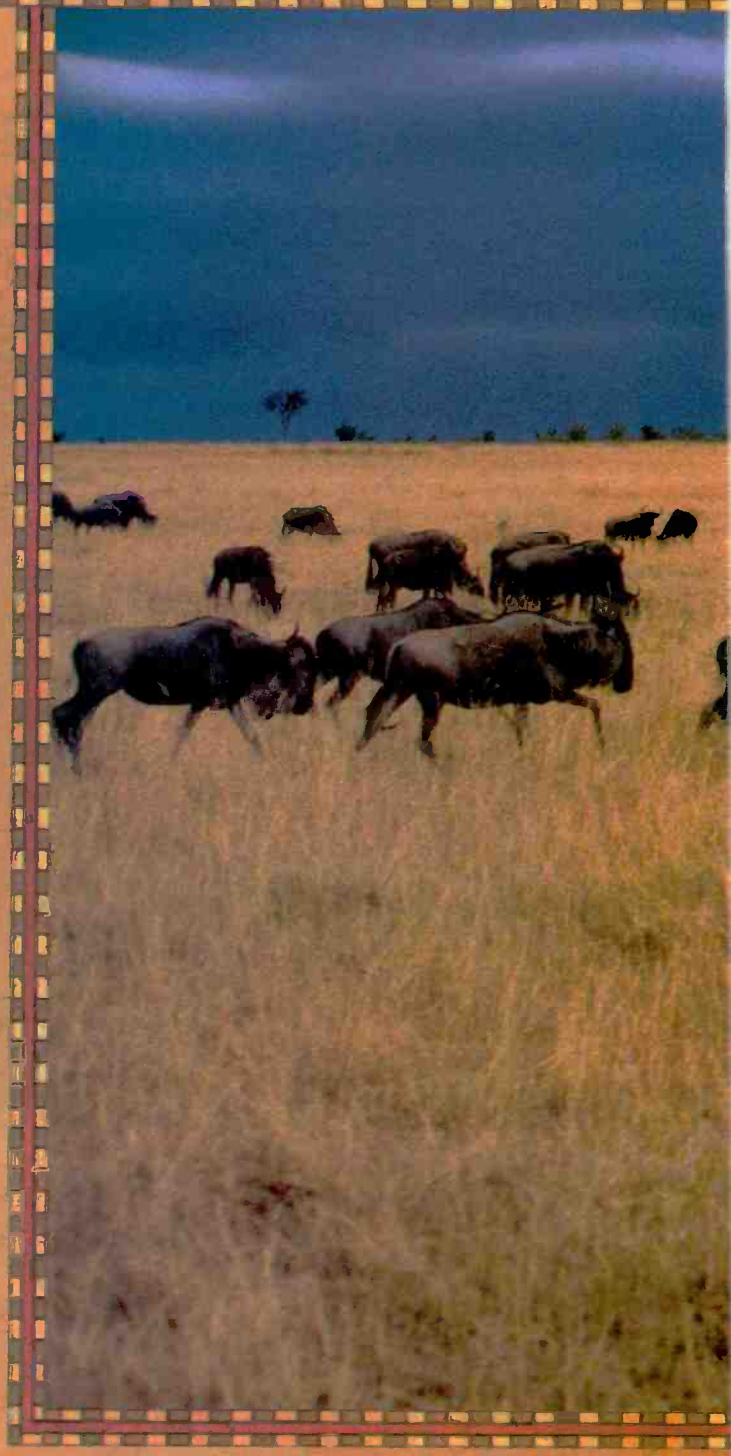
Braving extreme conditions and ravenous packs of wild hyenas, the African Wildebeest endures the second most difficult migration known to man. The broadcaster's journey to digital being slightly more treacherous.



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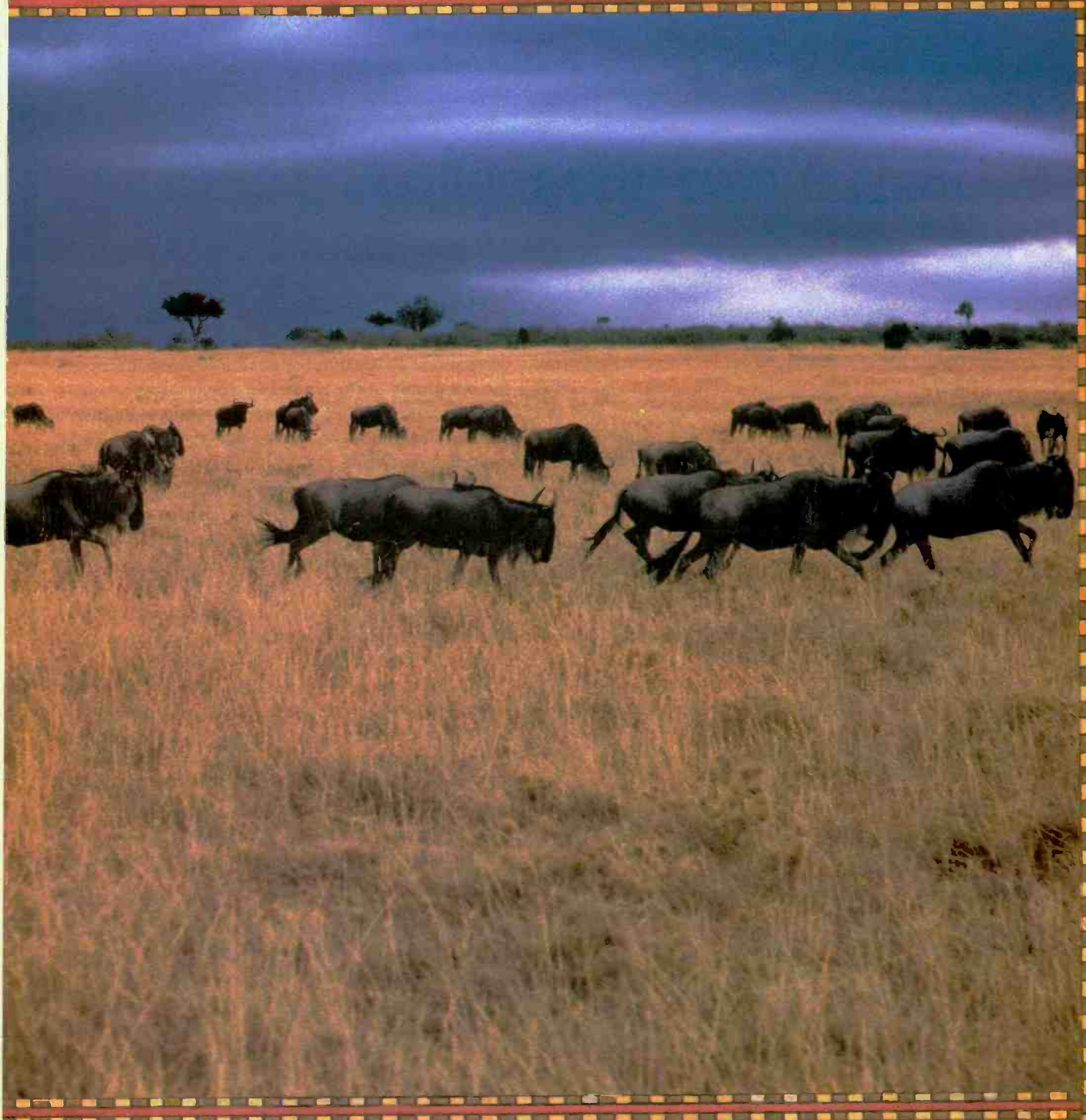

been looking for. The FlexSys system combines high quality MPEG-2 4:2:2 P @ ML compression and RAID disk storage with Sony's leading VTR and Flexicart® technology. And the familiar user interface ensures your transition will be as painless as possible. To find out what FlexSys system configuration is best for your transmission needs, just call 1-800-635-SONY, ext. FLEXSYS. We'll put you on the one path to digital transmission that leads to success.

digital DREAM Digital Dream Kids

SONY

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By Mark Dillon and Steven Blumenfeld

Bigger data pipes: What's possible?

A few years ago, we assumed that only broadband video over a fiber-optic network could provide next-generation entertainment services. In response, cable and telephone companies prepared to build this fiber-optic infrastructure — until they computed the price they could charge for video-on-demand and then subtracted the cost of burying all that fiber and found a big fat minus number.

Mark Dillon and Steven M. Blumenfeld

While this was going on, the Internet sneaked up on everyone and attracted millions of users. And now these users are demanding faster access and better performance. Three reasonably mature technologies exist to meet this need: Integrated Services Digital Network (ISDN); cable modems; and Asynchronous Digital Subscriber Line (ADSL).

ISDN

This month, we'll compare the bandwidth and latency characteristics of these delivery systems. *Latency* is the time it takes for a signal to make a round trip out from your computer to its destination and back again. The latency of today's Internet is slow and unpredictable.

ISDN uses existing phone lines, eliminating the need to overbuild with expensive fiber. ISDN does require a $200-$400 modem (technically not a modem, but rather a terminal adapter) in the home and the appropriate digital switchback in the central office. In the last few years, most telephone switches have been upgraded to provide for ISDN service.

ISDN provides reduced latency over the Internet because the ISDN terminal adapter is not a modem. As a digital circuit, it avoids the 20-30ms delay added by the modulation-demodulation process of a standard modem. The elimination of this process can result in an accumulated latency education of as much as 80-120ms between two users over an Internet connection.

Cable modems

Cable modems take a 6MHz chunk of cable spectrum and turn it into an Ethernet. If you're the only one on that night, you could get all 30Mb/s to yourself. But each time someone else logs on, you'll share more of the pipe. The effective bandwidth is determined by the number of simultaneous users and the burstiness of the traffic. Upstream data rates are not symmetrical and vary from modem vendor to modem vendor. Speeds in the 1-2Mb/s range can be expected upstream.

Most older systems are not two-way and require an "out-of-band" return path. This usually means your existing phone line is called into service at the same time to provide this return path. Latency in a cable modem system is difficult to predict because of the variable load conditions that can occur and other factors contributed by splitting of the return path over the phone lines.

Cable modems tend to locate most easily at the TV set and there is some pressure to deliver video on demand in addition to, or instead of, Internet access. Usage economics change dramatically with streaming data vs. bursty data — at six for MPEG-encoded movies, 30 x 6 datastreams = five simultaneous movie watchers. In this example, streaming data is 20 times more expensive to deliver than bursty data.

ADSL

ADSL represents the most effective use of existing copper phone lines. It requires a modem in the user's home and one in the central office. Fortunately, ADSL modems do not induce the same latency load as current modems do. The effective data rate depends on the distance between the household and the central office. Beyond 18,000 feet, 1.5 is the maximum data rate. At distances less than 12,000 feet, data rates greater than 6Mb/s are possible. (Some predictions for future improvements throw that number all the way up to 45Mb/s.) Upstream rates vary between 640kb/s to 1.5Mb/s.

With this bandwidth, almost everything is possible, from blink-of-an-eye downloads of huge files to the delivery of broadcast-quality MPEG-2 video streams. At this point, twisted-pair phone lines begin to compete with the promises of hybrid fiber coax systems.

The challenges for deployment of these data pipes will ultimately affect which technology will dominate. ■

Mark Dillon is vice president of on-line services, and Steven Blumenfeld is vice president of technology and studio operations, with GTE, Carlsbad, CA.

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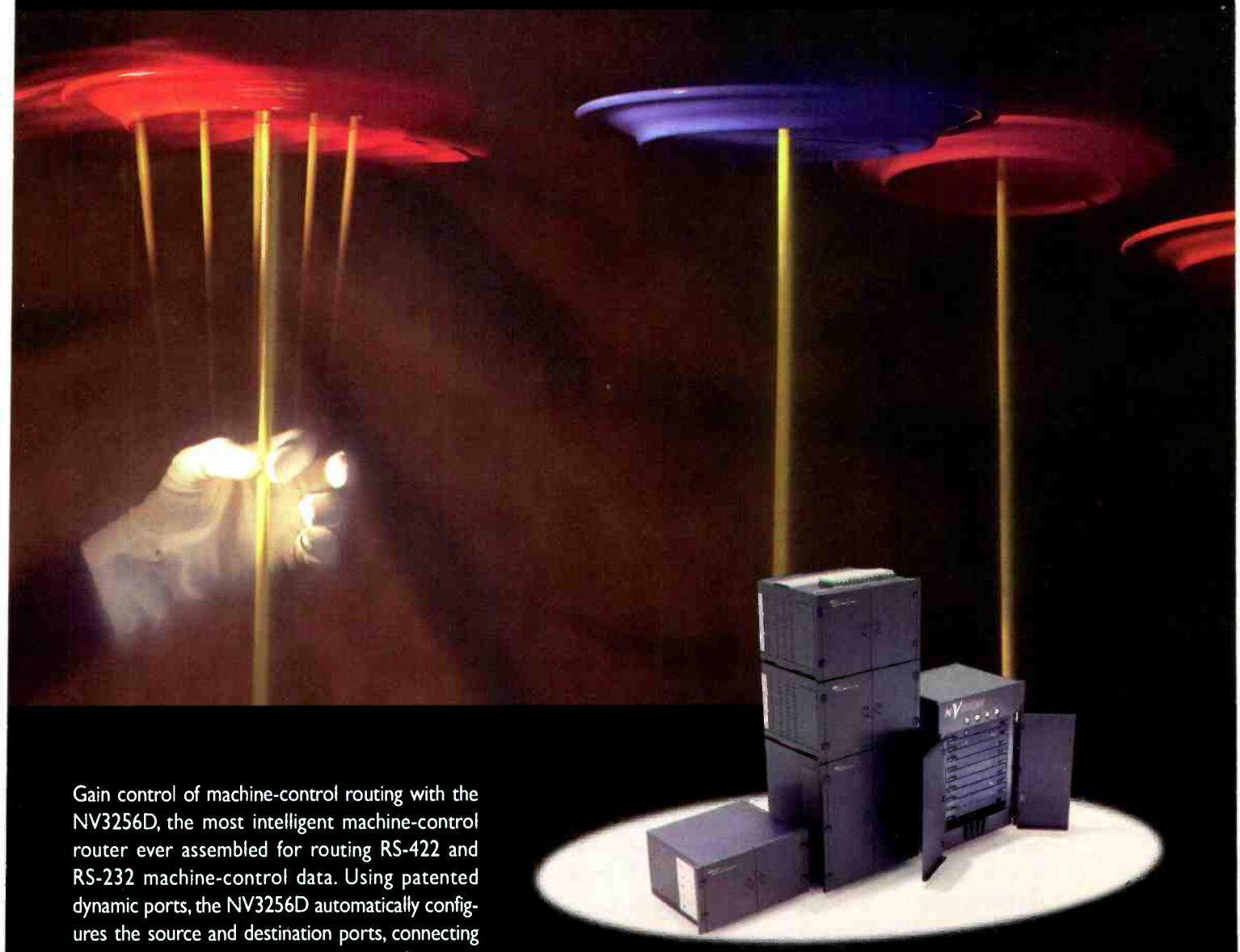

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By Louis Libin

Accelerate or not? That is the question

The television we watch today uses the NTSC standard, finalized in the late 1940s. Although that standard has been improved, today's television is based on the same fundamental resolution parameters as the original service. The last major advancement in the NTSC standard was the introduction of color television, more than four decades ago. Now the industry is prepared to move to digital.

Louis Libin

Crucial decision

The broadcast industry must make strategic decisions regarding DTV implementation. Should the construction period for the new DTV stations be accelerated? Should the entire DTV process be accelerated? Or moving in the other direction, should the entire DTV process be slowed down?

There are good arguments on both sides of the issue. Reed Hundt, FCC chairman, recently said that small markets would benefit from the aggressive move to digital by the networks and their owned-and-operated stations. Smaller stations would benefit by forcing the larger stations and large broadcast groups to take the initial risks by purchasing the first-generation equipment. On the other side, certain broadcasters say that due to the many unknowns, it would be more prudent to be a "fast follower" or be the second or third DTV broadcaster in a market. There are many considerations that must be analyzed before broadcasters can make a good determination.

It's the end of the margins in spectrum assignment

The financial consideration is the number one concern. But should a major issue, such as "how is my station going to pay for the DTV station?" be the overriding concern? From the beginning of the process, broadcasters took an active role with the industry and government as the FCC Advisory Committee on Advanced Television Service worked to develop recommendations for the new broadcast system. Obtaining sufficient spectrum so that all broadcasters might introduce DTV without disrupting their present NTSC broadcast became a key issue for the successful introduction of DTV broadcasts in the United States. Sufficient spectrum remains the key.

Don't blame the FCC

The FCC made several key spectrum decisions that helped spark innovation in DTV. In 1990, the commission decided that new DTV systems would share TV bands with existing services and would use 6MHz TV channels as presently defined. The commission also decided on a *simulcast* approach. This meant that the new DTV signals would be broadcast on currently unusable TV channels and broadcasters would temporarily be assigned a second channel to accomplish the transition to HDTV.

The FCC Rulemaking is nearing completion and requires the support of broadcasters. It is anticipated that our Canadian and Mexican neighbors will simultaneously initiate similar procedures to assure rapid adoption throughout North America. In the past, the FCC has said that when a station receives the license, it must emit a DTV signal. The commission may impose a power requirement or a contour size requirement in order for a station to maintain the license.

The political game

In February, the House Telecommunications Subcommittee held a hearing on Capitol Hill to discuss the broadcasters' plan for the digital transition. According to the revised Clinton administration digital TV transition plan, the analog NTSC spectrum is expected to raise almost $15 billion ($14.8 billion to be exact) from auction. This number comes from the White House Office of Management and Budget. The 1993 Budget Act gave the FCC authority to auction spectrum.

This spectrum reclamation is an enormous FCC initiative and is, in some cases, a driving force behind policy decision. It is hoped that most broadcasters will go along with the commission's thrust, so long as the commission's timetable is reasonable. The promise of immediate implementation will not solve the many details that will decide the system, but they will show unity among the broadcasters. This could be the catalyst that will solve the remaining issues.

The Senate side

John McCain (R-AZ), Senate Commerce Committee chairman, maintains that the broadcasters should pay for use of the spectrum. However, McCain opposes a provision in the Clinton budget proposal that would force the broadcasters to make up the difference if, in

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the auction of the analog spectrum, the targeted $15 billion is not earned. McCain is also in favor of allocating part of the 60-69 spectrum to public safety.

The House side

Billy Tauzin (R-TX), the chairman of the House Telecommunication Subcommittee, shares the view of his committee members. They question the Clinton administration's digital TV transition plan generally, especially the spectrum auction budget estimates.

Tauzin says that the FCC "should not let all of its spectrum decision be guided by potential revenue." Tauzin made the argument that an early auction of 60-69 makes little sense because of the *Swiss cheese* effect. He believes that if Channels 60-69 are auctioned at a later date, the value of that spectrum will be increased.

New competition

The door is now open for direct audience access for additional content providers and producers through the computer industry's entry into broadcasting. The potential time delays of spectrum allocation will only benefit these new competitors. Bear in mind that these new receivers will have capabilities similar to personal computers. Modems today are hardly more than a single semiconductor chip, probably a part of the all-digital TV receivers. This is the primary reason other industries are so interested in being a part of this revolutionary industry.

The Grand Alliance System will interface cleanly with wired National Information Infrastructure (NII) media, particularly with a switched network environment. The DTV standard will be the broadcast part of the NII. The TV receiver as we know it today will change. Broadcasters have the potential to keep those changes to their advantage by sending a clear message to the hardware manufacturers: broadcasters must have a significant impact on the way TV pictures are viewed through the new digital receivers.

Quick implementation

As with any new technology, the digital TV system needs to be fully implemented before all of its characteristics can be fully documented. The allotment/assignment table itself may not be absolutely finalized for years. Until the industry has gained experience in dealing with the system under different conditions, the system will never be fully characterized.

The FCC has a different agenda than that of the broadcasters, and spectrum reallocation is at the top of its list. Should there be significant delays, especially due to the broadcasters, portions of the spectrum will be made available for other uses, severely damaging the many broadcast interests who have already made major investments leading to DTV. But the timetable must be realistic. ■

Louis Libin is director of technology for NBC, New York.

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YOUR GUIDE TO NAB

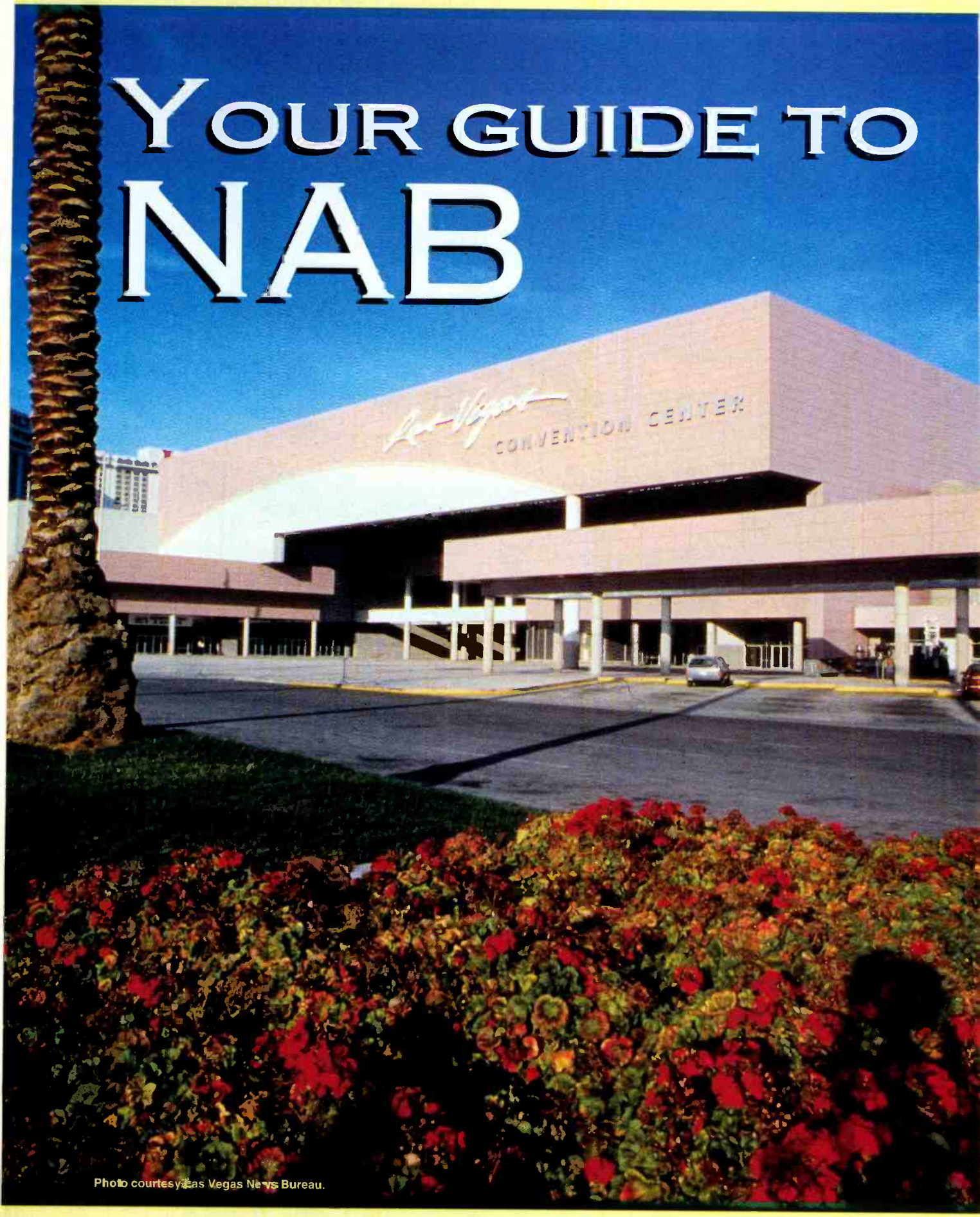

Photo courtesy Las Vegas News Bureau.

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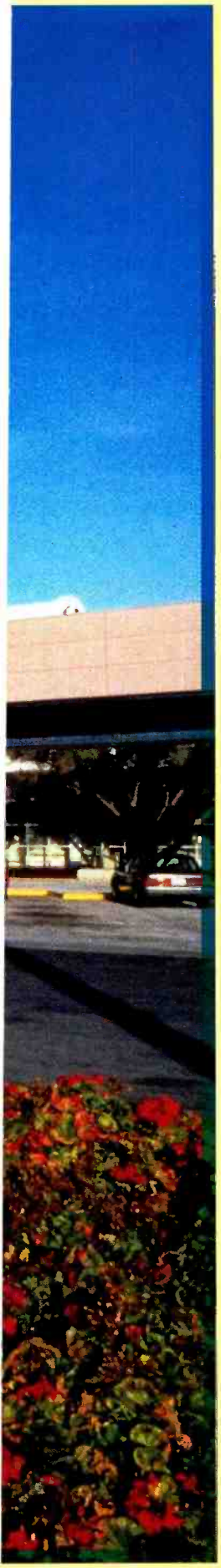

Okay, so you've got your airplane tickets. You've got a hotel room. Maybe you've even been given some advance money. You're all set for NAB.

Whoa, wait a minute. You've forgotten something.

Remember the often-repeated phrase from Carl Malden? He is still remembered for telling TV viewers, "Don't leave home without it." He, of course, was talking about the American Express card.

Well, I'm here to tell you that you don't need the American Express card to successfully navigate the NAB show. However, what you do need is this issue of *Broadcast Engineering* magazine. In fact, there's so much new stuff here, we ought to change the name of this issue from *Broadcast Engineering* to *Your guide to NAB*.

What's inside? I'm glad you asked.

First, the main technical sessions are summarized in convenient tables. At a glance, you'll know when and where the important sessions are scheduled. Whether your goal is to learn more about converting to DTV (I'll be there) or to get the real story behind Fibre Channel, the session tables will help.

Second, we've added a completely new feature to this issue: *EXTRA: Sneak Peeks*. The *EXTRA: Sneak Peeks* comprises 49 pages of advance peeks at the hottest new products to be shown at NAB. Now, you'll be able to see what's new even before you get to the show. Once you're there, you can see these exhibitors first, getting your own hands-on look at these new introductions before the crowds converge.

The *EXTRA: Sneak Peek* even offers you the chance to win prizes. In the spirit of gaming, we've even developed our own crossword puzzle, the *Word Wiz*. Beginning on p. 172, the *Word Wiz* is a fun exercise in memory recall. The answers to *Word Wiz* are contained in the *NAB EXTRA: Sneak Peeks*. So while you're reading up on the hottest new products to be shown at NAB 97, you'll also be finding the answers to the *Word Wiz*. Submit your completed puzzle and become eligible to win a T-shirt. Hey, the odds of winning here are probably better than at the slot machine — and it doesn't cost you anything to play.

Continuing our Guide to NAB, the third special (and exclusive) feature is the *BE FASTtrack*. *FASTtrack* shows you the shortest distance between booths in your hunt for the equipment and products you need.

We've grouped exhibitors in 41 product categories. The companies are then listed in numerical order, creating the shortest distance between the booths. Follow the path and you've just saved yourself hours — and long miles on the exhibit floor.

You can't navigate the show floor without a map and we've got it. This year, we've added a location grid, making it even easier to locate the booth you want to find. Find the company on the map's exhibitor list and you'll find the coordinates nearest to that booth. Check the coordinates against where you're at and you're almost there (where you want to be).

Finally, our exhaustive *Exhibitor Showcase* summarizes each exhibitor's product line and what they'll be showing in their booth. A quick search will show you which exhibitors have the technical solutions you need for your facility.

So, there you have it — everything you need to help make your trip to NAB successful. Because the show is right around the corner, begin planning your Las Vegas trek now. See you there.

Conference tables **48,50**
NAB Extra: Sneak Peeks **64**
Exclusive *BE* FASTtrack **174**
Exhibitor floor map **201**
Exhibitor's Showcase **218**

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BROADCAST ENGINEERING CONFERENCE

	Sat. 4/5	Sun. 4/6	Mon. 4/7	Tues. 4/8	Wed. 4/9	Thur. 4/10
9:00	TV TECHNOLOGY TUTORIAL: Part 1	KEYNOTE DIGITAL TV: Studio and production issues DIGITAL SOUND BROADCASTING: Testing and regulatory issues	ALL-INDUSTRY OPENING AND KEYNOTE ADDRESS ENG/SNG: Digital quality in the field AUDIO PROCESSING: Competing with digital services	DESIGNING TV FACILITIES: Part 1	TV TECHNICAL/ REGULATORY ISSUES THE SWITCH TO DTV: Making it work	PROFESSIONAL DEVELOPMENT WORKSHOP FOR ENGINEERS AND TECHNICIANS THE MARRIAGE OF PC AND TV: A look at the future
10:00						
11:00						
12:00			EXHIBITION	EXHIBITION	TECHNOLOGY LUNCHEON	
12:30						
1:00	TV TECHNOLOGY TUTORIAL: Part 2	DIGITAL TV: Signal and transmission issues DIGITAL SOUND BROADCASTING: Implementing new technology	BROADCAST TOWERS: Maximizing your vertical real estate HYBRID STORAGE TECHNOLOGIES: Downloading the megabytes	DESIGNING TV FACILITIES: Part 2	EMERGENCY PLANNING: Staying on the air TV/RADIO TECHNICAL REGULATORY ISSUES	EXHIBITION
1:30						
2:00						
3:00						
4:00						
5:00	EXHIBITION	EXHIBITION	EXHIBITION	EXHIBITION	EXHIBITION	

INTERNET BUSINESS CONFERENCE

	Sat. 4/5	Sun. 4/6	Mon. 4/7	Tues. 4/8	Wed. 4/9	Thur. 4/10
9:00			ALL-INDUSTRY OPENING AND KEYNOTE ADDRESS	MULTIMEDIA WORLD KEYNOTE ADDRESS		USING THE WEB TO INCREASE RATINGS
10:00						
11:00				WEBBUSINESS: Investments/ partnerships/ alliances	VRML: 3D moving worlds BRANDING IN CYBERSPACE: Success stories on the Internet	
12:00						
1:00	INTERNET SITE DESIGN: Do it yourself or send it out	HOT PRODUCTS: The add-in showcase ENHANCING YOUR BUSINESS WITH INTRANETS		WEBCASTING: Is it ready for prime time? THE DANGERS OF INTERNET COMMERCE	DESIGNING WEB SITES THAT SELL THERE'S MORE TO A WEBSITE THAN MEETS THE EYE	
2:00						
3:00						
4:00	GREAT EXPECTATIONS: A reality check	COOL SITES ON THE WEB LEVERAGE YOUR CORPORATE DATABASE: Integrate it with the Internet	TRENDS IN INTERNET TECHNOLOGY	ENTERTAINMENT PROGRAMMING ON THE WEB CONDUCTING MARKET RESEARCH ON THE WEB	THE DESIGNER'S TOOLBOX CHANNELING TRAFFIC TO YOUR WEBSITE	
5:00			6:00 MULTIMEDIA WORLD RECEPTION			

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UPLINK '97: INTERNATIONAL SATELLITE CONFERENCE

	Mon. 4/7	Tues. 4/8
8:00		BREAKFAST RECEPTION (LVCC)
9:00	ALL-INDUSTRY OPENING AND KEYNOTE ADDRESS	MEDIA SATS FOR THE NEW MILLENNIUM (LVCC)
10:00		(break) Meet the panel (LVCC)
11:00		EMERGING SATELLITE TECHNOLOGIES & THEIR IMPACT ON THE TELECOMMUNICATIONS BUSINESS (LVCC)
12:00		NAB COMMUNICATIONS & CONNECTIVITY '97 JOINT LUNCHEON (LVCC)
1:00		
2:00	GLOBAL INDUSTRY SATELLITE LEADERS: Views of the 21st century (Sands)	DIRECT-TO-HOME TV AROUND THE WORLD (LVCC)
3:00	(break) Meet the panel (Sands)	(break) Meet the panel (LVCC)
4:00	SATELLITES FOR PEOPLE ON THE MOVE (Sands)	SATELLITES IN THE TELECOMMUNICATIONS REVOLUTION (LVCC)
5:00	NAB Communications & Connectivity '97 Joint opening reception at SAT pavilion (Sands)	NAB COMMUNICATIONS & CONNECTIVITY '97 JOINT RECEPTION (LVCC)

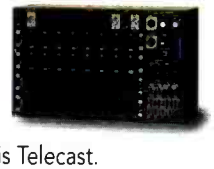
ELECTRONIC DISTRIBUTION CONFERENCE

	Mon. 4/7	Tues. 4/8	Wed. 4/9
9:00	ALL-INDUSTRY OPENING AND KEYNOTE ADDRESS	BROADBAND DELIVERY OPTIONS (Sands)	WIRELESS INTERNET ACCESS: Where is it? (Sands)
10:00		WIRELESS SERVICES FOR BUSINESS (Sands)	(break) Meet the panel (Sands)
11:00			PORTABLE CONNECTIVITY DISTRIBUTING BROADCAST QUALITY AUDIO & VIDEO (Sands)
12:00		NAB Communications & Connectivity '97 Joint luncheon (LVCC)	
1:00			CELLULAR & PCS DATE APPLICATIONS (Sands) COPPER VS. FIBER (Sands) FIBRE CHANNEL SEMINAR (Sands)
2:00	OPENING SESSION: Moving toward a wireless society	DIRECT-TO-HOME TV AROUND THE WORLD (LVCC)	
3:00	(break) Meet the panel (Sands)	(break) Meet the panel (LVCC)	(break) Meet the panel (Sands)
4:00	SATELLITES FOR PEOPLE ON THE MOVE (Sands)	WIRELESS AND BROADCASTING: Where are the synergies? What are the differences? (LVCC)	ELECTRONIC PRODUCT DELIVERY SOLUTIONS (Sands) THE FIBRE CHANNEL SEMINAR (Sands)
5:00	NAB Communications & Connectivity '97 Joint opening reception (Sands)	NAB Communications & Connectivity '97 Joint opening reception (LVCC)	NAB Communications & Connectivity '97 Joint opening reception

Good thing the fiber optic system is from Telecast.

We design and manufacture fully-engineered fiber optic broadcast systems for the television and entertainment industries.

Our family of fiber "snakes" simplify your cabling and reduce labor and weight by 98%. They span up to 10 times farther than copper cables and eliminate interference and grounding problems. That's why Telecast systems bring you the most demanding worldwide events, like World Cup Championship Skiing, two X-Games, three Super Bowls, golf and the Olympics, two Daytona 500's, and news coverage from the mundane to the historic.



Our Cobra™ is a triax extension cord for Sony®, Ikegami®, Philips® and other cameras, and reaches over 50,000 feet on durable, lightweight TAC fiber cables.

For your critical first mile, the only choice is Telecast.

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NAB LVCC Booth #9281
NSCA Booth #624

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Next Track Select during playback

Single Play

Cue Tally Point: up to 255 cue points stored on disc

Vari Speed: + or – 12.5%

A MODE: Front-panel switching of auto pause/ auto cue

Non-destructive RAM editing

BSL Motor for high reliability

Rehearsal

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4X speed audio and title duplication

Mono REC/PLAY

Multi Access Memory: up to 10 "Instant Start" tracks

UNDO: One level of undo

Allow us to state the obvious. The new MDS-B5 Digital Pro MiniDisc Recorder/Player has more high-end features than any other MiniDisc cart available today. And they all come standard, not as costly options. The MDS-B5 is the smart choice for radio, television, theater, and other applications requiring professional sound quality.

Its flexibility and easy operation make it ideal for sound effects, commercial messages and station promos. And high speed disc cloning is perfect for program distribution or safety back-ups. To learn more, call 1-800-635-SONY, ext. MDS. And remember, the MDS-B5 doesn't just have what you need. It has more.

THE MDS-B5 DIGITAL PRO MINIDISC RECORDER/PLAYER

MiniDisc

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ANALOG

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DIGITAL

Combination Waveform Monitor/Vectorscope for Analog & Digital Component Video Testing

This micro-processor controlled, multifunctional instrument is ideal for use with mixed digital and analog component video systems. Two serial inputs facilitate digital monitoring while a 3-wire input covers analog. Stereo analog audio monitoring is included. Key features are:

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- Waveform display includes overlay, parade and timing with full line selection.
- Component vector display mode facilitates color space testing.
- Unsurpassed digital video testing abilities.
- User selected alarms facilitate automated warnings of signal failure.
- Monochrome picture display for quick program identification.
- Detailed digital video signal analysis.
- Stereo-audio monitoring with electronic graticule.
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EEX Data Readout

Multi-System Menu

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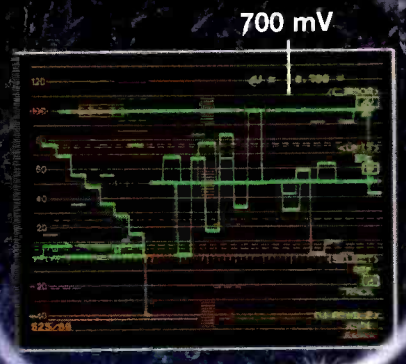
Watch Your "Analog -to- Digital" Chroma Levels!



The Leader LV 5100D Solves Your Video Conversion Problems

"It's happening!" The transition from analog to digital components brings with it startling changes in the way signals are monitored. Some examples.

- Chroma signals for 75% color bars used as the standard signal with analog Betacam occupy 100 IRE (700 mV).
- Chroma signals for 75% color bars in digital components span 75 IRE (525 mV).
- The reference standard in digital is 100% color bars, with waveform monitor scales set up to gauge them.
- Much digital program material is and will be transcoded from both analog-component and composite sources where 75% (SMPTE) bars are the reference standard.
- Setup does not appear in digital standards but is everyone playing by the same rules?

No wonder there's been plenty of confusion and rejected material because chroma has been set too hot! Familiar level settings made in analog can create disaster, carried over to the digital domain. But, Leader's LV 5100D, a monitoring unit that functions both in composite as well as in analog and digital component environments permits the end user to check levels in any format. For information on the LV 5100D and keen insight into the subject of level settings, call our technical marketing staff, toll free at 1 (800) 645-5104 or return the Leader reply card in this magazine.

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Visit us at the NAB Show – Booth 8760 Las Vegas Convention Center

Circle (23) for Product Information Only
Circle (24) for Product Information & Demonstration

TRADE UP TO THE LEADER

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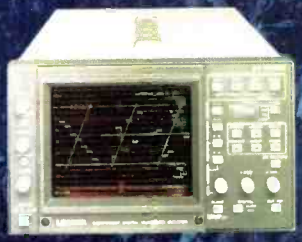
Special "NAB" Trade-Up Offer



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Las Vegas Convention Center

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"Bridge the Gap" with Leader and BCS

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TV MANAGEMENT & MARKETING CONFERENCE

	Sun. 4/6	Mon. 4/7	Tues. 4/8	Wed. 4/9
9:00		ALL-INDUSTRY OPENING AND KEYNOTE ADDRESS		THE SWITCH TO DTV: MAKING IT WORK (8:30-12:00) LVCC
10:00		MSTV MEMBERSHIP MEETING TVB WORKSHOP	TV BUREAU OF ADVERTISING ANNUAL MKTG. CONF.	
11:00			TVB STATE OF THE INDUSTRY ADDRESS	
12:00				
12:30				
1:00		NAB TV/TVB JOINT LUNCHEON & NAB HALL OF FAME PRESENTATION	THE ADVERTISER & TELEVISION	THE WAYS & MEANS OF CHILDREN'S TELEVISION
1:30			TVB EXHIBIT HALL WALK AROUND LUNCH (12:00-2:30)	
2:00	TVB BROADCAST SALES EXHIBIT (LVH) (1:30-5:00) SATELLITE SUMMIT (2:00-4:30)			
3:00		JOINT NAB TV/TVB PRESENTATION		
4:00		NAB TV & TVB WELCOMING RECEPTION	DVE EXHIBIT HALL GET-TOGETHER	
5:00				

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See us at NAB Booth #8654

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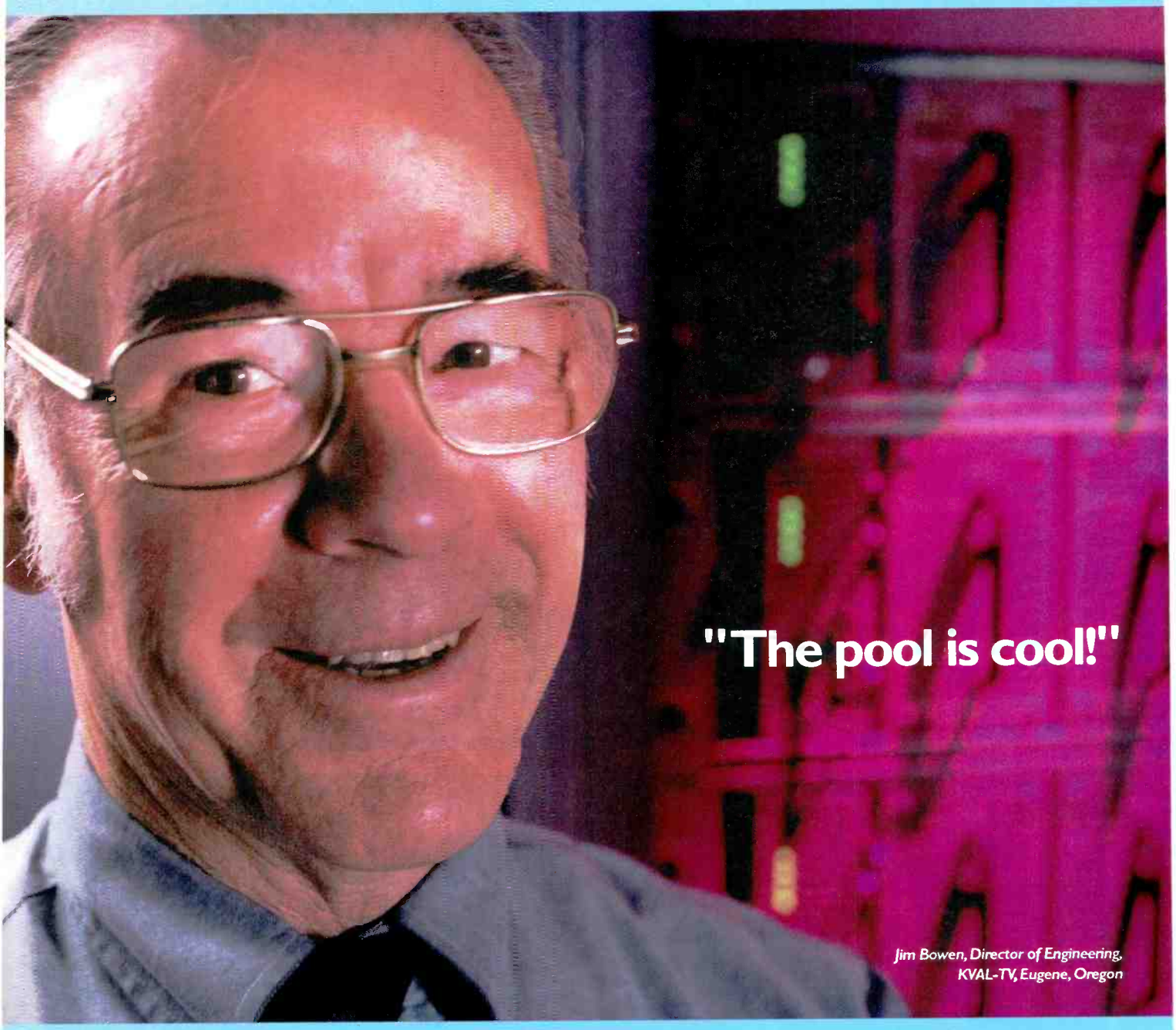

"The Philips BTS Media Pool video server is our gateway into the future requirements of DTV, providing a single source for centralized programming to KVAL-TV and our affiliate stations, KPIC-TV and KCBY-TV.

In researching the video servers currently available, cost effectiveness, versatility of configuration and the preservation of CCIR601 standards were at the top of our list of critical requirements. The Media Pool's ability to meet those requirements, together with the Philips BTS reputation for unparalleled customer support, made the Media Pool our best possible choice.

Today we program our stations with confidence, utilizing Philips DISKCART™ and STREAM™ software and trusting in the quality and reliability of the Media Pool to provide the programming directly. The Media Pool is definitely a cool tool."

Come and see the Media Pool in action at NAB, Philips booth 9901; or for more information visit us at www.philipsbts.com or call 1-800-962-4287.

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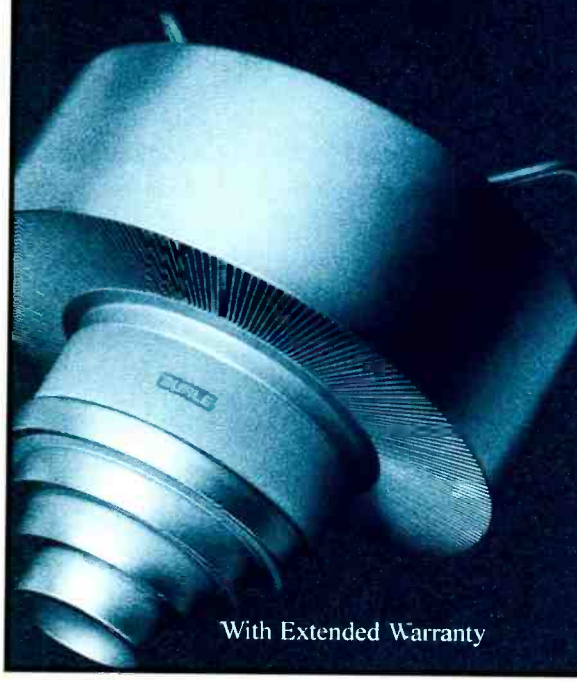
BROADCASTERS' LAW & REGULATION CONFERENCE

	Mon. 4/7	Tues. 4/8	Wed. 4/9
8:00		7:30 - 8:45 FCC CHAIRMAN'S BREAKFAST	
9:00	ALL-INDUSTRY OPENING AND KEYNOTE ADDRESS	FCC EQUAL EMPLOYMENT OPPORTUNITY OBLIGATIONS	
10:00	DUOPOLIES, LMAs & OWNERSHIP CHANGES	EXHIBITION	AVOIDING FCC FINES: A commission rule enforcement primer
11:00	DON'T LET A LIBEL OR PRIVACY SUIT SANDBAG YOUR STATION'S BOTTOM LINE OR REPUTATION		
12:00			
12:30	CONTESTS, LOTTERY AND CASINO ADS, PLUS STATION PROMOTIONS		
1:00			
1:30		ANTITRUST PRIMER FOR BROADCASTERS	
2:00	SMALL & MEDIUM MARKET STATION FINANCING	HERE AND ABROAD: Acquiring a business interest in broadcasting	EXHIBITION
3:00		REGULATORY DIALOGUE COFFEE BREAK	
4:00		REGULATORY DIALOGUE	
5:00	EXHIBITION		

BURLE Remains #1 Supplier for Broadcast Power Tubes.



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BURLE has maintained the recognized standard of excellence within the Broadcast Power Tube industry. Although the name has changed, our quality has remained the same for over 50 years.

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ELECTRON TUBES

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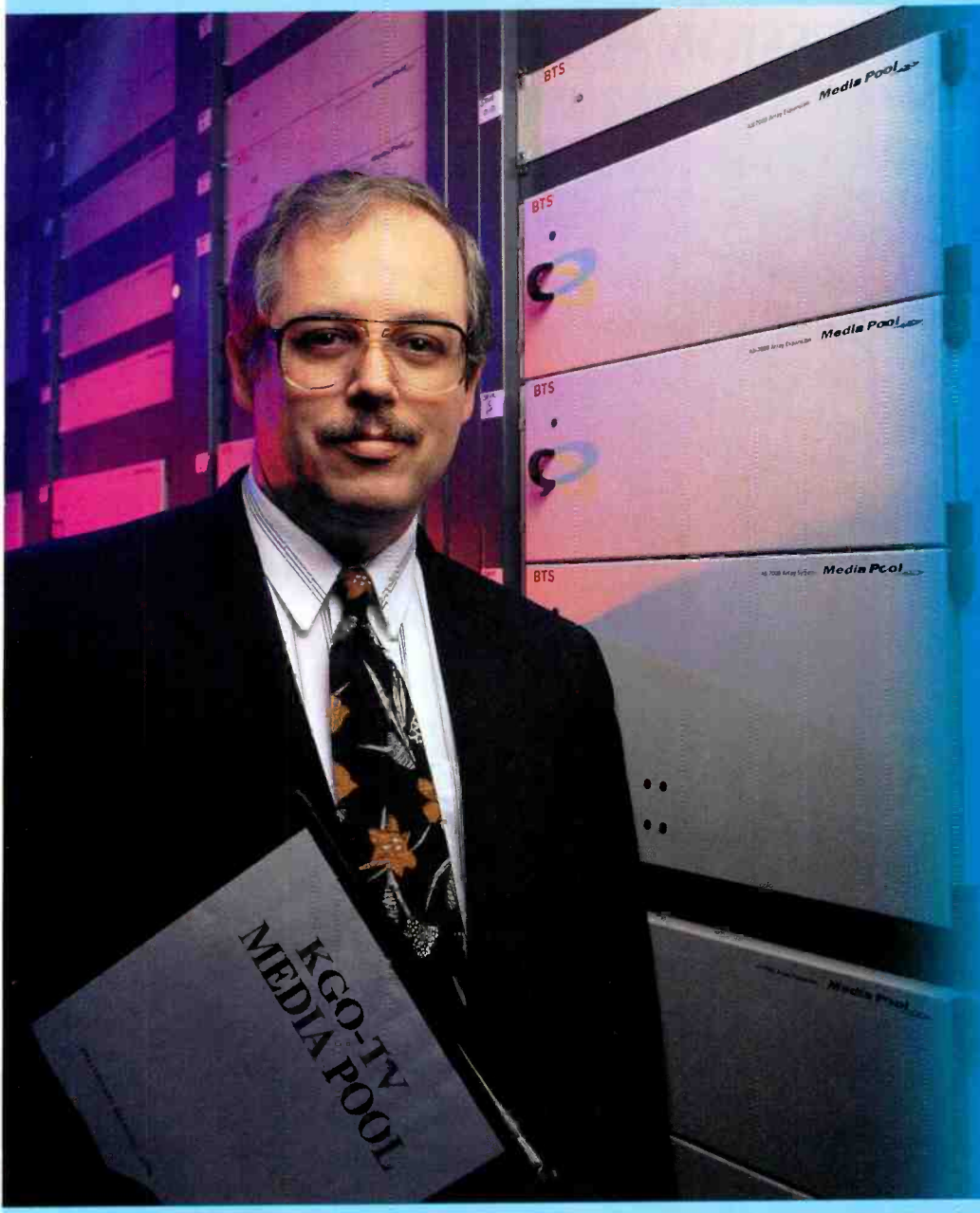

"The Media Pool video server system has greatly improved the efficiency of our broadcast facility."

Jim Casabella, Director of Engineering, KGO-TV, San Francisco, California

"With a 'tapeless environment' set as a goal for our broadcast facility, we outlined our requirements for a video server system that would not only satisfy our current needs, but also provide for the technologies of the future. At the top of our list was the need for a system with scalable bandwidth that offered modular storage capacity to support growth. In addition, we needed to work with a company that shared our vision of integrating a near-line tape storage unit such as the StorageTek MediaVault™ into the overall video server solution. Philips BTS met these requirements with the Media Pool video server. We were also very comfortable with the company's long running reputation for training and service after the sale.

Installing the Media Pool video server system has greatly improved the efficiency of our broadcast facility by eliminating the cumbersome task of sorting and loading endless amounts of tape. With the Media Pool, we achieved our current goal by using a video server that serves up a tapeless environment."

Come and see the Media Pool in action at NAB, Philips booth 9901; or for more information visit us at www.philipsbts.com or call 1-800-962-4287.

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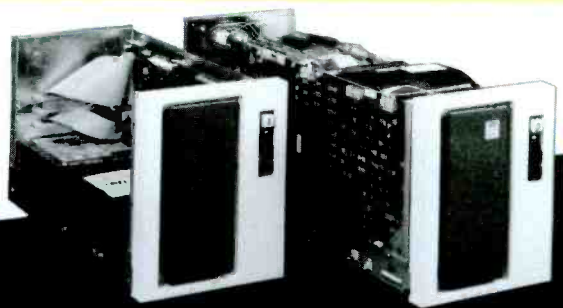
NEW MEDIA PROFESSIONALS CONFERENCE

	Sat. 4/5	Sun. 4/6	Mon. 4/7	Tues. 4/8	Wed. 4/9	Thur. 4/10
9:00			ALL-INDUSTRY OPENING AND KEYNOTE ADDRESS	MULTIMEDIA WORLD KEYNOTE ADDRESS		THE SOCIAL FOCUS OF NEW MEDIA
10:00					MARKETING NEW MEDIA: Emerging global markets	
11:00				VIRTUAL REALITY: Technologies and tools	THE MYTH OF PUBLIC DOMAIN	
12:00			EXHIBITION			
12:30						
1:00	IMA MULTIMEDIA BOOT CAMP: Part 1	THE VIRTUAL COTTAGE PCs, TVs & THE SET-TOP BOX		HYBRID MEDIA: CD-ROM & Internet case studies	INTERACTIVE MEDIA WRITER'S WKSHP	
1:30				NEW MEDIA FROM THE ANALYSTS' PERSPECTIVE	INTERACTIVE TV: The consumer's choice?	
2:00						
3:00				NON-LINEAR DIGITAL PRODUCTION (2:00)		
4:00	IMA MULTIMEDIA BOOT CAMP: Part 2	DVD AUTHORING WKSHP CREATING INTERACTIVE AUDIO FOR MULTIMEDIA	DVD TECHNOLOGY UPDATE FOR DEVELOPERS INTERACTIVE SERVICES:	DEVELOPING TRAINING PROGRAMS WITH NEW MEDIA (3:30)	CREATING HOT ANIMATION & GRAPHICS FINANCING NEW MEDIA	
5:00			MULTIMEDIA WORLD RECEPTION (6:00)			

Update Ampex ESS-3/5, AVA, Harris Iris, Quantel, and Dynatech Newstar system(s)



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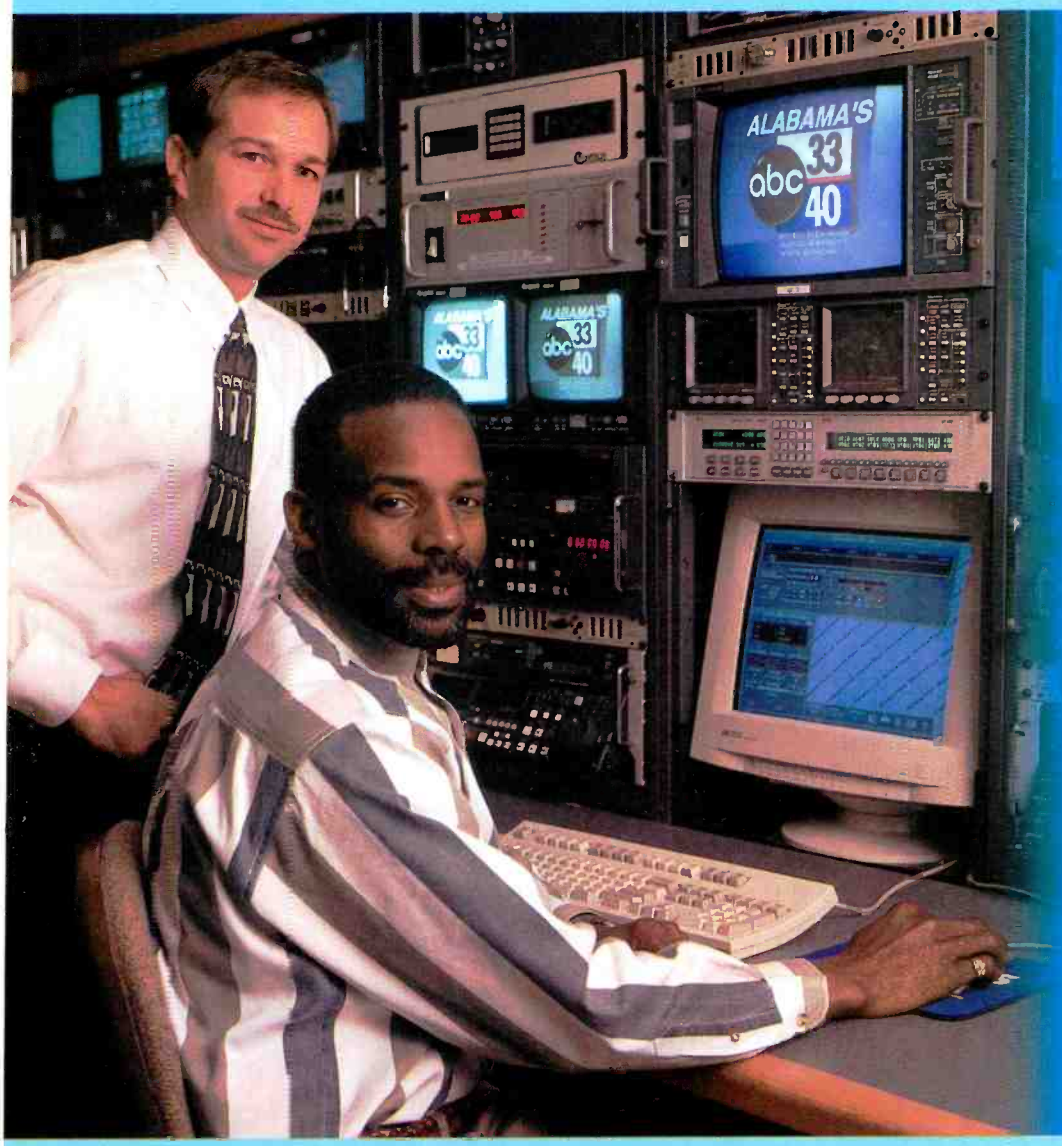

"The Media Pool has increased our revenue stream."

Gary Watkins,
Director of Facilities, (standing)
Ronald Thomas,
Engineering Supervisor,
TV Alabama, Birmingham, Alabama

"Our search for a server to operate as a multi-channel distribution device for programming and commercials quickly led us to Philips BTS. Confidence gained through years of experience using Philips BTS equipment, together with their solid reputation for service and support after the sale, immediately made the Media Pool video server a strong contender.

We were most impressed with the Media Pool's ability to operate in both analog and digital environments, providing for a smoother transition to digital technology. Coupled with its ease of operation in the master control booth and impressively high quality video from compressed data, the Media Pool video server became our top choice.

As with any new technology, introducing this new system to our engineering and production staffs was a major concern. The highly skilled support staff provided by Philips BTS gave us the expert training needed to operate the Media Pool in the most efficient manner possible. Our goal to streamline our operations into a tapeless environment was quickly met. Multi-channel distribution of programming and commercial spots has enabled us to regionalize broadcasts with both specific programming and specific advertising targeted to more regionalized demographics. The Media Pool provided the means to localize programs and spots for all of our stations from a centralized site. The Media Pool has increased our revenue stream."

— *Gary Watkins, Director of Facilities*

Come and see the Media Pool in action at NAB, Philips booth 9901; or for more information visit us at www.philipsbts.com or call 1-800-962-4287.

Let's make things better.

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BEA ANNUAL CONVENTION

	Fri. 4/4	Sat. 4/5	Sun. 4/6
8:00	REGISTRATION OPEN (9:00-5:00) OPENING BREAKFAST (9:15-10:15) BEA EXHIBITION OPEN	REGISTRATION OPEN (8:00-5:00) NAPTE-SPONSORED PLENARY SESSION (8:00-9:15) BEA EXHIBITION OPEN BEA PLACEMENT CENTER OPEN (9:00-5:00)	REGISTRATION OPEN (8:00-10:00) NAPTE-SPONSORED PLENARY SESSION (8:00-9:15) BEA CAREER FAIR PEB PLACEMENT CENTER OPEN (8:00-12:00)
9:00			
10:00			
11:00			
12:00			
12:30			
1:00	BEA EXHIBITION OPEN	BEA EXHIBITION OPEN	BEA CAREER FAIR BEA LUNCHEON: Keynote speaker - Larry King
1:30			
2:00			
3:00			DISTRICT MEETINGS
4:00			
5:00			
6:00	BEA OPENING COCKTAIL RECEPTION		

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10 BIT FRAME SYNCHRONIZER

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Our Systems have earned their reputation for a very good reason...

...each component is strong enough to stand out on its own.

Philips Broadcast Television Systems Company has become famous for producing innovative products, offering major advances in technology and providing a unique set of advantages for addressing today's complex operating challenges.

When you combine these products into a Philips BTS system solution, you are getting the most powerful system available--a fully integrated package with the features you need today and the flexibility to adapt to the changes that will come tomorrow.

Find out yourself why Broadcast, Cable Origination, and Satellite Programming facilities around the world have chosen Philips BTS for their on-air systems requirements.

For more information call us today at: **1-800-962-4287** or visit us at: **www.philipsbts.com.**

Let's make things better.

Philips
Broadcast Television
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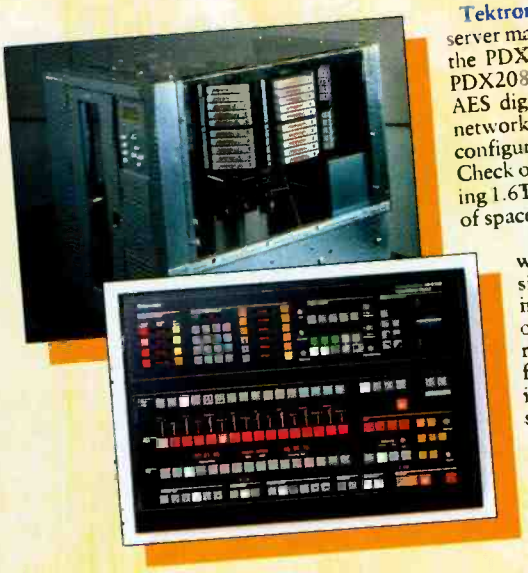
SNEAK PEEKS

Here they are; the hottest and newest products you'll find on the NAB show floor. Companies have released to *Broadcast Engineering* magazine information on these products in advance of the show so you can plan your early booth visits. Now, you'll know what's hot even before the show opens. Don't wait for the crowds to gather, hit these booths first and get your own private demonstration of what are sure to be some of the hottest and most innovative products at this year's show.



Tektronix is moving quickly to capture an even larger share of the server market. Complementing the popular Profile, Tektronix is adding the PDX208 disk expansion and PAC200 audio chassis. Using two PDX208s, a user gets almost 20 hours of storage. The PAC200 brings AES digital audio into the Profile for storage. If you're looking for networked storage, the PDR200 will also be shown in networked configurations using Fibre Channel topology. Need a library system? Check out the Profile PLS200, a robotic, digital datatape library providing 1.6TB of storage. Up to 100 hours of storage is provided in only 12RU of space.

Leveraging the name and expertise of Grass Valley, Tektronix will show the interesting M-2100 master control system. No longer simply called a "switcher," this product brings a high degree of integration and ease of operation to automated and multichannel operations. Multiple M-2100 solutions can be tied together to route, generate effects and control multiple program channels, all from a single point of operation. The M-2100 panels can be integrated with the Profile for a tight, easy-to-use clip storage system, along with audio if desired.

Seeing the burgeoning need for systems integration, Tektronix will feature in its booth information about its Professional Services Division. Leveraging on the integration of its several divisions over the last two years, Tektronix will now offer customers design and installation of a wide range of products and services.

Tektronix, P.O. Box 500, Beaverton, OR 97077; 800-547-8949; fax 503-222-1542; www.tek.com

Circle (1200) on Free Info Card

Hewlett-Packard arrived at the video storage party only about three years ago. However, in that short time, the company has proved to have developed a successful product as evidenced by the many sales to some of the largest multichannel satellite and cable programmers.

This year, H-P will be highlighting its new H-P MediaStream disc recorder. The VDR provides up to five channels and nine hours of RAID-protected storage. The new VDR is designed for use as a stand-alone disk recorder or in conjunction with the H-P MediaStream Broadcast Server.

One of the advantages of the H-P recorder is its small footprint. In about the same space as a Beta-SP deck, the user can get a 1x3, five-hour, RAID-protected system. According to company officials, competing RAID-based products in a similar configuration are nearly triple the size and on average, sell for more than $120,000. The H-P 1x3, five-hour system has a base price of $85,000.

Hewlett-Packard, Test & Measurement, P.O. Box 50537, Palo Alto, 95303; 800-367-4788; fax 408-553-3905; www.hp.com/info/forhptv/; forhptv@vid.hp.com

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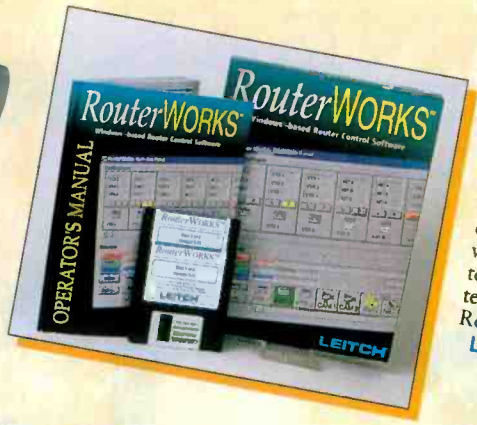


Leitch is offering a new and improved version of the routing system control software, Router WORKS. The Windows-based program offers an intuitive, easy-to-use set of applications for configuring, monitoring and controlling a routing system. Featuring an improved matrix view of router status, version three allows preset/take operations and offers support for locks and protects. It also provides salvo editing and launching, incorporates a touchscreen interface and includes password protection. The upgrade is available free to all existing Router WORKS customers.

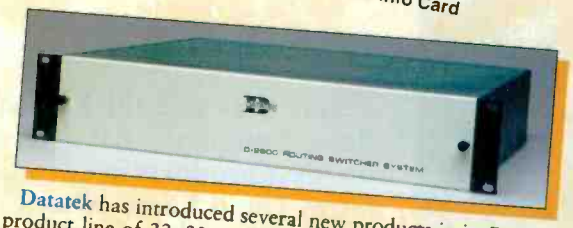
Leitch, 920 Corporate Ln., Chesapeake, VA 23320; 800-231-9673; fax 757-548-4088; www.leitch.com

Circle (1202) on Free Info Card

The DVA320QC digital video analyzer from AAVS provides you with the unique ability to test component and composite serial digital video signals in both 525- and 625-line formats with continuous, real-time on-line measurements of all key digital video parameters. It provides you with complete testing flexibility with user definable thresholds for quick and reliable good/bad testing capabilities, plus instant notification of error occurrences with an alarm function.

AAVS, 3200 Sencore Dr., Sioux Falls, SD 57107; 800-796-2287 or 605-339-0100; fax 605-335-6379

Circle (1203) on Free Info Card



Datatek has introduced several new products in its D-2600 product line of 32x32 routing switchers, including a 32x32 AES/EBU digital audio switcher for mounting in a 2RU rack frame. This switcher complements the 32x32 analog video, 32x32 two-channel analog audio and 32x32 digital video switcher introduced at NAB last year. Also new are the 64x16 digital video switcher, a 32-port data switcher, and a 16x4 digital video/digital audio switcher combined in a 1RU frame.

Datatek, 1121 Bristol Rd., Mountainside, NJ 07092; 800-232-6381 or 908-654-8100; fax 908-232-6381

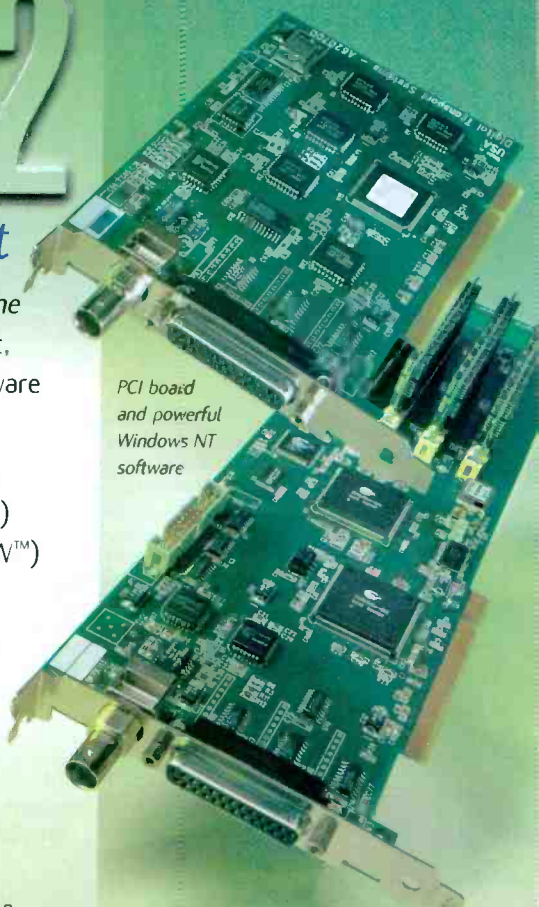
Circle (1204) on Free Info Card

MPEG-2
Test and Measurement

Whatever your requirements for *real time* MPEG-2 and DVB test and measurement, Digital Transport Systems has the hardware and software solution:

- *Transport Stream Analyzer* (TSA™)
- *Transport Stream Generator* (TSG™)
- *Transport Stream Workstation* (TSW™)

For powerful, cost-effective solutions, Digital Transport Systems is your single source. Call us today.



PCI board and powerful Windows NT software

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Digital Transport Systems

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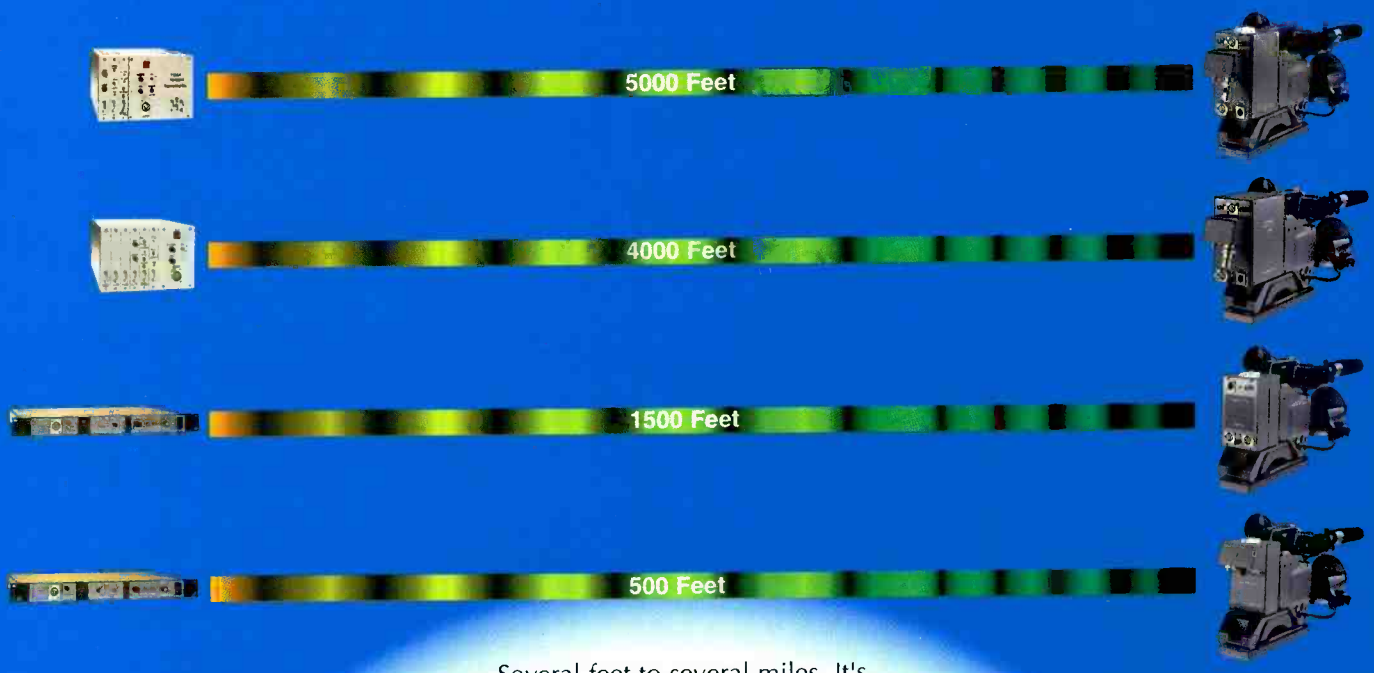
Telemetrics Goes The Distance.



Several feet to several miles. It's the range of distance Telemetrics delivers to turn your ENG cameras into full featured EFP cameras for the field and the studio. With direct docking camera adapters -- factory set-up ready to plug and play. And the compatibility to interface with virtually any video format including digital. It's the level of performance you would expect from the people who invented triax and coax camera control technologies.

For composite video, there's the Telemetrics TM-9250 triax system. It maintains signal integrity over the longest cable runs (5000 feet*). And offers comprehensive camera set-up and adjustment capabilities, along with video, return video, microphone audio, intercom, tally, and genlock -- plus power. It's the industry standard for quality and performance. For component video, Telemetrics' TM-9660 Triax System offers all the same functionality. With all the benefits of component video transmission to a distance of 4000 feet.

If you're working with coax, the Telemetrics TM-9255A Coax System delivers cost-effective camera remote control capabilities at distances of 1500 feet. Plus power for the camera and a large studio viewfinder. Telemetrics also offers the TM-9525 Dual Coax/Fiber System. This highly versatile system employs dual coax cables up to 500 feet and can be cost-effectively interfaced with 15MHz unidirectional fiber optic transceivers for long distance camera control without the use of repeaters.

Get more mileage from your ENG cameras. With Triax and Coax camera control systems from Telemetrics. They go the distance. For more information call 201-848-9818, or fax 201-848-9819.

Telemetrics Inc.

CAMERA CONTROL SYSTEMS

SEE US AT NAB BOOTH #11646

Telemetrics Inc., 5 Leighton Place, Mahwah, NJ 07430, U.S.A.

Circle (28) on Free Info Card

*All distance specifications based on using standard Belden 9232 triax and 8281 coax cable.

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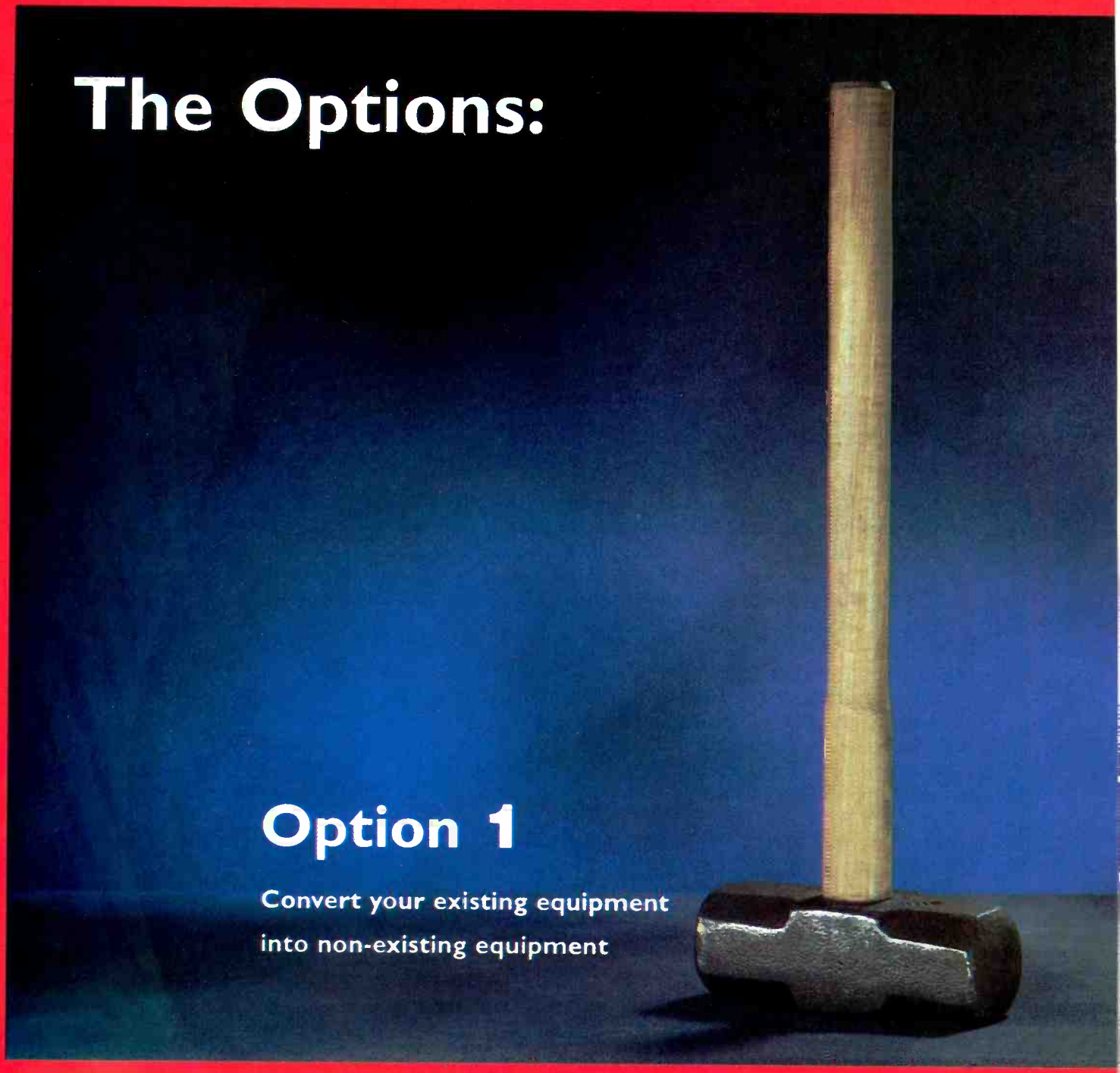
The Good News: The US HDTV
The Not So Good News: Your

The Options:



Option 1

Convert your existing equipment
into non-existing equipment

The HD6000, with serial digital I/O and a data rate of 1.5Gbps, is one of a range of ten HDTV processors from Snell & Wilcox designed to provide a seamless transition between all conventional and high definition standards.

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Standard has been agreed
existing equipment is incompatible

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HDTV by SNELL & WILCOX

Circle (29) on Free Info Card

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Frezzi Energy Systems is taking battery management into the 21st century with products like its M2100 battery management system. Using the latest high-performance RISC processor, the M2100 incorporates a fast charger, discharger, analyzer and power supply into one state-of-the-art unit. It can keep you up to date on the condition of your batteries at any time, and an Alpha Numeric LCD display provides complete diagnostics at a glance.

Frezzi, 5 Valley St., Hawthorne, NJ 07506-2084; 201-427-1160; fax 201-427-0934

Circle (1205) on Free Info Card

Another addition to the line of pedestal systems from Chapman/Leonard Studio Equipment is the LenCin. The triangular-shaped base features dramatically improved four-stage column rigidity and the column is interchangeable between the LenCin and its predecessor, the Pedolly. The LenCin features crab or conventional steering, virtually silent operation and a variety of tires to accommodate many types of ground and floor conditions.

Chapman/Leonard, 12950 Raymer St., North Hollywood, CA 91605; 888-383-6559; fax 888-502-5263

Circle (1206) on Free Info Card

Tektronix continues to provide industry leadership in the area of picture quality analysis. Using techniques developed in cooperation with the David Sarnoff Lab, techniques to measure picture quality using the Just-Noticeable Difference (JND) method will be demonstrated. Volume one of the Tektronix *JND Report,* a technology primer on JND, will be available in the booth.

New on the test and measurement side is the WFM601A and WFM601E serial component monitors. Because CCIR-601 is quickly becoming the standard video signal format, these new monitors should be a big hit with show attendees. Useful in camera control and video graphics applications, the WFM601A will provide accurate monitoring component signal levels and timing on source and processing equipment. The WFM601E is designed for transmission applications.

Tektronix, P.O. Box 500, Beaverton, OR 97077; 800-547-8949; fax 503-222-1542; www.tek.com

Circle (1207) on Free Info Card

Frezzi Means Advanced Charging

Introducing the only battery charger you'll ever need, the Frezzi Energy M2100 Battery Management System. Designed like no other charger, the M2100 includes features not found in other chargers costing considerably more.

We put in a Discharge program that analyzes, providing Discharge and Charge capacity. There's also a unique Rescue program that will verify and safely trickle charge over discharged batteries. At Frezzi, we listen to our customers, and the result is a 70 Watt Power Supply built in the M2100 for powering a camcorder and Frezzi Light all in one unit.

With all these features, the Frezzi M2100 is the only Charger your production facility will ever need.

Frezzi ENERGY SYSTEMS

5 Valley Street, Hawthorne NJ 07506
Tel: 201-427-1160 Fax: 201-427-0934 http://www.frezzi.com

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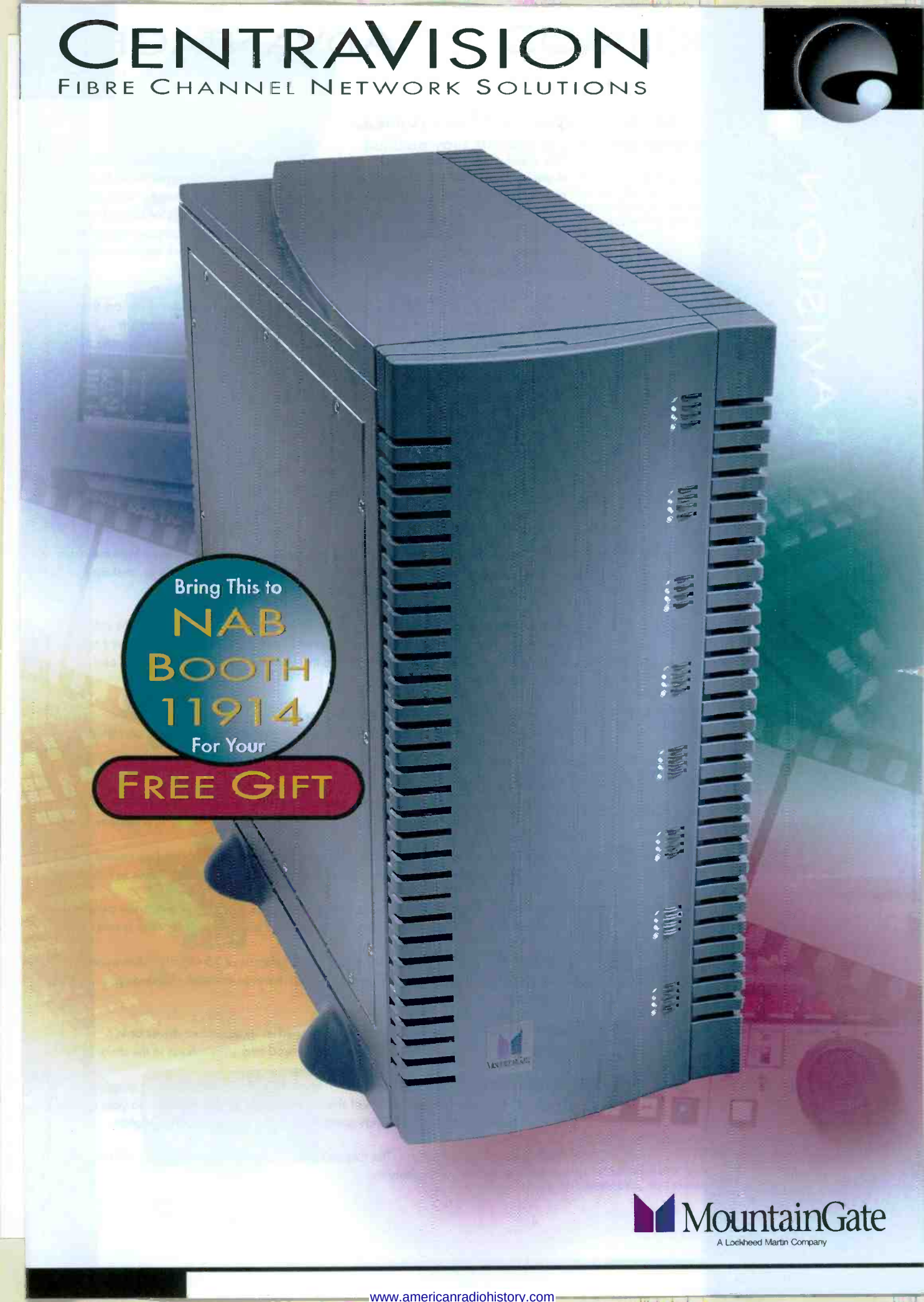
CENTRAVISION

FIBRE CHANNEL NETWORK SOLUTIONS



MountainGate

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SPECIFICATIONS

CentraVision Fibre Channel Disk Array

Mechanical

Cable Connectors		
Standard disk array		DB9 four conductor copper cable connectors (2 each)
Disk array with daisy chain capability		DB9 four conductor copper cable connectors (4 each)
Backplane		Passive dual arbitrated loop backplane configuration with removable quad port bypass and repeater logic modules
Housing		Steel sheetmetal and steel drive trays
Disk Drives		Hot-swappable and direct pluggable 3.5" FC-AL disk drives
Dimensions	Tower configuration	Rackmount configuration
Height	19.0 inches/48.3 cm	8.75 inches/22.3 cm
Width	8.75 inches/22.3 cm	19.0 inches/48.3 cm with overlapping earmounts
Depth	21.0 inches/53.4 cm	21.0 inches/53.4 cm
Weight		
Four-drive configuration	Tower - 65 lb/30 kg	Rackmount - 65 lb/30 kg
Eight-drive configuration	Tower - 75 lb/34 kg	Rackmount - 75 lb/34 kg

Electrical and Environmental

System Capacity	Eight 3.5" disk drives Over 1 Terabyte available with 16 units (126 devices max)
Data Transfer Rate	Up to 100 MB/sec (200 MB/sec full duplex) per loop
Fault Indications	Visual drive fault lights Audible power supply alarm
Cooling	Four hot-swappable fan modules
Power Supplies	300W, Dual redundant, Hot-swappoble, Auto-ranging for 120/240 VAC, 60/50 hz
Input Power Consumption for fully loaded power supply configuration	4.0 Amps @ 120 VAC, 2.0 Amps @ 240 VAC
Certifications	
Emissions	FCC Class A, CE
Safety	UL 1950, cUL C22.2-950, TÜV EN-60950
Temperature and Relative Humidity (non-condensing)	
Operating	5 to 40°C (41 to 104°F), 20% to 80%
Non-operating temperature range	-20 to 85°C (-4 to 185°F), 20% to 80%

CentraVision FC Hub

Bit Rate	1.0625 Gigabit/sec, 8B10 encoded
Data Rate	100 MB/sec each direction
Standards support	Fibre Channel Arbitrated Loop (Electro-optical converters for optical fibre cabling are optional)
Dimensions	
Height	1.7inches/43 mm
Width	8.7 inches/221 mm
Depth	5.7 inches/145 mm
Weight	3 lb (shipping, 3.3 lb)
LED Indicators	1 amber/port - LED on indicates port bypass 1 green - LED on indicates power on
AC Voltage	100-240 VAC
Power	2 A, 50-60 Hz
Operating Temperature	0°C to 40°C
Storage Temperature	-40°C to +70°C
Operating Humidity	95% maximum relative humidity
Electromagnetic Specifications	FCC PART 15 CLASS B (EN55022B), (EN50082-1)
Agency Approvals	UL 1950, CSA 950, EN60950 (IEC950), CE Mark

Warranty

CentraVision Fibre Channel Disk Array enclosure	2 years
CentraVision Fibre Channel Hub	2 years
CentraVision Fibre Channel Disk Array disk drives	Limited to the manufacturer's warranty

MountainGate
A Lockheed Martin Company

CORPORATE HEADQUARTERS
MountainGate
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Anton/Bauer is showing new InterActive 2000 PowerChargers that feature camera operations from mains, Logic Series charging, diagnostic and charging add-on modules. The InterActive 2000 system includes new powerful, lightweight battery modules compatible with all Logic Series chargers, PowerChargers and Gold Mount accessories.

Anton/Bauer, One Controls Dr., Shelton, CT 06484; 203-929-1100; 203-929-9935

Circle (1208) on Free Info Card

EEV has expanded its range of digital IOT amplifier systems with the introduction of the IOTD2100 tube. This device was derived from EEV's IOT 8505 analog TV IOT system which provides 55kW of visual power and 5.5kW of aural power in common amplification configuration at the output flange. The new digital tube will deliver 110kW of peak power in DTV applications transmitting 8-VSB or OFDM, at the output flange.

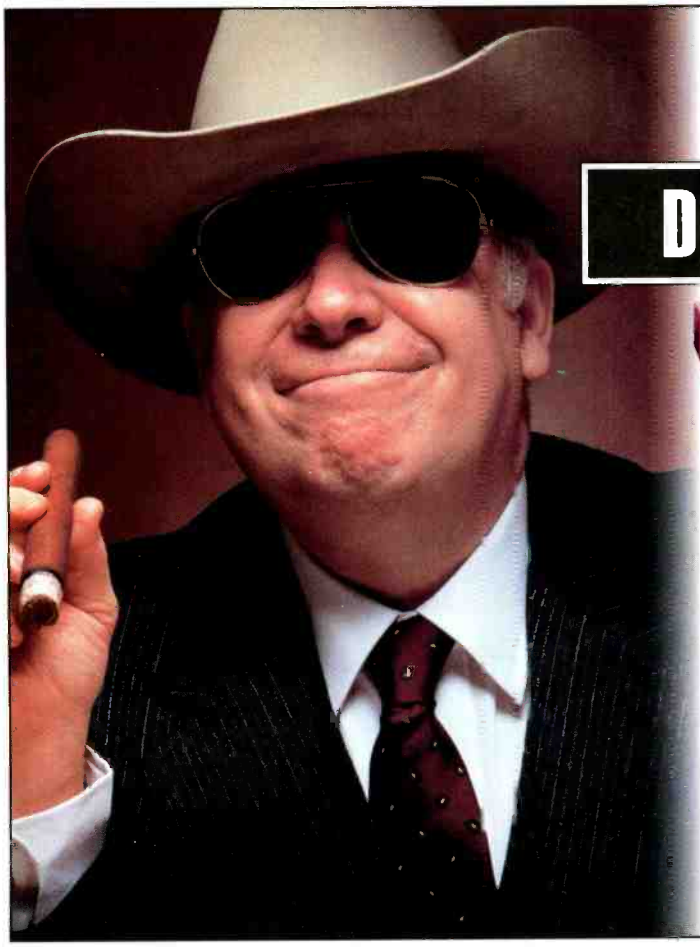
EEV, 4 Westchester Plaza, Elmsford, NY 10523; 914-592-6050; fax 914-682-8922

Circle (1209) on Free Info Card

Pinnacle Systems is exhibiting open system video products such as DVEXTREME, a Windows NT-based, 10-bit, multichannel 3-D digital effects generator. Designed for post-production and broadcast applications, DVEXTREME sets a new standard for DVE performance and affordability. Other products to look for from Pinnacle Systems include the Lightning superfast networked video storage and retrieval system and the Alladin control panel.

Pinnacle Systems, 280 N. Bernardo Ave., Mountain View, CA 94043; 415-526-1600; fax 415-526-1601

Circle (1210) on Free Info Card



If someone tells you they have a scan converter that matches our quality (the highest available), our features (the most available), and our price ($14,900 suggested list price)...

Don't believe 'em!

No one has our quality for our price. Quite simply, we give you the best scan converter on the market. That's why we're the choice of the networks, broadcast, and post-production professionals when they need to convert any high-resolution computer or imaging source to broadcast-quality video output.

The 9700XL Broadcast-Quality, Autosync, Video Scan Converter

- *Dynamic Pan and Zoom*
- *RS-232 Remote Control (Win 95 Driver Included)*
- *Multiple Flicker Elimination Filters*
- *Optional D1 Serial Digital Output (CCIR 601)*
- *Conversion to all major video formats*

(RGB, NTSC, PAL, S-Video (YIC), Betacam, true 31.5 KHz, and serial D1)

Call for a free demo today...Seeing is believing!

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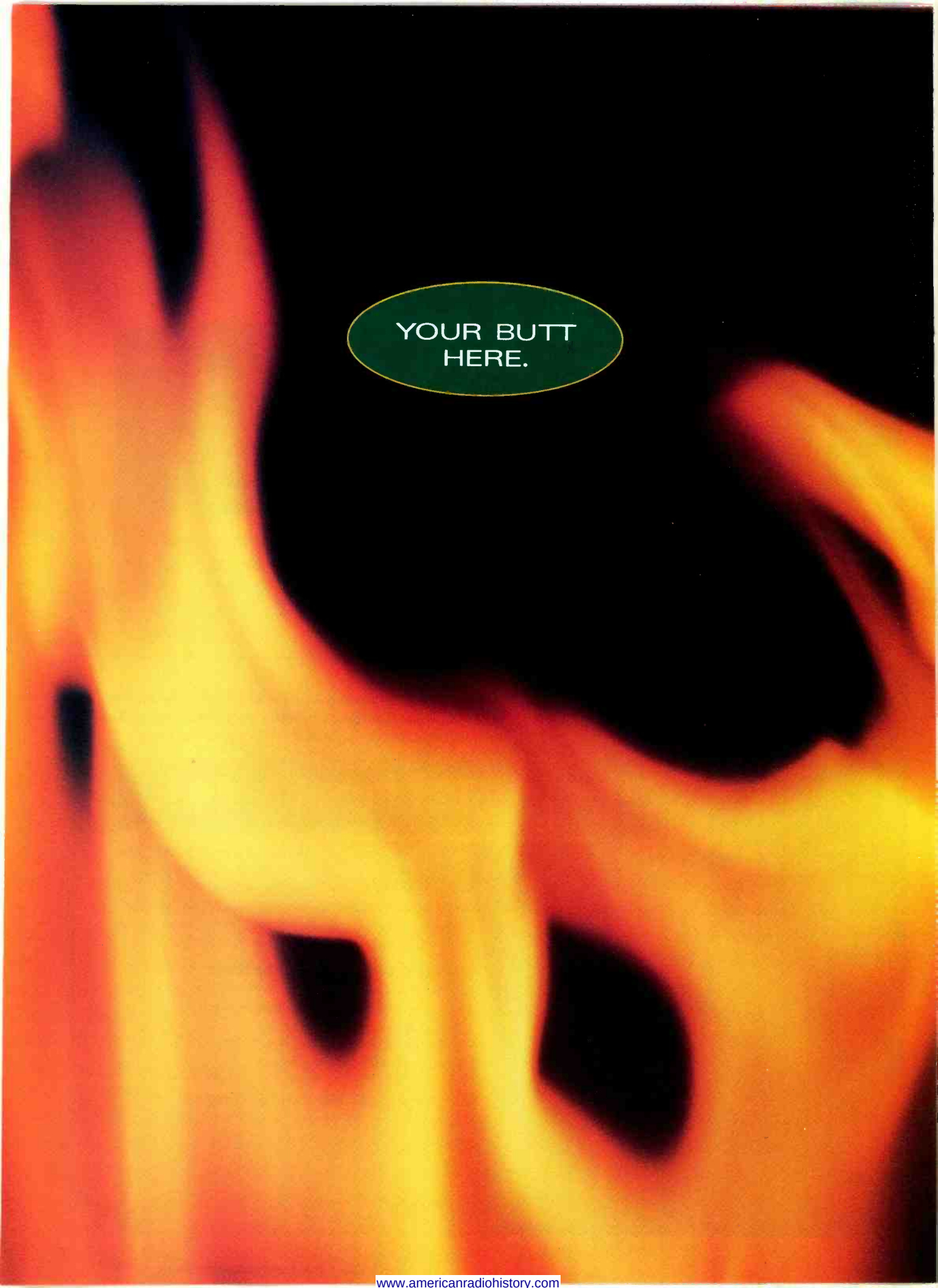

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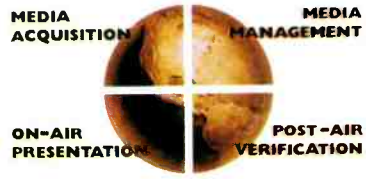
GOOD NEWS TO THOSE WARMING UP TO THE INEVITABILITY OF BROADCAST AUTOMATION

Systems, strategies and sweating bullets. Let's face it, keeping your cool in the fiery transition to video servers and broadcast automation takes more than just a seat-of-your-pants approach. It takes the people, products, vision and experience of Louth Automation. From satellite control through traffic integration, our proven track record makes Louth the worldwide leader in broadcast automation systems.



Our growing client list is a who's who of leading-edge broadcasters. Since 1988, Louth has set the benchmark for scalable station automation. So, whether you're moving from tape to disk, or facing a mega multi-channel expansion, it's no wonder why hundreds of successful broadcasters partner with Louth to get them on the air. And keep them on the air.

Feeling the heat? We'd be happy to help you take the next step. No matter where you're at in the process of transitioning your station to a new era of automation, we can help. With people. With experience. With solutions. Call us today at **415/843-3665** for more information or a demonstration of our flagship ADC-100 and the new entry-level ADC-50 System. Broadcast automation from Louth. It's the best answer to keeping your cool.

LOUTH AUTOMATION

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See us at NAB – Sands Exhibit #3619

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MOGAMI http://www.mogami-wire.co.jp/

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LONG RUN 110 Ω AES/EBU DIGITAL AUDIO CABLE
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P/N 3206
VESA STANDARD VGA CABLE
(for plug and play)

P/N BNC-2964C
75 Ω ONE TOUCH PUSH-PULL
BNC CONNECTOR(crimp version)

P/N 3200
HANDY SUPERFLEXIBLE 50 Ω COAX. CABLE
(for wireless mic./ham/computer/measuring)

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SCSI-3 (wide SCSI)CABLE

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Circle (43) on Free Info Card

SNEAK PEEKS

Although Quantel is keeping quiet about exactly what it will be showing this year, while visiting the factory in Newbury, England, *BE* editor Brad Dick was able to peek into a couple of back rooms for this preview.

Look for a sophisticated server solution to be provided by the Quantel Clipbox. The system is capable of non-compressed and compressed storage. In the compressed mode (the system uses Grid compression) the Clipbox is capable of 5:1, 10:1 and 20:1 compression ratios. This equates to eight hours of uncompressed CCIR-601 video or up to 160 hours at the 20:1 compression level. Look for Clipbox to become Quantel's centerpiece technology for transmission, post-production and newsroom automation.

Also to be highlighted in the Quantel booth is Bravo, a creative artist's dream. Customizable in almost any way, look for Bravo to be available in a stand-alone configuration and as a subset in the Hal and Harry products.

The company also promised to have an "interesting technology demonstration" in its booth. If you want to see it, you'll have to ask, because it's being kept off the main exhibit floor. From my discussion with Quantel's managing director, Jeff Meadows, the demonstration is worth a look.

Quantel, 28 Thorndal Circle, Darien, CT 06820; 203-656-3100; fax 203-656-3459; quantel@quantel.com; www.quantel.com

Circle (1211) on Free Info Card

The new PCI transport stream generators from Digital Transport Systems offer a choice of interfaces and memory. The TSG may be used to provide a datastream source for manufacturing tests of satellite and cable modulators, receivers and set-top decoders. For production prototype verification, the TSG's ability to source repetitively known test sequences at precise data rates in invaluable. For products that generate DVB ASI and DVB LVDS or RS-422 outputs, the TSG can be used to collect and store data from tens of seconds to several minutes into a file on a computer hard disk for verifying the integrity of the datastream. The PCI version of the TSG features all of the EISA-based capabilities plus more.

Digital Transport Systems, 11545 W. Bernardo Ct., Ste. 200, San Diego, CA 92127; 619-675-1410; fax 619-675-1412; brichards@dtsys.com

Circle (1212) on Free Info Card

Digital video processing is now available in pairs with the Pick-2 from Prime Image. The Pick-2 allows you to select any two processing capabilities in a single, rack-mounted frame. Any combination of a component time base corrector/synchronizer, direct video synchronizer, audio delay, standards converter and logo insertion card is available at your request. Even different standards — NTSC, PAL and PAL-M — can be specified singly or in combination. And future Prime Image products will be designed to work within the Pick-2 frame for compatability and easy upgrading.

Prime Image, 19943 Via Escuela, Saratoga, CA 95070; 408-867-6519; fax 408-926-7294

Circle (1213) on Free Info Card

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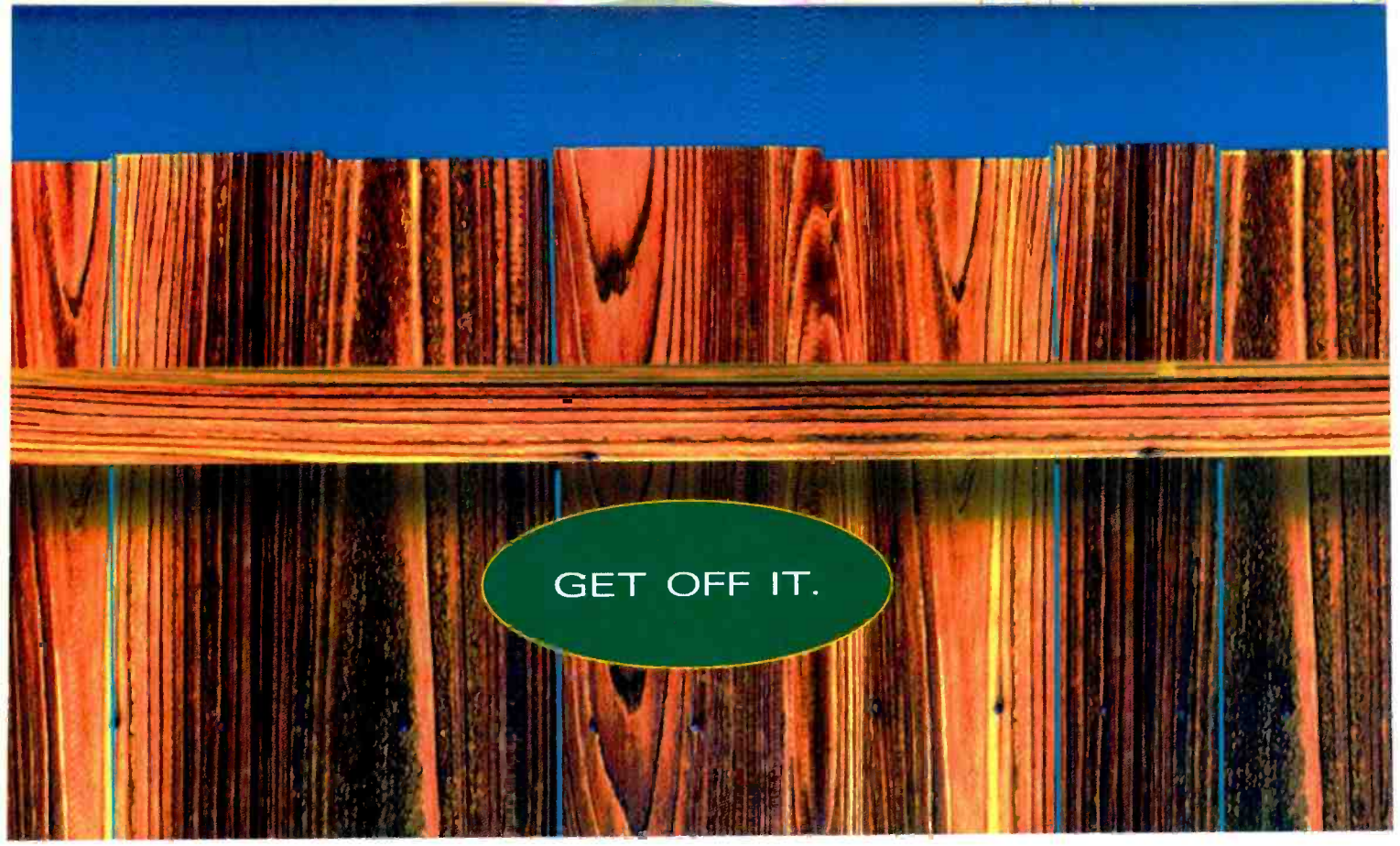

INTRODUCING THE LOUTH ADC-50. A GREAT REASON TO ENTER A WORLD OF BROADCAST AUTOMATION IN ONE AFFORDABLE LEAP.

From cache-based spot insertion to totally tapeless solutions, the new Louth ADC-50 is the perfect solution for budget-conscious broadcasters who are looking for the dramatic efficiency and performance of a broadcast automation system. Based on our flagship ADC-100 – the world's leading Automation Software – the ADC-50 is your low-cost, high-performance, built-to-grow solution. The ADC-50 can be used with a wide range of cart machines for caching to video disk systems, or use it with stand-alone servers for a totally tapeless solution. With the ADC-50 you get the performance you need today with the power and flexibility to support your long-term strategy.

LOUTH ADC-50

THE AFFORDABLE AUTOMATION SOLUTION

- *Reliable, proven design keeps you on air 24 hours a day.*
- *Widest range of video disk, VTR, and cart devices gives you maximum system flexibility.*
- *Supports up to 4 on-air channels to allow future expansion to multi-channel broadcasting.*
- *Windows playlist interface is easy for new and experienced users alike.*
- *Extensible to full ADC-100 master control automation with full investment protection.*

Powerful media preparation software and a Windows-based master control system make the ADC-50 powerful, intuitive, and easy to use. Think of it. Frame accurate control, proven reliability, multi-channel broadcast potential, and an on-air look that's absolutely impeccable. Just what you'd expect from Louth. After all, we're the leader in broadcast automation with hundreds of satisfied broadcasters worldwide. Through our products, our people, and our experience, you'll have the best engineered solution for your station. For a demo, a quote, or more information on the ADC-50, call **415/843-3665** today. Powerful Louth automation at an affordable price. It's an opportunity worth jumping on.

CALL 1-415-843-3665 FOR MORE INFORMATION

LOUTH AUTOMATION

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Circle (50) on Free Info Card

See us at NAB – Sands Exhibit #3619

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New from Asaca as part of the Executive Series is a large-format, flat-panel plasma monitor called the ES-42. This wide-format 42-inch plasma display gives bright, clear, adjustment-free images and provides a high-performance, multiviewer monitor in little more space than a picture on the wall.

Also from Asaca is the first product in the Media Suite Series, the MS-32. This 32-inch monitor displays high-quality 25-inch NTSC imaging and offers an impressive reference for 16:9 format productions (with up to 1,125 interlaced lines).

Asaca, 12509 Beatrice St., Los Angeles, CA 90066; 800-423-6347 or 310-827-7144; fax 310-306-1382

Circle (1214) on Free Info Card

RGB Spectrum will demonstrate the latest entries in several of its product lines, such as the RGB/Videolink 1700-D1. This versatile scan converter accepts inputs from virtually any workstation or desktop computer (screen resolutions up to 1,600x1,280 pixels) and automatically sets up the parameters for the sharpest picture. Outputs include broadcast quality NTSC and PAL composite video, S-Video and component analog video, as well as CCIR 601 digital component video for D1, Digital Betacam and other digital component tape recorders.

Other products from RGB Spectrum include the SuperView 1000, the latest product in the company's SuperView video windowing product line; the SynchroMaster 300AV, a frame-store synchronizer for computer signals; and ComputerWall, a multiscreen processor which magnifies and splits high-resolution computer images across an array of projectors, monitors or flat-panel screens.

RGB Spectrum, 950 Marina Village Prkwy., Alameda, CA 94501; 510-814-7000; fax 510-814-7026; www.rgb.com

Circle (1215) on Free Info Card

Thomson Tubes Electroniques will be highlighting the Diacrode. With battle lines already being drawn, Thomson will be demonstrating how the Diacrode offers many advantages for DTV operation. Technical brochures are available in the Thomson Tubes booth detailing two comprehensive tests run on Tetrode, Diacrode and IOT transmitters. Any engineer contemplating the purchase of a DTV transmitter should review this data before making a decision. Readers can look for the battle over tube technology to heat up logarithmically at the show.

Thomson Tubes Electroniques, 17 ave de Maréchal Juin, F-92336 Meudon la Foret Cdx France, +33 1 3070-3500; fax +33 1 3070-3535

Circle (1216) on Free Info Card

DON MARKLEY
PRESIDENT,
D.L. MARKLEY AND ASSOCIATES,
PEORIA, IL

What's going to be hot at NAB 97:
DTV and associated transmitters, antennas and STLs; HDTV cameras and recorders

What's not going to be hot at NAB 97 that has been in the past:
Large studio cameras for NTSC-only use

What I'll be looking for at NAB 97:
Towers antennas, TV transmitters and TV STLs

Where I recommend hanging out after hours:
Ruth's Chris Steak Houses

My tips for first-time attendees:
Don't even think about seeing everything. And you are *not* going to win your station at the tables.

My view of the industry:
I predict that a final table of DTV assignments will be released just before the show and everyone will be in shock.

NAB 97 Tips

www.americanradiohistory.com

NAB Booth M7363

Bring this chip to our booth at NAB. It could be worth $1000.

You'll also see the only 475 MHz matrix available for under $3000.

The AutoPatch booth is the place to be at this year's NAB show. Because along with our full line of quality matrices, you'll also have a chance to win your choice of a $1000 casino chip or an AutoPatch matrix. Just clip out the chip above and bring it to our booth. *(M-7363 at the Sands Expo Center)* You might walk away with more than the usual literature.

The half-Y Series:

> Affordability meets flexibility in our small half-Y series. Offers a wide variety of control and connector options. Available in 6x2, 8x2, and 8x4 configurations.

The 1-Y Series:

> The inexpensive matrix that offers 475 MHz bandwidth for under $3000. Available in 4x4, 8x4, 4x8, and 8x8 configurations.

The 4-YDM Series:

> A mid-sized matrix with the features and flexibility of larger models. From 4x4 through 128x128 configurations.

The 8-YDM Series:

> The large custom matrix with hundreds of configurations, from 8x8 through 64x256.

AUTOPATCH

Toll Free: 800.622.0246

A division of XN Technologies, Inc. 2416 Cheney-Spokane Road Cheney, WA 99004 Phone: 509.235.2636 Fax: 509.235.2646 www.autopatch.com

Circle (51) on Free Info Card

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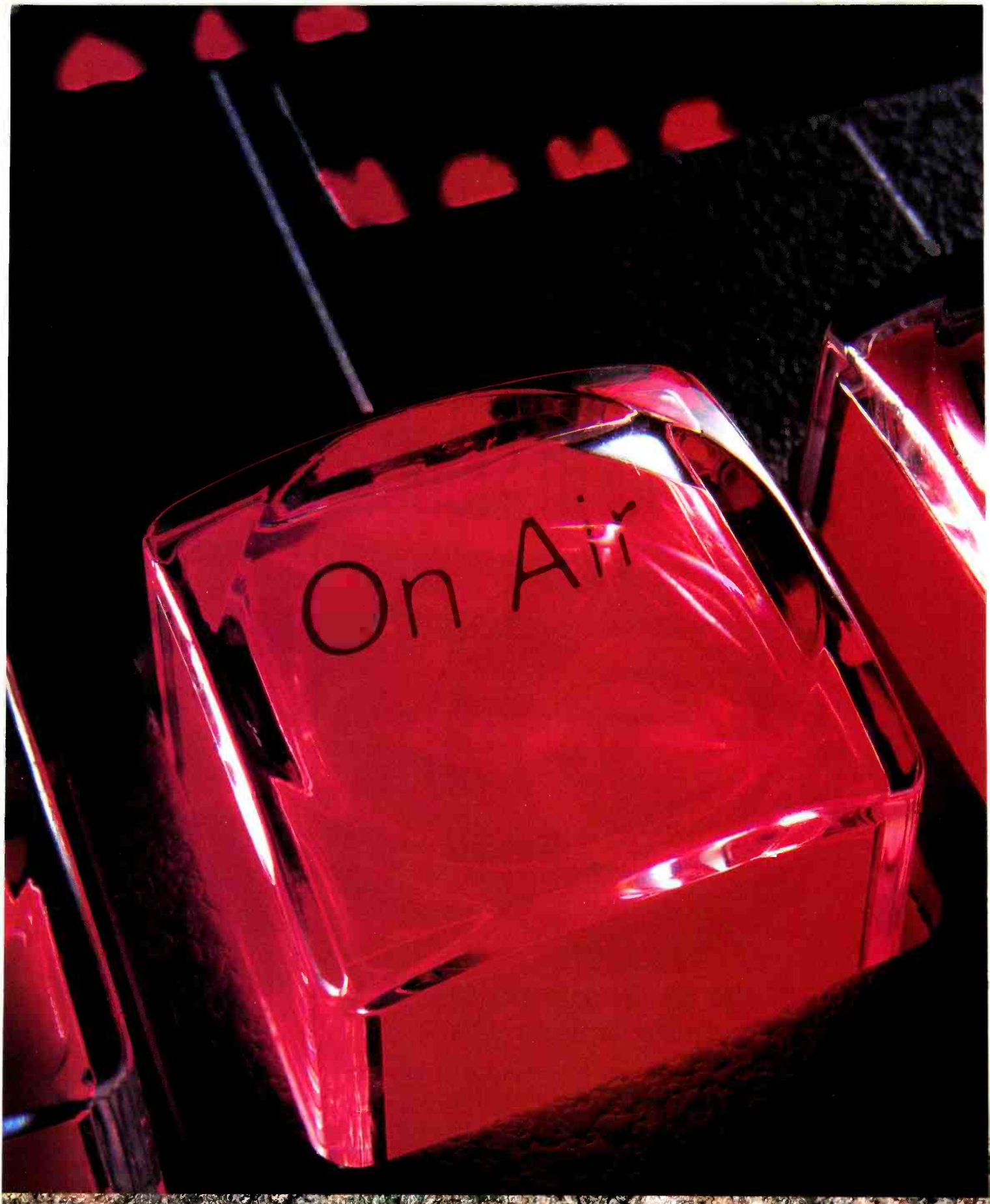
www.americanradiohistory.com



Tektronix is a registered trademark of Tektronix, Inc.

GRASS VALLEY MASTER CONTROL

PROFILE DIGITAL STORAGE

GRASS VALLEY ROUTING SYSTEMS

www.americanradiohistory.com

The feel good button.

It's that moment of truth, isn't it? Hitting the "Air" button and knowing that everything is working perfectly. For more than fifty years that feeling of confidence has been our ultimate criterion. Whether you're using our switchers, routers, file servers, or any of our products, in fact, you always know you've got the best.

Now there's a new reason to feel good: The Grass Valley™ M-2100 master control system. Digital. Multipanel. Multichannel. The M-2100 is the focus of a true revolution in broadcast systems. You'll now have integrated Squeezeback™ effects, Profile® clip stacking, extensive keying capability and flexibility, and seamless interface with other broadcast equipment. It will take your operations into a level of efficiency you never thought possible.

For more information about Master Control and all of our broadcast solutions, call:

1-888-TEK-VIDEO dept. 603
www.tek.com/VND

Let's talk master control.

TEKTRONIX AUDIO METERING

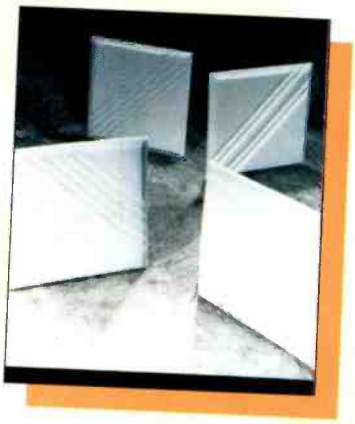
GRASS VALLEY DISTRIBUTION

Come see Master Control in action at our booth 9914 at NAB.

Circle (52) on Free Info Card

Tektronix

www.americanradiohistory.com



If too much noise is a problem, the Acoustical Solutions AlphaTec ceiling tiles may be what you need. The 24"x24"x2 1/2-tiles are designed to drop into a standard 24"x24" ceiling grid or adhered to an existing ceiling surface. A two-inch thick acoustical foam backed by 1/2-inch rigid fiberboard absorbs sound within the room while blocking the transmission of sound through the ceiling.

Acoustical Solutions, 3603 Mayland Court, Richmond, VA 23233; 800-782-5742 or 804-346-8350; fax 804-346-8808; acoustic@richmond.infi.net; www.acousticalsolutions.com

Circle (1217) on Free Info Card

Garner Industries will be unveiling its new manual degausser, the MGD3. The degausser is designed to work with today's wide variety of media formats. It is ideal for erasing high coercivity tapes, cassettes, reels, hard drives and diskettes. The MGD3 uses electro-magnetic coil technology and runs on 120 VAC power.

Garner Industries, 4200 N. 48th St., Lincoln, NE 68504; 402-434-9100; fax 434-9133

Circle (1218) on Free Info Card

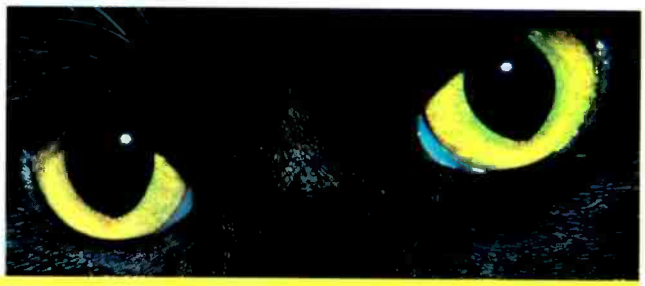
Kavouras Inc., a weather-technology developer and manufacturer, is introducing their severe weather alert system, the 1stStorm. The system will automatically and continuously monitor all official National Weather Service Doppler Radar (NEXRAD) data. 1stStorm is able to pinpoint the locations of storm activity, its speed, direction and movement, and estimate the storm's arrival time at each location in the storm's projected path.

The new StormPro, by Kavouras, provides user-defined, real-time high resolution, with control and flexibility to zoom to busy intersections.

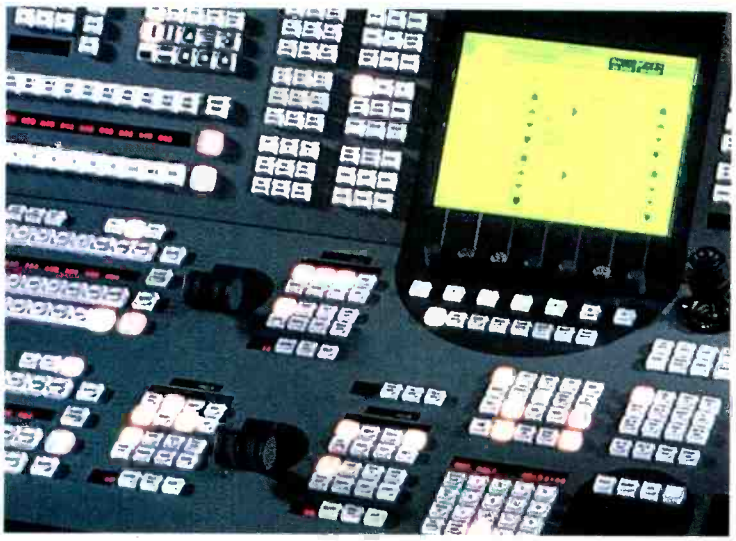
Kavouras Inc., 11400 Rupp Dr., Burnsville, MN 55337; 612-890-0609; fax 612-882-4500

Circle (1219) on Free Info Card

THE BIG PICTURE



BUY WHAT YOU NEED, NOT WHAT YOU DON'T...



With Thomson Broadcast's 9300 Component Digital Switcher, you don't pay for unwanted features.

The most modular and powerful component switcher in its class, with the most popular features.

- 1.5 or 2 M/Es with multilayering
- up to 3 DSKs
- up to 36 inputs, up to 20 auxiliary buses
- up to 6 chroma-keyers
- up to 12 framestores & synchronizers
- up to 9 large border generators

The 9300: part of the Thomson family of switchers that includes1, 1.5, 2, and 2.5 M/Es

THOMSON BROADCAST

49 Smith Street, Englewood, NJ 07631 - Tel: 1-800 882 1824
email: sales@thomsonbroad.com http://www.thomsonbroad.com

Circle (53) on Free Info Card

www.americanradiohistory.com

THE PROFILE DIGITAL NETWORK

Build from a strong foundation.

That means a broadcast operation that's flexible, networkable, compatible with any number of manufacturers, and easy to upgrade. In short a system based on Profile®, digital storage solutions.

The new, four-channel, modular, and scalable PDR200 Video File Server can store up to 96 hours of RAID protected video. It has the ability to serve high quality video and audio over a Fibre Channel network at faster than real time speeds, in all industry standard formats.

But this just scratches the surface. To learn more about the entire Profile line of video digital storage solutions and the Fibre Channel network, call and order our free white paper, "Building the Fibre Channel Network."

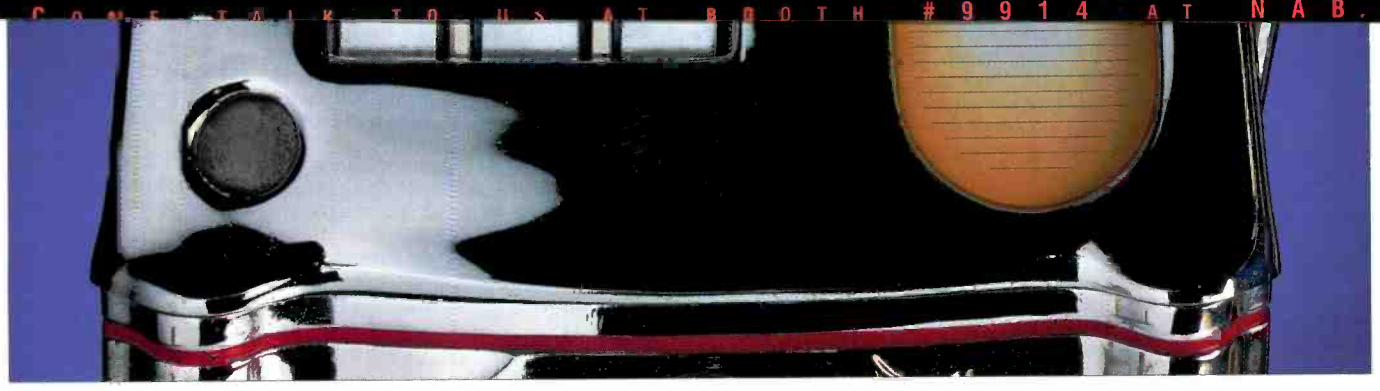
1-888-835-8433 dept 705
www.tek.com/VND

Let's talk digital storage.

Tektronix

Circle (54) on Free Info Card

COME TALK TO US AT BOOTH #9914 AT NAB.



DON'T GAMBLE IN LAS VEGAS.

WHEN you're at NAB in Las Vegas you don't want to take any risks: spend your time wisely – come and talk to the people who've set up more digital broadcasting systems than any other company. NDS.

See NDS at The Sands Stand S5520

You see, NDS has designed, integrated and installed some of the world's most ambitious and innovative broadcasting systems for some of the world's most demanding customers: BSkyB, DIRECTV, Galaxy Latin America, Star TV, Foxtel, Netsat, Innova, to name but a few.

Not the kind of people to be happy if their systems aren't up and running on time and on budget. We can give you multi-vendor systems, or our own industry leading end-to-end solution featuring these world-beating products and services.

- System 3000 – the leading MPEG2-DVB compression, multiplexing and modulation solution with thousands of encoders and multiplexers already in use.
- VideoGuard® Conditional Access system – already used by six million viewers.
- Reflex™ Statistical Multiplexing optimize picture quality and bandwidth optimization.
- 4:2:2 Chromatic encoding for dramatic picture quality for distribution.
- Provider,™ the scaleable subscriber management system designed for pay media.
- Advanced software for EPGs, NVOD and Pay Media applications.

And global expertise in the design, integration and support of highly ambitious systems for direct to home, or via satellite, cable TV and digital terrestrial.

Don't gamble. Come and meet NDS on Stand S5520 at The Sands, NAB. We guarantee you'll go home a lot better off.

For more information call:

UK: +44 (0) 181 476 8000 US: +1 714 725 2500
Hong Kong: +852 2621 9151 Australia: +61 2 9211 6033

News Digital Systems

Circle (44) on Free Info Card

www.americanradiohistory.com

Helicopters Inc. is now offering the Bell 407, the newest from the radio and TV electronic news gathering, helicopter service. The four-bladed 407 includes such features as composites, digital engine control and a wide cabin body. Helicopters Inc. is also combining efforts with SONY Electronics to develop a broadcast station that will include an editing feature which will allow crews to package a story while enroute.

Helicopters Inc., St. Louis Downtown Airport, #14 Omega Dr., Cahokia, IL 62206; 618-337-2903 or 314-351-1400; fax 618-337-7101

Circle (1220) on Free Info Card

For over 27 years, Mobile International has designed and manufactured a variety of standard and custom-designed MICRO-VAN communication shelters for microwave, fiber-optic, satellite and wireless operations, field erectable equipment shelters and all-terrain lightweight trailers. The shelters are custom engineered to meet your requirements.

Mobile International, P.O. Box 848, Pryor, OK 74362; 918-825-1973; www.mobileintl.com

Circle (1221) on Free Info Card

Enhancements have been made to the software for the Pyramix Virtual Studio from Merging Technologies. Pyramix Virtual Studio is a digital audio workstation for Windows 95 and Windows NT 4.0 operating systems that combines hard-disk recording and editing, automated digital mixing, digital effects, networking and CD-R mastering into one package. Version 1.2 adds AudioXpress, Punch In/Out, and crossface editing. Support for the J.L. Cooper MCS3000 motorized fader hardware remote units has also been added.

Merging Technologies also has another new application, Convert, a batch file conversion application that supports a variety of file formats.

Merging Technologies, 16835 W. Bernardo Dr., Ste. 101, San Diego, CA 92127; 619-675-9703; fax 619-675-2247

Circle (1222) on Free Info Card

ED FRATICELLI
DIRECTOR OF ENGINEERING,
PRODUCTION MASTERS,
PITTSBURGH, PA

What's going to be hot at NAB 97:
The ATV digital broadcast standard, digital production servers and random-access disk arrays

What's not going to be hot at NAB 97 that has been in the past
Non-linear off-line edit systems, broadcast VTRs (with the exception of the small-format compressed digital formats for news)

What I'll be looking for at NAB 97:
Digital production tools, servers, archiving systems, serial digital routing systems, tools and techniques for DVD and other non-broadcast distribution channels

What I'll be checking out for an imminent purchase:
Digital routing switcher

The conference sessions I want to attend:
digital TV sessions

Hanging out after hours:
Phillips Supper Club, downtown Las Vegas and the Fremont

production side

Digital Processing Systems is featuring its DPS Hollywood Uncompressed 10-Bit D1 video disk recorder at this year's NAB conference. The DPS Hollywood is a video recording solution for high-end animation, rotoscoping and video/graphics compositing. The recorder reduces the cost per minute for uncompressed D1 video recording and provides recording times of 5-8 minutes.

Also appearing at NAB, is Spark, Digital Processing Systems first direct digital video editing system.

Digital Processing Systems, 11 Spiral Dr., Florence, KY 41042; 606-371-5533; fax 606-371-3729

Circle (1223) on Free Info Card

Lightware Inc. has brought wheels to its multiformat camera case, with its new product, the LightWalker (LW1422). Along with all the features of the Lightware Multi Format Cases, the LW1422 also includes an interior handle, two inside zippered mesh pockets and a kickplate. The LightWalker can be used as a protective case for cameras, lenses, accessories, lights, audio equipment, as well as a variety of laptop computers with scanner and modem.

Lightware Inc., 1329 West Byers Place, Denver, CO 80223; 303-744-0202; fax 303-722-4545

Circle (1224) on Free Info Card

Image Video will be introducing its presentation wwitchers, models 8321 & 8312 master control. The 8321 is a 20-input stereo audio follow video switcher with two additive keyers, a frame sync by-pass feature, machine control and an RS-422 automation port. The 8312 has almost the same features as the 8321, with the exception of having 12 inputs and a smaller-sized control panel.

Also the XDS series of serial digital video and AES audio routing switchers along with the XVS series of analog video and audio routing switchers are now available as 64X64, 32X32 and 16X16 configurations.

Image Video also unveils the 1500 series of tri-color remote display units and 1600 series of single color display units, capable of up to 30 fixed size characters or 36 proportional spaced characters.

Image Video, 705 Progress Ave., Unit 46, Scarborough, Ontario, Canada M1H2X1; 416-438-3940; fax 416-438-8465; avanags@imagevideo.com

Circle (1225) on Free Info Card

SWITCHING
DISTRIBUTION
TIMING
ENCODING
DECODING
TRANSCODING

Switchers that will grow with you.

The Series 9600 Switchers are totally modular, allowing customer-specified configuration for Audio, Video, Y-C, RGB, or CAV; and easy upgradability as needs change. Available in sizes 16x16 through 128x128. Standard features include four levels of switching, RS-232/422 control, and Sigma's 5-Year Parts & Labor Warranty.

For more information or your nearest Sigma dealer, contact:

SIGMA ELECTRONICS INC.

1184 Enterprise Road, P.O. Box 448, East Petersburg, PA 17520-0448
Phone 717-569-2631, Fax 717-569-4056

20th Anniversary 1977 1997

Visit Booth #9983 at NAB-Las Vegas

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www.americanradiohistory.com

Sencore/AAVS has the instrument to make your video troubleshooting journey easier and faster than ever before. Whether you're working with analog, CCIR601 composite or serial digital, or MPEG-2 compressed digital video – we offer unique and specialized instruments with exclusive tests and analyzing capabilities that will simplify your life – and ultimately make your customers happier.

See us at NAB Booth #11976

Circle (46) on Free Info Card

We are your complete video analyzing connection.

For more information on Sencore or AAVS's complete product line, [illegible] SENCORE (736-2673), or 1-800-769-AAVS (2287) today.

SENCORE AAVS

3200 Sencore Drive Sioux Falls SD 57107

www.americanradiohistory.com

The latest addition to the Norpak family of TV data broadcast products is the TTX74X. It is for the reception of high-speed data transmitted in the vertical blanking interval of any standard TV signal. The TTX74X contains a standard broadcast TV tuner, processor and all circuitry necessary to capture, decode and error-correct TV data formatted per the NABTS or WST Packet 31 standards.

Norpak will also demonstrate it new VBInet System for gathering and broadcasting Internet content over the TV signal VBI.

Norpak, 10 Hearst Way, Kanata, Ontario K2L 2P4, Canada; 613-592-4164; fax 613-592-6560; info@norpak.ca; www.norpak.ca

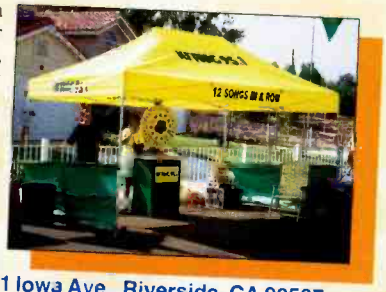
Circle (1226) on Free Info Card

Modulation Sciences' msl 320 precision TV demodulator provides advanced, accurate measurement and monitoring of a station's visual and aural signal at a fraction of what precision demodulators now cost. It includes a high-quality composite baseband aural output for multichannel TV sound and can drive any wideband input product. A custom Nyquist SAW filter ensures the most accurate video detection.

Modulation Sciences, 12A World's Fair Dr., Somerset, NJ 08873; 800-826-2603 or 908-302-3090; fax 908-302-0206

Circle (1227) on Free Info Card

International E-Z Up, Inc. has a full line of products to help your station stand out at trade shows, concerts or remote broadcast events. One of the models, the Eclipse, features a durable, rust-proof white powder-coated steel frame with glider inserts that allow for a smooth opening and closing. Similar to the Eclipse, is the Encore model which features a higher peak.



International E-Z Up, Inc., 1601 Iowa Ave., Riverside, CA 92507; 800-45-SHADE; fax 909-781-0586; www.ezup.com

Circle (1228) on Free Info Card

PHIL HEJTMANEK
VICE PRESIDENT OF ENGINEERING,
WTVS-TV, DETROIT, MI

What's going to be hot at NAB 97:
DTV transmitters and antennas, video compression, low-cost digital tape formats (DVC Pro, Digital S, Beta SX)

What's not going to be hot at NAB 97 that has been in the past:
Non-linear editors

What I'll be looking for at NAB 97:
DTV transmission hardware, serial digital video products (routers, terminal gear), digital disk recorders and RAID arrays, Fibre Channel-based products

What I'll be checking out for an imminent purchase:
Character generator and still-store products

The conference sessions I want to attend:
Digital TV transmission, facility design

Changes I'd like to see made at NAB 97:
The show is too big. It's almost impossible to cover all the exhibits.

My tips for first-time attendees:
Wear the most comfortable shoes you have. Don't try to carry too much product literature around. Use the magnetically coded address card with your badge to have materials mailed to you.

My view of the industry:
This is a great time to be an RF-oriented engineer, and a digit-head, too.

www.americanradiohistory.com

BAF Communications Corporation is introducing the newest version of its SNV-19. The Ford Econoline-based satellite news vehicle is making its American premier as a hybrid analog and digital Ku-band satellite news gathering vehicle. The SNV-19 uses a composite Intelsat and Eutelsat "Type" approved diamond-shaped 1.5-meter antenna. In addition, the BAF Centurion positioner uses a motorization system developed for the U.S. Military Strategic Defense Initiative.

BAF, 316 Northstar Court, Sanford, FL 32771; 407-324-8250; fax 407-324-7860

Circle (1229) on Free Info Card

Emcee Broadcast Products announced a design change to its "F" series of low-power UHF transmitters. The changes made to model TTU1000F include a redesign of its four final amplifier drawers into one, through the use of higher capacity cooling fans and custom-designed heat sinks that quickly dissipate heat. Additional protection is provided by the milling of circulators into the body of the heat sinks. The compact transmitter line features common amplification and frequency control architecture allowing channel changes in the field from channels 14 through 69.

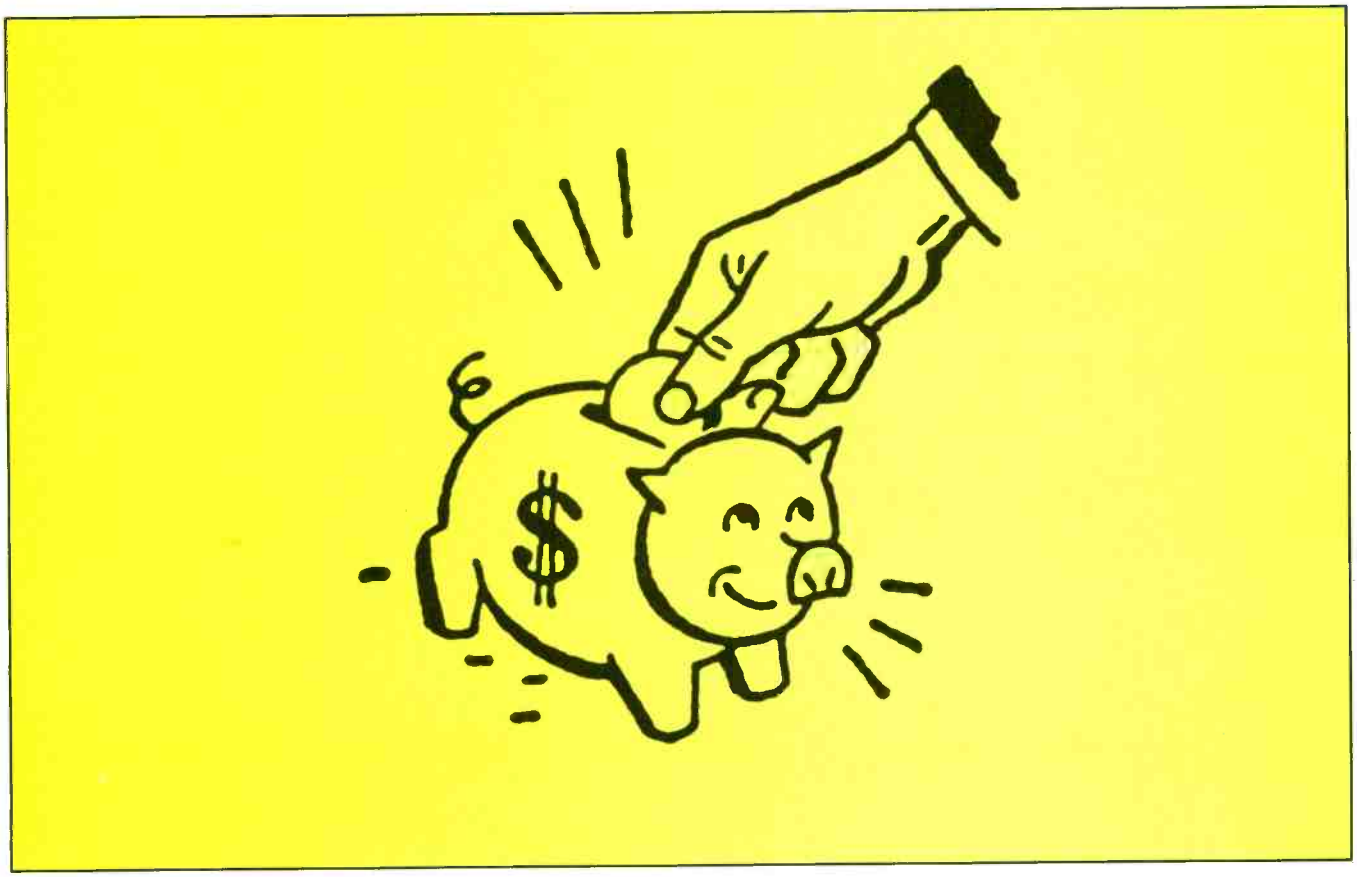
Emcee, P.O. Box 68, Susquehanna St. Ext., White Haven, PA 18661; 800-233-6193 or 717-443-9575; fax 717-443-9257

Circle (1230) on Free Info Card

Pesa Switching is introducing some innovative routing switcher solutions, such as the Ocelot routing switcher. It is housed in a one-rack unit chassis and offers modular flexibility. Ocelot modules are available in analog and digital, audio and video versions, and are interchangeable in the same universal Ocelot frame. The product line offers 250MHz wide bandwidth analog switching and 560Mb/s serial digital for demanding multimedia applications.

Pesa Switching, 330A Wynn Dr., Huntsville, AL 35805; 800-328-1008 or 205-726-9200; fax 205-726-9271; salesinfo@pesa.com; www.pesa.com

Circle (1231) on Free Info Card



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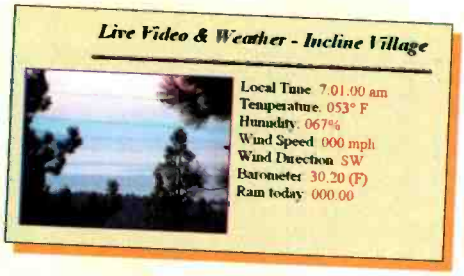


The International Weather Network from Baron Services is a weather graphics system created to bring a more accurate view of weather to TV and cable audiences. The Windows-based system called WeatherMan allows licensed TV broadcasters worldwide to collect and display live, real-time weather data from multiple computerized weather stations in remote locations and display the information over video from cameras located at the sites. With a telephone system called WeatherPhone, TV affiliate news and weather personalities can then display a toll-free number which viewers can call 24-hours a day. Internet users can access all of the live weather and video information through The Real-Time Weather Network.

Baron Services, 2121 Metro Circle, Huntsville, AL 35801; 205-881-8811; fax 205-881-8283; www.baronservices.com

Circle (1232) on Free Info Card

For digital dubbing applications, Digital Audio Research will be showing the OMR8 open media recorder. It provides up to 24-bit per sample resolution, standard 18-bit A-D and D-A converters and replay direct from magneto optical or hard disk. Recording time is maximized via two options: a 2.6GB optical disk allows 30 minutes per side using all eight tracks or two hours per side for two tracks; or alternatively, an 8GB hard disk increases the available time to three hours for eight tracks and 12 hours for two.

Taking center stage at the Digital Audio Research booth, you'll also find their flagship 16-channel SoundStation Gold and the compact Sabre Plus editing system.

Digital Audio Research, 2 Silverglade Business Park, Leatherhead Rd., Chessington, Surrey KT9 2QL, England; (01372) 742848; fax (01372) 743532

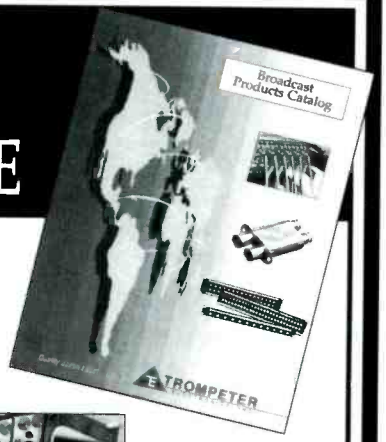
Circle (1233) on Free Info Card

An advanced new generation of digital disk recorders has been released by Drastic Technologies. This new line of DDRs deliver significant image quality improvements, superior VTR emulation and advances in control and integration. All DDRs in the product line offer a full complement of features including a standard back panel with real world connections. Functions include editing, time delay, time-lapse recording, GPI triggered playback, variable length loop record, still/clip store and non-linear playback with audio scrub.

Drastic, 37 Kodiak Crescent #6, Downsview Ontario M3J 3E5 Canada; 416-636-4444; fax 416-636-4454; drastic@netrover.com; www.explorer.net/drastic

Circle (1234) on Free Info Card

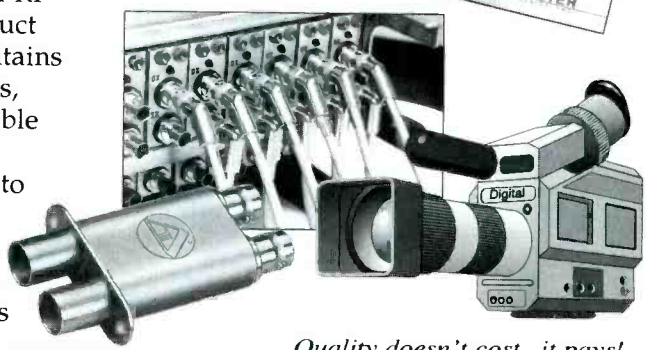
TROMPETER'S BROADCAST PRODUCT GUIDE



YOUR CONNECTION FOR
Broadcast • Wireless • Broadband

Trompeter, the leading manufacturer of RF products, is providing a NEW "Broadcast Product Guide" for audio and video applications. It contains 20 pages of patch jacks and patching accessories, standard and custom panels, connectors and cable assemblies.

This catalog is a versatile tool and easy to use guide for product selection when selecting standard and digital components for broadcast stations, Electronic News Gathering (ENG) and remote vans, transmitters and towers, as well as wireless systems.



Call today for a new Broadcast Product Guide 1-800-982-2629.

ISO 9001 Certified

Quality doesn't cost...it pays!

TROMPETER ELECTRONICS, INC.

31186 LaBaya Drive, Westlake Village, CA, U.S.A. 91362
(800) 982-COAX • (818) 707-2020 • Fax (818) 706-1040 • E-mail: trompeter@worldnet.att.net • http://www.trompeter.electronics.industry.net

Circle Free Info Card (47) Send Literature (48) Please Call

See us at NAB Booths #7211-7212

www.americanradiohistory.com

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GET SERIOUS.

Engineered to Reflect Your Moment

QUANTEGY

Circle (49) on Free Info Card

www.americanradiohistory.com

It is easy to perform complex text and graphics effects with the updated version of Comet/CG 3.5 and the Comet/CG Animation Module from McRoberts Software. The updated version of Comet/CG includes numerous enhancements for smoother and faster titling and the new animation module provides sophisticated video animation capabilities, such as subpixeling for smoother animations and multilayer compositing for independent control of individual objects. A notable feature of the Comet/CG 3.5 and Animation Module software is the ability to key text and graphics over video.

McRoberts Software, 7322 Whitehall Dr., Indianapolis, IN 46256; 800-893-0043 or 317-842-5097; fax 317-842-0084; info@cometcg.com

Circle (1235) on Free Info Card

Penny & Giles will be highlighting broadcast applications of its audio multiprocessor system. Praised for its high sonic quality, this product provides crystal-clear 24-bit audio resolution and uses fast 32-bit floating point architecture.

Demonstrations will also take place on the new Mastering Suite. The new package provides a powerful set of processors.

Penny & Giles, Units 35-36, Nine Mile Point Industrial Estate, Cwmfelinfach, Ynysddu, Newport, Gwent. NP1 7JB, United Kingdom; (01495) 202000; fax (01495) 227243

Circle (1236) on Free Info Card

When you are under pressure to get the sound there, Musicam USA has the solution for you. The RoadRunner codec provides 15kHz mono on a single IDN "B" channel and 20kHz on a full IDSN line. It comes complete with three mixing inputs, two dedicated to mics and one selectable for mic and line levels. Two separate headphone monitoring circuits are provided, each with separate send and receive level controls.

Musicam, 670 N. Beers St., Bldg. 4, Holmdel, NJ 07733; 908-739-5600; fax 908-739-1818

Circle (1237) on Free Info Card

LOUIS LIBIN
DIRECTOR, TECHNOLOGY,
NBC, NEW YORK, NY

What's going to be hot at NAB 97:
Digital transmission and distribution equipment, working non-linear editors, "consumer" electronic appliances (i.e., $300 video editors)

What's not going to be hot at NAB 97 that has been in the past:
Routers and switchers over $100,000

What I'll be looking for at NAB 97:
Digital television, communications products (RF), test equipment, DSL systems

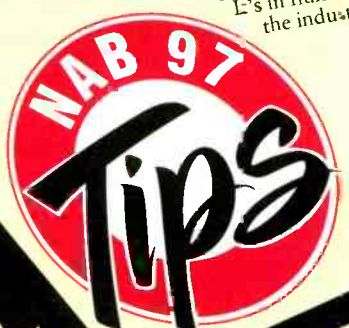
The conference sessions I want to attend:
Advanced TV, non-linear editing, transmission systems

Where I recommend hanging out after hours:
Skydiving simulator at *Flyaway* (just west of the Convention Center), the roller coaster at *Stratosphere Tower*, Mediterranean deli across from *Circus Circus*

Changes I'd like to see made at NAB 97:
Tighter screening of conference papers. There's too much selling and not enough "big picture."

My tips for first-time attendees:
Build a schedule and stick to it. This applies to both the exhibit floor and papers sessions.

My view of the industry:
It's in flux and changing fast. Some new technologies may change the industry dramatically, while others may have no significant effect.



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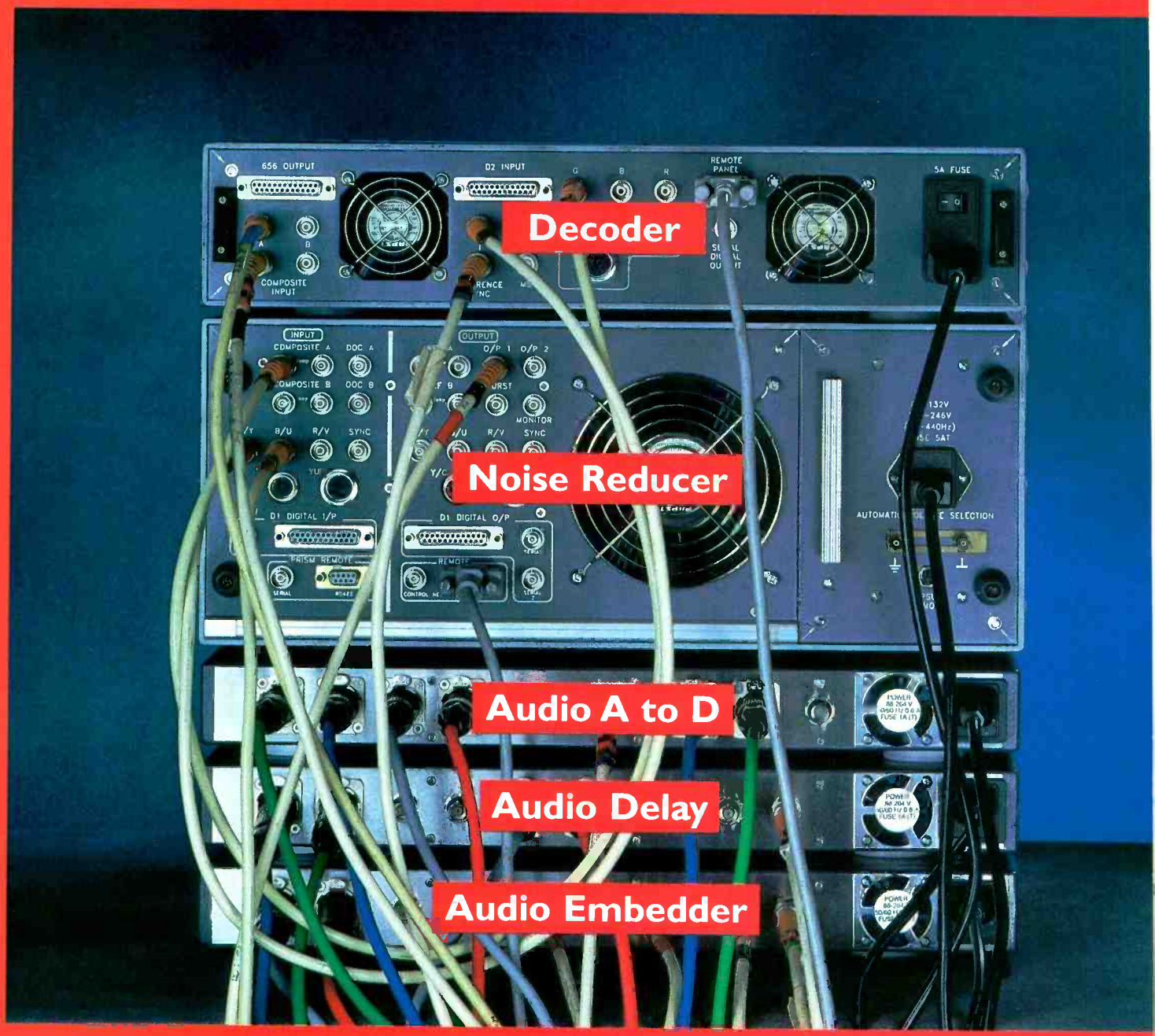

When first compressions count, you can count on Snell & Wilcox.

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It was the word "compression" that gave us the idea

It takes a whole stack of black boxes to convert analog signals for compressed satellite transmission.

Or rather, it used to.

Now we have integrated all these functions into a single 2U box, cutting down on cost, real estate and the potential for connector glitches.

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PROFIX MDD3000 Decoder Pre-processor

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Russia Tel: +7 095 248 3443 Fax: +7 095 248 1104 **Singapore** Tel: +65 332 5455 Fax: +65 332 5466

SNELL & WILCOX

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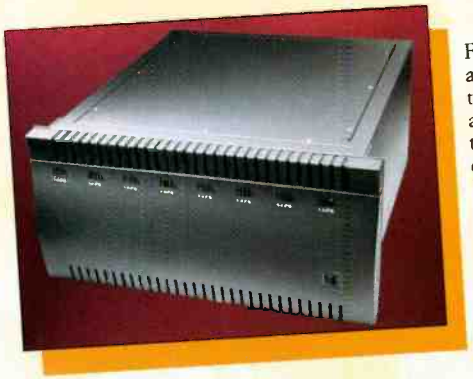

MountainGate is introducing the complete Fibre Channel (FC) Network Solution designed and optimized for broadcast and post-production. The company's FC system offers you the ability to transport digital media at high speeds, to build storage systems with capacities large enough for the demands of digital video and to bring networking and storage together in an all encompassing solution. This allows users at all workstations in a facility to work together in sharing the same material.

MountainGate, 9393 Gateway Dr., Reno, NV 89511; 702-851-9393; fax 702-851-5533

Circle (1238) on Free Info Card

Nvision has developed the NV321 protection switch designed to provide "fail-safe" continuous digital audio outputs for multichannel digital broadcasting applications. The module accepts two synchronous or asynchroncus AES audio inputs (or analog inputs via optional NV1035 A-to-D converters) and continuously monitors the health of each datastream. Should either input fail, the output will be switched to the remaining good signal and an alarm will be activated.

Nvision, P.O. Box 1658, Nevada City, CA 95959; 916-265-1010; fax 916-265-1000

Circle (1239) on Free Info Card

It is now possible to be in two places at one time with Orad's latest development for the CyberSet. Virtual Presence allows a live feed from a remote location to be used to transport a remote actor directly into the local virtual studio so that the remote actor can interact with others in the local studio.

Orad 1285 Avenue of the Americas, 35th Floor, New York, NY 10019; 212-554-4225; fax 212-554-4224

Circle (1240) on Free Info Card

NAB 97 Tips

STEVEN M. BLUMENFELD
VICE PRESIDENT TECHNOLOGY,
GTE INTERACTIVE MEDIA,
CARLSBAD, CA

What's going to be hot at NAB 97:
MPEG/DVD, video and audio compression as it relates to networked (Internet and other) delivery

What's not going to be hot at NAB 97 that has been in the past:
New video formats

What I'll be looking for at NAB 97:
Internet technology, HDTV data delivery, voice-over-network technology

What I'll be checking out for an imminent purchase:
Media servers

Where I recommend hanging out after hours:
New York, New York hotel, and *Swiss Cafe* (a very out-of-the-way restaurant with great food)

My tips for first-time attendees:
Wear sneakers. Check the perimeter aisles for the smaller booths. This is where you'll find more interesting new ideas.

My view of the industry:
The industry is evolving from its one-to-many origins to a many-to-many future.

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Integrated Photonic Technology (Ipitek) is premiering the IMTRAN DS-3 interface, a data communications module for IMTRAN digital fiber-optic transmission systems. When used with IMTRAN CQ-series systems, this plug-in module set provides fiber-optic transmission of two 45Mb/s, DS-3 channels for applications such as compressed video transport or two-way telephone systems. The dual S-3 interface allows IMTRAN systems to carry uncompressed video and audio, as well as compressed video, telephony and computer data, all within a single terminal using one fiber.

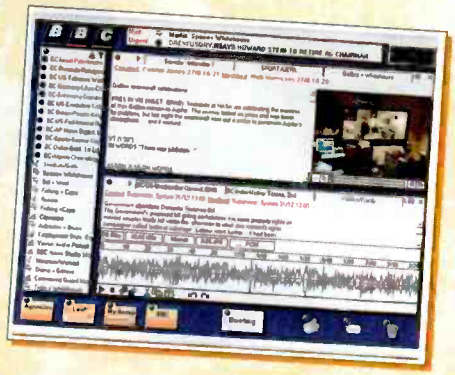
Ipitek, 2330 Faraday Ave., Carlsbad, CA 92008; 760-438-8362; fax 760-438-2412; Ipitek@tacan.com

Circle (1241) on Free Info Card

Elettronica Industriale came all the way from Italy to show several products such as the Linea Stone, a 5kW TV UHF solid-state transmitter. This transmitter features a high level of redundancy (eight amplifiers and two exciters), on-air module exchange, dual driver with active backup, air cooling and normal or precision frequency offset operation. It complies with the NTSC standard and is compatible with the digital signals of the DVB and 8-VSB standards.

Elettronica Industriale, 20035 Lissone (MI), via Filippo Turati 7, Italy; (039) 7398.1; fax(039) 483395

Circle (1242) on Free Info Card



A revolutionary new TV news production system is being developed by The Associated Press for the British Broadcasting Corp. The Electronic News Production System (ENPS) uses a Windows-based program to combine text, audio and video on BBC terminals and will link BBC radio and TV journalists, production areas and archives in more than 100 locations. The system manages all phases of newsroom production, from story assignments to on-air broadcasts and will be the largest broadcast newsroom system installation in the world when completed.

AP Broadcast News Center, 1825 K St., NW, Washington, DC 20006-1253; 800-821-4747 or 202-736-1152; fax 202-736-1107; apbroadcast@ap.org

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Radamec Broadcast Systems Ltd, Bridge Road, Chertsey Surrey KT16 8LJ England. Tel: +44 (0) 1932 561181 Fax: +44 (0) 1932 568836. E-Mail: radamec@delphi.com.

Virtual Studio Division

Circle (57) on Free Info Card **See us at NAB Booth #9376**

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AVS Graphics will be unveiling the ManuScript Elite Dual Channel character generator. Originally introduced in 1992, AVS's ManuScript family of character generators was designed specifically to meet the practical requirements of the typical broadcast suite. Operational features include a dual-channel option kit, dual-channel dual-user mode, two-channel dual-user mode and dual-channel single-user mode.

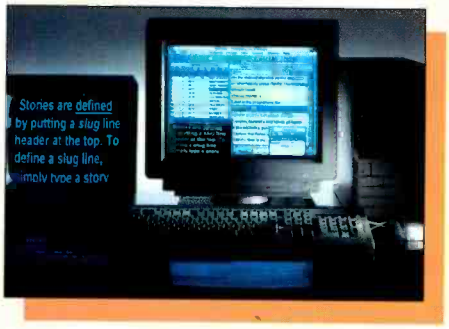
AVS Graphics, 5 Mead Lane, Farnham, Surrey GU9 7DY England; +44 (0) 1990 003220; fax +44 (0) 1990 003203; info@avsg.co.uk

Circle (1244) on Free Info Card

The Belar TVM-230 is a DSP-based, microprocessor-controlled digital BTSC TV stereo monitor/analyzer. It digitizes the composite baseband signal and decodes the stereo multiplex portion using digital signal processing techniques. Unlike an analog design, a DSP-based design is immune to variations due to temperature or the aging and tolerance of components. As a result, the TVM-230 attains superlative performance while requiring virtually no adjustment.

Belar Electronics Laboratory Inc., Lancaster Ave. at Dorset, Devon, PA 19333; 610-687-5550

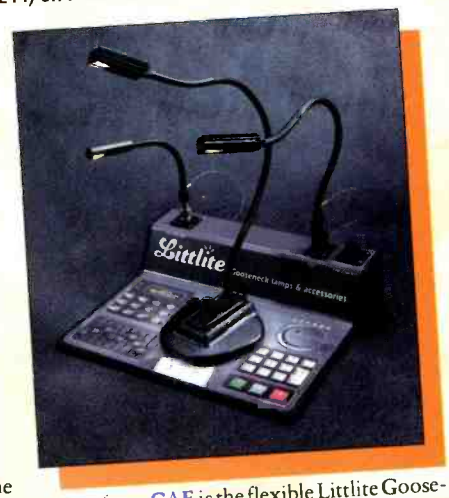
Circle (1245) on Free Info Card



On show for the first time, check out the +WinPlus VGA+ (photo), a specially developed version of the popular +WinPlus+ teleprompting system from BDL Autoscript. Also on display, see the company's latest lightweight on-camera units, the six-inch and 10-inch TFT flat-screen displays and the seven-inch high-brightness display designed for use with the SteadiCam.

BDL Autoscript, 3280 Sunrise Hwy, Ste. 294, Wantagh, NY 11793

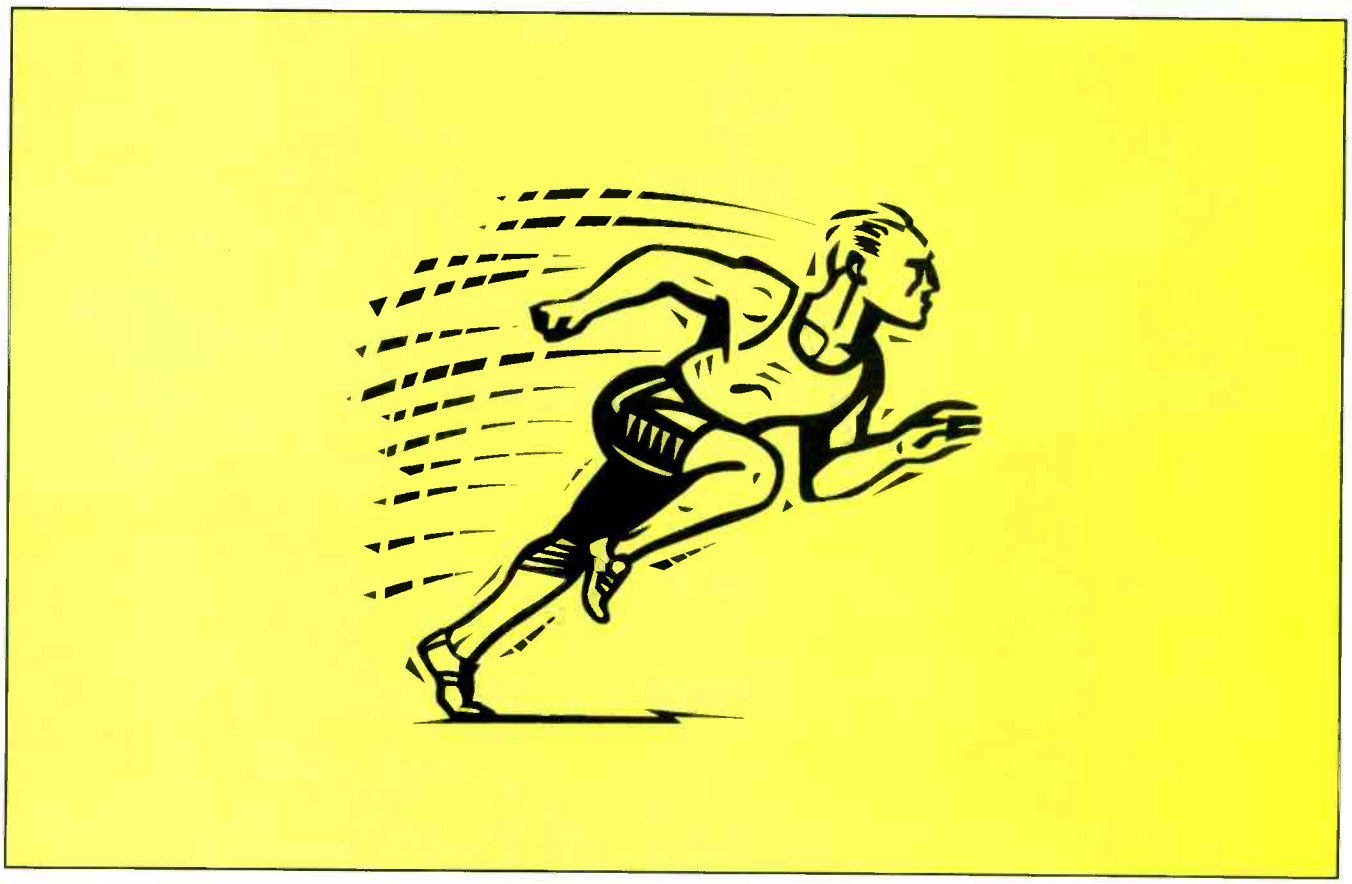
Circle (1246) on Free Info Card



New from CAE is the flexible Littlite Gooseneck Lamp. The lamp has a fully-adjustable dimmer and is equipped with a chassis. Littlite lampsets come assembled and are ready for easy surface-mounting. The lamps are available in 6-, 12- and 18- inch lengths, and come with a six-foot cord and snap-mount set for easy removable mounting.

CAE Inc., 10087 Industrial Dr., Hamburg, MI 48139; 810-231-9373; fax 810-231-1631

Circle (1247) on Free Info Card



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Digital Upgradeable

ECHOlab MVS video switchers are already known for their easy analog growth path. With one video board they are composite. Add a second for Y/C. Add a third for full component.

Now ECHOlab MVS switchers are also ***digital upgradeable***. You can gracefully add digital capabilities in the future by just swapping the analog chassis for an upcoming digital one. See our new digital chassis at NAB97, it's Windows NT™ open architecture will fit right into your studio's network

Choose the MVS model that's right for you. The MVS3 includes panel memory. The MVS5 adds timeline sequence memory. The MVS6 delivers the best price/performance in the industry thanks to its 2½ M/E's. The award winning MVS9, features 24 direct access inputs and dual chromakeyers.

Video professional in over 50 countries rely on ECHOlab switchers. For a quarter century, ECHOlab has earned a reputation for studio quality and rock solid reliability.

Model	Inputs	M/E's	Keyers	Price From
MVS3	8-12	1 ½	2	$7,995
MVS5	12-22	1 ½	2-3	$9,995
MVS6	13-22	2 ½	5	$17,995
MVS9	24	2 ½	5	$32,900

For more information and an ECHOlab representative near you call 617-273-1512, Fax 617-273-3275, or visit us at:

www.echolab.com

ECHOlab 175 Bedford Street Burlington, MA 01803

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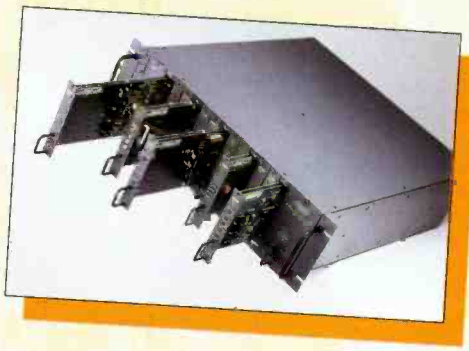

Nova Systems will debut several new signal processing modules for its StudioFrame signal processing system. Designed as a system of modular building blocks in a flexible packaging format, the StudioFrame system efficiently combines a wide variety of function modules into more complex function groups, all in one equipment mainframe. The scaleable analog/digital nature of the StudioFrame design allows it to be easily reconfigured and or upgraded as standards requirements evolve.

Nova Systems, 50 Albany Turnpike, Canton, CT 06019; 860-693-0238; fax 860-693-1497

Circle (1249) on Free Info Card

The latest from K-Tek are the K-Tek Poles, an advanced line of strong, lightweight microphone boom poles. The poles are engineered from eight layers of precision ground graphite and burnished to produce the low handling-noise finish. The K-Tek Poles feature telescoping sections with jam-resistant captive collets, tops with slots for threading cable and bottom coupling.

M. Klemme Technology Corp., 5417 Cahuenga Blvd. Unit D, N. Hollywood, CA 91601; 818-766-0835; fax 818-766-2859

Circle (1248) on Free Info Card

Broadcast Video Systems is featuring the VITS-2 video analyzer that can monitor video quality remotely. Any line of the video field, including the VBI, can be sampled, digitized and sent via non-dedicated telco line to a PC with a VGA display capability. Once received at the PC, the signal can be displayed as an analog waveform on the computer monitor. To facilitate measurement, the display can be filtered, amplified or expanded.

Broadcast Video Systems, 40 W. Wilmot St., Richmond Hill, Ontario L4B 1H8, Canada; 905-764-1584; fax 905-764-7438; bvstor@neocom.ca

Circle (1250) on Free Info Card

NAB 97 Tips

PETER DOUGLAS
VICE PRESIDENT OPERATIONS AND ENGINEERING,
TCI/NATIONAL DIGITAL TELEVISION CENTER,
LITTLETON, CO

What's going to be hot at NAB 97:
"Real" video file servers, HDTV and 16x9 products

What's not going to be hot at NAB 97 that has been in the past:
Production switchers

What I'll be looking for at NAB 97:
File servers, 16x9 products

What I'll be checking out for an imminent purchase:
Large routers, file servers, digital interface products

The conference sessions I want to attend:
HDTV sessions

Changes I'd like to see made at NAB 97:
Wider aisles

My tips for first-time attendees:
Bring good shoes, crowd repellant and lots of time

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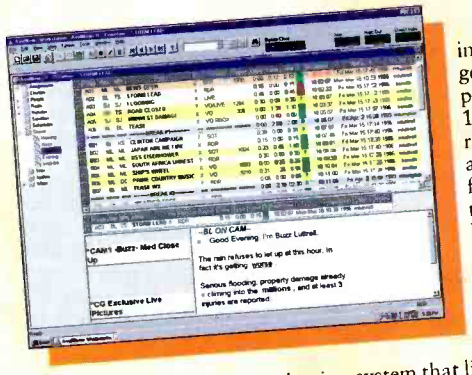
SNEAK PEEKS

Sacrificing the creative artistic control typically obtained when using multiple lights for the convenience of a single light source for taping videos is now a thing of the past thanks to the U-3 Tri-Light Broadcast Light from Cool-Lux Lighting Industrial, Inc. It is actually several fixtures in one making it simple to switch from a close-up interview using only one of the three built-in lamps to an instantaneous 105W power-house delivering over 100lux at 100 feet when using all three lamps simultaneously.

Also look for Cool-Lux's Light and Sound Bracket and the Quick Flip Filter.

Cool-Lux, 409 Calle San Pablo #105, Camarillo, CA 93012; 805-482-4820; fax 805-482-0736

Circle (1251) on Free Info Card



Avid is formally introducing its AvidNews, its next-generation newsroom computer system. Based on over 15 years of newsroom experience, AvidNews features advanced core newsroom functionality plus the ability to browse and edit low-resolution video on the desktop, a journalist-driven Windows UI, integration with the web and sophisticated machine control.

Also from Avid is the DNG 2.0 workgroup video production system that links Avid's recording, editing and playback workstations with a production server for creating/airing news in a shared computer environment.

Avid, 1 Park W Metropolitan Tech Park, Tewksbury, MA 01876; 800-949-AVID or 508-640-6789; fax 508-640-1366; info@avid.com

Circle (1252) on Free Info Card

The Balcar Fluorescent Lighting System combines the efficiency of high-frequency/high-intensity fluorescence with the exceptional color rendering properties of Tungsten lighting. Energy efficient lamps and state-of-the-art optical system provide brilliant lumen output with virtually no heat. The lamps are available in Daylight or Tungsten balance and their color temperature remains constant when dimmed.

Balcar, 11 Blvd. Emile Augier, 75016 Paris, France; +33 1 45.03.00.30; fax +33 1 45.03.12.48

Circle (1253) on Free Info Card

You can convert incoming digital inputs to 24-bit analog audio signals with the db Technologies DA924 being showcased by Audio Intervisual Design. The 96kHz digital-to-analog converter offers a combination of superior linearity, fast and accurate response, extremely small quantization steps and low-noise performance to reproduce the finest details. The DA924 accommodates today's standard 40-50kHz sample rates and the higher rates of the new 80-100kHz standards.

Audio Intervisual Design, 1155 N. LaBrea, W. Hollywood, CA 90038; 213-845-1155; fax 213-845-1170

Circle (1254) on Free Info Card

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Quik-Cap, a new electronics package from **Image Logic Corporation**, can substantially cut the time needed to caption and subtitle a videotape. Quik-Cap uses digital processing to identify edit points in the video and the onset of speech in audio, which will save you up to 25% of the time that traditional manual editing of captions would take. Quik-Cap joins Image Logic's family of Autocaption captioning packages, and was designed to meet post-house demands for producing a high volume of broadcast-quality work.

Image Logic also introduces a Windows 95 and Windows NT version of its popular Log Producer videotape logging system, the Log Producer 32.

Image Logic, 6807 Brennon Ln., Chevy Chase, MD 20815; 301-907-8891; fax 301-652-6384; imagelogic@ibm.net; www.imglogic.com

Circle (1255) on Free Info Card

The latest **Jensen Tools** catalogs highlight a wide range of test instruments, including the new Tektronix TDS 210 and TDS 220 digital scopes. The real-time scopes feature small footprints, automated measurements, screen captures, IGS/s sample rates, multiple languages in the user interface and hard-copy operations.

Jensen Tools Inc., 7815 S. 46th St., Phoenix, AZ 85044; 602-968-6241; fax 602-438-1690

Circle (1256) on Free Info Card

One of the products that **Canon's Broadcast Equipment Division** will unveil is its new Digi-Series studio lens designed for use with the new digital cameras. In addition, the company will introduce an affordable broadcast lens, the PJ20XSP, that features advanced optics and a newly developed glass that improves quality. The popular series of vari-angle prism lenses will be showcased along with a new cost-effective adapter that can be used with any of Canon's 14aX, 15aX, 20aX and 33aX lenses.

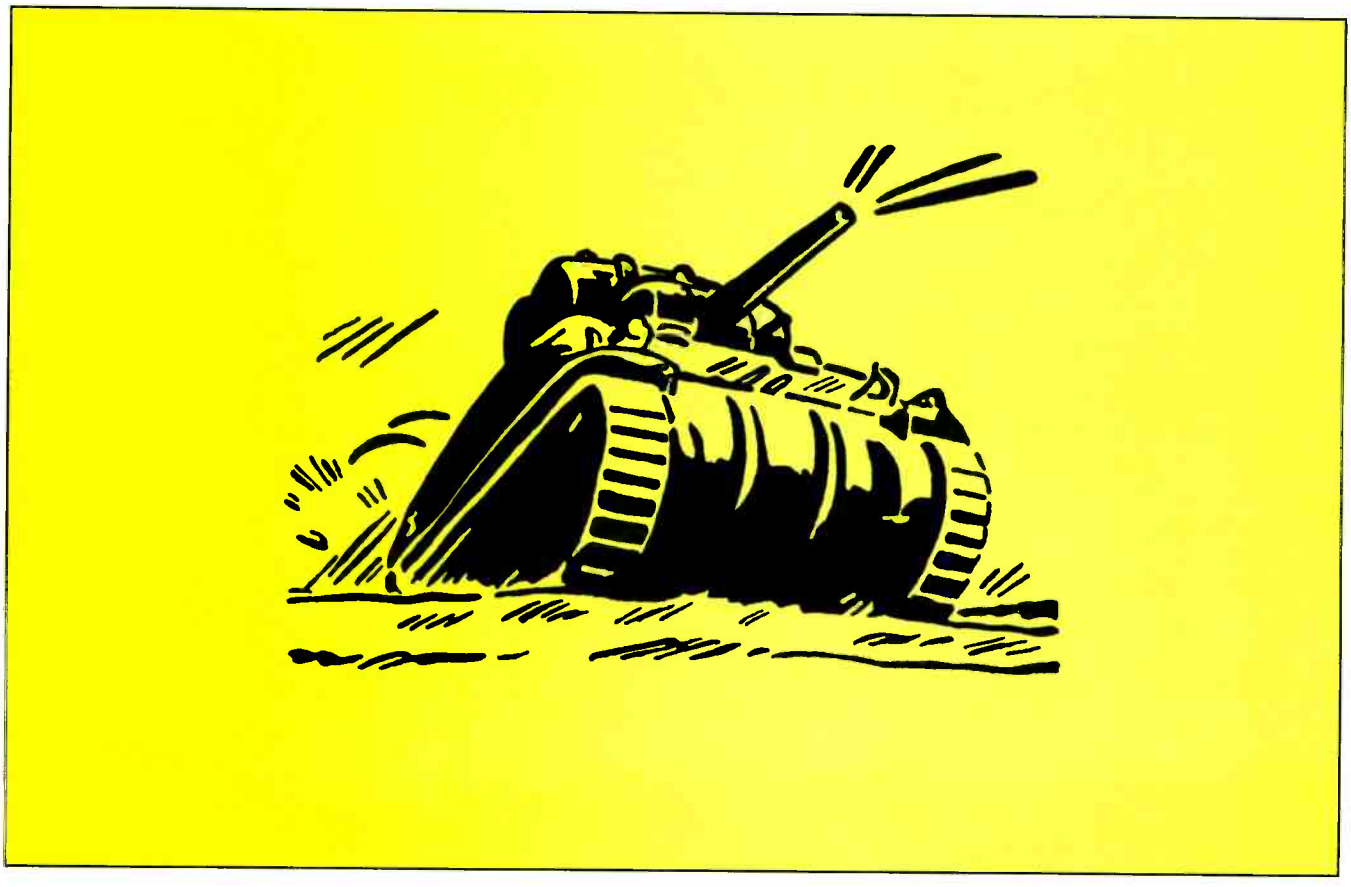
Canon, 400 Sylvan Ave., Englewood Cliffs, NJ 07632; 800-321-4388

Circle (1257) on Free Info Card

Among the many products being introduced by **Leitch**, you can find a flexible compression system featuring broadcast-quality distribution MPEG-2 signals. The system permits the exchange of pre-edited and post-edited material between studios and post-production houses using standard DS3 telephone lines. The single-board module supports 4:2:2 profile at main level and fits into a three-rack unit DigiBus frame. Leitch's MPEG-2 system is also available in a new plug-in noise reduction card (3611NR).

Leitch, 920 Corporate Ln., Chesapeake, VA 23320; 800-231-9673; fax 7757-548-4088

Circle (1258) on Free Info Card



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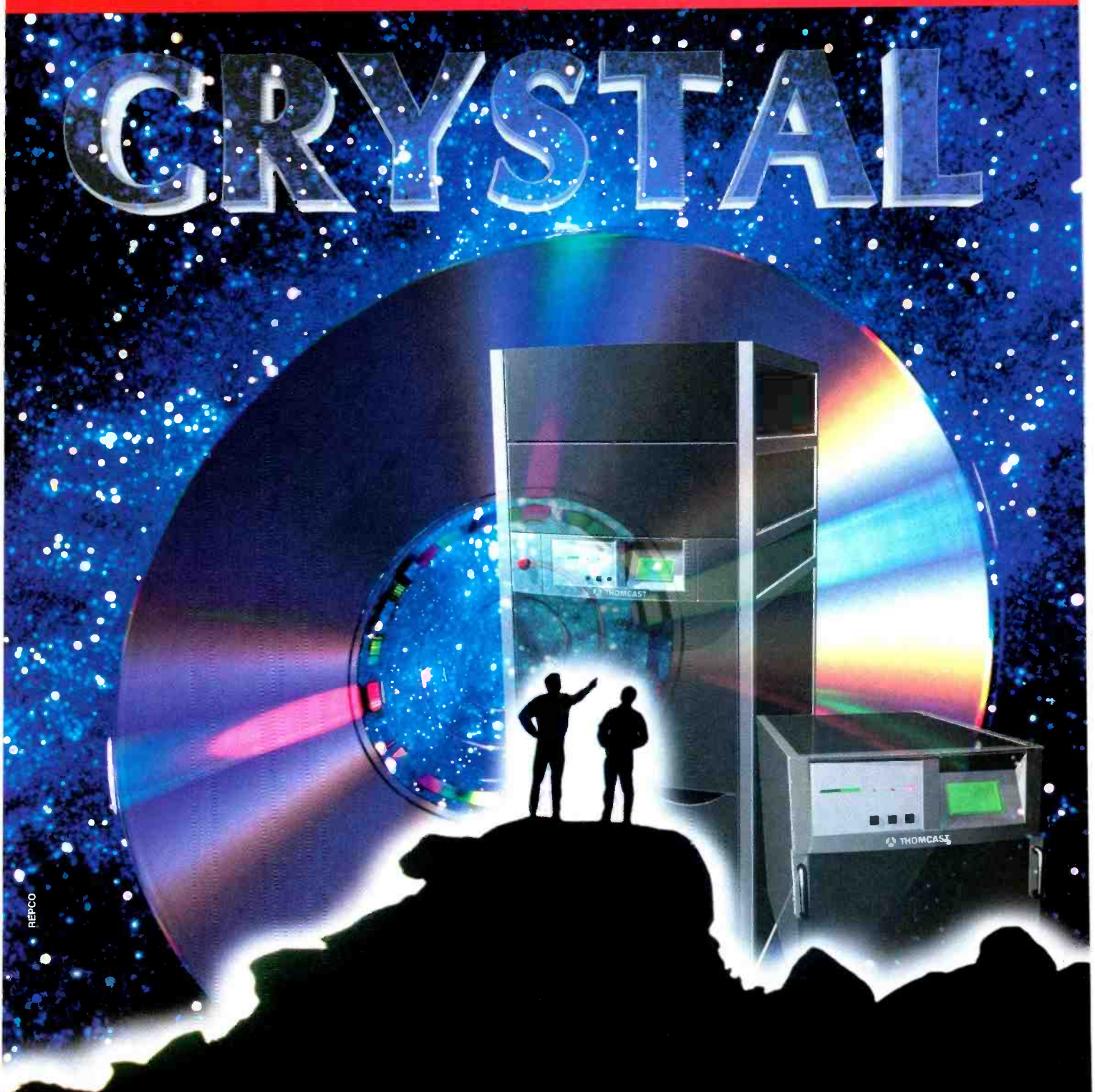

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THOMCAST GmbH / Ohmweg 11-15, D-68197 Mannheim, **GERMANY** / Tel. : 49 (0621) 8101.1 - Fax : 49 (0621) 8101.290
COMARK / 500 Horizon Drive, Suite 505, Chalfont, PA 18914, **USA** / Tel. : 1 (215) 822 0777 - Fax : 1 (215) 822 9129

THOMCAST

Circle (175) on Free Info Card

www.americanradiohistory.com

DigiTech is introducing its newest signal processor, the VCS-1. This new studio dynamics processor combines two channels of 12AX7A tubes, full-featured compression, de-essing, noise gating and peak limiting into a 2U rack chassis. The VCS-1 also features adjustable controls and switchable characteristics.

The Vocalist Workstation, also new from DigiTech, is a four-voice vocal harmony effects processor designed for use in both live and studio applications.

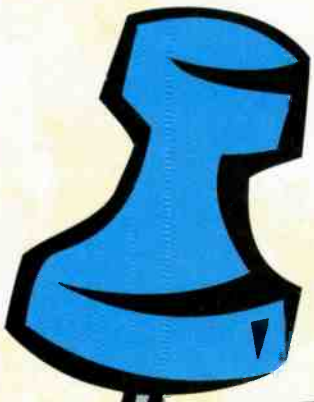
DigiTech, 8760 S. Sandy Pkwy., Sandy, UT 84070; 801-566-7005; fax 603-672-4246

Circle (1260) on Free Info Card

New triax/coax camera control and robotic capabilities will be exhibited at the Telemetrics booth. The company will display the TM-9660 component triax camera control system with a newly designed camera control unit. Another product, the PT-MP mini-pan/tilt mechanism was specifically designed for today's small, high-performance CCD cameras. Telemetrics also has the CP-SRD serial receiver/driver for the company's comprehensive line of pan/tilt mechanisms. Other products to watch for include the CP-T-IR infrared control transmitter, the 360° continuous pan/tilt option, and the TRO-MO-P preset trolley option for motorized camera trolley systems.

Telemetrics, 6 Leighton Place, Mahwah, NJ 07430; 201-848-9818; fax 201-848-9819

Circle (1259) on Free Info Card



Halland Broadcast, a division of Henry Engineering, has created two new software packages, HitPick and HitDrive, that will allow you to create a custom music format, which will then be instantly preloaded on a computer hard drive or on an optical disc. The automated file server system can transfer numerous songs to the user in only a few hours. Halland has its entire music inventory available in either Dolby AC-2 or MPEG files. All files are recorded using a 48k sample rate with 6:1 data reduction for audio quality.

Halland Broadcast Services, 1289 E. Alosta Ave., Glendora, CA 91740; 818-963-6300; fax 818-963-2070

Circle (1261) on Free Info Card

At this years NAB, LPB will debut the Airshow2000 TV spot automation system. The system features multiple channels and digital broadcast quality video. Also from LPB is a new studio monitor line from Hayes, Australia.

LPB Inc., 28 Bacton Hill Rd., Frazer, PA 19355; 610-644-1123; lpbsales@lpbinc.com

Circle (1262) on Free Info Card

JIM LODES
EDITOR, TBC VIDEO PRODUCTIONS,
OVERLAND PARK, KS

What's going to be hot at NAB 97:
Windows NT-based software, nonlinear editing

What's not going to be hot at NAB 97 that has been in the past:
DVC Pro and Digital S

What I'll be looking for at NAB 97:
Backup storage format for large hard drives, more about non-linear video editing

What I'll be checking out for an imminent purchase:
Same as above.

Changes I'd like to see made at NAB 97:
Put the convention halls within walking distance, or at least more buses.

My tips for first-time attendees:
Wear soft, comfortable shoes. Use the first day to locate where you need to go.

My view of the industry:
The video industry should settle down and quit creating new formats.

www.americanradiohistory.com

Evolving Video Technologies introduces AnterO2, a high-performance character and graphics-generation product that runs exclusively on the Silicon Graphics O2 workstation. AnterO2 was created to combine the power of Silicon Graphics with features like color and font palettes; unlimited font sizing; international language support and out-of-box networking.

Evolving Video Technologies, 7850 Vance Dr., Ste. 210, Arvada, CO 80003; 303-456-1450; fax 303-456-1434; antero@evt.com; www.evt.com

Circle (1263) on Free Info Card

Graseby Optronics announced that its SLS 9400 color analyzer is now compatible with the new SONY broadcast monitors. The SLS 9400 can make accurate color and luminance measurements across the full color gamut of a typical color CRT. This capability was instated due to an increase in demand for CRT displays and a need to accurately adjust and control the color on displays during manufacturing and service.

Graseby Optronics, 12151 Research Pkwy, Orlando, FL 32826; 407-282-1408; fax 407-273-9046

Circle (1264) on Free Info Card

Watch for Folsom Research's latest scan converter, the Model 9700XL, at this years NAB. The Model 9700XL can convert high-resolution computers or imaging sources to broadcast-quality video output. It includes RS-232 control, pan and zoom, multiple flicker elimination filters and conversion to all major video formats.

Folsom Research, 526 E. Bidwell St., Folsom, CA 95630; 916-983-1500; fax 916-983-7236

Circle (1266) on Free Info Card

Harmonic Lightwaves, which has been known primarily as a fiber-optic system provider for broadband communications, will be moving into the digital arena. The company announced that it is expanding its product offerings with solutions for the broadband digital communications market. Harmonic will introduce a new line of digital products for the head-end level of cable TV networks which will enable the convergence of television, cable and the Internet to provide user applications. Harmonic's traditional fiber-optic transmission products will remain key components in cable systems.

Harmonic Lightwaves, 549 Baltic Way, Sunnyvale, CA 94089; 408-542-2500; fax 408-542-2510; info@harmonic-lightwaves.com

Circle (1265) on Free Info Card

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SNEAK PEEKS

At the top of the ST series of transmitters by Global Microwave Systems is the new 10W microwave transmitter, the STS-10000. It combines all of the field-proven features found in the ST series with a high-powered RF amplifier. The STS-10000 typically comes delivered with 90% pre-programmed channels and features dual audio subcarriers.

Global Microwave Systems, 4141 Avenida De La Plata, Oceanside, CA 92056; 619-631-8021; fax 619-631-8031; GMS@gmsinc.com; www.gmsinc.com

Circle (1267) on Free Info Card

Doremi Labs has made available a new random-access disk video recorder, the V1d, featuring serial digital interface. The V1d records field accurate compressed video with two audio tracks and time code. The recorder offers full-screen NTSC and PAL, as well as full front-panel controls.

Doremi also introduces the V1b, a random-access disk video recorder designed as a "drop in" replacement for analog VTRs. It records field accurate compressed video at full resolution, with two audio tracks and time code.

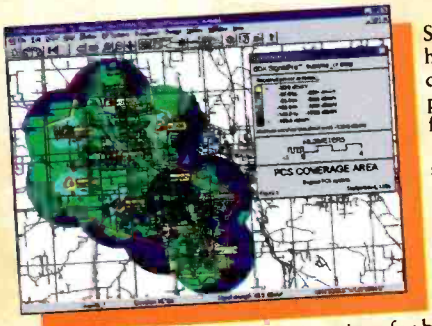
Doremi Labs, 3631 Cahuenga Blvd. West, Los Angeles, CA 90068; 213-874-3411; fax 213-874-3401

Circle (1268) on Free Info Card

The Symmetrix Network Media Storage (SNMS) video and multimedia server from EMC Corporation stores and streams video files in multiple formats and compression standards. Applications include broadcast television and systems can be used as a carrier-based or user-site repository. This DVB-compliant system provides unmatched capacity, bandwidth and scalability.

EMC, Hopkinton, MA 01748; 508-435-1000; fax 508-497-8003; www.emc.com

Circle (1269) on Free Info Card



From EDX Engineering, look for the EDX SignalPro for Windows 95/NT. This comprehensive tool for PCS, cellular and other wireless communication series, uses the most advanced propagation models to perform coverage, interference and detailed link analysis studies.

Another product from EDX is the PCS/cellular system design module. With this software, users can automatically lay out a hexagon grid of base stations to achieve service objectives and assign frequencies with standard reuse patterns.

Also from EDX is the Microcell 3-D Ray-Tracing module. This software provides ray-tracing models which consider physical characteristics to help find reliable locations for building walls and corners.

EDX Engineering, P.O. Box 1547, Eugene, OR 97440; 541-345-0019; fax 541-345-8145

Circle (1270) on Free Info Card

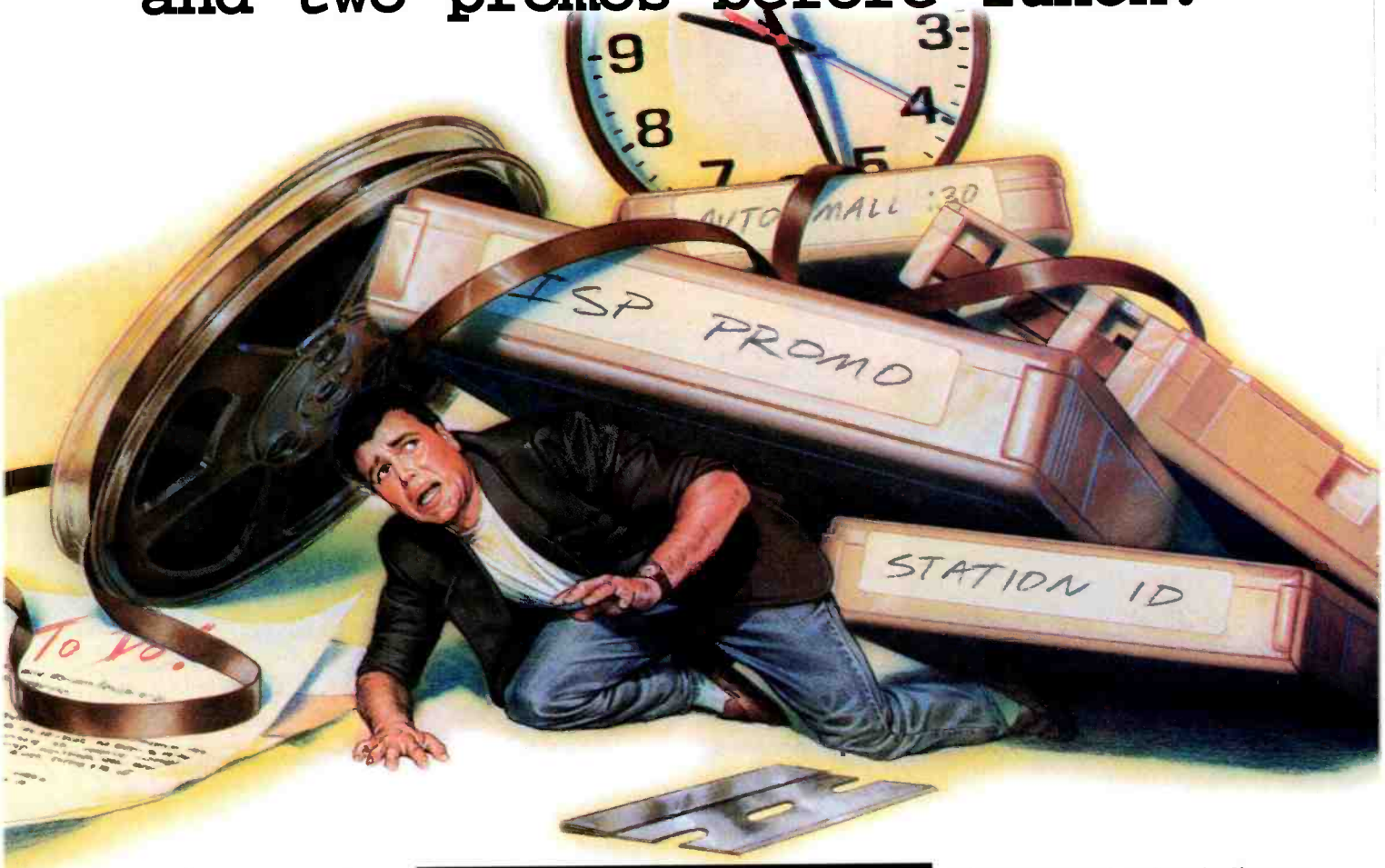
As part of its SR series, DOD is introducing the Constant Q equalizers: the SR430Q, SR431Q and SR831Q. The SR430Q is a 1U, dual-channel 15-band, 2/3rd octave; the SR431Q is a 1U, mono 31-band, 1/3rd octave; and the SR831Q is a 2U mono, 31-band, 1/3rd octave. The new EQs use low-noise potentiometers to offer up to 12dB of boost or cut per band, and are equipped with balanced XLR and unbalanced 1/4-inch connectors. The DOD SR Series equalizers feature total harmonic distortion, typically less than 0.004% at 1kHz and a signal-to-noise ratio of 106dB.

DOD Electronics Corporation, 8760 S. Sandy Pkwy., Sandy, UT 84070; 801-566-8800; fax 801-566-7005

Circle (1271) on Free Info Card

www.americanradiohistory.com

It's 9:30 am. You've got to edit nine phone-ins, cut a dozen spots, record four station I.D.s and two promos before lunch.



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Circle (61) on Free Info Card

SNEAK PEEKS

The Clay Studio is Digimation's newest metaballs modeling and animation tool. Rather than working with standard primitives, the Clay Studio allows the user to work with clay spheres which interact the same way as liquid mercury might.

Also new from Digimation are the following products: Lightning, an animator which simulates lightning and other electrical effects; the Atomizer, a MAX Space Warp that expands the capabilities of the MAX particle systems; the Texture Lab: Elemental Tools, a collection of procedural mapping types; the Glider, a MAX Space Warp that constrains the movement of MAX geometry, lights, cameras and other space warps, to the surface topology of any other MAX object; Hair/Fur, a MAX plug-in that simulates hair or fur; Bones Pro MAX, a skeletal deformation tool; and representing the next-generation particle system for MAX is the Sand Blaster.

Digimation, 150 James Dr. East, Ste. 140, St. Rose, LA 70087; 504-468-7898; fax 504-468-5494; 72320,2042; www.digimation.com

Circle (1274) on Free Info Card

P.E. Photron is launching the PSEUDIO virtual studio system that is based on a totally different concept from other virtual studio configurations. A conventional virtual studio system renders the pre-modeled background imagery, in real time, on a high-end graphics workstation in conjunction with the movement of the studio camera. With the PSEUDIO system, the background images are pre-modeled and rendered and then stored in a D1-quality, digital disk array or frame-buffer. These images are then read out from the disk in real time in conjunction with the movement of the studio camera.

P.E. Photron, 4030 Moorpark Ave., Ste. 108, San Jose, CA 95117; 408-261-3613; fax 408-261-3628

Circle (1272) on Free Info Card

From Kramer Electronics' goal to develop and manufacture high-quality video equipment, comes the Video Tester. This pocket-sized video signal tester eliminates the need to carry an oscilloscope, vectorscope or waveform monitor to trace and rectify bad video connections, cable breaks or faulty sources that can destroy a video signal. The device is battery-operated and comes in a small enclosure with a pocket clip.

Kramer also plans to introduce some of its other new products, including the series of digital distribution amplifiers and switchers, the VM-3 distribution amps and the AD-5N 1:5 amp.

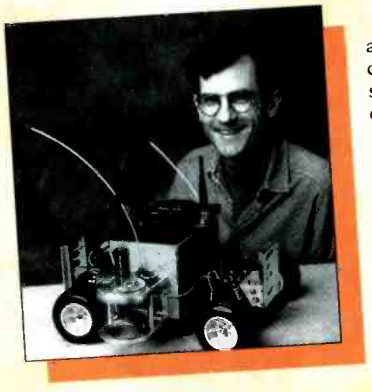
Kramer Electronics, 350 Main Rd., Montville, NJ 07045; 888-303-5600

Circle (1273) on Free Info Card

New from Digimedia is B.EST, its version of an alternative to scenography. Designed to simulate virtual scenery in real time. B.EST operates using any commercial 3-D modeling software. The sensorized cameras follow the actor in the studio, and are able to tilt, zoom and pan. Any object in the simulation can be displaced, rotated, morphed, faded, dissolved or scaled.

Digimedia, S.A., C/Gomera, 12 - 28700 S.S. De Los Reyes (Madrid); +34-1-663-72-27 (ext. -207-208); fax +34-1-651-96-13; digimedia@mad.servicom.es

Circle (1275) on Free Info Card



Soon it will be easier to record high-speed, low-angle action with the introduction of Innovision's Radcam camera car. The Radcam has designs similar to a full-sized camera car, including the ability to position the camera on any side of the vehicle, however the lens can be as low as one inch off the ground and as high as 15 inches. Manipulated by a radio controller, the speed of the wireless camera car can be adjusted, as well as the pan and tilt of the camera. The Radcam comes in both NTSC and PAL versions.

Innovision Optics, 1438 Ninth St., Santa Monica, CA 90401; 310-394-5510; fax 310-395-2941; 103070.3211@compuserve.com

Circle (1276) on Free Info Card

Hammer, a brand of StreamLogic, has added high-capacity drives to the HammerDAT, Hammer, SledgeHammer•Pro families of drives, as well as adding the faster reading Hammer-CD 2x/6x compact disk recorder. Adding the large capacity drives gives Hammer storage solutions flexibility along with the ability to back up. Hammer has several products based on the largest single disk available, packing nearly 22GB on one 5 ¼-inch drive.

Hammer, 1555 Adams Dr., Menlo Park, CA 94025; 415-325-4393; fax 415-833-4653

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Set It And Forget It.

MEET THE SHURE FP410, THE "HANDS OFF" MIXER THAT DELIVERS PERFECT SOUND AUTOMATICALLY. The Shure FP410 is not just another pretty face. It's a hard working portable mixer that forever solves the nagging problems of multiple open microphones. By automatically keeping unused microphones turned down, the FP410 dramatically improves your audio quality.

The secret: Shure IntelliMix® — the patented operational concept behind the revolutionary FP410. It thoroughly shatters existing standards for portable mixer performance and ease of operation.

Just set your levels and flip the switch to "Automatic." Shure IntelliMix does the rest.

- Its Noise Adaptive Threshold activates microphones for speech but not for constant room noise, such as air conditioning.
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With Shure IntelliMix, you'll get a "seamless" mix that's as close to perfect as you'll find. Providing the cleanest, clearest sound you've ever heard from a portable mixer. And freeing you from the tedious task of turning microphones on and off.

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As part of our comprehensive approach to increasing your broadcast performance, we also design and manufacture fully matched cavities for each of our tubes. Of course when you choose our tubes, you get more than just outstanding product performance and lifetime... you get the service, support and innovation of a global leader in UHF tube technology.
Wherever you are, our engineers and technicians are at your service to help you select, install and maintain the tubes you operate in your transmitters.
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SNEAK PEEKS

The SideKick accessory control from Niche Inc. elevates the Alladin and GeniePlus DVE systems from Pinnacle Systems into the truly professional and broadcast production environment. SideKick is a functional extension to the visual user interface, providing full control over the system. Effects may be modified or reviewed quickly on your system with all the speed and ease traditional digital effects systems have enjoyed for many years. SideKick is a user-friendly control panel dedicated to the creation and manipulation of effects.

Niche will also be showing Jasmine, a multifunction, real-time, freeform, full-color anti-aliased CG/graphics software package.

Niche, 4455 S. Jill's Place, West Valley City, UT 84120; 801-963-1991; fax 810-963-1803; nicheinc@ix.netcom.com; www.nicheinc.com

Circle (1278) on Free Info Card

The most recent addition to the Intelligent Power Controller series from Pulizzi Engineering Inc. is the IPC 3300 series. The introduction of this series puts AC power, as well as Form "C" dry contact closures, at your fingertips. Each port is individually controlled by the user, either locally with push-button switches or at unattended remote locations via an RS-232 communications port, or for those needing high-speed data transfer via the RS-485 port connected to a modem/computer terminal. You can control 36 IPCs up to 4,000 feet controlling 278 devices, or the IPC can be stacked up to nine units high at the same address controlling 72 devices.

Some of the other products from Pulizzi Engineering are the LA1653 satellite antenna lightning arrester, the TPC 12S-A/MTD and TPC 115-10/MTD power controllers, the RCP 2242 and the TPC 4000.

Pulizzi Engineering Inc., 3260 S. Susan St., Santa Ana, CA 92704; 714-540-4229; fax 714-641-9062

Circle (1279) on Free Info Card

Promusic has added three new sound-effects collections from the Sonic Boon Digital Sound Effects including The Works: Sounds of Motion, Action & Force; Dynamic Range — The Best Guns Anywhere! and Foley Footsteps Sound Effects Library.

In addition, Promusic is the exclusive U.S. agent for the Primrose Production Music Library which offers nearly 100 CDs of varied music from contemporary rock, folk and jazz to music of the Renaissance and Middle Ages. It also offers popular classics from the masters and CDs of jingles, links and broadcast-friendly elements.

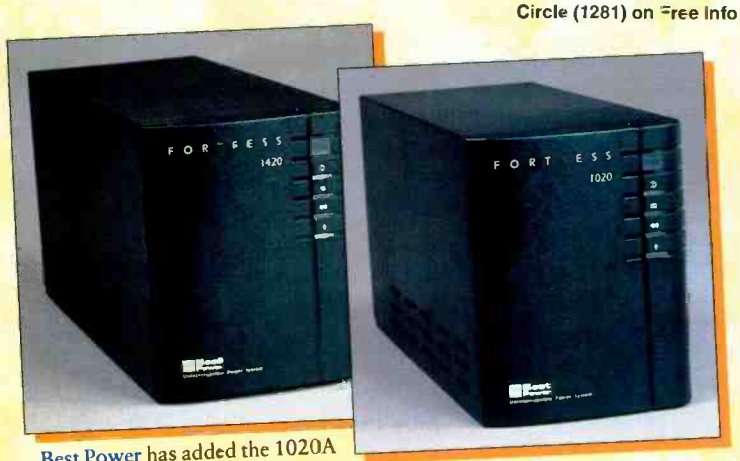
Promusic, 941-A Clint Moore Rd., Boca Raton, FL 33487; 800-322-7879; 407-995-8434; promuse@aol.com; www.Promusic-inc.com

Circle (1280) on Free Info Card

Photoflex, Inc. is introducing the Primatte S-100 by P.E. Photron. This highly regarded chromakey and image compositing application is now available for the Windows and Macintosh platforms as a plug-in for the Adobe Photoshop version 3.0 product. Primatte S-100 for Photoshop offers a revolutionary solution for the ultra-precision matte-control bluescreen compositing.

Photoflex, 333 Encinal St., Santa Cruz, CA 95060; 800-486-2647 or 408-454-9100; fax 408-454-9600; company@photoflex.com

Circle (1281) on Free Info Card



Best Power has added the 1020A and 1420A models to its next-generation Fortress uninterruptible power systems. These UPSs provide no-break sinewave output; a comprehensive suite of free, bundled power management software and a wider range of power ratings and footprints. In addition, the new Fortress models offers many other features.

Best Power, P.O. Box 280, Necedah, WI 54646; 608-565-7200; fax 608-565-2221

Circle (1282) on Free Info Card

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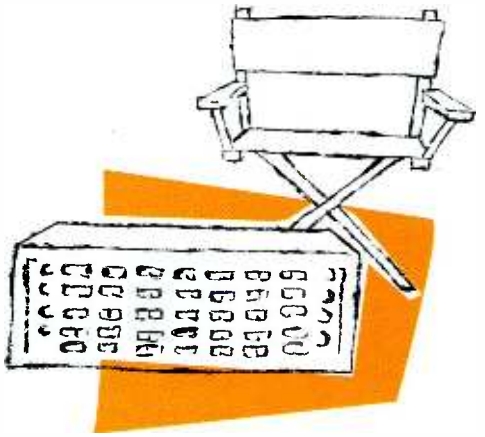

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GigWorks™ Fibre Channel network products from Ancor can be a transformational experience. Silicon Graphics Entertainment Center uses GigWorks switches, adapters and routers as part of their network solution to maximize the creative power of their machines - and achieve networking nirvana.

GigWorks products are available for popular Silicon Graphics models including the new O2™ series. They also interoperate with all popular platforms and protocols, and handle video, voice and data on a common network. And, they're backed by an ANSI standard that's already been specified to a mind-bending 4 gigs.

To move your network to a higher plane call the GigWorks gurus at 1-800-342-7379, or download the works at www.ancor.com. Then make the world's fastest networks a truly easy gig.

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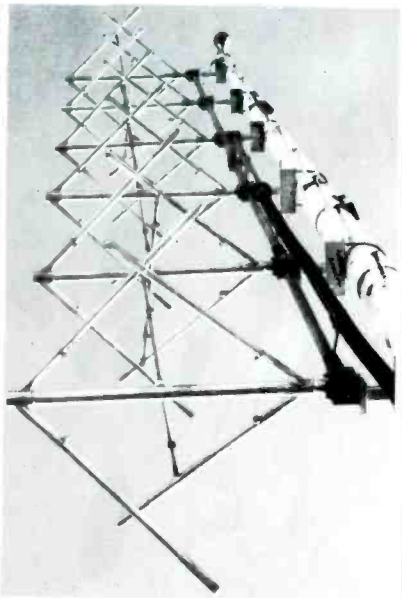
The Question Is: WHAT'S NEW?

The Answer Is: ULTRA TRACKER!



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The neighbors complaining about your signal walking all over everything else?

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IEEE As presented at the IEEE 46th Annual Broadcast Symposium Sept. 1996.

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See us at NAB Booth #8672

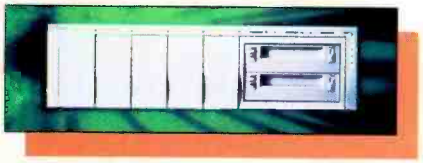
SNEAK PEEKS

Many new microphones can be found at the beyerdynamic booth, such as the MCD 100 digital condenser studio microphone. Preamplification and A/D conversion of the microphone signal, which was previously achieved at the input of a digital console is now accomplished directly behind the microphone capsule of the MCD 100, therefore providing an AES/EBU signal at the output of the microphone.

Other beyerdynamic products include the MCE 82 stereo condenser microphone, the MCE 84 condenser microphone, the DT 250 studio monitoring headphone, the MCE 7 ultrasmall microphone and a new range of hand-held transmitters.

beyerdynamic, 56 Central Ave., Farmingdale, NY 11735; 800-293-4463 or 516-293-3200; fax 516-293-3288

Circle (1283) on Free Info Card



Andataco will be offering demonstrations of its GigaRAID storage systems, a new family of storage enclosures. Featuring a modular architecture comprised of user-replaceable building blocks, the system is 100% CPU and operating system independent. It is scalar from desktop to data center and supports a complete hierarchy of 3.5- and 5.25-inch storage devices, including solid-state disk, magnetic disk, optical, tape and controllers.

Andataco, 10140 Mesa Rim Rd., San Diego, CA 92121; 619-453-9191; inquire@andataco.com; www.andataco.com

Circle (1284) on Free Info Card

Artel's VISTA net application bridges the gap between analog and digital by providing transmission, switching, access and control technology. TV loop providers now have the ability to switch both analog and digital circuits on the same platform. In addition, the application can be expanded to multiple switching centers controlled by the same master controller. End users can arrange remote programming with predefined limits and the Artel solution is future-proof with respect to digital migration.

Artel, 237 Cedar Hill St., Marlborough, MA 01752; 508-303-8200; fax 508-303-8197; www.artel.com

Circle (1285) on Free Info Card

Another addition has been made to Akai's growing family of compatible recorders/editors. The newest product to join the ranks is the DD8 digital disk recorder. Designed as a random-access digital audio dubber that offers plug-and-play replacement of DA-88s, features include an onboard 2.0GB hard drive or an optional 2.6GB magneto-optical drive that provides instant removability on reliable media and data compatibility with the Akai DD1500 recorder/editor. The unit has eight expansion slots that can accommodate a wide variety of available options.

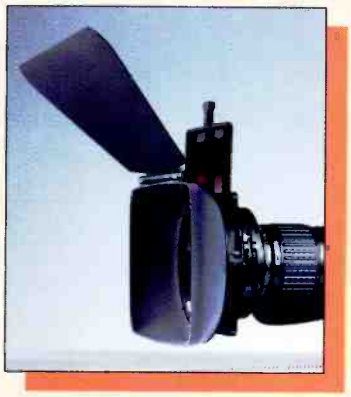
Akai, 1316 E. Lancaster Ave., Fort Worth, TX 76102; 817-336-5114; fax 817-870-1271; akaiusa@ix.netcom.com; www.akai.com/akaipro

Circle (1286) on Free Info Card

Driving the next breakthrough in desktop digital video editing, miro Computer products AG has announced the miroVIDEO DV 100, an IEEE 1394 (FireWire) solution for digital video editing systems that bridges the technology gap between digital camcorders and desktop computers. The miroVIDEO DC 100 is compatible with the Sony's DCR-VX1000 Digital Handyman and DCR-VX700 Digital Handyman, and is software upgradeable for future DV equipment.

miro, 955 Commercial St., Palo Alto, CA 94303; 800-474-6476; fax 415-855-9004; info@mirousa.com; www.miro.com

Circle (1408) on Free Info Card



ProSource is showcasing the first broadcast video matte box system especially developed for the rigors of hard news ENG and the multifaceted demands of on-location EFP. The SHADE FX is designed with future technology in mind and works with all existing internal focus lenses up to 5.2mm, including 4:3 and 16:9 aspect ratios. The QL mounting system, with a selected insert adapter ring, attaches directly to the front lens barrel. Two filter compartments, which accommodate 4X4, 4.5X4.5 or 4X5.6 filters (glass/resin), simultaneously rotate 360°.

ProSource, 1515 Black Rock Turnpike, Fairfield, CT 06430; 203-335-2000; fax 203-335-3005

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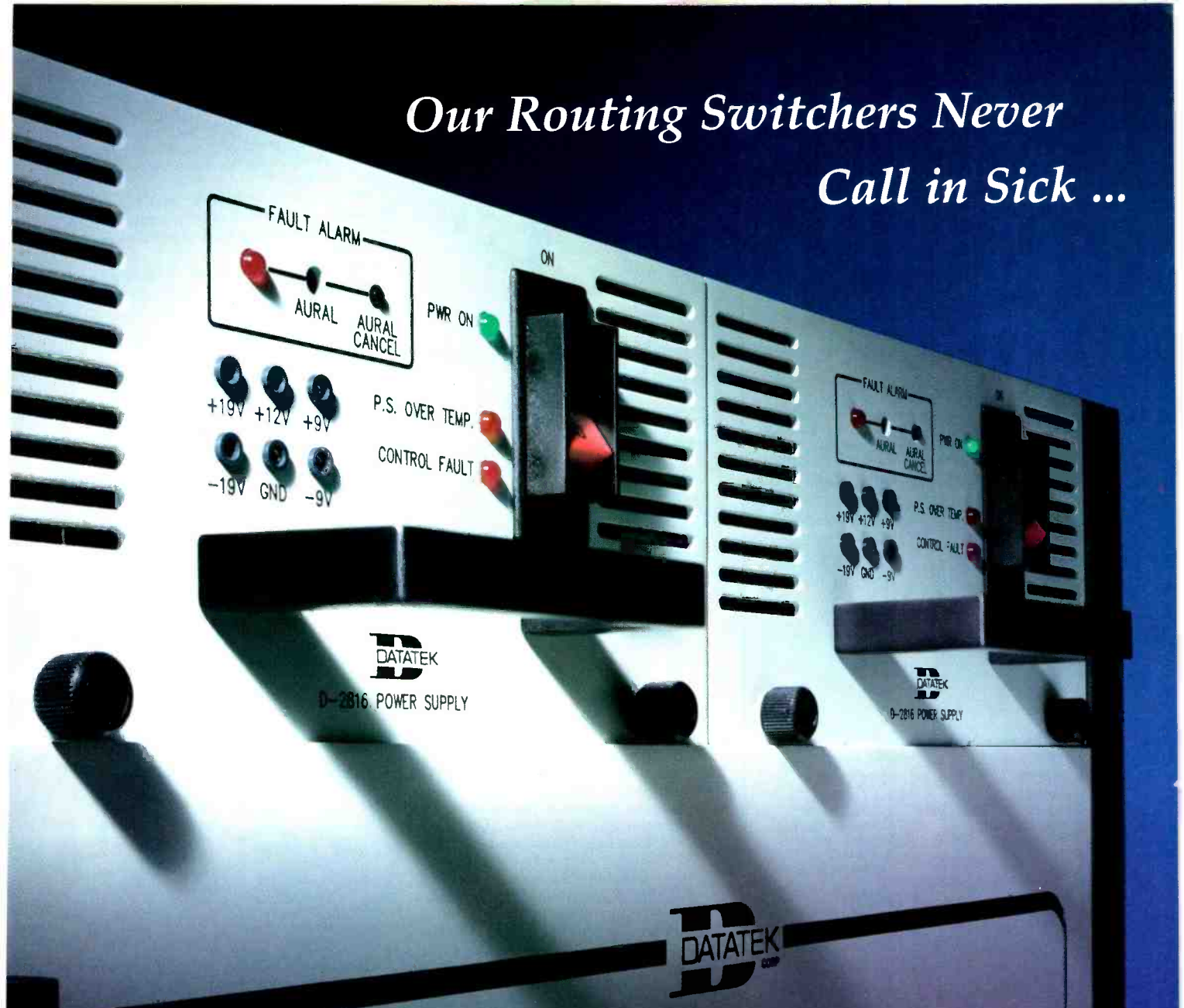

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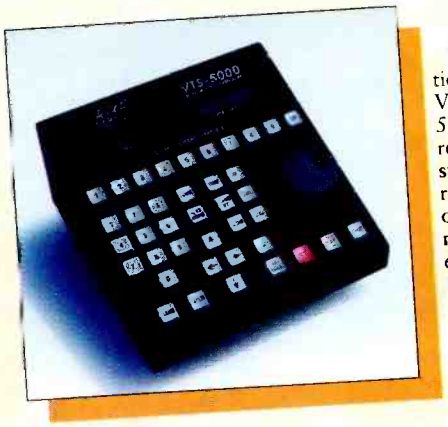
In addition to giving away a 1947 Indian Chief motorcycle, Clark Wire & Cable is showing several new products. The Bittree Patching Systems are high-quality systems specifically designed for broadcast, production and post-production applications. They are excellent for use in the high bit rate serial digital domain.

Other products include the Hannay portable/stackable reels, custom cable assemblies, a complete line of digital cables and remote composite cable and triax cables.

Clark, 1355 Armour Blvd., Mundelein, IL 60060; 800-222-5348 or 847-949-9544; fax 847-949-9595

Circle (1289) on Free Info Card



BUF Technology has added a non-linear option to its popular slow-motion controller. The VTS-5000-NL is a modified version of the VTS-5000 and is optimized for use with non-linear recording devices. Cue points are recalled instantly for immediate slo-mo playback and new recordings are automatically placed at the end of previously saved segments. Preloaded segments, such as animated bumpers, are protected along with key highlights.

BUF Technology, 11835 Carmel Mountain Rd., #1304, San Diego, CA 92128; 619-451-1350; fax 619-451-6589

Circle (1290) on Free Info Card

The 900 series of professional, true-diversity UHF wireless systems is being exhibited by Audio-Technica. This series is available in two forms. The ATW-0951 UniPak System is comprised of an ATW-R09 receiver and an ATW-T51 bodypack transmitter with professional HRS connector and Hi-Z input. The ATW-0952 hand-held system, made up of the ATW-R09 receiver and ATW-T52 hand-held microphone/transmitter, uses an A-T Hi-ENERGY dynamic element with a neodymium magnet and double-dome diaphragm for smooth, accurate high frequency response.

Audio-Technica has also added the ATM87R and ATM89R to the Artist series microphones, and the Pro series has been expanded with the addition of VHF wireless and permanent install microphones.

Audio-Technica, 1221 Commerce Dr., Stow, OH 44224; 330-686-2600; fax 330-688-3752

Circle (1291) on Free Info Card

Crystal Computer Corporation has released its fully graphical user interface and real-time QNX monitor control system, CrystalVision 2000. It can provide your station with device and function screens, networking flexibility, redundancy options, editable script (Macro) files, and automated software protection with all the response time and speed you demand in real time.

Crystal Computer Corporation, 3280 McEver Rd., Buford, GA 30518; 770-932-0970; fax 770-932-3577; www.sales@crystalcc.com

Circle (1292) on Free Info Card

dbx Professional Products is offering the first product in its new world-class Blue Series for the professional studio and sound reinforcement markets. Following in the tradition of the industry-standard 160, the 2U 160S signal path consists of a high-precision input stage followed by the world's widest dynamic range voltage controlled amplifier, the dbx V8 VCA, and an output stage with precise phase alignment at all audio frequencies.

dbx is also introducing the DC66 stereo compressor, limiter and gate TDM plug-in, as well as an improved Project 1 286 microphone processor that is ideal for live and studio applications.

dbx, 8760 S. Sandy Prky., Sandy, UT 84070; 801-568-7660; fax 801-567-7662

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Comark, the television technology leader, has created a line of VHF transmitters that truly stand head and shoulders above the crowd.

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IMPORTANT FEATURES TO LOOK FOR WHEN LOOKING FOR A FILTER

When taking the shot, you need a filter that's optically as good as your lens, and made to take all the punishment you can dish out. So, don't settle for distorting "window" glass and aluminum rings that bind when the pace heats up. Trust only B+W filters to keep you out of a jam and picture-perfect. For a catalog or name and address of your nearest dealer, contact

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NY 11788 USA
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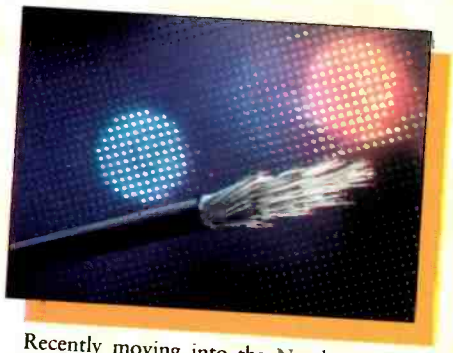
SNEAK PEEKS



Recently moving into the North American market, elocab Tailor-Made Cables produces a product line that begins where standard cables end. Nothing is off-the-shelf. Each and every cable is designed and manufactured to your precise needs and specifications. A tailor-made cable can be designed, manufactured and delivered in 3-6 weeks in quantities as small as 300 feet.

elocab, 258 McBrine Dr., Kitchener, Ontario, Canada N2R 1H8; 519-893-1155; fax 519-893-2766

Circle (1294) on Free Info Card

Coherent will be showing its full line of remote viewing/ENG video/audio transmitters and receivers, including the deck-of-card-sized CVT-500 video transmitter. Diversity reception is available with the new model CVR-1500 receiver (photo). This technique yields much improved reception and far fewer picture dropouts. A microprocessor selects the strongest signal from up to three different antennas to send to the extremely low noise (1.5dB) triple front end.

Coherent, 28245 Ave. Crocker Suite 200, Valencia, CA 91355; 805-295-0300; fax 805-295-0090

Circle (1295) on Free Info Card

Adirondack Software has announced the availability of release 4.2 of its Multi-Event Scheduling System package that provides for greater efficiency and productivity. The new release expands on the functionality of the earlier version, offering a smoother graphical user interface, the ability to handle an increased number of employee types, improved inquiry, reporting features and more.

Adirondack Software, 20 Baltusrol Dr., Clifton Park, NY 12065; phone/fax 518-877-8002

Circle (1296) on Free Info Card

Communications Specialties has a combination computer workstation-to-video scan converter and down converter. With broadcast-quality NTSC/PAL outputs, VGA, SVGA and Mac compatible down-converter outputs, the Scan Do Ultra unit stands one rack unit high. Among its many features are composite, S-Video, RGB and YUV outputs, gen-lock support, true multiscanning over a wide input range, dual computer inputs and variable sizing and positioning.

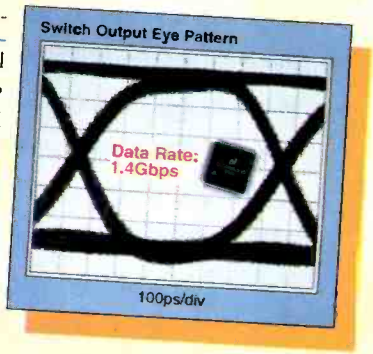
Communications Specialties, 89A Cabot Crt., Hauppauge, NY 11788; 516-273-0404; fax 516-273-1638; www.commspecial.com

Circle (1297) on Free Info Card

Now on the market is a high-speed 8x8 digital crosspoint switch from National Semiconductor Corporation's Comlinear Products Group. Designed for serial digital video systems and telecom/datacom switching, the CLC018 meets worldwide standards for serial data transmission, including SMPTE 259M. It has 18 fully differential signal paths and delivers data rates up to 1.4Gb/s (Non Return to Zero) per channel with less than 100ps$_{pp}$ jitter.

National Semiconductor, 4800 Wheaton Dr., Fort Collins, CO 80525; 800-272-9959; www.national.com

Circle (1298) on Free Info Card



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Markus Schönmann, Director of Marketing, SZM Sendezentrum München

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Eytan Keller, Executive Producer/Director, "Secrets of the Cryptkeeper's Haunted House"

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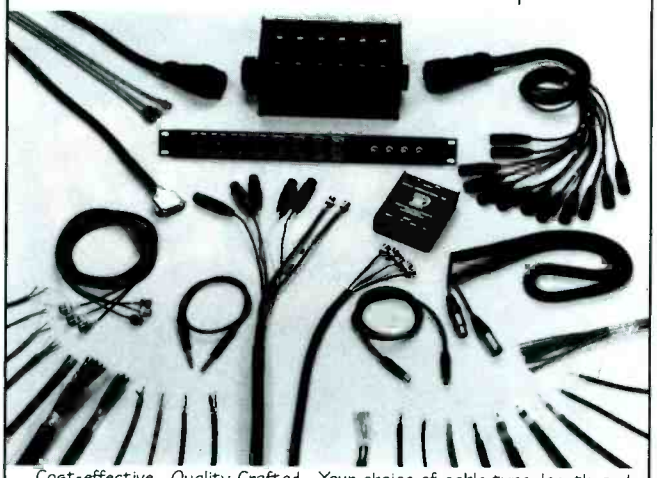

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SNEAK PEEKS

Nucomm has developed the FT6/FR6 series of dual digital/analog STL microwave transmitters and receivers. These microwave links can handle analog video signals with up to six audio subcarriers, as well as being able to separately link FSK, QAM and QPSK digital signals up to 45MB. In the digital mode, the 70MHz digital signal is upconverted, transmitted, then down-converted at the receiver to 70MHz. The FT6/FR6 is available in bands from 1.3 to 15GHz in duplex, multiple channel simplex and hot-standby configurations.

Nucomm, 101 Bilby Rd., Bldng. 1, Hackettstown, NJ 07840; 908-852-3700; fax 908-813-0399

Circle (1299) on Free Info Card

New from **ECHOlab** are the 5000 switchers, the first family of digital video production switchers that run Windows NT. The three new 5000 models have full function control panels for live or post-production environments and offer an open architecture design. An integrated, built-in mini-server can run a huge variety of video devices from the leading companies that are embracing Microsoft's Windows NT.

ECHOlab, 175 Bedford St., Burlington, MA 01803; 617-273-1512; fax 617-273-3275

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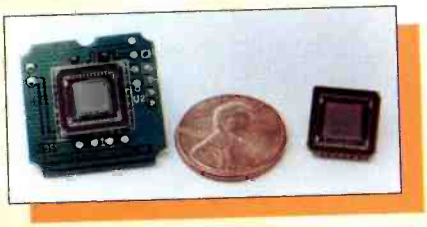

The Optical Systems Division of **Marshall Electronics** has introduced a breakthrough in low-cost camera technology. The V-X007 is a complete video camera on a chip. The CMOS chip outputs composite video conforming to EIA standards. It directly drives 75Ω devices such as TV monitors, VCRs and computer capture boards. The CMOS chip uses a single-voltage, low current supply.

Marshall, P.O. Box 2027, Culver City, CA 90231; 310-390-6608; fax 310-391-8926; Lmarsgo@ix.netcom.com

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Research Technology International (RTI) will be exhibiting its tape recycling and rejuvenation system for Betacam SP and digital Betacam. The TapeChek Pro Line 4100 cleans, evaluates and recycles videotape. Because the Pro Line 4100 will accommodate the standard and large sizes, all cassettes for EFP, ENG, LMS and productions VTR can be recycled in one unit. Accurate CCD line array detector scans the tape edge to edge to reliably locate edge damage, wrinkles and creases. The Pro Line 4100 also evaluates recorded tapes without affecting recorded material.

RTI, 4700 Chase, Lincolnwood, IL 60646; 800-323-7520 or 847-677-3000; fax 847-677-1311; Email@RTI-US.com

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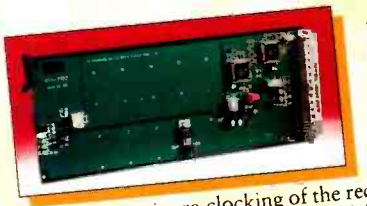

Two new additions have been made by Matthey Electronics to its 3000 Series serial digital interconnect system. The SDA-3052 (photo) and the SDA-3054 are cost-effective distribution amplifiers for applications that require re-clocking of the received signal. Either unit will pass composite and component serial data rates. The received signal strength is monitored and indicatesto the approach of maximum automatic cable equalization and excessive cable lengths.

Matthey/Television Equipment Associates, P.O. Box 499, South Salem, NY 10590; 914-763-8893; fax 914-763-9158

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PAG Ltd. has extended its range of Paglok batteries by incorporating its latest technology in new, sealed, maintenance-free packs. The PAG Digital SuperPacks provide an instant, accurate battery capacity read-out when used with the PAG battery reader conversion card, then allow a reasonably accurate assessment to be made of the time that a digital battery will run a piece of equipment.

PAG, 565 Kingston Rd., London SW20 8SA; +44 (0) 181-543 3131; fax +44 (0)181-540 4797; 100750.1271@compuserve.com; www.pag.co.uk

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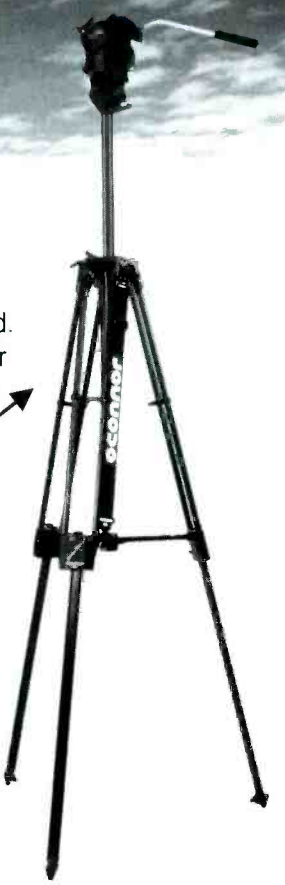
The 35LC features a pressurized air-assist column which can lift up to 40 pounds, and a built-in 100mm top casting with integrated tiedown. The spreader has two mounting positions for added versatility. OConnor's 35 series quick deployment tripods feature a quick release ring that allows adjustment of all three legs simultaneously on any terrain. See this incredibly versatile tripod at your OConnor dealer today.



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Acrodyne is announcing the highest power single tube UHF transmitter available anywhere for use with the Grand Alliance DTV input signal. The Au-DTV15, the Gold Series for DTV, is capable of producing 15kW average power output using a single Diacrode device. The Diacrode is a UHF high-power amplifying tube based on tetrode technology that was pioneered by Acrodyne.

Acrodyne, 516 Township Line Rd., Blue Bell, PA 19422; 800-523-2596; 215-542-7000; fax 215-540-5837

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Scitex Digital Video will be offering a complete line of post-production and broadcast products, such as the Sphere DveousFX. With the addition of DveousFX for VideoSphere, SDV completes its integration into the world's leading DVE technology throughout the entire Sphere family of digital non-linear editing systems. DveousFX is available for the desktop-based MicroSphere and the VideoSphere and StrataSphere workstations. DveousFX delivers unprecedented effects power with UltraWarp , 3-D light sourcing and Surface FX texturing.

Scitex, Court Square Bldng., 200 E. Lexington St., Suite 705, Baltimore, MD 21202; 410-783-0600; fax 410-783-0606

Circle (1307) on Free Info Card

The Sencore PC-based SV953 MPEG-2 Stream Station provides the complete test solution for testing and analyzing MPEG-2 digital video broadcast signals. This product gives you the capability to record, playout, monitor in real time and perform a complete analysis of the recorded transport streams that contain multiple video, audio and datastream information. It provides program and service providers with real-time monitoring of the datastream to ensure program materials meet all MPEG-2 and DVB standards.

Sencore, 3200 Sencore Dr., Sioux Falls, SD 57107; 800-736-2673 or 605-339-0100

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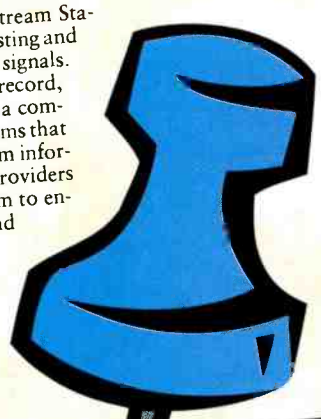

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What's going to be hot at NAB 97:
Video and audio data compression, video and audio servers, MPEG test and measurement, HDTV products

What I'll be looking for at NAB 97:
HDTV system products, digital audio/video conversion and interface testing and other "new" technologies

The conference sessions I want to attend:
TV technology tutorials, digital TV studio production, signal and transmission issues, designing facilities, ENG/SNG digital quality, DTV allocation and policy issues

Where I recommend hanging out after hours:
Spend your time eating well and getting a good night's rest.

Changes I'd like to see made at NAB 97:
Either add days to the convention or limit attendance (neither of which is likely, of course). Also try to reduce the competition for time between sessions and exhibits. Longer exhibit hours and/or a more navigable (less crowded) exhibit floor would help.

My tips for first-time attendees:
Do your homework before arrival, marking a map with booths you have to visit. Yet be open for other things that might catch your eye while working the floor. After each of these, get right back to your map. (Don't stop in the middle of the aisle, please!) Review each day's findings that evening, while they're still fresh in your mind. Read all the literature you've collected, but only bring back home what you really need.

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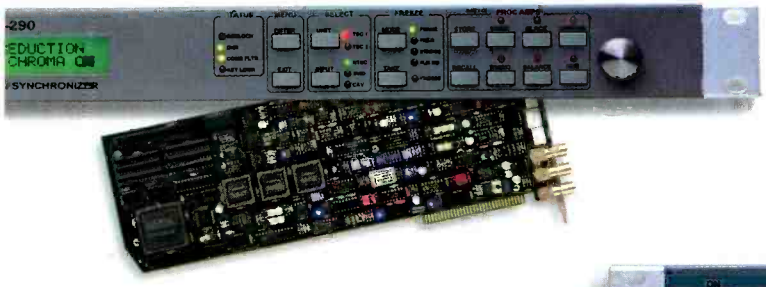

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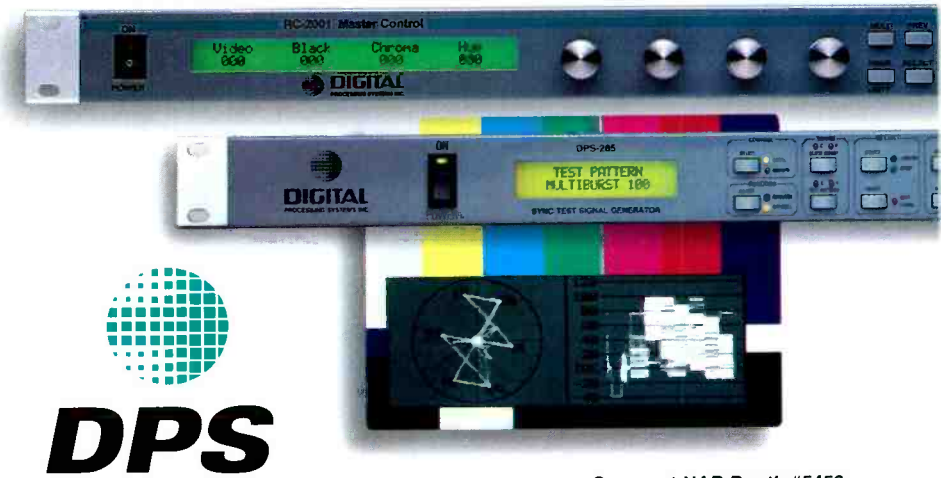
Our first digital time base corrector, the DPS-1, was introduced over twenty years ago. Later we developed the world's first TBC on a PC card. Today, we offer the industry's widest assortment of rackmount and PC card based models. ***From $850***



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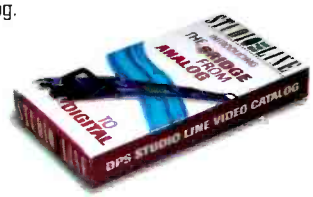
Master sync and test signal generators, remote control systems and digital waveform monitor/vectorscope cards. These are just some of the other quality DPS products we build with your needs and budget in mind. Visit our web site at www.dps.com or call 800-455-8525 to request our Studio Line Video Catalog.



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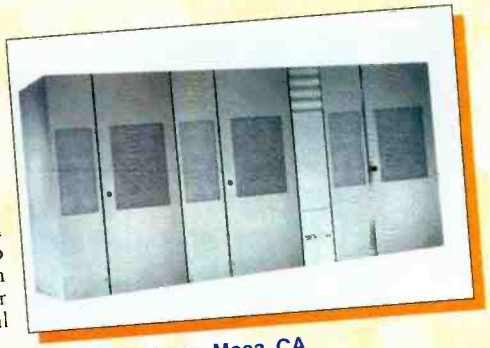
www.americanradiohistory.com

Macromedia's Final Cut is a high-performance tool for digital video editing, compositing and effects. The cross-platform video software uses open system media layers to meet your productivity and quality needs. Using the latest versions of QuickTime on Windows and Macintosh system software allows applications to work with digital video hardware from a variety of vendors.

Macromedia, 600 Townsend St., San Francisco, CA 94103; 800-326-2128; 415-252-2000; fax 415-626-0554; www.macromedia.com

Circle (1309) on Free Info Card

MGE UPS Systems is introducing its new 750kVA rated EPS 6000 uninterruptible power supply. This UPS is designed to accommodate users' current, as well as future, power usage demands. It features insulated gate bipolar transistors combined with MGE's advanced Digital Power Quality microcircuitry. The on-line design ensures clean, reliable power even in the harshest electrical environments.



MGE UPS Systems, 1660 Scenic Ave., Costa Mesa, CA 92629; 714-557-1636; fax 714-557-6256

Circle (1308) on Free Info Card

Electro-Voice, a division of EVI Audio, is introducing its latest supplement to the RE series with the RE500. This hand-held condenser microphone is appropriate for live or studio use and offers many of the advantages found in the RE2000, including its externally biased, true condenser element. This element is less susceptible to temperature variations than the more common electret design.

EVI Audio, 602 Cecil St., Buchanan, MI 49107

Circle (1310) on Free Info Card

KEVIN MCNAMARA
PRESIDENT,
EXEGESIS TECHNOLOGIES,
NEW MARKET, MD

What's going to be hot at NAB 97:
HDTV will be at the top, followed by DVD, Internet audio servers, RBDS, digital storage/automation (especially the networked variety) and WAN between facilities.

What's not going to be hot at NAB 97 that has been in the past:
Remote ISDN and DTS codecs, CD players (being surpassed by hard-disk and DVD)

What I'll be looking for at NAB 97:
Everything I have time to see.

The conference sessions I want to attend:
Presentations on HDTV, computer networking, marketing skills and any truly new technologies

Where I recommend hanging out after hours:
The Steakhouse in Circus Circus, *Ruth's Chris Steakhouse* (there are two in town), *Tony Roma's*, *Marie Callender's* (for breakfast), Hoover Dam and Lake Mead

My tips for first-time attendees:
When scantily clad models hand you brochures, don't ask for their phone numbers.

My view of the industry:
Interestingly, the effects of consolidation in the industry are creating more opportunities for people *outside* the station (i.e., contractors, consultants, etc.) than ever existed before *inside* the station.

NAB 97 Tips

www.americanradiohistory.com

Putting you in the picture...

...with our range of converters and interfaces!

Tekniche now provides the most comprehensive range of conversion products worldwide, and is converting some of the world's leading broadcasters and video companies.

Genesis - an advanced technology modular system providing video, audio and fiber optic interfaces and converters for digital and analog systems.

TACS - a universal system for status monitoring and control of the Tekniche range of products, using SMPTE 273 protocol.

Standards Converters - a comprehensive range of motion-compensated and linear converters to suit all applications.

DX Translators - Encoders, decoders and format translators for composite D1 and D2 applications.

Circle (79) on Free Info Card

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Hong Kong Tel: +852 2776 0628 • Fax: +852-2776 0227 • E-Mail: 100125,2724@Compuserve.com
Brazil Tel: +55 (0) 21 622 1536 • Fax: +55 (0) 21 622 1825

TEKNICHE

Tekniche - the digital solution!

www.americanradiohistory.com

Knox Video has newly designed character generators. The K20.ND comes standard with Y/C and NTSC video as, well as with expanded 64-page non-volatile memory. The K40.ND (photo) also features Y/C and NTSC video, expanded 64-page memory, serial interface, and a four-font upgrade. In addition, the K40.ND includes A/B video source switching with audio-follow-video, built-in fader and downstream keyer. Each character generator has an internal power supply and a separate keyboard.

Knox Video, 8547 Grovemont Circle, Gaithersburg, MD 20877; 301-840-5805; fax 301-840-2946

Circle (1314) on Free Info Card

News Digital Systems will be showcasing its System 3000 digital TV broadcast system. The System 3000 is a complete, end-to-end system for delivering digital video and audio over a host of mediums including satellite, cable and terrestrial. New additions to the system include a fully functional 4:2:2 encoder and the industry's most technologically advanced statistical multiplexing system.

News Digital Systems, 3501 Jamboree Rd., Ste. 200, Newport Beach, CA 92660; 714-725-2520; fax 714-725-2525

Circle (1315) on Free Info Card

Harris will highlight its CD 1, the world's first commercial exciter to implement the FCC-approved 8-VSB standard for digital television. The Harris exciter has been on the air since WRAL-HD, Raleigh, NC, became the first U.S. commercial HDTV station on July 23, 1996. The CD 1 is designed for minimal maintenance and simple operation. Long-term maintenance is virtually eliminated and the digital modulation scheme does away with adjustments and alignments. The highly integrated exciter uses VSLI technology to achieve unsurpassed reliability and performance stability.

Harris, 3200 Wismann Lane, Quincy, IL 62305; 217-222-8200; fax 217-222-0581; hbd@harris.com; www.broadcast.harris.com

Circle (1316) on Free Info Card

Storage Concepts Inc. will show its new C814 FibreRAID with a sustainable transfer rate of 100MB/s. Based on a new real-time controller platform, the C814 FibreRAID features fault-tolerant power supplies, redundant pluggable disks, dual fiber-channel host connectivity, extensive error logging and RAID functionality control with a cableless system chassis design providing up to 72GB of storage per 5 1/4-inch chassis.

Storage Concepts, 2652 McGaw Ave., Irvine, CA 92714; 800-525-9217 or 714-852-8511; fax 714-852-8930

Circle (1317) on Free Info Card

The Quattro four-stage studio/mobile pedestal from Vinten Inc. offers many innovative design and operation features. The unique triangular structure of the four-stage column provides maximum rigidity and stability, while minimizing torsional twist. In addition, a new balancing system using mechanical and pneumatic design offers perfect balance throughout the four stages of elevation.

Vinten Inc., 709 Executive Blvd., Valley Cottage, NY 10989; 914-268-0100; fax 914-268-0113

Circle (1318) on Free Info Card

Ross Video is showing the CDK 101 component digital keyer, the world's first DA-sized digital keyer. The video format is 10-bit, 270Mb/s, SMPTE 259M-C component serial digital. Both 625- and 525-line formats are supported and the CDK 101 can be used for bug keying, adding keys to cuts-only editing, side-by-side picture comparisons and chroma keying.

Ross Video, P.O. Box 880, Ogdensburg, NY 13569; 613-652-4886; fax 613-652-4425; solutions@rossvideo.com; www.rossvideo.com

Circle (1319) on Free Info Card

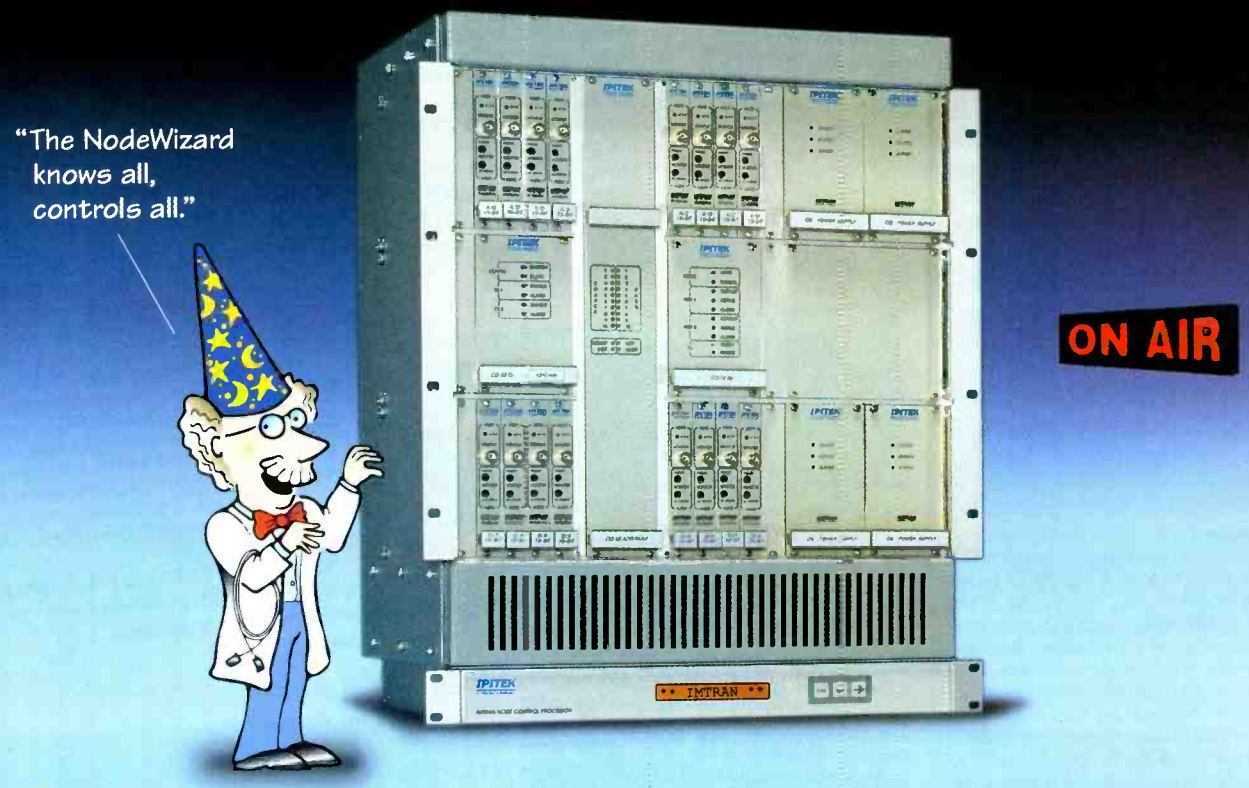
Chyron will showcase WiNFiNiT!, a Microsoft Windows NT graphical user interface for iNFiNiT!, MAX!> and MAXINE! systems. Other Chyron products include the keyPC keyboard with an embedded Pentium CPU, as well as the Scribe NT character generator that uses Windows 95/NT to control Chyron's pcCODI or Truevision's video graphics cards. New performance options for the iNFiNiT!, MAX!> and MAXINE! systems include Power PC support, 100 base T Ethernet file transfer, and CLYPS motion JPEG support for real-time video clip playback.

Chyron, 5 Hub Dr., Melville, NY 11747; 516-845-2026; fax 516-845-3895; sales @chyron.com; www. chyron.com

Circle (1320) on Free Info Card

www.americanradiohistory.com

Air traffic controller



If quality air time – all the time – is your responsibility, meet the IMTRAN® CQ-10RT. This fiber-optic terminal is a fully-integrated, multichannel, digital transceiver made especially for networking – such as video rings or cable system backbones.

This compact unit has a powerful optical transmitter, a sensitive optical receiver plus all the signal and multiplexing modules to transmit and receive up to 10 channels of video, 40 channels of audio and a variety of data transmission options such as T1 and DS-3, all on one fiber. The digital transmission loses no quality with distance, repeats or drop/add/pass with top signal performance assured by 8 or 10-bit uncompressed video coding. Best of all, it has built-in drop/add/pass functions that can be remotely controlled.

To give your CQ-10RT network plenty of extra smarts and security, add the Node Control Processor and the NodeWizard software. It's a powerful network management and communications tool, with a graphical user interface. With NodeWizard you can remotely control and monitor CQ-10RT terminals plus other equipment at each node in your network.

To find out more, contact us for our information package at 888-4-IPITEK or E-mail us at ipitek@tacan.com.

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2330 Faraday Avenue, Carlsbad, CA 92008 • Tel: (619) 438-8362 • Fax: (619) 438-2412 • E-mail: ipitek@tacan.com

Circle (81) on Free Info Card

www.americanradiohistory.com

Audio OnLine is a new caller-interactive audio information service being introduced by Henry Engineering. It is ideal for TV stations "information lines" where viewers can call a telephone number to receive information such as weather reports, traffic updates, school closings, etc. The system is menu-driven and an on-screen call-counter tracks the number of times each message has played. The audio quality is equivalent to a CD playing through a phone line. Up to 16 phones can be answered simultaneously.

Henry Engineering, 503 Key Vista Dr., Sierra Madre, CA 91024; 818-355-3656; fax 818-355-0077; www.henryeng.com

Circle (1321) on Free Info Card

Odetics Broadcast is unveiling a solution for the next generation in broadcast automation — the Roswell facility management system. Controlling a variety of broadcast storage and switching devices through distributed client/server software, Roswell signifies Odetic's entrance into the stand-alone broadcast management system market. The system automates material and media tracking, provides multichannel automation and performs real-time machine control for small TV stations and large broadcast installation alike.

Odetics, 1515 S. Manchester Ave., Anaheim, CA 92802; 714-774-2200; fax 714-535-8532

Circle (1322) on Free Info Card

An expanded product range will be launched by Tekniche with the first demonstrations for the IXION standards converters. These high-quality 10-bit standards converters in 1RU cases offer serial digital input and output, as well as sophisticated noise reduction and audio handling. Tekniche will also exhibit the TACS (Technical Assessment and Control System) network management system which provides a mechanism for communication between equipment racks, remote control panels and a system supervisor PC. Several additions have also been made to the Genesis range of digital interface products.

Tekniche, 100 Stonehurst Crt., Northvale, NJ 07647; 201-784-2288; fax 201-784-3860

Circle (1323) on Free Info Card

Fujinon's Broadcast and Communications Products Division is introducing a new A15X8 EVM/ERD handheld ENG zoom lens. This product combines lightweight, unmatched optical performance and a new inner focusing system to produce unprecedented image quality using Fujinon's proprietary Aspheric Technology (AT). AT provides a dramatic reduction in spherical aberration and the A15X8 EVM/ERD also offers outstanding telephoto features to go along with its 15X zoom ratio.

Fujinon, 10 High Point Dr., Wayne, NJ 07470; 201-633-5600; fax 201-533-5216

Circle (1325) on Free Info Card

Telect is unveiling an enhanced VersaFrame 2000. A uniquely versatile modular frame, the VersaFrame 2000 now supports several new audio and video modules, including a color bar and tone generator, a 16x16 digital video routing switcher, and a digital distribution amplifier, providing even more options for custom system configuration.

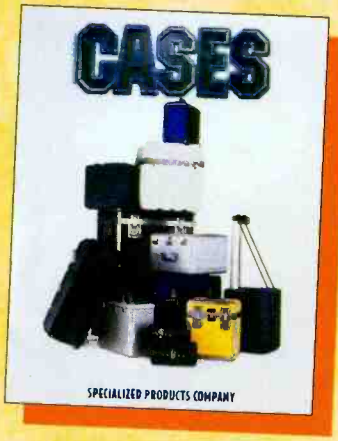
Telect, 2111 N. Molter Rd., Liberty Lake, WA 99019; 800-551-4567 or 509-926-6000; fax 509-926-8915; getinfo@telect.com; www.telect.com

Circle (1324) on Free Info Card

Nemal has introduced a remote-control cable for use with Sony Paintbox remotes. The cable includes the typical RCC cable together with four color-coded audio pairs and a single precision coaxial cable with an overall flexible jacket. The cable greatly facilitates the use of the Sony remotes in field applications and provides all of the required interconnections within a single jacket.

Nemal, 12240 N.E. 14th Ave., N. Miami, FL 33161; 305-899-0900; fax 305-895-8178; custsvc@nemal.com

Circle (1326) on Free Info Card



Specialized Products Company has released its new comprehensive Case Catalog. The 32-page collection features a multitude of cases designed for virtually every application. SPC offers a large selection of high-density, reusable shipping containers in more than 100 configurations, plus styles for many other uses. Some cases have watertight hard shells, while others are soft-sided padded styles. Specially designed cases are also available to prevent dust contamination in clean-room environments.

Specialized Products Company, 3131 Premier Dr., Irving, TX 75063; 214-550-1923; fax 214-550-1386

Circle (1327) on Free Info Card

Fresh out of beta site testing, the SPACE digital video recorder from Pluto Technologies will be on exhibit. SPACE records full-bandwidth, uncompressed 8- or 10-bit video. It is the first in a series of product developments which Pluto will announce, which are designed to create the world's first uncompressed storage system for high-end post-production and other video applications. SPACE marries the plug-and-play features of a VTR with the networking and random-access capabilities of high-performance computing. It is configurable anywhere from eight minutes up to two hours and will work ideally as a bridge between video enviroments and resolution-independent computer environments.

Pluto, 2511 55th St., Boulder, CO 80301; 303-402-9000; fax 303-541-9343.

Circle (1328) on Free Info Card

www.americanradiohistory.com

24

Simultaneous on-air channels

96

Hours of online storage

0

Single points of failure

1

System has it all

ASC's **VR 300**™ Broadcast Video Server

ASC

See it working at NAB booth #9258 or call 818-843-7004.

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Circle (82) on Free Info Card

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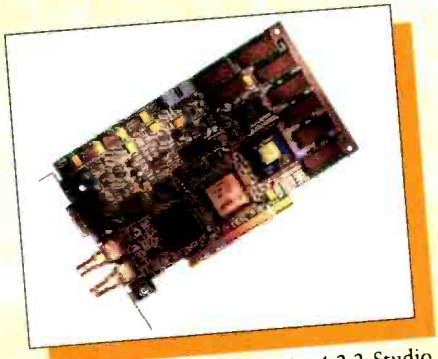
SNEAK PEEKS

McCurdy will be demonstrating the D-MAS multichannel TV broadcast system with interface to various types of broadcast equipment and traffic systems. Flexible cache control and Fibre Channel interfaces provide seamless integration to video servers and library systems including the Tektronix Profile.

Also featured will be the McCart digital audio storage system, the DCS3000 digital intercom, as well as audio metering and monitoring products, including the ATS-100 extended range VU/PPM meter.

McCurdy, 30 Kelfield St., Toronto, Ontario, Canada M9W 5A2; 416-243-6155; fax 416-248-6755

Circle (1329) on Free Info Card



Vela Research will debut its 4:2:2 Studio Profile encoder and decoder products. Vela's PCI 4:2:2 Studio Profile decoders (photo) are equipped with options for NTSC or SDI outputs. The company's ISA SCSI-2 Main Level @ Main Profile decoder has output options for SDI, serial digital, component video or YUV component analog video. A new SCSI-2 four-channel decoder will also be premiered.

Vela Research, 2501 118th Ave. N., St. Petersburg, FL 33716; 813-572-1230; fax 813-573-2508

Circle (1331) on Free Info Card

Several new products will be displayed by Telex Communications, such as the Radiocom UHF wireless intercom. The BTR-600 UHF full duplex wireless intercom provides the user with two independent audio channels and frequency agility in case of interference. The BTR-600 is based on a base to single user allowing you the flexibility to connect the exact number of users together.

A few of the many other products from Telex include its digital-to-analog tape duplication/editing system, the LCP-100 series level control panels for ADAM intercom systems and the CamLink II, which brings wireless freedom to video and film production.

Telex, 9600 Aldrich Ave. S., Minneapolis, MN 55420; 612-884-4051; fax 612-884-0043

Circle (1330) on Free Info Card

Sonic Solutions will be demonstrating its Sonic DVD Creator system for complete DVD premastering. It is comprised of systems for MPEG-2 variable bit rate video encoding, Dolby Digital Surround and MPEG-2 audio encoding. The system provides a workgroup solution for high-quality, high-productivity DVD production.

Other products from Sonic Solutions include the latest release of Sonic Studio, Mezzo Interchange software and On-Air Suite of applications and workstations.

Sonic Solutions, 101 Rowland Way #110, Novato, CA 94945; 415-893-8000; fax 415-893-8008

Circle (1332) on Free Info Card

A breakthrough in virtual studio technology is being shown by RT-SET. The company's RT Shadow allows true 3-D shadows to be cast into a virtual set environment. This option recognizes all physical and virtual objects creating shadows that appear smoothly in real time. The shadow has precisely the same perspective in the virtual world that it would have in the physical world.

RT-SET, 2230 Martin Ave., Santa Clara, CA 95050; 408-988-2330; fax 408-986-0452; www.rtset.co.il

Circle (1333) on Free Info Card

The UltraGraphix ULTRA weather system from AccuWeather is better than ever with more than 100 additional enhancements. The system blends precipitation, temperature, moisture and wind fields together automatically showing the evolution, animation and movement of weather systems now and into the future, up to 10 days in advance. You can create ready-for-air animations in minutes and a complete, fully animated weather presentation can be created in less than 30 minutes.

AccuWeather, 619 W. College Ave., State College, PA 16801; 800-566-6606 or 814-234-9601; fax 814-231-0453; intemail@accuwx.com; www.accuweather.com

Circle (1334) on Free Info Card

Mackie Designs has announced the first in its new Fast Recovery Series line of products, the M•1200. This premium power amplifier boasts more current output, more useful features and more solid reliability. It includes constant gradient T-design cooling, built-in features instead of expensive add-on modules, an informative, practical front panel and a well-labeled rear panel.

Mackie Designs, 16220 Wood-Red Rd. NE, Woodinville, WA 98072; 800-898-3211 or 206-487-4333; fax 206-487-4337

Circle (1335) on Free Info Card

JK Audio has developed a phone-line hybrid and a universal handset interface in one product. The RemoteMix3 is an all-in-one product that can get audio in and out of analog and digital phone systems, even multi-line PBX and ISDN systems. Features include two-mic inputs, XLR in and out, RCA in and out, built-in speaker and microphone, two headphone jacks, tone keypad and ringer. It can run 30+ hours on two 9V batteries or the AC adapter can be used.

Also from JK Audio, see the QuickTap IFB telephone handset IFB tap that can quickly be installed between the handset of your analog or digital telephone.

JK Audio, 2701 N. 45th Rd., Sandwich, IL 60548; 815-786-2929; fax 815-786-8502; www.jkaudio.com

Circle (1336) on Free Info Card

www.americanradiohistory.com

MAKING A SPLASH IN UHF BROADCAST

Introducing UHF-TV Klystrons From Litton

Litton Electron Devices, Williamsport, PA, a leader in the manufacture and repair of vacuum tubes, is now rebuilding and repairing tubes for the UHF-TV Broadcast Industry.

Litton has been designing and producing high performance, cost effective microwave power devices for over 40 years. Magnetrons, cross-field amplifiers, klystrons, traveling wave tubes and thyratrons are all designed to meet strict military and commercial specifications. This background provides Litton with the expertise and technical capabilities to rebuild and repair UHF-TV klystrons.

LITTON ELECTRON DEVICES
1035 Westminster Drive / Williamsport, PA 17701

Consider the following list of capabilities:

- Complete rebuild or repair of Series 89X, 95X, and 755X UHF-TV Klystrons
- Prompt inspection and return of Evaluation Report
- Quick turnaround of repairs
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- ACE gun provided on all rebuilds
- Tubes fully tested to assure performance
- New tube warranty
- Tuned to specific channel frequency
- Shipment from stock in many cases
- Cash/credit for DUDS
- Technical back-up and service
- 800 number for easy access to service
- Also prepared to provide the L-4945A deuterium filled, double gap ceramic crowbar thyratron (equivalent to the EEV CX-2708)

Call our UHF-TV HOTLINE at **800-861-1UHF** for pricing, stock availability, DUD purchase, questions, technical service, data sheets and tube information. Or fax us at 717-326-5816.

Litton

Electron Devices

NAB97

Circle (70) on Free Info Card

www.americanradiohistory.com

Along with many other products, Hitachi is announcing the Z-2000B professional portable camera, an update to the Z-2000. The Z-2000B provides all the features and functionality of the previous camera in addition to one full f-stop more sensitivity.

Also from Hitachi, the SK-3000 HDTV is a multistandard camera that provides simultaneous HDTV and NTSC outputs. The digitally processed camera head uses 2,000,000 pixel CCDs and operates in a 16:9 format at all times. This high-performance camera offers 1,200 TVL of resolution (HDTV), f8.0 at 2,000lux sensitivity. The field rate is switchable from 60Hz to 59.94Hz.

Hitachi, 150 Crossways Park Dr., Woodbury, NY 11797; 516-921-7200; fax 516-496-3718

Circle (1337) on Free Info Card

Extron is introducing its first line-quadrupler, the System 4LQex. The system will switch balanced and unbalanced two-channel, stereo audio and delivers film-like video image quality. As the system increases horizontal scan rate by a factor of four, it provides most CRTs with optimum efficiency by maximizing light output. In addition to increased picture brightness, the image becomes smoother and has greater clarity.

Also from Extron, look for the Emotia Xtreme offering advanced scan conversion technology

Extron, 1230 S. Lewis St., Anaheim, CA 92805; 800-633-9876 or 714-491-1500; fax 714-491-1517

Circle (1338) on Free Info Card

Harris Corporation's Broadcast Division will exhibit a new solid-state digital TV transmitter based on Westinghouse's Silicon Carbide RF devices. Silicon Carbide, which first made its appearance years ago in blue LEDs, promises significant benefits in high-power transmitters. Most notably, SiC has higher heat handling capabilities than silicon (Si), which is currently used in RF devices. Silicon maintains semiconductor properties to temperatures as high as 200° Centigrade, while SiC can operate at junction temperatures in excess of 300° Centigrade.

Harris, 3200 Wismann Ln., Quincy, IL 62305; 217-222-8200; fax 217-222-0581; hbd@harris.com; www.broadcast.harris.com

Circle (1339) on Free Info Card

Sony will be showing several new products including the DNE-1000 non-linear news editing workstation. This powerful editing system, which together with Sony video file servers, is designed to produce high-quality broadcast news, documentary and magazine programs. It offers the flexibility to function as a stand-alone or networked workstation and can be configured for A/B roll editing.

Sony Electronics, 1 Sony Dr., Park Ridge, NJ 007656; 800-SONY-022 or 201-930-7834; fax 201-358-4059; Kallen@ccmail.nhg.sony.com; www.sony.com

Circle 1341() on Free Info Card

Belden Wire & Cable will introduce its five latest additions to the Brilliance line of broadcast cables. First off is the Star Quad Mic cable featuring a unique cabled conductor construction and the use of a paper tape designed to help reduce triboelectric noise. For error-free transmission of digital audio over extended distances, the company now offers the AES/EBU digital audio cable. Another new product is the bonded jacket/shield analog audio patch cable that terminates easily for multichannel audio applications where individual channels must be split out from the punchdown block. Belden has also extended its Super VHS cable line offering a Plenum zip-style dual coax version. And finally, Belden is introducing the new CM-rated bundled precision video snakes for multiple channels of video, long-run RGB and computer CAD/CAM applications.

Belden, 2200 US Hwy. 27S., Richmond, IN 47374; 800-235-3361 or 317-983-5200; fax 317-983-5294

Circle (1340) on Free Info Card

For electronic field production and ENG applications, Panasonic has its AJ-D800 DVC PRO camcorder with three 2/3-inch IT CCDs. Compared to the AJ-D700, the AJ-D800 offers improvements in light gathering, dynamic range and vertical smear reduction that produce acquisition material that is fully suitable for extensive post-production.

Panasonic will also be featuring a fast transfer video editing workstation, a non-linear editing system which has a built-in DVCPRO VTR, with disk transfers at four times faster than normal speed. Another new product from Panasonic is the AT-H190DP, which features key improvements to the AT-H1905DP all-digital processing broadcast monitor.

Panasonic, One Panasonic Way, Secaucus, NJ 07094; 800-524-0864

Circle (1342) on Free Info Card

Two new UHF true diversity wireless microphone receivers are available from Sennheiser. The EM3031-U and the EM3032-U each offer 32 programmable UHF receiver frequencies and state-of-the-art circuitry that incorporates PLL synthesis. The EM3031-U is a single-channel UHF true diversity receiver while the EM3032-U is a two-channel UHF true diversity receiver, with an integrated antenna splitter that splits a single pair of antennae to both receivers.

Sennheiser, 6 Vista Dr., Old Lyme, CT 06371; 860-434-9190; fax 860-434-1759; www.sennheiserusa.com

Circle (1343) on Free Info Card

One of the products being shown by Utah Scientific is the SC-3 routing control system. This router control system was designed to complement the UTAH-300 router to offer the most powerful routing solution available. The advanced design maintains compatibility with all previous Utah Scientific, Alpha Image and Dynatech routers, as well as offering the ability to control new and older routers from other manufacturers. The UTAH-300 routing switcher system allows the use of analog and digital video in the same frame.

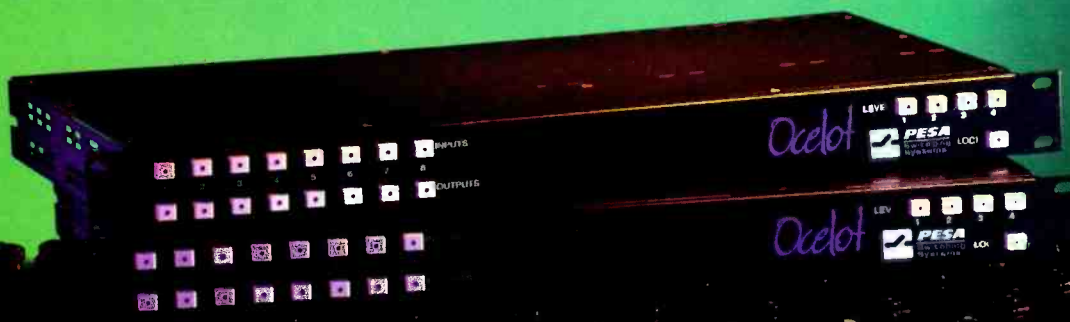
Utah Scientific, 4750 Wiley Post Way, Salt Lake City, UT 84116; 800-453-8782 or 801-575-8801; fax 801-537-3099; info@utsci.com; www.utsci.com

Circle (1344) on Free Info Card

www.americanradiohistory.com

Ocelot

This Cat Can Change Its Spots



Ocelot adapts to your dynamic routing switcher environment, with interchangeable 8 X 8 modules that accommodate wide bandwidth analog and serial digital signals. Changing from analog to digital is a simple module switch.

Ocelot can be controlled from the integrated control panel on the chassis, remote control panels, or the Windows™ based Virtual Control Panel. The Virtual Panel puts router control on your workstation or via VPNet network interface - ideal for multimedia production environments.

Ocelot increases your capabilities with hardware and control flexibility in a compact system package. Call today and put the power of the Ocelot to work for you.

- 250MHz Wide Bandwidth Analog Video
- 360Mbit/s Serial Digital Video
- Windows™ Based Control Interface
- 8 X 8 and 16 x 16 Matrix sizes
- User friendly installation of RGB and Y/C

PESA Virtual Panel

RGB Configuration of the Ocelot

NAB Booth 10958

PESA Switching Systems

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Circle (71) on Free Info Card

www.americanradiohistory.com

Heuris/Pulitzer's new MPEG Power Premier makes video compression a simpler and more familiar task than was possible a few months ago. You can import data from several desktop editing products using digitizing boards. It also allows you to take your native files from leading editing systems and output to MPEG (without having to output to videotape) for multimedia presentations or remote collaboration over the Internet.

Heuris/Pulitzer, 2675 Scott Ave., Ste. G, St. Louis, MO 63101; 800-923-9232 or 314-534-1514; 314-534-4351; www.heuris.com

Circle (1346) on Free Info Card

Discreet Logic will be showcasing two products from its broadcast production product line. V2.0 of its VAPOUR virtual set system and V2.0 of the FROST 3-D new graphics system will be shown.

Discreet Logic, 5505 boul St Laurent #5200, Montreal, Quebec H2T 1S6 Canada; 800-869-3504 or 514-272-0525; fax 514-272-0585; info@discreet.com; www.discreet.com

Circle (1345) on Free Info Card

QTV is introducing the WINCUE PRO/PRONEWS/LT prompting software for Windows 95/NT. Among its many features are a multicolumn editor with instant live update of prompter text in any story, runorder management, drag-and-drop of text and runorders, spell check and thesaurus. An internal or external image motion technology device provides smooth scrolling output in gen-lockable NTSC and PAL standards. Also from QTV is the WINCUE NET scripting/runorder management software that is multi-user and networkable.

QTV, 104 E. 25th St., New York, NY 10010; 212-460-9050; fax 212-529-9679; sales@qtv.com

Circle (1347) on Free Info Card

For the first time, Thomson Broadcast Systems will be showing it new family of 12-bit digital cameras based on the 1657D. The 1657D is the heart of the system and is available in several configurations suited to different operating conditions: camcorder, conventional PSC, Triax, Microcam or Sportcam. The camera is also available with a choice of sensor, either an economical interline transfer sensor in 4:3 format, with considerably reduced smear level, or a frame interline transfer sensor switchable 16:9-4:3 in a top-of-the-range configuration.

Thomson Broadcast Systems, 17 rue du Petit Albi, BP 8244, F-95801 Cergy St Christophe, France, +33 1 3420 7000; fax +33 1 3420 7047

Circle (1348) on Free Info Card

Videotek has announced a new 601 format waveform monitor/vectorscope, the TVM-821D. It is offered as the utility waveform monitor and vectorscope for all 601 production and post-production activities. The instrument is based on the traditional tube format, and instead of menus or hidden function buttons, the TVM-821D features easy-to-use buttons and knobs. Other new products from Videotek include the SDR-800 series serial digital matrix routing switchers and the VTM-200 multiformat onscreen monitor. The new VSG-203D and VSG-204D round out the family of digital sync generators from Videotek.

Videotek, 243 Shoemaker Rd., Pottstown, PA 19464; 800-800-5719 or 610-327-2292; fax 610-327-9295

Circle (1349) on Free Info Card

The 1657D Microcam from Thomson Broadcast Systems comprises a 1657D camera body with the CCD block-mounted remotely. The separate CCD block and camera body are linked by a 26-pin multicore cable, up to 100m long, with automatic equalization. This construction provides an extremely compact camera head, allowing shots that would be impossible for conventional portable cameras, while maintaining the same picture quality. Moreover, the CCD block can be remounted inside the camera body for use as a conventional portable camera.

Thomson Broadcast Systems, 17 rue du Petit Albi, BP 8244, F-95801 Cergy St Christophe, France, +33 1 3420 7000; fax +33 1 3420 7047

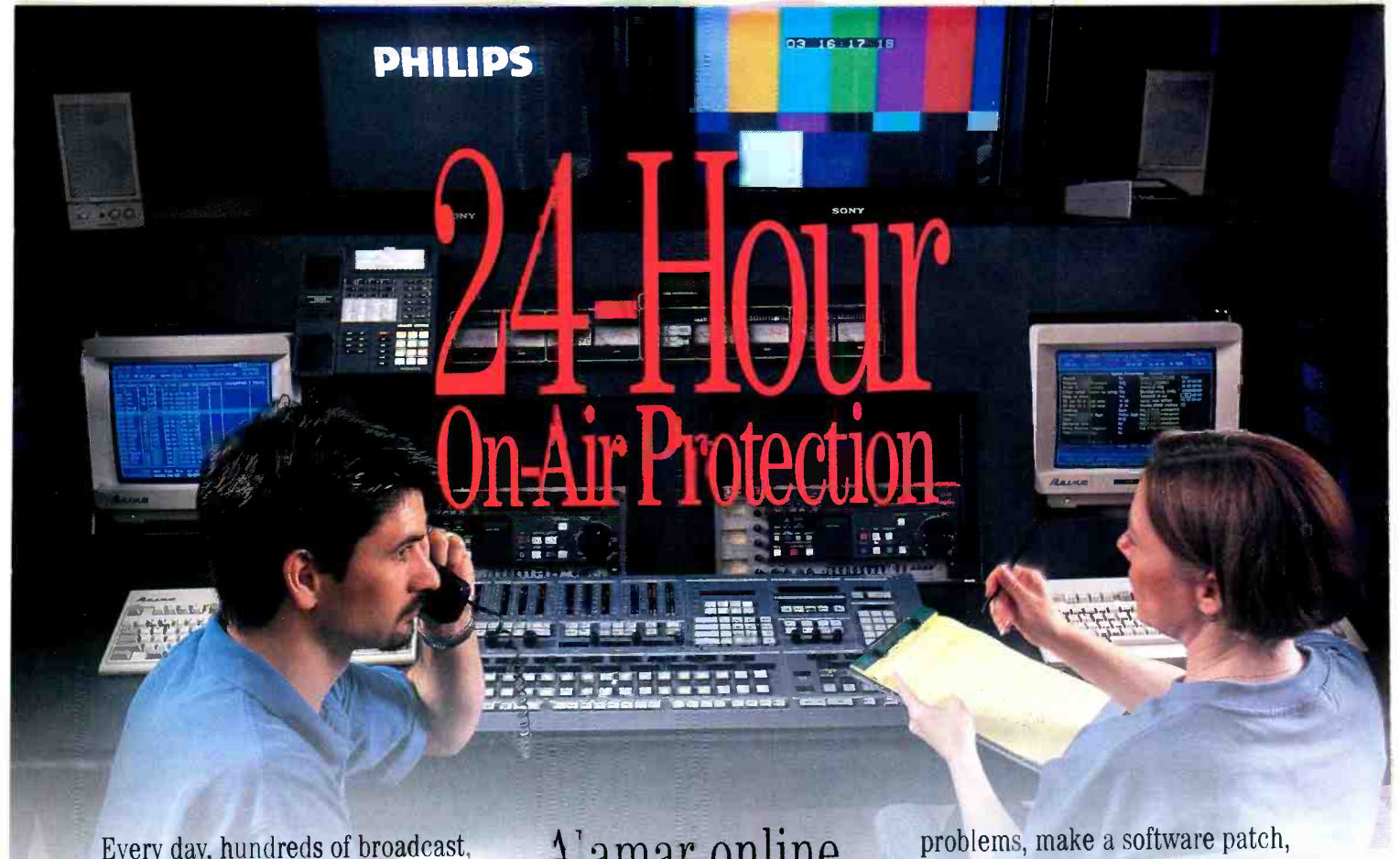
Circle (1351) on Free Info Card

Thomson Broadcast Systems will be exhibiting its 1657D Sportcam that allows a portable camera to be transformed into a truly multifunction camera. Its modular construction provides flexibility allowing a single assembly to provide sports coverage with a long zoom lens (62x or 70x) as well as being used for field production or use in the studio with a prompter.

Thomson Broadcast Systems, 17 rue du Petit Albi, BP 8244, F-95801 Cergy St Christophe, France, +33 1 3420 7000; fax +33 1 3420 7047

Circle (1350) on Free Info Card

www.americanradiohistory.com



24-Hour On-Air Protection

Every day, hundreds of broadcast, cable and DBS systems worldwide, each with from one to 200 channels, depend on Alamar automation to keep their facilities running smoothly and their revenue streams flowing. Today, facilities operate 24 hours a day, seven days a week. So Alamar customer support is always available online to help protect their operational integrity.

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Alamar online Customer Support is accessible from anywhere, anytime.

Technicians at Alamar's Customer Support Center (top) can remotely access diagnostic logs at a user facility –such as KNBC-TV in Los Angeles (bottom) –and quickly analyze a problem or answer a question.

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ALAMAR
a subsidiary of Philips Electronics North America Corporation

Alamar USA, Inc., 1711 Dell Avenue, Campbell, CA 95008 USA
Telephone: 408-866-9375 • Fax: 408-370-4861 • Web Site: http://www.alamar-usa.com

Circle (83) on Free Info Card

www.americanradiohistory.com

Denon Electronics will be displaying the DN-M1050R MiniDisc recorder and player. Engineered primarily for recording and broadcast production studio environments, a comprehensive list of editing functions includes divide, erase track/disk, combine, move and track/disk name. An external IBM compatible keyboard can be used to perform playback, recording, program input, editing and other operations.

Denon Electronics, 222 New Rd., Parsippany, NJ 07054; 201-575-7810; fax 201-808-1608

Circle (1352) on Free Info Card

The DVM2000 from Comsat Labs is a 14-channel multiplexer with a variety of input and output interfaces, such as RS-422, ECL, DVB-ASI and DS-3/E-3. Multiple channels of digital compressed NTSC and ATV can be aggregated for terrestrial or satellite transmission. The input ports can be configured to accept protocol-independent high-speed datastreams enabling a host of multimedia and internet data broadcasting applications.

Comsat, 22300 Comsat Dr., Clarksburg, MD 20871; 301-428-4010; fax 301-428-4600

Circle (1355) on Free Info Card

Studio Systems Electronics has stepped into the professional broadcast marketplace with the RANGER, a mobile camera microwave link video enhancer. It processes the received video signal from the microwave link and maximizes picture quality by stabilizing the chrominance, locking on to the video signal and enabling all the video action to be captured, even from those difficult remote mobile cameras, where multipath reception is always a problem.

Studio Systems Electronics, Ltd., Unit 10 Falcon Business Park, Ivanhoe Rd., Finchampstead, Wokingham, Berkshire, England, RG40 $QQ; +44 (0) 1189 731737; fax +44 (0) 1189734 734679; E-mail106600.475@compuserve.com

Circle (1356) on Free Info Card

Genex appointed HHB Communications Inc., as exclusive distributor for the Genex GX8000 MO disk recorder. The GX8000 offers eight-track recording and playback on removable MO disks. With its tape-like operation, simple punch in/out and overlay recording, the unit is a true replacement for multitrack tape recorders. In the latest software version, up to four tracks can be recorded simultaneously at a sampling rate of 96kHz.

HHB, 43 Deerfield Rd., Portland, ME 04101; 207-773-2424; fax 207-773-2422; hhbcomm@gwi.net

Circle (1358) on Free Info Card

Miller Fluid Heads is launching the Arrow 50, a new approach to ENG/EFP camera control and the first new design in several years from the developers of fluid pan/tilt heads. The Arrow 50 design team worked closely with the latest 3-D CAD/CAM tools to transform the needs of professionals into an advanced support system. Weighing only 6.6 pounds and featuring a sleek, low-profile styling, the Arrow 50 complements the aesthetics and ergonomics of the new generation of portable digital cameras.

Miller Fluid Heads, 216 Little Falls Rd., Cedar Grove, NJ 07009; 201-857-8300; fax 201-857-8188

Circle (1353) on Free Info Card

WavePhore has created a broadcast PC consumer service, the WaveTop, a nationwide broadcast medium for the home PC. The broadcast service will deliver entertainment and information programming via existing TV broadcasting signals without the bottleneck of the Internet or the tying up of phone lines. The network operates by embedding data into the existing TV broadcast signals of PBS National Datacast's 264 PBS member stations. This high-speed, point-to-multipoint service will have the capacity to reach more than 99% of U.S. TV households simultaneously, yet requiring only one server. WavePhore and Intel jointly have announced the availability of a hardware developer's kit for Intel's Intercast Viewer and the broadcast services that will enable OEMs and IHVs to create data broadcast-ready PCs. WaveTop will initially feature seven major content categories that will be broadcast to users' PCs without interrupting ongoing activities. Users can access the content at their discretion by clicking on icons on a toolbar interface or directly through the standard Windows Interface.

WavePhore, contact Sandy Goldman at 602-952-5500, ext. 236 or sgoldman@wavephore.com

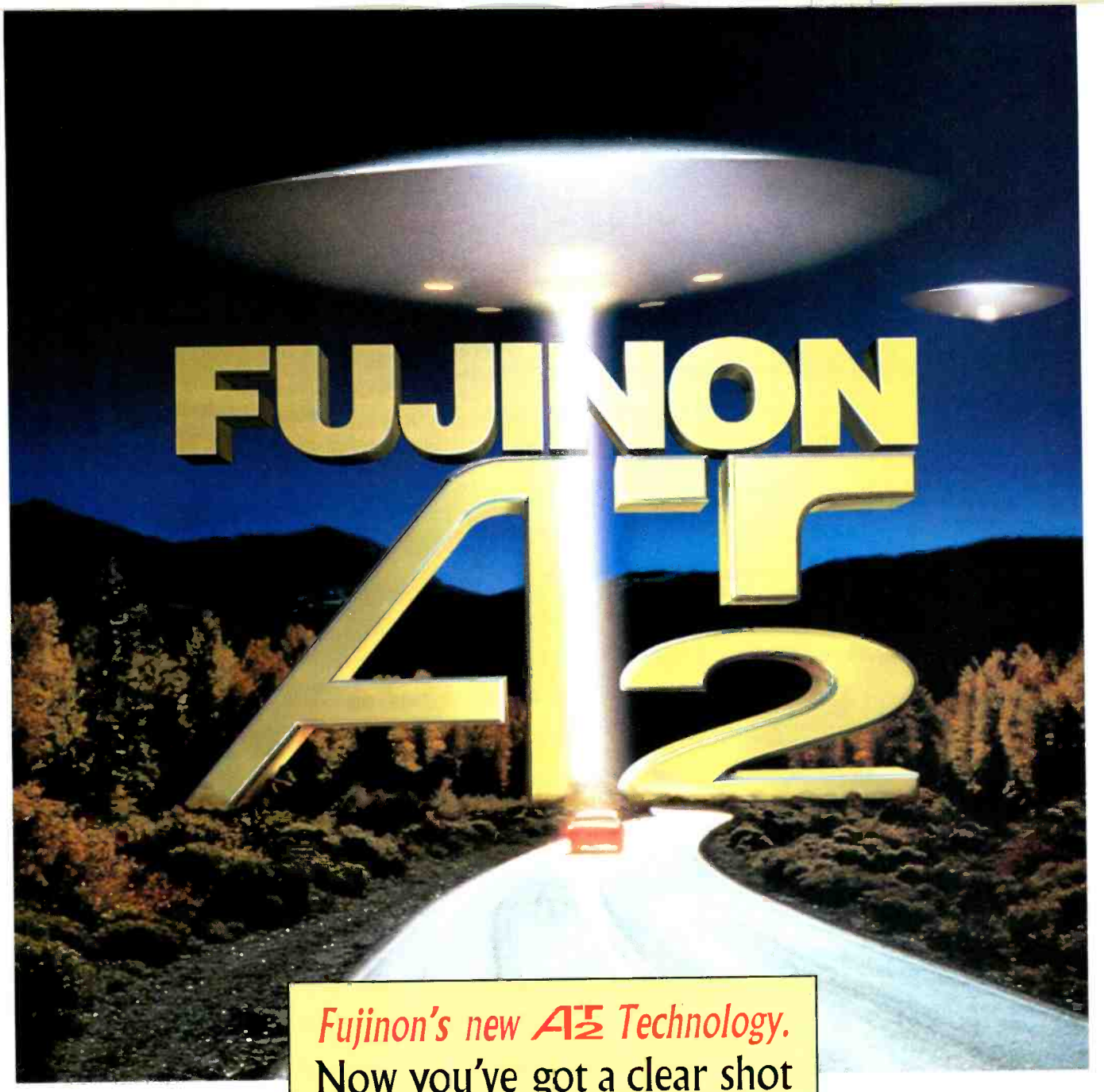
Circle (1354) on Free Info Card

Sierra Design Labs is exhibiting a 4:4:4:4 color space converter, its most recent addition to its family of digital disk recorders, video servers and accessories. The Digital Video Transcoder is a fully bidirectional 4:2:2:4 to 4:4:4:4 up/down real-time sampler. The Transcoder can accept full-range RGB images from Sierra's Quickframe DDR that have been downloaded from a workstation and output 4:4:4 or 4:2:2. This means that color correction or keying of computer images can be done in real time and in their native color space. Sierra Design Labs is also introducing the NFServer with ATM which brings speed and functionality to large-area ATM networks.

Sierra Design Labs, 999 Tahoe Blvd., Incline Village, NV 89451; 702-831-7837; fax 702-831-5710

Circle (1357) on Free Info Card

www.americanradiohistory.com



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Talk about out-of-this-world performance. Fujinon's new AT2 brings you the exceptional optical quality of Aspheric Technology, an advanced new inner focusing system that's sealed from dust and dirt, and the comfortable, comprehensive V-Grip too. We've also reduced chromatic aberration in the A15X and A20X, raised their MTFs, and reduced MOD to 0.65 m on the A15 X 8 and 0.8 m on the A20 X 8. The 10X Wide Power even eliminates breathing, so image size remains the same, in or out of focus.

Winner of the Emmy in *Lens Technology**

You'll find AT2 only on Fujinon's A15 X 8, A20 X 8, and 10X Wide Power hand-held television zoom lenses. For more information, contact Fujinon at 1-800-553-6611.

*Implementation in lens technology to achieve compatibility with CCD sensors.

A10 X 4.8 A15 X 8 A20 X 8

Broadcast & Communications Products Division

FUJINON INC. 10 High Point Dr., Wayne NJ 07470-7434 (201) 633-5600
FUJI PHOTO OPTICAL CO., LTD. 1-324 Uetake, Omiya City, Saitama 330 Japan;
Phone: 048-668-2152, FAX: 048-651-8517, TELEX: J22885

FUJINON *FOCUSED ON THE FUTURE*

Circle (84) on Free Info Card

at NAB Show Booth #11031

www.americanradiohistory.com

The Omega digital video recorders from Fast Forward Video replace analog and digital videotape with three upgradeable deck configurations. The Omega deck is a single-channel version ideal for all record and playback situations. A dual-channel version, Omega Double Deck, features independent and simultaneous record and playback capability. Omega RAID Deck is a dual-channel recorder with built-in RAID (disk array) controller. It features two independent channels with shared video storage making it ideal for A/B roll and non-linear editing applications.

Fast Forward Video, 18200-C W McDurmott, Irvine, CA 92614; 800-755-8463 or 714-852-8404; fax 714-852-1226; www.ffv.com

Circle (1360) on Free Info Card

Comark has created a line of VHF transmitters called the Optimum line designed to take advantage of the latest advances in solid-state technology. The transmitters deliver low-band and high-band VHF performance from a single wideband amplifier. The Optimum also provides a friendly user interface and is fully compatible with all U.S. and world standards, including tomorrow's digital standards.

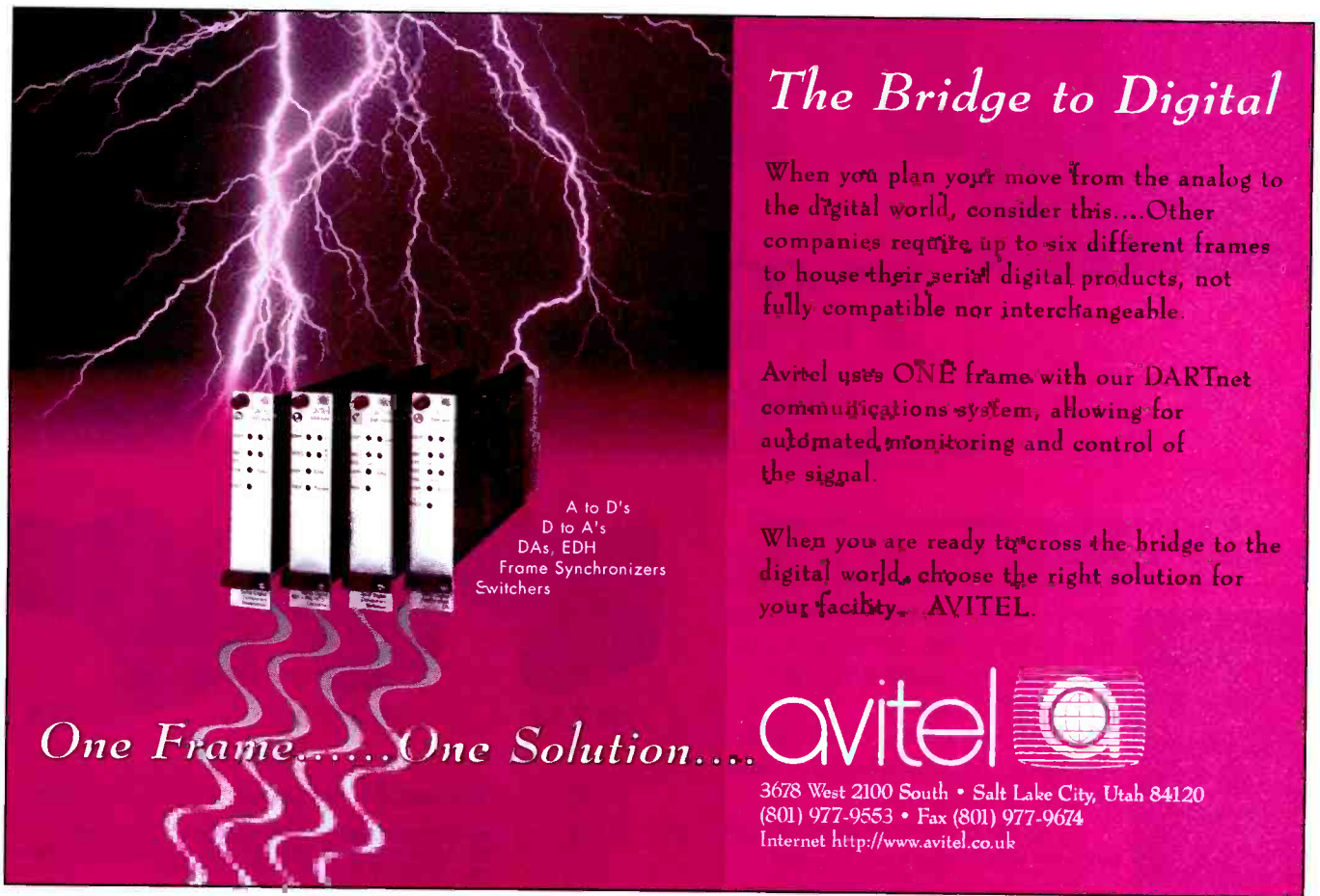
Comark, P.O. Box 506, Colmar, PA 18915; 800-688-3669 or 215-882-0777; fax 215-882-9129

Circle (1359) on Free Info Card

The Comrex HotLine codec for plain telephone lines delivers wideband, two-way audio on one plain telephone line and is ideal for the "last minute" remote or any application where ISDN is not practical. It travels light, weighing in at mere 2 ½ pounds and includes a single channel mixer. It can be used alone or paired with the Comrex Buddy remote mixer.

Comrex, 65 Nonset Path, Acton, MA 01720; 508-263-1800; fax 508-635-0401; www.comrex.com

Circle (1361) on Free Info Card



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Presenting Fujinon's new 18X Series. The most cost-effective lenses in the TV zoom jungle.

Fujinon's new 18X9 and 18X6.7 deliver the widest angle and highest magnification in their class. Add to that superb Fujinon optics, Aspheric Technology, 2X extender, macro, and rock solid construction... all in a 3-lb. package.

Fujinon's 18X lenses, King of the EFP jungle. For more information, contact Fujinon at 1-800-553-6611.

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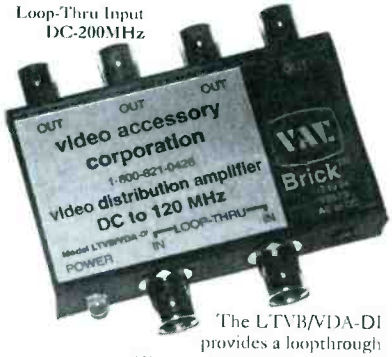

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http://www.vac-brick.com

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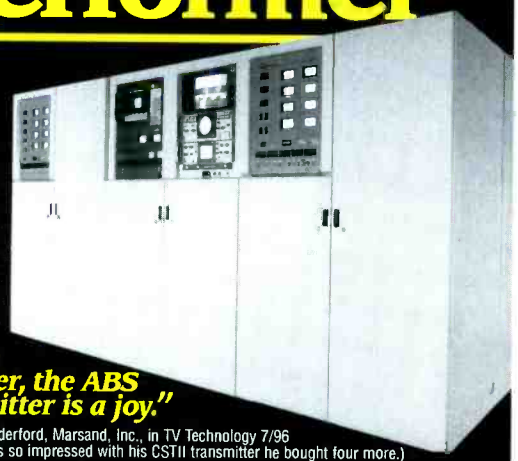

"For the engineer, the ABS transmitter is a joy."

Matt Sanderford, Marsand, Inc., in TV Technology 7/96
(Matt was so impressed with his CSTII transmitter he bought four more.)

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SNEAK PEEKS

Neutrik is displaying its PowerCon locking AC power connectors. The new system is designed to fill the gap between the low-cost non-locking CEE 22 Type 113 (IEC 320) connector and the larger, more expensive three-phase power plugs. The PowerCon system consists of the A-Type for power inlet and the B-Type for power outlet. Each offers a three-pole connection system with contacts for live, neutral and protective earth handling up to 20A/240V.

Neutrik, 195 Lehigh Ave., Lakewood, NJ 07801; 908-901-9488; fax 908-901-9608

Circle (1362) on Free Info Card

The Bel digital audio product series is being introduced by Wohler Technologies/Hazal Corporation. The Bel 1000 AES/EBU digital audio signal modifier is a break-out box enabling variation in gain, phase and destination of the four audio channels contained in two AES/EBU digital audio signals, thus avoiding the expense of using a digital mixer or routing system when only simple changes to the signal are required. The Bel 1100 is designed to indicate when no audio is present during transmission or at intermediate transmission or reception points. Accepting either analog or AES/EBU digital audio feeds, the Bel 1100 will automatically switch to an alternative input source if required and will provide correspondence alarm triggering. The Bel 7000 range of digital delay units are the only delay units specifically designed for the broadcast industry with such features as auto tracking to video sync and SMPTE time code following the audio delay. The units are transparent in operation and are for use whenever audio and video need to be synchronized.

Wohler Technologies/Hazal Corporation, 713 Grandview Dr., South San Francisco, CA 94080; 415-589-5676; fax 415-589-1355; E-mail solutions@wohler.com

Circle (1363) on Free Info Card

For unattended video signal monitoring of multiple channel and remote transmission sites, check out the enhanced Magni WVM 720 from Magni Systems. This full-featured waveform/vector, automated video signal monitoring system is fully operational from a PC with Magni's new Windows-based LOGBOOK II software. LOGBOOK II implements full front-panel control and easy viewing of VITS signals, waveform/vector displays and WVM measurements screens on a PC.

Magni Systems, 9500 S.W. Gemini Dr., Beaverton, OR 97008; 800-237-5964 or 503-626-8400; fax 503-626-6225; Magni@teleport.com; www.teleport.com/;magni

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Thanks to some innovative design and production advances, our next generation Serial Digital DVJs will, once again, establish new industry standards.

What have we done for you lately?

We substantially reduced the number of parts, achieving diminished size and weight while preserving durability and increasing performance. Our front loading DVJs, with expanded bandwidth from DC to 1.4GHz, now fit quite comfortably into 26 position panels. And last but not least, our DVJs come with the industry's first published lifetime warranty.

Now it's our turn to issue a challenge...

compare our DVJ-W and DVJ-S with any other digital video jacks. Can you find one good reason not to switch to Canare?

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See us at NAB Booth #11944

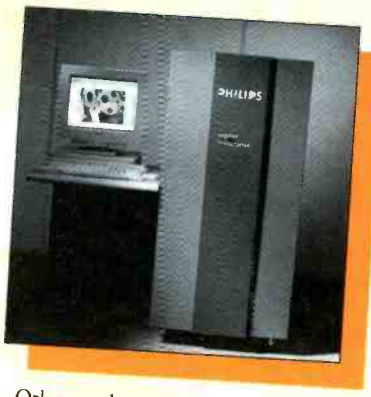
www.americanradiohistory.com

Ensemble Designs has created the MultiBuffer DS-1 Video Gateway for flawless graphics transfers between your computer and the video world. As an Ethernet networkable device, it is available as a resource to all workstations in your facility. The MultiBuffer DS-1 is CCIR-601 10-bit serial digital component. Video and Alpha (key) signals from 32-bit graphics are automatically sent to independent, simultaneous outputs, providing full support of graphics keying in editing and on-air environments.

Also from Ensemble Designs, the Catalyst networkable switcher and keyer, the new Still Store, Serial Box converters, Carbon O2 video I/O products and Jacquard CG solutions for SGI and TBC control systems.

Ensemble Designs, P.O. Box 993, Grass Valley, CA 95945; 916-478-1830; fax 916-478-1832; info@endes.com; www.ensembledesigns.com

Circle (1365) on Free Info Card



The state-of-the-art Media Server based on the latest hard-disk and real-time processing technology is at the heart of the Philips DVS near-video-on-demand/(impulse) pay-per-view solution. Designed for near-video-on-demand and broadcast applications, the fully MPEG-2/DVB-compliant Philips Media Server features scaleable storage capacity and a scaleable number of output channels. The Media Server enables simultaneous loading and playout with a content loader that accepts MPEG data from tape, network or real-time feed, processes it to the correct format and stores it in the storage subsystem, avoiding interference with the playout process.

Other products from Philips include the QuickSat portable MPEG-2/DVB encoder and satellite uplink, the HyperVISION DVB subtitling system, the Compression System Manager, the CryptoWorks conditional access system for digital video distribution and the e-guide which provides onscreen support and guidance for making selections via a remote control.

Philips DVS, Bo G. Ferm, Bldg. Sx-113, P.O. Box 80002, 5600 JB Eindhoven, The Netherlands; +31 40 273 5258 (DDI); fax +31 40 273 2715; fermb@am.umc.ce.philips.nl

Circle (1366) on Free Info Card

The Yamaha Corporation of America is introducing the 03D digital recording mixer. It is a smaller, more affordable version of the 02R digital recording console. The 03D will interface directly with digital audio workstations for automated digital mixing. Features include 24 inputs, four bus plus stereo output, six aux sends, two internal effects and built-in automation. The mixer accepts one digital I/O card to allow eight digital inputs and a total of eight digital sends.

The MX12/4 bus mixer features 12 inputs, each with peak indicators, eight inputs are mono, with balanced XLR-type mic inputs, as well as quarter-inch TRS jacks for balanced and unbalanced inputs. The other inputs are configured as stereo channels with quarter-inch TS connectors to accept two-channel sources. The mixer is equipped with 48V phantom power for all XLR inputs.

The REV500 reverberation unit offers tremendous power using the first application of Yamaha's third-generation DSP chip, resulting in dense reverb and smooth decay. The unit features 20-bit A/D-D/A converters for high dynamic range and extremely low noise.

Yamaha Corporation of America, 6600 Orangethorpe Ave., Buena Park, CA 90622; 714-522-9011; E-mail info@yamaha.com; Internet www.yamaha.com

Circle (1367) on Free Info Card

www.americanradiohistory.com

Pacific Research & Engineering will unveil Integrity, its new digital on-air broadcast console. The stylish, state-of-the-art console provides a pure digital signal path, while adding new features and functionality made possible by the console's unique architecture. A computer at the heart of the system allows you to easily reconfigure and even automate console settings and functions.

PR&E, 2070 Las Palmas Dr., Carlsbad, CA 92009; 619-438-3911; fax 619-438-9277; info@pre.com; www.pre.com

Circle (1368) on Free Info Card

A video editing system that supports SDI digital video and AES/EBU digital audio communications protocols has been introduced by Truevision. The TARGA 2000 SDX is based on the TARGA 2000 RTX and includes dual M-JPEG codecs for real-time, full-resolution effects processing at up to 300kB per frame. Support for SDI means video professionals can interface desktop video systems with other SMPTE 259M-compatible equipment.

Truevision, 2500 Walsh Ave., Santa Clara, CA 95051; 1-800-522-8783; fax 800-522-8783; Internet www.truevision.com

Circle (1369) on Free Info Card

The WEATHERproducer from Weather Services International (WSI) is a totally integrated data-to-graphics workstation. New forecast and programming services, such as automated show building and a suite of broadcast imagery, means WSI can help stations deliver world-class data, computer forecast modeling and entertaining, informative graphics right up to broadcast time. By bringing all weather systems and sources together with advanced graphic capabilities, the workstation can generate reliable, show-quality presentations ready for broadcast with the touch of a button.

Weather Services International, contact Lisa Dempsey at 508-670-5111

Circle (1371) on Free Info Card

Digital Vision is launching its MV345 MPEG-2 broadcast video and audio system. It is designed for applications requiring the distribution of signals based on picture coding according to MPEG-2 MP@ML using 4:2:0 resolution and for higher quality demands using 4:2:2P@ML. Also, look for the AC724-Re724 broadcast audio codec.

Digital Vision, Upplagsvagen 1-5, S-11743 Stockholm Sweden; +46 8 182465; +46 8 182466; 100316.1467@compuserve.com

Circle (1370) on Free Info Card

Get A Grip On Camera Control.

CameraMan® SHOT Director, from ParkerVision, puts control of the studio environment right in your hands. One fully integrated unit gives you everything you need to operate and adjust up to 16 CameraMan cameras. Joystick, LCD display, CCU control, and more – it's all there. Now with less equipment and manpower, you can run a fully functional, multi-camera studio. SHOT Director is the beginning of ParkerVision's CameraManSTUDIO™ product line and is fully upgradeable to meet your future needs. Get a handle on all that SHOT Director can do. Call 1-800-532-8034 or 1-904-737-1367 to schedule a test drive today.

One SHOT Director® allows you to control up to 16 1-chip or 3-chip CameraMan® cameras.

CameraMan® SHOT Director

Features:

- Menu-driven LCD display with real-time status indicators
- Speed-adjustable joystick pan, tilt, and zoom
- On-the-fly CCU control for up to 16 cameras
- Patented *auto*TRACK™ technology*
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- Focus control
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- Serial RS-485 system communications
- Inter-camera distances of up to 2500 feet

*On *auto*TRACK models.

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www.adc.com

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SNEAK PEEKS

Viewgraphics has announced the Dynamo MediaPump, a full line of cost-effective PCI bus interfaces for MPEG-2 digital broadcast servers. The interfaces provide a variety of MPEG-2 signal interface options and a comprehensive set of tools for application vendors and system integrators to store and forward MPEG signals using open platform servers. Upon input, demultiplex transport streams and store selected PES, capture PSI, NIT and CAT, analyze and validate transport and PES streams.

The Dynamo VideoPump is a full bit-rate PCI plug-in digital video interface for Silicon Graphics, DIGITAL and Windows NT platforms. It has a built-in machine controller and provides frame-accurate real-time serial digital video interfacing for the computer system to any external device.

The Dynamo MediaTransformer is a stand-alone unit for unattended delay and transformation from one MPEG-2 interface type to another. This versatile device provides up to seven different MPEG-2 interfaces for transformation from one type to another or a two-channel single-type interface for short duration time delay. Each MediaTransformer signal path provides 64MB of buffer memory that can be programmed for delays of variable duration.

The Dynamo PowerPack provides a five-slot multistream delaying format converter. Each slot provides a two-channel single-type physical interface. Any reconfiguration involving up to five different format modules is supported.

Viewgraphics Inc., 1340 Space Park Way, Mountain View, CA 94943; 415-903-4900; fax 415-969-6388; E-mail info@viewgraphics.com; Internet www.viewgraphics.com

Circle (1372) on Free Info Card

Graham-Patten will showcase the D/ESAM series digital edit suite mixers, including many enhancements to the D/ESAM model 200 and model 400 that were formerly available only on the high-end model 820. Both models now incorporate fader limits, user configuration registers and D/ESAM IV protocol. In addition, the cost-effective D/ESAM 200 now features send outputs, monitor submixer, D/MEM write protection and an Ampex Ace 200 editor interface.

Graham-Patten, P.O. Box 1960, Grass Valley, CA 95945; 916-273-8412; fax 916-273-7458;

Circle (1373) on Free Info Card

VistaCom is introducing the VCI-10.GTi, a video codec on a single PC board that is capable of operating at 2MB/s and provides true 30fps. When installed in a regular PC, video can be transmitted over digital phone lines at VHS-quality level. The codec can use T1, primary rate ISDN line interfaces or the emerging ATM network to deliver the quality image for even 28-inch or larger screens. The codec conforms to international standard H.320 enabling compatibility to other H.320 terminals. The codec has built-in software-controlled video switch for three video inputs and enabling selection between several cameras. Inputs may be either composite or Y/C. The codec takes only one PC ISA bus slot. All computing power resides on the board.

VistaCom, 20431 Stevens Creek Blvd. Suite 240; Cupertino, CA 95014; 408-253-5165; fax 408-253-5170

Circle (1374) on Free Info Card

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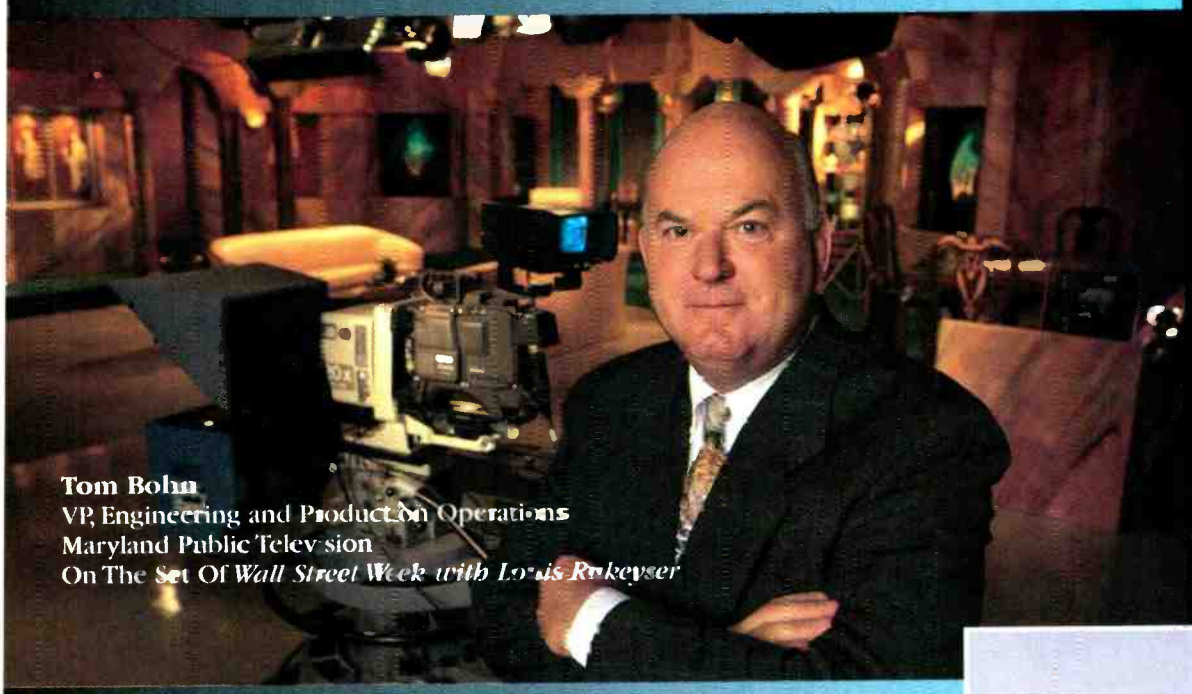
"Today, TV Stations Have To Be Future-Proof."



Tom Bohn
VP, Engineering and Production Operations
Maryland Public Television
On The Set Of *Wall Street Week with Louis Rukeyser*

Hitachi Digital Cameras Help Maryland Public Television 'Stay Ahead Of The Curve."

Tom Bohr feels the change from 4:3 analog to 16:9 digital technology "will be a revolution every bit as big as black-and-white to color. And since we don't know what the standards will ultimately be, we must start to future-proof now."

As he invests in new technology, Bohn looks for upgradeability on each piece of equipment. That's one reason he purchased eight Hitachi digital cameras. The SK-2000 Series has four built-in upgrade paths, from the single LSI processor, and A/D converter, to the newest CCD block technology.

"As the fourth largest producer of PBS shows, MPT creates programs with very long shelf lives–which makes 16:9 digital capability crucial. So we needed a camera that was digital from the head all the way through the CCU. I personally visited all the factories and trade shows, and I found Hitachi to be two years ahead of the competition.

"Today, we use Hitachi digital cameras for all our studio productions. We're very pleased–we believe this is the best purchase for MPT today and well into the next century."

Hitachi SK-2600

Full digital transmission system

4:3 aspect ratio easily switchable to 16:9 at the touch of a button

Single LSI processor

13 to 18 bit digital processing

Built-in upgrade paths

Precision digital file transfers

Six-vector color corrector and true linear matrix operating simultaneously

Not just digital, Hitachi digital.

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New York (516) 921-7200 Atlanta (770) 242-3636 Los Angeles (310) 328-6186
Dallas (817) 488-4528 Chicago (708) 250-8050 Canada (416) 299-5900

Circle (107) on Free Info Card

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SNEAK PEEKS

In addition to celebrating 20 years in the industry, Multidyne will be showing several new products such as the FTX-195/FRX-195 fiber optic stereo audio and digital AES/EBU transmission system. The system supports digital audio transmission for the AES/EBU, IEC958, S/PDIF and EIAJ CP-340 formats. The FTX-195 system is optionally available with up to two auxiliary data channels for RS-232C, RS-422 or CMOS. The system can also support up to two 10Hz to 5kHz auxiliary audio channels.

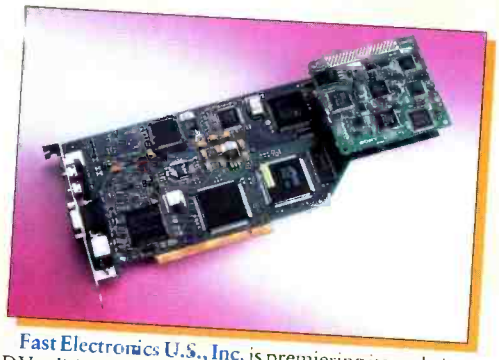
Multidyne, 191 Forest Ave., Locust Valley, NY 11560; 800-488-8378 or 516-671-7278; fax 516-671-3362; info@multidyne.com; www.multidyne.com

Circle (1375) on Free Info Card

Among the cable products being shown by Gepco International, you can find the 7537 Super Trunk. In addition to being color coded, the cable features alphanumeric identification and is available in bundles of 5, 10, 12 and 25. Other features include up to 50 channels of AES audio that can run 2,200 feet in length and short-run distribution of video.

Gepco, 2225 W. Hubbard St., Chicago, IL 60612; 800-966-0069 or 312-733-9555; fax 312-733-6416

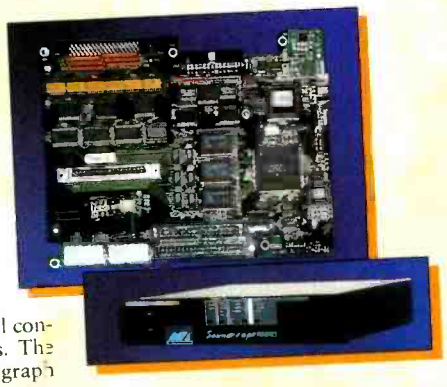
Circle (1376) on Free Info Card



Fast Electronics U.S., Inc. is premiering its real-time DV editing solution, the DV Master. With its real-time capabilities, the PCI bus master device features a FireWire (IEEE 1394) interface that allows direct transmission and playback of video and audio to/from a computer hard drive in real time. The DV Master also features a Sony hardware codec with the ability to process video in real time.

Fast Electronics, 333 Vintage Park Dr., Foster City, CA 94404; 415-295-3500; fax 415-345-3447; www.2FAST4U.com

Circle (1378) on Free Info Card



SSAC-1 Accelerator card from Soundscape is retrofittable to all existing Soundscape systems. The plug-in DSP card adds several times the audio processing power of the existing system, while adding eight channels of I/O in the form of a TDIF port. An upgraded Soundscape will have 10 inputs and 12 outputs.

The SS8I/O rack unit is a 19-inch 2U rack unit that will also connect to the SSAC1 TDIF port. It comes fitted with 20-bit Crystal converters and balanced XLR jacks. The front panel features eight bar graph meters and routing controls for any combination of analog or digital in or out. Alongside the TDIF port the SS8I/O also features an ADAT optical interface, which will allow digital connection of Soundscape and ADAT, ADAT/TDIF translation and improved audio quality when SS8I/O is used in place of ADAT's own converters.

Soundscape Digital Technology Inc., 4478 Market St., Suite 704, Ventura, CA 93003; 805-658-7375; fax 805-658-6395; E-mail kdewar@sydec.be

Circle (1377) on Free Info Card

The Eimac Division of Communications & Power Industries Inc has added two new Klystrode IOTs to their line of UHF TV transmitter vacuum power amplifiers. The new models are designed for analog or digital transmission and are conservatively rated for 32kW (K230W) and 43kW (K240W) when operated in visual service. The original K2 IOT, the K260W, is rated for 64kW visual service and has been optimized for digital transmitter usage.

CPI, 301 Industrial Way, San Carlos, CA 94070; 415-592-1221; fax 415-592-9988

Circle (1379) on Free Info Card

A new Folio F1 from Spirit is a versatile mixer ideal for practically any small- to medium-scale mixing task. It is available in 16/2 or 14/2 input versions with eight or six mono channels. It is packed with larger console features, such as 100mm tapered faders, global +48V phantom power supply and three auxiliaries with aux masters and AFL. The mixer's mono channels all use the UltraMic pre-amp, which provides up to 60dBu of gain and a headroom of 22dBu. Each mono input also features three-band EQ with a sweepable mid, three auxiliaries, 18dBu per octave bypass filter, pan, mute and PFL.

Also being introduced are the bi-amplified Absolute 4P system and the Folio PowerPad, Spirit's smallest and most affordable powered mixer. The FoliPowerPad measures 9.6"W x 9"D, and features four XLR mic inputs, four mono one-quarter-inch inputs and two stereo inputs.

Spirit by Soundcraft, Inc., 11820 Kemper Rd, Auburn, CA 95603; 916-888-0488; fax 916-888-0480

Circle (1380) on Free Info Card

Anchor Communications will be exhibiting the new PBS-100. This portable DC battery supply unit is for PortaCom wired intercom systems. It operates 8-10 headset stations for up to six hours using six D-cell batteries.

Anchor Communications, 3415 Lomita Blvd.; Torrance, CA 90505; 800-262-4671; fax 310-784-0066

Circle (1413) on Free Info Card

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You can't check *AES/EBU dig*
interfaces or cabling with a distortion
.....even if it's *digital*

The Prism Sound DSA-1 AES/EBU interface test system provides *unique generator and analyzer* capabilities enabling the *most comprehensive* assessment of AES/EBU interconnections.

For example, the DSA-1 can measure differences between *source and cable jitter*, or it can *simulate* either sort with its *generator*. These are just some of the capabilities of the DSA-1 which enable thorough testing of AES/EBU outputs, inputs, distribution and cabling.

See us at NAB Booth #S5777

To find out more, call or fax us now for a full information pack, or look up the latest DSA-1 V2.0 specification at our web site.

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FAX: +1 201 299 7759

WEB PAGE: http://www.prismsound.com
e-mail: sales@prismsound.com

Circle (86) on Free Info Card

www.americanradiohistory.com

All the way from Switzerland, NAGRA Kudelski is showing the NAGRA-D digital audio recorder and the NAGRA ARES-C solid-state recorder. The NAGRA ARES-C is a portable mono/stereo machine, with a mono recording time of 40 minutes on a 20MB PCMCIA card, with onboard copying and editing, G722 or MUSICAM ISO/MPEG Layer II compression and standard telephone output. ISDN output is optional.

NAGRA Kudelski, Route de Geneve 22, CH-1033 Cheseaux Switzerland, +41 (0) 21 732-0101; fax +41 (0) 21 732-0100; owens@nagra-kudelski.ch; www nagra.com

Circle (1381) on Free Info Card

Video Authoring Systems Group (VAS) is introducing SMPTE 259M video outputs for its RTC scan converter and HD3:2 HDTV downconverter. The SMPTE 259M outputs provide breakthrough video detail and clarity from the converted high-resolution computer or HDTV video. The digital outputs complement the RTC's proprietary all-digital conversion process. Because the signal remains in its digital form, signal degradation due to digital-to-analog conversion is avoided. The outputs are available as an option for new buyers or as an upgrade for existing RTC owners. The digital encoder board replaces the RTC's analog video board and provides four serial outputs and one parallel output. The outputs are 4x oversampled and include 4:2:2 and 4:4:4 signals.

The AD4x analog component to digital video converter features 4x oversampling, anti-aliasing filtering; full 10-bit throughput; 4:4:4 or 4:2:2 digital outputs; gamma correction for adjustment of input color levels; RGB/Betacam outputs in addition to SMPTE 259M video outputs. The converter also has an advanced filtering and conversion technology to present a clean artifact-free video picture.

Video Authoring Systems Group, Inc., 4531 Empire Ave., Burbank, CA 91505; 818-843-4831; fax 818-843-6544; E-mail info@vasgroup.com; Internet www.vasgroup.com

Circle (1382) on Free Info Card

TBC Consoles will be displaying the FreeForm and Modular console designs for all non-linear systems including, Avid 8000, Stratosphere, Flint, HAL and Flame. The Modular consoles are functional, practical and adjustable components for specific systems and work spaces. The FreeForm consoles are highly stylized with an emphasis on curvilinear shapes and furniture-grade materials. Desktop surfaces are offered in a variety of styles to work with your application and individual preference.

Time Base Consoles, Inc., 115 Cabot St., W. Babylon, NY 11704; 516-293-4068; fax 516-293-4075; E-mail tbc@pb.net; CompuServe 74427,3326

Circle (1383) on Free Info Card

TRF Production Music Libraries is introducing its MUSICTRACK production music library. It is a diversified collection of background and theme music written by outstanding composers and recorded by some of the finest musicians in the world. The music has been produced to meet the demands of those who produce and create television, radio, film, AV and multimedia productions. The selections are available in several versions including full length and jingle length, as well as short stings/links and alternate mixes to allow the user to have a range of musical choices. Each disc is accompanied by a self-opening comprehensive booklet with complete descriptions and timings of all tracks. Selected discs can be received on approval. A free music sampler and catalogs are available.

TRF Music Inc., 747 Chestnut Ridge Rd., Chestnut Ridge, NY 10977; 800-899-MUSIC; fax 914-356-0895

Circle (1384) on Free Info Card

The ON-LINE EXPRESS from United Media is a digital non-linear editing system. It is a flexible digital editing and media production system with real-time performance. It operates under Windows NT and uses Matrox's DigiSuite PCI bus boardset and interfaces with the high-speed Movie2 bus. The system empowers you with a complete solution to easily create, share and organize digitized video, audio and special effects. It also includes an intuitive drag and drop timeline interface and the power to adapt to different methods of operation. The system supports instant playback of edits, real-time effects, no rendering, real-time audio mixing, 2-D and 3-D digital video effects, paint, titling, compositing and batch digitizing.

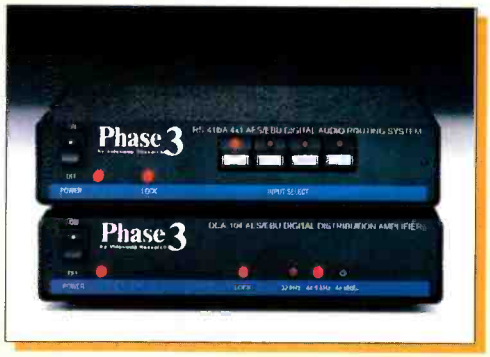
United Media, Inc., 4771 E. Hunter, Anaheim, CA 92807; 714-777-4510; fax 714-777-2434; E-mail umi@unitedmediainc.com

Circle (1385) on Free Info Card

The innovative CS-1000 spectroradiometer by the Minolta Corporation, Instrument Systems Division, measures display color and contrast. The spectroradiometer features high speed and high accuracy. Weighing only 10.4 pounds, the instrument is truly portable and the Windows compatible data processing software allows for easy calculation, statistical analysis, data storage and print-out.

Minolta, 101 Williams Dr., Ramsey, NJ 07446; 201-818-3517; fax 201-825-4374; www.minoltausa.com

Circle (1386) on Free Info Card



As part of its Phase 3 line of professional audio and video products, Videoquip Research Ltd. is announcing two AES/EBU digital audio devices. The DDA-104 is a one input, four output DA for AES/EBU digital audio signals. Front-panel indicators show the presence of a valid AES/EBU signal and the sampling rate (32, 44.1 or 48kHz). The RS-41DA is a 4x1 routing switcher for AES/EBU digital audio. Inputs may be selected using the front-panel switches or via the remote-control connector. A front-panel lock status indicator confirms the presence of a valid AES/EBU signal at the output. Output switch timing is synchronized with the Channel A preamble of the incoming AES/EBU digital audio signal. Both units feature transformer-coupled inputs and outputs to improve common-mode rejection over longer transmission line lengths. In addition, a PLL-based receiver allows clock recovery and regeneration, and a reclocked datastream is generated at the output. All audio connectors are the locking 3-pin XLR type.

Videoquip Research Ltd., 4-595 Middlefield Rd., Scarborough, Ontario, Canada M1V 3S2; 416-293-1042; fax 416-297-9377; E-mail atomizer@eagle.ca.

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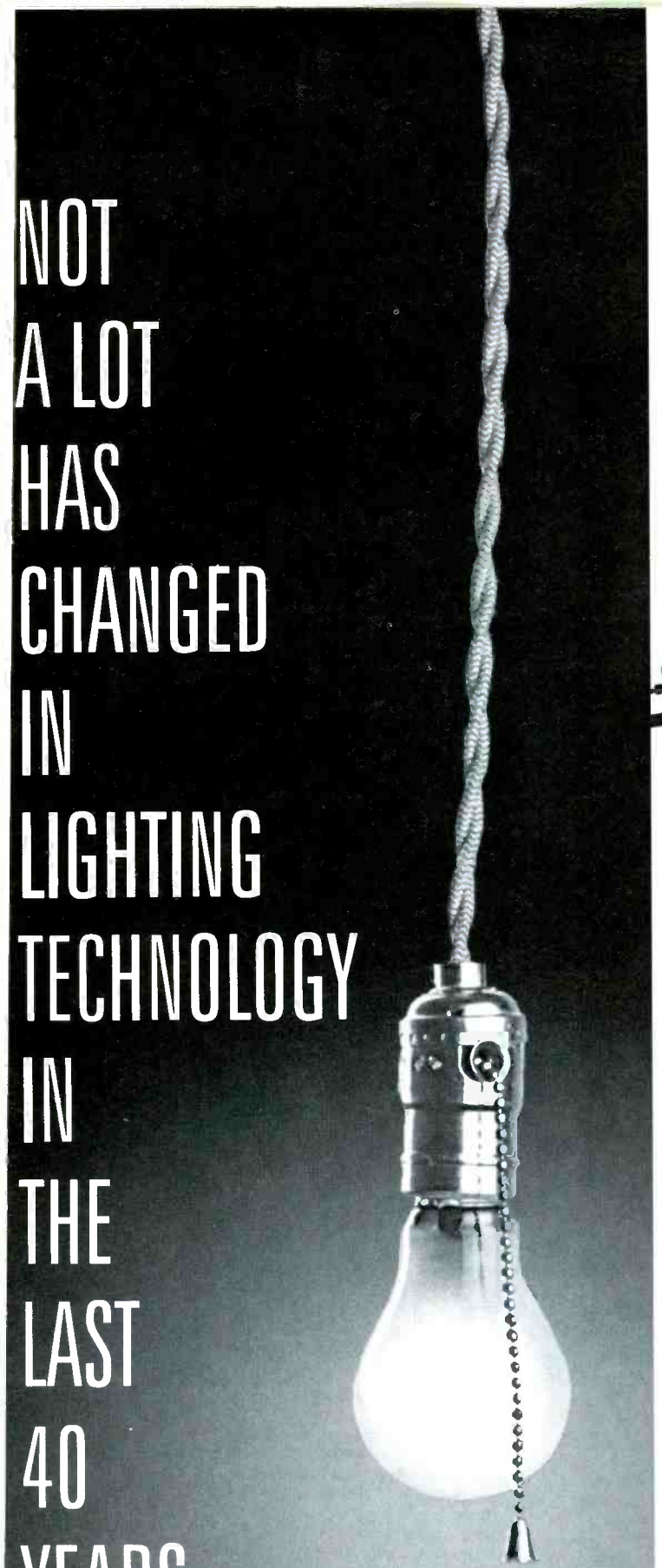

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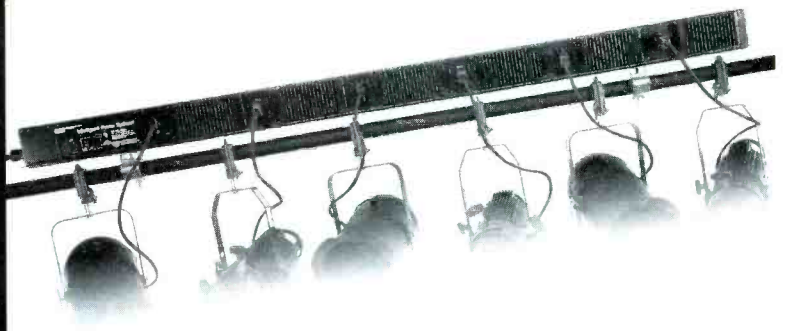

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For More Information Call: 1-800-223-9477

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Staco Energy Products is introducing the SVR stepper voltage regulator. It is microprocessor-controlled providing +/-0.25% to 1% or better output voltage regulation with full range correction in less than one second. The SVR is available in ratings from 2.5 to 15kVA, as a compact 19-inch rack-mounted unit or as an enclosed, indoor, ventilated unit for bench or floor mounting. The output voltage regulation set point is adjustable through the front-panel potentiometer or the SVR can be interfaced with a programmable controller providing a 0 to 5VDC set point signal.

Also from Staco, the Motor Start option will start one horsepower per 1kVA of rating, after the power fails, without switching to bypass. TLC battery charging, remote diagnostic testing and systems engineering give these uninterruptible power sources unmatched reliability.

Staco, 301 Gaddis Blvd., Dayton, OH 45403; 937-263-1191; fax 937-263-1723

Circle (1388) on Free Info Card

Tascam will be shipping its four-track MD 564 digital Portastudio by NAB. The MiniDisc recorder provides random access functions including instantaneous locate capability, copy, move, erase and bounce forward. The Portastudio has auto punch in/out with rehearsal, three-band EQ with sweepable mids, two aux sends, four mono channels, four stereo channels, balanced XLR inputs for use with high-quality, professional, low-impedance mics and a rotary control for job and data entry functions.

Tascam, 7733 Telegraph Road, Montebello, CA 90640; 213-726-0303

Circle (1389) on Free Info Card

Equi=Tech is introducing the Model ET1R balanced power AC rack system designed to eliminate ground noise in a variety of audio/video and broadcast applications. The 1,000W ET1R is ideal for use in portable sound carts, mobile broadcasting, ENG, STL, location recording and other applications. Using balanced power in the signal chain can greatly improve image quality and remove noise from all broadcast and video signals.

Equi=Tech, #S-1065, Selma, OR 97538; 541-597-4448; fax 541-597-4099; rp@equitech.com; www.equitech.com

Circle (1409) on Free Info Card

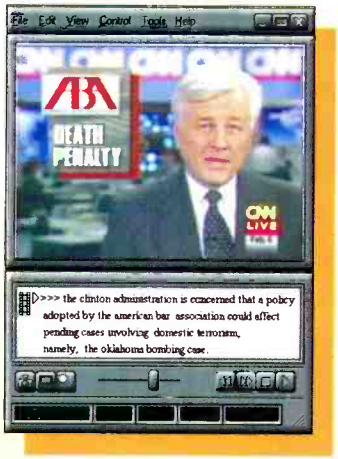
ParkerVision has released the CameraMan Shot Director, a multiple-camera controller with built-in CCU functionality and control of the company's exclusive autoTRACK. The first in ParkerVision's CameraManSTUDIO product line, Shot Director gives one person the ability to control the movement and camera settings of up to 16 separate cameras — all from one controller.

ParkerVision, 8493 Baymeadows Way, Jacksonville, FL 32256; 904-1367; fax 904-731-0958

Circle (1410) on Free Info Card

The Advanced Video Designs' HR1440 telecine system has gained widespread industry acceptance. Providing double the horizontal resolution of conventional telecines, the system features 8:8:8 10-bit video, 12MHz bandwidth, multiple analog and digial video outputs, digital deflection, digital servo, enhanced optics and a wealth of electrical and mechanical upgrades.

Advanced Video Designs, 2310 W. Victory Blvd., Burbank, CA 91506; 818-562-1653; fax 818-562-3342



A software product that enables video streaming in real time over the web is being introduced by Televitesse Systems Inc. The accessTV SmartFrame Streamer uses real-time scene detection to create a slide show view of video footage. It is designed for low-bandwidth applications and low-capacity storage. It features SGI, Windows 95 and NT platforms, Firewall support, variable bit rates and live encoding.

The accessTV with MPEG-1 support is a suite of multimedia products that allows you to search, capture, edit and distribute live or stored video information as easily as text. It supports Windows 95 and NT platforms, monitors television minute-by-minute, word-for-word 24-hours a day, customized search profiles that find only the the information you need and searches, records, stores and retrieves video information.

Televitesse Systems Inc., 603 March Rd., Kanata, Ontario, Canada K2K 2M5; 613-599-3648; fax 613-599-3645; E-mail info@televitesse.com

Circle (1391) on Free Info Card

The latest scoop from Telos Systems is the Audioactive Internet audio suite. It has all the pieces needed for a complete Internet audio broadcast chain, including encoding systems, audio server and client software. It uses world-standard MPEG Audio Layer III coding. Audioactive makes real-time streaming audio and stored audio files accessible via a web browser and the decoder software. Audioactive requires a PC sound card and Power Macintosh-equipped web surfers to download a free Audioactive player in order to listen to live web casts. Audioactive supports NetShow 1.0 and Windows NT Server 4.0. It is also compatible with Macromedia's Shockwave plug-in and Shockwave audio standard.

Telos Systems, 2101 Superior Ave., Cleveland, OH 44114; 216-241-7225; fax 216-241-4103

Circle (1392) on Free Info Card

Vertex Antenna Division, a division of Vertex Communications, has developed a 9.3-meter compact Cassegrain antenna for C-, X- and Ku-bands to offer superior performance for worldwide receive-only and transmit-receive applications. A major feature of reflection installation is the provision for non-optical alignment. Highly controlled manufacturing tolerances allow for full interchangeability of any reflector component. All C, X and Ku reflector models have all-aluminum panels, hub and a rigid welded truss backup structure. The elevation-over-azimuth steel kingpost pedestal provides the stiffness required through the entire travel range. The antenna meets FCC regulation 25.209, Eutelsat requirements for antenna pattern and polarization discrimination.

Also being introduced is the lightweight 1.2-meter mobile antenna designed for worldwide transmit and receive operation in Ku-band. It is a transportable antenna that consists of a single-piece carbon fiber composite reflector and support structure mounted on a lightweight elevation-over-azimuth positioner. The complete antenna system, including a single feed, can be interfaced with most lightweight vehicles for mobile SNG applications.

The lightweight 2.2-meter flyaway antenna is portable and consists of a carbon fiber composite reflector and aluminum support structures. Repeatability is maintained with precision registration of the nine reflector segments and the feed support structure. The complete antenna system, including a single feed, is packaged in six robust portable cases.

Vertex Communications, 2600 Longview St., P.O. Box 1277, Kilgore, TX 75662; 903-984-0555; fax 903-984-1826; E-mail jimena@kilgore.net

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Seven Different Formats . . .

Every new video format has one standard in common... Anton/Bauer. All these new camcorders have exclusive Anton/Bauer features as original equipment – Gold Mount bracket, InterActive viewfinder fuel gauge, Ultralight Automatique circuitry, Digital Battery.

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For information call (203) 929-1100 or fax (203) 929-9935

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Sprocket Digital announces the CARNIVAL upgrade for Cintel URSA and URSA Gold telecines. The upgrade combines true systems engineering with computer simulation to produce high-performance video processing and A/D conversion system. The system adds analog Burn Correction to the URSA, as well as adjustable RGB channel timing, afterglow correction, film element shading and CRT spot aperture correction.

Also watch for the RG177D digital reticle generator. It uses ITU-R 601 serial digital video and generates any SMPTE standard or user-defined aspect ratio for standard 4x3 and advanced TV 16x9 formats.

Sprocket Digital, P.O. Box 4086, Burbank, CA 91503; 818-566-7700; fax 818-566-4477

Circle (1394) on Free Info Card

Shively Labs is offering a high-power UHF antenna in power ratings from 30kW to 150kW, with lower power ratings available. Features include a fine-matching transformer, gas stop and elbow complex, and DC grounding for lightning protection on each antenna. Horizontal polarization is standard with elliptical polarization available. Beam tilt and null fill are standard. The UHF antenna is constructed of aircraft-grade aluminum and copper with a rugged, UV stabilized high-density polyethylene radome for optimal weight and windload performance.

Shively Labs, P.O. Box 389, Bridgton, ME 04009; 207-647-3327; fax 207-647-8273; E-mail sales @ shively.com; www.shively.com

Circle (1395) on Free Info Card

The A-51T Dual EXP fully integrated dual-expandable network-quality digital production trailer will be shown by Shook Electronics USA, Inc. The truck is a turnkey project for TCI subsidiary National Digital Television Center and is equipped with Ikegami HK-388 cameras, GVG 4000 SDI production switcher, Telecast Fiber System audio feed, Sony DVW 500 digital Betacam and Tektronix Profile disk recorders, all with 4:3/16:9 aspect ratio switching capability. A motorized system for deploying and stowing the side and rear expansion sections eliminates hand-cranking.

Shook will also exhibit an A-11 ENG rack-ready microwave van with a custom remote-controlled microwave system.

Shook Electronics, 18975 Marbach Ln., Bldg. 200; San Antonio, TX 78266; 210-651-5700; fax 210-651-5220.

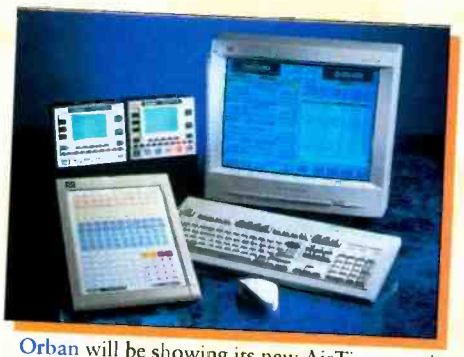
Circle (1397) on Free Info Card

The HDK-790 is Ikegami's top-of-the-line full digital HDTV studio camera for broadcast use. It features 3²/₃-inch CCD image sensors each with 2,000,000 pixels. With a downconverter/upconverter built into its CCU, the HDK-790 supports not only traditional NTSC broadcasting but also HDTV. The camera also incorporates newly developed digital processing ICs to implement all-digital image processing. It achieves full-digital HDTV implementation, boasting a wide variety of digital-specific features and functions.

Another product from Ikegami to watch for is the Editcam disk camera recorder.

Ikegami, 37 Brook Ave., Maywood, NJ 07607; 201-368-9171; fax 201-569-1626

Circle (1398) on Free Info Card



Orban will be showing its new AirTime on-air delivery system that is particularly suited to demanding, traffic intensive TV broadcast applications. This operating system is specifically designed for real-time multitasking network applications and easily accommodates consolidated multistation operation in live assist or automation modes. AirTime also offers a choice of four hardware interfaces for adapting operations to different work habits.

Orban, 1525 Alvarado St., San Leandro, CA 94577; 510-351-3500; fax 510-351-0500; custserv@orban.com

Circle (1396) on Free Info Card

Now you can have uplink capability in analog and digital formats with the TEC-19 MICROSAT from Television Engineering Corporation. The Ford E350 supercargo van features a 6.5kW or 7kW generator, dual battery system with isolator, digital metering power distribution panel, 25-foot shore cord, 40A battery charger; inverter power with auto switching. Additional equipment includes an IFB-19A IFB controller, antenna pan and tilt with pushbutton control, exterior lighted video, audio, IFB and phone connection panel, off-air VHF-UHF antenna, Will-Burt pneumatic mast with padded cover, roof deck of expanded metal or treadplate, separate VTR cabinet with storage shelves, four equipment racks, high volume pneumatic compressor, roof-mounted air-conditioning unit, manual cable reels with quick removal feature and rear storage compartment and storage drawers.

Television Engineering Corporation, 101 Industrial Dr., Sullivan, MO 63080; 573-860-4700; fax 573-860-4600

Circle (1399) on Free Info Card

Now you may have an extra 30 seconds of commercial time every hour thanks to the Prime Image TimeMachine. This product can manipulate time in either direction by changing the length of audio and video in such a way that there is minimal to no impairment or alteration of the sound or picture. There is no need for preprocessing or prerecording because the device works in real time. The time-changed program can even be mixed and switched with media running at normal speeds. The time change can be stopped and restarted to protect timed segments that you don't want to change.

Prime Image, 19943 Via Escuela, Saratoga, CA 95070; 408-867-6519; fax 408-926-7294

Circle (1400) on Free Info Card

Aysis from Solid State Logic provides a flexible, futureproof and cost-effective solution for applications where space is limited but high-quality multichannel digital audio is essential. Aysis harnesses a powerful proprietary digital technology in a dedicated digital production system. The Aysis console employs Axiom's Channel Banking, enabling any bay to control a second bank of channels with a single push of a button. "Sweet Spot" access swaps control of peripheral bays to a central location so that the operator can retain an optimum listening position.

Also being introduced are the Axiom all-digital production system, the SL 9000 J series consoles and the G+ Special Edition.

Solid State Logic Ltd., Begbroke Oxford, OX5 1RU England; +44 (1) 865 842300; fax +44 (1) 865 842118; E-mail judithp@solid-state-logic.com

Circle (1401) on Free Info Card

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Big News About Something Small

The CPI Compact Satcom MPA

Our new Compact Medium Power Amplifier (CMPA) is big news in the portable satcom market. It's ideal for SNG, flyaway and small earth terminals.

The CMPA packs high efficiency in a 5.25" single rack drawer.

The amplifier is also easy to use, featuring microprocessor control. Digital and analog control interfaces make the CMPA a snap to integrate into the system. Plus, it's easy to maintain w h modular construction and built-in fault diagnostics— all in a rugged design that can stand up to a world of conditions.

And, as with all CPI amplifiers, the CMPA is backed by the industry's largest sales and global service network.

No matter where in the world your story breaks, CPI's CMPA will be there transmitting the news.

Give us the opportunity to tell you more. Call us at:

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Palo Alto, CA 94303

Circle (89) on Free Info Card

SEE US AT NAB BOOTH #5604

CPI
Communications & Power Industries
SATCOM DIVISION
formerly
varian VA *mep*

www.americanradiohistory.com

New digital products are being introduced by Pixel Instruments Corporation. The PC Clip-store is a low-cost system for the capture and replay of serial digital video clips and stills. Based on a proprietary PCI bus JPEG board, the three onboard frame buffers provide picture handling flexibility. The compression ratio is user-selectable, allowing the storage requirements to be optimized to specific applications.

Also new from Pixel, look for the DD3100D digital video delay detector and the AD3000 audio delay synchronizer.

Pixel Instruments, 718 University Ave., Suite 210, Los Gatos, CA 95030; 408-354-9122; fax 408-354-0122

Circle (1402) on Free Info Card

LITTLE RED, a device from Skotel, converts linear time-code to RS-232 serial data. Self-powered from the RS-232 port, this microsized reader is the ideal LTC input to a PC, as well as a Mac or an SGI. Its capability to read 24, 25, 30 and 30 drop frame time-codes allows it to work on film or video NTSC and PAL standards. This little product can be a big assistant used for logging, time stamping, timing, time-code verification, computer clock synchronization, automation control and many other applications. Four opto-isolated GPI outputs trigger at user-selectable times to enable the reader to control multi-event sequences.

Skotel, 5695 chemin Saint-Francois Saint-Laurent, Quebec, Canada H4S 1W6; +1 514 333-7989; fax +1 514 333-6914; E-mail 72052.73@compuserve.com

Circle (1403) on Free Info Card

The recently FCC-approved UDR200B wireless microphone system from Systems Wireless, permits user access to 256 frequencies. A tracking front-end preserves the selectivity you expect from a fixed-frequency design, while adding the versatility of frequency agility to deal with potential RF interference. An auto-search spectrum analyzer assists in finding appropriate frequencies to select. A preselected group of frequencies or the entire tuning range of the receiver can be scanned. A highly visible 16-character alphanumeric LED displays frequency, TV channel of operation, block number used and user-adjustable characters for custom applications.

Systems Wireless, Ltd., 465 Herndon Parkway, Herndon, VA 22070-5202; 703-471-7887; fax 703-437-1107

Circle (1405) on Free Info Card

Svetlana is showing the 3CX6000A7/YU148 power triode. It is designed with a modern mesh filament, which assures no compromise, long life performance. In addition, the tube is manufactured with high alumina ceramic doped with chromium and molybdenum. This combination results in a true metal/ceramic chemical bond providing a stronger bond and allows higher processing temperature. High temperature bake out drives gasses from internal electrodes during vacuum processing. Clean processing means long operating life. The chromium and molybdenum-doped alumina give the tubes their distinctive appearance. Each tube is full-power RF tested at the factory in Russia.

Svetlana Electron Devices, 8200 S. Memorial Prkwy., Huntsville, AL 35802; 205-882-1344; fax 205-880-7077

Circle (1407) on Free Info Card

Studio Audio & Video Ltd. has chosen Data Conversion System's 96kHz 24-bit converters to complement the new high-resolution editing features of the SADiE3 software. The dCS 902 and 952 are reference-quality ADCs and DACs, which have been specially designed for high-speed operation. A comprehensive set of standard inputs and outputs enable these units to be used in a wide range of digital audio applications. The units use a proprietary, multibit oversampling technique that achieves outstanding low differential nonlinearity.

Also, the SADiE3 software supports a DSP plug-in architecture. This concept allows third-party developers to write complementary DSP processes for the SADiE and Octavia editing systems.

Studio Audio & Video Ltd., +44 (0) 1353 648888; fax +44 (0) 1353 648867; E-mail ted.haton@sadie.com

Circle (1404) on Free Info Card

TC Electronic is now distributing DK Audio's MSD200, a compact and versatile audio tool offering phase metering, audio vector oscilloscope and level metering in a rugged metal box. An electroluminescent display provides a 160° viewing angle with exceptional high contrast ratio and brightness, and the unit can be used in broad daylight. The tool allows the operator to select either analog or digital mode. The level meter offers seven PPM scales, as well as DIN, BBC and VU scales.

TC Electronic, 705A Lakefield Rd., Westlake Village, CA 91361; 805-373-1828; fax 805-379-2648; Internet www.tcelectronic.com; E-mail tc@tcelectronic.com

Circle (1406) on Free Info Card

Audio Video Design Inc. is formally introducing the AV10 digital flat-panel teleprompter. It comes from the factory set up for Betacam-sized units, but is universally adjustable for everything from the Sony DVC1000 to studio configuration cameras. Integrated into a carry-on-sized soft-sided case with laptop computer compartment, it can be stowed in the overhead compartment on an airliner. The panel itself operates on 9-36V DC, and includes a universal switching AC adaptor and accepts direct VGA input from IBM or Mac sources. It displays 640x480 VGA color at 300nts brightness.

Audio Video Design, 2358 Gabriel Ln., W. Palm Beach, FL 33406; 561-966-3565; fax 561-966-4095

Circle (1287) on Free Info Card

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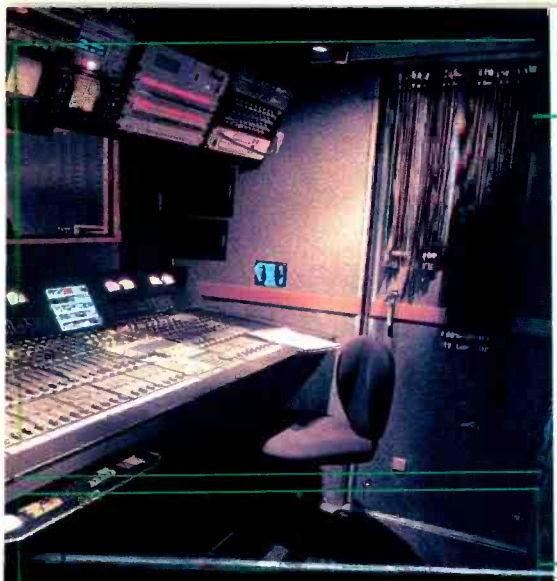

CBS
USA

equipped two new remote units with CS2000 systems to broadcast live sports and entertainment programs.

Lin Productions
USA

provide exclusive live remote broadcast for a major league baseball team, and other independent broadcast projects.

CCTV
China

uses Euphonix consoles in five studios across China for music recording and live broadcasting.

Channel 7
Australia

uses eight Euphonix systems throughout their network for studio and remote, broadcasting and production.

Q: Why Are Euphonix Consoles the Choice of More Broadcasters Worldwide?

A: Because they...

...eliminate down time.

The Euphonix CS2000 Digital Control Audio Mixing System is the only broadcast audio console that can be completely reset in less than 1/30 of a second with the push of a button. Use it directly On-Air for multiple sets, as presets for back-to-back live or taped shows, or to instantly reset for a recurring show.

...require less space.

The CS2000's compact digital control surface fits into the tightest control rooms and remote trucks. A 40 fader console with full facilities is less than 5 ft. / 1.5 m. long! The audio electronics can be remotely located to keep the audio control booth cool and quiet.

...are prepared for the future.

Ready to meet the audio demands that HDTV will create, Euphonix HyperSurround™ provides stereo and surround panning from every channel for all surround sound formats - which can be added even after installation, "future proofing" your investment.

...deliver the best sound quality and highest reliability.

The CS2000 has superior sound quality with its analog signal paths, and complete reliability with the combination of analog circuitry, mature software and modular hardware.

For more information on Euphonix digital-control audio mixing systems for On-Air, Remote, Production, and Post Production, contact the Euphonix sales office nearest you.

Circle (102) on Free Info Card

Broadcast On-Air and Production mixing with the

CS2000

Headquarters (Palo Alto, West US)
220 Portage Avenue
Palo Alto CA 94306
Tel: (415) 855 0400
Fax (415) 855 0410

Los Angeles (West US & Int'l)
11112 Ventura Blvd
Studio City CA 91604
Tel: (818) 766 1666
Fax (818) 766 3401

New York (East US)
2 West 45th St Suite 605
New York NY 10036
Tel: (212) 302 0696
Fax: (212) 302 0797

Nashville (Central US)
1102 17th Ave Suite 202
Nashville TN 37212
Tel: (615) 327 2933
Fax: (615) 327 3306

London (Europe)
6 Berghem Mews, Blythe Rd
London W14 OHN
Tel: (171) 602 4575
Fax: (171) 603 6775

Euphonix
digital control audio systems
Web site: http://www.euphonix.com

SPECTRAL
A EUPHONIX COMPANY

Suppliers of digital audio workstations **Toll Free: 800 407 5832** **Web site: http://www.spectralinc.com**

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WORD WIZ

To get you in the right frame of mind for your trek to Las Vegas, *Broadcast Engineering* has put together the WORD WIZ. Simply match words found backward, forward, up, down or diagonally to the clues on the adjacent page. Answers can also be found in the NAB EXTRA beginning on page 64. When you've completed the puzzle, mail or fax it to us at *BE*. The first 10 correct puzzles win a free *Broadcast Engineering* T-shirt. Good Luck!

From: Name: _____ Company: _____ Phone: _____

M A E R T S A I D E M Z T N E I V G X N P B
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Q H I T A C H I T E C H P T O S I E R R A A
X Q O I O A B I D R N Y R E C J D C E O T V
C L E N O N L I N E A R O N N N E A S W T O
L L D O H E B L P U I O F Y E O O P S V P C
I E I M T R A A A R L N I D S I T S L G U P
P W V P A R G D U D L Q L O C T E V M W N E
B S X C S E N N H E I S E R I A K I H O C G
O O O V C T H O C U R N I C T T T S E H H U
X R N B A S O C N O B R Z A E S R T Q L N T
D Y K R M A I R T I M E Z H X K O A G E M O
Q N R U I M A G E I J A E Z G R N N R R L I
N O I S I V N J B K E U R V H O I E R D S M
W S V A A D N A R I M L F K J W X T H A T U

Send entries to: Broadcast Engineering
Attn: Jim Saladin
9800 Metcalf Ave
Overland Park, KS 66212
or fax it to: 913-967-1905, Attn: Jim Saladin

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CLUES:

1. The DVA320Q digital video analyzer is featured by _ _ V _.
2. _ C _ _ _ _ _ _ is introducing the Au-DTV15 DTV transmitter.
3. _ _ _ _ _ B _ _ _ _ is featuring the Interactive 2000 PowerChargers.
4. Quantel is featuring Paintbox and Hal graphics systems with the new _ _ _ V _ brushes package.
5. _ _ _ _ _ N makes the iNFiNiT!, MAX!> and MAXINE!.
6. Sony's DNE-1000 is a _ _ _ _ _ N _ _ _ editing system that can function as a stand-alone or networked workstation.
7. C _ _ _ _ _ is introducing the Optimum line of VHF transmitters.
8. Leitch will feature its X _ _ _ _ _ 12x1 serial digital switcher with analog audio.
9. Discreet Logic's _ _ _ _ _ R virtual set system.
10. Panasonic has added serial digital inputs to its H1906DP broadcast _ _ _ I _ _ _.
11. Harris Corporation is showing a solid-state DTV transmitter with silicon _ A _ _ _ _ _ RF devices.
12. Belden Wire & Cable is introducing the latest additions to the _ _ _ L_ _ _ _ _ _ line of broadcast cables.
13. Fast Electronic is featuring the _ _ _ _ S _ _ _ real-time DV editing solution.
14. The A15X8 EVM/ERD ENG zoom lens is from _ _ J _ _ _ _.
15. _ _ _ C _ is introducing Super Trunk cables.
16. Hewlett-Packard is featuring the _ _ _ I _ _ _ _ _ _ _ server/disk-recorder series.
17. _ _ _ _ _ _ I is showing the SK-3000 HDTV camera.
18. The K20.ND character generator is being introduced by _ _ _ X _ _ _ _ _.
19. L _ _ _ _ _ is introducing the 3611NR MPEG-2 compression system.
20. _ _ _ _ N _ _ is showing the ADP-101i, an ancillary data processor.
21. Quantel's _ _ _ P _ _ _ video server features news, post and transmission applications.
22. _ O _ _ _ _ _ facility management system is designed by Odetics Broadcast.
23. Orban is showcasing the _ _ _ _ _ M _ on-air delivery system.
24. _ _ _ _ S _ _ _ _ is showing the DVCPRO 200 series desktop VTR and 3-CCD camcorder.
25. Pinnacle is announcing a new control panel for _ _ L _ _ _ _.
26. _ A _ added Digital SuperPack microelectronic battery communication system to its product line.
27. Pluto Technologies is showing the _ _ _ C _ digital video recorder.
28. _ _ _ C _ _ _ makes the SV953 MPEG-2 Stream Station testing solution.
29. _ _ _ _ R _ Design Labs is presenting the NFSserver video server with ATM.
30. The DVS-7200 digital video switcher can be seen at the S _ _ _ booth, if there is room.
31. View the M-2100 Digital Master Control Solution at the _ _ _ _ R _ _ _ _ booth.
32. _ _ _ M _ _ _ Broadcast Systems is showing its new 1657D 12-bit digital cameras.
33. _ T _ _ Scientific has the new SC-3 routing control system.
34. _ _ D _ _ _ _ _ is announcing its new TVM-821D serial digital waveform monitor/ vectorscope.
35. A new four-track MD 564 digital Portastudio is available from _ _ _ _ A _.
36. Tektronix is featuring the _ R _ _ _ _ _ Professional Disk Recorder.
37. The NV3064 AES3 audio routers can be found at the _ V_ _ _ _ _ booth.
38. Leitch is introducing the ADC P _ _ _ _ block audio connection interfaces.
39. Miller Fluid Heads is featuring a new _ _ R _ _ fluid head.
40. Pixel Instruments Corporation is showing the PC _ _ _ P _ _ _ _ _ still-store.
41. Sphere DveousFX is offered by _ _ _ _ _ X Digital Video.
42. Prime _ M _ _ _ is featuring the Time Machine digital video processor.
43. AVS is releasing the _ _ _ _ E Manuscript dual channel character generator.
44. W _ _ _ _ _ Technologies is releasing the BEL 1000 AES/EBU digital audio signal modifier.
45. _ _ _ _ H _ _ _ _ _ is launching the EM3031-U and the EM3032-U wireless microphone receivers.
46. Fast Forward Video's digital recorder series is called the _ _ _ G _.
47. _ _ _ Z _ _ is offering the M2100 charger/power supply.
48. Panasonic is introducing a new high-speed DVCPRO non-linear editing _ _ _ K _ _ _ _ _ _ _.
49. Artel's switching solution is called _ _ _ _ A _ _ _.

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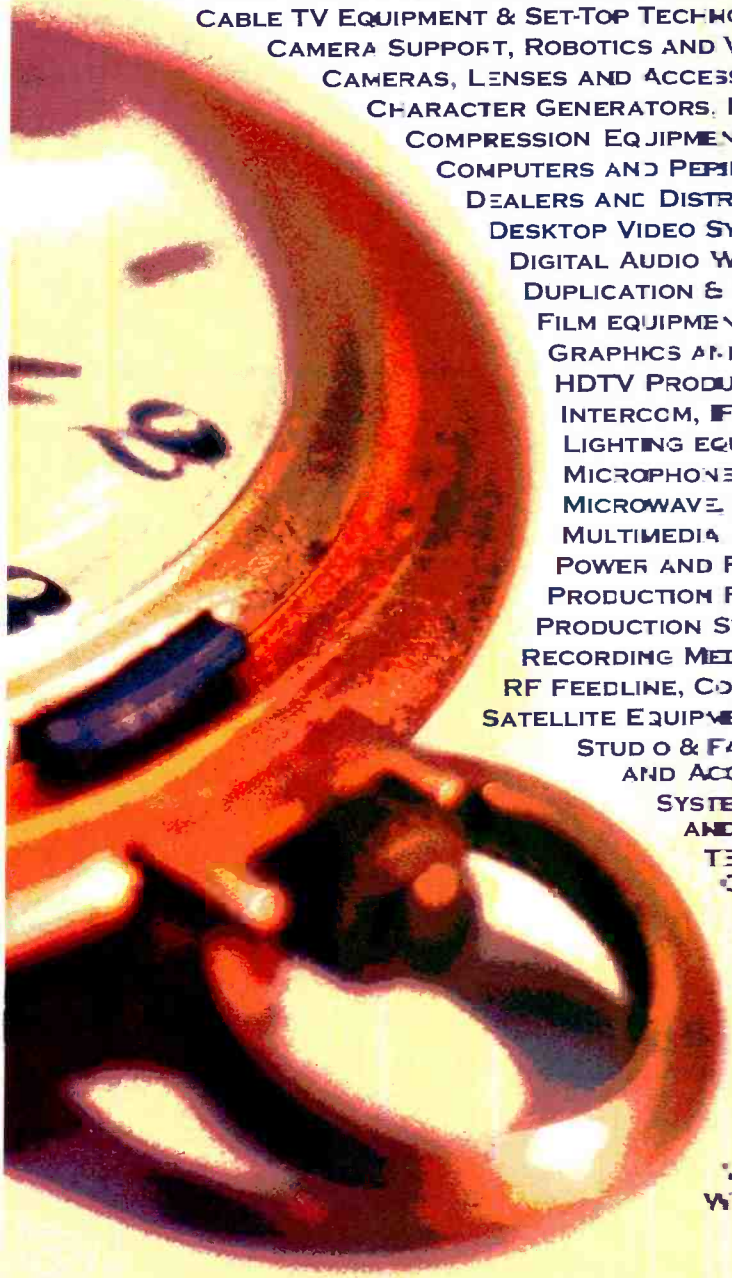
BE FASTtrack

BE FASTtrack is an exclusive *Broadcast Engineering* magazine feature designed to help make your time on the exhibition floor as efficient as possible. Companies are grouped first according to product categories, then by location.

The result is *BE FASTtrack*, which provides you with the shortest path between like products. Don't waste time wandering around looking for a booth. Let the *BE FASTtrack* help you find the companies that have what you need.



AUDIO ACCESSORIES 176
AUDIO MIXERS-PORTABLE, STUDIO 176
AUDIO PROCESSING, CONVERSION 176
AUDIO RECORDING, STORAGE & PLAYBACK 176
AUDIO ROUTING AND DISTRIBUTION 176
AUTOMATION SYSTEMS-TV 178
CABLE TV EQUIPMENT & SET-TOP TECHNOLOGY 178
CAMERA SUPPORT, ROBOTICS AND VIRTUAL SETS 180
CAMERAS, LENSES AND ACCESSORIES 180
CHARACTER GENERATORS, PROMPTERS AND TITLERS 182
COMPRESSION EQUIPMENT-AUDIO, VIDEO 182
COMPUTERS AND PERIPHERALS 184
DEALERS AND DISTRIBUTORS 184
DESKTOP VIDEO SYSTEMS 184
DIGITAL AUDIO WORKSTATIONS 186
DUPLICATION & DISTRIBUTION EQUIPMENT AND SERVICES 186
FILM EQUIPMENT AND SERVICES 186
GRAPHICS AND ANIMATION SYSTEMS 188
HDTV PRODUCTION EQUIPMENT 188
INTERCOM, IFB PRODUCTS, HEADSETS 188
LIGHTING EQUIPMENT AND ACCESSORIES 190
MICROPHONES AND ACCESSORIES 190
MICROWAVE, FIBER OPTIC AND TELCO EQUIPMENT 192
MULTIMEDIA, CD-ROM AND INTERNET DEVELOPMENT 192
POWER AND POWER CONDITIONING PRODUCTS 192
PRODUCTION FACILITIES AND SERVICES 192
PRODUCTION SWITCHERS, DVEs, EFFECTS/COMPOSITING 192
RECORDING MEDIA AND ACCESSORIES 192
RF FEEDLINE, COMPONENTS, TOWERS AND SERVICES 193
SATELLITE EQUIPMENT & SERVICES 193
STUDIO & FACILITY SUPPORT PRODUCTS AND ACCESSORIES 194
SYSTEM INTEGRATORS, CONSULTANTS AND REPAIR SERVICES 194
TBCs, FRAME SYNCS AND VIDEO CONVERSION EQUIPMENT 194
TEST & MEASUREMENT EQUIPMENT 194
TV & ATV TRANSMITTERS, TRANSLATORS AND ANTENNAS 196
VEHICLES AND REMOTE SUPPORT EQUIPMENT 196
VIDEO ACCESSORIES 196
VIDEO EDITING SYSTEMS 198
VIDEO RECORDING, STORAGE, PLAYBACK AND SERVER SYSTEMS 198
VIDEO ROUTING AND DISTRIBUTION 198
WIRE, CABLE & CONNECTORS 198

www.americanradiohistory.com

BE FASTtrack

Audio Accessories

Wheatstone Corporation	1212
Dan Dugan Sound Design	1404
Svetlana Electron Devices	1424
VideoQuip Research Ltd.	1502
Illbruck	1512
Professional Sound Corporation	1517
Penta Laboratories	1720
Symetrix	1817
Circuit Research Labs	2106
Logitek	2521
Continental Electronics	2606
Yamaha Corporation of America	3021
Penny & Giles	3424
Radio Design Labs - RDL	3724
Rycote Microphone Windshields	3726
Henry Engineering	4012
Eventide	4101
Horita	5155
Acoustic Systems	5255
ATI Audio Technologies	5527
Whirlwind	5747
Pixel Instruments	6060
Image Video	6557
R-Columbia Products	6745
Sennheiser Electric	6760
Sprocket Digital	6860
JBL Professional	6940
AKG Acoustics	6948
TASCAM	6952
Wireworks	7206
Dorrough Electronics	7209
Acoustical Solutions	7218
Videotek	8534
TDC Tally Display Corporation	8679
Snell & Wilcox	9470
NVISION	9681
Ward-Beck Systems	11025
James Grunder/Hamlet	11051
Miranda Technologies	11425
Avitel Electronics	11570
ASACA ShibaSoku	11914
Wohler Technologies	LA 501, 9773
Mackie Designs	M 8038
Dolby Labs	S 206, 8940
JK Audio	S 1631
J L Fisher	S 2344
Telect	S 2356, M 7342
Milestek	S 3542
Korg USA Inc.	S 5763

Audio Mixers-Portable, Studio

Wheatstone Corporation	1212
Cooper Sound Systems	1404
Coffey Sound Service	1428
VideoQuip Research Ltd.	1502
Bradley Broadcast Sales	1506
Professional Sound Corporation	1517
Fidelipac	1902
Comrex	2121
Arrakis Systems	2406
AEQ	2412
Audio Developments	2424
Dongseo Electronics	2426
Continental Electronics	2606
Solid State Logic	2612
Location Sound	2627
Auditronics	3018
Yamaha Corporation of America	3021
Harrison by GLW Inc.	3315
Euphonix	3318
Radio Design Labs - RDL	3724
Autogram Corporation	3906
Henry Engineering	4012
Aphex Systems	4103
ATI Audio Technologies	5527
Shure Brothers	5613
Whirlwind	5747
Fostex	6357
J-Lab Company	6532
JBL Professional	6940
TASCAM	6952
AMEK Consoles	7343
FOR.A Corporation	8514
AMS Neve plc.	8810
Micron Audio Products	8876
Zaxcom	10270
Otari	10580
Graham-Patten Systems	10976
Ward-Beck Systems	11025
ProSource/Broadcast Marketing	11339
Mackie Designs	M 8038
B&H Photo	S 1508
JK Audio	S 1631
Calrec	S 3976
Korg USA Inc.	S 5763
Soundtracs USA	S 5763

Audio Processing, Conversion

Dan Dugan Sound Design	1404
Bradley Broadcast Sales	1506
Focusrite Audio/Group One Ltd.	1514
Apogee Electronics	1718
Audio Processing Technology Ltd.	1727
Gorman-Redlich Mfg Company	1910
Superscope Technologies/Marantz	2102
Circuit Research Labs	2106
Gentner Communications Corporation	2117
Orban	2402
Continental Electronics	2606
Cutting Edge Technologies	3006
Penny & Giles	3424
Roland Corporation US	3612
Alesis	3618
Radio Design Labs - RDL	3724
Intraplex	3901
Harris Corp./Broadcast Division	5909, M 6628
Sony Broadcast Products	5929
Pixel Instruments	6060
Lighthouse Digital Systems Inc.	6532
Television Equipment Associates	7215
AMEK Consoles	7343
Kramer Electronics	7873
Nova Systems	8283
Leitch Inc.	8640
Benchmark Media Systems	8664
Snell & Wilcox	9470
NVISION	9681
Zaxcom	10270
Modulation Sciences	11253
Vistek Electronics	11640
AAVS/Sencore	11976
Wohler Technologies	LA 501, 9773
Dolby Labs	S 206, 8940
Axon Digital Design	S 1049
B&H Photo	S 1508
Audio Intervisual Design/Sanken	S 3638, 8777
Calrec	S 3976
Bi-Tronics	S 4973

Audio Recording, Storage & Playback

DENON	1021
ENCO Systems	1024
Coffey Sound Service	1428
Bradley Broadcast Sales	1506
HHB Communications Ltd.	1524
Doremi Labs	1619
360 Systems	1724
Sprague Magnetics	1822
Fidelipac	1902
Crouse-Kimzey Company	1907
Audi-Cord	2006
Broadcasters General Store	2019, 8865
TimeLine	2027
Superscope Technologies/Marantz	2102
AKAI Digital	2524
Continental Electronics	2606
Solid State Logic	2612
Yamaha Corporation of America	3021
Roland Corporation US	3612
Alesis	3618
Digigram	3912
Henry Engineering	4012
Harris Corp./Broadcast Division	5909, M 6628
Computer Expressions	6061
Rorke Data	6232
Fostex	6357
McCurdy Radio Industries	6917
Studer	6948
TASCAM	6952
Nagra Kudelski SA	7005
PEP	7200
FOR.A Corporation	8514
AMS Neve plc.	8810
Zaxcom	10270
Otari	10580
AAVS/Sencore	11976
Andataco	M 7330
Dolby Labs	S 206, 8940
Pristine Systems	S 1935
MMS Multi Media Systems	S 2550
Mega Drive Systems	S 4120

Audio Routing and Distribution

Wheatstone Corporation	1212
VideoQuip Research Ltd.	1502
Professional Sound Corporation	1517
360 Systems	1724
Studio Technologies	2104
Switchcraft	2924
Auditronics	3018
Burk Technology	3524
Radio Design Labs - RDL	3724
Autogram Corporation	3906
Henry Engineering	4012
Sierra Automated Systems	4027
ATI Audio Technologies	5527
Whirlwind	5747
Audio Accessories	5759
Lighthouse Digital Systems Inc.	6532
J-Lab Company	6532
Image Video	6557
Sprocket Digital	6860
Di-Tech Inc.	7341
Sierra Video Systems	7437
Kramer Electronics	7873
Nova Systems	8283
Ross Video	8354
Lectrosonics	8372
Videotek	8534
Leitch Inc.	8640
Datatek	8814
Tekniche Ltd.	8817
Knox Video Products	8867
OpAmp Labs	8884
Link Electronics	9081
Telecast Fiber Systems	9281
Digipath Video	9453

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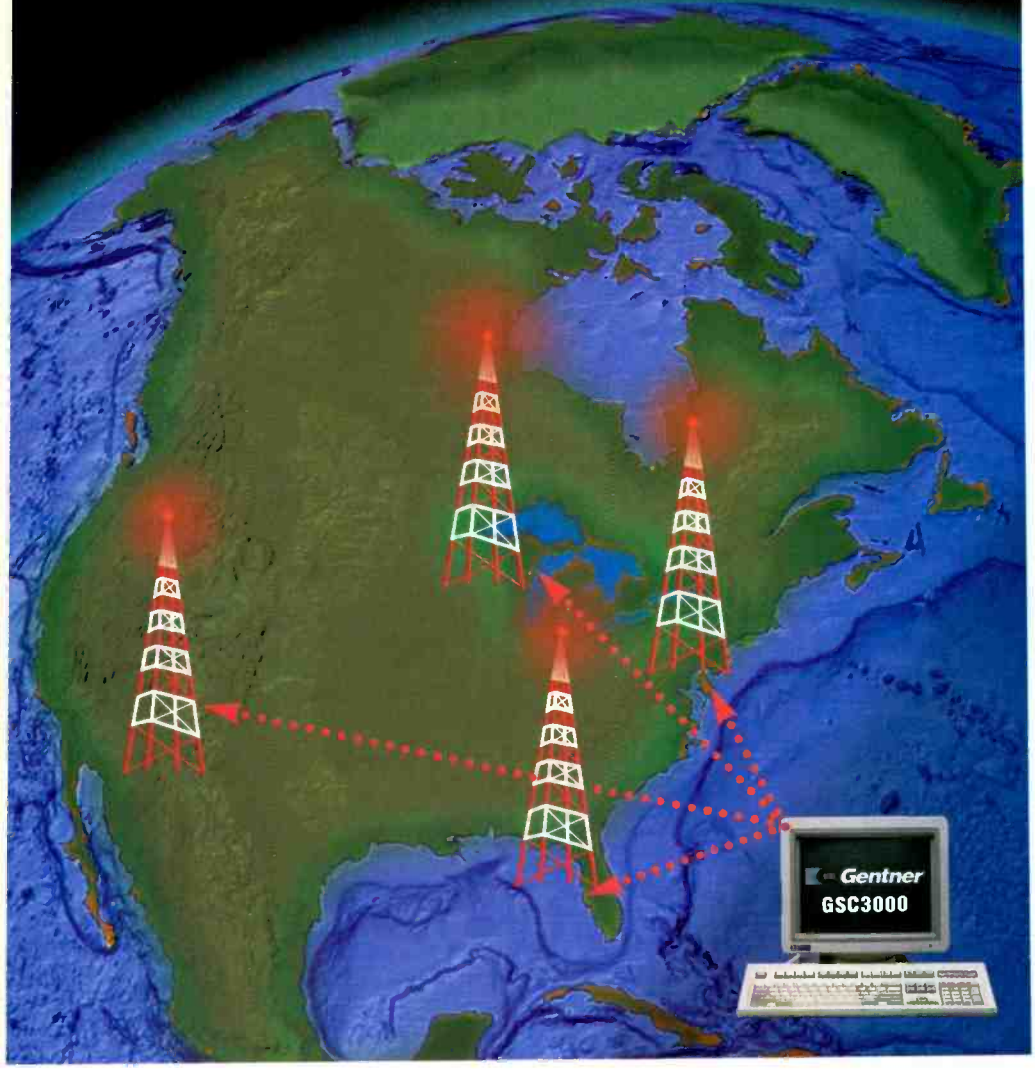

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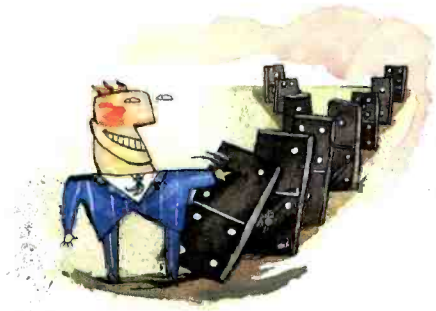

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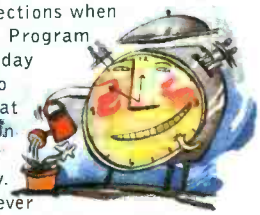

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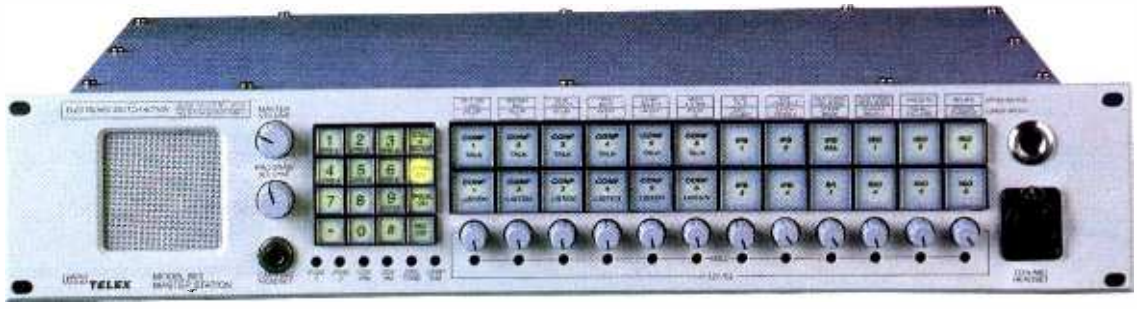

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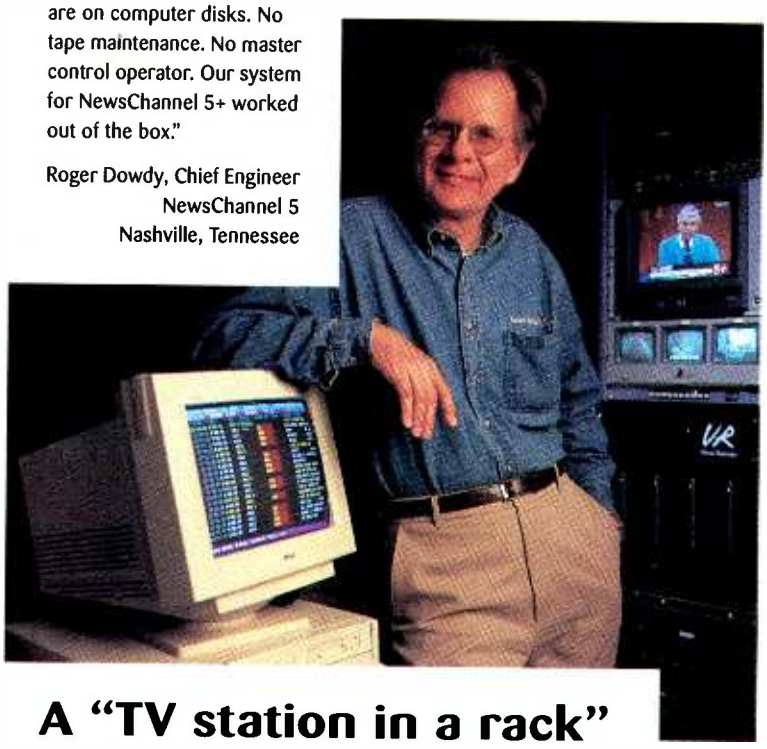

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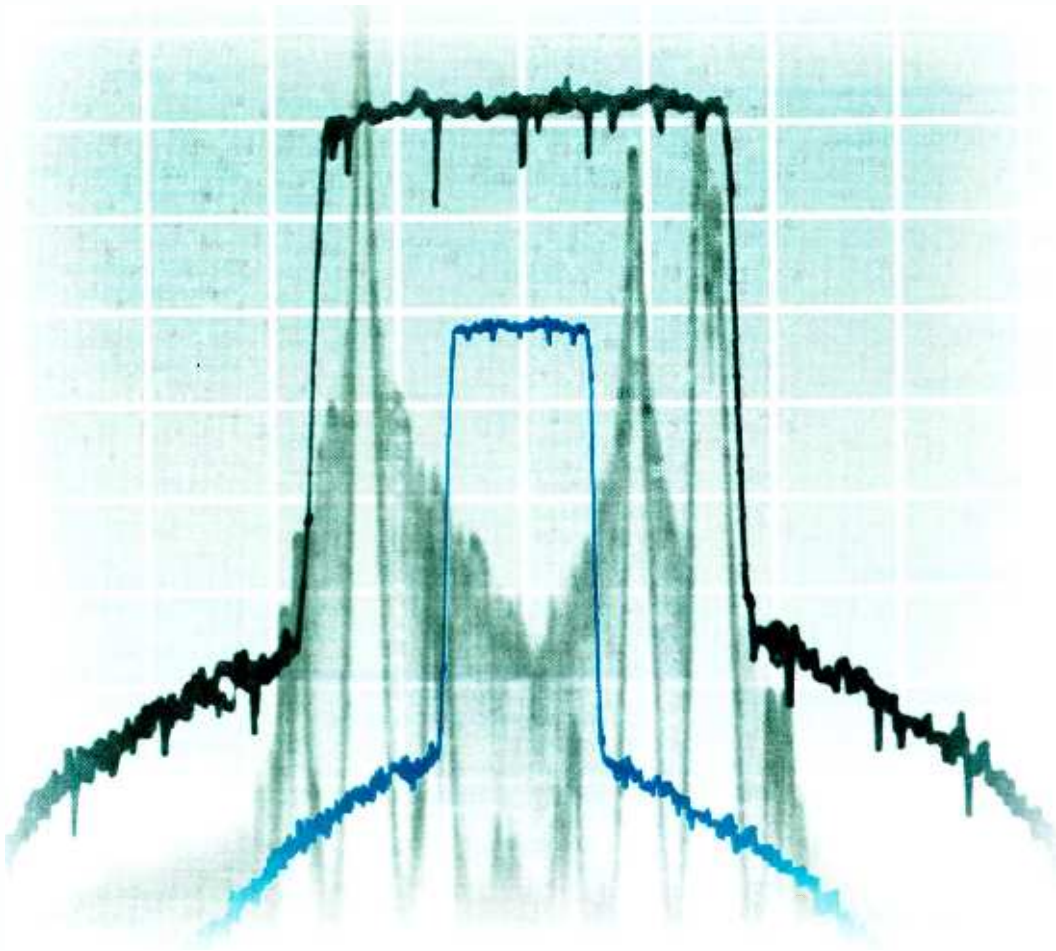

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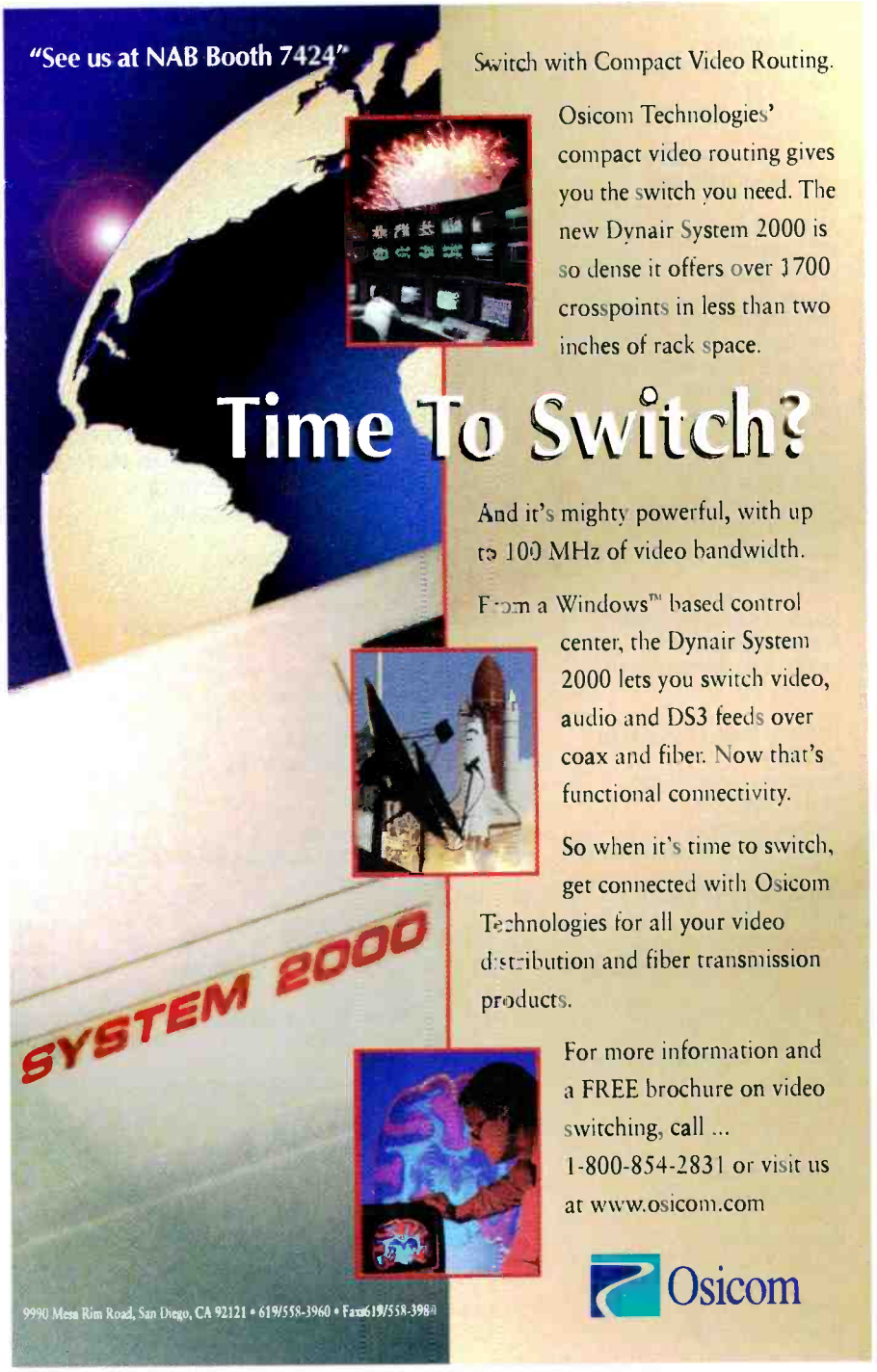

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Tekniche Ltd.	8817
AVS Graphics	8822
Link Electronics	9081
Prime Image	9285
Snell & Wilcox	9470
Tektronix	9914
Band Pro Film/Video	10072
AJA Video	10461
AJ Technology	10964
Feral Industries	11051
James Grunder & Associates	11051
Miranda Technologies	11425
Avitel Electronics	11570
Vistek Electronics	11640
AAVS/Sencore	11976
Inline	M 6473
HEURIS/Pulitzer	M 6476
Extron Electronics	M 6633
RGB Spectrum	M 7438
Genesis Microchip	M 7535
LEL Computer Systems	M 7941
PC Video Conversion	M 8044
Optivision	S 1347
B&H Photo	S 1508
Artel Video Systems	S 1560
Nortel/Northern Telecomm	S 1763
Radyne Corporation	S 2279
Raytheon Electronics/Semiconductors	S 2353
Digital Vision	S 2726
Intelvideo	S 3122
NTL	S 3466
Yamashita Engineering Mfgr/YEM	S 3635
Ensemble Designs	S 4038
Norpak	S 6026

Test & Measurement Equipment

Altronics Research	1003
Bird Electronic Corporation	1327
Gorman-Redlich Mfg Company	1910
Selco Products	1922
Potomac Instruments	2017
Circuit Research Labs	2106
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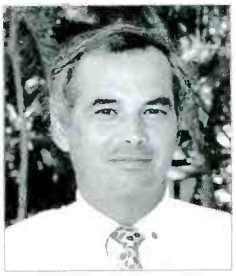

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Holaday Industries	6645
Sprocket Digital	6860
Dorrough Electronics	7209
ESE	7227
Philips TV Test Equipment	7643
Clark Wire & Cable	7871, 1721
Hewlett-Packard	8071, S 2200
Ross Video	8354
Videotek	8534
Leitch Inc.	8640
NuComm	8654
TDC Tally Display Corporation	8679
Leader Instruments	8760
Burst Electronics	8765
Broadcast Video Systems/BVS	8766
Multidyne Electronics	8783
Jensen Tools Inc.	8860
AVCOM of VA	8880
Scala Electronic	9053
Snell & Wilcox	9470
Philips BTS	9901
Tektronix	9914
Antenna Technology Corp./ATCi	10358, S3063
Feral Industries	11051
James Grunder & Associates	11051
James Grunder/Hamlet	11051
Video Accessory	11235
Modulation Sciences	11253
Electronic Associates	11334
Techni-Tool	11337
Pro-Bel Ltd.	11501
Chyron	11501, S 3632
Nalpak Video Sales	11644
ASACA ShibaSoku	11914
AAVS/Sencore	11976
Sencore/AAVS	11976
Wohler Technologies	LA 501, 9773
Data Check	S 2359
Lockheed Martin Microwave-Narda	S 2472, 1501
DVS Digital Video Systems	S 2550
Dubner International	S 2934
Graseby Optronics	S 3334
Milestek	S 3542
Norpak	S 6026
SyntheSys Research	S 6134
RCI Systems Inc.	S 6136

TV & ATV Transmitters, Translators and Antennas

DB Elettronica	1027
Teracom Components	1324
Penta Laboratories	1720
Mier Communicaciones S A	2412
Continental Electronics	2606
Technosystem SpA	3127
Shively Labs	3301
BEXT	3603
Electronics Research - ERI	3615
CTE International	3824
Econco Broadcast Service	3916
Astre System	4541
ABE Elettronica SPA	4940
Micro Communications	5607
SWR Inc.	5609
ITELCO SpA	5742
Harris Corp./Broadcast Division	5909, M 6628
Advanced Broadcast Systems	6560
Jampro Antennas Inc.	6709
BURLE INDUSTRIES	7007
Comark Communications/A Thomcast Co	7414
Thomcast France	7414
N Systems/NSI	7641
Dielectric Communications	7976
COMWAVE/Communications Microwave	8683
Kathrein-Werke KG	9053
Sira Sistemi Radio srl	9053
Scala Electronic	9053
EMCEE Broadcast Products	9237
Davicom Technology	9453
Snell & Wilcox	9470
LDL Communications Inc.	9953
Andrew	11054
Electronic Associates	11334
RF Technology	11910
Acrodyne Industries	11925
ITS Corporation	11949
Cablewave Systems	11954
Linear Equipamentos Electronic	I 4845
SierraCom	LA 204
Artel Video Systems	S 1560
General Instrument	S 2206
Divicom	S 2225
IRTE SpA	S 2850
Deutsche Telekom	S 2863
Intelsis Sistemas Inteligentes	S 3766
ABS spa	S 4063
Elettronica Industriale	S 4661

Vehicles and Remote Support Equipment

Potomac Instruments	2017
Studio Technologies	2104
Gentner Communications Corporation	2117
Moseley Associates	2602
Hughey & Phillips Inc.	3324
KD Kanopy Inc.	3427
Burk Technology	3524
E-Z UP International	4001
Coherent Communications	5142
Keystone Communications	5617
Chapman/Leonard Studio Equipment	5754
Beck Associates	6954
Microwave Radio	7421
AF Associates	7432
N Systems/NSI	7641
Advent Communications	8352
NuComm	8654
Telecast Fiber Systems	9281
Radamec Broadcast Systems	9376
Davicom Technology	9453
Philips BTS	9901
IPITEK Inc.	10182
Modulation Sciences	11253
ENG Mobile Systems	11347
Innovision Optics	11482
Will-Burt TMD Division	11800
RF Technology	11910
Wolf Coach	11930
Shook Electronics USA	LA 101
Calumet Coach	LA 202
Television Engineering	LA 301, 5628
NS Microwave	LA 307, 4544
Helicopters	LA 404
BAF Communication	LA 406, 11904
Frontline Communications	LB 204, 11970
Crestron	M 6769
Geneva Aviation	S 1506
Telect	S 2356, M 7342
Wescam Systems Int'l	S 2553
TRON-Tek	S 2558
Crystal Computer	S 3176
Avitech Int'l	S 4272
LM Engineering	S 4972
Allen Osborne Associates	S 6079

Video Accessories

Professional Sound Corporation	1517
TimeLine	2027
Eventide	4101
Pandora International	4559
Imagine Products	4561
FM Systems	4855
Macrovision	4957
Coherent Communications	5142
Horita	5155
Image Logic Corporation	5259
Videomagnetics	5518
Pixel Instruments	6060
Lighthouse Digital Systems Inc.	6532
J-Lab Company	6532
Image Video	6557
Sprocket Digital	6860
Evertz Microsystems	7160
Television Equipment Associates	7215
ESE	7227
Garner Industries	7230
Lipsner-Smith Company	7345
Research Technology Int'l/RTI	7345
Kramer Electronics	7873
Hewlett-Packard	8071, S 2200
Video Int'l Development	8364
Videotek	8534
Leitch Inc.	8640
TDC Tally Display Corporation	8679
Burst Electronics	8765
Broadcast Video Systems/BVS	8766
Tekniche Ltd.	8817
AVS Graphics	8822
Lightware	8853
Prime Image	9285
Davicom Technology	9453
Snell & Wilcox	9470
Ikegami Electronics	10431
AJ Technology	10964
Concept W Systems	10984
James Grunder/Hamlet	11051
Allen Avionics	11161
ProSource/Broadcast Marketing	11339
Miranda Technologies	11425
Avitel Electronics	11570
Vistek Electronics	11640
Nalpak Video Sales	11644
Comprehensive Video Group	11650
Folsom Research	M 6330
Diaquest	M 6341
Genesis Microchip	M 7535
BARCO Industries	M 7819, 11919
Axon Digital Design	S 1049
Sundance Digital	S 1228
Adrienne Electronics	S 2456
DVS Digital Video Systems	S 2550
Digital Vision	S 2726
Ergo-2000	S 3019
Intelvideo	S 3122
Anthro Technology	S 3232
Inscriber Character Generator	S 3338
NTL	S 3466
Milestek	S 3542
Ensemble Designs	S 4038
Sonic Solutions	S 4132
Premier Wireless	S 4358
Arco Electronics	S 4961
Bi-Tronics	S 4973
Winsted Corporation	S 6126, 6921
Display Devices	S 6131
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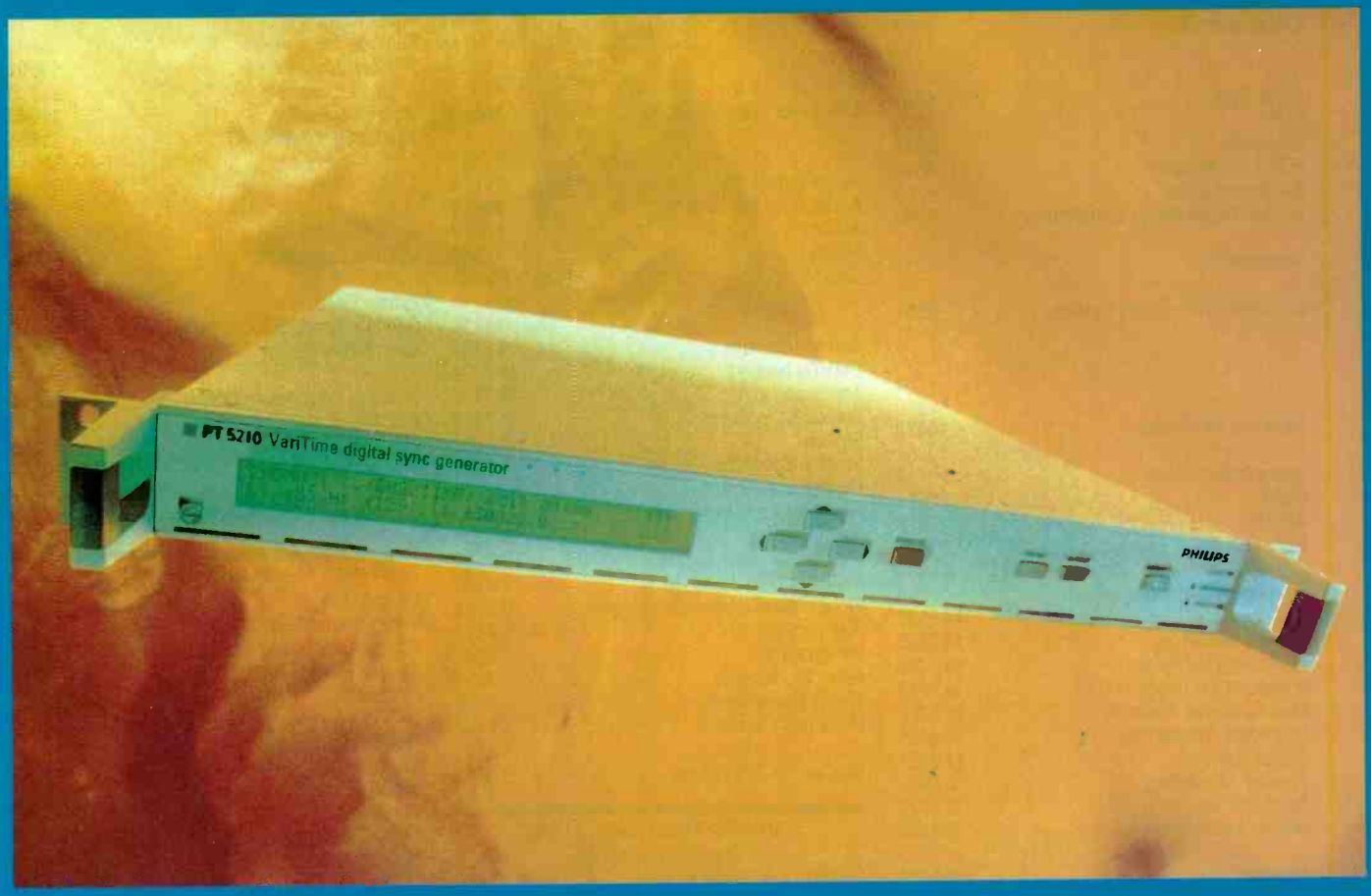

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Broadcasters General Store	2019, 8865
Imagine Products	4561
EVS Broadcast	5053
DPS	5453
Sony Broadcast Products	5929
Rorke Data	6232
PEP	7200
Videonics	8283
FOR.A Corporation	8514
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Videomedia	8947
ASC Audio Video Corporation	9258
CEA Digital Newsroom System	9661
Philips BTS	9901
Tektronix	9914
Quantel	9931
AVID Technology	9940
Band Pro Film/Video	10072
Panasonic Broadcast and TV Systems	10701
Scitex Digital Video	10714
Niche	10964
Accom	10970
United Media	11027
Chyron	11501, S 3632
Comprehensive Video Group	11650
EMC	M 6551
Genesis Microchip	M 7535
McRoberts Software	M 7746
Broadcast Exchange	M 7942
Miro Computer Products	M 8222
Interactive Images Inc.	M 8229
Capital Network	M 8321
Promax Technology	M 8329
Sundance Digital	S 1228
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Matrox Electronic Systems	S 2732
Play Incorporated	S 2819, 8676
Discreet Logic	S 2906
Dubner International	S 2934
Fast Forward Video	S 3332
D-Vision Systems	S 3625
Audio Intervisual Design/Sanken	S 3638, 8777
Soft-Touch	S 4072
FAST Electronics USA	S 6120

Video Recording, Storage, Playback and Server Systems

Doremi Labs	1619
DNF Industries	2019
Superscope Technologies/Marantz	2102
EVS Broadcast	5053
DPS	5453
Sony Broadcast Products	5929
Toshiba Corporation	6043
CMC Technology	6211
Hitachi Denshi America Ltd.	6705
McCurdy Radio Industries	6917
Video Data Systems	6928
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Hewlett-Packard	8071, S 2200
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Odetics Broadcast	8522
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Tektronix	9914
Quantel	9931
AVID Technology	9940
Enterprise Systems Group	10567
FloriCal Systems	10585
Panasonic Broadcast and TV Systems	10701
Scitex Digital Video	10714
AJ Technology	10964
Accom	10970
Matco	11340
Chyron	11501, S 3632
MountainGate	11914
AAVS/Sencore	11976
Sun Microsystems	I 5439
DMI/Techexport	M 7274
Andataco	M 7330
Broadcast Exchange	M 7942
Ciprico	S 1222
Storage Concepts	S 1225
Sundance Digital	S 1228
Film & Video Systems	S 1253
P E Photron	S 1334
DVS Digital Video Systems	S 2550
MMS Multi Media Systems	S 2550
Pioneer New Media Technologies	S 2738
Play Incorporated	S 2819, 8676
Viewgraphics	S 3042
Adtec Productions	S 3235
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Mega Drive Systems	S 4120
Sierra Design Labs	S 4814
SeaChange Technology	S 5463

Video Routing and Distribution

VideoQuip Research Ltd.	1502
Switchcraft	2924
Radio Design Labs - RDL	3724
Multimedia Accessories	4843
J-Lab Company	6532
Lighthouse Digital Systems Inc.	6532
Image Video	6557
Sprocket Digital	6860
Television Equipment Associates	7215
ESE	7227
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Nova Systems	8283
Ross Video	8354
Videotek	8534
Leitch Inc.	8640
Burst Electronics	8765
Broadcast Video Systems/BVS	8766
Multidyne Electronics	8783
Datatek	8814
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Knox Video Products	8867
OpAmp Labs	8884
Link Electronics	9081
Telecast Fiber Systems	9281
Digipath Video	9453
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Vistek Electronics	11640
Sandar Electronics A/S	11864
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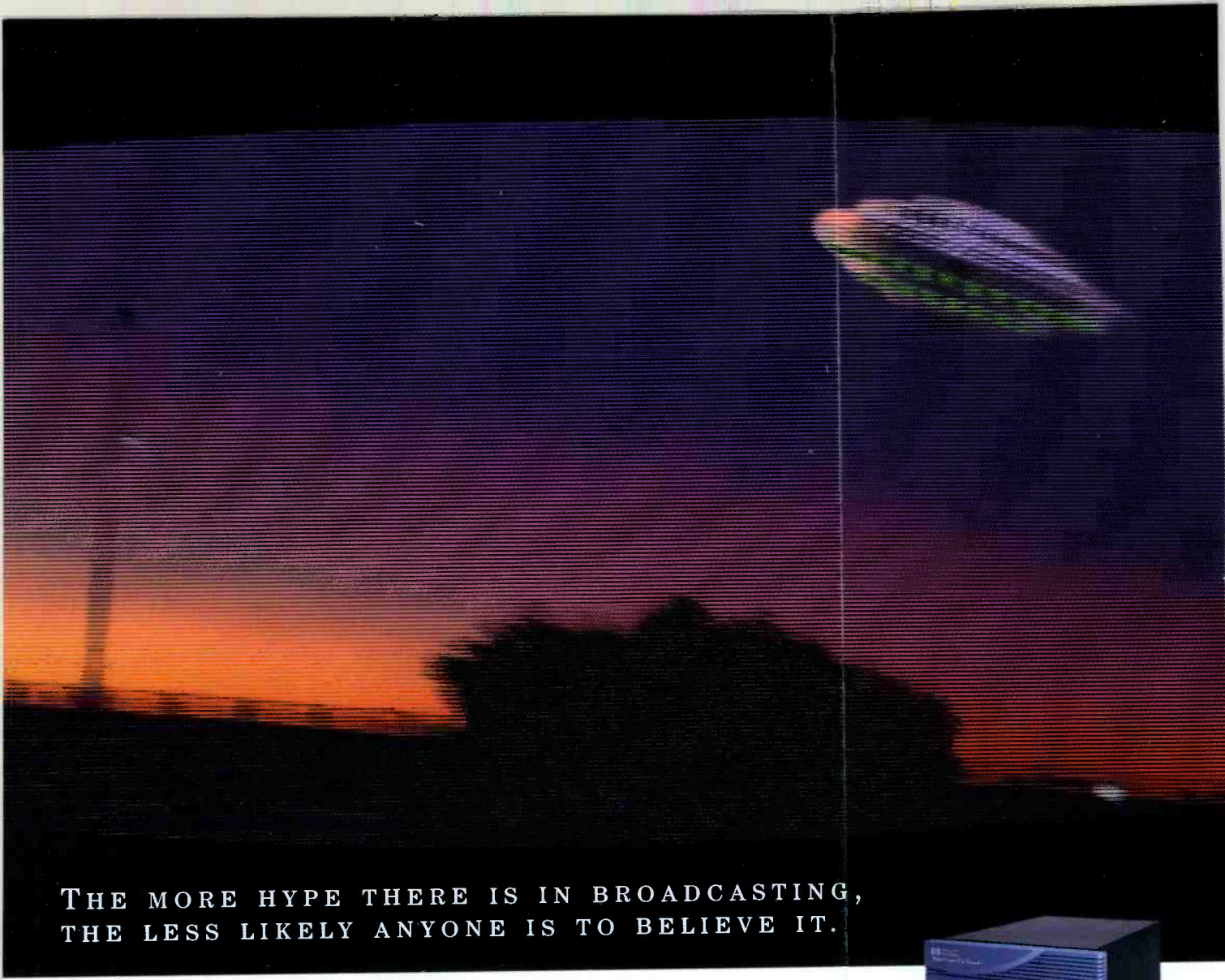

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Exhibitor Showcase

A comprehensive listing by company of product introductions and showings at NAB '97.

The best way to know who's got what is by checking the *BE Exhibitor's Showcase*. Listed alphabetically, exhibitors are shown along with their booth number and a brief description of what they plan to have in their booth.

The listings are based on information provided to us as of Feb. 10. Colored listings indicate advertisers in this issue. For more information on these companies, see the advertiser's index on p. 300.

360 Systems 1724
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Introducing: Monster series SFX plug-ins for Discreet Logic and Digital Fusion systems.
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ABCNews VideoSource (Archives) M 7575
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ABE Elettronica S.p.A. 4940
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A.B.S S.p.A. S 4063
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AccuWeather Inc. 10564
Featuring: UltraGraphix-32; UltraGraphics ULTRA weather systems; FirstWarn 2000, 3000 for crawls, maps, icons to notify viewers of severe weather; AccuNet On-Line weather information, graphics for your web site.
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Acoustical Solutions Inc. 7218
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Acoustic Systems 5255
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Acrodyne Industries Inc. 11925
Introducing: UHF DTV transmitters; 15-20kW DTV transmitter/UHF.
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Featuring: Night Suite non-linear production system.
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ADC Telecommunications Inc. 11958
Featuring: digital transport system, with remote drop or add; time-delayed patching; delay compensation video patching; digital video jacks; analog and serial digital video panels; video/audio modular patchbay; CAPS component analog patching system; FO cable management system for smaller fiber networks.
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Introducing: @3 applications software, @rchitecture, @pplications for @utomation for management of automated processes in TV centers; @3-on Air automated playout software; @3-remote local, remote surveillance and backup operations for TV sites; video assist multilingual management software; Imaging range Quartet A and accessories; DAs, dual-channel digital audio signal change over; digital linear keyer; analog video DA.
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Advanced Broadcast Systems 6560
Featuring: Computer-supervised IOT UHF TV transmitters, remote controls; BCD pulsers for klystron-based systems.
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Advanced Designs Corporation 10376
Introducing: Live Radar Composite Display multiple live radars on one display; Depix reduces "blocky" data associated with street-level mapping; EZ-Clicks mouse only input for Storm Path analyzer and street-level mapping.
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Introducing: 1.5m Newswift DSNG system; dual/tri-band Mantis flyaway SNG packages; SDNG trucks; video exciters; data converters; satellite antennas; fixed earth stations; remote control and monitoring systems.
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Featuring: audio codecs; hard-disk automation system; audio mixers; multiconference telephone system; digital hybrids, line extender; telephone terminal equipment.
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Featuring: designs, engineers and fabrication of TV facilities, systems for broadcast, cable, professional and corporate markets; Turnkey systems integration; engineering and system design consulting; project management; server systems, solutions for video archive, program playout and networking.
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Aircraft Production Music Libraries 8885
Featuring: The American Music series; Rock Sweepers and IDs; Ads Up! music for commercials.
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AJA Video 10461
Featuring: component analog to serial digital and NTSC/PAL to 4:2:2 serial digital converters; 1RU rack frames for converter products; serial to analog, serial/parallel converters; serial 4:2:2 to NTSC/PAL encoder.
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Alesis Corporation 3618
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Alias/Wavefront Technologies S 4820
Videographics software packages for artistic composition, animation, 3-D modeling; interactive photorealistic rendering.
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VNE-75-3 3-channel video noise eliminator; VIT-75-3 3-channel isolation transformer; HEC-3000 3-channel, HEC-2000-H "heavy-duty" and HEC-4000 RGB component hum eliminators; HDTV, CCIR-601, miniature low-pass filters.
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Featuring: Hilomast telescopic pneumatic-operation masts.
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Alpha Video Electronics LA 205
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Altronics Research Inc. 1003
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Featuring: equipment enclosure systems.
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Introducing: System 9098 twin mic amplifier; System 9098 dual compressor-limiter; Digital Mixing System; Recall by Langley computer-assisted console.
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American Studio Equipment 7158
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AMS NEVE 8810
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Ancor Communications S 1027
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Andrew Corporation 11054
Dual HMD antenna; Alpac antenna & tower system; HS9HP HELIAX coaxial cable; 2.4m SNG antenna; type-approved earth station antennas; rectangular waveguide; pressurization equipment; terrestrial microwave antennas; rigid transmission line.
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Introducing: 15x8.3AIF digital generation broadcast lens; f/1.7 2/3-inch, compatible with 16/9 format; 22x7.5AIF studio lens; 62x9.5AIF OB lens; Cine Digital Kit film lens and accessories for camcorder, T1.9 aperture, 11.5x5.3 wide angle F5.3-61mm zoom range and 11x8.3 lens for electronic cinematography, HDTV digital cameras; Super 16 93 degree wide angle 7-81mm T2.4 lens, 0.6m MOD.
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Antenna Concepts Inc. 29, 8672
Featuring: UHF, VHF antennas in slot, panel and corner reflector types; high gain CP for LPTV; CP full-band FM panel transmit antennas; transportable omnidirectional VHF antennas.
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Introducing: rack-based workstations, 60-inch and 72-inch.
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Aphex Systems 4103
Introducing: model 2020 FM audio processor.
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Apogee Electronics Corporation 1718
Introducing: FC-8 digital audio format converter; APOgee CD-recordable; AD-1000, AD-1000E 20-bit A/D, D/A converters; Apogee Master DAT; Wyde Eye digital cable.
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Featuring a broad selection of filters, delay lines and duplexers for video, telecommunications and broadband media.
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Featuring: digital audio workstations; video switchers with audio follow and control from multiple locations.
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Introducing: Arrilux 125 Pocket Par; ArriSun 200, 575; Arri Compact 125, 200W; Arri T12 Fresnel; 435 integrated video assist; universal follow focus FF-4; shift and tilt lenses.
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ArtBIT M 7444
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Artel Video Systems S 1560
Introducing: MegaLink multichannel D-1 video fiber-optic transport system; DigiLink NTSC/PAL fiber-optic video transport system.
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Asaca/ShibaSoku Corp. of America 11914
Introducing: AM140, AM665, AM1200 digital video disc archiving; CM202H 20-inch, CM323H 32-inch HDTV color monitors; CMC42NP 42-inch Plasma display; TG15B6-HDTV digital test signal generator; RT37A, RT83B TV channel signal generators.
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ASC Audio Video 9258
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Featuring: spectrum analyzer, satellite receiver, monitor; multibeam antennas; PROFLine electronics; voice, data systems; satellite videoconferencing equipment.
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Introducing: ATI portable and studio stereo mixers, expanders, MXS100, XPS100; featured: Vanguard series consoles; Micro-Amp series modular and self-contained mic, line and DAs; power amps, headphone drivers, interface amps, audio processors, studio metering systems, NanoAmp mixers.
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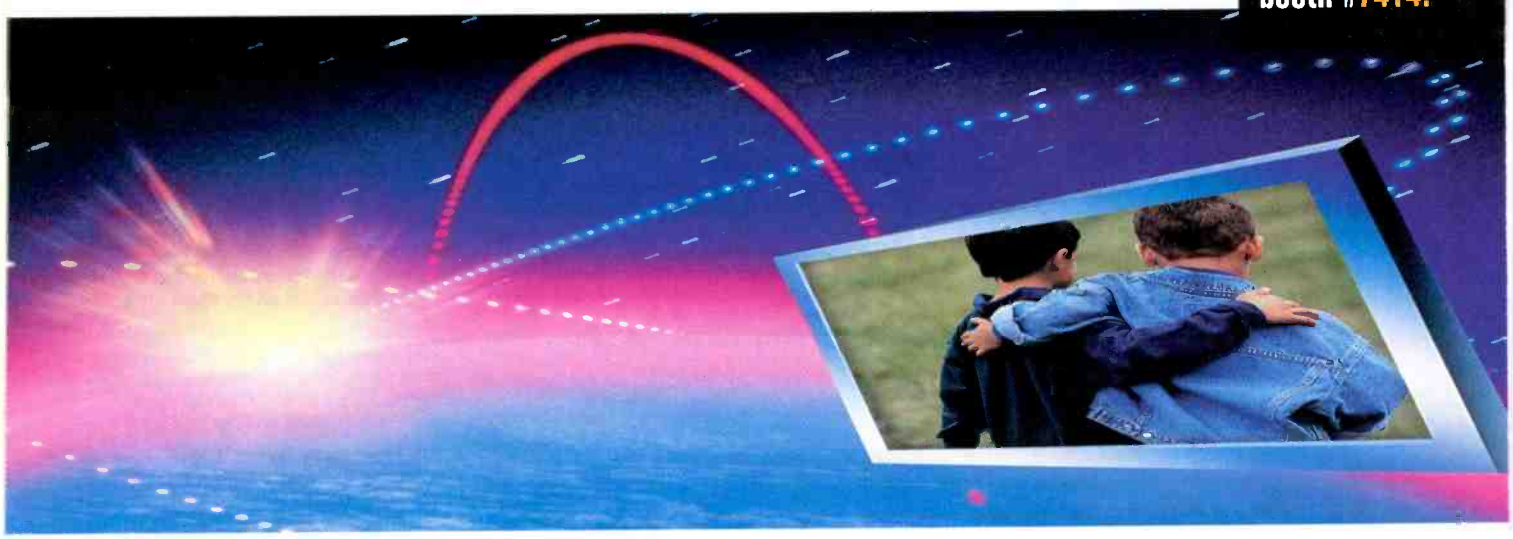

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It's happened—DigitalTV is here. To make a painless transition, you need more than a new transmitter—you need a strong systems partner.

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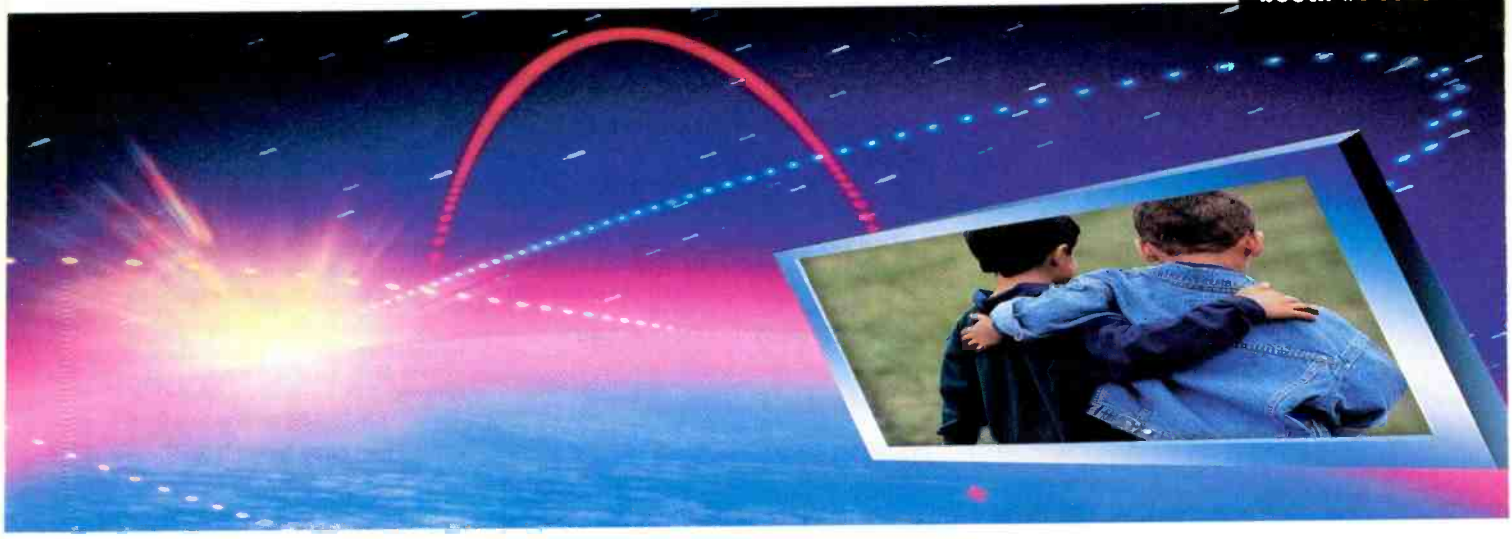

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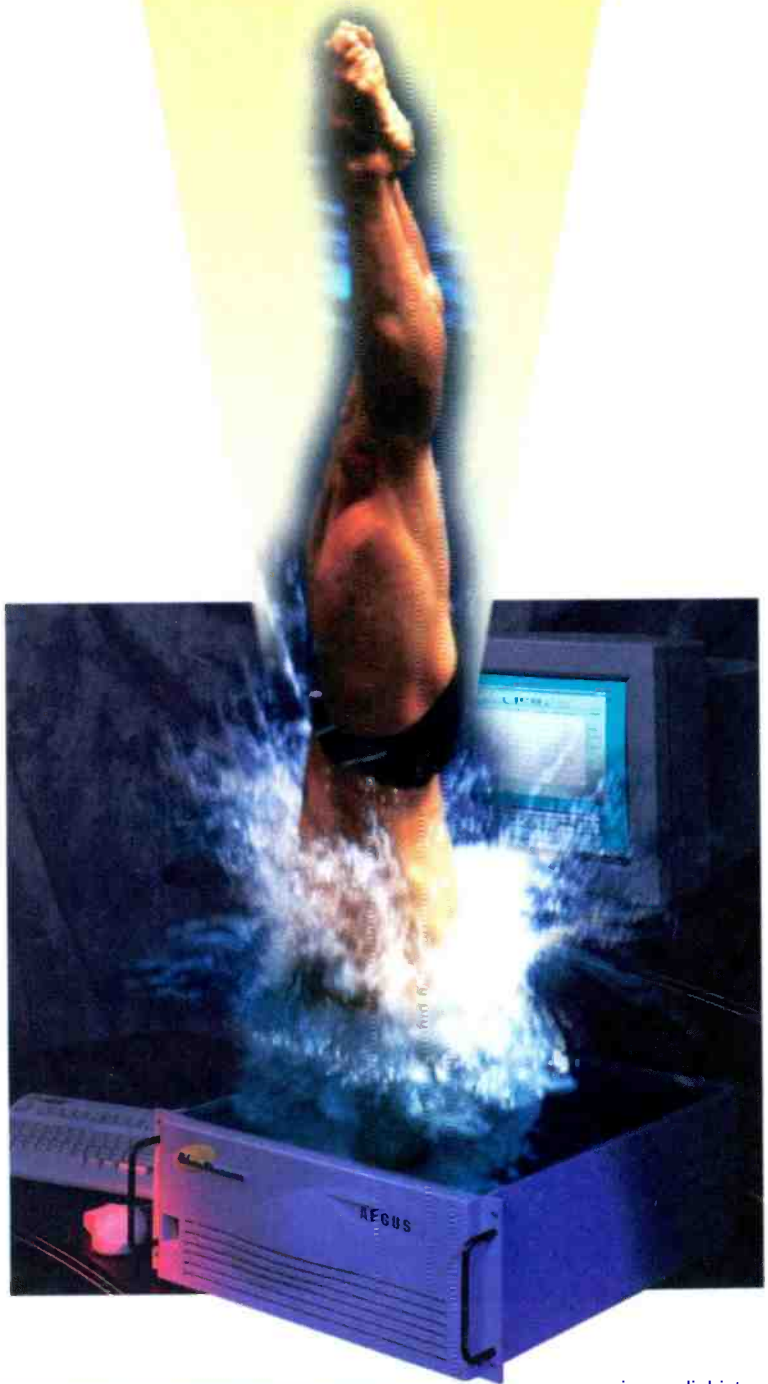

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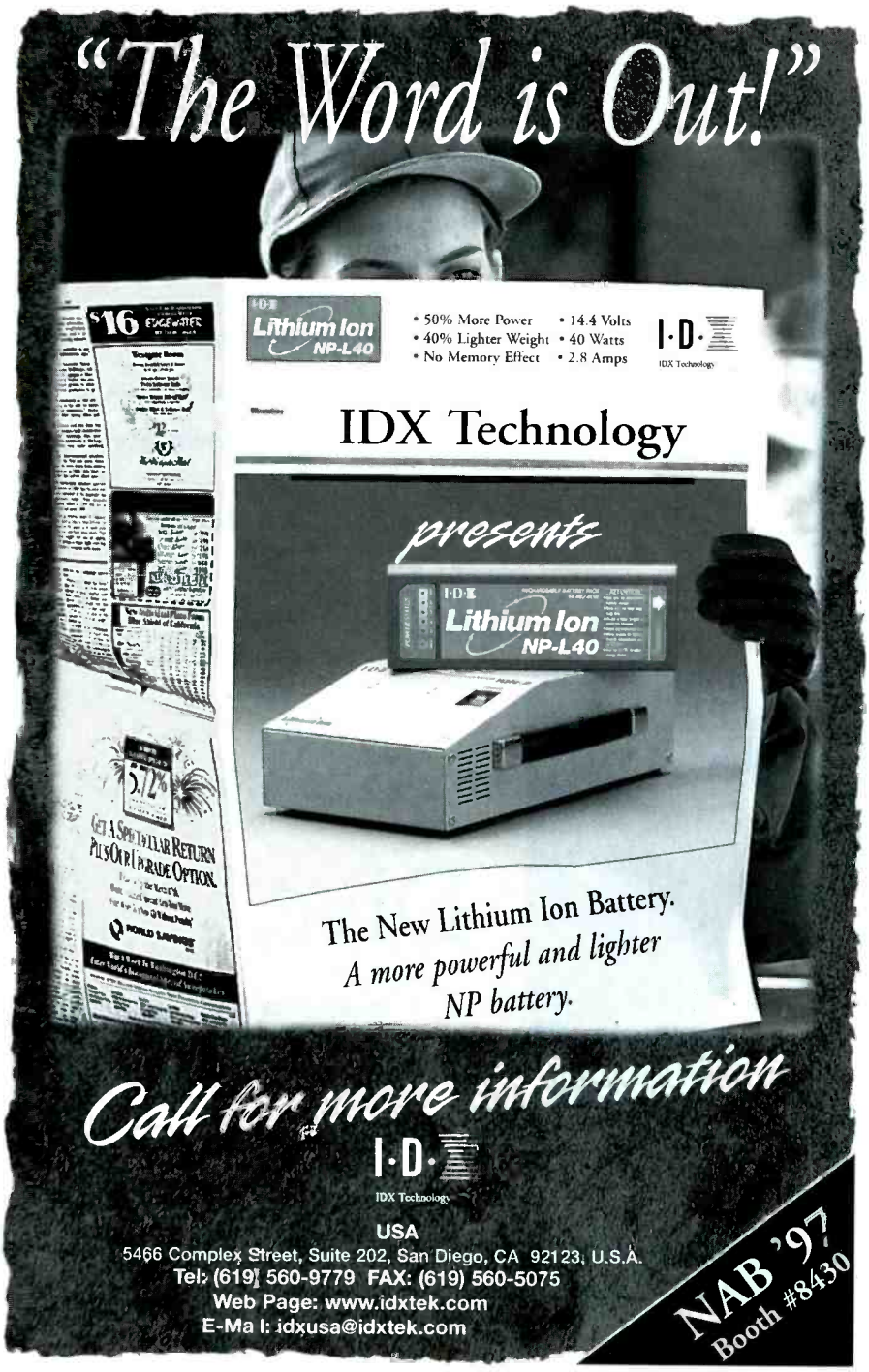
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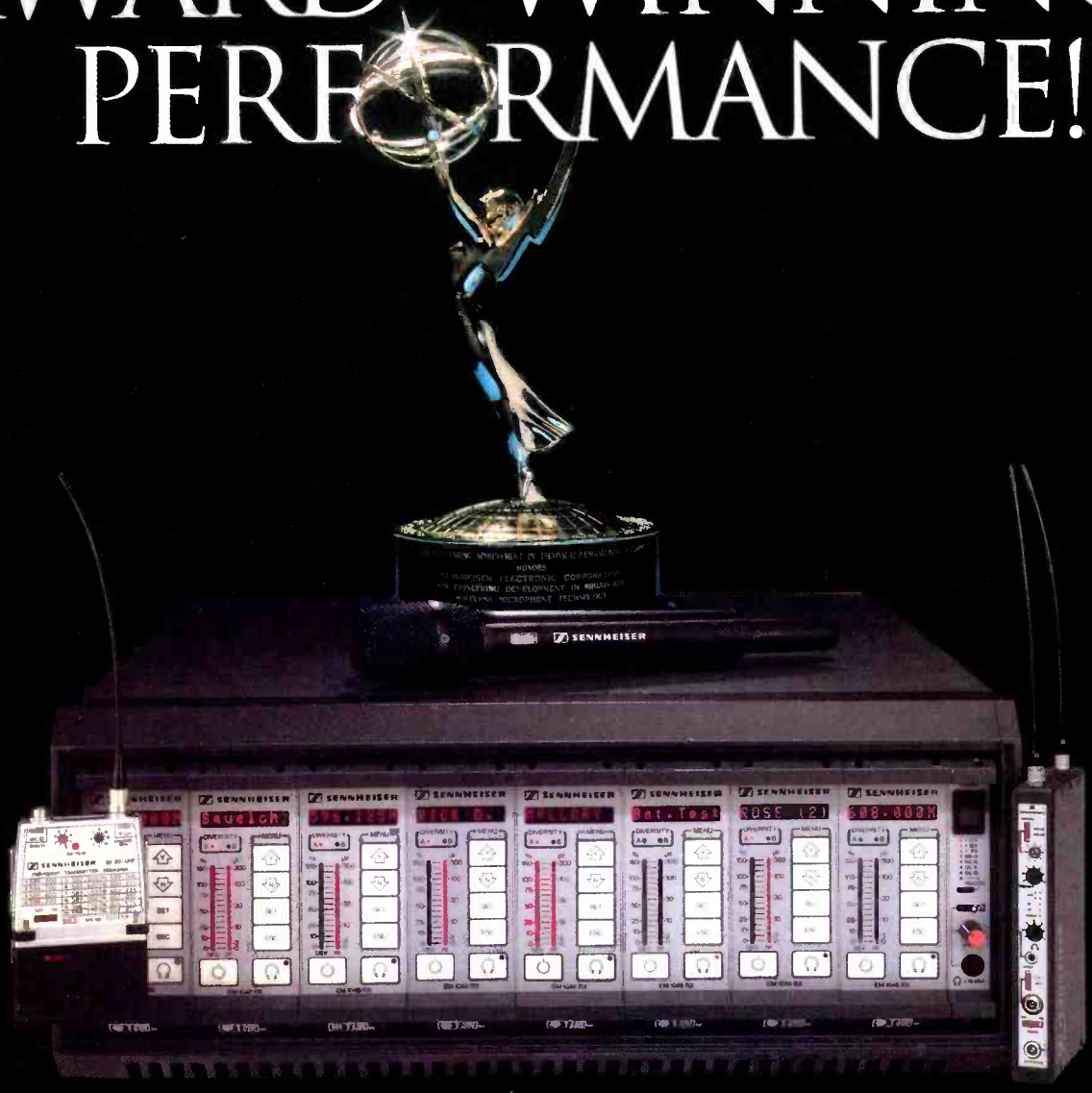

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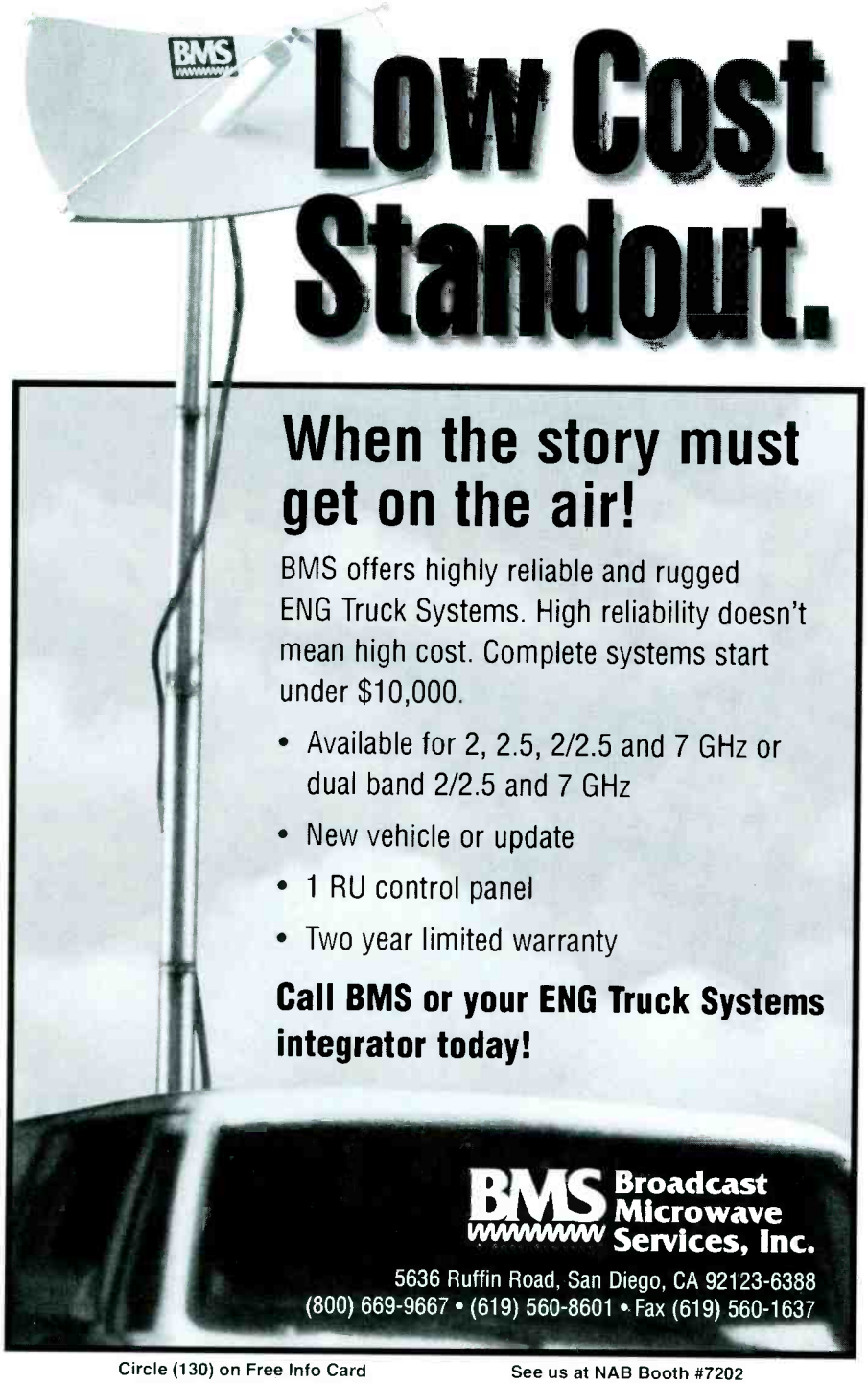

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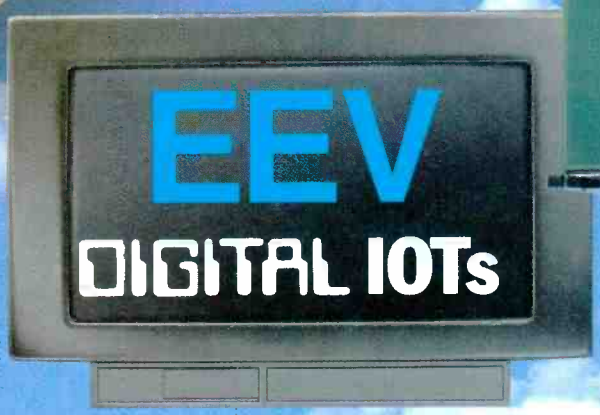

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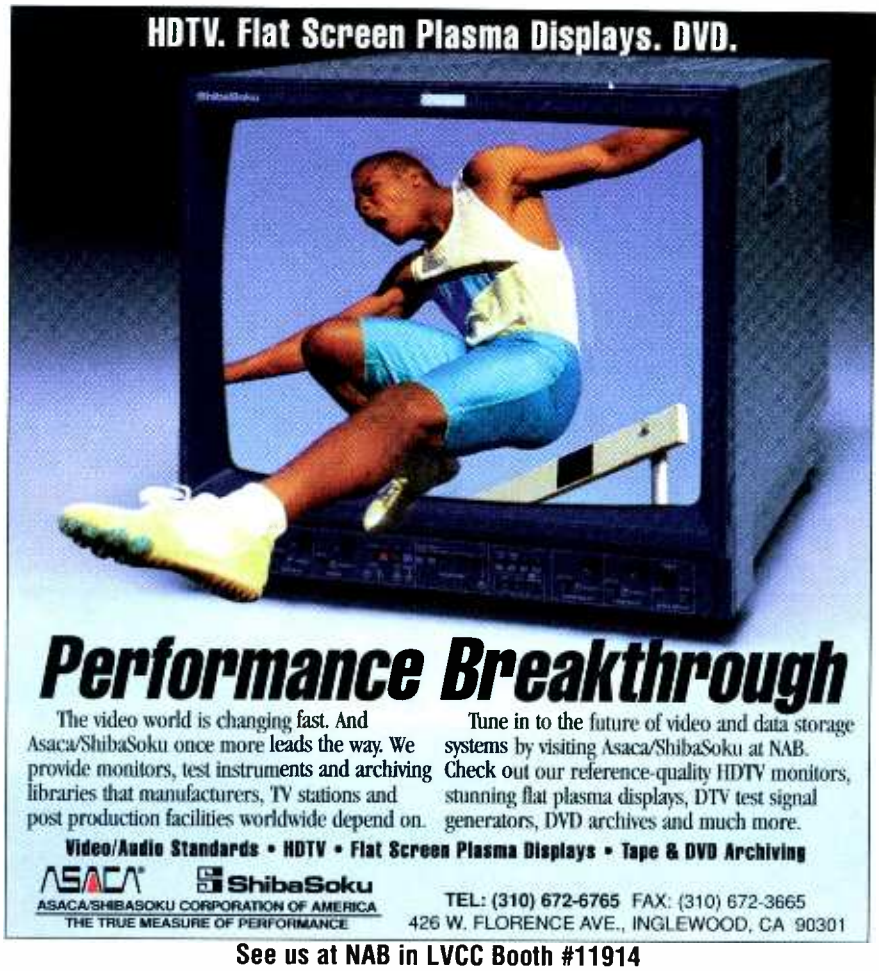

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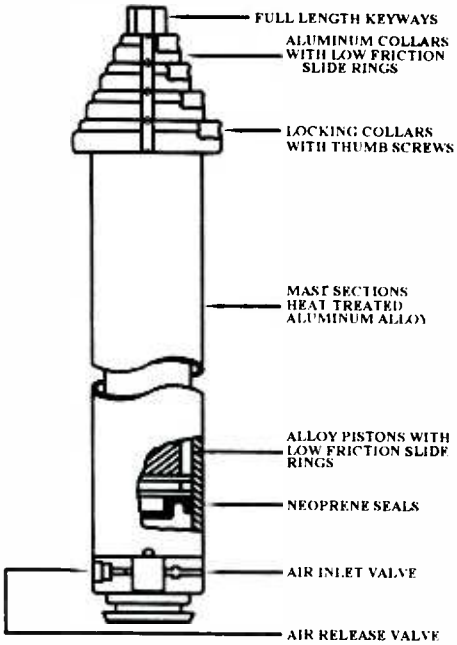

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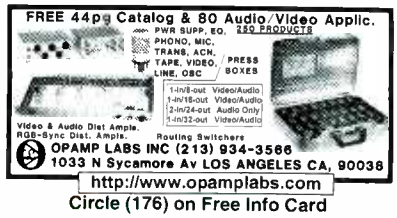

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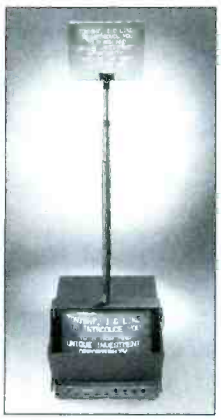
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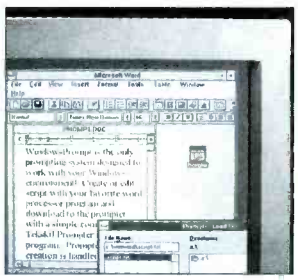
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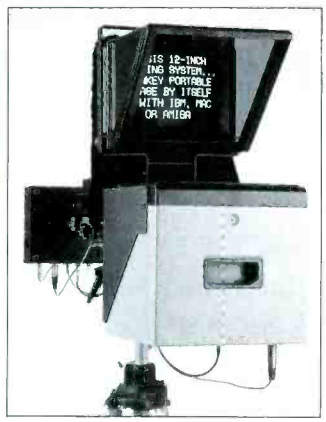

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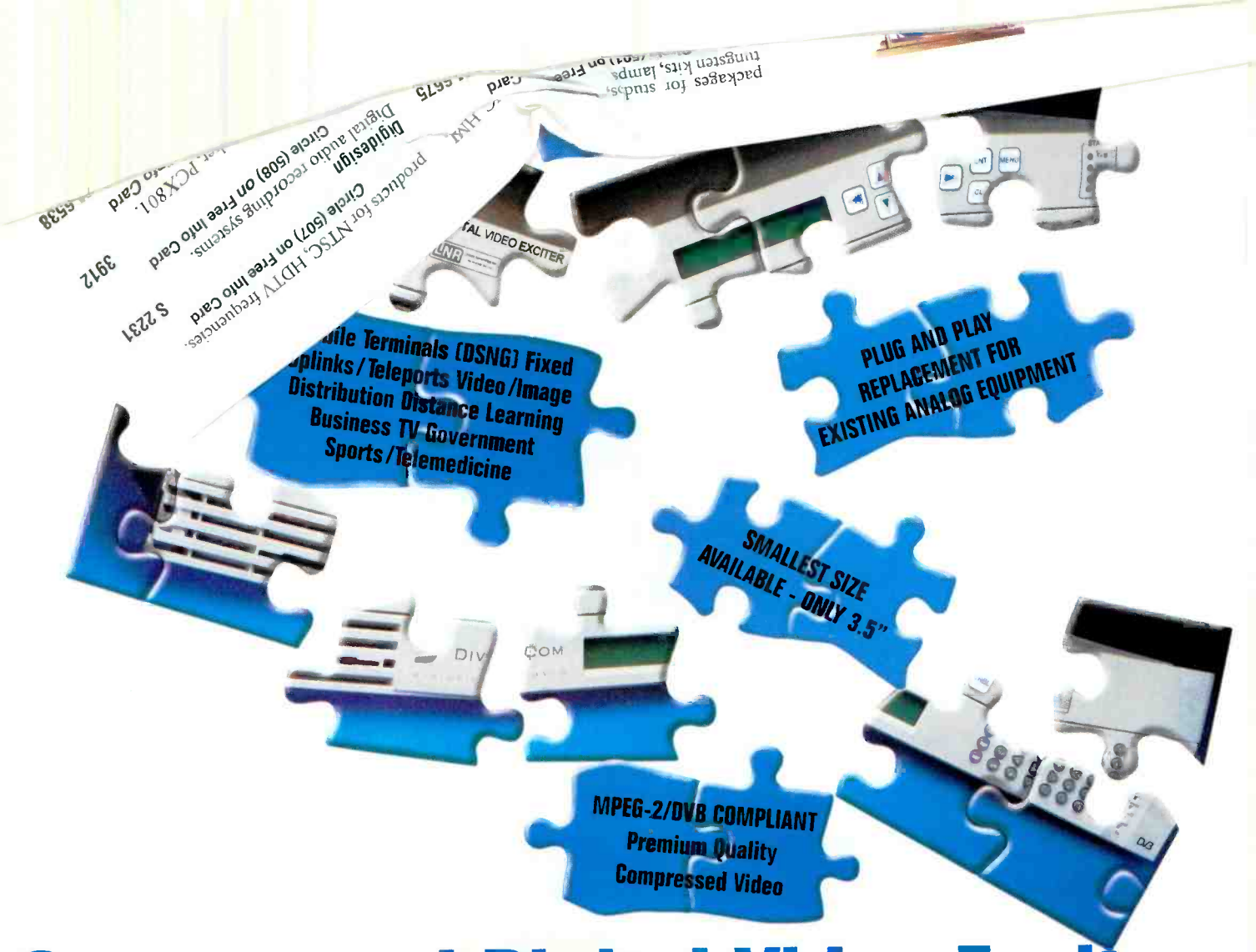

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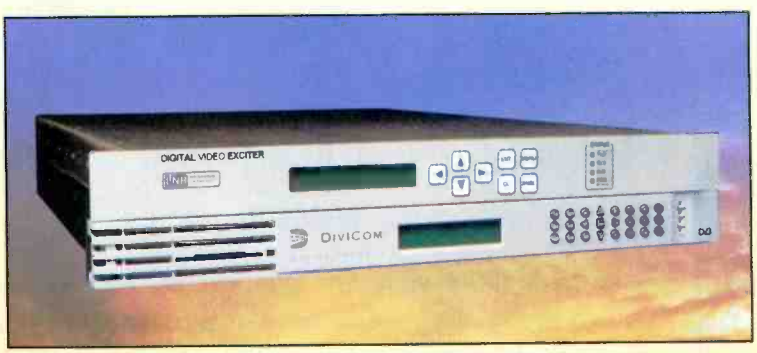

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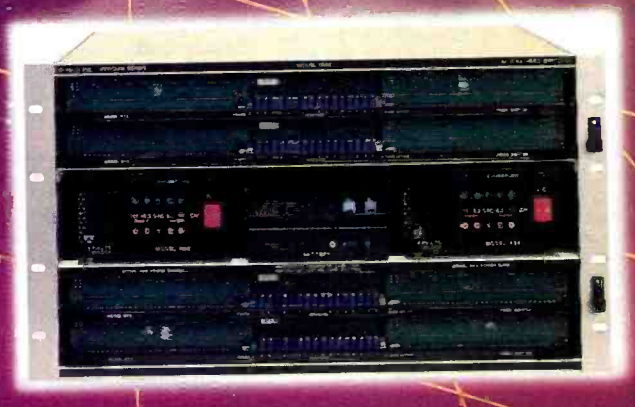

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Introducing: ElectricImage Animation System and Broadcast for MAC, 3D Modeler, Radiosity Renderer and NT versions; 3-D animation capabilities for broadcast and multimedia; fast rendering speed for output resolutions to NTSC (768x576) or PAL.
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Electrohome Ltd. M 6463
Introducing: VistaPro DLP projection system.
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Electronic Associates 11334
Introducing: RF-Host multiple-site transmitter controller; RF Director 8- and 16-channel transmitter controller; RF Manager version 6 software upgrade; Windows CE/NEC based remote monitoring software.
Circle (560) on Free Info Card

Electronic Theatre Controls/ETC 10185
Featuring: lighting control products, dimmers, effects consoles.
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Electrophysics Corporation 5526
Featuring: Astroscope 9323BV night-vision module for ENG cameras; Astroscope 9350 for digital cameras.
Circle (562) on Free Info Card

Electrorack Products Company S 2928
Featuring: equipment rack products.
Circle (563) on Free Info Card

Electrosonic Systems Inc. S 1622
Introducing: Prolite system, LCD projector using the ImageStar 31K, a videowall processor capable of dynamic displays without flicker on 31kHz monitor or projection cube videowalls; C-Through for Windows, software to compose displays of video sources and special effects.
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Elettronica Industriale Spa S 4661
Introducing: Linea Digitale, Cart Machine for automatic TV broadcasting with precision and simple management, accommodates from 120 to 600 cassettes, 4 to 10 VCRs and operates in four different standards simultaneously including DVCAM digital standard; TV panel Band IV-V UHF basic component for panel antenna systems, usable with digital signals; solid-state 2kW, 5kW UHF TV transmitters, NTSC and digital compliant.
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Elmo Mfg. Corporation M 6766
Introducing: EDP2100 LCD projector; complete line of presentation systems, visual presenters, document cameras.
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EMBRATEL S 2370
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EMC Corporation M 6551
Recently taken over by Amsterdam-based Broadware. Development of new products is now in full swing. An on-line version of the software (5.50) is currently shipping and new versions (5.51 and 5.52) of the EMC editing software are expected to ship in May and July, respectively. Other products from Broadware include EasyLog logging software and Assemblit for performing auto assemblies using Videomedia's V-LAN. An NT version of EMC's editing software is currently under development.
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EMCEE BROADCAST PRODUCTS 9237
Introducing: DigaCom DS digital wireless cable transmitter; DigaCom HSS single-drawer 50W wireless cable transmitter; TTU1000F UHF transmitter with enhancements.
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ENCO Systems Inc. 1024
Introducing: DADpro32 digital audio delivery system.
Circle (570) on Free Info Card

Energy-Onix 4006
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Ensemble Designs S 4038
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Enterprise Systems Group Inc. 10567
Featuring: BMS broadcast management system for integrated traffic; Landmark sales-based system; Mediatech duplicator, distributor of audio/video advertising spots; Channelmatic multichannel TV automation, including MVP managed video playback; CCMS traffic, business management, automation control system software.
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Entertainment Digital Network S 4058
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Ephyx Technologies Ltd. M 7760
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Equi=Tech Corporation S 1065
Super-isolator series balanced power conditioning equipment for A/V facilities, rack-mountable AC systems for interference-free operation, clean equipment operation and increased dynamic range.
Circle (577) on Free Info Card

Ergo S 3019
New product line: sliding computer keyboard shelf.
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ERI Electronics Research Inc. 3615
Introducing Two-Tower-Tops combined HDTV and multiplexed FM antennas; FM antennas, filters, combiners; towers, structural analysis and tower reinforcing; lightning protection and grounding products.
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ESE 7227
Introducing: LX-5105 5-inch, LX5116 16-inch self-setting/impulse analog clocks; LX-221 genlockable RS-170A blackburst generator; PC-471 PC interface reads ESE and SMPTE time code; ES-245 quad 1x6 audio DA, 24 independent gain controls; ES-218 1x4 audio DA.
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ETM-Electromatic Inc. S 3476
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Euphonix Inc. 3318
Introducing: Euphonix CS3000 digital control mixing system.
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EVI Audio 10228
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Evans & Sutherland S 4216
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Circle (584) on Free Info Card

Eventide Inc. 4101
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Event Promotion Supply Inc. S 1031
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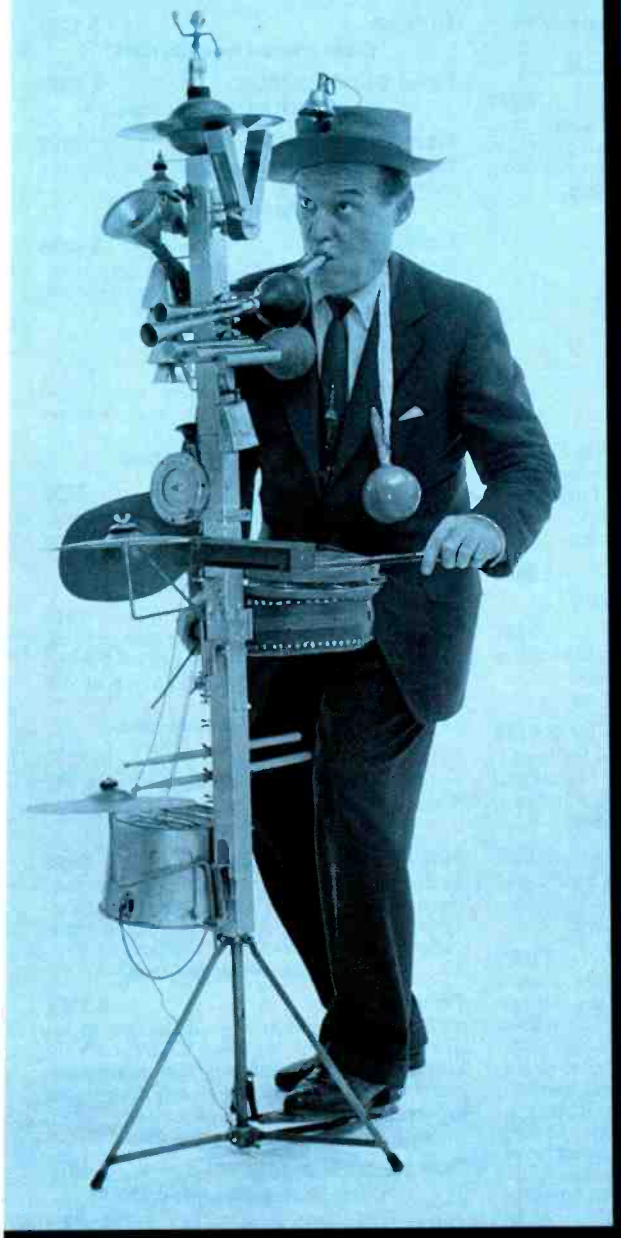

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Exeltech S 4075
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FOR.A-Video GainsVille 8514
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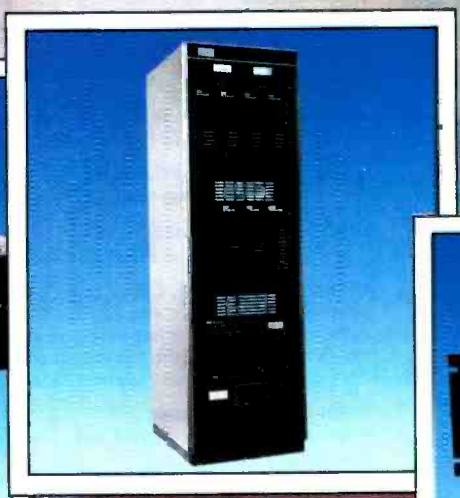

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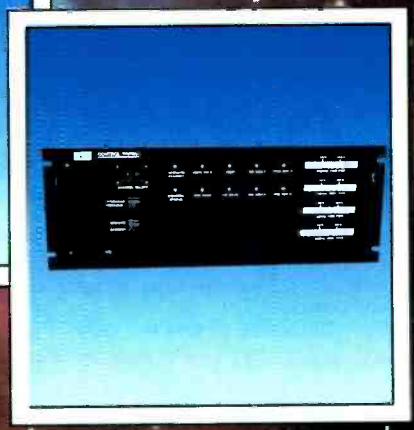

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Harrison By GLW 3315
Featuring: console automation computer; broadcast console for television with mix-minus and clean-feed IFB options; digital audio hardware and software.
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Henry Engineering 4012
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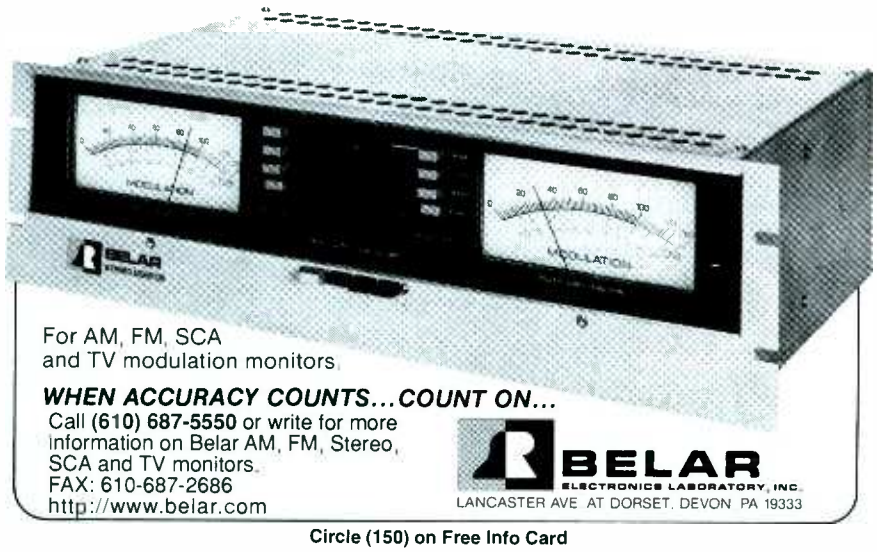

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Featuring: range of satellite communications services for premium video, voice, data, mobile, business, educational and direct-to-home consumer entertainment service; division of Hughes Electronics, subsidiary of General Motors.
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Hughes JVC Technology M 6544
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Hughey & Phillips Inc. 3324
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IBM Corporation S 2219
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IDB Systems S 3165
Engineering, design, integration and installation of satellite earth facilities.
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IDX Technology 8430
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Imagine Products Inc. 4561
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Circle (685) on Free Info Card

Imedia Corporation S 2363
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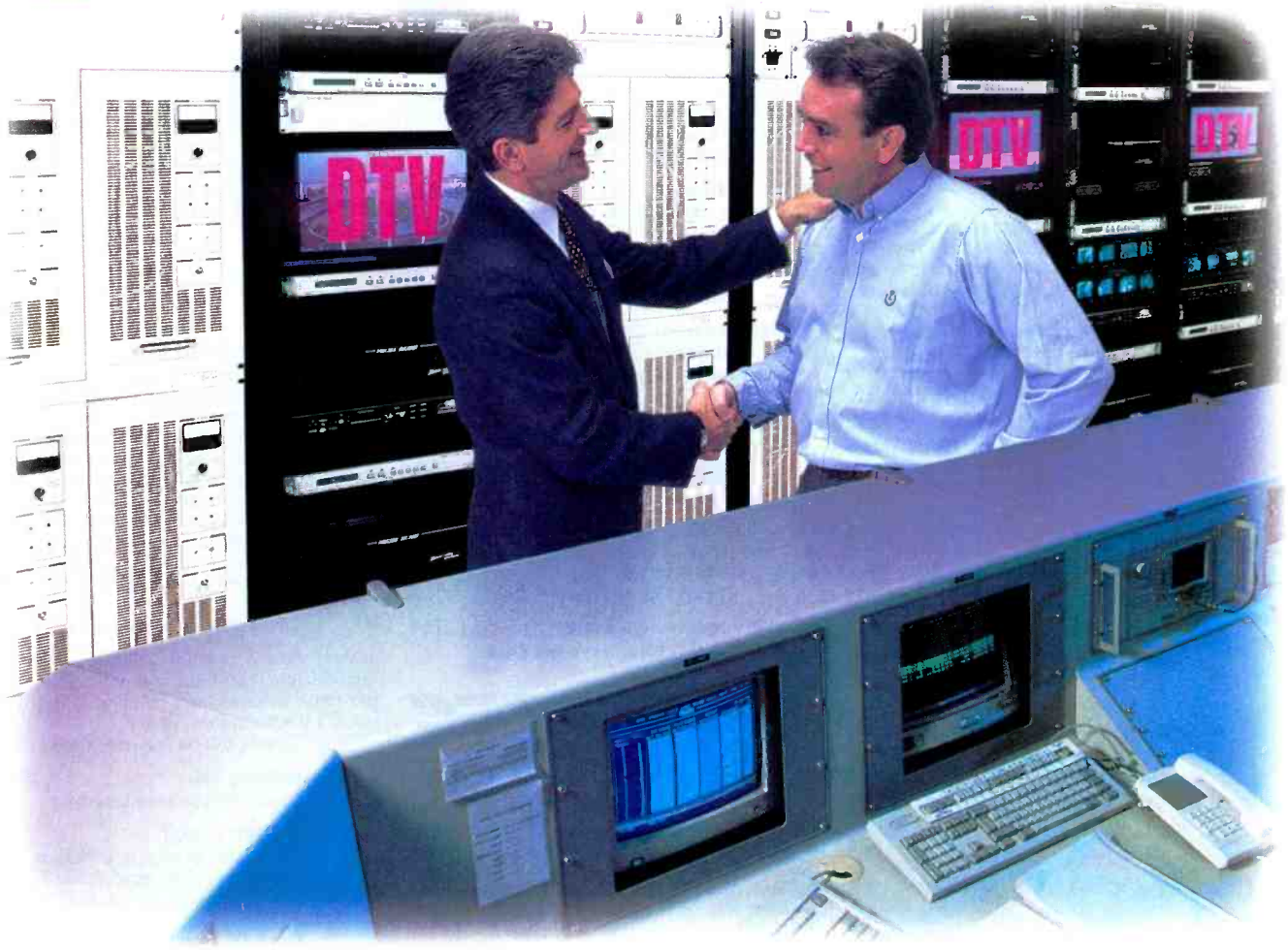

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Video monitors and projection systems.
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Introducing: subminiature precision video cables; custom patch panels for audio, video.
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NeTpower Inc. S 2213
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Neutrik USA, Inc 1321
Introducing: "z" series XLR cable end with pretinned contacts; PowerCon AC mains power connector; A/B series IDC panel mount connectors requiring no solder.
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Newsroom automation interface products for titlers.
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NewTek S 1053, M 6618
Video production graphics, effects system.
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N Systems Inc. 7641
Featuring: Superquad central receive system; Silhouette central receive system, transmit antenna; Stiletto transmit antenna; MC5 touchscreen remote control; CamPac robotic camera system; SuperPod helicopter system.
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NTL S 3466
Development and implementation of the infrastructure and services for digital broadcasting; joint service platform with Orion for digital distribution to Europe and the United States; News Technology Group, Digi-Media Vision News Digital Systems and News Datacom divisions.
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NTV International Corporation 34, 8366
Special Technology Exhibition: 720-line progressive scan studio camera; 480-line progressive scan ENG camcorder; video switcher, PDP, MDP.
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NuComm Inc. 8654
Introducing: TP truck package; T/FR6 Digalog long haul radio, digital ready; CR4 central receiver; MPT1 2/7GHz miniature transmitter; PT/RX5 dual units with single triax interconnect, frequency-agile TX/RX in each band; HTG4 handheld color bar generator NTSC or PAL.
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Nuko Information Systems I 4541
Products for video networking systems including the Highlander MPEG2 encoding system.
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Introducing: a range of products featuring digital audio routing and interfacing equipment with time code and RS-422 data processing and routing products; 20-bit A/D-D/A converters; synchronous, asynchronous AES, RS-422 dynamic port, digital time code, AES time code routers, modular distribution and synchronization equipment.
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Camera support equipment including tripods and fluid-head assemblies.
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Odetics Broadcast 8522
Introducing: facility management system including material, media and resources for enterprise solution to broadcast automation; Spectrum multichannel video management system with cache management interface to HP MediaStream server; SpotBank V7 software for Windows NT 4.0, supports Chinese language playlist, back-up option to archive video server to data tape library.
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Omicron Video 6746
Introducing: Model 600 video/audio routing switcher; 227 series video DA.
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OPAMP Labs Inc. 8884
Featuring: amplifiers for audio, video, distribution, mic, EQ, line, VCA, power; routing, matrix switchers; press boxes, audio transformers, oscillators, power supplies; custom sub-systems.
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OptiBase Inc. S 5826
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Optimum Productions 6661
Introducing: Multilingual language dubbing service using Rythmoband technique; video demo available.
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Options International Inc. 4653
Featuring: Ross CDK-104 telecine switcher, digital keyer; Pandora Lionel safe-area, cursor generator; Cintel TKG Telecine Grey; ASTEC Advanced System for Telecine Edit Control; RTS S35/35 & Pin-Reg combo gate; SADiE TimeSync; CLRVIEW; AccuGlow; high speed 35mm lenses.
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Orlel Corporation 5143
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Osicom Technologies Inc. 7424
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Pandora International Ltd. 4559
Enhanced color processors; telecine control systems; tape-to-tape color processor systems; electronic cursor generators.
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Manufacturer of the CameraMan Camera Product Line.
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PC Video Conversion M 8044
Scan converters.
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Peerless 8873
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Introducing: Pythagoras mastering software for Penny & Giles PP-10 audio multiprocessor; 20-bit A/D, D/A converters; frequency selective compression.
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Penta Laboratories 1720
Featuring: power-tube devices for broadcast.
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PEP Inc. 7200
Videotape editing products; digital recorder, player cart replacement.
Circle (904) on Free Info Card

PESA Switching Systems Inc. 10958
Introducing Ocelot routing switcher products, available in audio/video, analog/digital.
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Philips Broadcast Television Systems 9901
Introducing: LDK100 dockable 2/3-inch digital camera; LDK1310 DVCPRO digital camera; VS4 video switcher.
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Philips TV Test Equipment 7643
Featuring: digital sync test generator; color analyzers; modulators, demodulators; waveform monitors, vectorscopes; sync generators.
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Photron (P.E. Photron) S 1334
Introducing: PSEUDIO virtual set; Primatte for Avid Media Illusion chromakey software; Primatte Pro100 realtime chromakeyer; Primatte for 3D Studio Max and Photoshop chromakey software.
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Physical Optics Corporation S 5677
POC manufacturers fiber-ptic video/audio/data transmission equipment.
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Pinnacle Systems Inc. 8658
StudioPak for Alladin software adds effects and functions.
Circle (911) on Free Info Card

Pioneer New Media Technologies S 2738
MPEG-2 encoder; digital LD hybrid video library system; Video Browse server; CD audio disk changer; commercial insertion system; fast file stills & clips presentation; DVD technology demo; multiscan video cube wall system.
Circle (912) on Free Info Card

Pixel Instruments 6060
New products to be announced; featuring: serial digital synchronizer, proc amp; audio time compressor, expander, pitch shifter; digital audio transcoder; audio delay products; distribution amp for S/P digital video.
Circle (913) on Free Info Card

Pixel Power Ltd. 7983
Manufacturer of open-architecture character generators.
Circle (914) on Free Info Card

Play Inc. S 2819, 8676
Featuring: Trinity video production system.
Circle (915) on Free Info Card

Pluto Technologies Int'l Inc. S 6176
Pluto Technologies is a manufacturer of storage and networking products for the professional post production, film, and TV markets. Pluto's SPACE product line offers a range of full bandwidth, uncompressed, disk-based recorders, that record in 8- or 10 bit, feature high-performance VTR-like capabilities, high reliability RAID protected storage, random access, long recording capacities (8 minutes to 2 hours) and high-quality off-speed playback. Pluto's SPACE, with its traditional video connections and unique interfaces to the computer video world, is the logical bridge between the video world and the resolution-independent computer world. SPACE also offers facility-wide networked storage solutions. New at NAB is Pluto's advanced RAID technology, advanced audio handling, advanced variable speed playback. Pluto will show interconnectivity between SPACE digital
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Porta-Jib/Hollywood Gen. Machining S 5271
Camera-support products.
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Potomac Instruments 2017
Featuring: 1900 series directional array antenna monitor; AA-51A audio analyzer; AG-51 audio generator; SD-31/RS-31 frequency synthesizer, coherent detector; FIM-41 MW, FIM-71 VHF, FIM-72 UHF field strength meters; SMR-11 synthesized AM monitor receiver; QA-100 program audio analyzer; 1750-TLM tower light monitor; 1500-PC programmable transmitter controller with DOS compatible software.
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Power Pixel M 7674
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Premier Wireless Inc. S 4358
Featuring: BE-450 wireless diversity audio/video system; BE-500 high-power wireless audio/video system.
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Prime Image Inc. 9285
Introducing: A/V Twister, passes video, stereo audio on single twisted pair to 1 mile; Stereo Twister, passes audio on single twisted pair to 1 mile; Pick-2 combines two Prime Image boards, including audio delay, standards converter, synchronizer/TBC and logo inserter; Time Machine, allows an additional 30 seconds of commercial time during 30-minute program.
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Pristine Systems S 1935
Introducing: RapidFire digital studio system for radio; integrated package that encompasses scheduling, producing and on-air playback with GUI interface.
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Progressive Networks Inc. I 4055
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Introducing: Shade FX matte box system; Scriptboy UHF wireless time-code; distributor for Ikegami cameras, Fujinon, Canon lenses, Sachtler tripods, Arri lighting products.
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QVIS Corporation S 5672
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Introducing: Virtual Scenario studio system, a cost effective alternative to enhance program formats with VR studio sets, background imag-

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Introduction: additions to Stick-On products, ST-LMX3 mic/line mixer; ST-PD5 power supply distribution module; STR-19A, -19B racking systems; EMC products, TS-1D transient suppressor with GB6 mouitng, grounding bar.
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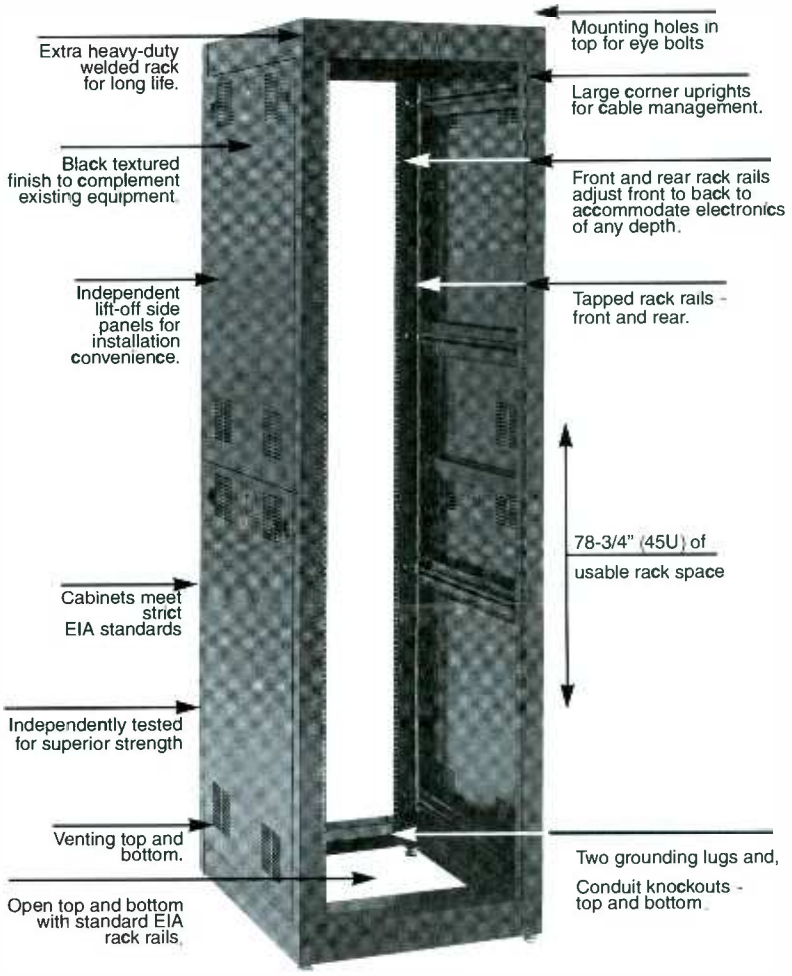

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Scala Inc. I 4949
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Introducing: MD425 supercardioid dynamic mic; EM3031-U single channel UHF true diversity receiver; EM3032-U 2-channel UHF true diversity receiver; SKM3072 UHF handheld transmitter, 16 switchable frequencies, 50mW output power; HDC25 active noise cancellation headphones; HMDC25 active noise cancellation headphones with dynamic mic.
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Introducing: A-51T dual EXP 51-foot dual expandable Digital Production: trailer; A-11 ENG van with special microwave system.
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Introducing: GPi-1600 PC automation package; GPi-1600 SI salvo switching; SlimLine console mount controllers; 16000 series 32x32, 64000 series 256x256 audio routers; 32000 series 128x128 audio router with full summing; 32000 series mix-minus, IFB systems; MMMS 3200 mix-minus, surround mixing system.
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SierraCom LA 204
Introducing: fully automated VPS; SNG antenna pointing system.
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Sierra Design Labs S 4814
Introducing: Transcoder 4:4:4 color space converter, up/down samples works internally at 13-bit resolution for a 10-bit data path; NF-Sserver with ATM modular video server using QuickFrame DDR concept for speed, functionality in large area ATM networks; Quickframe 60, Quickframe 120 60- and 120-minute digital disk recorder products configured for 4:2:2:4 or 4:4:4:4 operation, RS-422 compatible VTR control; non-linear playback; 525/625-frame formats, Ethernet with TCP/IP, RSH, RCP support, multifunction SCSI port.
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STE-MAN Inc. S 1220, 8279
Distributor: PAG batteries.
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Storage Computer Corporation M 7369
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Storage Concepts Inc. S 1225
Introducing: FibreRAID system for uncompressed and multiple stream video storage using fiber channel connectivity for 100Mbyte/s continuous data transfer, operating on SGI Impact, 02, Onyx, Challenge series platforms and PCI/NT; VideoStar MPEG2 compression video-on-demand server supports eight to 320 users with interactive operation; VideoPLEX; Concept 910; Concept 812; D+E RAID.
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StreamLogic S 3314
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Studer Professional Audio Inc. 6948
24-bit MO-recorder.
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Studio Technologies Inc. 2104
Introducing Model 770 audiomixer/IFB; Model 750 audiomixer; IFB Plus series mobile talent cueing systems; StudioComm series central controllers, control consoles and accessories; StudioTools series distribution amplifiers.
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Sumitomo Electric USA Inc. S 2361
Multichannel video displays.
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Sundance Digital S 1228
Introducing: Station Master station automation system; FastBreak Version 1.2 turns ASC Virtual Recorder, Tek Profile or Drastic VVCR into a commercial insertion system; TimeLiner Windows-based automation system for broadcast, cable and corporate environments controls 8 serial sources, 16 GPIs, 16x2 router and uses up to four independent playlists; Sundance System Version 2.5 linear editing system for 15 machines, switcher and 8 GPIs.
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Sun Microsystems I 5439
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Superior Electric 1626
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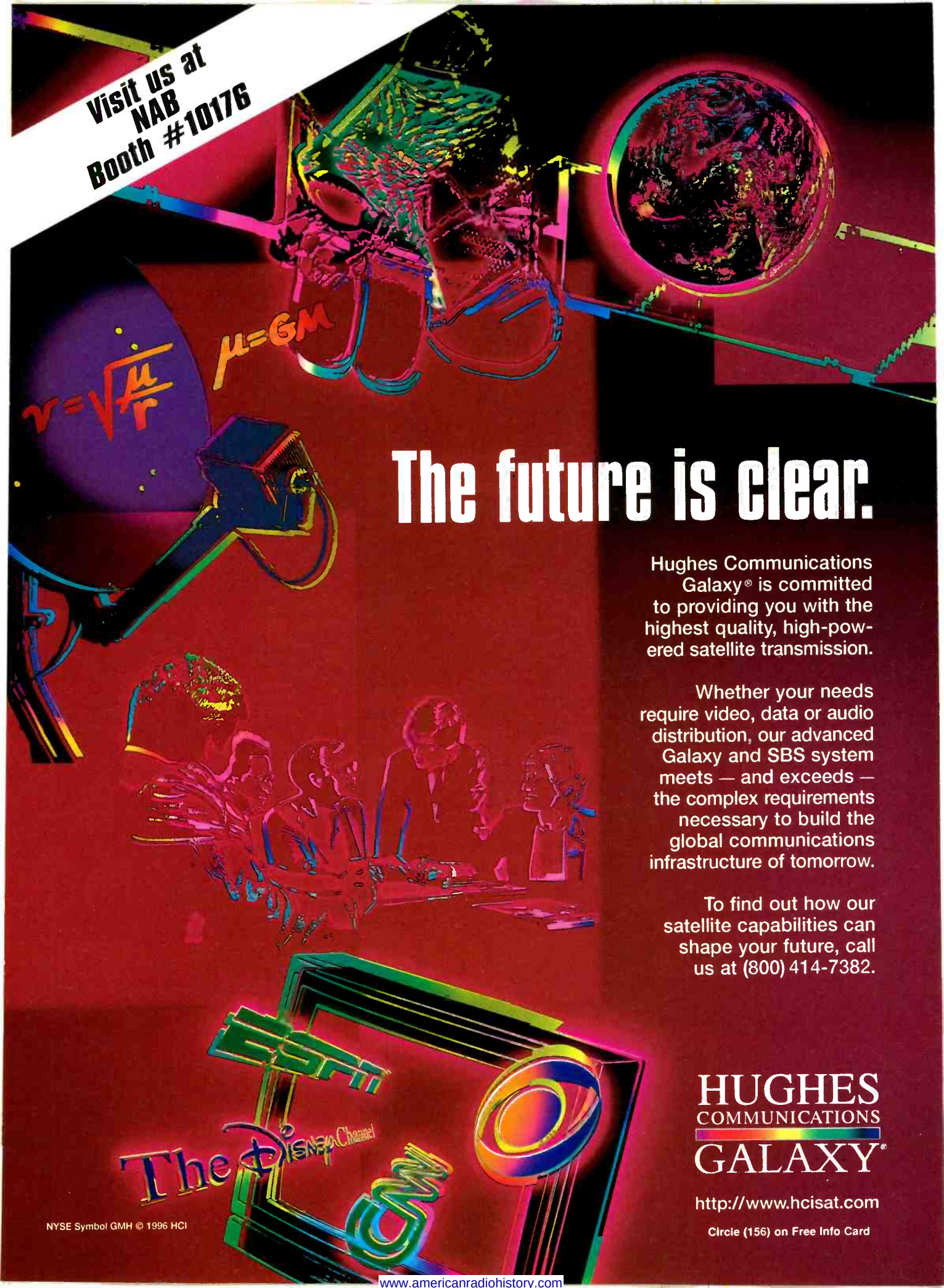

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Wohler Technologies Inc. LA 501, 9773
Introducing: serial digital video logic inserters, video stillstores; digital video keyers, mixers; digital SDI, AES mixers; AM series in-picture on screen audio level meters; digital delay systems; self-powered speaker systems; signal alarm systems; audio routers.
Circle (1162) on Free Info Card

Wolf Coach Inc. 11930
Introducing: Benchmark-2 ENG vehicle; Extended Power Truck SNG; hybrid digital, analog ENG vehicle.
Circle (1163) on Free Info Card

Wolfvision Inc. M 7270
Introducing: VZ-35B, VZ-15B professional series visualizers; VZ-7 portable series visualizer.
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World Broadcast News Magazine 5444, S 1760
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WSI Corporation 10980, M 6230
Featuring: WEATHERproducer, an integrated, data-to-weather workstation; New forecast and programming services including automated show building and a suite of broadcast imagery to deliver worldclass data, computer forecast modeling, graphics.
Circle (1166) on Free Info Card

Xicom Technology S 2572
Featuring: TWT amplifiers for the worldwide satellite uplink community.
Circle (1167) on Free Info Card

Xing Technology Corporation I 4853
StreamWorks compression product line.
Circle (1168) on Free Info Card

Yale Electronics Inc. 11265
Distributors; exhibit of antique radio equipment to commemorate 75-year anniversary.
Circle (1169) on Free Info Card

Yamaha Corp. of America 3021
Introducing: 03D digital recording mixer for audio post and music recording, interfaces directly with digital audio workstations for automated digital mixing; MX12/4 4-buss mixer features 12 inputs, XLR mic and 1/4-inch TRS jack inputs; REV500 reverberation unit using 3rd generation DSP chip for dense reverb and smooth decay, 20-bit A/D, D/A converters, integral source for snare drum, cross stick, pulse enabling reverb parameters.
Circle (1170) on Free Info Card

Yamashita Engineering Mfg. S 3635
Featuring: EDC-3000 line doubler; EDC-4000 line quadrupler; EDTV, HDTV products.
Circle (1171) on Free Info Card

Zack Electronics M 7269
Distributor for Amphenol, Erem, Neutrik, Ideal Industries, Tektronix, Cooper Tools, Switchcraft.
Circle (1172) on Free Info Card

Zapex Technologies Inc. S 4938
Introducing: ZX-2000G MPEG-2 realtime encoder; AC-3 realtime audio encoder.
Circle (1173) on Free Info Card

Zaxcom Inc. 10270
Introducing: Deva portable, removable hard disk recorder and digital mixer for field recording.
Circle (1174) on Free Info Card

Zero Cases Europe S 2932
Featuring: deep drawn light aluminum cases.
Circle (1175) on Free Info Card

ZERO STANTRON 5625
Featuring: Design Consoles engineered for durability in two sizes that include a monitor bridge with table top, cable raceway, angular positioning and other accessories; CAB/Cad design software bay-by-bay design methodology with auto selection of doors, panels, sides, integral logic, accessories.
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Zoran Corporation M 8163
Circle (1177) on Free Info Card

Circle (162) on Free Info Card

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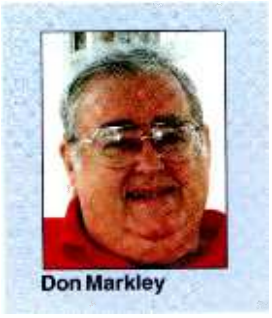
By Don Markley

Antenna pattern design

Directional antenna systems have been allowed for years for TV stations and have been widely used in UHF facilities to maximize the signal over a desired area. They have not been as popular for VHF facilities due to the lower ERP levels involved. However, there has been some use, usually in short-spaced situations or where quiet areas were involved.


Don Markley

A few years ago, the commission decided to allow the use of directional FM antennas to provide protection in short-spaced situations where commercial stations were involved. They had been usable for years before that for non-commercial stations. It took years before the commission decided that contour protection was as feasible for commercial stations as for non-commercial.

Directional FM antennas were treated the same way as TV antennas with regard to requirements, which certainly is realistic. Now, if we can just get the commission to understand that RF at FM frequencies is blocked by terrain just like television is, we can start looking at elevations that are more than 10 miles away. Sorry — raising that concept probably caused severe headaches for several attorneys as they struggle to understand that propagation cannot be legislated.

Why directionals?

There are generally two reasons for a directional antenna. You either want to put the signal into a desired area or block it from an undesired area. For example, there really is no reason for a station on a coast line to place a large signal out to sea. Transmitter power can be reduced for a given ERP by simply using a directional antenna to only send the power into areas where people may be.

In a similar fashion, if service is limited in a given direction due to extremely high terrain, a directional antenna can conserve the available watts to maximize service into the desired areas. Some hoops must be leaped through, however. The special showings are normally handled by the station's consulting engineer and mainly involve data that needs to be furnished to the commission. Most make good sense, but some still fall into the category of "we have to fix this someday." For example, the rules for television call for the applicant to specify the time phasing of fields from elements, the space phasing of the elements and the ratio of fields. This is never actually provided because no one knows but the manufacturers, and the commission wouldn't know what to do with the information if it was sent in.

On the other hand, none of that data is required for FM antennas. Instead, you have to swear that you will mount the antenna on the tower as specified by the manufacturer and that no other antennas will be in the same aperture. You also have to specify that the antenna will not be top-mounted on a tower that includes a top-mounted platform larger than the tower. I really don't know what that one is about.

In any case, two big requirements apply to FM and television. The maximum ratio of maximum to minimum cannot exceed 15dB for UHF television or FM.

Directional antennas can be used in mountaintop locations, such as this, to direct signals toward population centers and away from sparsely populated areas. (Artist's rendering courtesy of Natural Marketing/Lodestar Towers California, Los Angeles.)

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QUICK DIAL 72

MILLER
Fluid Heads and Tripods

The silky, smooth action of each Miller Fluid Head is the product of the finest quality cast and machined parts functioning together in a fluid environment. They are engineering masterpieces, built to operate under extreme conditions. They're engineered to exceptionally fine tolerances and their mechanisms are protected effectively against ambient moisture and dust.

Miller 20 -Series II Fluid Head
- Dynamic fluid drag control
- Sliding/quick release camera platform
- Weighs 4 lbs.–handles up to 22 lbs.
- Counterbalance system compensates for nose heavy or tail heavy camera configurations and permits fingertip control of the camera throughout the tilt range.
- Includes independent pan and tilt locks, bubble level, dual pan handle carriers and integrated 75mm ball levelling.

Miller 25-Series II Fluid Head
- 100mm ball level fluid head
- Robust, lightweight, low profile design
- Quick release camera platform
- Weighs 7lbs.–handles up to 25 lbs.
- Multi-step fluid drag system and integrated counterbalance system provide ultra-smooth, repeatable pan-and-tilt fluid control and finger-tip camer balance for ENG camcorders, industrial CCD cameras or small studio camers

#601-Lightweight Tripod
- Weighs 4.5 lbs., supports up to 30 lbs
- Minimum height down to 24", maximum height to 57"
- Extremely portable, folds down to 33"
- Engineered from thermoplastic moldings, diecast alloy and hard anodized tubular alloy.
- Fast, one turn, captive leg locks
- Includes 75mm (3") ball levelling bowl

#649-2-Stage Tripod
- Two extension sections on each leg. Operates at low levels as well as normal heights without the use of mini legs.
- High torsional rigidity, no pan backlash
- Weighs 6.6lbs., supports 50 lbs.
- Very portable, folds to 27"
- Includes 75mm (3") ball levelling bowl

System 20 #338—Miller 20 Head, 601 Lightweight Tripod, On Ground Spreader
System 20 ENG #339—Miller 20 Head, 649 2-Stage Aluminum, On Ground Spreader
System 25 #500—Miller 25 Head, 611 Lightweight Tripod, On Ground Spreader
System 25 ENG #502—Miller 25 Head, 641 2-Stage Aluminum, On Ground Spreader

sachtler

VIDEO 14/100 FLUID HEAD
- Sachtler Touch and Go System
- Integrated sliding battery plate
- Strengthened dynamic counterbalance in 2 steps
- Frictionless leak proof fluid damping with three levels of drag
- Vibrationless vertical and horizontal brakes
- Built in bubble for horizontal leveling

HOT POD TRIPOD SERIES

Especially developed for use in ENG, the Hot Pod tripod is the fastest in the world. The central locking system is activated on all three legs at the same time, while the pneumatic center column easily makes it possible to have the lens at a height of over 7 feet. The elevation force of the center column is factory set and doesn't require any setup. When moving to another location it can be carried by its handle located at the center of gravity.

ENG TWO-STAGE TRIPOD SERIES

Sachtler two-stage tripods have an enlarged height range (lower bottom and higher top position) so they are more universal. Legs can be locked in seconds with Sachtler's quick clamping. There are also heavy duty versions for extra stability. The heavy duty aluminum has a 20mm diameter tube vs. 16mm and the heavy duty carbon fiber has a 24mm diameter tube vs. 22mm. All heavy duty two-stage tripods have a folding tripod handle.

NEW ! Sachtler CADDY Systems

Now Sachtler quality is available to low budget users. The price of a CADDY system includes the new 7-step dampened CADDY fluid head, ultra-light but rugged carbon fiber tripod, lightweight spreader and either a soft bag or cover.The CADDY fluid head features an adjustable pan arm, 7 step adjustment for quick counter balance and the self-locking Sachtler Touch and Go System.

CAD 01
Single-Stage ENG Carbon Fiber System:
- CADDY Fluid Head
- ENG Single-Stage Carbon Fiber Tripod
- SP 100 Lightweight Spreader
- Transport Cover 100

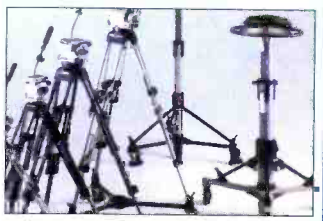
CAD 2A
2-Stage ENG Carbon Fiber System:
- CADDY Fluid Head
- ENG 2-Stage Carbon Fiber Tripod
- SP 100 Lightweight Spreader
- Soft padded ENG Bag

Vinten
Vision SD 12 and SD 22
Pan and Tilt Heads with Serial Drag

The Vision SD 12 and SD 22 are the first heads with the "Serial Drag" pan and tilt system. The system consists of a unique, permanently-sealed fluid drag and an advanced lubricated friction drag. Now you can achieve the smoothest pans and tilts regardless of speed, drag setting and ambient temperature.
- Patented spring-assisted counter-balance system permits perfect "hands-off" camera balance over full 180° of tilt.
- Instant drag system breakaway and recovery overcome inertia and friction for excellent "whip pans".
- Consistent drag levels in both pan and tilt axis.
- Flick on, flick off pan and tilt caliper disc brakes.
- Greater control, precision, flexibility and "touch"
- Touch activated, time delayed illuminated level bubble.
- Working conditions from as low as -40° up to +60°C.
- SD 12 weighs 6.6 lbs and supports up to 35 lbs.
- SD 22 weighs 12.7 lbs and supports up to 55 lbs.

Vision Two Stage ENG and LT Carbon Fibre ENG Tripods

The ultimate in lightweight and innovative tripods, they are available with durable tubular alloy (Model #3513) or the stronger and lighter, axially and spirally wound carbon fiber construction (Model #3523). They incorporate torque safe clamps to provide fast, safe and self-adjusting leg clamps.
- "Torque Safe" requires no adjustment. Its unique design adjusts itself when required, eliminating manual adjustment and maintenance and making for a much more reliable clamping system.
- New hip joint eliminates play and adds rigidity.
- They both feature 100mm levelling bowl, fold down to a compact 28", and support 45 lbs.
- #3513 weighs 6.5 lbs - #3523 CF (Carbon Fibre) weighs 5.2 lbs.



Vision 12 Systems

All Vision 12 systems include #33643 SD 12 dual fluid and lubricated friction drag pan/tilt head, single telescoping pan bar and clamp with 100mm ball base.

SD-12A System
- 3364-3 SD-12 Pan and tilt head
- 3518-3 Single stage ENG tripod with 100mm bowl
- 3363-3 Lightweight calibrated floor spreader.

SD-12D System
- 3364-3 SD-12 Pan and tilt head
- 3513-3 Two-stage ENG tripod with 100mm bowl
- 3314-3 Heavy-duty calibrated floor spreader

Vision 22 Systems

All Vision 22 systems include #3386-3 SD-22 dual fluid and lubricated friction drag pan and tilt head, single telescoping pan and clamp with dual 100mm/150mm ball base.

SD-22E System
- 3386-3 SD-22 Pan and tilt head
- 3219-52 Second telescoping pan bar and clamp
- 3516-3 Two-stage EFP tripod with 150mm bowl.
- 3314-3 Heavy-duty calibrated floor spreader

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QUICK DIAL 74

JVC DIGITAL S BR-D80/BR-D85
Digital Editing Recorder / Digital Editing Recorder with Pre-Read

Affordable, broadcast quality digital video is here. Digital-S reproduces images that not only are superior to any analog or digital 4:1:1 format but rival even the highest priced digital systems. It combines the robustness and reliability of a 1/2-inch format with 4:2:2 component processing and very mild compression to achieve and sustain excellent quality through multi-generation dubbing.

Broadcast Quality Digital Video
- 4:2:2 digital component processing adds richness and warmth unobtainable with lesser systems. Plus, only 4:2:2 stands up to the rigors of sophisticated chroma-keying, multi-generational editing, special effects, blue-screen compositing, matting, ATV up/down conversion, and multiple transconversion between compression systems.
- Mild 3.3:1 compression reproduces the finest colored details while minimizing artifacts. Digital S pumps out horizontal resolution of 540 TV lines. S/N ratio is 55dB.
- Audio is recorded by 2-channel, 16-bit PCM signals with a sampling frequency of 48kHz. PCM audio channels can be edited independently.
- Standard analog inputs/outputs provide outstanding performance for most applications. When virtually perfect dubs are required, the BR-D85 offers a serial digital interface. The one true digital video standard today, SMPTE 259M permits long cable runs and is used for direct connection to digital switchers, disk-based recorders and digital tape recorders. (Optional with the BR-D80).

Robust 1/2-inch Format
- They achieve super-high image quality using a robust, 1/2-inch metal particle cassette tape. The cassette housing has a dust-proof structure to increases tape life as well as your images. 1/2-inch format also offers an extra wide track-width of 20 microns for improved stability and reliability.
- Has powerful error correction circuitry that not only replaces data in the unlikely event of a tape dropout but continues to play back a picture even with a clogged head.

Digital Editing
- Equipped with variable slow motion which can be accessed by standard editing commands. Smooth and noiseless, the image quality of slow motion is equal to regular playback and is available within a range of ±1/3X.
- Longitudinal tracks include two auxiliary audio (cue) tracks and a control track for tracking purposes. Cue tracks provide easy location of edit points which can be heard at any tape speed.
- Because of its linear control track, Digital-S has a short lock-up time which eliminates long pre-rolls. This feature achieves a stable picture faster, saving precious editing time.
- Auxiliary video (sub-code) area stores two selectable uncompressed lines of video. Suitable for recording closed caption or other information located in the vertical blanking interval.

PRE-READ EDITING (BR-D85 Only) Previously an exclusive feature of very high-end digital systems, video pre-read enables the recorder to first play back the digital signal on the tape, before recording a new signal in its place. Operable with either digital or analog signals, pre-read lets you perform layering and A/B roll editing with only two VCRs, instead of three.

GY-X2B 3-CCD S-VHS Camcorder

- Newly designed three 1/2" CCD image sensors deliver 750 lines of horizontal resolution and superb signal-to-noise ratio of 62dB.
- Micro-lens technology provides exceptional sensitivity of F8.0 at 2000 lux and LOLUX mode lets you shoot with almost no light! Shoot superb footage with excellent color balance at a mere 1.5 lux.
- Variable Scan allows flicker-free shooting of a computer screen.
- Full Time Auto White circuit lets you move from incandescent to fluorescent to outdoor lighting without changing white balance or the filter wheel.
- Quick Record Mode - when turned on the camera is set to the auto iris even if lens is set at manual. Also activates Automatic Level Control and Extended Electronic Iris which provides both variable gain and variable shutter. Shoot continuously from dark room to bright outdoors without having to adjust gain, iris or ND filter.
- Dual output system allows camera output to be connected directly to an external recorder.

KY-27C 3-CCD Color Video Camera

- New 2/3-inch broadcast-quality 380,000 pixel CCDs with advanced electronics deliver resolution of 800 horizontal lines and reduced smear.
- High sensitivity of F9.0 at 2000 lux allows a truly usable minimum illumination of 1 lux with JVC's exclusive LoLux dual pixel readout sampling technique.
- LoLux mode allows shooting scenes that were previously impossible due to insufficient lighting. CCDs are maximized for low light sensitivity equivalent to an electronic gain of 24dB, then the dual pixel readout system is added which provides an additional 6dB. Together they provide +30dB without the noise and picture degradation normally associated with this much gain.
- Signal-to-Noise ratio of 63dB assures virtually "noise free" images.
- Auto knee circuitry extends a scene's light to dark dynamic range reproduction by up to five times without overexposure.
- Has large 1.5-inch viewfinder with 600 lines of resolution and SMPTE color bars. Status system provides audio levels, accumulated or remaining recording time, VTR operation, battery voltage and camera setup. Zebra pattern indication and safety zones with a center marker are also provided.
- Variable scan function enables a precise shutter speed from 1/60.2 to 1/196.7 of a second in 256 increments to be set, matching a computers scan rate. Almost any computer display can be clearly recorded.
- Camera head allows direct input of genlock signal and timing adjustment. A wide range optional remote controls, RS-232 interface, multicore and triax CCU's are available.
- Docks directly to the JVC BR-S422U. BR-S411UB and BR-S420CU professional S-VHS recorders. Optional adapters for docking to Hi-8 and Betacam SP are also available.

Panasonic
Broadcast & Television Systems

AG-DP800H SUPERCAM
S-VHS 3-CCD Digital Signal Processing Camcorder

- Three high-density 380,000 pixel CCDs with half-pitch pixel offset achieves over 750 lines of horizontal resolution, a S/N ratio of 60dB and remarkable sensitivity of f8 at 2000 lux. Additionally the Frame Interline Transfer (FIT) CCDs minimize vertical smear, so you maintain impressive picture quality even in very bright illumination.
- Digital Signal Processing circuitry provides four valuable benefits
  1) Consistently reliable up-to-spec performance.
  2) Fine adjustment of a wide range of parameters.
  3) Memory storage and instant recall of specific settings.
  4) More flexible and higher quality image processing, as well as easier maintenance.
- Six Scene File modes. There are two user modes for custom digital parameter settings including Horizontal Detail, Vertical Detail, Chroma and Dark Detail, and Color Correction. The four preset modes are normal, fluorescent, special and sparkling.
- In addition to regular AGC (Automatic Gain Control), Supercam has a Super High Gain mode. At F1.4 this enables shooting under illumination as low as 2 lux while retaining detail and color balance.
- Synchro Scan function allows flicker-free shooting of computer monitors. Electronic shutter increments can be set variably from 1/61 seconds to 1/253 of a second.
- Built-in internal time code generator lets you record with SMPTE LTC/VITC (Longitudinal/Vertical Interval) time code.
- Two hi-fi stereo audio channels with a dynamic range of 80 dB, as well as two linear audio channels with Dolby NR. Normal/Hi-Fi recording is selectable. Uses XLR connectors to further ensure high-quality sound.
- Has a 26-pin connector on the back that outputs a composite or component video signal. This enables convenient backup recordings using an additional VCR equipped with a 26 or 14-pin connector.
- Phantom power can be supplied to an optional microphone. Power can be switched off to prevent battery drain when not in use.

Purchase a Panasonic AG-DP800H SUPERCAM and receive a $1000 Rebate directly from Panasonic.
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QUICK DIAL 74

NRG

POWER VEST SYSTEM

The Power Vest combines the comfort and convenience of a photo-journalist style vest with the power of NRG's highest capacity power belt. Available in two styles, the **Field** model is designed for use in a field production environment, while the **Event** model is for shooting events where style is everything. The Field model is ruggedly constructed from black high density weatherized ballistic nylon and has an open-cut style that makes it comfortable to wear in a variety of climates. Also has a highly adjustable design to fit almost any physical proportion

- Internal and external pockets for blank tapes and accessories, a clear insert window for a press pass or business card, D-rings for cables and microphones, and an integral padded camera rest on the right shoulder.
- Cleverly concealed inside the vest is your choice of 12-volt 86 watt hour or 13.2-volt 95 watt hour nicad cell packs.
- A control box on the front features dual power outputs (dual cigarette, dual XLR or mixed).
- 7-stage "fuel-guage", charge status indication and auto-reset short/overload protection.

The **Event** model is very similiar to the **Field** except in place of rugged fabric and pockets it features shoulder to sternum black satin tux fabric. Worn under a suit coat, the **Event** model is indistinguishable from a formal dress vest and it still retains interior and low exterior pockets. Both vests include 300-series charger (12 hrs.) and can be used with the optional Intelliquick Fast Charger (2 hrs.)

POWER CAN SERIES

For powering single or multiple pieces of 12v DC equipment for extended periods of time, nothing beats the power and convenience of NRG's Power-Can Series. It integrates an ultra-high capacity, high-discharge-capable UPS type lead acid power cell, a world-wide fast charger, and computer-controlled monitoring system with display—in a single, rugged package. Connect up to four pieces of equipment simultaneously. From a midnight emergency scene to a wedding reception in the park, the Power-Can delivers ample power for extended running time.

- Recharge in 8-10 hours by simply plugging the Power-Can into any source of AC power (90-250v AC)
- LCD display shows discharge/charge status, voltage etc.
- An optional "Power Dolly" allows the Power-Can to be rolled for easy transport
- Available in 18, 28 and 40 amp versions, each Power-Can has either four cigarette lighter connectors, four 4-pin XLR connectors or two of each.

HORITA

BSG-50
Blackburst/Sync/Tone Generator

The BSG-50 provides an economical means for generating the most common RS-170A video timing signals used to operate various video switchers, effects generators, TBCs, VCRs, cameras and video edit controllers.

- 6 BNC video/pulse outputs
- Now available: 6 blackburst, 4 sync, 2 subcarrier
- Each sync output individually settable for composite sync, composite blanking, H-drive, or V-drive.
- Separate buffer for each output–maximum signal isolation
- 1KHz, 0dB sinewave audio tone output, locked to video
- Outputs can easily be configured to meet specific user and equipment needs..... **$269**

CSG-50
Color Bar/Sync/ Tone Generator

- Generates full/SMPTE color bars, blackburst and composite sync signals.
- Built-in timer can automatically switch video output from color bars to color black after 30 or 60 seconds. Easy and convenient for producing tape leaders and striping tapes with color bars and black.
- Front panel selection of full-field or SMPTE color bar patterns or colorblack (blackburst) video output
- Includes crystal-controlled, 1KHz 0dB audio tone output.
- Outputs: video, sync, ref frame, 1 KHz, 0dB
- Audio tone switches to silence and color bars change to black when using 30/60 second timer
- Fully RS-170A SC/H phased and always correct. No adjustment required..... **$349**

WE STOCK THE FULL LINE OF HORITA PRODUCTS INCLUDING:

WG-50 -	**Window Dub Inserter**
TG-50 -	**Generator/Inserter**
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TRG-50PC -	**Has all of the above plus RS-232 control.**
VG-50 -	**VITC Generator, LTC-VITC Translator**
VLT-50 -	**VITC-To-LTC Translator**
VLT-50PC -	**VITC-To-LTC Translator / RS-232 Control**
RLT-50 -	**Hi8 (EVO-9800/9850)TC to LTC Translator**
TSG-50 -	**NTSC Test Signal Generator**
SCT-50 -	**Serial Control Tiller "Industrial" CG, Time-Date Stamp, Time Code Captioning**
SAG-50 -	**Safe Area, Convergence Pattern and Oscilloscope Line Trigger and Generator**

QUICK DIAL 74

Canon

IF+ Series 1/2-inch and 2/3-inch Zoom Lenses

Canon's IF+ family of lenses are engineered to meet the needs of the next generation of broadcasting while meeting the standards of today. Besides having the widest wide angle lens available, the IF+ lens series have wider angles at shorter M.O.D. (Minimum Object Distance), provide higher MTF performance and incorporate Hi-UD glass for reduced chromatic aberration. In addition to superb optics they're all designed with Canon's "Ergonomic Grip" for fatigue-free shooting over an extended time. IF+ lenses are your assurance of unsurpassed quality and performance for today and tomorrow.

J15ax8B

A next generation internal focusing lens with the shortest MOD and widest angle of any standard lens, the J15ax8B IRS/IAS is a standard ENG lens that lets you shoot in tight or restricted areas at the closest mimimum object distance ever possible and capture more of the subject. It incorporates all the great features of IF+lenses including a built-in 2X extender, high MTF performance, Hi-UD glass, square lens hood and Canon's "Ergonomic Grip".

J20ax8B IRS/IAS

Excellent for ENG, sports and production, the J20ax8B IRS/IAS lets you squeeze in shots from 8mm and still take you all the way out to 320mm with its built-in extender. Incorporates all IF+ features, plus is the only lens (besides the J9aX5.2B IRS/IAS) with aVari-Polar lens hood, enabling rotation of attached filters.

anton bauer

Logic Series DIGITAL Gold Mount Batteries

The Logic Series DIGITAL batteries are acknowledged to be the most advanced in the rechargeable battery industry. In addition to the comprehensive sensors integral to all Logic Series batteries, each DIGITAL battery has a built-in microprocessor that communicates directly with Anton/Bauer InterActive chargers, creating significant new benchmarks for reliability, performance, and life. They also complete the communications network between battery, charger and camera. With the network in place, DIGITAL batteries deliver the feature most requested by cameramen: a reliable and accurate indication of remaining battery power.

DIGITAL PRO PACS

The Digital Pro Pac is the ultimate professional video battery and is recommended for all applications. The premium heavy duty Digital Pro Pac cell is designed to deliver long life and high performance even under high current loads and adverse conditions. The size and weight of the Digital Pro Pac creates perfect shoulder balance with all cameras/camcorders.

- **DIGITAL PRO PAC 14 LOGIC SERIES NICAD BATTERY** 14.4v 60 Watt Hours. 5 1/8 lbs. Run time: 2 hours @ 27 watts, 3 hrs. @ 18 watts
- **DIGITAL PRO PAC 13 LOGIC SERIES NICAD BATTERY** 13.2v 55 Watt Hours. 4 3/4 lbs. Run time: 2 hours @ 25 watts, 3 hours @ 17 watts

GOLD MOUNT BATTERIES

Logic Series Gold Mount batteries are identical to the respective DIGITAL versions with respect to size, weight, capacity, IMPAC case construction, and application. They are similarly equipped with micro-code logic circuits and comprehensive ACS sensors. They do not include DIGITAL microprocessor features such as the integral diagnostic program "Fuel Computer", LCD/LED display and InterActive viewfinder fuel gauge circuit.

- **PRO PAC 14 NICAD BATTERY** (14.4v 60 Watt Hours)
- **PRO PAC 13 NICAD BATTERY** (13.2 v 55 Watt Hours)
- **TRIMPAC 14 NICAD BATTERY** (14.4v 40 Watt Hours)
- **TRIMPAC 13 NICAD BATTERY** (13.2 v 36 Watt Hours)
- **COMPAC 14 NICAD BATTERY** (14.4v 40 Watt Hours)
- **COMPAC 13 NICAD BATTERY** (13.2v 36 Watt Hours)

InterActive 2000 Power/Chargers

A new generation of portable power systems, the InterActive 2000 Power/Charger series was designed from the ground up to offer unprecedented flexibility and economic expansion capabilities. Fully compatible with all current and future Gold Mount batteries, the InterActive 2000 Power/Chargers deliver all the advancements and proven reliability of interactive charging plus the ability to power a camera from AC mains. They also offer a unique, totally modular design that allows economical expansion to meet future needs. Starting with a base model, upgrades can be easily added at any time. With an unparalled combination of value and features, the InterActive 2000 Power/Charger system redefines the standard of power for video applications.

Standard Features on all InterActive 2000 Power/Chargers

- Two or four position models each with the full complement of InterActive technologies (see previous page) including: Automatic balance and rejuvenation. Lifesaver Maintenance. Cold battery safety and Power Loss Memory modes.
- They have a slim, lightweight design for easy portability. The 2702 and 2401 Quad Power/Chargers fit easily in a notebook computer carrying case and the 2701 and 2401 Dual Power/Chargers weigh just 2.3 pounds. Plus, they include power supplies, so you can leave your AC supply behind!
- Built in regulated DC power supply output powers cameras from AC mains worldwide. Wide range (90-260 volts AC, 50/60 Hz) input automatically adapts to any worldwide source.
- Standard serial output for printer and PC interface.
- Two power choices for optimized performance and economy.
- LCD automatically displays critical battery and charger data.
- Expanded communications with Digital Batteries and new charging protocols improve charge times and performance.
- Modular design allows addition or upgrades after purchase:
  - A charge position expansion port allows the addition of expansion charge modules to increase charge capability to four, six or eight batteries, including NP and BP-90 types.
  - Optional Diagnostic/discharge module featuring automatic calibration of digital batteries is available for each model. (standard on Quad 2702)
  - Power supply upgrade allows 40 Watt (2400 series) to be upgraded to 70 Watt (2700 series) capability.

QUAD 2702/2401
Four-Position Power/Chargers

The 2401 and 2702 are the lightest (and slimmest) full featured four position chargers ever available. Designed for the rigors of professional use, they can fast charge four Gold Mount batteries and can be expanded to charge up to eight. They also power any camera/camcorders from any AC main; all in a package the size of a notebook computer and weighing a mere 4 lbs (1.8 kg.)! The 40 watt (upgradeable to 70 watts) 2401 will charge ProPac batteries in two hours and TrimPac batteries in one hour. Add the Diagnostic/Discharge module and the QUAD 2401 becomes an all purpose power and test system with its standard LCD providing instant access to battery status. The 70 watt QUAD 2702 bundles the complete package of all the Power/Charger features in the ultimate professional power system.

Dual 2702/2401
Two-Position Power/Chargers

The DUAL 2701 (70 watt) and 2401 (40 watt) are sleek, rugged and economical two position Power/Chargers that have all the features of Anton/Bauer InterActive 2000 technology including DC camera output and an LCD display that shows the status of each battery as well as the internal battery data communicated from Digital Batteries. The high performance DUAL 2701 will charge any Gold Mount battery in one hour, the DUAL 2401 charges ProPac batteries in two hours and Trimpacs in one. Their compact, lightweight package design makes them the ultimate travel Power/Chargers. They can also be upgraded with the Diagnostic/Discharge Module and/or with the Expansion Charge Modules to charge up to six batteries of any type.

PROFESSIONAL VIDEO TAPE

QUICK DIAL 71

FUJI

Professional Grade VHS

PG-30	2.29	PG-60	2.49	PG-120	2.69

Superior Grade Double Coated VHS

SG-30	3.39	SG-60	3.99	SG-120	4.49

H471S S-VHS Double Coated

ST-30	6.99	ST-60	7.49	ST-120	7.99

M221 Hi 8 Double Coated

Metal Particles		Metal Evaporated	
P630HMP	4.99	E630HME	8.39
P660HMP	6.49	E660HME	10.49
P6120HMP	8.49	E6120HME	13.99

M321SP Metal Betacam (Box)

05S	17.95	10S	18.49
20S	19.95	30S	22.95
60L	31.95	90L	49.95

maxell

P/I PLUS Expitaxial VHS

T-30 Plus	1.69	T-60 Plus	1.99	T-90 Plus	2.09
T-120 Plus	2.19	T-160 Plus			2.69

HGX-PLUS Expitaxial VHS (Box)

HGXT-60 Plus	2.69	HGXT-120 Plus	2.99
HGXT-160 Plus			3.99

BQ Broadcast Quality Expitaxial VHS (Box)

T-30 BQ	5.49	T-60 BQ	6.19	T-120 BQ	7.39

BQ Certified Professional S-VHS (In Box)

ST-31 BQ	7.19	ST-62 BQ	8.09
ST-126 BQ	8.39	ST-182 BQ	14.99

Betacam SP

B5MSP	15.75	B10MSP	17.75	B20MSP	19.75
B30MSP	20.50	B60MLSP	29.75	B90MLSP	46.49

SONY

Hi-8 Professional Metal Video Cassettes

P6-30 HMPX	4.59	P6-30 HMEX	7.99
P6-60 HMPX	6.59	P6-60 HMEX	11.49
P6-120HMPX	8.89	P6-120HMEX	15.49

Hi-8 Metal Evaporated Editor (HMEAD)

E6-30 HMEAD	10.49	E6-60 HMEAD	14.89
E6-120 HMEAD			20.19

PR Series Professional Grade VHS

T-30PR	2.39	T-60PR	2.59	T-120PR	2.79

PM Series Premier Grade Professional VHS

T-30PM	3.49	T-60PM	3.99	T-120PM	4.79

BA Series Premier Hi-Grade Broadcast VHS (In Box)

T-30BA	3.59	T-60BA	3.99	T-120BA	4.79

MQ Master Quality S-VHS (In Box)

MQST-60	7.99	MQST-120	8.39

BRS 3/4" U-matic Broadcast Standard (In Box)

KCS-10 BRS (mini)	8.29	KCS-20 BRS (mini)	8.99
KCA-10 BRS	8.19	KCA-20 BRS	8.69
KCA-30 BRS	9.69	KCA-60 BRS	13.39

XBR 3/4" U-matic Broadcast Master (In Box)

KCS-10 XBR (mini)	8.79	KCS-20 XBR (mini)	10.19
KCA-10 XBR	9.29	KCA-20 XBR	10.69
KCA-30 XBR	11.99	KCA-60 XBR	15.69

KSP 3/4" U-matic SP Broadcast (In Box)

KSP-S10 (mini)	9.59	KSP-S20 (mini)	11.09
KSP-10	10.09	KSP-20	11.59
KSP-30	12.99	KSP-60	16.99

BCT Metal Betacam SP Broadcast Master (Box)

BCT-5M (small)	14.99	BCT-10M (small)	15.99
BCT-20M (small)	17.99	BCT-30M (small)	18.99
BCT-30ML	21.49	BCT-60ML	27.99
BCT-90ML			41.99

BCT Metal Professional Series

UVW-30MLA	18.95	UVW-60MLA	24.99
UVW-90MLA			39.95

porta brace Quick-Draw Professional
FOR CAMCORDERS OR STAND ALONE CAMERAS

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- Heavy duty shoulder strap & comfortable leather hand grip.
- Carry it in crowds – crush proof aluminum guard protects viewfinder.
- Fits into back seat and fastens securely with seat belt.
- Holds camera with on-board battery attached.
- Lid closes with Velcro for quick-opening or secure with full-length zippers.
- Dual purpose rear pouch is an expandable battery chamber or all-purpose pocket. • Two trim exterior pockets and clip board pocket.

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QUICK DIAL 731

DIGITAL PROCESSING SYSTEMS INC.

PVR-2500 'Perception'

Digital Video Recorder

The Heart of an Advanced Digital Audio/Video Workstation

The PVR-2500 offers powerful features for awesome animation, morphing and roto-scoping capabilities. With features like 720 x 480 resolution, 10-bit 2x oversampled video encoding, better than D1 scaling, component and S-Video outputs, multi-processor support and integrated FAST SCSI-2 controller, it empowers your computer to rival the finest professional production studios.

- The PVR-2500 is a full-length PCI card with a FAST SCSI-2 controller which connects to one or up to seven dedicated hard drives. Because the SCSI controller is integrated with the PVR-2500, video data never has to go over the PCI bus during playback. This avoids the bottlenecks found in systems which use the computer's hard drive for video storage.
- Perception gets animations out of your computer fast and easy. Its exclusive multi-format virtual file system ensures complete integration with your Windows NT applications. Any acquired video or computer generated Perception video clips appear simultaneously in many different file formats including TARGA, SGI, BMP and IFF. Perception is compatible with Lightwave 3D, Autodesk 3D Studio Max, Crystal Graphics TOPAS 5.1 PRD, Microsoft SoftImage, Elastic Reality and others.
- Runs under Windows NT 3.5 on computers with Pentium, DEC Alpha or MIPS processors. Perception's software utilizes NT's native support for multitasking and multiple processors, allowing use with the most powerful computers.
- Perception performs real-time interpolation of 30 fps video to 24 fps film rates or vica versa. This means that it is also at home on the Hollywood movie set as well.
- Video output section utilizes 10-bit 2x oversampled encoding and provides broadcast quality CCIR-601 (720 x 480) resolution. Dynamic range is in excess of D1 scaling so images are brighter, have more color and greater spatial resolution than ever before. Component, composite and S-Video outputs are provided via the included breakout cables.
- Also control BVU protocol VCRs for video acquisition. VCR-like controls on the Perception's GUI simplifies the task of batch digitizing and recording. In this mode, the PVR-2500 can read SMPTE time code from the source deck.
- Can be used with any Windows NT compatible sound card while synchronization of audio and video is maintained by the PVR software. Captured audio is stored on the computer's system hard drive, not on the dedicated drives. This approach provides maximum flexibility for manipulating audio and video during editing.
- Can be used with third party editing software such as Adobe Premier or in.sync Speed Razor MACH III. In fact, a system equipped with the PVR-2500 , AD-2500 capture card, a sound card, editing software & one or more SCSI drives becomes a non-linear editor of unparalled performance – at an unbeatable price.

AD-2500 Component Video Capture Card

Coupled with the AD-2500 live video capture daughter card, the PVR-2500 becomes a broadcast-quality digital disk recorder. It delivers unsurpassed picture quality and storage capacity is limited only by the size/number of attached SCSI hard drives.

- Has component, composite and S-Video inputs for real-time recording. Captured video can also be exported as sequential RGB files for rotoscoping and other compositing applications.
- Incorporates a sophisticated automatic entropy prediction circuit that analyzes the content of incoming video and dynamically calculates the optimum amount of compression on a field-by-field basis—even during real-time recording. You also have complete manual control over compression level/quality settings.

FX-2500 Perception Effects Accelerator

The FX-2500 significantly reduces the time required to render complex non-linear transitions. Although it doesn't deliver real-time transitions, it significantly improves the productivity of non-linear editing systems by dramatically speeding up the rendering time for many effects and transitions.

- A stand-alone PVR-2500 provides real-time cuts between video clips, but other transitions ,such as dissolves and wipes, substantial delay can occur. A 30 frame dissolve can take minutes to render, even with the fastest PC, because the host CPU processes source frames on a pixel-by-pixel basis. The Perception FX reduces the waiting to time to under 10 seconds.

DAR-2500 Digital A4V Recorder

Featuring comprehensive audio post-production capabilities, the A4V (Audio for Video) board provides perfect video/audio synchronization when used with the PVR-2500. A full-length PCI card, the A4V's input and output connections are made via the supplied breakout cables while digital audio is stored on the system hard drive. And to ensure compatibility with third-party audio editing software, it plays and records standard uncompressed WAV files. It can also be controlled directly by video editing software like in.sync's Speed Razor Mach III.

- Non-linear, non-destructive audio editing. No waiting for edits to compile.
- True audio scrub.
- Simultaneous record/playback. Play up to three stereo tracks while recording one stereo track.
- Mix four stereo source tracks down to two output channels in real-time.
- Four-band Parametric EQ for each channel (assignable by stereo pair).
- Real-time reverb and compressor/limiter. Additional effects can be easily added via software upgrades.
- Built-in LTC/ VITC time code generator/reader/inserter lets you create window dubs with time code information superimposed over composite or S-video signals.
- Unlimited audio editing capabilities with third party software.

TRUEVISION

TARGA2000 DTX/RTX

NEW!

The **TARGA 2000 DTX** (data throughput enhanced) is a next generation digital video solution that delivers unmatched price/performance on the desk-top, as well as offering a secure, flexible upgrade path to real-time digital video effects. The 2000 DTX offers an open systems architecture and an industry best data rate of up to 12 MB/second to deliver the most pristine video quality available on the desktop today – at any price. A single codec configuration of the award-winning TARGA 2000 RTX, the 2000 DTX is a perfect matc for professional non-linear editing, compositing, animation, and 3D applications.

- Motion-JPEG codec, DVR architecture delivers near lossless quality video Supports data rates up to 12MB/second (400 KB/frame NTSC)
- CCIR 601 720 x 486 NTSC and 720 x 576 PAL resolution support. Square pixel 640 x 480, 648 x 486 NTSC or 768 x 576 PAL resolution support
- Synchronized audio and video in hardware
- Balanced CD and DAT quality audio via XLR connectors with optional Breakout Box .The box can be utilized as a desktop device or rack mounted in a standard 19" rack.
- Drives both RGB and NTSC/PAL monitors simultaneously
- On-board acceleration up to 600% of 19 popular Adobe Premiere transitions
- Cross platform support for Mac QT and Windows NT
- Video-for-Windows native file formats
- Supports component YUV, RGB, S-Video and composite input and output
- For those that will come to need non-linear A/B roll editing capability, there is also an upgrade path to the real-time effects processing .of the TARGA 2000 RTX.

The **TARGA 2000 RTX** brings real-time processing and the highest I/O throughput to the desktop. It delivers real-time DVE, broadcast quality video, and professional I/O connections with support for industry standard video file formats under MacWindows NT operating systems. The system is designed to meet the needs of video professionals who are looking for an open-system solution for non-linear editing and desktop multimedia production.

- Processes digital video effects such as wipes, fades and dissolves in real-time. These common transition effects now require long render times using the host CPU for many computer-intensive tasks. On the RTX, these frames are created in real-time at full quality. Once frames are created by the RTX, they can be instantly output to tape at the high quality level demanded in professional broadcast applications— full motion 60 field NTSC and 50 field PAL broadcast quality video (300 KB/frame). Supports CCIR 601 as well as square pixel resolutions.
- Fully video-for-windows and QuickTime native, so all your current authoring applications supporting these standards will fly with TARGA.
- Drives both the video monitor and the RGB screen up to 21 inches at 24-bit color and supports full-motion previewing on both RGB and video displays for optimal video editing.
- Designed for easy integration into broadcast and post-production facilities, the 2000 RTX includes a breakout box which can be rack mounted or used as a stand alone device on the desktop. The box allows easy connection to Composite, S-Video or Component input/outputs as well as XLR balanced audio, genlock and alpha channel connections.

QUICK DIAL 731

FAST The Art of Digital Video

Video Machine

Video Machine is an edit controller for A/B roll, A/X roll and audio/ video split editing. It controls any VCR with Control-L or Panasonic 5-pin edit protocol. With optional interface it provides RS-232/RS-422 machine control as well. Controls 3 VCRs with no other hardware. It also features EDL export, alpha wipes, test pattern generator, Editing Panel, and more than 400 digital effects.

- Bundled VM-Studio software uses a graphical timeline interface for editing. You can work with all available material at the same time, and all objects in the timeline can be edited and moved to any position, any time.
- During previews and recording uses time code (VITC, RC, Control Track) to accurately cue the VCRs to the in/out points of individual clips. Graphics, titles, and effects are automatically inserted at the point specified.
- Over 400 digital video effects (dissolves, wipes, tumbles, flips, picture-in-picture, fly-ins, fly-outs, zoom etc). With the DVE Editor, create an unlimited number of 2D effects. All effects are performed in real time.
- Supports composite and S-Video signals in PAL and NTSC. Up to six video inputs (two of which are controllable) can be connected, and any two can be assigned to the two video channels. Video standards can be mixed in real time.
- Two integrated frame synchronizers eliminate the need for TBCs (Time Base Correctors). Also provides two 32-bit framestores and a built-in background color generator.
- VM-Titler lets you create titles, logos and graphics in Windows application such as Corel DRAW or Photoshop. Use any font, size and color. Graphics produced in standard word processing or graphics applications are imported via the VM-Titler software module. Scanned pictures or images can even be imported from Photo CDs. Titles and graphics can be manipulated with any of the effects available. Functions such as scroll and crawl titling are off and running within a matter of seconds. Has complex filters for anti-flickering, scaling etc. Produces text without "stair-stepped" effects.

VIDEO MACHINE + DPR = HYBRID EDITING

Linear and Non-Linear Editing in a Single System for Maximum Flexibility

Video Machine with DPR (Digital Player/Recorder) is the only system which offers real-time mixing of analog and digital sources. Video Machine with DPR integrates two complete editing systems under one interface, thus ensuring the optimum balance of cost, performance, training, and maintenance. It executes both tape- and hard disk-based edits effortlessly, and it's simply a matter of preference whether you work in analog or digital, or both — all on the same system Only the FAST hybrid system gives you the best of both worlds. Instead of being stuck with an inflexible system, you can select your method to suit your circumstances For example, viewing and logging your tape footage can be tedious enough without having to face the next step. But imagine instructing the system to copy selected scenes onto the hard disk, while you take a coffee break. When you come back, you're ready to enjoy the creative freedom of non-linear. And once the creative decisions are made, you can either have the system perform the on-line edit for you, from tape or hard disk, or you can choose to go with an EDL export. No other system gives you this much flexibility.

DPR (Digital Player/Recorder:

- With DPR Video Machine becomes a state-of-the-art digital editing system. In addition DPR executes effects and transitions in real time. True M-JPEG compression enables every frame or field to be accessed individually.
- Compresses and decompresses video (software-selectable) from 200:1 to 2:1. At 2:1 DPR delivers broadcast, on-line quality allowing for mastering directly from the hard disk.
- Video Machine system treats the DPR just like any other "normal" video source. The DPR is enabled by a single mouse-click in the VM-Studio software. The edit suite instantly converts to nonlinear and allows you for example, to execute an offline edit in real time. A second click changes the editing suite back to analog. You can now edit the project using tape source material from your VCRs. Whether working on- or off-line, linear or non-linear—all four editing modes are available on one complete system.
- Integrated digital eight-channel mixer allows audio to be edited in real time in standard WAVE format. The audio is synced to video and recorded in full 16-bit, 48 kHz sampling. It is easy to split the digital audio and video signals, and the waveform display helps to precisely position edits. All eight online tracks can be monitored simultaneously.
- DPR is an ideal solution for animation. It offers broadcast quality while reducing recording time to a fraction of what is required with single-frame capable VCRs. Scene logging and batch digitizing are also automatically integrated via the connection of the edit control functions of Video Machine.
- Video Machine is based on an open architecture design and is almost infinitely expandable as far as storage. Up to 29 hard disks can be daisy-chained directly to the DPR. Using 9 GB drives, up to 260 GB is available on the system - enough for 15 hours of 5:1 or 300 hours of 100:1 video.

OPTIONAL ACCESSORIES:

Video Machine is designed to interface perfectly with traditional broadcast equipment. These rack-mountable accessories integrate Video Machine into a professional video studio environment.

Studio Control (SC) :
Connects video, audio, sync, machine control and TC cables from VCRs to Video Machine. With built-in LTC reader/generator, additional preview outputs, balanced XLR audio and reference in/out, the SC Box offers a simple way to interface with studio equipment.

YUV Interface:
19-inch terminal box connects to the internal YUV board. Enhanced analog bandwidth, 2X oversampling and a balanced signal filter guarantee excellent quality. Included calibration software lets you adjust volume and timing. Digital signal passes directly without generation loss.

GPI Box :
The GPI box provides control of external DAT recorders, CD players, video mixers and effect generators. As a master, Video Machine can sync control of up to four devices with pulse signals and has tally support for live cameras. In slave mode, Video Machine serves as the player for titles, graphics and digital video effects.

Jog/Shuttle Wheel:
An alternative to the mouse and keyboard, the physical Jog/Shuttle wheel offers a bette "feel" for the edit and during previiew.

ANTEX ELECTRONICS

StudioCard

4-Channel Digital Audio Card for Windows

The next generation in digital audio for the desktop, StudioCard is a premium-quality digital audio adapter with advanced features, studio-quality specs and professional connections. Unmatched in quality, flexibility and expandability, it features 4 tracks of audio sound and real-time digital mixing capability,making it the ideal board for musicians who want digital multitracking and mixing on their PC, or producers looking for a versatile board for post-production digital audio editing and uncompromised audio quality. StudioCard is Windows 95' plug and play compatible plus includes drivers for Windows NT as well.

- Key to StudioCard's amazing sound is the marriage of a low noise analog I/O section and high quality A/D and D/A converters. A PCI-based 32-bit memory mapped board, it delivers less than 0.003% total harmonic distortion and 92dB dynamic range. Plus, a PLL-based sample clock generator that can be locked to an assortment of clock sources.
- Incorporates a programmable 32-bit 40 MHz DSP and pro connections like 4 independent balanced analog I/Os (+4dBu or -10 dBV) and AES/EBU or S/PDIF digital I/O. It also offers a MIDI port with deep buffers and time stamping. No matter which type of equipment you have StudioCard will integrate into standard studio environments.
- Compatible with film, video or MIDI. StudioCard offers synchronization via SMPTE, MTC, word and pixel clocks, and composite video. Plus, the StudioCard not only reads SMPTE timecode, but generates it as well.
- Unique to the Antex design is StudioCard's multiple adapter capability. This means you can install multiple StudioCards in a single computer for up to 16-track recording. Start with one StudioCard today - add more StudioCards tomorrow. Also included is an on-board SPx expansion connector for plugging in optional daughtercards for compression or enhanced DSP operations.

Minimum Shipping USA (Except AK & HI) $7.00, up to 3 lbs. Add 60¢ for each additional lb. For ins. add 40¢ per $100. © 1997 B&H Photo - Video. Prices are valid subject to supplier prices. Not responsible for typographical errors.

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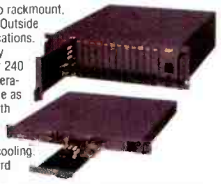
QUICK DIAL 72

nova SYSTEMS, INC.

StudioFrame Modular Video Processing System

The Nova StudioFrame Series is a modular, flexible, digital/analog signal processing system. It is designed to efficiently and effectively combine a wide variety of individual function (or processor) boards such as A-D and D-A converters, video signal encoders and decoders, audio and video distribution amplifiers and frame synchronizers into more complex function groups, all in one equipment mainframe. The scalable nature of the StudioFrame design allows it to be easily reconfigured and/or upgraded as today's video standards and requirements continue to evolve. The system is based on two rackmount frame models (the SF-3 and SF-1) allowing up to thirteen front loading processor boards and thirteen rear mounted passive interface cards to be accommodated in a single chassis. Both the StudioFrame SF-1 and SF-3 chassis are designed to meet the most stringent broadcast requirements. The SF-3 is a thirteen slot, 3RU chassis while the SF-1 is a 4 slot, 1RU chassis. All studio cards as well as the two chassis' are backed by a two year warranty on parts and labor with guaranteed 24-hour turnaround service. The units are ruggedly constructed to endure studio rackmount, production van and OB (Outside Broadcast) mobile applications. A universal power supply operates at either 110 or 240 VAC, 50/60 cycle. DC operation is optionally available as is a redundant supply with automatic switchover. Dual exhaust fans maintain proper airflow and cooling. "Hot swappable" front card loading allows power-on removal/insertion of individual processing modules without disturbing others in the system. All cabling can remain in place while you service* any module. An intelligent "centerplane" provides power, sync, timing and data distribution, facilitating expansion to more complex, more cost-effective signal processing functions.



NovaASD/NovaSDA
Analog to Serial Digital & Serial Digital to Analog Converters

Components of the Nova StudioFrame series, the NovaASD and the NovaSDA incorporate the latest digital video processing techniques for high speed A-D and D-A signal conversion. They are designed to meet the most stringent broadcast requirements and their "hot swappable" front card loading facilitates servicing without disturbing other cards in the system. The NovaASD is ideal for for interfacing analog signals with digital video formats and the NovaSDA for interfacing serial digital signals with existing analog video systems as well as for signal monitoring applications.

SDA-1 Serial Digital Component to Analog Component Converter
- SMPTE 259M 4:2:2: Serial Digital Component (D1) input,
- Equalized and reclocked serial digital component output
- Analog component video (Y, R-Y, B-Y/YUV), RGB or RGB/S outputs
- 10-bit D/A converters
- Output level control
- NTSC and PAL compatible

SDA-2 Serial Digital Component to Composite and S-Video Converter
- SMPTE 259M 4:2:2: Serial Digital Component (D1) input,
- Equalized and reclocked serial digital component output
- Dual composite & dual S-Video outputs
- Color bar output selectable
- 10-bit O/A converters
- Output level control
- NTSC and PAL compatible

SDA-3 Serial Digital Composite to Analog Video Converter
- SMPTE 259M Serial Digital Composite (D2,D3) input,
- Equalized and reclocked serial digital composite output
- Four analog composite video outputs
- Color bar output selectable • 10-bit D/A converters

ASD-1 Analog Component to Serial Digital Component Converter
- Analog component video (Y, R-Y, B-Y/YUV), RGB or RGB/S input
- Dual SMPTE 259M 4:2:2 Serial Digital Component (D1) outputs
- 10-bit D/A converters
- Picture positioning control
- NTSC and PAL compatible

ASD-2 Analog Composite and S-Video to Serial Digital Component Converter
- Analog composite and S-Video input
- Dual SMPTE 259M 4:2:2 Serial Digital Component (D1) outputs
- 10-bit D/A converters
- NTSC and PAL compatible

ASD-3 Analog Composite to Serial Digital Composite Converter
- Analog composite video input
- Dual SMPTE 259M 4:2:2 Serial Digital Composite (D2/D3) outputs
- 10-bit D/A converters
- Input gain adjustment

NovaMNR Median Noise Reducer

The NovaMNR is a StudioFrame card that eliminates impulse and transmission noise, cleans up satellite, microwave and fiber feeds and fills in CODEC and time-based corrected videotape drop-outs. It features full bandwidth, uncompressed 10-bit digital processing for ultimate video transparency as well as analog composite inputs and outputs.

- Eliminates "sparklies", those black and white dots that sometimes appear on remote video feeds. The NovaMNR incorporates a proprietary adaptive three-dimensional median filter that analyzes pixels from several fields of video and replaces the impulse noise with uncontaminated, clean video.
- Universal drop-out compensation replaces missing video information, whether it is from a time-base-corrected VCR source or the decoded output of a CODEC feed. The NovaMNR effectively fills in drop-outs with replacement video from the surrounding pixels and previous video field.
- Control's are accessible locally or remotely. A three position threshold switch (off/low/high) adjusts system noise sensitivity while a bypass/operate switch is also included. Both switches are remoteable via RJ-11 jack.
- Also available in PAL and PAL-M versions.

NC-8 RGB/Component to Composite/S-Video Encoder

The NC-8 processor module is a 10-bit digital encoder that converts analog RGB or component video input sources into Y/C and composite video. Designed to facilitate multi-format interface requirements, the module incorporates the latest digital video processing techniques along with luminance and chrominance pre-comb filtering to assure the highest quality encoding. A frame of memory is utilized to provide an effective zero insertion delay.

- 10-bit processing, 8-bit O/A conversion
- Zero insertion delay, frame of memory
- Two composite and one S-video output.
- Analog RGB (Sync on Green or all three), RGB/Sync and YUV (Betacam) inputs. Also available with looping inputs.
- Variable luminance notch filter
- Y and C pre-comb filtering for maximum encoding performance
- Remote serial control
- Output level control
- Color bar output selectable
- Designed to meet the most stringent broadcast requirements.
- "Hot swappable" front card loading facilitates servicing without disturbing other cards.
- Available in PAL and PAL-M versions

NovaRouter Intelligent Matrix Routers

NovaRouter is a series of serially controlled audio and video matrix routing switchers. These intelligent routers are available in 8x8, 16x16 and 32x32 matrices. They are capable of up to five switching levels to support unlimited combinations of Stereo Audio, Composite Video, Y/C Video, Component Video (Beta or MII), RGB/S and VGA Graphics. Audio follow video or breakaway routing is controlled by very intuitive computer software or optional XY control panels.

The computer software and VGA display provides quick visualization of all crosspoints and facilitates routing operations. An unlimited number of switching configurations may be stored and recalled at the click of a mouse. User defined labels for all sources and destinations provide positive identification of the matrix status. One computer can control several NovaRouter Systems for multiple studio or large presentation system applications.

The optional, easy to use, XY control panels provide routing functions for basic systems without the use of a computer interface. All video, audio and audio follow video switching functions are controlled by source select and destination select switches. Changing and verifying the matrix configuration is simple and clear. The XY controls may be front panel mounted or are available as a remote control unit.

Broadcast quality audio and video processing and microprocessor control ensure superior quality and performance. Yet, the simplicity and modular configurations of NovaRouters™ make them economical for broadcast, production, cable TV, graphics, presentation, teleconference and educational applications.

- 8x8, 16x16 and 32x32 switching matrices
- Stereo audio, composite video, Y/C, component video, RGB/S and VGA
- Up to five (5) levels of switching
- Audio follow video and audio break-away
- Serial control via intuitive computer software or optional XY control units
- Computer VGA monitor display provides quick visualization of all crosspoints
- Easy single "click" mouse switching control
- User labeling of sources and destinations
- Store system configurations in memories
- Multiple locations can be controlled from one computer
- Push-button XY control options, front panel mount or remote control units
- Audio and video modules provide easy system upgrade

VIDEONICS PowerScript™
Animated Postscript Character and Graphics Generator

QUICK DIAL 74

The most advanced character generator ever designed for video production, multimedia and industrial applications, PowerScript delivers the huge range of titles and graphics supported by PostScript display technology, plus animation, effects, transparency and color keying. It features two GPI inputs, anti-aliased, 17.5 ns (nanosecond) pixel resolution and 4:2:2 broadcast-quality video. It also offers high-speed RISC processing to provide real-time Level 2 PostScript imaging and fast rendering—even with the most complex images. The PowerScript works stand-alone or with a computer, has a built-in TBC, offers a powerful and intuitive interface, and is suitable for the desktop or can be rackmounted.

Powerful Character Generator
- Choose from 35 built-in fonts or download PostScript fonts from your PC. PowerScript's high-speed RISC processor provides real-time PostScript imaging.
- Characters can be rotated at any angle, scaled to any size, stretched horizontally or vertically.
- Styles include variable bold and italic, underline and shadow (drop shadow, variable displacement and opacity). Each character can be adjusted separately.
- Text can be positioned anywhere on the screen or automatically centered, vertically or horizontally. Left, right, top, bottom and center justification is also provided.
- Characters are automatically kerned, using the font's standard kerning information. Spacing is highly flexible with variable word and letter spacing and line spacing (leading).

Intuitive User Interface
- Built-in real-time object-based drawing tool and text editor—no computer or software required. Design can be done ahead of time and displayed later, or can be done on the fly.
- Supplied keyboard and mouse are used with easy on-screen menus to place and modify graphics and text.
- Change fonts, colors, and other characters instantly.

Transparency and Colors
- Characters can be made transparent (0-100%) over video, other characters and graphics with 64 levels of transparency.
- Opaque characters can use over 4,000,000 colors; transparent characters can use over 8,000.
- Different colors can be used for fill and outline (variable width) as well as each letter and each graphic.

Roll, Scrawl, Animation, Effects
- Variable speed roll, crawl and push (slide) in all directions.
- Every text object, graphic and logo can be animated. Complex animations include having elements follow paths, bounce, etc.
- Elements can change outline and/or fill color, transparency, position as they move and results are displayed in real time.
- Move individual characters in different directions; make colors change; flash words; make letters and words bounce; spin a letter across the screen. Use fades and wipes to transition between titles and video or between two pages of titles.

Backgrounds and Graphics
- Titles can be placed on solid color, patterned or graduated backgrounds, or they can be genlocked to incoming video.
- Lines, squares, rectangles, ovals and circles can be created and placed anywhere on the screen. Each graphic object can use a different color, transparency, rotation, size, fill and outline.

Imported Logos and Graphics
- Accepts most PostScript or PCX format graphics without modification. Imported images can be any size and can be scaled, skewed, and rotated when placed on screen. Transparency and anti-aliasing can be defined when graphic is generated.

Expansion Capabilities

Although PowerScript operates on its own, you can still add peripherals and connect to a computer or network. Two PC-card slots allow the addition of non-volatile flash-RAM and Ethernet cards. RS-232 port allows connection to desktop computers for added storage and downloading of fonts or graphics from a PC.

QUICK DIAL 72

LEADER

Manufacturing test and measurement equipment for over 40 years, Leader Instruments is the standard which others are measured against for reliability, performance, and most important—cost effectiveness. Before a product is brought to market, an exceptional degree of energy and effort go into its design. Prototypes are built and tested to withstand environmental and other factors far exceeding actual operating conditions. These include high humidity, extremes of heat, cold, shock and vibration. Manufacturing quality is built in every step of the way and only the finest parts are used. At each production run, subassemblies are separately tested before they are integrated into the finished product, then each product is tested again. This is why less than half of 1% of all Leader products are ever returned for warranty repair or adjustment.

5860C WAVEFORM MONITOR

A two-input waveform monitor, the 5860C features 1H, 1V, 2H, 2V, 1 s/div and 2V mag time bases as well as vertical amplifier response choices of flat, IRE (low pass), chroma and DIF-STEP. The latter facilitates easy checks of luminance linearity using the staircase signal. A PIX MON output jack feeds observed (A or B) signals to a picture monitor, and the unit accepts an external sync reference. Built-in calibrator and on-off control of the DC restorer is also provided.

5850C VECTORSCOPE

The ideal companion for the 5860C Waveform Monitor, the 5850C adds simultaneous side-by-side waveform and vector monitoring. Featured is an electronically-generated vector scale that precludes the need for fussy centering adjustments and eases phase adjustments from relatively long viewing distances. Provision is made for selecting the phase reference from either A or B inputs or a separate external timing reference.

5100 4-Channel Component / Composite WAVEFORM

The 5100 handles three channels of component signals, plus a fourth channel for composite signals, in mixed component / composite facilities. Features are overlaid and parade waveform displays, component vector displays, and automatic bow-tie or "shark fin" displays for timing checks. Menu-driven options select format (525/60, 625/50, and 1125/60 HDTV), full line-select, vector calibration, preset front-panel setups and more. On-screen readout of scan rates, line-select, preset numbers, trigger source, cursor time and volts.

5870 Waveform/Vectorscope w/SCH and Line Select

A two-channel Waveform/Vector monitor, the microprocessor-run 5870 permits overlaid waveform and vector displays, as well as overlaid A and B inputs for precision amplitude and timing/phase matching. Use of decoded R-Y allows relatively high-resolution DG and DP measurements. The 5870 adds a precision SCH measurement with on-screen numerical readout of error with an analog display of SCH error over field and line times. Full-raster line select is also featured with on-screen readout of selected lines, a strobe on the PIX MON output signal to highlight the selected line, and presets for up to nine lines for routine checks.

5872A Combination Waveform/Vectorscope

Models 5872A offers all the operating advantages of the 5870, except for the following: SCH is deleted from the 5872A (line select retained), making it ideal for satellite work.

5864A Waveform Monitor

A two-input waveform monitor that offers full monitoring facilities for cameras, VCRs and video transmission links. The 5864A offers front panel selection of A or B inputs, the choice of 2H or 2V display with sweep magnification, and flat frequency response or the insertion of an IRE filter. In addition, a switchable gain boost of X4 magnifies setup to 30 IRE units, and a dashed graticule line at 30 units on screen facilitates easy setting of master pedestal. Intensity and focus are fixed and automatic for optimum display. Supplied with an instruction manual and DC power cable.

5854 Vectorscope

A dual channel compact vectorscope, the 5854 provides precision checkout of camera encoders and camera balance, as well as the means for precise genlock adjustments for two or more video sources. Front panel controls choose between A and B inputs for display and between A and B for decoder reference. Gain is fixed or variable, with front panel controls for gain and phase adjustments. A gain boost of 5X facilitates precise camera balance adjustments in the field. Supplied with a DC power cable.

Designed for EFP and ENG (electronic field production and electronic news gathering) operations, they feature compact size, light weight and 12 V DC power operation. Thus full monitoring facilities can be carried into the field and powered from NP-1 batteries, battery belts and vehicle power. Careful thought has been given to the reduction of operating controls to facilitate the maximum in monitoring options with the operating simplicity demanded in field work.

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Panel antennas, such as this digital-ready UHF antenna, may be used for a variety of DTV installations, many of which will be directional. (Cutaway photo courtesy of Elettronica Industriale, Italy.)

For VHF television, the limit is 10dB. Another of life's mysteries. An antenna between 82 and 88MHz is different than one at 88.1MHz.

One big area that is treated too lightly is beam tilt and null fill. These are treated with "rule-of-thumb" numbers far too often. A good RF engineer must always look at the market location and terrain as significant factors in the antenna design.

First, beam tilt must be used on tall towers or buildings to keep the signal on the ground. A high gain antenna on a 1,500-foot-tower with no beam tilt will send a great majority of the transmitted signal out into space. Beam tilt must be used to bring the signal to the ground before the horizon, placing the signal where it will be used; albeit at the sacrifice of service to the space shuttle.

Engineers have long worked with simple terms like "10% first null fill" or something comparable as an easy way to treat nulls below the main lobe. However, the manufacturers have developed the ability to shape the underside of the main lobe thanks to the convenience of computer-aided analysis and design. This allows weak signal areas close to the site to be avoided. For example, one design on a Midwest station resulted in a 10dB improvement in the downtown area, which happened to be in a river valley near the site. So remember, antennas are directional in the vertical plane just as in the horizontal plane. No reasonable design treats only the horizontal plane, especially on high towers with high gain antennas.

Incorporating a directional antenna, along with beam tilt and lobe shaping, into a system design should be done in close cooperation with the station's consulting engineer and with the desired manufacturer. Remember, this part must be done right before the antenna is installed. It is a real dog of a problem to try to change the H and V patterns after installation. ■

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transition to digital

Continued from page 16

a single color space (Y, Cr, Cb), a limited range of resolutions and compression ratios, and has built-in mechanisms for handling audio.

- MPEG takes advantage of the high degree of commonality between pictures in a video stream, and the predictable nature of movement (interpicture encoding).
- MPEG provides for a constant bit rate through adjustable variables, making the format predictable with regard to bandwidth requirements.
- MPEG specifies the syntax for storing and transmitting compressed data and defines the decoding process. The standard does not, however, specify how encoding should be performed. Such implementation considerations are left to the manufacturers of encoding systems. Still, all conforming encoders must produce valid MPEG bitstreams decompressable by any MPEG decoder. This approach is one of the strengths of the MPEG standard. Allowing encoders to use proprietary, but compliant, algorithms means that a variety of implementations are possible and — indeed — encouraged.

The collection of MPEG standards includes:

- MPEG-1, the original implementation, targeted at multimedia uses. The MPEG-1 algorithm is intended for compact disc bit rates of approximately 1.5Mb/s to 2Mb/s. MPEG-1 supports 525- and 625-type signal structures in progressive form with 204/288 lines per frame, sequential-scan frame rates of 29.97 and 25 per second and 352 pixels per line. The coding of high-motion signals does not produce particularly good results, however. As the bit rate is reduced (compression increased), the output video quality gradually declines. The overall bit-rate reduction ratios achievable are about 6:1 with a bit-rate of 6Mb/s and 200:1 at 1.5Mb/s. The MPEG-1 system is not symmetrical; the compression side is more complex and expensive than the decompression process, making the system ideal for broadcast-type applications where there are far more decoders than encoders
- MPEG-2, offers full CCIR-601 resolution. Most MPEG development at this time focuses on this standard, which incorporates interlaced video capabilities.
- MPEG-3 was originally targeted at high-definition imaging applications. Subsequent to development of the standard, however, key specifications of MPEG-3 were absorbed into MPEG-2. Thus, MPEG-3 is no longer in use.
- MPEG-4 is a new standard currently under development. It uses extremely low bit rates for teleconferencing and related applications requiring high bit efficiency.

Next month we will look at MPEG-2 in more detail, focusing on the performance profiles available, and their practical applications in the real world. ■

Editor's note: *Portions of this section were adapted from: G. Lakhani, "Video Compression Techniques and Standards," in The Electronics Handbook, J. C. Whitaker ed., Chapter. 84, pp. 1,273–1,282, CRC Press, Boca Raton, FL, 1996. Used with permission.*

Jerry Whitaker is a consulting editor for Broadcast Engineering *magazine.*

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By Mark Creel

CNNfn implements the latest in graphics technology

CNNfn's planners decided to trailblaze the technological frontier in equipping the new graphics facility for the first all-digital network. Since CNNfn was the first network to launch on television and the web (www.cnnfn.com), we needed to develop an efficient and flexible system accessible to the web site and on-air designers, so we could easily execute our visual mission.

CNN's technical development director and graphics production director had two primary goals as key members of the planning team: to integrate all graphics equipment on a single network, making files universally accessible; and to stay in the digital realm all the way through the control room. After careful planning, lots of trial and error, plenty of long hours and invaluable creative input from CNNfn's graphics department, a fully-networked, all-digital graphics operation was developed.

CNNfn's fully networked, all-digital system puts a library of effects in one workstation.

CNNfn designed an integrated system for television and the web using equipment from Chyron, Silicon Graphics, Apple and Comunicacion Integral Consultores (CIC) in Spain. Liberty v5.5 paint software is running on three Silicon Graphics Indigo2 XZ workstations with Galileo Video 601 boxes. On the network, Chyron INFiNiT!, MAXINE! character generator and ImageStore! still-store supply on-air graphics.

For non-linear editing and compositing, a Jaleo Composite 2.5 digital post-production and editing software from Comunicacion Integral Consultores were employed. Jaleo runs on two of the three SGIs. CNNfn also has six Mac 8500s and two Mac 9500s fully loaded with multimedia and graphic-design software. Trading files between the Macs and SGIs is a transparent process with Xinet's K-Ashare file trading software.

Having an open architecture system like the SGI allows CNNfn to use Liberty almost seamlessly with its main compositing tool, Jaleo Composite. Two production designers had worked with these systems prior to being hired, and their experience has proved invaluable to the department.

As most designers concede, certain features of all software endear themselves to users. CNNfn's designers typically use Liberty to rotoscope video frames with the image adjust and image correct tools, create text and other complex mattes, and then import the files in Liberty's native .im format to Jaleo. Jaleo's unlimited layering and considerable editing capabilities are then used to create Harry-like effects for the stations animated show and segment opens. Because all systems operate from one workstation, it's an efficient setup for the designers.

The fact that CNNfn's system is digital all the way through to the control room ensures that graphic quality is technically of the highest quality. Keeping all graphic projects in-house has allowed CNNfn to keep the network's visual look consistent on television and online, and also in set design, marketing pieces and other collateral materials. ■

Mark Creel is production design director for CNNfn.

Editor's note: Field Reports are an exclusive Broadcast Engineering *feature for broadcasters. Each report is prepared by well-qualified staff at a broadcast, production or consulting company. The reports are performed by the industry, for the industry. Manufacturer's support is limited to providing loan equipment and to aiding the author if requested.*

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By Tim Mangini

Avid Technologies' Media Composer

Frontline, an Emmy-award winning public-affairs documentary series produced at WGBH, Boston, is currently in the process of retooling its post-production processes to create a completely non-linear model centered on the Avid Media Composer system. Most of the 35 hours of programming *Frontline* airs in each nine-month season was previously off-lined with non-linear systems and on-lined in a linear tape-based environment.

Where to begin

An examination of post-production for the unpackaged documentaries showed that the average cost of using a tape-based on-line process was more than $8,000 per finished hour. That number could be reduced to around $3,000 per finished hour by moving to a digital non-linear finishing environment. At the same time, *Frontline* would gain greater control over how well the program met technical specifications for program quality. Video and audio could be brought into the system during digitization, rather than trying to fix problems on a tape created in another facility not able to meet specs.

Time could also be saved in the creation of *Frontline* promos. Promo elements were already being off-lined and on-lined on a non-linear system, but were always output to tape and packaged conventionally. This seemed to be an unnecessary redundancy in the process.

Additional efficiency could be achieved in the packaging process by making it easier to edit programs to exact duration, and by reducing the redundancy inherent in linear packaging. The packaging elements that are used in every piece are created once and remain on the drives. They are instantly available to the final program without having to be laid in each time, and can easily be modified when necessary to adjust the program's finished length.

The next step

Once the fundamental analysis was complete, a new workflow was created based on the desire to keep the programs in one non-linear format from start to finish. In the new workflow, documentary producers deliver their source tapes and either a Media Composer sequence or an EDL, from which a video-only on-line of the documentary is performed. In another suite, on a different schedule, the promos and other elements are off-lined and then on-lined.

Getting to air

In the final week before a program airs, all of its media is moved into the packaging suite, edited together and cut to duration. Several versions (clean unpackaged documentary, packaged documentary with titles, and international master) are then created by copying and modifying the sequence. Only then is it output to tape.

In all, this new completely non-linear model provides numerous advantages. Keeping each piece of the program in the Avid Media Composer format throughout the process reduces redundancy, maintains a uniform technical standard and eliminates output to tape until the program is complete. It allows complete flexibility in packaging to adjust duration and make changes. And, most importantly, it dramatically reduces costs. ■

A member of *Frontline's* production staff with the Avid Media Composer.

Tim Mangini is the post-production director for the PBS weekly TV series Frontline.

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By Thomas R. Goldberg

The video disk game: A technology perspective

It seems that everybody is playing with the idea of recording on disks these days. Modern disk recorders do rely on emerging technologies, but the basic capability has been around for longer than you might think. It may surprise you to hear that the first video disk recorder was in production in the late 1960s. In a product called the HS-100, Ampex recorded analog signals on an 18-inch platter to provide the first slow-motion replay systems.

Today, recording video on disks has become the "de rigueur" thing to do. Videotape recorders are slow, expensive to purchase and to maintain, and they usually degrade your pictures. So, many video professionals are looking for suitable alternatives wherever possible. And choices for recording on disk grow by leaps and bounds.

Pluto Technologies' Space DDR.

Specifications set the stage

If you're confused by a choice of some 40 different products to solve your recording needs, you should see what kinds of choices manufacturers confront in deciding just what to build. Each product is intended to meet a set of specifications at the lowest possible cost. It's really the specs that drive the architecture that is used for each approach. Those specs are also what end-users should be paying attention to in making their disk-recording selection.

By specifications, I'm not referring to traditional specs like return loss and signal-to-noise, but rather to storage time, compression levels, number of outputs and transport performance. Most of the traditional analog video specs are closely tied to the CCIR-601 digital video spec that everyone follows (in most cases). Many other issues have a much greater impact on what you get when you buy a disk recorder. A simple decision like whether you can live with compression has a huge impact on the entire design of these products. And, if you can, how much and what type of compression also greatly impacts the design, not to mention the price you'll pay to get it.

Capacity is king

The largest cost determinant of a long-format disk recorder is the amount of storage provided. I have to qualify that statement — not time capacity, but bytes of capacity. In the most compressed short-form recorders, the cost of disks is always the biggest single factor in building a disk recorder. Compression is closely tied into capacity in a simple linear relationship: If you are using a 6:1 compressed system, you can put six times more pictures into that number of bytes of storage than you would without compression. But compression is not always appropriate; its applications are discussed later.

The cost of disk storage is falling rapidly. A computer industry rule of thumb is "double the capacity at the same price every 18 to 24 months" and drive manufacturers continue to make good on that promise. What's happening, however, is people in our industry are wanting longer times more than they want cheaper disk recorders. At the leading edge we see costs of comparable VTRs and disk recorders crossing over. For the same dollars you'd spend on a digital VTR, you can buy a high-quality disk recorder with the same range of capacity (somewhere from 20 minutes to an hour). If you work that out, it's about three to four thousand dollars a minute, and the trend in drive cost along with ever greater levels of integration will continue to make disk recording even cheaper.

The lesson here is to pay careful attention to how much disk is in a box when considering the value of what you're getting. Always find out how much real storage you're buying and don't rely on estimated storage times.

Bandwidth is queen

The second biggest factor in the cost of building a disk recorder is its aggregate bandwidth capacity. This is a value that is frequently confusing to determine, but is important to understand. You'll pay for it whether you understand it or not.

It seems simple — if it's a 601 device, it's 270Mb/s in

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and 270Mb/s out — that must be its bandwidth, right? Well, sometimes, but more often not. It's important to distinguish between this data rate and the actual internal bandwidth of the device. Compression is the first and most obvious factor in this equation. If you are compressing at 3:1, your bandwidth is only one third of that 601 rate. This goes for disk recorders and VTRs, as well. The Sony Digital Betacam can't come anywhere near 270Mb/s — it can only lay down less than 100Mb/s onto tape, being compressed somewhere between 2:1 and 3:1. And compression relates linearly to bandwidth just the same way it impacts capacity.

Let's take a moderate-performance hypothetical disk drive that provides a 5MB/s transfer rate. It is a simple matter to divide video up and save little bits of it merry-go-round fashion on several drives to multiply the bandwidth. This is called "striping data" and is the basis of all RAID systems. To perform a full-bandwidth recording, we would need something like seven of these drives (seven drives x 5MB/s x 8b/B = 280Mb/s). Because of system overheads including drive seek times, sector latencies, SCSI bus activity, CPU processing times and other system delays, we might not actually achieve this but, hey, this is hypothetical. OK, so take eight drives as a realistic number. If we compress 2:1, we only need four drives. And not only do those four drives provide enough bandwidth at 2:1, they also provide the same amount of recording time as the eight-drive full-bandwidth system.

As long as we're recording or playing along at normal speed, that simple math provides a good estimate of disk bandwidth needed. But as soon as you expect disks to perform like a VTR and play at other speeds, we need more disk performance. Let's look at the case of playing at 2x normal play speed. If you want to do this right (not every disk recorder does) and if you take a brute force approach, traversing twice as much media means you need to pull twice as much data off your disks as you would at 1x. It turns out that, if you know how big a video frame is, you don't need to be a brute about it because you know how far ahead to jump to get your next frame. But the real penalty is that you're now no longer doing sequential reads on each drive and that the 5MB/s number the drive manufacturer so confidently quotes falls to pieces: Pluto's drive testing, on average, shows that some of the best drives available lose half their data transfer rate ability when they are asked to provide even large blocks of data from random locations.

At most rates other than normal play, disk accesses become more random and performance problems become noticeable. Slow-motion operation, reverse play, even shuttling require lots more performance from the disk array. This is why the visual effect of shuttling most disk systems looks like a strobe light. In non-sequential accesses, most disk recorders can't find the right frame to display in time, so they display the old one until they're ready for the next — often for three or more frames of hold.

At most rates other than normal play, disk accesses become more random and performance problems become noticeable.

The right way to do off-speed playback is not to just display the right frame, but rather the right field at the right time. Pick the most temporally correct field to be displayed at the correct instant in time. This requires dealing with the case where you have an even field when an odd one is called for. Many disk recorders allow the scene to jump up and down a line at each field swap. Properly done, spacial interpolation is required; the Pluto SPACE recorder uses ADO-style filters to achieve this. Not only is this the only way to play at variable speeds correctly, it's the only way to do transparent fit and fill in an editing environment or time compression in a broadcast environment. Not every operation needs this, but if you are looking for a disk recorder for this kind of application,

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you ought to look closely at how well it performs under these demands.

Another bandwidth capacity factor to consider arises when we start to take advantage of the fact that this is disk, not tape. That is, to treat it non-linearly and take advantage of its presumed random access capability. Whether you consider a commercial spot playlist or an edit segment list, the concept is the same. Take scattered video clips from a recorded unorganized collection on disk, and try to make them play as a seamless single clip. It sounds easy, but turns out to be surprisingly tricky. Especially as the individual segments get short and close together. The ultimate example of this is the "MTV-style" unlimited back-to-back frame or even field edits. This demands full random access performance of every disk and in effect at least doubles the aggregate bandwidth disk performance requirement for that playout.

Compression, off-speed playback and non-linear applications are all factors determining the needed system aggregate bandwidth. When a manufacturer designs a disk recorder these are major determinants of how much disk performance to use and how big a data pipe to build. But wait, there's more. One final, and certainly one of the most significant, bandwidth eaters is the number of simultaneous streams.

I/O is the joker

The simple case for I/O is the old-fashioned VTR. Play or record, one at a time. One in or one out. One stream. The number of simultaneous streams expected from a disk recorder is a direct multiplier of the required bandwidth capacity.

I frequently get asked if my disk recorder can do "pre-read" like a D-2 VTR. It seems everyone likes the ability to pull video off tape, crunch on it some, and then record right over the source. This is pretty simple stuff on a VTR. There are separate record and playback heads, each with their own independent paths. As the scanner spins, the data is read off and a quarter turn later written back. But on a disk-based system, even though there may be separate paths through the video I/O, it all has to go through a single pipe that connects to the disk array. In disk recorders, pre-reading, read-before-write, full-duplex, whatever you want to call it — requires a full two times the bandwidth of a single stream from the disk array.

The next step beyond duplex operation is the whole class of multichannel disk recorders. A Tektronix Profile provides four independent streams simultaneously from its array. At the output, that's 4 x 270Mb/s or more than a gigabit per second of data. If they didn't compress, that would require four times as many disk drives and a much faster databus to move that information around. It is not at all surprising then that the Profile compresses at least 4:1, requiring no more bandwidth than a single stream of uncompressed video.

This is not to say that nobody is moving that much information at a time. There are high-end solutions that can spew a ton of data. The Quantel ClipBox can provide up to eight uncompressed full-bandwidth-independent simultaneous streams. The Philips BTS Media Pool can provide up to 12 and is architected to be able to do even more. Because today's fastest databuses can't begin to handle these data rates, it is impossible to achieve this with a single box. The way they do this is to create an "array of arrays." Each individual array can handle only a single full-bandwidth stream, but by putting only a small piece of each stream on each array, they multiply the whole system's bandwidth. This is a similar way of spreading out bandwidth demand to striping across disks within an array. The benefit of doing this is superior aggregate bandwidth capacity. The downfall is an increased potential for data loss and the exorbitant cost of building such systems.

Compression aces cost

All of the items listed above are consumers of bandwidth. Compression has the opposite effect, but every implementation in use today degrades the picture to some extent. The more you compress, the bigger the penalty you pay in reduced picture quality. The two main compression techniques are MPEG and JPEG. The choice between these has ramifications for disk recorders.

MPEG, with its 30:1 usable compression ratio, knocks the huge bandwidths of uncompressed video down to where it requires few drives to accommodate. And long pieces of media easily fit in small amounts of storage. When scaled back to 20:1 or 15:1 it can even look good by studio standards, although it is hard to edit in studio applications. But editing aside, MPEG has this real problem — it is asymmetrical (sometimes called non-complementary). That is, even though decoders can be built inexpensively, encoders are still complex and expensive. New silicon is emerging that greatly reduces this cost, but not enough to make it practical in disk recorders unless many streams are involved. Disk recorders like the Hewlett-Packard Media Stream video server or the Sony VideoStore can offer as many as 12 streams using MPEG compression. The input encode side is expensive, but its cost gets divided across many output streams.

Most disk recorders use the JPEG technique, which relies on Discrete Cosine Transform (DCT) compression. Some of these devices have variable compression and some are fixed, but DCT works well up to between 4:1 and 8:1. There are actually a lot of variables in every implementation. Quantization tables and bit-rate control strategies are significant details that vary from unit to unit. Some manufacturers' JPEG looks better than others at the same data rates. And, a given compression rate may look just fine on some source material and horrible on others.

Digital Betacam uses a DCT compression technique and is considered to be transparent at somewhere below 3:1 and, in many cases, it is. But on some source material, even that mild amount of compression is

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obvious. Hard edges leading into soft blends, typical of computer graphics, are an example of the kind of media that can show off the warts in any compression system. If a disk system is to be used in a computer graphics application, full bandwidth is the only way to create high-end results. Even eight bits of precision is often not enough for long blends to appear clean and unbanded. This is a case where a strong argument can be made for 10-bit uncompressed performance.

If a disk system finds its way into a post-production suite where digital effects, multiple layers and subtle keys are needed, anything less than full bandwidth causes a form of generation loss. Multiplying keys into a background is another example of where 10-bit performance can pay off. This kind of application used to be the exclusive domain of parallel transfer drive systems like the Accom RTD and the Abekas A66. As disk and array technology has evolved, longer time/ lower-cost boxes are starting to move into the on-line edit suite. Products like Sierra Design Labs QuickFrame and Pluto's own SPACE Digital video recorder are examples of products that can serve in the post-production world.

There are times when even uncompressed 601 isn't good enough and compression is out of the question. When images are pulled off of a Telecine and need to be color-corrected or "panned and scanned" every morsel of available data needs to be preserved. In simple terms, the math that gets applied to each pixel requires extra precision to yield results that fully use the 4:2:2 data format when all is done. This is where you need the opposite of compression — oversampling. Gather and record more data about each pixel than you will ultimately need for the final result so that upstream processing doesn't end up creating a worse picture than 601 is capable of. SPACE and a few other full-bandwidth recorders can be strapped together to provide bigger samples carried in multiple streams. An example is recording 4:4:4 (comprised of a 4:2:2 stream and a half bandwidth 0:2:2).

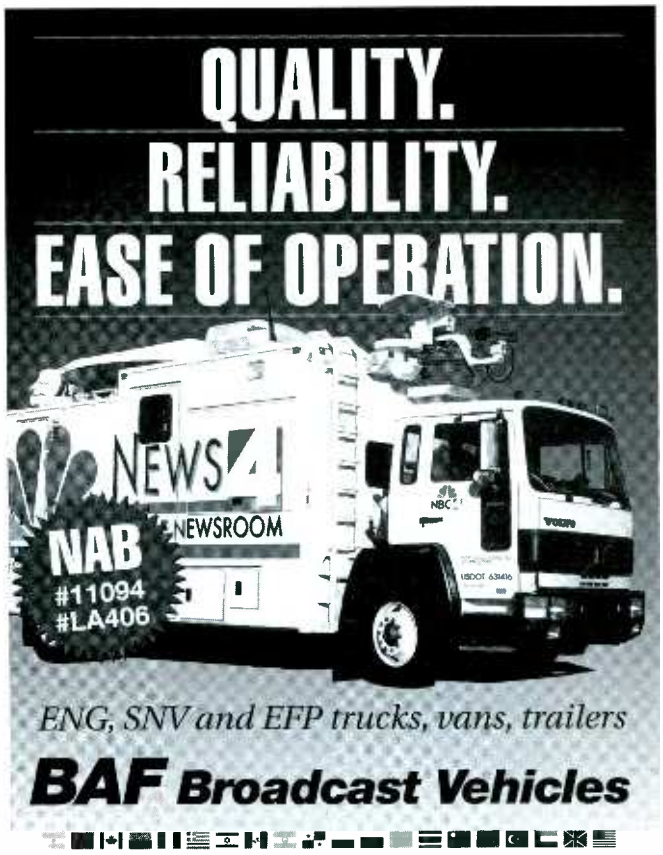
Compressed solutions tend to make more sense for off-line applications and those applications after the production process has been completed. When a disk recorder is to be used upstream in the production process, it will pay to keep as much quality as possible so that subsequent processing doesn't further degrade what you created.

Reliability jacks up the price

The reliability of a disk recorder often does not relate to its performance in any way, but it is likely to be related to its cost. Medium-priced disk systems may have the lowest reliability. Low-cost disk recorders using one or two drives and minimal electronics tend to sport fairly high reliability figures due to their simplicity. As more drives are added, the complexity of the system increases and with it, the potential for failure. As systems grow, at some point it begins to make sense to provide some level of failure protection. But with that protection comes added cost. Large systems become so complex that the probability of some kind of failure is high, mandating sophisticated measures to provide adequate reliability.

One other point to keep in mind about RAID is the issue of just what is protected.

Any array of drives can be called a RAID because the original definition includes RAID level 0, which is striped data with no redundancy. Technically speaking, this is not RAID and has been better described as JBOD (Just a Bunch Of Disks). Lose one drive and all the data on the rest of the drives is lost forever. Many manufacturers are now putting true redundancy into their products, but most can withstand only a single drive failure and still keep data intact. It becomes important to be able to quickly replace the broken drive without disassembly and rebuild the missing data before a second failure takes out the remaining data. Issues like hot swap capability for the drives and data-rebuilding strategies are important for systems in broadcast origina-



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tion applications.

One other point to keep in mind about RAID is the issue of just what is protected. Most RAID-protection schemes cover just the media data. But many disk recorders have an additional disk drive for the controlling computer to keep its own data — things like the operating system and the media file system. It is rare that this ancillary information is RAID-protected as well, though losing it can take you down as quickly as any failure in the media storage. In some products, losing the file system alone can cause an unrecoverable loss of all the RAID-protected information. The Pluto disk recorder keeps all this information in RAID along with the media, but few other disk systems do this. If you think you are buying a system with RAID protection, make sure you are aware of what is and what isn't protected.

A number of subtle reliability issues are becoming more important as drive reliabilities improve. Power supplies and fans are also important to reliable operation. Given the actual probabilities, current sharing, redundant power and live swap capabilities now should be considered as important as RAID when looking at system reliability. Also, consider the importance of monitoring system operating temperature. If there is no reporting to the user when cooling is impaired, any array of hard disks can become a really good toaster oven. Pluto's product monitors fan speed and box temperature to assure reliable operation.

Really big systems are failure prone. In most systems there are single points where a failure will kill the output no matter what strategies are in place to protect against that eventuality. One final strategy to avoid drastic results is "don't put all your eggs in one basket."

I/O part deuce

We've talked about I/O in terms of number of streams, but there are other important I/O issues. Another factor to consider with I/O is that of format. Most disk recorders function in a CCIR-601 world. Because this is the emerging standard for all professional production, it makes eminent sense to keep the data in that format most of the time.

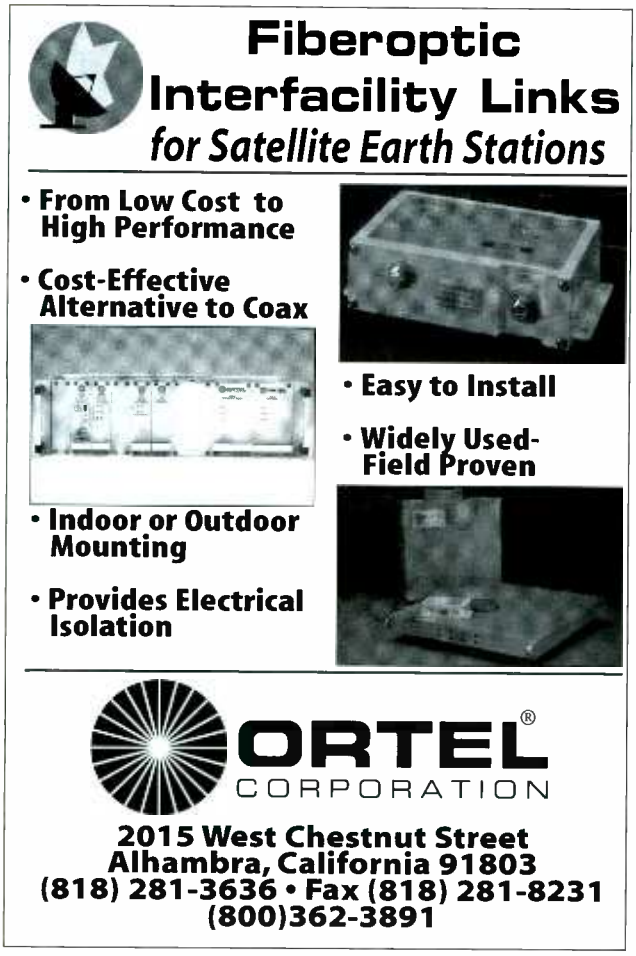
However, if a disk recorder will be used in the analog domain, analog I/O must be provided or the cost of converters should be added to the purchase price. The Drastic Technologies VVCR and ForA's Epique are examples of disk recorders that come with built-in composite analog video I/O. D-2-style digital composite video takes about half the bandwidth and disk space. The original Abekas A62 and the current MountainGate VDR are examples of disk recorders that can actually record a composite video stream.

If a disk recorder is only to be used in conjunction with a computer, any form of video I/O may be unnecessary. When the computer itself has video I/O or the output is to be networked to some giant SGI Onyx, CCIR-601 connections may not even need to be provided. Such notable disk recorders as the various Ciprico series are examples of disk recorders without video I/O all together.

Although serial digital video I/Os will serve most applications, traditional analog monitoring outputs can be helpful. If they are to be used in traditional VTR-type applications, a burn-in time-code display may also be important.

Speaking of which, don't forget about time code. Many disk recorders don't handle VITC and LTC and those that do, may be too inflexible to be easily integrated into your facility. Internal time-code reader/generators and selectable VITC lines are rare in disk recorders and can cause real headaches when it comes time to actually use it in a real-world situation.

Audio I/O is another area where you should be aware of exactly what's provided. Many disk recorders do not use the AES 48kHz sample rate or the 20- or 24-bit sample size. Some disk recorders offer audio in a separate chassis, which may not be RAID-protected and some don't offer audio at all. Consider, as well, what happens to audio at other than normal playback speeds. Providing off-speed video capabilities does not imply the same for audio. Ask if you can scrub audio as you can on an analog machine. Can you set levels or assign channels? Can the device re-sample, accommodate different sample rates and does it provide analog monitoring outputs?



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Computer and control I/O is the last area of disk recorder connections to consider. The vast majority of disk recorders have an RS-422 connector for control and emulate the industry-standard BVW-75 protocol. Just because it talks like a Sony, doesn't mean you can edit with it like a Sony. If you want to use a disk system for non-linear applications, the Sony protocol doesn't provide enough commands to handle that.

And few standards exist that do handle non-linear. Assuming you've found a disk system that supports a non-linear protocol, make sure your edit controller can take advantage of it.

Then there is the need for faster computer connections. Ethernet (10BaseT) 10MHz connections are provided on many boxes and 100MHz (100BaseT) is on some of the newer ones, but look beyond the connector. Sometimes, Ethernet is only for control, sometimes it runs proprietary protocols and requires special software on your computer to use it. Look for the ability to transfer media over this network and look for standard protocol stacks like TCP/IP. For those really big file transfers, look for direct SCSI connections, Fibre Channel and FireWire networking and Serial HIPPI to move large amounts of data from the recorder to other places.

Selecting the right disk recorder is not simple. Take the claims of every manufacturer with a grain of salt. Don't believe every specification just because it is in print. In our industry, products almost always begin shipping before everything on the spec sheet works. Pluto Technology is going into this market with awareness of this and will be careful with its commitments. Few products hit all their targets. Even once all those specs are completed, there is room for interpretation and always unanticipated applications pushing the limits of the envelope.

When playing the video disk game, some words of advice are caveat emptor — buyer beware. If you're going to be the pioneer and buy the latest and greatest toy, buy from people you can trust and still be prepared for some rocks in the road. ■

Thomas Goldberg is senior product manager, Pluto Technologies International Inc., Boulder, CO.

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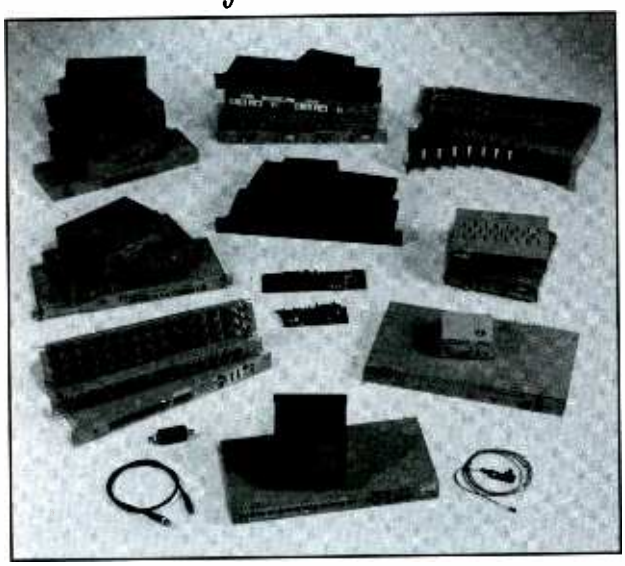

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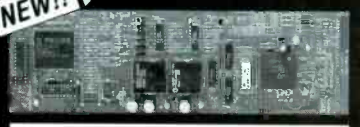

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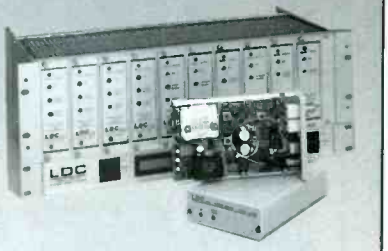

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Call Jeff Utter
at 1-800-896-9939
or 913-967-1732

www.americanradiohistory.com

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SERVICES

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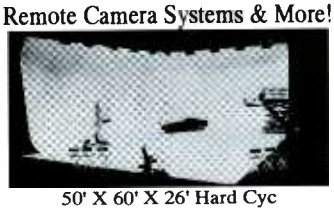

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RF/SNG ENGINEER AVAILABLE for temporary or special projects. Experienced RF and Video Maintenance. World Wide 307 638 2394.

FULL-TIME TRANSPONDER SPACE AVAILABLE ON CABLE SATELLITE

located in the premiere cable neighborhood on SATCOM C-3 at 131 W, using General Instruments DigiCipher II (MPEG-2) video compression system. Your network could be seen using the new digital set-top technology, improving your network's chance of cable carriage. In addition to transponder space, uplinking, playback, editing, and duplication services are also available from our new digital uplink facility located in Englewood, CO.

Call Doug Greene @ 303-784-8809 or
E-Mail at dougreene@aol.com

ENCORE!

If you were featured in this magazine — spread the news! Reprints have a proven positive effect on corporate image. **Sign up for your encore performance today!**

Call Chris Lotesto

1-800-458-0479 • fax 312-435-2359

An INTERTEC®/K-III Publication

BROADCAST engineering®

HELP WANTED

MAINTENANCE ENGINEER KNXV-TV, Phoenix, Arizona seeks an individual with repair and installation skills of television broadcast and computer equipment. Should have three years experience in maintaining audio, video, computer and RF broadcast equipment and systems. This position requires a two year electronic technical degree or equivalent, and experience with Beta and CCD ENG camera equipment. Fax resume to Engineering Manager at (602) 304-3000 or send to KNXV-TV, 4625 S. 33rd Place, Phoenix, Arizona 85040. EOE.

HELP WANTED

Television Engineer III

UNC Center for Public Television, RTP, NC, seeks an experienced engineer with demonstrated skills in installing, operating and maintaining state-of-the-art broadcast television equipment for studio and remote production. Responsibilities include tube/CCD studio/field camera set-up and maintenance, assuring signal quality control, and component level preventative and corrective maintenance. Must be a creative team player with good oral and written communication skills. Must be knowledgeable of digital television technology and the use of computers in a television environment. Satellite uplink/downlink experience desired. Requires two years of broadcast television experience and a related associate degree or equivalent education/work experience. FCC General Class license or SBE certification preferred. Some travel and weekend, holiday, night work required. Salary Range: $27,364 - $45,114. Probable Hiring range: $27,364 - $31, 604. Apply in writing by Monday, April 14, 1997 to UNC Center for Public Television, Human Resources Office, P.O. Box 14900, RTP, NC 27709-4900. Federal Law requires that upon being hired an applicant must present, upon request, satisfactory evidence to verify employability and identification. EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER. WOMEN AND MINORITIES ENCOURAGED TO APPLY.

MERIDIAN

TELEVISION SYSTEMS, INC.

Meridian Television Systems, a full service systems integration firm based in the Los Angeles area is expanding!

Our clients include the major TV networks and production facilities domestically and worldwide.

We are looking for qualified candidates to join our team in these positions:

- **Video Systems Design Engineers**
  AutoCAD experience required
- **Project Managers**
- **Installation Supervisors**
- **Wiremen**
- **TV Maintenance Engineers**

Please send your resume and salary history in confidence to:

Personnel Director
Meridian Television Systems
25510 Avenue Stanford, Suite 105
Santa Clarita, CA 91355

no phone calls please

Meridian Television Systems is an Equal Opportunity Employer

KGTV SAN DIEGO'S 10, looking for broadcast maintenance engineer. Experience maintaining Beta SP equipment a must. Experience also needed working with station automation systems, microwave equipment, studio systems and audio equipment. Candidate must be computer literate. Minimum 5 years broadcast maintenance experience. FCC General License required. SBE certification a plus. Must be a self starter with good work habits and organizational skills. Send resumes to KGTV, Attn: Ron Jennings, P.O. Box 85347, San Diego, CA 92186

Uplink Engineer

TCI's Broadcast Satellite Uplink Center is growing from 275 uplinked services to 400. We need technicians to construct and operate this state of the art facility. Several positions available with responsibilities and compensation dependent on qualifications. Experience with digital video, computer based control systems, RF and broadcast operations desired. SBE, SCTE certification preferred.

Uplink Draftsperson

TCI's National Digital TV Center is seeking CAD draftsperson to set up and administer documentation and planning documentation. Experience with video and broadcast operations desired. SBE, SCTE certification preferred.

Drug and background check will be required for employment. Successful applicants needing an accommodation for the interview should inform manager at time of contact. Send resume with salary requirements to: **TCI National Digital Television Center**, Attn: Office 105, 4100 E. Dry Creek Rd., Littleton, CO 80122, fax 303-486-3891. EOE.

Broadcast Technician for Hollywood, CA based state of the art digital television production truck and studio facilities. Duties include installation and repair of all types of broadcast audio and video equipment. Operational experience with professional audio mixers, analog and digital production switchers, routers, intercom systems, cameras and other associated production equipment a must. Minimum qualifications include: 3+ years broadcast video, audio equipment repair and operations experience. The preferred candidate will also possess a B.S. Degree in Electronics as well as recent production truck experience. Other duties, weekends, and shift work as required. An interview will be required of final candidates. Any applicant who is schedules for an interview should notify the interviewer at time of contact if he/she requires an accommodation for the interview. Drug test and criminal records check required of final applicants. Non-smoking environment. Send resume and salary required to Director of Broadcast Engineering, 4100 E. Dry Creek Rd., Littleton, CO 80122. EOE.

ENGINEERING/TELEVISION A.F. Associates, the world's leading supplier of turnkey television systems, is seeking an applications/engineering support person. This person will be responsible for generating technical proposals which includes equipment specifications and labor/materials estimates. Applicant should be computer literate and have an in-depth knowledge of broadcast television equipment, systems and facilities. Please forward resume to: Bill McKnight, AF Associates, 100 Stonehurst Court, Northvale, NJ 07647. Fax number 201-784-8673. Email billm@afassoc.com

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HELP WANTED

cbsi
Custom Business Systems, Inc.

Windows Programmer

Located on the beautiful Oregon Coast, CBSI is the world's leading provider of business computer systems in the radio broadcasting industry. We offer a competitive comp. and benefit package including a 401(k) Match & Profit Sharing.

We are seeking individuals who have proven computer programming experience in C or C++ and can quickly transition to object oriented design & implementation in Visual C++ utilizing Microsoft Foundation Classes (MFC). Relevant additional experience could include programming for MS-DOS, Win16, Win32, multimedia, networking, and multi-user data access.

Custom Business Systems, Inc.
Human Resources Manager
P.O. Box 67
Reedsport, OR 97467
e-mail to HR@cbsi-software.com
Cut & Paste doc. in e-mail

KRIV Fox Television Houston is moving to a large state of the art digital television studio facility in the fall of 1997 and is accepting applications for a Maintenance Engineer. Position is open immediately. Must possess demonstrable component level experience in Sony betacam; Analog/Digital switchers, graphic generators, non-linear edit systems, etc. Knowledgeable in test & measurement procedures with analog and digital video, and audio and AES/EBU Audio. Ability to work under pressure of fast pace major market operation. Min. 5 years maintenance experience and SBE certification. Send resume with salary history to KRIV, Fox Television, P.O. Box 22810, Houston, Tx., 77227, Attn: Charmaine Williams. EOE/M/F/V.

CNN

TELEVISION ENGINEERS

Turner Broadcasting System, the leading News, Sports, and Entertainment system in satellite communications, has career opportunities for engineers with **broadcast maintenance** experience. These positions demand an extensive background in television engineering and at least two years of training in electronics technology. Turner Broadcasting System offers an excellent benefit and compensation program.

Send resumes to:
Mr. Jim Brown, Corp. Engineering
Turner Broadcasting System, Inc.
One CNN Center
P.O. Box 105366
Atlanta, GA 30348-5366
(404) 827-1638 office
(404) 827-1835 fax

TBS is an equal opportunity employer

Design and build the future!

Most broadcast engineers only get to design and build a few new facilities in a career. At National TeleConsultants you will create cutting edge broadcast, and entertainment facilities each and every day. Join the world's leading independent facility design team building advanced television projects—from Hollywood to New York and around the world.

- **Television Systems Engineers:** Openings at all levels. Knowledge and experience of video and audio design, digital systems engineering and integration desirable.
- **Project Directors:** Experience in project management required. Experience in television operations desirable.
- **Installation Services Manager:** Responsible for overall operation of our installation facility, including crewing, scheduling, and stock management. Television systems installation experience is desirable.
- **Installation Supervisors:** Coordinate all aspects of installation projects: Crews, work orders, schedules, installation practices and QC.

NationalTele@nsultants

EOE. Please send resume with salary history to:
National TeleConsultants, Inc.
Attn: Human Resources
700 North Brand Boulevard, 10th Floor
Glendale, CA 91203-1238
fax: 818-265-4455 e-mail: hr@ntc.com

HARRIS

Harris Broadcast, a division of the $3.5 billion Fortune Harris Corporation, is seeking a World-Class candidate for the position of Systems Engineer with its Systems operation located in Florence, Kentucky. Harris Broadcast Systems is a worldwide supplier of mobile radio and TV and production studio systems.

In this High-profile role, you will be responsible for project management, system design, customer liaison as well as interfacing with project architects and consultants. The design element of this position will utilize your ability to create detailed Audio Video, RF system flows. A working knowledge of both analog and digital system concepts is necessary. We are looking for a team player who can plan, prioritize, meet project goals and communicate effectively.

Candidates must have a 4 year college degree and 3-5 years Broadcast Systems experience.

Harris Corporation offers a competitive starting salary with a comprehensive benefits package.

If you qualify and are interested in working with state-of-the-art equipment in a professional and challenging environment, please send resume (including salary history/requirements) in confidence to:
Shawn Oberreiter, Supervisor, Human Resources, Harris Corporation - Broadcast Division
P.O. Box 4290, Quincy, IL 62305
Equal Opportunity Employer

STAFF ENGINEER Prominent New York post production facility is looking for a maintenance engineer. Candidate should have knowledge of electronics, mechanical dexterity and be self motivated. Knowledge of computer systems a plus. Salary commensurate with experience. Contact: Tom Saylor, Empire Video, 216 East 45th Street, New York, NY 10017. Phone: (212) 687-2060 FAX: (212) 682-1138.

CHIEF ENGINEER The successful candidate will have superior knowledge of UHF transmitters as well as a strong maintenance background. Organizational skills will be necessary for planning and rebuilding our facilities to meet future needs. Computer skills are a must. Send your resume and salary history to Chief Engineer, KSHV-TV, 3519 Jewella Avenue, Shreveport, LA 71109 or fax to 318-631-4195. EOE.

www.americanradiohistory.com

Tektronix and Grass Valley
A Picture Perfect Opportunity!

Tektronix in Grass Valley, California, offers you an unmatched opportunity, from both a career and lifestyle perspective. Our mission is to bring the highest quality video broadcast/transmission to our customers, which means that we are pioneering the way in areas such as digital television and video. In fact we were recently awarded an Emmy for leading the television industry into the 10-bit world! That's Emmy #7 for Tektronix!

Picture perfect describes not only our technology focus but the quality of the life available to Tektronix Grass Valley employees and their families. We offer an informal results-oriented work environment nestled in the Sierra Nevada foothills, combined with an excellent quality of life – affordable housing, less congestion, clean air and an excellent school system.

If you're a creative, talented professional looking to join the top team in digital video and television, look no further!

Project Engineer – Grass Valley

You will work with a team of Engineering and Application professionals developing solutions utilizing Tektronix products from our Video and Networking Division. Responsibilities include the development and specification of work to develop system solutions in a multi-peripheral networking control environment. This position requires a Bachelor's degree in Engineering or a technical field.

Field Service Engineers – New York and Los Angeles

Join a team of field professionals responsible for on-site repair, configuration and alignment of video and teleproduction equipment including production switches, routers, video effects, distribution and digital storage products. Requires a BSEE or equivalent and 4-6+ years' technical support experience in the television, post-production or broadcast industries.

Customer Technical Support Specialist – Grass Valley

Provide post-sales technical support of hardware and software to answer questions and solve problems regarding product installation, maintenance, integration with other products, and software applications. Requires a CS/Electronics degree and 5+ years' experience in a telecommunications environment. Understanding of compression formats, TCP/IP-based networks, UNIX, Solaris and Windows 95/NT operating systems, and Telecom signalling essential.

Training Engineers – Grass Valley and Oregon

You will originate and present training classes and design educational tools for our Grass Valley, Video Transport, Disk Recorder, and Network Display products. Additionally, you'll execute the training strategy to ensure our customers receive high quality, timely training on product applications, operation and maintenance. Position requires 3-5+ years' technical training design and instruction experience with video technologies. Excellent presentation skills and a proven track record as a technical instructor required. Good computer skills a necessity.

To become part of our winning team, mail your resume to: Tektronix, Inc., P.O. Box 1114, Dept. BE/0301/RM, MS N4-2H, Grass Valley, CA 95945, Attn: Ron Marenco; Fax to (916) 478-3808; or E-mail to internet address: ron.marenco@tek.com For more information, visit us on the WWW at http://www.tek.com Principals only, please. All employment offers are contingent upon successful completion of our pre-employment drug test. Tektronix is an equal opportunity/ affirmative action employer.

Tektronix

It's **all** *happening here!* **www.tek.com**

classified

HELP WANTED

SYSTEMS INTEGRATION TECHNICIAN Wolf Coach, Inc., a leader in the mobile communications industry for 30 years, is currently expanding its system integration department. Three to five years experience with RF, KU band & terrestrial microwave (up to 14Ghz) as well as audio-video system installation required. Supervisory or management experience preferred. Electronics-communications degree a plus. Send resume with salary goals to: Wolf Coach Inc., Attn.: Human Resources, 7 "B" St., Auburn Industrial Park, Auburn, MA 01501.

SOUTH FLORIDA TV STATION seeking self-motivated Broadcast Engineer with extensive UHF transmitter experience. Sunday-Thursday 3rd shift position. SBE certification desirable. Send resume and salary requirements to: Personal/Confidential, Classified Ad Coordinator, Broadcast Engineering, Dept. 784, 9800 Metcalf, Overland Park, KS 66212-2215. We are an equal opportunity employer.

HANDS-ON EXPERIENCED TELEVISION studio engineer. Repair of video tape & studio equipment to component level. Resume to Jerrell Kautz, WCBI-TV, Box 271, Columbus, MS 39701, FAX: 601-329-1004, Email: jkautz@wcbi.com.

MAINTENANCE ENGINEER: Seasoned professional desired for component level troubleshooting and repair of all broadcast and industrial video recorders; special emphasis on D-2, Beta, SP, and HI-8. Some field work required. Must be motivated, self-starter for this excellent opportunity in sunny southern California. Resume to: Personal/Confidential, Classified Ad Coordinator, Broadcast Engineering, Dept. 783, 9800 Metcalf, Overland Park, KS 66212-2215.

MAINTENANCE/ FIELD SERVICE ENGINEER

Synergistic Technologies Incorporated (STI) is seeking a self-motivated individual, with good client skills, to perform field service and in shop repair on television broadcast and post production equipment.

Candidates should have 5+ years experience and possess a comprehensive knowledge of facilities and systems. Component level repair of production equipment, cameras, Betacam, ¾",1", digital VTRs, and editing systems expected. Familiarity with serial digital is preferred. Computer literacy is essential, networking a plus.

STI designs, integrates, and services production, cable, broadcast, and mobile facilities in the mid-Atlantic region; the nation, and throughout the world. Local and some regional travel is required. *Send resume/salary history to:*

SYNERGISTIC TECHNOLOGIES INCORPORATED

ATTN: KARL PAULSEN

121 HILLPOINTE DRIVE, SUITE 700
CANONSBURG PA 15317
FAX 412/873-4770
EMAIL: employment @ stinet.com

www.americanradiohistory.com

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HELP WANTED

DON'T JUST BUILD TECHNOLOGY. BRING IT TO LIFE.

Sony's Business and Professional Group is seeking the following broadcast professionals:

Senior Video Systems Design Engineers

We are looking for seasoned engineers to design large-scale digital audio/video facilities, including floor plans, equipment rack layouts and detailed signal flow diagrams. Candidates must have 5+ years' experience with state-of-the-art analog and digital A/V, production and broadcast facilities, and be especially strong in system-level engineering design and technical problem-solving. Fluency in MS Excel for Windows is required; AutoCAD, Word and Access knowledge is a plus. Team-building, communication skills and the ability to work with minimal supervision are also key. We have both regular and contract positions available, but all require full-time presence at our San Jose facility. Some travel during installation/testing will be required. (Job # CY-BE1)

Project Managers

Responsible for the management of resources to execute fully integrated broadcast systems. Must be able to complete projects on time and within budget. The ideal candidate will bring 5+ years of project management in broadcast or production systems. (Job # CY-BE2)

Senior Marketing Manager

Develop and direct marketing strategy for the broadcast industry. This includes video file server-based automation systems, master control routing switches and related products. Position requires 10+ years of extensive marketing experience in broadcast or other closely related industry. (Job # CY-BE3)

Engineering Instructor/ Trainer

Develop and present courses on repairing and maintaining state-of-the-art video equipment and systems. Courses will be constructed around focused objectives and concentrate on hands-on skills development. You must have strong computer skills, BSCS/BSEE with 5 years' experience in the broadcast/professional video industry. (Job# CY-BE4)

Product Support Engineer

Manage all technical support for products such as Sony's Integrated Duplication Operation, Video Store and Edit Station. You will review all technical documentation, actively problem-solve and act as a liaison between factory design and support, and marketing, field service and product sales. Position requires a BS in EE or CS with 7+ years of experience developing and supporting software-based products and 2+ years with servicing or designing Sony products. (Job # CY-BE5)

Please send your resume, INDICATING CODE OF INTEREST, to: Sony Electronics Inc., Attn: Professional Staffing, MS SJ-2C2, 3300 Zanker Road, San Jose, CA 95134-1901. Fax: (408) 955-5166. E-mail (in ASCII text): sj_jobs@mail.sel.sony.com. For more information, visit our Web site at: http://www.sel.sony.com/HR/ EOE.

It's a Sony

SONY

IMMEDIATE OPENING FOR MAINTENANCE engineer in central Florida. Must have very strong VTR skills. FCC license preferred. Minimum 2 year technical education and 5 years experience in post production industry. Send resume and salary requirements to: John McMahan, Century III, 2000 Universal Studios Plaza, Orlando, Florida 32819.

KBMT-TV ENGINEERING: ABC affiliate in Southeast Texas is looking for a studio engineer with a minimum 3 years experience with Sony Betacart, Beta SP, 3/4" and Sony Betacam. Ampex AVC Switcher, ESS 5 Still Store, ADO 100, and DCT 500 Editor. Harris transmitter experience is a plus. Send resume to EEOC Officer, KBMT-TV, P.O. Box 1550, Beaumont, Texas 77706. EOE.

WE PLACE ENGINEERS
USA & WORLDWIDE

KEYSTONE INT'L., INC.
16 Laflin Road, Suite 900
Pittston, PA 18640, USA
Fax (717) 654-5765 • Phone (717) 655-7143
E-mail: keyjobs@keystone.microserve.com

ENGINEERING PROJECT MANAGER

Capitol Broadcasting Company seeks a person to help design and market group towers for HDTV in markets across the country. Engineering background with some sales or marketing experience and college degree or equivalent, is required. Solid knowledge of tower, antennas, transmitters and working knowledge of high definition, digital television is preferred. An excellent company with great benefits. Send resume to Corporate Human Resources, Capitol Broadcasting Company, P.O. Box 12800, Raleigh, NC 27605. Specify job #97018. Visit our website at www.cbc-raleigh.com and apply under employment opportunities. EOE/M/F.

DIELECTRIC

Western Region Sales Manager

Dielectric Communications has an immediate opening for a regional sales manager with responsibility for the US West Coast and Rocky Mountain territories.

Must have technical background with experience in high power broadcast TV & FM antennas, transmission line and waveguide, RF components and RF systems.

Will need to demonstrate strong individual management skills, leadership, and be highly motivated. Previous sales experience is preferred, strong technical background a must.

Qualified candidates please send your resume to:
Dielectric Communications
Human Resources Dept.
Tower Hill Road
Raymond, ME 04071
Fax (207) 655-4989
Dielectric is an EOE, M/F/D/V employer.

MAINTENANCE ENGINEER Position requires at least five years experience maintaining Studio, Control Room, and Transmission equipment in a Broadcast Television environment. Expertise is required in component-level repair of video, audio, and digital equipment and installation of broadcast systems. Experience with computers and/or RF systems a plus. A Degree in Electronics or equivalent training is necessary. Please send resume to: Bill Beam, WABC-TV, 7 Lincoln Square - 6th Floor, New York, NY 10023-0217. No telephone calls or faxes please. We are an Equal Opportunity Employer.

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HELP WANTED

A Superb Opportunity in Japan

Customer Support Engineer

Quantel K.K., a wholly-owned Japanese subsidiary of Quantel Limited, was established over 10 years ago to serve the specialist needs of the local market place. With offices in Tokyo and Osaka, we enjoy an excellent reputation and have achieved considerable success in all our market sectors, including video, print and film. Our customers include many of Japan's largest and most prestigious companies - a fact which reflects their trust in our local staff and the strength of Quantel's products.

Due to continuous strong growth, we wish to expand our team of engineers to ensure an ongoing high level of customer support. We are therefore looking for an English speaking engineer with solid experience of the professional video business to liaise closely between the UK head office and local staff and customers.

An understanding of Quantel equipment and Japanese language ability will be looked upon favourably. However, you will initially undergo intensive technical training in Newbury before taking up the post in Japan. Moreover, the development of Japanese speaking abilities to a practical level will be a condition of the post.

This is a rare, high profile appointment with ample opportunity for further advancement. The salary and benefits package will fully reflect the calibre of individual we require.

If you would like to join an outstanding international company, please write or telephone for an application form to Mike Taylor, Recruitment Officer, Quantel Limited, Turnpike Road, Newbury, Berkshire RG14 2NE UK.

Telephone: 011 44 1635 48222.

Web site: http//www.quantel.com.

1995

QUANTEL

VACATION-RELIEF MAINTENANCE ENGINEER: Responsibilities include the maintenance of Studio, Video and Tape and Electronic News Gathering equipment, including cameras, video tape recorders, video switchers, editing and transmission equipment. Experience with broadcast graphics equipment, including Character Generators and Paint Systems a plus. FCC license or SBE certification preferred. Candidates must have Broadcast Station or related experience. Please send resume to: Bill Beam, WABC-TV, 7 Lincoln Square-6th Floor, New York, NY 10023-0217. No telephone calls or faxes please. We are an Equal Opportunity Employer.

CHIEF ENGINEER - Dominant Gulf Coast affiliate seeks a chief engineer who can lead us into the digital future. The successful candidate will have excellent technical and leadership skills plus thorough knowledge of broadcast equipment including RF transmission systems. Requirements are an FCC license, college or technical degree (or equivalent experience), plus at least 10 years broadcast engineering experience. Send letter, resume, references and salary requirements to Veronica Bilbo, EEO Officer, KPLC-TV, P.O. Box 1490, Lake Charles, LA 70602. EOE.

MAINTENANCE TECHNICIAN Skilled technician position available requiring an in-depth knowledge of RF systems and TV transmitters along with ENG equipment, maintenance and operations experience plus TV production experience. General Radiotelephone license and ENG equipment maintenance experience preferred. Please send resumes to KCNC-Human Resources, 1044 Lincoln St., Denver, CO 80203. EOE/MF.

SC ETV IN COLUMBIA, SC is currently recruiting for the following position: Position #018850, Vice President for Engineering (Program Manager III). Minimum Salary: $55,548 Responsible for the planning, design, construction, operation and maintenance of technical facilities used in the production and transmission of TV and Radio programs. This includes TV studio facilities, recording and post production facilities, master control, TV and Radio transmitter facilities, satellite uplink and downlink facilities, microwave systems, ITFS transmitting and reception systems, fiber optic systems, and building distribution systems. Responsible for setting and maintaining overall technical federal and state standards, administering the Engineering Division (including personnel and funds allocated to that Division). Responsible for ensuring that network complies with all FCC Rules and Regulations. Requirements: Bachelor's degree in Engineering and 10 years experience or equivalent. Must be a Registered Professional Engineer in South Carolina. Must be knowledgeable of the architecture of computers and computer systems for engineering purposes. To obtain an SC ETV application, you may call our Job Line 803-737-3320 or contact Bonnie Hite at 803-737-3457 in the Human Resources Department.

TV MAINTENANCE TECH: Installation and maintenance of Television and radio broadcast equipment. Assoicate degree in Electronics Technology, four years of broadcast television maintenance and installation experience required. Equivalent combinations will be considered. SBE certification preferred. Cover letter and resume to: Dispatch Broadcast Group, Business Office #153, 770 Twin Rivers Dr., Columbus, OH 43215. Qualified minorities and women are encouraged to apply, EEO Smoke and Drug free workplace.

TECHNICIAN ENGINEER Two years experience as broadcast TV bench technician. Must be familiar with 1/2 inch broadcast video tape machines and small cameras (CCD and tube types). Some knowledge of microwave and satellite operation. Should possess or qualify for a state driver's license in order to operate company vehicles. (Some auto mechanics ability preferred, but not mandatory). Apply at KOB-TV, c/o Sam Tikkanen, KOB-TV, 4 Broadcast Plaza, SW, Albuquerque, NM 87104 EOE/M-F.

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ad index

Advertiser	Page Number	Reader Service Number	Hotline
AAVS/Div. of Sencore	91	46	800-769-AAVS
Accuweather Inc.	287	158	814-234-9601
Acrodyne Communications Inc.	179	90	800-523-2596
ADC Telecommunications	160	99	800-726-4266
Advanced Broadcast Systems	156	96	606-282-7580
Advanced Broadcast Systems	MAP		606-282-7580
AJA Video	244	148	916-274-2048
Alamar Electronics	151	83	408-866-9373
Ancor Communications Inc.	119	75	
Antenna Concepts	120	76	916-621-2015
Anton/Bauer	167	88	800-422-3473
ASACA/Shibasoku Corporation	228	132	310-827-7144
ASC Audio Video Corporation	127-134		818-843-7004
ASC Audio Video Corporation	145	82	818-843-7004
Associated Press	43	32	202-736-1152
Audio Precision	253	140	800-231-7350
Autopatch	83	51	509-235-2636
Avid Technology	5	5	800-949-2843
Avitel Corporation	154	85	801-977-9553
BAF Communications Corporation	289	159	407-324-8250
BAF Communications Corporation	292	166	407-324-8250
Beck Associates	294	300	512-388-9777
Belar Electronics Laboratory	246	150	610-687-5550
B&H Photo - Video	274-277	163, 164	800-947-9928
Broadcast Microwave Services	226	130	619-560-8601
Broadcast Video Systems Ltd.	240	145	905-764-1584
BTI Computer Systems	60	36	408-524-9224
Burle Industries	58	27	717-295-6123
Cablewave Systems	181	92	203-239-3311
Camplex/Concept W Systems	265	142	316-342-7743
Canare Cable, Inc	157	97	818-365-2446
Canon USA Broadcast Lens	9	11	201-816-2900
Canon USA Broadcast Lens	MAP		201-816-2900
Christie Electric Corporation	124	63	310-715-1402
Clark Wire & Cable	112	59	800-CABLE-IT
Comark Communications, Inc.	123	62	215-822-0777
Comark Communications, Inc.	221	125	215-822-0777
Comm/Scope Inc.	33	9	800-982-1708
Conex Electro Systems	242	146	360-734-4323
CPI	169	89	415-424-4515
CPI/Eimac Division	233-234		415-594-4000
CPI/Eimac Division	235	133	415-594-4000
Datatek, Inc.	121	77	800-882-9100
Dielectric	126	66	207-655-4555
Digital Transport Systems	66	40	
DPS	137	69	606-371-5533
DPS	MAP		606-371-5533
Di-Tech Inc.	241	144	516-667-6300
DNF Industries	292	167	818-252-0198
Duracell USA	37	17	800-548-5489
Echolab Inc.	105	58	617-273-1512
EEV, Inc.	227	131	914-592-6050
Elettronica	177	103	
Emcee Broadcast Products	245	149	717-443-9575
ESE	236	134	310-322-2136
Euphonix	171	102	415-855-0400
Fiber Options	186	108	800-342-3748
Florical Systems Inc.	190	122	352-372-8326
Folsom Research Inc.	77	41	916-983-1500
Frezzolini Electronics Inc.	70	30	201-427-1160
Fujinon, Inc.	153	84	201-633-5600
Fujinon, Inc.	155	94	201-633-5600
Gentner Communications	183	105	800-945-7730
Gepco	126	67	312-733-9555
Hannay Reels	222	126	518-797-3791
Harris Corporation/Broadcast Div.	3	4	606-282-4800
Harris Corporation/Broadcast Div.	45	34	606-282-4800
Henry Engineering	292	174	818-355-3656
Herman Electronics	293	173	305-477-0063
Heuris/Pulitzer	187	119	314-534-1514
Hewlett Packard	199	118	800-452-4844
Hewlett Packard	MAP		800-452-4844
Hitachi Denshi America	161	101	800-762-6405
Hoodman Corporation	294	301	310-379-6391
Hotronic Inc.	62	38	408-378-3883
Hughes Communications Inc.	269	156	310-607-4051
IDX Technologies	224	128	619-560-9779
Ikegami Electronics Inc.	23	8	201-368-9171
ITS Corporation	249	138	412-941-1500
Internet NAB Show Daily	217		800-288-8606
Intraplex, Inc.	178	104	508-692-9000
Intraplex, Inc.	MAP		508-692-9000
Ipitek	143	81	619-438-8362
Itelco S.P.A.	191	123	
ITVS	229	113	219-633-220
Jampro Antennas, Inc.	44	33	916-383-1177
JVC Professional Products Co.	18-21	7	800-JVC-5825
JVC Professional Products Co.	189	121	800-JVC-5825
Landsea Systems Inc.	160	100	757-468-0448
Larcan	279	157	303-665-8000
LDI '97	217		
Leader Instruments Corporation	52-55	23-24	800-645-5104
Ledtronics, Inc.	180	91	310-534-1505
Leightronix Inc.	292	168	517-694-5589
Leitch Incorporated	304	3	800-231-9673
Litton Electron Devices	147	70	
LNR Communications Inc.	237	135	516-273-7111
Louth Automation	78-79	42	415-843-3665
Louth Automation	81	50	415-843-3665
Macrovision	263	141	408-743-8600
Matthey Electronics Ltd.	293	171	
Metawave	272	162	
MGE UPS Systems	184	106	714-557-1636
Miranda Technologies Inc.	182	93	514-333-1772
MIT Inc.	80	43	
Mohawk/CDT	232	116	508-537-9961
Mountaingate Data Systems	71-76		800-556-0222
Multidyne Electronics	291	165	800-4-TVTEST
Myat	292	170	201-767-5380
NAB Broadcasters	271	161	202-429-5350
NDS	89	44	
NDS	251	139	
NuComm Inc.	56	25	908-852-3700
NuComm Inc.	293	172	908-852-3700
N Vision Inc.	38-39	18, 19	916-265-1000
N Vision Inc.	40-41	20, 31	916-265-1000
OConnor Engineering	135	68	714-979-3993
Odetics, Inc.	MAP		800-243-2001
Opamp Labs, Inc.	236	176	213-934-3566
Ortel Corporation	290	160	818-281-3636
Allen Osborne Assoc.	230	114	805-495-8420
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Philips Broadcast Television	59	35	800-962-4287
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Philips Components	MAP		401-767-4421
Philips TV Test Equipment	197	110	800-421-0888
PiRod, Inc.	195	109	219-936-4221
Pixel Power Limited	267	155	
Prime Image Inc.	93-94		801-272-5352
Prime Image Inc.	141	80	801-272-5352
Prism Sound Ltd.	163	86	
PSP Digital Ltd.	259	153	
Quantegy Inc.	97	49	770-486-2800
Quantegy Inc.	99	55	770-486-2800
Quantel Inc.	11	12	203-656-3100
Quvis	25	14	913-272-3656
Quvis	MAP		913-272-3656
Radamec	103	57	908-518-0685
RGB Spectrum	114	61	510-814-7000
Rosco Laboratories Inc.	165	87	203-708-8900
RT Set	125	65	408-988-2330
Sachtler Corp. of America	29	15	516-867-4900
Sanix Corporation	122	78	708-677-3000
Schneider Corporation	124	64	516-643-5466
Sennheiser Electronic Corp.	225	129	203-434-9190
Shure Brothers Inc.	115	72	800-25-SHURE

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ad index

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Sony Electronics Inc.	95		408-955-5493
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Specialized Products Co.	118	74	214-550-1923
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Sterling Technology Inc.	292	169	203-272-7728
Tekniche	139	79	201-784-2288
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Tektronix Inc./GVG.	84-85	52	800-998-3588
Tektronix Inc./Profile.	87	54	800-998-3588
Tektronix Inc./Measurement	49		503-627-2830
Telecast Fiber Systems Inc.	50	22	508-754-4858
Telect Inc.	243	147	509-926-6000
Telemetrics, Inc.	67	28	201-848-9818
Telex Communications, Inc.	185	107	800-392-3497
Telex Communications, Inc.	239	143	800-392-3497
Thomcast	109	175	349-031-00
Thomson Broadcast	86	53	800-882-1824
Thomson Broadcast	255	151	800-882-1824
Thomson Tubes Electroniques	116-117	73	201-812-9000
Tiernan Communications	MAP		619-587-0252
Trompeter Electronics	96	47, 48	818-707-2020
Utah Scientific	7	10	800-453-8782
Utah Scientific	MAP		800-453-8782
VDP Inc.	188	120	800-VIDCAD-6
Vela Research Inc.	223	127	813-572-1230
Video Accessory Corporation	156	95	800-821-0426
Videotek, Inc.	303	2	800-800-5719
Vinten TSM	13	13	888-484-6836
Wegener Communications	247	137	404-623-0096
Wheatstone Corporation	2	1	315-452-5000
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By Paul McGoldrick

Cable modem deployment

I often try to forget about things that are persistently not yet real. Of course, the definition is my own, and therefore, not to everyone's taste. On occasion, I have been right: I didn't hold my breath for the Video Toaster over the, what was it, two-plus years of continuing vapor? And I'm still (not) waiting for the PAL version! But I have also been dead wrong. I would have bet the DVD standard would take at least twice as long as it did to get real; mind you, since I predicted the release of these machines in January, the products took another delay caused by an audio standards disagreement.

Paul McGoldrick

There are other technology subject areas where my mind wants to laugh and my body wants to cry. One is in the interactive TV area. My first involvement was in 1978 at EMI where we designed, built and installed two-way cable systems. They, and the systems I have seen since, have only succeeded in convincing me that the public is not interested in paying for interactive services. Those that are willing to do so are probably already hooked up to satellite systems, enjoying all the paid programming they want and/or connected to the Internet with multiple user domains (MUDs) playing all the games and fantasy situations they want.

Cable modems

I was going to do the same in attempting to ignore the cable modem business. I have actually taken a keen interest in the standards and devices being used, rather than the commercial nuances of the business. But a series of events forced me to do some basic arithmetic and my primitive detective work is not encouraging for the industry. Does the cable modem situation impinge on the broadcast business? You bet it does; the complications of where, how and when digital signals are carried into the home will directly affect the economics of the terrestrial decisions that broadcasters must make in the near future.

As of the beginning of the year, there were 27 cable modem manufacturers either declared or ready to announce products. These modems are based on seven known chip sets, with not all of the relationships or connections between companies known or understood. The fact that 27 players believe that there is a market, and money, in the deployment of the modems should leave us to simply accept that fact. That really is a problem because the industry itself does not accept it.

Accurate numbers from the cable TV industry are a little difficult to extract, but it's probable that less than 20% of the cable infrastructure in the United States is ready to be equipped for two-way traffic. That, to me, seems critical to the universal employment of the cable modem, not for interactive video, but for the Internet. The provision of digital video signals is unimportant to the consumer, but the provision of a really nice wideband access to the Internet (6Mb/s?) will attract a lot of users, including me. A return path to the head-end, for surfing, via a slow modem and a separate ISP is not attractive. However, a wideband return path is attractive, which limits us to the 20% of systems that are ready. Add to that the fact that some of the most successful cable systems are extremely financially strapped and you have a recipe for a small disaster in implementation.

The cable industry estimates that the number of cable modems to be sold in 1997 will be around 300,000. That is not a viable number for 27 suppliers. With a "magic" price of $199 for resale in the major electronics superstores, we have the probability that four out of the seven IC suppliers will not be far enough advanced to survive.

The actual technology associated with the cable modem is, in much part, the same as that needed for the satellite box with demodulator, error correction and MPEG decoder. The return path is, however, a technological wonder; if you think of all the thousands of drops that could be feeding back to the head-end, you start to realize that the signals are feeding common node points and adding to other nodes and then other nodes all the way up to a single destination. But whether a cable modem in the home is making a request back to the head-end, the noise associated with that path is always there, always adding. Only one company has, to my mind, made a creditable tested offering for the return path and that is Stanford Telecom, Sunnyvale, CA, who has been quietly supplying others with that capability. But I am curious: When it seems that every gas station has a two-way satellite link on the roof of the kiosk by the pumps to validate credit why can't we do the same with DSS? ■

Paul McGoldrick is a free-lance writer and consultant based on the West Coast.

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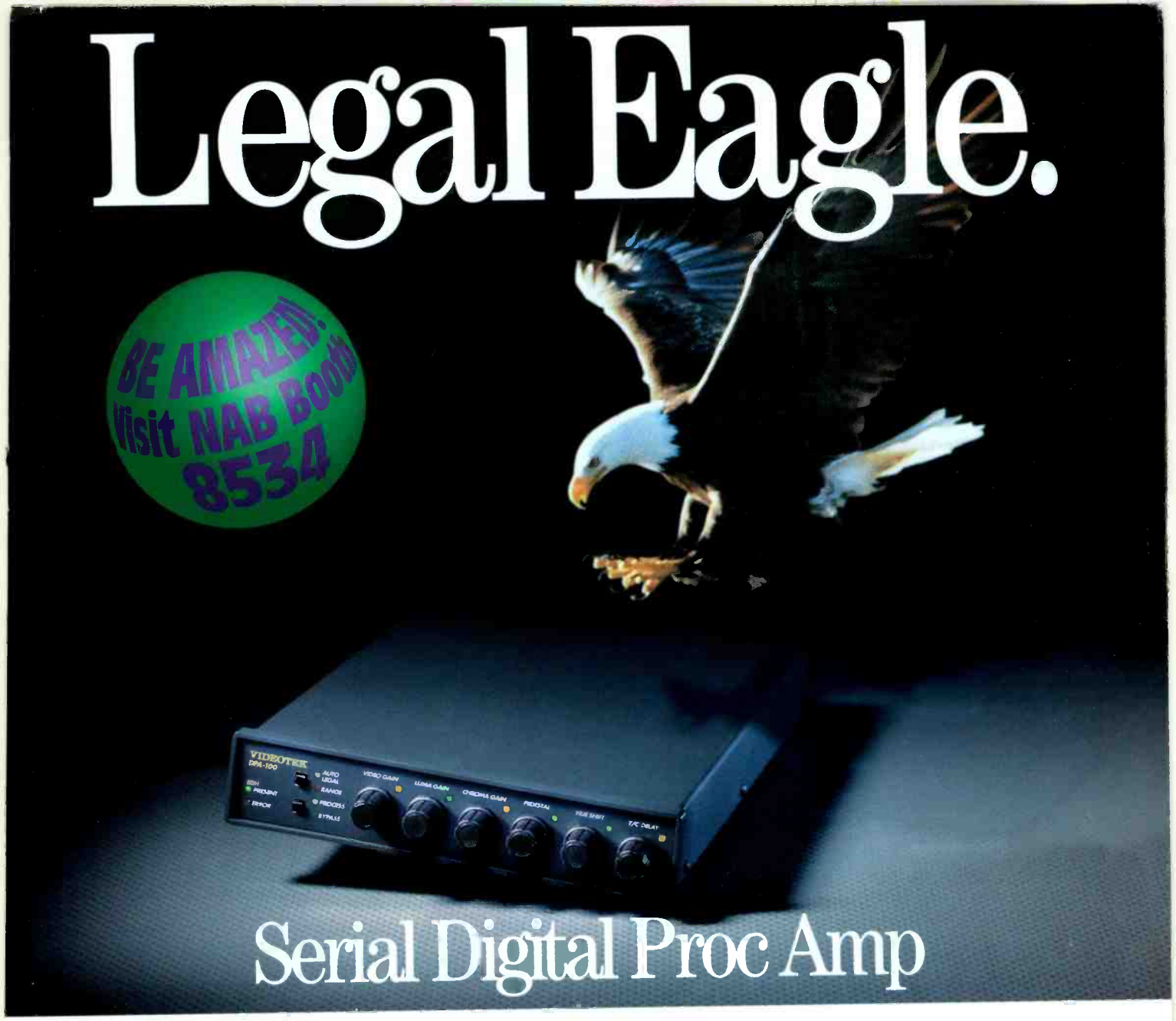

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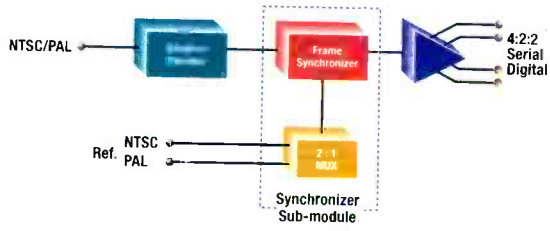

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