

TECHNOLOGY

IN THIS ISSUE



The Rescue of the Anik E2
by James Careless

6



Graphics: Better Tools, Lower Costs
by Pat Corbitt

19



S&W Boosts VideoTime Buyers Guide

50

IBC Looks to Prove Itself in 1994

Show Organizers Confident They Can Draw an Annual Audience

by Chris Dickinson

AMSTERDAM

As the International Broadcasting Convention invades the RAI center for the second time here in Amsterdam September 16-20, hopes are high that this year's show will live up to its new-found reputation.

With an expanded exhibit floor and a new commitment to the conference portion of the show, IBC organizers are out to prove that they can produce an annual show serving the entire European industry beginning in 1995.

From the looks of things, it appears that IBC is off to a good start. It has a well-laid out exhibition center, plenty of local accommodation, easy international access and a lower overall cost to attend this year.

SMALL BEGINNINGS

Up until 1992, the show was located in the small seaside town of Brighton in the U.K., where exhibitors and attendees were

sprawled along a string of cramped hotels on the promenade. Attendance in Brighton from U.K. users was always strong, but delegates from the rest of the world were put off by the awkwardness of the event.

IBC 1992 was judged a success on all fronts — with a drop in U.K. attendance countered by a greater response from elsewhere. For 1994, organizers expect attendance to at least match 1992's 25,000.

IBC this year has about 400 exhibitors, up 30 percent from 1992. Being a few years into the computer invasion of the video industry, the bulk of new names this year belong to the computer software and hardware companies already familiar from NAB and last year's Montreux exhibit. Among them are Silicon Graphics, IBM, Hewlett-Packard, Discreet Logic and SoftImage, to name a few.

IBC spokesman Tony Lawes said computer specialists will certainly make up a substantial portion of the floor this year.

"There are over a third more exhibitors than last time, with the bulk (of the increase) from the computer side of the business," he said. "And while they do not tend to have stands quite as big as some of the established manufacturers, they will be a significant part of the exhibition."

Other areas better represented this year are specialist manufacturers from the film, lighting and RF transmitter industries.

Audio post and radio equipment companies are also expected to be in force at IBC this year, and efforts have been made to bring them closer to the mainstream of the show.

"We have tried to have areas of high concentration of particular categories, rather

than have exclusive ghettos," Lawes said. "Exhibitors were given the option to take pot luck on the show floor or be put in an area with a high concentration of other radio and audio companies. We have had a good take-up of both."

ROOM TO GROW

The completed Hall 11 at RAI, still being built in 1992, means the center's 30,000 square meters of floor space is being put to

good use. Lawes claims to have a waiting list of exhibitors for the new hall.

As for IBC's big Achilles Heel — its conference program — strenuous efforts have been made to bolster the panel sessions in particular. And special emphasis has been put on attracting producers, directors and editors instead of just chief engineers.

The technical program has been put together by Prof. Ray Hills, consulting engineer of Ray Hills Assoc. and a visiting professor at De Montfort University.

(continued on page 26)

When in Rome: Parallax's Advance rearranges the map.
See page 21.



TV Technology kicks off its new bi-monthly Computer Video section.
See page 19

IBC Show Preview
See page 26



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NETWORKS
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TVBS DELIVERING ASIA BUSINESS NEWS

SINGAPORE

Television Broadcast Super Channel (TVBS) has agreed to deliver Asia Business News' satellite-based business and financial channel through Taiwan.

Under an agreement between the two groups, TVBS will distribute ABN's full, 24-hour weekday service, as well as its 8 a.m to 8 p.m. Saturday and Sunday service.

"Taiwan is an important market for us in terms of news gathering, viewers' feedback and advertising," said Paul France, chief executive officer of ABN. "and for these

reasons, we will be paying special attention to the audience demands."

BROADCAST
.....

INDONESIA LAUNCHES EDUCATIONAL NETWORK

SINGAPORE

Indonesian TV operator P.T. CIPTA Televisi Pendidikan Indonesia has established a UHF TV network for educational broadcasting.

The broadcaster turned to Rohde & Schwarz to outfit the network's main station in Jakarta using a 20 kW NT 425 transmitter and a 10 kW NT 414 standby transmitter.

In addition, five stations have been set up in principal locations throughout Indonesia. Each station has been equipped with a 10 kW transmitter.

Programming is fed from the main station to the affiliates via the Palapa B2 satellite.

BUSINESS
.....

U.S. GROUP COMPLETES PESA BUYOUT

MADRID

A group of U.S. investors has completed the purchase of PESA Electronica S.A. from Spanish conglomerate Grupo Amper S.A. for a reported US\$70 million.

The investors, led by Percival Hudgins &



Co. of Atlanta, Georgia, have set up a new corporation, Sepa Technologies Ltd., to oversee the transaction and eventually govern PESA's former operations.

Shortly after the acquisition, Sepa announced that Sumitomo Corp. of Japan has acquired a 17 percent equity partnership in the PESA properties. However, Sumitomo's share will likely be diluted as Sepa injects additional funds into the operation.

And in another maneuver, John K. Percival, a founding member of Percival Hudgins and president and chief executive officer of Sepa, has been installed on the Board of Directors of U.S. graphics systems manufacturer Chyron Corp. Chyron was formally owned by PESA and has since been brought under the Sepa fold.

"We saw the majority stock holding in Chyron Corp. as one of the key elements in our PESA investment," Percival said.

Besides Chyron, Sepa also controls other members of the former PESA/Chyron Group: effects system manufacturer Aurora, editing equipment maker CMX, transmission system company MCI, and Pesa Switching Systems, a specialist in routers and distribution.

VIDEO-ON-DEMAND
.....

SOUTH KOREA PLANNING VOD FIELD TRIAL

SEOUL, SOUTH KOREA

Korea Telecom has announced it will establish an experimental video-on-demand network utilizing high-capacity switching systems.

The network will serve about 100 homes drawing MPEG-compressed video feeds from about 30 broadband trunks. The trial is expected to begin this fall.

"Residential subscribers to VOD service will use an infrared remote control to contact a centralized video database in a video server located at a telephone central office," said Mr. S. Woo, vice president of Korea Telecom.

Korea Telecom has contracted with Bescom Inc. of the U.S. to provide technology for the trial. The system will utilize a variety of recently developed systems, such as:

—Integrated Network Corp.'s Allendale Multimedia Service Switch, which will route signals to their proper destinations.

—Hyundai's Digital Entertainment Terminal, a settop decoder box located in subscribers' homes that provides access to the system.

—On-Demand Technologies' Digital Video Server, a mainframe computer system that stores and plays back MPEG-encoded programs.

—Westell's Asynchronous Digital Subscriber Loop (ADSL), a transport technology that allows compressed video to be delivered over standard copper telephone wire.

2 NEWS

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MPEG Eyes Dolby Compatibility

by Chris Dickinson

LONDON

In a bid to unify the audio schemes of digital television transmission standards in the U.S. and Europe, the Moving Picture Experts Group (MPEG) has tested the Dolby AC-3 audio compression system with a view to making it MPEG-compatible.

The Grand Alliance in the U.S. has chosen AC-3 as the audio system in its proposed digital high definition television standard. But the Digital Video Broadcasting (DVB) group — which is deliberating on a rival European digital HDTV standard — plans to use the MPEG-compatible Musicam digital audio system. Digital Audio Broadcasting (DAB) in Europe also uses Musicam.

The BBC and Deutsche Telekom of Germany have conducted listening tests on AC-3 — plus a third audio system from U.S. telecommunications giant AT&T — on behalf of MPEG, with the aim of defining multichannel audio variants of the MPEG standard.

A source within DVB said the likelihood was that AC-3 would be fitted into the MPEG structure retrospectively, even though the standard was set in principle at the end of last year.

"To get Dolby into MPEG would require special procedures because, in principle, standardization ends when you go to committee. This happened in November 1993," the source said. "From then on it should not be possible to incorporate a new system."

Dolby officials said it had come out well in MPEG's tests and hoped AC-3 would eventually be accepted.

Graham Carter, broadcast project manager at Dolby in Europe, said the original requirement was for the multichannel audio system to be backward-compatible with existing two-channel MPEG systems. But the tests indicated that a non-backward-compatible system — like AC-3 — might perform better. He said MPEG had called for further tests.

"In due course — about two year's time — MPEG should bring a non-backward-compatible system into the standard," he said. "Hopefully that will be AC-3."

The AC-3 scheme is already used in the film industry to create surround sound effects. It works by compressing up to six channels into the space normally required for one channel on a CD.

In its multichannel form, AC-3 consists of three front channels (left, right and center), two surround channels (left and right) and a sixth, bass-only effects channel.

In the U.S., digital television is expected to roll out with a two-channel variant of AC-3, expanding to the full six channel system at a later date, Carter said. The two-channel form has also been incorporated into the General Instrument DigiCipher II digital transmission system for satellite and cable TV. ■

SHOW LISTINGS

16-20 SEPTEMBER — IBC '94

Amsterdam, The Netherlands. The 1994 International Broadcasting Convention will be in the RAI Exhibition and Congress Centre. For information contact the IBC Convention Office, Savoy Place, London WC2R 0BL, U.K.; telephone: +44-71-240-3839; FAX: +44-71-497-3633.

19-21 SEPTEMBER — 1994 PAN ASIA CONFERENCE

Singapore. The third annual conference will take place at the Shangri-La Hotel and will feature country-by-country analyses of the region. For information, contact show organizers at 51 Anson Road, #09-55 Anson Centre, Singapore 0207; telephone: +65-222-8550; fax: +65-226-3264.

22-27 SEPTEMBER — PHOTOKINA PROFESSIONAL MEDIA '94

Cologne, Germany. This year's show will feature new ways to transmit data over the air, as well as numerous corporate video topics. The SMPTE will also conduct its 1994 European Conference during the show. For information, contact organizers at telephone: +49-221-821-2494; FAX: +49-221-821-2105.

24-26 SEPTEMBER — SHOWBIZ EXPO EUROPE

Munich, Germany. Advanstar Expositions takes its show from the U.S. to Europe this year, occupying the M.O.C. Exhibition Center. For further information, contact Leanne Lambert or Liz Crawford, 201 East Sandpoint Ave., Suite 600, Santa Ana, Calif., 92707; telephone: +1-714-513-8400; FAX: +1-714-513-8481.

CONTENTS

NEWS

IBC looks to prove itself	1
MPEG eyes Dolby compatibility	3
Networked non-linear editing	5
The rescue of the Anik E2	6
Canadian firms devise DBS service	7
Private TV in Eastern Europe	8
Czech television still dominates	9
Channel 4 goes serial digital	24

FEATURES

Audio for Video	12
Ken Hahn	
RF Technology	15
Doug Lung	
VideoWatch	17
John Watkinson	
Focus On Lighting	18
David M. Clark	

COMPUTER VIDEO

Animation Framework	19
Pat Corbitt	
The Mill advances with Parallax	21
User Report	
In Points	21
Bryce Button	
ConneXions	23
John Spofford	

SPECIAL SECTION

IBC 1994	26
Exhibitor Listing	43

EQUIPMENT

Marketplace	33
Product Showcase	25
Equipment Exchange	52-53
Ad Index	54

BUYERS GUIDE

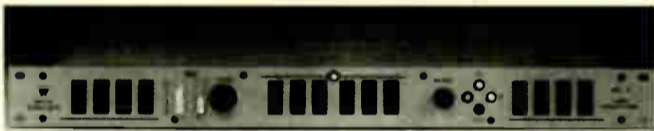
User Reports	50
Snell & Wilcox, AVS, BTS, Vistek	

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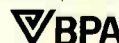


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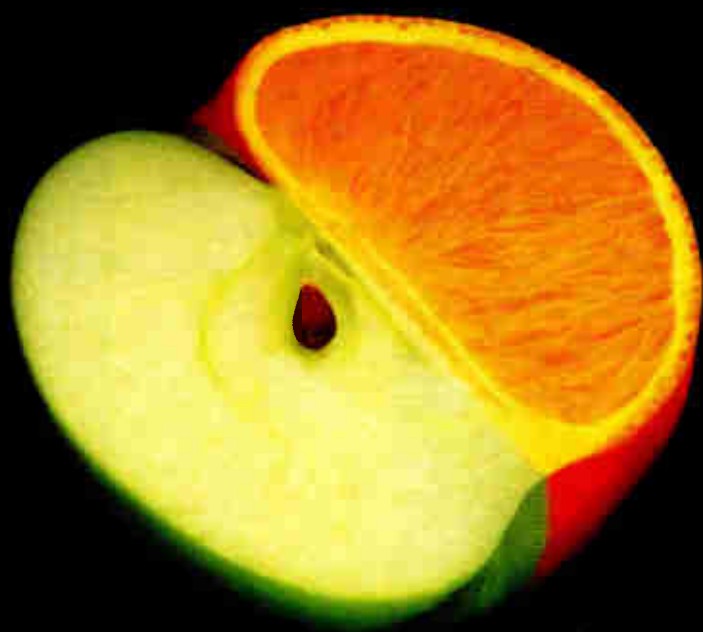
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Networked Non-Linear Editing

GUEST COMMENTARY

by Paul Bamborough
Director
Lightworks Editing Systems

In the past few years, non-linear editing based on disk storage has emerged as the advantageous way to edit film and video. A young technology, non-linear is still evolving and in the future systems will be even more powerful.

In any attempt to look at where to go in the future, it is often useful to look at how and why you are where you are now. Lightworks is by no means the only company to build editors based on random access computer technology, and we were not the first. Despite that, we have captured the high ground of non-linear editing and have become a substantial company shipping some 50 machines per month.

OPERATIONAL DIFFERENCES

Although the editing task is common to all of today's non-linear products, there are significant differences in the way that they operate. At Lightworks, we have always taken the viewpoint of the editor; the editing problem defines the task, which in turn determines the attributes the system needs to perform the task. The goal is simply to allow an editor to produce more results with less effort.

If the editing equipment is as direct in operation as possible, the artistic quality of the finished work will be as good as the editor can make it. We wanted to make our non-linear editor apply to film as much as video.

Film editors have traditionally made do with fairly basic technology, but have had a lot of aesthetic freedom and the advantages of a hands-on approach. Video editing on tape has been subject to severe restrictions, and there is a degree of detachment from the work. We wanted to combine the strengths of both by keeping the hands-on approach of film but introducing more flexible technology.

The approach contrasts strongly with products that start with a computer and try to turn it into an editor. With this approach, the user often has to master a lot of computing skills, and this distracts from the editing task. The familiar editing controls are often replaced by an interface more appropriate for an accounting systems. Car manufacturers have turned to computers as a flexible means to control engines, but you do not have to be computer-oriented; you just turn the key and drive.

As we see it, state of the art computer technology, disks, chips and so on are available to anyone who wishes to incorporate them into a product, and this has the effect of levelling the hardware field. If a product has an advantage over the competition, it will not be due to the components

found within, but to the way they are used.

The choice of hardware most suitable for implementing the product comes quite late in the design process and is almost automatic. Lightworks contains computers, but if we found a better way of performing the processes we need, we would happily adopt a new technology.

HUMBLE BEGINNINGS

PCM (pulse code modulation, or what we now call digital) was invented in the 1930s, and the first hard disks were available in 1957. Thus, in principal, a non-linear editor could have been made back then. In practice, the recording density of disk drives and the processing power available then was totally inadequate. In 1957, the analog video recorder had only just been invented, and it would be nearly 30 years before the digital video tape recorder would come along.

The digital VTR and the hard disk use the same basic principles to record binary data. Tape is cheap and easy to make, and it rolls up into a compact form. The cost per bit and the number of bits per unit volume is extremely high. On the other hand, it takes a long time to access data on tape because it is necessary to wind it back and forth.

Hard disks offer very rapid access because they spin rapidly and the heads can access the entire data surface straight away. However, the price of that rapid access is a reduction in recording density because of the air film which separates the heads from the disk surface.

The disks are thick and spaced apart in the drive so that the heads can get access. Compared to tape, the cost per bit is enormous. Thus, disk drives are also going to be faster but more expensive, while tapes are always going to be cheaper and slower. As a result, we are not about to rush out a camcorder with hard disks in it.

As both disks and tape use the same magnetic principles, it is easy to see that developments in the technology will make both

better at once, maintaining the relationship. Disks get faster with time and hold more data. Tapes increase their capacity with time; compare D-1 with D-5.

Specifying the task first often results in outstripping available technology. What we want to build today cannot be built economically until tomorrow. But when tomorrow's technology is ready, we can use it straight away because we will have been anticipating it. When we adopt new technology, we will do so when it is mature enough to be invisible. Our strengths lie in solving the problems of editing and we do not what to dissipate energy solving problems in the technology.

FORCED COMPRESSION

When we launched Lightworks, disk capacity and throughput forced us to use compression in order to obtain cost-effective playing time. Compression inevitably introduces artifacts and these are bound to be worse as the compression factor increases.

... a traditional linear-program computer
is a bad thing to start with to make a
non-linear editor.

es. For off-line editing, this does not matter as the compressed pictures are only used to create an EDL. The final work is on full-resolution VTRs or on film.

Of course, if you are prepared to accept the quality of compressed pictures, then any non-linear system can be redefined as an on-line editor. Our view is that it is misleading to think of off-line as being reduced quality and on-line as having original quality. The quality of compressed pictures is often described as "VHS-like" or linked to the quality of another type of VTR. We do not see any merit in this as VTRs introduce impairments that are completely different

from compression artifacts.

As disk technology advances, throughput will rise and the compression factors could become smaller. Compression algorithms also improve and at some point, your picture quality from disk becomes indistinguishable from 525-line video quality, and your off-line editor has become a true on-line editor — at least for television production. If the original material is HDTV of 35mm or 70mm film, then you are still off-line because the compressed pictures cannot match the originals.

In many ways, a traditional linear-program computer is a bad thing to start with to make a non-linear editor. In editing, lots of things happen at once, and throughput is an issue. When we designed Heavyworks, the only way we could get the throughput to support four-channel multicamera editing was to design our own architecture. Heavyworks has the fastest throughput of any non-linear disk system.

PARALLEL EDITING

The next step beyond the existing non-linear workstation will be to enable the various people involved to work more in parallel instead of each stage being held up until the previous one is completed. For a group to be able to work in parallel, each member needs simultaneous access to picture, audio and ancillary data.

One way of doing this is to have a network of edit stations fed by a central file server.

At Lightworks, we are using our successful task-oriented approach to the networking problem. We have spent a year modelling the entire post production process in order to define what a network should do. There have been plenty of questions asked and we have found solutions to all of them. How, for example, do you protect each person's work from others who may try to update it? How do you build a database including several projects and different versions of projects? How are priorities arranged so that

(continued on page 6)

5 OPINION

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The Rescue of the Anik E2

by James Careless

ONTARIO

When Telesat Canada lost control of the stabilizing gyroscopes on the Anik E2 satellite during an intense solar storm in January, it looked like the C\$280 million bird would be reduced to spacejunk. It was a devastating blow to Canada's television industry because E2 provided a vital link for most of the country's national broadcasters and cable networks.

But now it appears that all is not lost. Telesat has developed a unique solution to preserve the craft until 2002, only a year shy of its original lifespan. The repair is a first-of-its-kind venture that could prevent other satellites from going dark before their time.

SUN DAMAGE

The story begins at 1 p.m. on January 20, 1994, when a solar flare-up knocked out the primary momentum control wheel on Telesat's only other satellite, Anik E1, causing the bird to lose its lock on Earth and spin out of control.

Because only the primary system was affected — presumably by radiation penetrating the satellite's shielding — it was possible to fix the problem by bringing the backup momentum wheel on line. Within a few hours, E1 was back in operation.

However, at 9:10 p.m. — just eight hours after the E1 failure — E2 went down. As networks and cable companies scrambled



Anik E2: Back in service

to find a new satellite, Telesat's engineers realized that "we were faced with a satellite that did not have a functioning attitude control system," said Bruce Burlton, Telesat's director of satellite dynamics.

While signals were being rerouted from E2 to backup transponders on E1 and a Hughes Galaxy satellite, Telesat engineers scrambled to find a way to bring E2 out of its slow spin to point back toward Canada: a task that met with complete and utter failure. Within a few days, the worst case scenario seemed to be the most likely: Anik E2 was going to be a total writeoff, and

Telesat — Canada's only licensed satellite service provider — was not going to have enough satellite transponder capacity to do its job. The situation was doubly bad because the next generation of Aniks had not even been designed.

It was at this point that Telesat's engineers recalled a situation several years ago when they were faced with the possibility of a similar failure aboard an earlier Anik B craft. Dusting off the old files, they reviewed the plans for GLACS, Ground Loop Attitude Control System. If it could be made to work, it could bring E2 back to life even without its momentum wheels.

GLACS works by transferring control of E2's position-monitoring system down to Earth, allowing a computer to correct position deviations through bursts of the satellite's station-keeping thrusters and charges of its magnetic control coils. This is possible because, mindful of its problems with Anik B, Telesat designed E2 to be capable of such ground-based control.

COMPUTER CONTROL

The necessary roll and pitch data are fed to the ground computer directly from the satellite's onboard sensors. However, detecting the yaw, or beam rotation, required the installation of polarization sensing equipment at Telesat earth stations in Edmonton, Alberta and Allan Park (near Toronto), Ontario.

"What we do is transmit an unmodulated signal, and we measure the return signal and measure its polarization at two separate locations," explained Barry Turner, Telesat's vice president of sales and marketing. "The reason for the two separate locations are important. Number one is that there are weather effects, particularly rain, which cause you to lose signal strength at Ku band. The other key is that the atmosphere actually twists the polarization of the signal, so you need to develop a model of what the atmosphere is doing. Those complexities made it a challenge to develop (the system), but it was done and it works impressively well."

According to Telesat's "Anik E2 Recovery/Technical Background" paper released in June, "the computers process the attitude data and, once every 32 seconds, an attitude control decision is made. Magnetic control coils on the satellite are also commanded on or off to correct roll or yaw attitude errors. Thrusters control the pitch attitude. Although control decisions are made

every 32 seconds, thrusters are normally fired only about every 15 minutes.

"The objective or pointing budget for the system is +/- 0.25 degrees in pitch and roll and +/- 1.0 degree in yaw. Nevertheless, we believe we can better this objective such that the satellite's performance will be very similar to the way it was before the failure," the paper continues.

As for fuel consumption, Telesat's engineers are confident the craft will not run out of fuel, despite the fact that E2's thrusters will essentially be in continuous use for the next 8 years. The reason is that the duration of the bursts is being kept as short as possible — down to 8 milliseconds — to conserve hydrazine. At this rate, the company expects to use only a nine month or a year's worth of fuel to keep E2 pointed at Canada.

The result? Telesat Canada officials held a news conference in June where they displayed clear, clean TV signals being relayed to Earth via the once-useless E2. After that, they began shifting traffic back from E1 to E2, with the goal of bringing everything back to "normal" by August 1.

For the satellite industry, the project was a ground-breaking event. Telesat has shown that with a little ingenuity and a bit of design forethought, it is possible to successfully operate a satellite without momentum wheels.

It also gives hope to other satellite operators that — should their birds suffer E2's awful fate — there still may be a chance to salvage the situation from the ground. ■

CONTINUED FROM PAGE 5

Networked Editing

playout will never be interrupted?

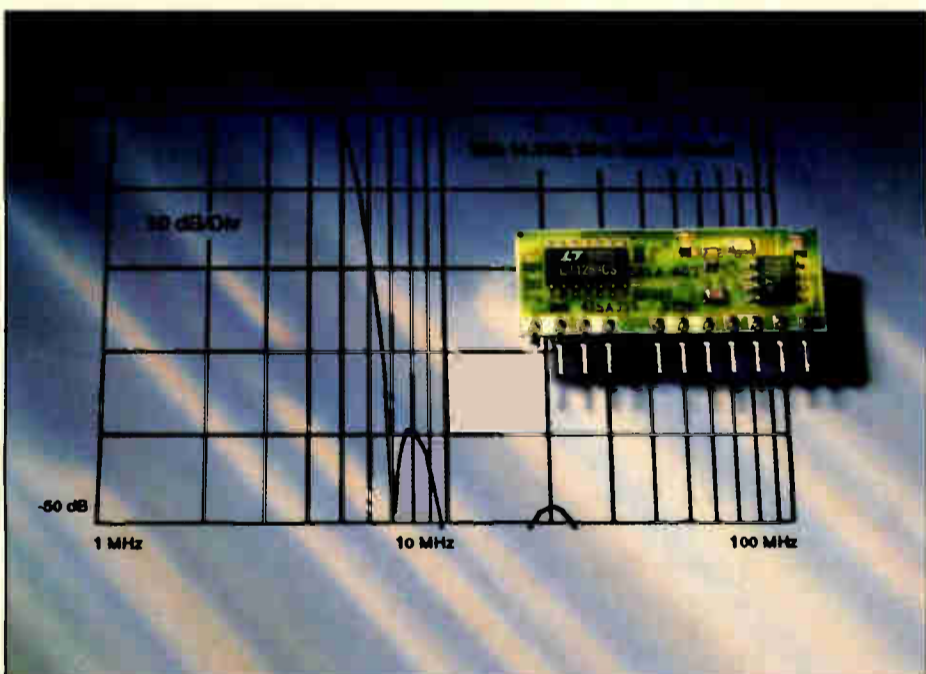
There are work flow issues to be solved; means are needed to coordinate the work of editors, assistants, sound editors, composers and so on. Because we have started from a model of the post production process, we have solved all of these problems, including some that are not appreciated as problems elsewhere. We are ready for networking and we know what we should do, but the technology is not cost-effective yet.

The success of a network is heavily determined by throughput. Unless the file server is capable of prodigious throughput, it will only work with excessively high compression factors or with a priority system that keeps saying "please wait." If true on-line quality or disk-to-air is required, these restrictions are intolerable. With all of the eggs in one basket, a file server has to be utterly reliable.

Disk drives with the requisite performance are not ready yet, and until they are the only way networking can be supported is with a brute force approach. The hardware will be expensive, large and power hungry; reliability could be an issue and it could rapidly become obsolete.

Disk development is extremely rapid. We know when the drives will be ready because we talk to the manufacturers. As soon as the hardware is cost-effective, Lightworks will supply networking products. And because of our policy to never obsolete anything, the Lightworks non-linear editor will work with the network. ■

A founder and director of Lightworks Editing Systems, Paul Bamborough also helped found audio manufacturer Solid State Logic.



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Canadian Firms Devise DBS Service

Leading Telecom and Cable Providers To Compete Against U.S.-based Systems

by James Careless

ONTARIO

Canadian telephone giant BCE (Bell Canada Enterprises) and the country's two leading cable operators, Rogers Cablesystems and Shaw Communications, cleared a major hurdle recently when they signed an unprecedented deal to create an all-Canadian Direct Broadcast Satellite (DBS) service.

However, surmounting decades of mutual hostility is not the last challenge faced by these traditional rivals. It is one thing to agree to form a national DBS service, but it is quite another to get it up and running, particularly when the clock is being driven by the expected entry of U.S. services such as DirecTV into the Canadian market.

PLANNING AHEAD

That is why the consortium — which also includes program producers such as Astral Communications and satellite services provider Cancom — has wasted no time in setting up a steering committee and five subcommittees to get the task done.

At the head of it all the consortium has placed Shaw senior vice president Noel Bambrough, the man who spearheaded cable's successful campaign to win regulatory backing for a 300-channel univer-

sally addressable standard a few years ago. Now Bambrough is charged with putting together HITS (Headend In The Sky), a 100-channel digitally compressed DBS service from which signals can be down-linked and decoded by both cable systems and DTH (direct-to-home) subscribers using 24-inch dishes.

"We are certainly beyond square one . . . But there are a number of varied interests among the group."

**— Noel Bambrough
Senior Vice President
Shaw Communications**

ally addressable standard a few years ago.

Now Bambrough is charged with putting together HITS (Headend In The Sky), a 100-channel digitally compressed DBS service from which signals can be down-linked and decoded by both cable systems and DTH (direct-to-home) subscribers using 24-inch dishes.

"We are certainly beyond square one," Bambrough said. "But there are a number of varied interests among the group, and depending on who you are talking to, they would lean one way or the other with respect to the use of certain technology."

On some points, agreement already exists. For instance, the consortium has already chosen MPEG 2 as the digital video compression standard for HITS, and the Ku band for signal transmission.

The consortium members have also agreed on the data rate.

"Right now we are leaning toward something in the order of 38 megabits-per-second (Mbps)," said Nick Hamilton-Piercy, chairman of the HITS technical subcom-

mittee and vice president of engineering and technology at Rogers Cablesystems.

"This data rate has an advantage: when used on a full transponder on a satellite, it allows a 24-inch receiving dish, and when run through the cable system, it allows for about 30 percent (more) digital channels than is possible with the 64 QAM, 27 Mbps rate which is being contemplated in the U.S."

Finally, the HITS consortium has decid-

ed to take a calculated risk and relay its signals via the Anik E-2 satellite; one that is expected to come back on-line using thrusters for stationkeeping after a solar storm knocked out its gyroscopes earlier this year. (see related story, Page 6)

BACKUP HITS

Asked about how HITS would cope should repairs to Anik E-2 fail, Bambrough replied: "There isn't really a backup plan at the moment. We are anticipating E2 coming back; we are going to have to come up with a backup plan."

So much for the points of technological

agreement; now for the issues that remain.

At the top of the list is the need to choose a standard for the set-top decompressor/decoder box, one that will be "applicable to both the direct-to-home satellite and to the cable system set-top box," said Hamilton-Piercy.

What complicates this issue is the debate between equipping the cable boxes with either an 8 or 16 Mbps memory. Although the higher memory could add C\$50 to the cost of each box (bringing it over C\$300), the 8 Mbps memory will only make it possible for the set-top decoder to receive half

(continued on page 8)

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CONTINUED FROM PAGE 7

Canadian DBS Service In the Planning Stage

of the horizontal lines being sent by the satellite. Since this number equals 360 lines horizontal, it presents no problem for users of current analog NTSC receivers, said Hamilton-Piercy.

"The best a television set will do, off a broadcast, is only 300 lines, so it is still better than a television can resolve," he said

However, this number of lines will not

be adequate when wide-screen TVs come into use. To service them, the set-top box memories will have to be upgraded to 16 Mbps.

NOW OR LATER

Torn between saving money now by going with an 8 Mbps system or saving money in the future by introducing 16 Mbps now, the consortium is currently

looking for a compromise. Hamilton-Piercy said.

"One of the proposed solutions is an 'upgradable box,'" he said. "The cable company can, in three or four years' time, plug in the additional memory, as you do in a computer."

Standards issues dominate the other concerns facing the technical subcommittee. Among them are the jobs of finding a form of encryption that is easily decoded by all users and an ordering system that will allow both DTH and cable subscribers to purchase pay-per-view movies through a single national

"authorization center."

"We think that an impulse pay-per-view technology is probably the easiest for the consumer to use," Bambrough said, "and it is one that has a lot of appeal to us as

In some ways, billing is the thorniest of standardization issues for HITS . . .

well because it reduces the requirement for individual or personal handling of requests for PPV movies. What it requires is a modem of some kind to provide the reverse path to enable the consumer to order via the cable system, or alternatively, a modem that would attach to his telephone line and he would order using telephone."

BILL COLLECTORS

What that technology will be remains to be seen, as does the technological solution to billing pay-per-view users after they've ordered programming.

In some ways, billing is the thorniest of standardization issues for HITS, said Bambrough.

"What we have to think about is three or maybe more different types of users," he said. "One, obviously, is a large cable company, such as Rogers or Shaw, that has its own billing systems and requires less information from an authorization center than others would. I mean they need the information, but with the use of a data line, that information could be downloaded and the services billed to the customer."

"A very small cable system may require something quite different," he continued, "because they may still have some form of manual billing, and they may require hard copy of the transactions that took place so that they can prepare a bill for the customer."

"And then there's the DTH subscriber, who may be handled in any number of different ways. He could have a box where he pays in advance — and in fact, has a credit, or at least a limit, so that he can order services up to that limit. The information then would be downloaded to the DTH administrative company, if you want to call it that, and then they would bill it to the customer."

To date, these and other issues remain unresolved by the HITS consortium; a reality that puts them face-to-face with a deadline Nick Hamilton-Piercy has described as "very, very tight."

"We would like, although it may not be possible, to get the direct-to-home equipment at least to begin to come into the shops about April 1995," he said.

Meeting this deadline will require a lot of horse-trading between the consortium's partners and sufficient external unity to convince vendors to supply equipment as specified by HITS.

Just forming the HITS partnership was in itself a tremendous achievement. Given the will on all sides that is driving the project, it seems reasonable to assume that the service will be made available at some point. The question is, how soon? ■

James Careless is a frequent contributor to TV Technology's sister publication, Radio World.

NEWS

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Private TV in Eastern Europe

Nova Wins A Strong Following as the Region's First Private, Nationwide Commercial Station

by Charles Recknagel

PRAGUE, Czech Republic

The emergence of private television in Eastern Europe has moved dramatically ahead here with the appearance of the first nationwide, commercial television station in the Czech Republic.

The station, called Nova, began broadcasting from Prague in February and is the first privately-owned, nationwide channel in the post-Communist world, according to its director general Vladimir Zelezny. Until now, all of the region's new private channels have been limited to sub-national markets usually around major metropolitan centers.

MINING FOR COMMERCIALS

Nova won the license to the Czech Republic's widest-reaching, ex-state television channel when it was privatized last year and is the largest effort to date to begin mining Eastern Europe's developing commercial TV market. With an investment of some US\$35 million, it is backed 75 percent by American capital furnished by tycoon Ronald Lauder of the Estee Lauder family.

"Eastern Europe is a good place to make

money, and TV can be a very good investment," noted Mark Palmer, a shareholder in Lauder's investment group.

Launching Nova has been challenging from the technical side because the conditions of licensing gave the station just one year to get on the air. The station began broadcasting almost 12 months to the day after winning its license in a hotly contested bidding battle.

"The technical task was large because we won the license with a promise to devote a substantial part of our air time to original productions," said Ales Novak of Nova's technical and production department. Under the original license terms, the station agreed to fill 40 percent of its airtime with domestic productions, although this amount was later reduced to 25 percent for the first year of broadcasting.

To build a facility rapidly, Nova leased and reconstructed a one-time state television facility in downtown Prague. The building offered line-of-sight access to Prague's television transmission tower overlooking the city, plus a large ballroom from its distant past as a municipal hall.

The station then contracted with the Berlin-based Pik Company to provide all design and technical support for building

studios and control rooms used to produce a three-and-a-half hour breakfast show and an evening news program.

The high costs of reconstructing the building have forced Nova to use all analog equipment at the start of its operation. The equipment, which is all Western-manufactured, includes Sony three-CCD studio cameras and Grass Valley Group mixers and digital effects units in the control rooms.

"We ultimately hope to become fully digital, but we probably will have to wait at least three years," Novak said.

TOUGH GOING

The race to get on the air has caused some early problems with equipment operations. The station has had to begin broadcasting even as reconstruction continues to build administrative offices.

Today, Nova broadcasts 20 to 21 hours a day with a staff of 400, including 100 technicians. Its next challenge is to begin winning viewers from the Czech Republic's two non-privatized public television channels. It also must compete with a regional Prague station backed by Italian investment capital, as well as a growing cable network and international satellite broadcasts.

The new station is banking on the Czech public's high interest in television viewing to guarantee returns on its investment. In a country where many families still are without a telephone, a study last year showed

86 percent of Czech homes have color television sets. Of these, one million Czech homes have satellite dishes and half a million are wired for cable.

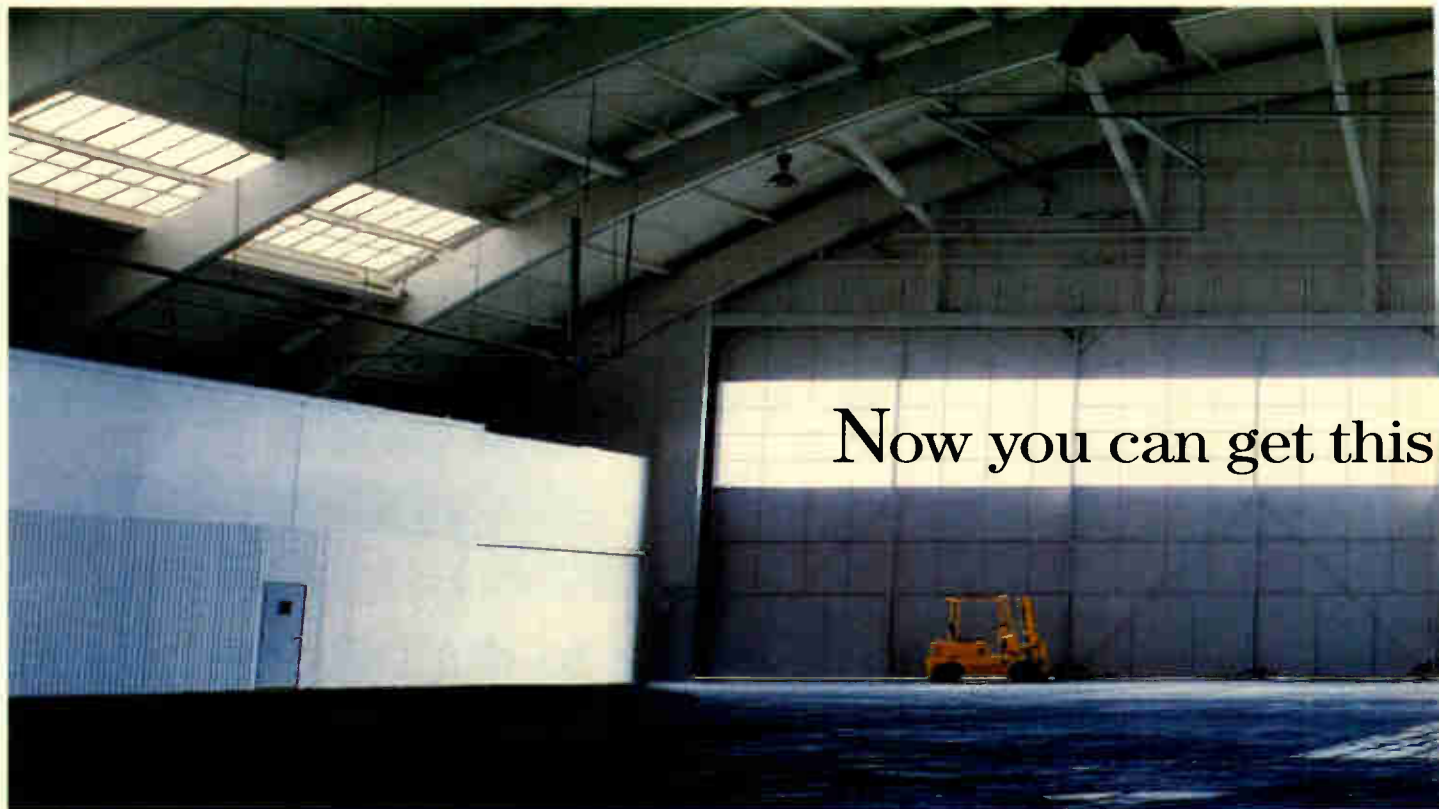
According to Zelezny, Nova, which reaches 97 percent of all Czech homes, is ultimately aiming to gain 60 percent of the national audience and not less than 50 percent by the end of this year. While TV viewing habits are deeply entrenched in Eastern Europe and hard to predict for new channels, the station is counting on the appeal of its original programming, exclusive sports coverage of many national football matches, and exclusive films from Disney and Columbia/Sony to win its market share.

But as Nova hopes to rapidly gain viewers, its progress in finding advertisers may be slower. The Czech economy has yet to produce the kind of ad revenue base private television needs to operate profitably.

"This is still a small and poor market," Zelezny said.

For the short term, the station expects to be able to sell only about four percent of its airtime to advertisers, or less than half the amount its license permits.

In spite of such a slow early rate of return for commercial television in the Czech market, bidders who watched the first nationwide channel go to Nova are expected to compete again fiercely for rights to a second nationwide channel anticipated for privatization in 1995. The Czech parliament currently is postponing naming a date for the second privatization until it has a chance to evaluate the results of Nova's first year of operation. ■



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Czech Television Remains on Top

by Charles Recknagel

PRAGUE, Czech Republic

In the Czech Republic, a strong public television system has emerged from the government's once Communist-controlled television network. The new public system is rapidly upgrading its technical capabilities as it directly competes for viewers with the country's emerging private television stations.

Since the collapse of communism in 1989, when the Czech government gave up its monopoly over television, one of the country's three ex-state channels has become private. The other two, one of which is earmarked for future privatization, constitute Czech Television, a non-profit entity overseen, but no longer subsidized, by the government.

STIFF COMPETITION

The public network is competing not only against the first privatized channel, which reaches nationwide, but also against a private regional Prague station, international broadcasts and a growing cable network.

"As public television, we need to be much more aggressive than state television ever was," says Jan Horsky, director of production and engineering at Czech Television. He notes that the one-time state television staff of 5,000 has been cut to 4,000 and, now

that the system must stand on its own financial feet, budgets are tighter.

"We have a total budget of about \$90 million U.S. a year and \$10 million U.S. to invest each year in technical equipment and production," he says. "We have to choose our priorities carefully."

Czech Television's first priority is upgrading its equipment from analog to digital. The television system — which has five major studios in Prague for producing news, entertainment and music programs, plus two regional facilities — traditionally has used Bosch type KCP 60 studio cameras and produced programs on C-format VTRs. Increasingly, it is changing to digital cameras, with production in Betacam SP or D-3 format.

Last year, the television network fully reconstructed its Prague news control room to use digital vision mixing equipment from Sony with serial digital interconnection.

"We jumped 15 years ahead all at once," says Jaroslave Pouzar, chief of studio technology, comparing the new capabilities with the Bosch equipment they replaced.

The public television system plans to ultimately change all of its operations to digital and, according to Horsky, is now almost 30 percent converted. Driving the change is the need to successfully compete through superior technical quality and production with

the new private stations. Continuing the traditions of state television, Czech Television produces 65 percent of its content as original programming. By contrast, both of the Czech Republic's private stations, which are backed by foreign capital, take 85 percent of their content from Western European and American sources.

CONTRASTING STYLES

The contest between public and private television is for both viewers and advertisers. Under government guidelines, Czech Television can use up to one percent of its content space for advertising. The ad revenue is needed to supplement the bulk of the network's budget, which comes from a television license fee paid by 82 percent of all Czech households.

As Czech Television goes digital, it also is preparing an option to begin satellite broadcasting. The system wants to maintain at least two channels but could lose one of its pair in the future to private operators. Currently, public television is able to reach 99 percent of the country through its first channel, plus an additional 75 percent of the country through its second channel, which once was used to broadcast Russian-language programming to Soviet troops in Czechoslovakia. The government has marked the second channel for privatization but has not yet set a date.

"Right now, we only have stewardship of the second channel until 1995," said Czech Television spokesperson Katerina Vaculiková. "Without it, we have no additional options for terrestrial broadcasting, so we need to be ready for other technologies."

The push to modernize Czech Television's equipment has been made easier by the abundance of Western-made equipment already in the network's studios and control rooms from its days as a state-owned system.

"Unlike stations in East Germany and Hungary, we were always able to get Western equipment here, even as early as when color television began," says Vladimir Bezdek, Czech Television's operation director. He noted that when most of the Communist Bloc adopted the French-developed SECAM system, Czechoslovakia chose the politically less correct, West German-developed PAL system for its audio production, even though Czechoslovakia's own transmission facilities used SECAM.

"We believed we could get better production results in PAL and our studios were always full of West German equipment and sometimes even American brands," Bezdek recalls. "When there was an embargo against Ampex, we brought it in secretly through Yugoslavia."

Because public television has kept all of the state television's facilities and equipment, Bezdek said it has had a huge start toward building a modern technological base.

Today, public television is broadcasting 16 to 18 hours on one of its channels, and 24 hours, including teletext in the early morning, on the second. According to Bezdek, the technical quality is better than state television's ever was and is superior to Prague's new private stations.

"I don't expect to see much rivalry from the private sector against our technical quality for a long time," he claims.

The real battle now will be waged through programming for viewer interest. ■

11 NEWS



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Voiceovers Add Video Clarity

by Ken Hahn

AUDIO FOR VIDEO

One of the most prominent elements in any mixed audio track is the voiceover (VO). It is a very direct means of conveying facts and details. Every word should be loud and clear. Yet the significance of a properly recorded track is often taken for granted. Because it is so important, proper handling of the voiceover is imperative. From an audio engineering point of view, the recorded voice must above all be clean and consistent.

COMING TO TERMS

Voiceover is a generic term that goes by any number of other names. Narration, announce and VO are a few of the more

common terms.

The talent that provides this track consists of a select group of men and women who have a unique gift. They possess the ability to convincingly read scripted copy. It is no easy task to read a page of scripted copy convincingly, often sight unseen, in a specific length of time, while taking direction on delivery and the message that should be conveyed.

VO talent make their living with their voices. Many are also actors or radio personalities. The quality and character of each voice should be distinctive, interesting and pleasing to the ear. Truly talented voiceover specialists make terrific money, but it is a crazy line of work. They can be in demand one

week and then forgotten the next.

Anything that can be done to increase the chances of getting a good reading from VO talent should be considered. The studio, stage or booth where the talent will perform should be conducive to a good performance. This can have considerable impact on the talent's level of enthusiasm and, subsequently, performance.

CREATURE COMFORTS

The amount of time that the talent takes to deliver the desired reading can be influenced by many factors. The best way to positively influence the outcome in a judicious manner is to make the talent comfortable. The talent often experiences a great deal of pressure brought on by any number of factors.

The talent may be required to read in the studio for many hours. Assuring that he or she is comfortable means attending to many details and necessitates that the studio be highly adaptable. High-quality headphones are crucial. The headphones should be lightweight, comfortable, yet rugged. They should sound good and also possess low acoustic leakage properties. This means that no matter how loud the talent requests the listening level in his or her headphone, there is a minimal amount of sound emanating from them and being picked up by the microphone used to record the talent's voice.

Others ways of assuring that talent is comfortable is to allow them to do their jobs in the position they are most happy. Some VO talent like to stand, others prefer to lean against a high stool, and some might want a chair. A good script-holder also is essential. Plenty of pencils with fresh erasers are necessary for copy changes and revisions. A legal-size pad should be on hand for note taking. Bottled water helps keep the talent's throat moist. An ash tray needs to be available because many VO specialists smoke.

All of these items should be easily accessible to the talent. Variable lighting and separate air temperature controls for the recording studio are useful features. The microphone must be on a solid base but should allow flexibility for a variety of microphone positions.

THE PRINTED PAGE

Lastly, I must mention the script itself and how it can help achieve a clean and consistent VO recording. I know that most of you reading this column are not the persons who normally write and prepare the script, but you can pass these suggestions on to those who do.

First, never completely fill the page with text. The quality of the voice changes as a script is read from top to bottom. This is because the position of the head and mouth change relative to the highly sensitive pickup pattern of the microphone. This is most apparent when the talent reads the last few words on the bottom of the page and then reads the top of the next. Putting copy only on the middle two thirds of the page will greatly reduce this effect.

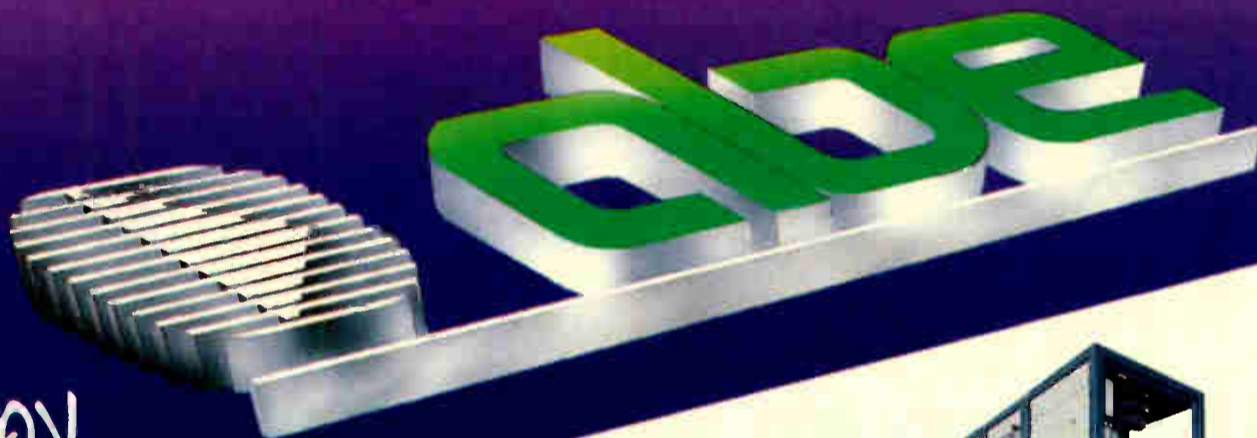
Next, never continue a thought from the bottom of a page to the next page. This is distracting and inevitably creates the noise of a page turn.

Also, scripts should always be typed using double spacing. Not only is it easier to read, but this provides space for copy changes and note taking. Pauses or words and phrases that require dramatic emphasis should also be indicated.

Lastly, phonetic spelling of unusual names, places and foreign words should be provided. ■

Ken Hahn is co-founder of New York's Sync Sound and has received three Emmy awards and 12 ITS Monitor awards for his work. He may be reached c/o TV Technology.

TV BROADCASTING



by



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2 Reporter 200 DI - introducing the latest reporter daylight from Sachtler: more light output from 200 watts than ever.

3 New electronic ballasts for Sachtler's reporter daylights: **Batronic 1** for 125 W and 200 W, **Batronic 2** for 125 W, 200 W and 270 W. The Batronics automatically sense which one of these fixtures is connected and will power it

accordingly. Four LEDs indicate how much running time remains. A switch allows selecting the proper dimmer range for HMI and MSR bulbs.

4 Sachtler Belt Pack, the well proven NiCad battery powers the whole range of Sachtler reporter daylights. Available in two sizes for 30 and 45 minutes of full light output from a Reporter 200 DI. Shaped to fit the human body and forming a compact unit with the Batronic.

5 The **Speedcharger**, controlled by its micro-processor, senses the state of the battery and charges it speedily and safely.

6 **Netronic 2**: The all new mains powered

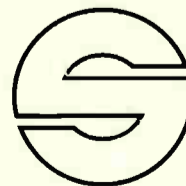
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tional savings, which then continue, year after year.

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Testing Compression Limits

by Doug Lung

RF TECHNOLOGY

The use of digital video compression for fiber and satellite feeds is entering full swing. Currently, the chances are good that at least some of your station's video feeds use compression. This month, I will pass along some tips on compression system evaluation. Also, read on for details on a way for you to try out the Broadcaster's forum on CompuServe for free. And finally, I will describe a low-cost isolation amplifier.

Recent visits to Scientific Atlanta (SA) and General Instrument (GI) gave me an idea of what sort of video gives compression systems problems. Static test signals should not have a problem with video compression — look at how many test signals you can cram into the ROM chips on a test generator.

Video compression depends on redundancy and the way the eye perceives objects. A wide shot of a play on a football field, with the crowd in focus waving their hands in the background, is tough. A compression algorithm might use most of the available data on the crowd while letting the grass on the field lose resolution ("blocking") or allowing the football in the air to disappear.

I also noticed that individual events that by themselves are handled with no problem can cause problems when combined. Most TV action moves horizontally, with detail moving across the screen rather than changing. But vertical motion, such as movie promo clips with individual moving images in individual fake film frames moving up or down the screen, challenges compression techniques. Combine this with some random hue changes and a quick change to a detailed scene and you have the potential for problems.

TEST RUN

A test tape from CableLabs of Boulder, Colo., (Telephone: +1-303-939-8500; FAX: +1-303-939-9189) demonstrates some of these problems. If you are testing a compression system, I strongly recommend you obtain a copy of the CableLabs compression test tape. It is one of the best I have seen.

Hewlett-Packard offers a PC-based test instrument for evaluating compression system performance. The unit examines video before and after the compression/decompression process and notes differences in spatial resolution and image motion, among other things. It then plots these differences on a series of graphs. I would love to have one to carry around to the system manufacturers when checking out their systems. For technical information on the process, contact Hewlett-Packard at telephone: +1-408-553-3854; FAX: +1-408-553-3095, or circle Reader Service 51.

Another factor that may be important in some applications is the time it takes for a receiver/decoder to lock onto and decompress a newly acquired signal. If it takes more than a second or two, it will be tough

to flip through channels on a satellite receiver. GI claims rapid acquisition time as one of the advantages its DigiCipher system has over the MPEG 2-based systems. MPEG 2, on the other hand, will have the advantage of interoperability with computer systems. As chip sets based on the MPEG 2 standard become available, look for a flood of computer and broadcast video products using them. GI says its new DigiCipher 2 system decodes both DigiCipher 2 and MPEG 2 compressed video.



If you are located in a major TV market,

you probably have a chance to get together with other TV engineers regularly to swap ideas and collect information. Now, there is an electronic gathering place where television engineers from all over the world get together — the Broadcast Professionals forum on CompuServe.

Many engineers I have talked to about joining CompuServe generally say it is too expensive and too complicated. But CompuServe has recently revised its pricing. The standard pricing plan costs US\$8.95 per month.

While many services are included in this price — weather and airline reservations, for

example — forums such as the Broadcast Professionals forum are not. For this and most other forums, an extra charge applies based on connection time.

The rates for this vary depending on the speed of the connection. As I write this, the current rate for 2400 baud access is under 25 cents per minute. If you are accessing the CompuServe network from outside the United States, extra charges may apply, depending on the time of day and the location. In some countries, CompuServe has its own networks and applies the surcharges only during prime time (during the day). Exact details on pricing are available on CompuServe by calling the company at +1-614-457-8650.

(continued on page 16)

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CONTINUED FROM PAGE 15

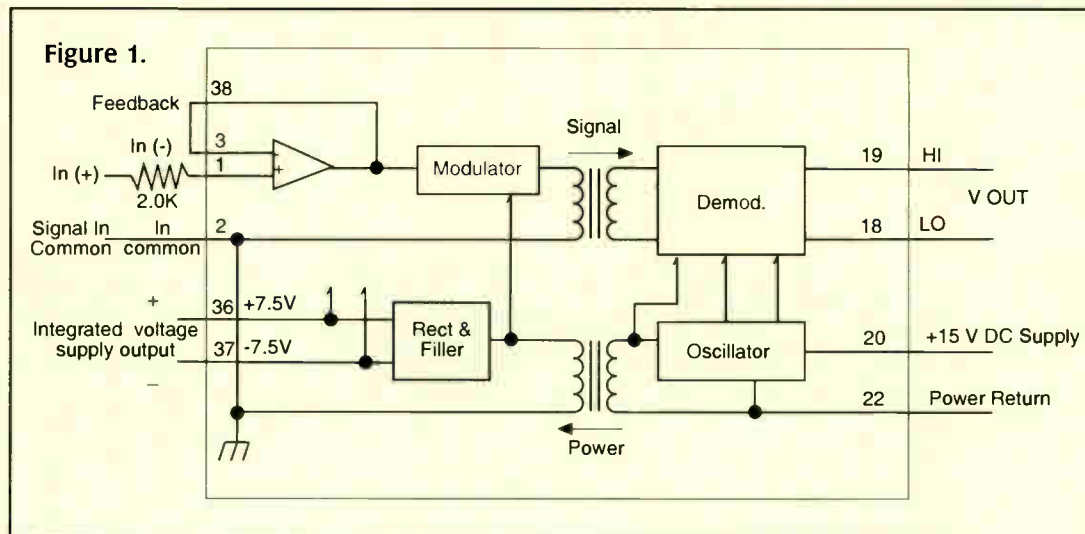
Novel Approaches for Testing Compression

One of the things that makes CompuServe seem complicated compared to a local BBS (bulletin board service) is the huge number of messages and files available. It is not unusual for several thousand messages to be available at one time. CompuServe sells a slick software package called "CompuServe Information Manager" that makes navigating the various forums and information sources easy.

You could say the package is free, since it includes an on-line credit equal to the cost of the package. It is a good way to get started, although not the most efficient for forum messaging. Most active forum members use some sort of automatic software to retrieve, read and reply to messages. They work off-line, so the reading and reply writing can be done without the meter running. You can find out about this software once you get on-line.

SOMETHING FOR EVERYONE

What will you find on the Broadcasters forum on CompuServe? First, there is software that I have written. Because of my real job, it can take me a long time to get around to copying the disks and mailing the listings you request. Using CompuServe Mail, you can leave me questions and get answers



back much faster than via regular mail.

You will also find a lot of interesting software. There are numerous programs for calculating satellite dish look angles, a satellite sun outage prediction program and toolboxes that include RFS.ARC, a collection of handy programs for engineers.

In addition, more manufacturers are using CompuServe for product support. Tektronix has been active on the broadcaster's forum.

When necessary, Jeff Noah, the main Tek rep on the forum, has been able to get replies from the key designers of products such as the VM-700 test set.

Hewlett-Packard was on recently to describe the correct way to make signal-to-noise measurements. I have not seen much representation from transmitter manufacturers, but there are many experienced engineers ready to help.

AD202 along with the pin connections for the DIP package.

Operation of the isolation amplifier should be self-evident from Figure 1, and Analog Devices offers a number of design tips. Remember that voltages in and out cannot exceed +/- 5 volts. Negative voltage can cause current to flow through the input if the power is removed to the isolator. For that reason, use a 2,000 ohm resistor on the input

to prevent the current from damaging the isolator or preventing the oscillator from starting. If the source cannot deliver more than a few milliamperes, this resistor is not needed.

For unity gain applications, pins 3 and 38 are shorted. If gain is needed, a feedback resistor (Rf) can be inserted between pins 3 to input common (pin 2). Analog Devices says that Rf should be 20,000 ohms or more. If gain exceeds 5, add a 100 pf capacitor from pin 38 to input ground pin 2. The

resistors needed for a given gain can be determined from the equation: Gain = 1 + (Rf / Rg). Other standard operational amplifier circuits can be used around the op amp in the AD202, just keep in mind that Rf must be 20,000 ohms or more and a cap may be needed.

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CAREFUL GROUNDING

When designing circuits using the AD202, ground everything well and be sure that wiring or PC traces do not reduce the up to 2,000 volt isolation. The AD202 family includes both SIP and DIP packaged units with isolation up to 2,000 volts. The AD202JY is in a SIP package with 1,000 volt isolation and +/- 0.05 percent linearity. The AD202JN is the same unit in a DIP package. For 2,000 volt isolation, replace

One of the things that impresses me about the Broadcasters forum is the amount of technical help available. Ask a question about a tower location problem, for example, and you are likely to get replies from other engineers and consultants who have solutions. I would like to point out here that I have no financial interest whatsoever in whether or not you join the forum. I do think it is a valuable tool for all broadcast engineers and particularly RF engineers.

And now, the information I promised on an inexpensive way to measure voltages that are not referenced to ground. Some remote control systems float both wires for analog voltage readings, and most have one side grounded. Even systems with differential inputs have limitations. In many high-voltage supplies for tube amplifiers (conventional and klystron), the low side of the supply is often elevated above-ground with a resistor.

This provides a convenient way to protect the transmitter from high-voltage arcs. Any arc that occurs to ground will cause current to flow in this resistor, which can be sensed and used to shut off the voltage. In such circuits, the shunt resistor used for sensing the current through the tube must be not be connected to ground.

Analog Devices (Telephone: +1-617-937-1428; FAX: +1-617-821-4273, or circle Reader Service 67) has developed a line of low-cost, miniature isolation amplifiers. The AD202 series operates directly from a 15 volt DC supply while the AD204 series is powered by an external, isolated clock (the AD246). If you plan to use several of these, the AD204 series offers some cost savings, lower power consumption and higher bandwidth. However, the AD202 series is simpler to use, and that is the one I will describe here.

The isolation amplifiers work by using an input op amp to drive an amplitude modulator, which drives an isolation transformer. The secondary side of the transformer is connected to a demodulator, which provides up to +/- 5 volts peak output. The input op amp has all terminals available, so it can be used to amplify, offset and/or invert the input voltage.

The AD202 has an internal oscillator that supplies AC power to an internal power isolation transformer. An isolated voltage is available on the other side. However, it is limited to +/- 7.5 volts at 5 milliamperes. Figure 1 shows a functional diagram of the

The isolation amplifiers work by using an input op amp to drive an amplitude modulator . . .

the J with a K in the part number. The 2,000 volt model has better linearity, +/- 0.025 percent.

The Analog Devices data sheet on the AD202/AD204 has physical details, pin outs for all versions and application examples. A final warning: These amplifiers isolate up to 2,000 volts — they will not isolate the output from the full plate voltages used in most transmitters. Take care in how they are installed and make sure that if they should fail they do not place dangerous voltages where they could harm someone.

As always, I welcome your comments and questions. My schedule makes it somewhat difficult to reach me, so e-mail via CompuServe is best. My CompuServe ID is 70255.460. Postal mail will also work, eventually, if sent to: 2265 Westwood Blvd., Suite 553, Los Angeles, CA 90064. Phone numbers are +1-818-502-5739 (voice mail) and +1-305-884-9664. Because of my travels, it may take a day or more to return calls. ■

Doug Lung is vice president and director of engineering for the Telemundo Group of stations.



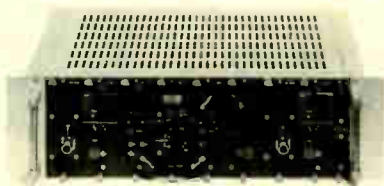
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Broadcasters Must Adapt to Survive

by John Watkinson

VIDEO WATCH

Some years ago, television broadcasting was a specialized subject with its own set of terminology, which was little understood outside the industry. In this comfortable, closed world, specialist equipment was manufactured at considerable cost by companies that had no other markets. The broadcaster could afford the equipment because he was using it to make a lot of money.

Before the spread of home video recording, the viewer was completely at the mercy of the broadcaster who would transmit what he wanted when he wanted. If the viewer wanted to see a particular program, he had to tune in at the right time. At peak viewing hours the needs of the masses overrode the interests of the individual.

The peculiar environment of commercial television has some strange consequences. Reduced to basics, the programs on commercial television serve only as padding between the commercials which earn money. In many cases, they are not quite bad enough to make significant numbers of people switch off. The advertising that can be effective on television of that kind must be restricted to simple products or services with universal appeal to the common man (and in these politically correct days, this simple term must be qualified so that it is considered to include individuals of all sexes and proclivities, lest offense be caused).

ARTFUL OFFENSE

To digress, political correctness may succeed in reducing instances of inadvertent offense being caused, but it does discriminate against those of us who strive to elevate the causing of offense to an art form.

Returning to the point, this method of advertising must be grossly inefficient for more specialized products. People with specialized interests tend to pursue them instead of watching television. The chances of their seeing specialized television advertising are small.

The advent of the home video recorder had some serious consequences for commercial television. Firstly, the viewer had slightly more freedom in that he (or his politically correct female equivalent) could use a VCR to time shift broadcast television to a convenient viewing time. However, when viewing taped broadcast television, everyone fast-forwards the commercials which makes a mockery of the whole purpose of commercial television. Furthermore, the enormously successful development of the video cassette rental business means that more people are watching material which has not been broadcast.

Why is video rental so popular? Why do people take the trouble to leave the house in order physically to fetch a recording medium which paradoxically carries the

same kind of signals which could be transmitted to them? In my view the success of video rental indicates that the viewer is voting with his feet against the current form of broadcast television. A rented movie is a work of art in its own right, and a lot of time and effort (which equals money) goes into the production. It is not broken up by commercials which intrude upon the dramatic flow if the same movie is broadcast.

DIGITAL REALITIES

The days when television was a specialist subject are now well and truly over. As soon as it was possible to digitize video, in principle television signals became data and thus a subset of computation and communications. It remained so in principle until the cost of the technology fell. Today there are a number of key technologies in which the cost has fallen to a point where principle can be replaced with practice. The results will be far-reaching and irrevocable.

I believe that we are now poised for a period of fundamental change which will transform television as dramatically as the industrial revolution transformed the landscape. There are going to be winners and losers. The computer industry has the technological high ground, and the traditional broadcast manufacturers are in for a rough ride. Now that processing power has advanced so much, there is no point in building specialist hardware when low-cost generic hardware can be made to do the same job with suitable software.

The computer industry uses video technology for display purposes in graphics terminals for CAD (Computer Aided Design) and so on, but the volume of data required to store television on computer was prohibitive until recently. However, the storage density of data media continues to rise and the cost per bit continues to fall. At some point it becomes cheaper to store digitized television signals on generic computer media than to build specialist video equipment. We are not quite at that point, but it is as close as a couple of years away.

Another technology which has advanced dramatically in recent years is video compression. Until LSI chips became sufficiently economic, video compression was too complex and too expensive to implement, and it stayed firmly in the textbooks. Now that video compression is here, it will find an increasing number of applications.

One reason compression is so popular is

that accountants can understand it. They know that the cost of recording or transmitting so much stuff falls in proportion to the compression factor. They will automatically call for the highest compression factor available. It is down to engineers to advance coherent reasons why the highest compression factor is not necessarily the best.

The use of compression automatically extends the playing time of any storage medium. Today, computer hard disks cannot economically record extended video programs, but with a relatively high compression factor, it is possible to get hours of video onto hard disks and build a non-linear editor. The compression artifacts are of little consequence because the editing will be off-line and serve only to create an EDL to which the original material is conformed.

Over the next few years, advances in hard disk technology will mean that the same recording time can be had using smaller and smaller amounts of compression until the quality becomes indistinguishable from the

The advent of the home video recorder had some serious consequences for commercial television.

original. At that point we have an on-line, non-linear editor. Of course you can use any non-linear editor on-line right now if you gloss over the picture quality it produces.

COMPRESSION RESTRICTIONS

Non-linear editors are restricted in the kind of compression they can use. They have to compress the fields individually so that they can be retrieved in any order. Once post production is completed, inter-field compression can be used in which the compression factor is much higher because essentially only the differences between fields are being sent. It then becomes economic to store large volumes of material on disk for random access using generic file servers available from the computer manufacturers.

Such machines form the basis of video-on-demand. Instead of physically travelling to a cassette rental store, the viewer simply selects the movie he wants to see, and it is retrieved from the file server and sent to his home over cable or telephone lines. All he needs at home is a TV monitor and a suit-

able decoder which can convert the compressed data back into raster scan video once more. Today's technology allows such a decoder to be made for no more than the cost of a VCR.

VIEWER CHOICES

Video-on-demand of this kind is an electronic replacement for cassette rental. It sensibly cuts out the travel and so will impact the existing rental outlets. It will, however, further damage the viewing of broadcast commercial television because it will mean that the viewer can watch a chosen movie with little more effort than pressing a couple of buttons.

In my view, conventional commercial broadcast television is doomed. As viewers become more sophisticated and have more leisure time, they will want more than padding between advertisements. Video-on-demand will deliver that. The only time advertisements are welcome is when someone wants to buy something. However, the chances of seeing an advertisement for the minority activities that real people participate in on the mass appeal television are too small to bother with.

If commercial television is to survive, the emphasis must change. Interactive video technology now permits the home viewer to browse through a catalog of merchandise to locate a product which he or she needs. By clicking on the chosen product, the display can switch to video footage of the product in use. The viewer (who we should no be calling a consumer) can order the product from home and debit his credit card by pressing a few buttons.

In my view, we should make the technology deliver what we want. When I want to relax and watch a movie, I am a viewer and my viewing is ruined by the intrusion of advertisements for products I don't want. When I want to buy something, I become a consumer. I want to look through catalogs and scan advertising in specialist magazines and I do not want to relax and I do not want to be entertained. Commercial television fails because it tries to make viewers indistinguishable from consumers.

Video-on-demand and interactive shopping are both services which can arrive at the TV set in the home. These services are totally different and only share the carrier. In ten years' time, we will regard needlessly combining them as being rather primitive. ■

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by David M. Clark

Shedding Light On the Studio Audience

six areas that must be lit for closeups. But in the audience, there are hundreds of potential closeups.

In any audience, there will be at least a few people who will react well to the show, but there is now way to know in advance which seats they will occupy. Of course, no matter where the most animated people are located, the director will shoot closeups of these people even if they are sitting in dark spots.

I wish I could provide a formula that would light any audience. I cannot do that because every audience problem is unique. I can, however, list several problem areas to look for

when planning an audience lighting project.

A good place to start is to ask yourself, "Why is this audience here?"

BRIGHT LIGHTS

If they are attending a performance or lecture that is also being televised, they will be annoyed and grumpy if they must face a bank of painful lights aimed in their direction. But if they have come to see a television show, they tend to welcome the feeling of being lit as part of the whole experience.

The second consideration is where to place the cameras. In a televised performance, the

cameras will be positioned so they will not intrude on the performance. Several cameras will occupy positions near the rear of the audience for head-on shots of the stage. Usually, there will be cameras mounted on raised platforms left and right of the stage area for angled closeups and reaction shots in the audience.

We can see that audience light can and should come from the sides. The sides are where the cameras are, and light from the sides does not shine into the audience's eyes. We can side-light the first 10 or 15 rows of audience from the side positions nearest the stage.

If we try to go deeper than 15 rows from these positions, we run the risk of front-lighting the rear of the audience. Instead, we need to establish a second location about halfway toward the rear of the audience on each side. Most fire departments, rightly, are fussy about obstructing any part of the side aisles, which usually are narrow. So we may either have to use the side balconies if available or find a way to drop pipes or trusses from the ceiling.

PAR FOR THE SHOW

Lighting across the entire audience from each side position requires lights that can deliver similar foot-candles over a short, medium and long throw. A temporary rigging will support a limited, safe weight. The answer is usually the Par Can, housing our choice of Par 64 lamps in wide flood, medium flood or narrow spot optics. These popular location instruments of 1,000 watts each offer ease of mounting, light weight and the most value for your money.

The Par 64s have an oval-shaped beam that can be rotated by turning the lamp in the housing, allowing them to be layered across the audience for a consistently average light level. It takes some practice to oversee the focus described above, but it is very satisfying when it works.

An audience in the television studio that has begged to be part of a show is easier to light using a friendly grid overhead and no power runs to a generator truck. This audience may well be shot by an on-stage camera as well as two side cameras. We can light them from the front because they want to be part of the action. And let's not forget the side lights that can now be positioned on the grid.

We are still going to see closeups on the side cameras. These shots are frequently of two people talking to each other facing away from the front light. Try thinking of the cross lights as pairs of key lights over each side camera. Let the light coming from the direction of the stage camera be fill light. It can be scoops or broads, with diffusion or fresnels, as long as it is controlled down to less intensity than the side light "keys."

An added problem these days is the show host who works the audience up and down the aisles, usually on one of the side cameras. The trick is to light the aisles first with great care and then fill in the rest of the audience where the spill from the aisle lights falls off.

Remember that the host will lean over to a seated audience member who is looking up at the host. Keep the host lights at a very low angle, especially the cross lights. The audience in a studio may be surrounded by scenery that is closer to the seats than ideal. We must light the perimeter seats from a steep enough angle to avoid making the scenery too bright. ■

David M. Clark is lighting director for Imero Fiorentino Assoc. in New York. He has won two Emmys and received numerous additional nominations for his work, and he is also a creative graphic artist, photographer and scenic designer.

FOCUS ON LIGHTING

An area of lighting that traditionally receives the least attention when planning a television show is the audience. On the main stage there are usually

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BRIDGING THE GAP

SEPTEMBER 1994

TV Technology introduces its new bi-monthly Computer Video Section. Every other issue will feature the latest developments and emerging technologies of this growing industry.

ANIMATION FRAMEWORK

Graphics: Better Tools, Lower Costs

by Pat Corbitt

Those of us in the computer graphics and animation (CGA) business watch with both sympathy and consternation at the turmoil in the editing/post production world. We had our digital revolution a dozen years ago. I was an eyewitness.

I had spent the first 15 years of my professional video life as a cameraman and director, shooting all over the world for anyone who paid their bills on time.

After a decade or so, I got tired of standing out in the elements and went looking for an inside job. I found one, and spent the next 15 of my 30 years in TV and multimedia, creating commercial graphics software packages, delivering CGA services and directing video/multimedia programs with heavy animation elements.

ON A QUEST

Serious video types have always been on a simple quest: Find the best way to get the visions in our heads (and the heads of those we work for) into a form the world can understand. The way this is done has changed greatly in the past 20 years.

As I remember it, with graphics and animation the digital revolution was a sudden and welcome relief. It seemed one day (sometime around 1978), we stopped using cameras to shoot art cards and we quit the tedious job of recording slightly varying images on mounds of acetate sheets.

We began instead to draw on big tablets and look at video monitors to see our results. We flipped effortlessly through animation cels on something called a computer.

At first things were jagged and primitive and slow. But something wonderful fixed all of that. Newer, better and faster software orchestrated astounding changes in new generations of silicon chips. The problem was that these new tools, both soft and hard, were very expensive.

Consequently, for a while, the only way to be in the CGA business was to spend a lot of money for high end equipment, not to mention talented people. You had to have a "facility" to play with the big kids.

But things kept changing. Those who did not get their initial investment back quickly and missed the fact that, by the mid 1980s, the climate was changing away from "big iron" to

cost effective workstations lost everything.

There are lessons to be learned here. Today, efficient post houses maintain varying degrees of "in house" graphics production while fostering a network of "outsourced" production with independent CGA boutiques in attics and basements as well as in all those small business incubator buildings.

In 1994 it is now possible to do striking, original, inexpensive CGA work and actually make money at it.

get a real digital highway.

New income streams are developing. What we do, for example, is no longer just for television. Multimedia has become a profit opportunity for the clever and tenacious. Hollywood-style animations can be as useful in CD-ROM games as they are on the silver screen, and there are lots of fresh faces who can do them on time and within budget.

In 1994 we are finally using the first real generation of cost-effective tools. There are

any system in the CGA world is import/export image compatible.

Plug in (literally) Adobe's Photoshop to make rotoscopes and prepare the images with real alpha channels for multilayered flying Wallendas to dazzle the proletariat.

Do you want to actually move your digital art around in 2-D space? There are some good choices for that.

CoSA's "After Effects" V2.0 sits on my Quadra 950 and allows me to composite dynamically changing images through a time/space continuum worthy of Mr. Spock's attention. If that is not upscale enough for the agency crowd, dazzle them with Ultimatte's Cinefusion or Discrete Logic's Flint software on your SGI.

Stretch your dollars and your creativity with one of the phenomenal morphing software packages like Morph or Elastic Reality. These inexpensive tools bend minds as well as pictures.

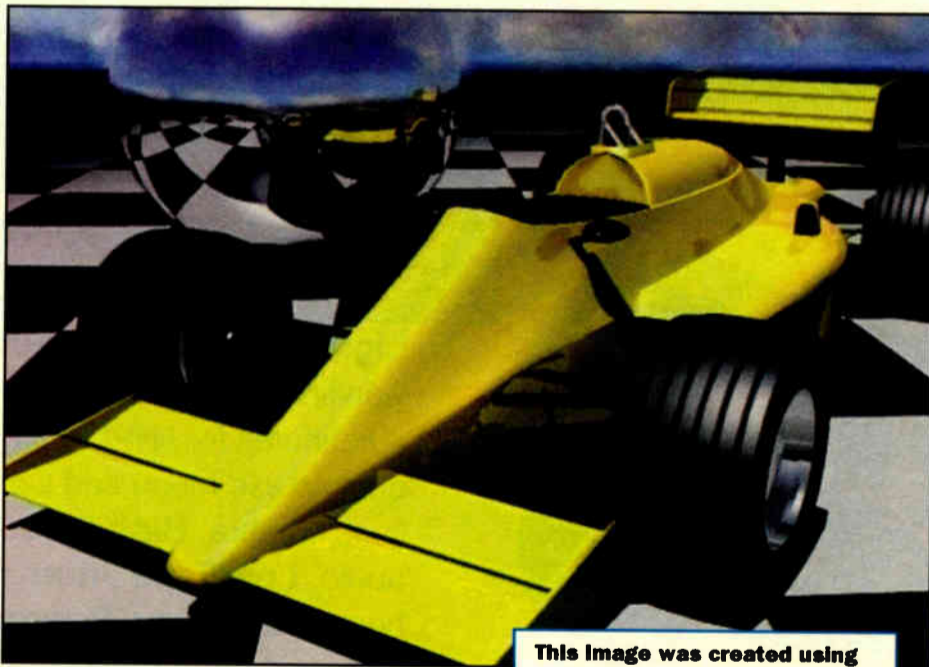
Then there are Lightwave or Electric Image or Infini-D or Strata. Knock-your-eyes-out 3-D has come to a neighborhood near you. There is a wide range of 3-D software packages to fit your style of modeling or meet your need for speed in rendering.

If the television market seems crowded, bring your traditional teleproduction knowledge to a new party. Get serious about multimedia and incorporate graphics and live action for a new set of customers with Adobe's Premier or Avid's VideoShop QuickTime editors.

If Cinepak's compression and QuickTime or AVI are not good enough for you, move up to the full-fledged non-linear editors. The latest generation promises "broadcast quality" video production good enough for the best-equipped basement.

This is not fodder for the next cocktail party's techno-babble. It is hot stuff for serious professionals. The amount and velocity of information on what is out there and what you can do with it is staggering. ■

Pat Corbitt is a 30-year veteran of professional broadcast television and multimedia production, with more than 40 international awards for television direction and graphic design under his belt. He may be reached at +1-908-727-1687 (voice/fax), via Compuserve 76550,3466, or AppleLink "DGL."



This image was created using Wavefront 3D on SGI hardware and Lightwave 3D on a Video Toaster.

The spirit of doing the work is changing. The onus of creation doesn't have to rest entirely on one pair of shoulders. Sharing and integrating digital graphic elements created by other professionals miles, or even continents, away is a daily, exhilarating and profitable phenomenon. Competition has been replaced by collaboration.

Clearer graphics visions are emerging directly from the client. There are fewer interpreters and middle-men. Clients, who themselves often have some graphics capabilities, often provide on diskette at least a rough idea of the graphics they have in mind. No more hand-drawn logos on napkins. No more guessing at which color green.

We are also getting on the Network so it is easier to get the customer into the feedback loop. The Net is still slow and a bit clunky, but imagine what's in store for us when we

serious graphics production tools, solving age-old problems at prices we only dreamed of in the 1970s.

COMPARING NOTES

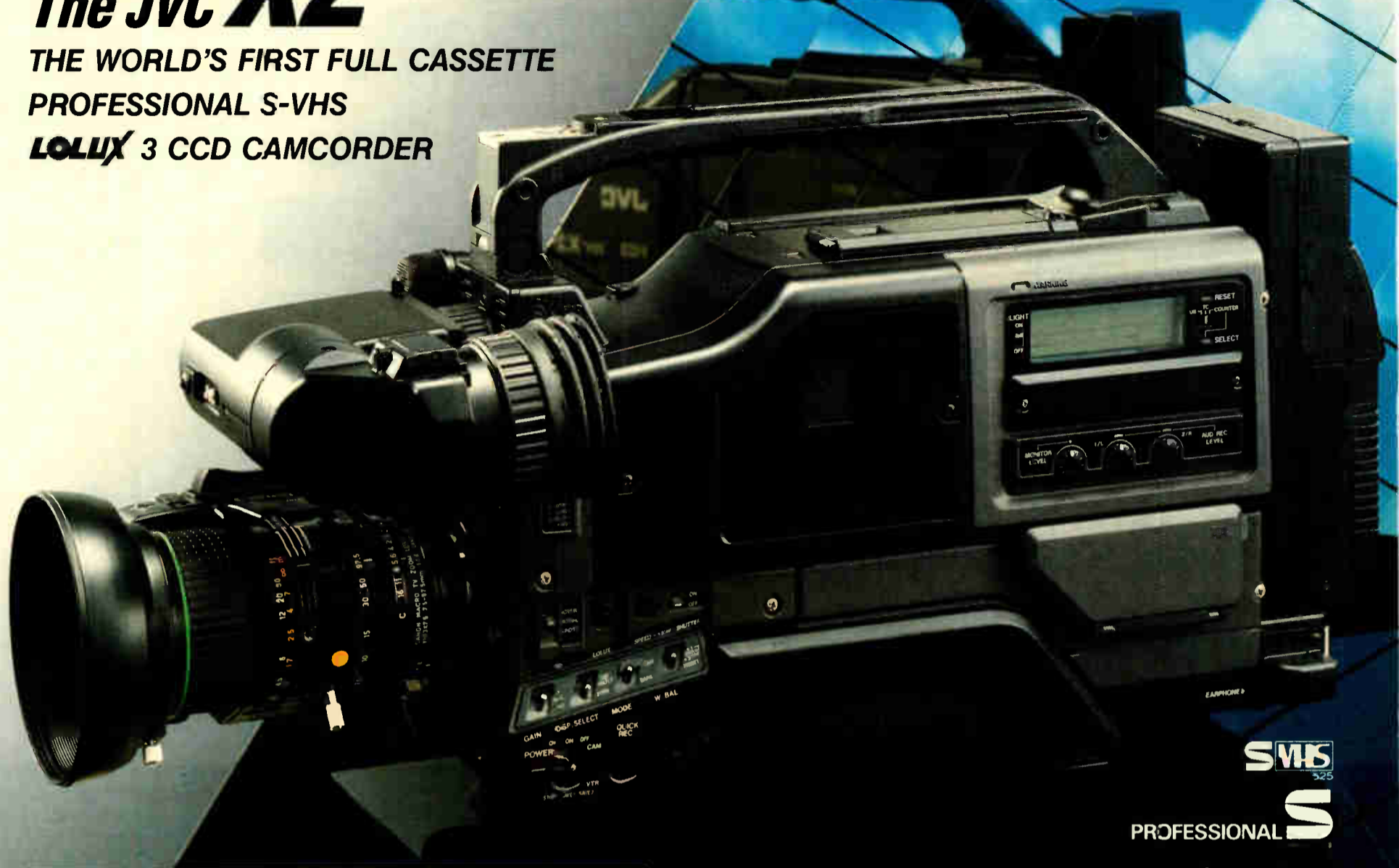
First, forget the hardware platform wars. Macs, PCs, Amigas, SGIs all have something important to bring to the party. And for software? Just look at the tip of this iceberg.

For electronic art, consider Fractal Design's Painter/X2 with Wacom's ArtZ drawing tablet. This combination gives you as many layers of seamlessly keyable, full color, paint graphics as you could want — actually, to the limits of good taste. Add Equilibrium's DeBabelizer, and virtually

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PROFESSIONAL

The Mill Advances with Parallax

Editor/Compositor/Effects Package Provides New Capabilities to London Facility

by Robin Shenfield
Facilities Director
The Mill

LONDON

The Mill in London installed Parallax's new Advance editing compositing and effects package in January to meet our twin criteria of providing the newest techniques for television effects and ensuring cinema quality output.

Advance is built on the experience and reputation that Parallax has earned over the last four years with Matador, its world-class paint system. The West Coast film community is awash with Matadors to the extent that no special effects movie appears to be made without its involvement.

RANGE OF TOOLS

Advance's range of powerful features includes image stabilization, color correction, blue screen compositing, digital video effects, image manipulation, plus all of Matador's paint and 2-D animation tools.

The Mill's Advance runs on a Silicon Graphics Onyx, although the software is designed to run on all other SGI hardware allowing a network of off-line preparation stations. The Onyx provides the extra power to speed such tasks as keying and color correction with instant preview via the Reality Engine.

Ciprico, a third-party disk supplier, has provided The Mill with a RAID disk array — a box of 32 small and relatively inexpensive disks running in parallel and supplying the necessary bandwidth to play real-time 4:4:4 10-bit video out of the Onyx via the Sirius board.

Advance has the depth to handle complex tasks. It provides easy access to everything from very fast chip editing to the creation of complex composites generated in a single pass. The process tree allows the operator to set up all the elements of a composite in flow diagram form.

The Clip manager provides a very clear layout of clips with an extremely quick method for executing edits, transitions and composites. Full clips can be played back in real time at any stage, with edit points trimmed and timings altered.

Advance offers facilities for altering the length or the speed of sequences, as well as the resolution of images so that film and video footage can be combined and composited together.

The process tree acts like a switcher in a conventional edit suite, with the added ability to build up a genuinely unlimited number of composite layers and processes, all of which can be run off in a single pass. Any number of inputs and outputs are possible, allowing the addition of unlimited channels of DVE moves, keys or color processes into



The layering capabilities of Parallax's Advance software are demonstrated in this image.

a single composite.

Any layer or process within a composite can be adjusted while viewing the final composite result, so no guess work is needed during the construction of mattes, color processes, etc. In addition, the entire process that went into creating a clip is stored with the clip and can be recalled and regenerated, which makes any changes easy to accommodate. This has an added benefit in that processing can happen in the back-

ground while an operator is using the system to set up another shot.

HEAD OF THE PACK

The image stabilizer is a key tool for matching camera moves or objects moving through a shot. For pack replacements (adding revised product packaging to existing commercials is a large element at most post production facilities) this salvage and repair system will trim large amounts from advertising agency budgets.

This motion tracking facility has recently been used extensively on a series of three high-profile *Mulino Bianco* commercials for Italian production company BRW. These commercials literally "bring the countryside" to the city centers of Rome, Florence and Venice by combining a pass of, for example, green fields and the Colosseum.

Parallax has also developed a new keyer that is producing impressive results, and the list of available effects is continually growing. It is the vast array of tools provided, and the ease of combining their use which gives Advance its underlying strength.

Advance is also totally integrated with Matador, which provides the paint and rotoscoping facilities.

The rotoscoping link is excellent, allowing direct painting onto any clip in the clip manager. You can also paint with several clips layered together at once, (which is ideal for scratch or wire removal), and any Matador animation or macro sequence can be executed on Advance clips. Matador is now just a button on the Advance, so frames can be exchanged and retouched seamlessly.

The flexibility of Advance is very important. The system is genuinely resolution-independent, allowing operators to work with any video or film resolution — 2K, 4K, 6K or higher. It is also possible to mix resolutions freely in the same job. Different resolutions can also be stored simultaneously and intermixed on the high speed disks — a very significant advantage. ■

Editor's note: Robin Shenfield is facilities director at The Mill.

The opinions expressed above are the writer's alone. For further information on Advance, contact Parallax Graphics Systems (telephone: +44-71-287-3626; FAX: +44-771-494-2822), or circle Reader Service 111.

IN POINTS

Wading Through Non-Linear Hype

by Bryce Button

We are now half a decade into the digitally based non-linear editing desktop revolution. It seems appropriate to pause a moment and take a look at where the headlong rush to digital Nirvana has brought us and assess whether or not the advantages of non-linear editing outweigh the hurdles.

I have just completed a "Non-linear Access Random" seminar. A variety of desktop-based non-linear editing machines were on view and an assorted group of producers, editors and educators were given an introduction to the process of integrating non-linear editing into their video and film project work flow.

GREATER EXPECTATIONS

The overall conclusion I walked away with was that expectations have changed from five years ago. No longer is the ability to produce an EDL, clean as it may be, the only reason to invest in a desktop machine. Even the ability to produce an acceptable image is not the most important consideration.

Today's buyers demand a system that integrates it all: graphics, animation, digital video effects and audio effects. Vendors are doing their best to produce "jack-of-all-trades" units to meet these demands. The danger is that systems that attempt to do everything often become weaker implementations of the black boxes they replace.

Knowing how your finished project will be applied, and its consequent demands on your editing needs, you must decide what you can live with in terms of features. Lastly, for your own sake, avoid the hype. But then again, that's why you are reading this column.

With those thoughts in mind, what are the major advantages of digital non-linear production? A big selling point is the creative flexibility of the process. This is hardly debatable; the ability to quickly make changes and adjustments without the destructive attributes of film cutting or the linear considerations of tape cutting was certainly the reason many commercial off-line houses

first embraced non-linear editing.

Non-linear systems allow the integration of different media sources. Since all source material must be changed to the zeros and ones that a computer can digest, it makes little difference (theoretically) if the source is videotape, computer graphics or film. The flip side of this little coin is that your facility might need more input decks than you ever imagined. Ready to drop a few more grand on a Digital Betacam deck?

Still, the ability to import virtually any source into the digital realm and work with it on one platform has clearly made the off-line process a powerful way to work. Virtually any non-linear editing system, from Adobe Premiere on up, will enhance your pre-visualization abilities before a difficult on-line session. No longer do we have to imagine the layout of sound effects or wonder how a layered piece of video will look or count out black space for a title board.

MONEY IN YOUR POCKET

This very flexibility has been the root of a debate over whether these systems really save time and money. But it can be done. Non-linear systems can save time and money for your facility and, more importantly, for your client. At the very least, clients should be able to achieve more refined cuts, or multiple versions of cuts, in the same time and budget framework they are accustomed to in a traditional linear-based environment.

To gain the benefits of non-linear (especially as a client), there are a number of points to consider. Make sure your logging process is thorough and organized. The greatest strength of non-linear systems is the powerful data base management at your disposal. Make sure communication with the editor (the human one) is good, that questions are raised early enough in the production process and that all the materials arrive early enough so that digitizing does not interrupt the creative process. If you bring in three more hours of source material in the middle of a project, you wait through three hours of studio time as it is digi-

(continued on page 22)

CONTINUED FROM PAGE 21

Wade Through Non-Linear Hype

tized. If you are truly unlucky, that three additional hours of storage might be unavailable. Planning ahead always pays off.

Consolidating your film and video materials to as few formats as possible will save time and money in the long run. For those in the film world, the advantages are many. Consider the ability to edit off a tape assist or to use Keycode or a comparable system,

perhaps even digitizing your footage straight to disk, syncing audio in a non-linear environment and outputting audio tracks for a mix. If you have to have a print for screening purposes, look for a system that will give you a film cut list.

Enterprising producers have gained the ability to make a little more revenue from reciprocal marketing. Radio spots can be cut from the same material as the initial film or

video. Animation and stills can be used for print and other purposes, not to mention the endless possibilities in the CD-ROM and multimedia worlds.

The fact that these systems are based, on the whole, on personal computers of one brand or another is something we now take for granted. My splicer's only purpose in life was to cut film and take nicks out of slow fingers. Today, with my new digital

splicer, I dial up customer support from the modem, occasionally type up quick documents and (of course), constantly stall my flight simulator. Granted, this can make the non-linear editor a very expensive arcade game and can lead to software conflicts on a grand scale, but you get my point.

The constantly falling price of storage mediums and the promise of quicker data throughput makes it increasingly possible to bring longer format projects into this realm. The erasability and ruggedness of a well-made hard drive, combined with the ability to archive to a number of magnetic tape and optical disc formats, has also helped with the constant turnover of projects in a busy facility. These archives keep projects accessible to an editor once the original media has left with a client.

ON THE OTHER HAND

There can be no doubt that the reality of non-linear editing on the desktop is with us and here to stay. But what of the disadvantages? The constant need to digitize material into systems, in real time, can make the beginning of the non-linear experience feel like an eternity. It is true that the option of batch digitizing helps in the automation of this task, but you will find many traditional linear editors that are capable of putting together a first cut by the time you have finished digitizing.

The fact that there is no current digital standard makes the transfer of media files from system to system a headache at best and an impossibility at worst. The actual image output quality can vary wildly from system to system, with every vendor claiming "broadcast quality." This is very hard to judge objectively. Frankly, whatever suits your application is what counts. As storage, data throughput and compression technologies improve, this will become less and less of an issue.

Operators of these systems are now expected to play more roles. An editor today has to understand computer operating systems and be able to diagnose hardware problems at a basic level in order to avoid spending all day on the phone with customer support. The learning curve for facilities and operators can be a bit tasking if not carefully planned. And if the editor has time, adding some aesthetic input to the program is always nice.

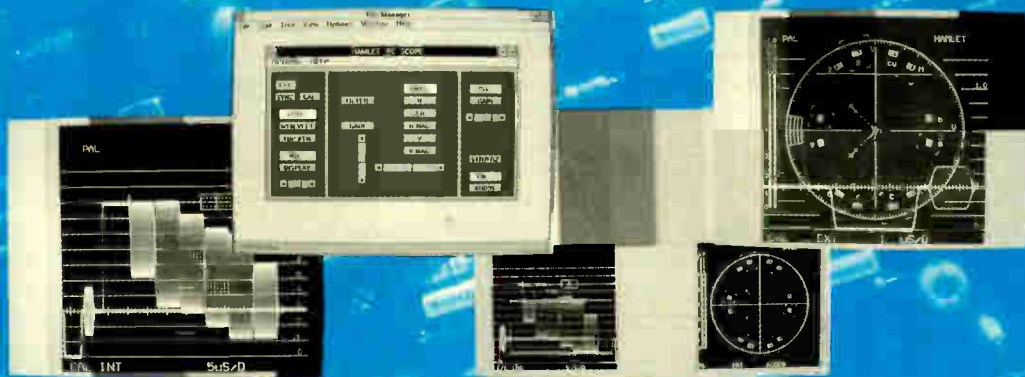
DELIVERING THE GOODS

I believe that digital non-linear editing systems have delivered on their early promise of far more powerful off-line tools. However, we have simply increased our expectations of what these systems can do, and we are expecting on-line performance. There is bound to be much shakeout among vendors, coupled with user frustration, as the industry evolves.

Remember, the guiding factor in your buying decision should be: "Does this product meet my needs for the creation of product that my client base expects?" If image quality is not your biggest priority, or you can afford the high entry cost of uncompressed media, then for you, digital, on-line, non-linear has arrived. For the rest, current non-linear, digital, off-line offers powerful tools and flexibility that should be considered for every level of video production. ■

Originally from Africa, Bryce Button is a non-linear editor working in the U.S. Rocky Mountain West area. Until his recent appointment as head of non-linear post production at Telemation in Denver, he worked free-lance for his company, Little Blue Button Productions, formed in 1991.

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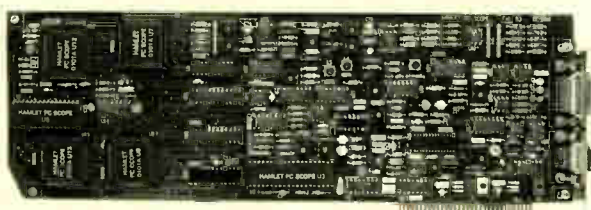
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CONNEXIONS

Expansion Cards Add Power to PCs

Plug-in Devices Can Put An Entire Post Production Studio on a Computer

by John Spofford

I think everyone can agree that a new industry is evolving before our eyes. This new industry is a marriage of technologies and techniques we call computer video. One way to look at this merging of the video world and the computer world is as an educational process, where two schools of professional thought are learning each other's vocabulary.

NOTHING IN THERE

The first time I ever got enough courage to take the cover off my PC, I was shocked to find that the inside was empty. Almost all of the functions of a PC fit onto a small motherboard, so the rest of the space is reserved for a power supply, drives of various types and a number of expansion slots for add-in cards.

A personal computer is a interesting product. The hardware, by itself, is absolutely useless. Software, in the form of an operating system and applications, are the real guts of the machine. But even the combination of the PC and its software is still only a general purpose computer. Plug in a few cards, however, and the computer can become a special purpose video production tool. Think of it as a black box in a beige case.

For example, plug in a board-level TBC and the PC suddenly has a time base-corrected video channel. (The back of the PC sprouts video inputs and outputs, just like your VCR.) You can buy waveform monitors and vectorscopes on expansion cards. The ultimate goal of many developers is the video-suite-on-a-card. The most famous example is NewTek's Video Toaster, a complex expansion card that plugs into the Amiga's video signal expansion slot, accompanied by megabytes of specialized software.

Look at the desktop non-linear editing phenomenon. This technology, which is placing video post production on its collective ear, is often little more than personal computers with a collection of plug-in cards running sophisticated software.

By now I might have convinced you that expansion cards are important, but you still wonder why you need to know about the actual expansion slots. You will discover this answer as you start to read ads and spec sheets on that latest computer plug-in card you have been saving up for. Looking for a hard drive-based animation recorder? The DPS Personal Animation Recorder uses an ISA slot, mostly as a power supply. A

similar product, the Bit Blitzer from Visual Circuits, uses a 32-bit VESA standard local bus (VL-Bus). Its upscale competition, the Matrox MAX, requires a PC with several EISA expansion buses.

It gets worse. If you are shopping for a high performance SuperVGA adapter for some serious Windows graphics production, you will find these display cards come in a choice of ISA, EISA, VL-Bus, PCI and sometimes even MCA bus. Do you know which one your computer uses? If you own an IBM compatible, it uses one or two of the above. If you have a Mac, Amiga or SGI, the answer is none of the above.

MAGIC BUS

The easiest way to understand all these buses is to consider how they developed. As is often the case in computer technology, a

since it was the only design used in the original PC and the later IBM AT (286). It was only when attempts were made to improve the PC's expansion bus that the original design was given a name. Think of ISA as "expansion bus - the original flavor" or "expansion bus Classic."

There are two variations of the ISA slot, the original 8-bit and the newer (and today, almost universal) 16-bit design. I am sure that this far into the computer revolution you are sick of hearing about bits. No matter what we talk about — pictures ("always use 24-bit graphics"), processors ("beyond 32-bit Pentium technology"), memory chips ("don't use old 16-bit RAM") or displays ("new SVGA cards use on-board 64-bit accelerators"), it always seem to be about bits.

There's a reason for this. "Bits" is short for Binary Digits or, simply, zeros and ones. Any information the computer needs to digest it does so with binary numbers.

The main functions of an expansion bus are to give the plug-in card DC power, as well as address lines to access computer memory . . .

history lesson is necessary. Of course, in the PC business, ancient history starts about 12 years ago.

One of the reasons the original IBM PC became so popular (other than that Big Blue logo) was that the PC was designed as an open architecture. The most visible characteristic of this open architecture was a half dozen or so expansion slots. Anyone could build an expansion card to IBM's specifications to give the IBM PC and its millions of clones new capabilities. What made development of these expansion cards possible was a standardized expansion bus.

The main functions of an expansion bus are to give the plug-in card DC power, as well as address lines to access computer memory, control lines to transmit timing signals from the computer, and signal hardware interrupts to the main processor, and data lines to determine how quickly data can move to and from the expansion card. The IBM PC's expansion slots were put to use filling PCs with all the things IBM left out of the original PC design: add-on memory, on-board clocks, floppy drive controllers (my original PC used an audio cassette to store data), color graphics adapters and much more.

The most common expansion bus used on the PC platform is the ISA or Industry Standard Architecture. Actually, the ISA bus originally lacked a name,

The larger the binary number the more data that can be transferred in one step. An 8-bit number is a binary number with eight zeros and ones. In the binary number system, an eight-digit number can have 256 combinations of zeros and ones — precisely why an 8-bit graphic has 256 levels of gray.

When dealing with expansion cards, this concept is even easier: An 8-bit expansion card simply has eight data lines or pathways. Think of it as an eight-lane freeway. If an eight-lane freeway can move a lot of traffic, think of what a 16-lane freeway can do, or a 32-lane freeway. This simple concept is why the 16-bit ISA bus replaced the original 8-bit design, and why manufacturers continually try to replace the ISA with 32-bit buses such as MCA, EISA, PCI and VL-BUS.

The first attempt to replace the ISA bus was in 1987, when IBM decided to abandon its original PC for a next-generation PS/2, which used the 16-bit and 32-bit MCA (Micro Channel Architecture) bus. But MCA never caught on for two reasons: IBM decided to be tough about licensing terms for the design in an effort to restrict cloning of its new machines, and MCA cards were incompatible with expansion cards built for earlier AT and PC expansion buses (today's ISA).

Many computer manufacturers felt IBM was throwing its weight around and chose to stay away

from MCA. This limited the number of MCA machines, which gave manufacturers little incentive to build MCA cards. PC owners were also reluctant to pay the cost of replacing their existing expansions cards.

GANG OF NINE

The result was a hole in the market that "the gang of nine" — a consortium of computer manufacturers led by Compaq — determined to fill with EISA (Extended Industry Standard Architecture). The EISA bus was at least as fast as MCA, with the additional benefit of accepting the original ISA 8- and 16-bit PC expansion cards.

EISA retains the basic design of the ISA expansion slot but is made deeper to allow a second, lower row of contacts. ISA cards fit into EISA slots but only deep enough to connect to the upper row of ISA compatible contacts. 32-bit EISA cards reach both rows of contacts. EISA works quite well, excluding the fact that inserting the cards can be tricky for my un-nimble fingers, but the complexity and expense of the design has kept these expansion slots out of most PCs.

Today the MCA bus is essentially dead. The EISA bus, though not very common, is used by several video applications. Examples include the Matrox Studio, Matrox Animation Xpress (MAX), Matrox's hard drive recorder and Truevision's Targa 2000 digital video card. What both the MCA and EISA fail to do, however, is improve the performance of the graphics subsystems.

The wide acceptance of operating systems such as MicroSoft

Windows 3.1 and IBM's OS/2 2.1 and their heavy reliance on graphics information has overwhelmed the ISA, MCA and EISA buses. PC developers started connecting the graphics hardware directly to the local bus of the 486 processor with a series of proprietary designs.

Local bus technology bypasses the expansion bus and uses the same signal lines as the central processing unit (CPU) to address DRAM (dynamic RAM) memory. This allows display hardware to operate at the CPU's clock speed over a 32-bit-wide data path. For computer artists, this means that the screen redraws quickly with higher resolutions and many more colors. If you are interested in digital video, local bus technology opens the PC up to full motion video.

Local bus applications were haphazardly developed for a year or two until a VL-Bus peripherals interface standard was introduced by VESA (Video Electronics Standards Association) in 1992. The VL-Bus standard made it possible to create local bus expansion devices. Today, many high-performance SVGA cards and even one animation recorder use the VL-Bus.

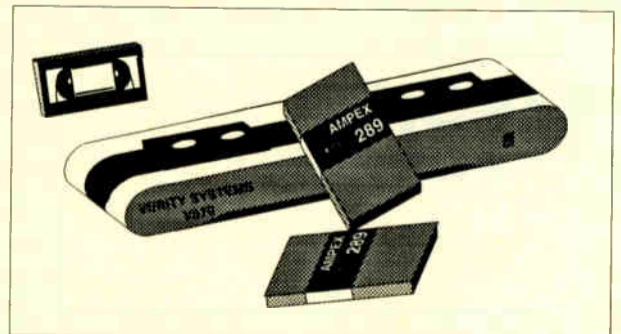
The limitation of the VL-Bus is that it is tied specifically to the 486 bus. It also has the disadvantage of a clumsy design; the cards are very long and must be inserted into a ISA or EISA expansion slot as well as the VL-Bus extension slot. A newer local bus design, the PCI (Peripheral Component Interface), has been introduced by Intel and endorsed by influential

(continued on page 24)

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Channel 4 Goes Serial Digital

by Chris Dickinson

LONDON

Channel 4 Television in the UK has become the fourth major European broadcaster to open a state-of-the-art serial digital production and transmission facility, following installations at Canal + in France, VTM in Belgium and, most recently, Orbit in Italy.

Channel 4's new London headquarters was opened in July at a cost of £100 million — of which £12 million was spent on the technical facilities. The all-digital infrastructure will serve as a launch pad for the introduction of widescreen television, probably next year.

Chris Daubney, Channel 4's chief engi-

neer, said that the shiny new digital component systems are rooted in a tradition conceived 30 years ago.

"When I first joined the BBC, we were still broadcasting only black and white," he said. "But I was brought up on the basis that one day we would achieve a 'Golden Era' of component signals and of digits, which we were told one day would replace analog.

"At the time, I never thought that in my working life I would ever see a digital component system basically working," he added. "But here we are today, taking on-air a major broadcasting center based almost entirely on digital component vision signals and digital stereo audio."

The new Channel 4 building is stocked with a serial digital routing matrix from Pro-Bel. The manufacturer actually supplied 40 matrices, all linked to each other via a Procion visual, on-screen, software control system. The most complicated router is in the building's multiformat transfer area, comprising seven layers of matrices. Other matrices connect to two digital component edit suites, a graphics area, commercials and program playout machines, a 2,000 square-foot studio, sound dubbing suites and other assorted facilities.

In the edit suites, there are Grass Valley Group 4000 switchers, Sony BVE 9100 edit controllers and Abekas A57 DVEs. The suite also contains Zaxcom digital audio mixers and Abekas A72 character generators.

The graphics department is made up of a network of Quantel V8 Paintboxes and Pictureboxes, tied together by Picturynet. Telecines are two Rank Cintel Digiscan MkII telecines with Pogle color correction and Digital Vision noise reduction systems. Standards conversion is via Vistek's top-end VMC system with predictive motion compensation.

The production studio includes the latest BTS LDK10 camera, which shoots in both 4:3 and 16:9 aspect ratio. The studio control room has a GVG 4000 switcher and Ikegami monitors. A dedicated audio suite is equipped with a DAR Soundstation and PC-based Cedar audio processing system.

D-5 DECISION

Channel 4 also has tape recorders for all the main formats, including Ampex DCT and Sony Digital Betacam. But the main tape format being used throughout the building is Panasonic's 10-bit digital component D-5. The channel has bought 61 D-5 machines, all backward compatible with Panasonic's digital composite D-3.

The entire installation has been built with digital transmission and widescreen television in mind. Daubney anticipates the introduction of a digital component standard starting to replace PAL within the working life of most of the new kit.

"Digital terrestrial broadcasting is somewhere over the horizon, or maybe on the horizon, and we have had to future-proof ourselves for that," he says. "But even before then, widescreen PAL transmissions are going to start, and that is something we are focusing our minds on at the moment."

Channel 4, along with ITV companies, the BBC and a number of German and other European broadcasters, has been experimenting with a widescreen variant of PAL called PAL-Plus, which offers a slight improvement in picture quality and the much sought-after 16:9 aspect ratio. PAL-Plus domestic TV sets are likely to appear in the shops in Europe this Christmas, with

the official launch of the PAL-Plus standard due in August next year.

Daubney could not say what the exact timetable for the introduction of PAL-Plus at Channel 4 would be, but he said there is "more than a possibility" of it happening before the end of 1995.

In anticipation of this, Daubney and his team purchased equipment that, where necessary, is switchable between 16:9 and normal 4:3 aspect ratios — these being mainly the vision mixers, cameras and character generators. A digital component infrastructure is also well-suited to handle widescreen TV, with the D-5 VTRs, for example, able to handle 16:9 pictures.

WIDESCREEN CODERS

But Daubney said Channel 4 has still to find the money for the transmission coders to begin widescreen simulcasts alongside existing PAL signals.

"At the end of the day, there is no more advertising revenue to be earned from doing it in widescreen, over and above that which we get now, so any expenditure specifically for widescreen has to be funded in a different way," he said. "We are having a good look at what the European Commission Action Plan for widescreen TV offers and what that can do. It has something like ECU 228 million up for grabs and will potentially fund up to half our costs."

He promised to give outside producers, and the facilities that support them, as much

warning as possible about when the channel is going to introduce PAL-Plus, but he added that productions with long lead times should be looking at widescreen now.

"Like other decisions, we always have to remember their impact on people outside, because we are a publisher-broadcaster. So we always try to give notice about where we are going. We have been talking about widescreen so facilities can plan for it. As they come to replace their cameras and vision mixer — the two pieces of kit most important for widescreen — they should make them switchable."

Another move by the channel that will impact outside facilities is a decision to require practically all programs from May to be delivered — and preferably edited — on the D-5 format.

"If you want to make it on something else, within the rules on quality and so forth, that is fine," Daubney says. "To make it on D-5 is a preference. But what is a requirement is what we expect you to deliver it on. And we said quite straightforwardly D-5 is where we are going and that is what we expect the industry to bear."

"It was our decision to go to D-5 and I have no regrets about that at all. It was the most future-proof standard we could have gone for at the point in time when we made our decision."

"In EBU tests, D-5 performed the way we thought it would, which is transparently. The tests reinforced the view that things are unpredictable and the classic critical program material were not shown to be critical. The critical tests turned out to be other program material," Daubney concluded. ■

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CONTINUED FROM PAGE 24

Expansion Cards

computer companies such as IBM, Compaq Computer Corp., Hewlett-Packard Co., Digital, NCR and Apple.

GREAT POTENTIAL

The PCI expansion requires one small connector and has an amazing throughput: up to 132 megabytes per second (MBps) for short burst and around 80 MBps for sustained data playback. This is enough for full screen, 24-bit uncompressed video and far beyond the capabilities of current PC hard drives. The PCI standard also has the potential to become a 64-bit wide design as personal computer CPUs evolve.

Each of the expansion buses I have mentioned thus far have been native to the IBM. Other personal computers have their own expansion slots. The Amiga uses its Zorro bus (named after the prototype of the first Amiga 1000 motherboard). The Zorro I and II specifications use a 16-bit wide data path; the Zorro III is a 32-bit design. Ironically, most Amiga models also include several ISA slots, which is why a fairly large number of video-related plug-in cards (TBCs for example) fit into both the Amiga and an IBM clone.

There is no need for a local bus on the Amiga because the graphics acceleration chipset was integrated with the CPU in the original 10-year-old design (a design which, apparently, is still 15 years ahead of its time). The Amiga does have an expansion slot with direct access to the graphics hardware. Called the video slot, it is home to numerous genlocks and dis-

play adapters, as well as NewTek's Video Toaster.

The original Macintosh was distinguished by the fact that it did not have any expansion slots at all. Apple's intention was to make its computer a closed system, not to be cloned, and it attempted to control all hardware and software developed for the platform. By 1987, however, the Mac II was introduced. It was expandable by use of Apple's Nu-Bus. Several variations of the Nu-Bus have appeared, with various degrees of compatibility with each other. The greatest drawback to Nu-Bus (as well as Zorro on the Amiga) is that these expansion cards only work on their native platform.

This may soon change. The next generation of Macintosh is expected to adopt PCI. PCI is used as a local bus on the PC, and for compatibility reasons ISA and EISA slots will continue to exist on PC clones for many years. But on the Apple, PCI is expected to be used as the sole 32-bit (or even 64-bit) expansion slot. Theoretically, Mac users will be able to use many of the same graphics and hard drive adapters as the Pentium-based clones.

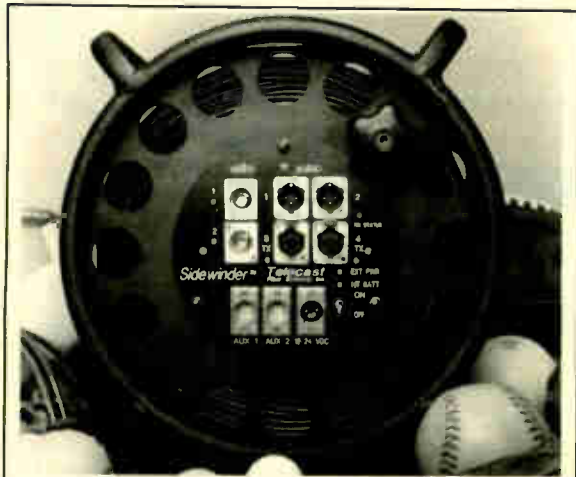
Given its amazing ability to move data, PCI could become the standard for digital video devices as well. In this case, the more cross-platform compatibility, the better. ■

John Spofford is editor of Computer Video, sister publication to TV Technology. He may be reached at CompuServe 74544,517.

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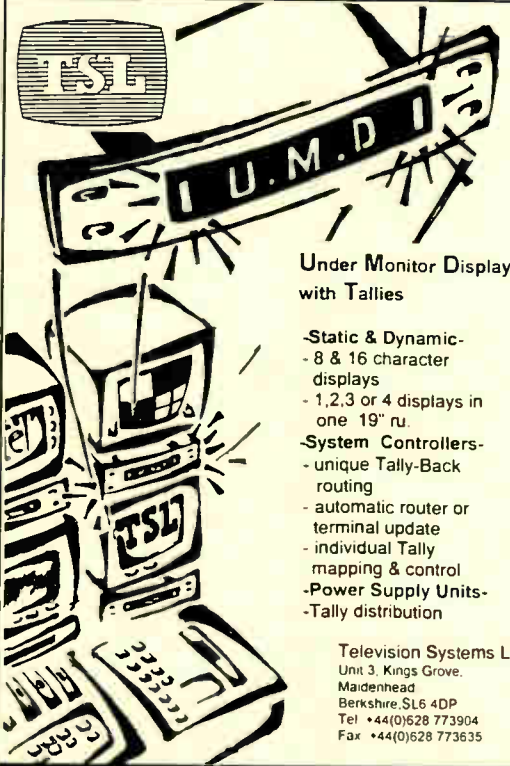
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IBC, ITS Vow to Fight to the End

by Dick Hobbs

LONDON

The battle of the European exhibitions — Montreux and IBC — looks set to go all the way to the wire. The latest salvo comes from the IBC organization, confident both of a successful show in 1995, the first year in which both exhibitions will be held, and of long-term success in the rapidly changing world of broadcasting.

The conflict between the two groups has been building steam for quite some time. Until 1990, both the International Broadcasting Convention (IBC) and the International Television Symposium (ITS) suffered the fate of being shoe-horned into inappropriate and uncomfortable surroundings: IBC most recently in the English south coast resort of Brighton.

In 1992, however, IBC moved into a specially constructed convention center, RAI in Amsterdam in the Netherlands. This in itself took a tremendous amount of pressure from exhibitors, including a threat from the International Association of Broadcasting Manufacturers to mount their own show. IBC '92 was certainly not perfect, but it was an improvement and pointed up even more the inadequacies of ITS's Montreux venue.

Unlike IBC, which is run by an industry body, ITS is managed by the Montreux tourist authority, making it impossible to relocate. And despite the recent completion of a new convention center, ITS is still contending with a shortage of space (a maximum of about 15,000m², compared with IBC '94's 30,000m²).

Again as a result of pressure, IBC recently announced that it would break a gentlemen's agreement that had kept the two shows in alternate years by creating an annual event. The first clash is due to take place in 1995.

At a recent meeting with reporters in London, IBC chairman John Wilson argued that the current dramatic changes in the industry, and his convention's flexible response, will be the key to the continuing success of IBC as an annual exhibition, perhaps at the expense of Montreux.

"The market is changing — multimedia, convergence with telecommunications — and IBC's flexibility to respond to these changes will be the key to our continuing and increasing success."

Of course, one of the key concerns of both IBC and ITS is how the attendees view the situation. At present many manufacturers, and particularly those at the inno-

native end, look to the independent production and post-production industry for their creative stimulation and a large slice of their income.

Another concern is that the big names in broadcast manufacturing may not have the influence they once had. At this year's NAB, some of the most innovative demonstrations were by computer companies. IBM and Hewlett-Packard, among others, are signed up for IBC '94, and if the predictions of digital superhighways and

communications convergence prove correct, exhibitions in the near future are likely to be dominated by names that, until recently would never have been seen in a broadcasting show.

Space bookings are already being taken for IBC '95 (September 14-18). Although the organizers are not naming names, they claim to already have a significant number of takers.

Meanwhile, the finishing touches are being put on this year's IBC, September 16-20. Floor space is

fully let, with 35 percent of the exhibitors showing at IBC for the first time, another indication of the speed of change within the industry.

In addition, the city of Amsterdam is entering into the spirit of the show, with one of the downtown squares being transformed into an IBC village with bars and restaurants decked out in a convention theme. The city is also promising that there will be no repeat of the crisis during IBC '92, when there was a real danger of the city running out of beer! ■

CONTINUED FROM PAGE 1

IBC Aims for Success

Hills has split the conference into three tracks: technical papers, panel sessions and workshops.

The paper sessions, under the chair of David Meares, R&D manager for audio and acoustics at the BBC, encompass numerous future technologies, such as enhanced television, digital coding, DAB and multimedia.

Highlights from the panel session, chaired by John Tucker of John D. Tucker Assoc., include a keynote address from Charles Poynton of Sun Microsystems, and a session entitled "Do we need an FCC in Europe?" which organizers hope will spark debate throughout the conference.

But it is the workshop program, under the chair of Martin Connelly, deputy chief engineer of U.K. broadcaster Channel 4, which is most clearly aimed at attracting non-engineers. Sessions include guides to film production, sound for pictures, special effects for beginners, non-linear editing and desktop production.

NEWS FEEDS

For those who won't be going to Amsterdam, the IBC has struck a deal with Reuters news service to transmit a daily half-hour highlight show across Europe and, via Intelsat, to North and South America. The program will be screened throughout the six-day exhibition.

But for those who do attend the show, one of the more interesting aspects will be the buying habits of attendees. Manufacturers have had to endure a disastrous few years with little or no growth in sales volumes. Of course, there are exceptions, such as the rise of computers and the move from analog to digital tape formats.

According to Weinstock Media Analysis, the overall equipment market in Western Europe has expanded slightly over the last few years. Although 1993 was not a good year, a modest pick-up is expected in 1994.

The company predicts an overall growth rate in 1994 of 10.6 percent for Western Europe, compared to 4.6 percent between 1992 and 1993.

Another market research company, SC Research International, says Europe should follow the trends in the U.S., where the market picked up 9

percent in 1993 and "really started to take off" in 1994. The company suggests a time lag of about a year between the U.S. and Europe.

Breaking down product categories, SC Research says VTR sales have increased slightly, and PC hardware systems have shown strong growth throughout the recession. However, computer systems seem to be levelling out as of late, save for graphics and effects software, which is still on the rise. Cameras and camera accessories have also flattened, as CCD cameras have virtually replaced tube technology.

FLOOR ACTION

On the show floor, this would suggest that computer systems will again attract the major share of attention. For the lower end Macintosh and IBM platforms, a host of new systems shown at NAB are likely to find themselves at IBC. Included are new versions of Parallax's Advance editing software and Intelligent Resources' Video Explorer system.

At the top end, the continuing strength of Quantel and software solutions running on Silicon Graphics platforms, such as the Vertigo Version 9.5 3-D effects system, are likely to feature highly.

Against this, traditional leaders in tape systems — Panasonic, Sony, BTS and Grass Valley — have come up with hybrid editing systems that combine tape and disk storage. These are being marketed aggressively at IBC.

Another strong area is serial digital, with users gradually replacing their analog equipment. The actual number of digital units sold are not great, but the much higher costs of the equipment makes the development more significant. The moves toward widescreen and, eventually, digital television will only increase this trend.

In the final analysis, it does not appear that there will be a single product introduction defining a new direction in video technology — no Video Toaster or digital tape format. But for industry watchers and participants, IBC '94 reflects a continuation of the "digitization" of the video industry that has been in motion for the past few years.

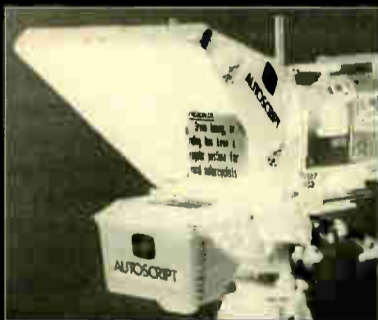
It is now a matter of keeping up with the changes. ■

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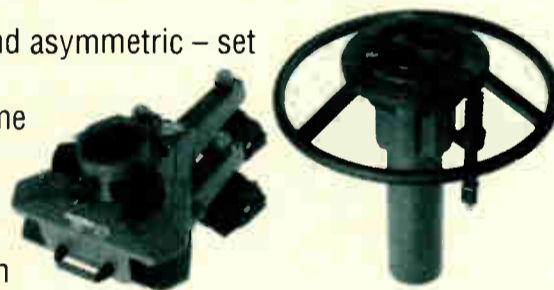
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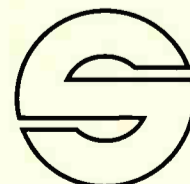
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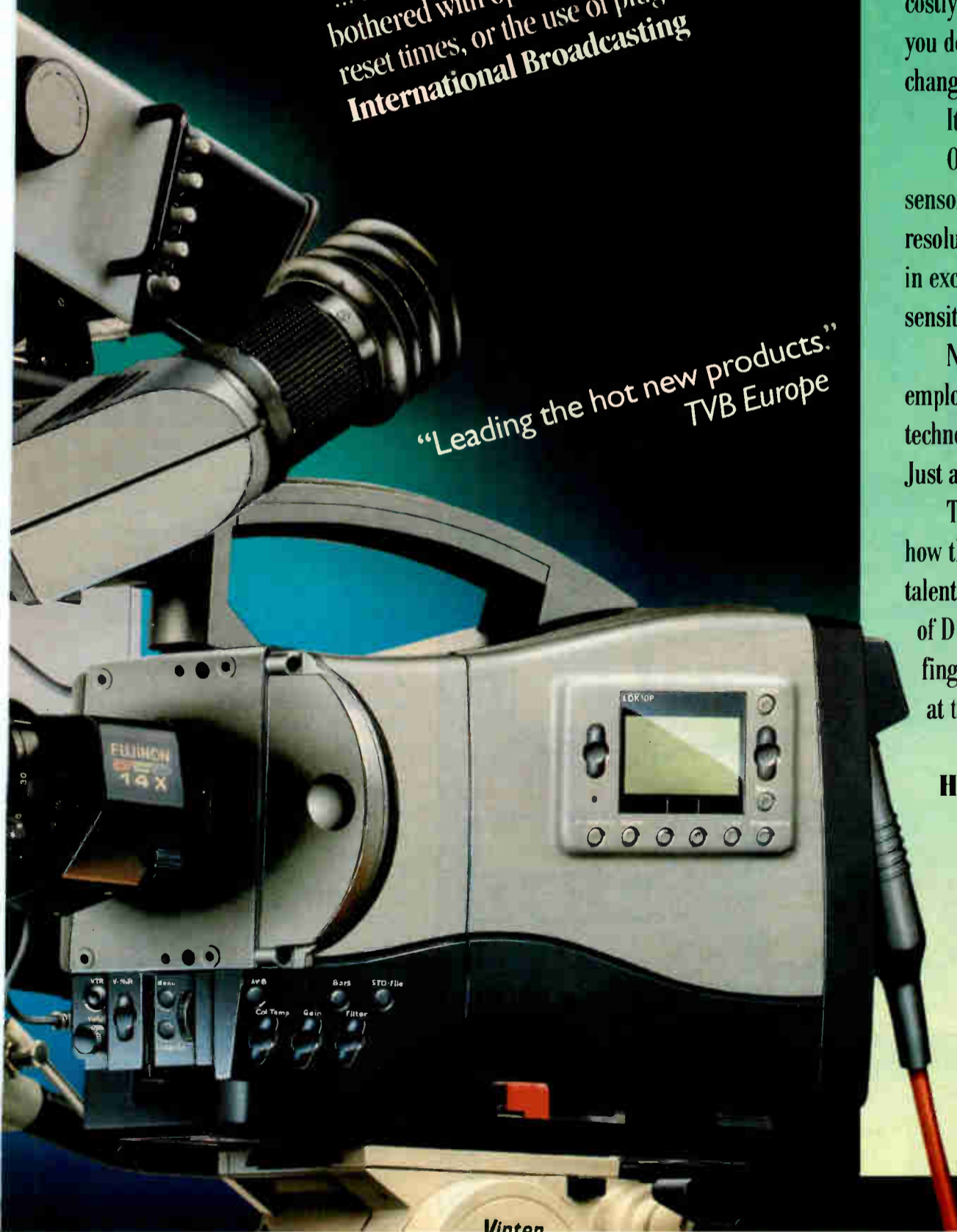
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"The LDK 10 and LDK 10P have made BTS stand for something else: Breaking the System"
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DPM SENSORS

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Both incorporate a new BTS development: Dynamic Pixel Management (DPM) sensors.

This exciting technology spares you the laborious task of changing optical blocks, or the costly expense of additional DVEs. In addition, you don't have to worry about the angle of view changing when you switch.

It doesn't.

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Holland Hall 8.120

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Creative Television Technology from BTS

Edit Systems Make Their Mark

AMSTERDAM

Editing equipment continues its expansion from linear, tape-based systems to computer-based non-linear systems utilizing optical and hard disk storage media.

One of the newest advances for these systems is the ability to perform real-time digital effects, such as fades, wipes and graphics.

Meanwhile, traditional edit controllers are still being touted by some manufacturers, although introductions are becoming a rarity.

POST IN A BOX

Among the newest advances in desktop editing systems is PostBox, Panasonic's entry into the non-linear editing game. The

system boasts 2-D and 3-D effects that can be rendered in real time. SCSI hard drives offer 10 minutes of M-II quality video per gigabyte. Typically, the system utilizes five drives (one for audio) operated by Panasonic's proprietary control system.

Panasonic is also demonstrating a new 16:9 edit suite for serial digital signals.

Parallax Graphics will roll out a new version of its Advance workstation featuring edit decision list (EDL) input and output, as well as comprehensive audio facilities and a new compositor featuring the Ultimate keyer. The system will also highlight new non-linear editing and effects software.

Lightworks Editing Systems will also be

on hand with its new Heavyworks One system that has the ability to play and edit multiple camera material in real time. The system allows four sources to be played simultaneously for "on the fly" multicamera editing. Up to eight pictures can be synchronized along with live audio mixing. The system provides 20 minutes of video per gigabyte of storage and is available with a second graphics screen to double editing workspace.

The company will also demonstrate its Lightworks editor featuring the Lightworks Assistant clip logger.

From the Dynatech Group of companies will be the EMC Primetime on-line and off-

line editors. Both systems feature non-linear capability. The on-line system offers Betacam quality, real-time dissolves and effects and four-channel audio. The off-line system supports all major EDL formats, as well as 16-70mm film edge/keycode lists.

Video & Film Engineering from Brussels will be on the floor with the Ediflex PC-based editing system featuring a new method of organizing scripts by importing onto the script from hard drive storage or optical disc.

Fast Electronics will display three versions of its Video Machine: one for the Macintosh, one with a YUV option and a third with a digital player/recorder.

FOR-A will be available to show its new Symphony non-linear desktop system for the PC. The system provides editing, mixing, audio and 3-D effects all under Windows control. Output can be to tape or an LDR-100 disk recorder.

FOR-A will also demonstrate its component edit suite recently used for World Cup. The suite consists of the VPS-300P production system consisting of a single M/E vision mixer and 3-D effects, as well as the EC-780 edit controller with 256-event memory, and the PAM-300 audio mixer.

EDITING CUBE

American start-up company ImMIX will make its IBC debut showing its VideoCube on-line editing system in a PAL/NTSC version. The system offers 60-field-per-second editing and CD-quality stereo, as well as real-time effects, anti-aliased characters and the ability to import PICT files.

Also on the floor with its editing products will be Quantel, which will display the Edit Box and Newsbox systems. Quantel bills Edit Box as the only non-linear, on-line CCIR-601 system. It uses uncompressed video, two M/Es, two keyers, two digital effects units and 16-channel audio.

Newsbox, on display at IBC for the first time, is designed for fast-paced news cutting. It features flexibility to rebuild edits and the ability to prepare rough cuts while inputting footage.

Also showing a system designed for newsroom operation will be non-linear pioneer Avid Technology. The company's NewsCutter offers A/B style editing and real-time effects and titling while doing away with lengthy tape-shuttling and generation loss. Avid's flagship product, the Media Composer, will also be shown in the new 5.2 version.

Accom Inc. will bring out its RAVE (Random Access Visual Editing) system for non-linear, on-line editing. Also available will be the Axial 2010 controller.

From Canada, Matrox Electronics Systems will show its Matrox Studio system with random access and on-line capabilities.

Thomson Broadcast will present the 4040 Composium post production workstation, along with its raft of camera, recording and signal processing gear.

JVC will introduce a new editing system, the SR-S368E low-cost S-VHS system. JVC will also demonstrate a number of new edit recorders and players.

IN LINE AND ON TIME

Logging and timecode systems will also draw a fair share of attention on the floor.

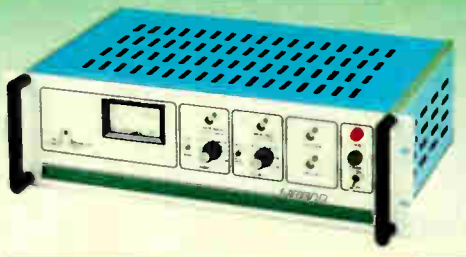
Australia's Digiteyes will be available with its Shollister logging systems, a Windows-based package used to create edit lists. New for the show are a portable version with pen-recognition capabilities and a midline unit with cue and cut & paste functions.

LINEAR

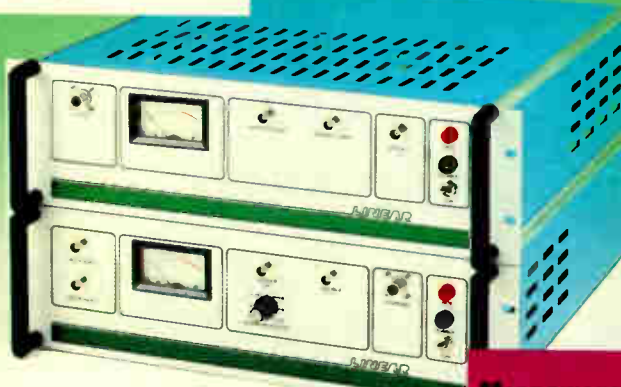
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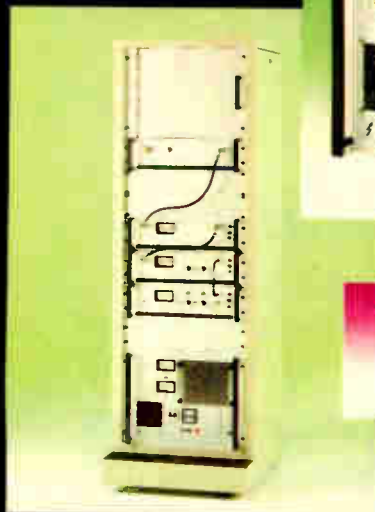


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(continued on next page)

Conversion Gear Sets Standard

AMSTERDAM

From standards converters to codecs to telecines to high definition adaptors, there will be plenty of converting going on at this fall's IBC convention. Read on for a sample of what's in store for the eager IBC attendee.

SETTING A STANDARD

With a raft of products to display on the show floor, Snell & Wilcox will have on hand its established motion-compensated standards converter, the Alchemist Ph.C. At this year's IBC, the unit will be shown with an improved motion measurement algorithm that, says the company, can virtually eliminate motion artifacts such as judder, blurring and resolution loss.

Vistek Electronics will be out in force showing its established VECTOR-VMC motion-compensated standards converter,

Tekniche Ltd. reports it will introduce standards converter products ranging from a four-field, four-line unit through a broadcast specification motion-compensated unit.

New from Prime Image, alongside an array of video products, will be a number of standards conversion products. Among them will be the Passport 4000 designed to work with the NewTek Video Toaster. The unit features Prime Image's "pass through" interpolation technique and comes equipped with PAL, PAL-N and SECAM inputs with PAL and PAL-N outputs. Options include NTSC, PAL-M and NTSC 4.43 inputs and outputs.

Also on display from Prime Image will be the SC 8000 standards converter. The unit features 4:2:2 sampling and four-field-plus conversion, and it accepts non-timebase-corrected, non-synchronous inputs.

Gennum Corp. will make its presence felt by showing its line of SMPTE 259M serial digital products, including the new GS9010 adjustment-free receiver subsystem and the MultiGen DSP line for multi-rate digital filtering, FIR filtering and video standards conversion.

The IBC floor will also see a raft of codecs and digital conversion systems.

From Digital Vision will come the BitPack MPEG 2 codec, a modular general purpose codec originally conceived in conjunction with the HD-DIVINE group as a high definition/standard definition platform to prove the technical viability of large compression ratios. The unit has been further developed to work in the wide range of applications that is suggested by the use of MPEG 2.

Among its vast line of products, BAL Broadcast Ltd. will be showing its new DRX4660 series of 10-bit encoders, which have serial, component digital inputs. Three output versions are available; serial and parallel digital composite only, PAL/NTSC only or both digital composite and analog PAL/NTSC.

Along with its standards conversion products, Vistek will display the V1200 Series digital interface products, as well as the new V4228 digital varicomb decoder and the V400 Series broadcast transcoders.

Alongside Tekniche's standards conversion systems will be a line of multi-standard broadcast-quality digital encoders and decoders.

The MDD1000 digital decoder and MDE1000 digital encoder will be on display by Snell, as will the Video Bricks range of interface products, which serve a range of applications that include interconnect and building block functions for mainstream audio and video products.

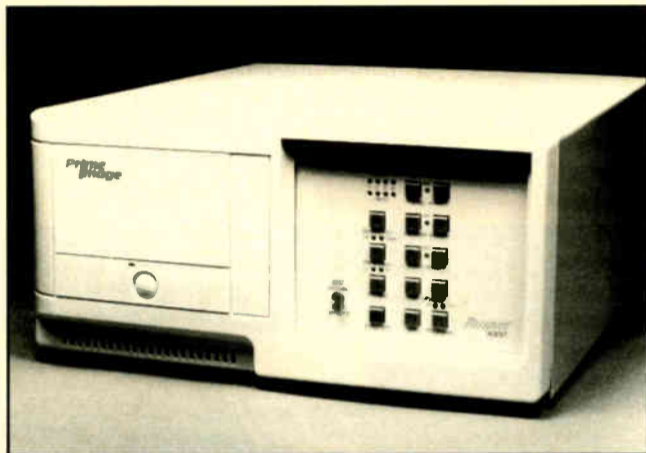
IBC debut products from Snell & Wilcox will include the Gearbox range of digital video interface products, the DEFCON 24 process and COM³ encoding and decoding. The DEFCON 24 process enables 35mm film material to be simultaneously transferred to digital 1125 HDTV, 525 and 625-line standards. COM³ is billed by Snell as an improved system for encoding and

decoding that delivers component-quality signals from a composite-compatible signals while completely eliminating artifacts such as cross effects ordinarily associated with encoding and decoding.

HD CONVERSION

Also shown by Snell & Wilcox, will be the HD5100 HDTV upconverter, which enables producers to incorporate conventional video material into their HDTV productions.

Not to be missed, Panasonic will intro-



The Prime Image Passport 4000, designed to work with NewTek's video toaster.

duce what it calls D5-HD, a prototype HD adaptor for recording high definition material onto the company's D-5 VTRs.

Meanwhile, Questech Ltd. will display a range of products that includes digital rate converters, digital PAL decoders and format interfaces.

A high-resolution encoder interface kit will be among the new products shown by equipment distributor Options International.

Axon Digital Design has announced that it will display a wide range of new A/D and D/A converters as well as a switchable 16:9/4:3 and 4:3/16:9 converter.

Ensemble Designs will have a range of Mac-to-D-2 converters.

Shootview Ltd. will have on hand several established products that include the VIP120

PAL/NTSC coder, the multistandard VIP200 decoder and a range of YUV/YC/RGB converters. The company will share a booth with Hi Tech Systems Ltd.

Microvideo's new products will include a serial digital 4:4:4:4 D/A converter, A/D converter and test pattern generator, as well as a D-1 to PAL/NTSC and PAL/NTSC to D-1 converters (six converters in a one space).

Dynatech Video Group's stand will showcase digital conversion products that include the Super Glue Series, which offers a wide range of conversion gear for different levels of user. A new compact 3RU rack has been designed for space-saving and flexible card-loading capability.

Accom Inc. will display conversion products that include the ADC analog-to-digital converter and DAC digital-to-analog converter; the C-Bridge low-cost encode/decode system; and the D-Bridge 122 digital encoder.

Thomson Broadcast promised it would display the TTV 7771 4:3 to 16:9 format converters as well as the TTV 7770 16:9 to 4:3 format converters, which can be installed at the output of the camera.

From Digital Vision will come the introduction of the AFC anamorphic format converter and the AAC advanced aperture corrector. The AFC is intended to reduce the number of film grading passes normally required to satisfy all market destinations. The AAC can operate in either field or frame mode and the latter can address film-originated material where traditional field-based correction is considered unsuitable.

Telecines will also make their presence known.

Rank Cintel will be demonstrating its URSA Gold and Hi-Def telecines. The URSA Gold will be demonstrated in conjunction with the Arcas telecine controller and the da Vinci Renaissance 8:8:8 controller and digital color processor.

BTS will introduce several new models, including the FLH 1000 HD and FDL Quadra telecines.

Evertz Microsystems will be on hand to display its established Model 4025 film footage encoder, which locks to telecine biphasic and generates VITC and LTC with keycode information in the user bits. ■

CONTINUED FROM PAGE 30

Edit Systems Make the Cut

Imagine Products will show its logging system, the Executive Producer and the Micro Reader. The system utilizes a laptop computer to record timecode as each shot occurs.

Aaton will present a complete timecode chain of devices from production tools, such as master clocks, cameras and DAT machines to the Aaton Keylink CCIR-601 telecine timecode reader to the 3line brand of VITC-inserted video tapes.

Alpermann & Velte will offer a range of timecode products, including the TC line of VITC/LTC readers/generators, and the PCL PC-board reader.

Evertz Microsystems will unveil a number of new timecode products, such as the 8025 digital video keyer for inserting VITC directly onto a digital bitstream. Also at the stand will be the 4025 Arri Kit designed to convert 24 fps code to 30 fps, as well as the Model 5010 LTC and 5010 VITC reader/generators and the 5950 and 5150 VITC/LTC reader/generators. ■

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Mobile, Satellite Units On the Rise

IBC Attendees Will See a Wide Range Of Fixed and Portable Transmission Systems

AMSTERDAM

IBC will be the site of numerous innovations in satellite, fiber optic and microwave transmission products as manufacturers announce their newest lines.

Continuing their invasion of the market are new levels of compression, mainly according to the MPEG 2 standard, as well as a raft of new portable systems designed for rugged field use.

Also, keep an eye out for new infrared and laser beam transmission systems.

OVER THE AIR

In the microwave arena, Tecnologie Elettroniche will demonstrate microwave links in 8, 10, 12 and 14 GHz models designed for point-to-point operation. The IRU units are capable of 70 MHz modulation/demodulation and up/down conversion.

Italiana Ponti Radio will present a 23 GHz portable link providing 2 Mbps (megabits per second) transmission. Other products will include fixed and mobile microwave links, as well as ENG, MMDS and terrestrial transmission and antenna systems.

Gigawave Antennas will introduce a number of portable microwave links, including LMP and LMV radios in the 0.6 to 15.6 GHz range. Also on display will be a miniature POV/wireless camera system.

The U.K.'s Wood & Douglas will exhibit the SLK series of studio-to-transmitter links. On the floor will be the SLK460T 15W UHF transmitter, the SLK460R UHF receiver and the PMRL030 VHF/UHF link. Also available will be the VFM μ X X-band link.

CML will be available with a number of microwave products, including the VML-D series of portable links up to 24 GHz. Also on the floor will be the VLF series of fixed STL systems and the MML portable links.

Teko Telecom will be available to display

its range of mobile microwave links, along with its other lines of transmission equipment.

L&S Hochfrequenztechnik will offer a number of communications planning products, including the CHIRPLUS system for mobile communications, broadcasting and microwave link planning.

Nucomm will present 2 and 2.5 GHz 12 watt portable transmitters and a 2 GHz mobile transmitter for mobile live coverage.

Andrew Corp. will be present with its lines of microwave antenna and earth station systems.



Dornier GmbH will roll out its numerous microwave configurations.

Lens manufacturer Canon will delve into the remote market with its CanoBeam laser transmitter for PAL, PALplus and HDTV. The system will be demonstrated live between the RAI and the Hotel Okura.

DTL will demonstrate its infrared transmission system capable of delivering broadcast quality audio and video up to one mile.

BIRD'S EYE VIEW

As for satellite systems, Thomson Tubes Electroniques will present space segment transmitters, such as TWTs and TWTAs for high-power Ku-band DBS satellites. Ground segment transmitters include TWTs and klystrons for stationary earth stations and TWTs for mobile SNG earth stations. Heading this last group will be the TH 3759A 300W Ku-band unit.

Sister company Thomson Broadcast will demonstrate new fiber optic links and an HDTV OB van.

Harris Allied will also debut a number of satellite systems, such as the DSE 1400 digital SNG exciter. The unit features an MPEG 2 encoder, a QPSK modulator and a frequency upconverter. Also available will be the S-21 mobile SNG truck featuring a high-gain Ku-band antenna and an internal power system.

Fuba Hans Kolbe & Co. will introduce a new digital television system using the MPEG 2 standard for satellite, terrestrial or cable distribution.

Dornier GmbH will bring out its turnkey SNG earth stations, fixed tv uplink and receive-only earth stations featuring fully automatic antennas and 300W Ku-band HPAs.

To protect signals from satellite piracy, DCE Satellite Communications will offer the new VC-220 Video Code II integrated receiver/decoder featuring advanced line shuffle scrambling. Also shown will be the PRK2000 satellite receiver that processes four audio channels with balanced 600 ohm outputs.

Continental Microwave will present the SNG 60/140DT compressed video uplink system. The unit uses dual-band C/Ku operation with a 1.5-meter antenna. A tri-band HPA option provides common operation at both C- and Ku-band from 6 to 15GHz.

Ikegami will demonstrate the PF-701S portable microwave link.

Comstream will introduce the DR2000 satellite audio receiver capable of receiving

the Capella ISO.

GEE Broadcast will show its Satellite Emphasis Network, a pre-emphasis and de-emphasis detector switcher used to detect incoming PAL or NTSC video before automatically switching to the appropriate emphasis network.

Sony will display its OB van designed for German broadcaster Topvision. The unit contains 14 cameras and 10 VTRs and utilizes 270 Mbps throughput.

BTS will roll out its new 2002 OB van, operating in digital serial component and touting an entirely new design concept.

In addition to its Microwave products, CML will show the double conversion SVX140T exciter and the 140T flyaway systems, both available in C- or Ku-band.

Also on the floor will be INTELSAT showing its C-band compression digital video mobile SNG systems. The group will be showing live C-band, compressed, digital video coverage of the show.

British Telecom will be present to discuss its video and audio distribution facilities and mobile uplink terminals.

PTT Telecom will demonstrate a number of its satellite and microwave services, including ISDN transmission, digital audio broadcasting, Pay-TV conditional access and interactive teletext.

The Orion Atlantic partnership will be available to discuss its upcoming launch of the ORION 1 bird to 37.5 degrees West. The satellite offers 34 transponders for multiple spot beam and broad beam coverage of Europe and North America.

NTL will demonstrate end-to-end MPEG 2 compression systems similar to its MPEG 1 System 2000. The new system allows as many as 18 channels to be carried in the place of a single analog service. NTL will also discuss its uplink services on the Astra 1C satellite, C-band access to the Far East and Australia and service to the Americas via TDRSS.

ON THE LINE

Fiber optics will also have a growing presence on the floor.

In addition to its satellite systems, GEE Broadcast will show modular fiber optic systems, including the VA-503/553 wide band (600 MHz) RF links, the VA-500/551 1300nm laser link and the DV-430T/430R 270 Mbps serial link.

DT Electronics will present its Telect Linxs cable management systems, and its fiber optic transmission systems.

Showing a range of products will be Alcatel. The company will demonstrate the 1713 OV (OVID 3) optical transmission system, capable of sending four audio signals and one 2 Mbps video signal up to 100 kilometers, and the 1714 (Ovid 4) capable of sending eight video signals and 24 audio signals 100 km.

Meanwhile, Alcatel's 1718 (DIVA 1) transmits audio and video over standard telecom networks while the 1715 VC (DIVA 5) system offers delivery of 32 video channels and 64 audio channels over telecoms.

The U.K.'s Tekniche will present a multi-mode fiber optic "docking" module to convert SDV or multiplexed video and audio to fiber.

C-Cor will display the 3800 digital RF fiber optic terminal and the 3000 series fiber optic transmission system. ■

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WinSPRITE from VG Broadcast is a Windows-compatible application that delivers new features to Teletext editors.

Text can be cut and pasted from other Windows text applications, including newsroom system terminal emulators. Pages may be stored as files on the PC or a LAN file server and retrieved from or sent to a Teletext host system using the ASTET protocol.

For information, contact the company in the U.K. at telephone: 44-444-413443; FAX: +44-444-414047, or circle **Reader Service 21**.

CAMERA CONTROL UNIT

The SU-F300 from Hitachi can be used to access and control multiple cameras. The compact unit features a LCD panel with touch screen.

The built-in data line switcher allows for control of up to 12 cameras. By using optional data line switchers, up to 36 cameras can be controlled.



An IC memory card stores the file information from one or more cameras, enabling the operator to return to the SU-F300 after completing a programming and restore all cameras to the same settings used originally.

For information, contact the company in Japan at telephone: +81-3-3255-8411; FAX: +81-3-3257-1433/1434, or circle **Reader Service 104**.

VHF TETRODE

Siemens has developed the RS 1092 L VHF transmitter tetrode for 5 and 10 Kw television transmitters.

This tetrode is suitable for television picture transmitters and for amplifiers and television converters with combined picture and sound transmission. The RS 1092 L is an air-cooled metal-ceramic tetrode with coaxial construction and an anode dissipation of 12.5 kw. The power amplifica-



tion is 15 dB.

For information, contact the company in Germany at telephone: +49-89-23-40; FAX: +49-89-234-2824, or circle **Reader Service 126**.

REMOTE CONTROLLERS

The Master Controllers from Troll Technology Corp. utilize the power and facilities of the Macintosh, such as the graphical user interface, the ability to network Master Controllers together via Apple-Talk and flexible control of sites from any location using Remote Access.

The Master Controllers are used to interface with third party controllers and equipment, as well as the company's Slave Controllers. All of these controllers are capable of controlling multiple ENG sites or remote camera locations.

For information, contact the company U.S. at telephone: +1-805-295-0770; FAX: +1-805-295-0771, or circle **Reader Service 131**.

AUDIO MIXERS

The ABS range of on-air audio mixers from Audix Broadcast provide all the facilities needed for music and talk-based live broadcasting.



The system uses the company's SMART (sealed miniature audio routing technology) and CLIC (custom logic interface control) concepts to enhance performance in areas where critical signals are involved and to boost reliability in long-term use.

Standard features of the ABS system include momentary or continuous-output machine starts and dynamic preface listening with fader canceling programming.

For information, contact the company in the U.K. at telephone +44-799-542220; FAX: +44-799-541248, or circle **Reader Service 60**.

SYNCHRONIZER & SELECTOR

The S510 multistandard synchronizer and the S593 digital selector from AAVS are part of the company's digital Series 500.

The S510 synchronizes a PAL or SECAM analog signal or a 270 Mbit/s digital signal complying with the norm CCIR 601. The S593 processes composite as well as component signals.

For information, contact the company in France at telephone: +33-1-48-57-2164, or circle **Reader Service 12**.

EDITING SOFTWARE

On-Line, a video editing software from Softimage, is part of a family of Digital Studio products that can be customized for individual edit suites.



On-Line features 3-D List, which presents EDL information in three dimensions. Voice Notes, another feature, records and recalls the vocal comments made during an on-line edit session.

EDL formats such as CMX, Grass Valley, Sony and ASCII can be imported and exported.

For information, contact the company in Canada at telephone: +1-514-845-1636; FAX: +1-514-845-5676, or circle **Reader Service 79**.

EDITING SYSTEM

The MultiVision System (MVS) desktop editing products from United Media consist of the MVS Linear Editor and the MVS Digital Picture-based Editor.

This Windows-based system for multimedia production offers real-time video capture and provides a digital database of pictures.

The MVS can be used for both on-line and off-line editing and incorporates the tools necessary for storing and recalling a digital database, which converts into an industry-standard EDL.



For information, contact the company in the U.S. at telephone: +1-714-777-4510; FAX: +1-714-777-2434, or circle **Reader Service 69**.

DIGITAL BROADCAST SYSTEM

Developed by the Australian Broadcasting Corporation, D-CART is a multi-user digital audio recording, editing and playback system designed to replace reel-to-reel and cartridge tape machines.

This system is suited to both news/talk and music formats, as well as a number of non-broadcast applications.

D-CART systems are expandable, from a few channels and a couple hours of storage to on-line access to hundreds of hours of audio material.

For information, contact the company in Australia at telephone: +61-2-333-2209; FAX: 61-2-333-1413, or circle **Reader Service 112**.

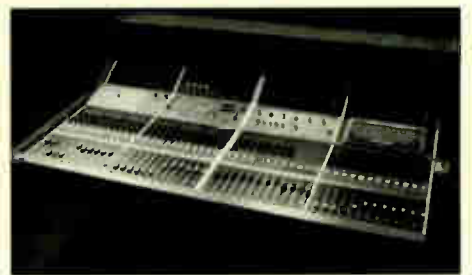
CONSOLE SYSTEM

The T-Series assignable console system from Calrec offers 24 channels, mono or stereo, up to eight stereo groups and four stereo main outputs.

There is provision for fader VCA groups, and the patchfield can be attached to or separate from the console. Two fader control section styles are available, one for production consoles and one for production/music consoles.

Audio channel circuit cards can be mono or stereo with optional assignable dynamic sub-card.

For information, contact the company in the U.K. at telephone: +44-422-842159; FAX: +44-422-845244, or circle **Reader Service 128**.



Send new product press releases along with black and white photographs to: **Marketplace Editor, P.O. Box 1214, Falls Church, VA 22041**

Cameras Take Center Stage

AMSTERDAM

If you are making the trip to this year's IBC convention to search out new camera fare, then you are in luck. The show floor figures to be filled with new models, and the following is a sampling of what will be shown.

ALL EYES ON CAMERAS

Sony Corp. will be showing its line of digital signal processing (DSP) camcorders, the DVW-700P and the widescreen-switchable (4:3/16:9) DVW-700WSP. Other Sony cameras on display will include the BVW-D600P analog Betacam camcorder that incorporates the same DSP camera capabilities as the DVW-700WSP. Also shown will be the BVW-375WP studio camera, which is switchable between 4:3 and 16:9.

The company also will be showing its high definition production camera, the HDC-500, in its role as a source for high-quality commercials and feature productions that previously were done on 35mm film.

BTS will introduce several new models to its LDK line. Most notable will be the LDK 10 studio camera and its portable companion, the LDK 10P. BTS will also set up its existing LDKs, such as the LDK 9 and 9P models, the LDK 93 multipurpose unit and the LDK 9000 HDTV camera. The Series 9000 remote control system will also be available.

JVC will introduce the IBC crowd to the new KY-19E 3-CCD camera as well as the new KY-F55E multi-function 3-CCD camera. Established lines from JVC will include the GY-X2E 3-CCD S-VHS-based camcorder, the KY-27E low lux 3-CCD camera, the TK-F7300E high-resolution frame capture camera and the TK-1270E computer imaging camera.

Hitachi Denshi will display its newest camera, the SK-2000 digital portable/studio cameras, which offer 13-bit digital processing and 4:3/16:9 switchability. Also introduced by Hitachi will be the Z-ONE D 13-bit digital processing camera and the HV-

C20 3x 1/2" CCD professional camera with a C mount.

Thomson Broadcast will present a new portable camera, the TTV 1657, which can function as a standard 4:3 camera and as a wide FX switchable 4:3/16:9 camera. The company is promoting the camera as "a true studio camera within the dimensions of a portable."

Other Thomson cameras on display will include the TTV 1544 Digipix camera (with triax), a studio camera that is equipped with a digital pixel correction system that, according to the company, "guarantees perfect black uniformity whatever the shooting conditions..."

Panasonic Broadcast Europe reports that among its new product displays will be the Supercam, a digital S-VHS camcorder. Major demonstrations of other cameras also are planned by Panasonic.

Ikegami will provide the HK-366 2/3" studio/field camera and the HK-366P portable camera.

Esser Test Charts will present to IBC crowds a line of new camera test charts in the 525-line 16:9 format: two new transparency illuminators (fluorescent and tungsten light) and a test chart folder for 16:9 charts.

In new lens systems, Innovision Optics's new Probe lens system will be unveiled at this IBC. It features a long tubular barrel with an interchangeable objective lens. With interchangeable camera mounts for all professional video cameras, the Probe also has a direct-view straight model or a 90-degree right-angle view.

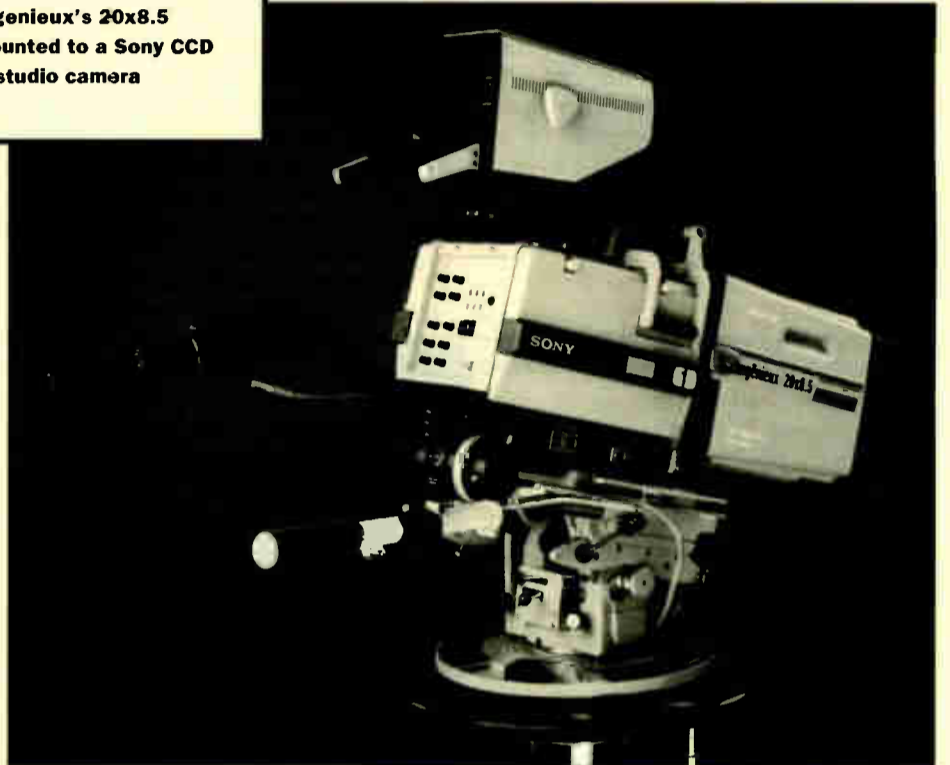
Century Precision Optics will introduce the .6X aspheric wide angle converter, with a new compact low-angle prism. It will be shown along with the company's line of wide-angle adapters, converters, diopters, and other camera accessories.

Angenieux plans to launch a new lens range it calls AIF, Assisted Internal Focus, which the company says will enable the lens to go

at high speed to the tele end with the thumb pressure on one switch, after which the operator can refine the focus. Releasing the switch will drive the lens at high speed to where the operator began wherever on the zoom range it was. The AIF range is available on studio lenses as well.

Canon will introduce a

Angenieux's 20x8.5 lens mounted to a Sony CCD studio camera



new standard ENG lens, the IFplus J15ax8B IRS/IAS internal focusing lens for the 16:9 era. Also new at the company's stand will be the J14ax17B image stabilizing ENG lens that boasts a variable angle prism.

Fujinon will display the A36x10.5ERD and A20x8EVM lenses featuring aspheric technology.

PROMPTER ADVANCES

Prompter buyers will also see their share of new systems to choose from.

From EDS Portaprompt Ltd. will come the new Digiprompt DP600, which will boast improved software that reads WordPerfect, WordStar, Word for Windows, and ASCII files directly from IBM compatible disks, without need to reformat the text.

Also new from the company will be the Microprompt 4" CRT ENG on-camera prompter for hand-held and Steadicam shoots. Rounding out EDS's new exhibits will be a micro-scroller based on the DP600 that converts a lap-top computer

into a prompter via the serial printer port. It has five available fonts.

BDL Autoscript announced plans to launch five new products at IBC: The PC Promptcard, which can be installed in a PC to provide a fully-featured prompter base station; the PC DA, used in conjunction with the PC Promptcard to provide a total of five composite video outputs; Scrollbuddy, designed to work with notebook or lap-top computers under 1 kg in weight; the WS-17 17" on-camera monitor; and the G-Plus, a graphics version of Plus offering many Far Eastern and Middle Eastern languages.

Autocue Ltd. has a raft of new prompting gear to introduce at this year's IBC. One of the many featured products is the QCP-LT prompting software package, which is VGA, MS-DOS-compatible and includes the ability to import WordPerfect, MS-Word, and many other word processor text files, with a choice of eight fonts and styles. Also shown will be the NewsMaker PC-based electronic newsroom system.

In battery systems, IDX Co. will introduce the NP-23L and NP-1dxL 12-volt and 13.2-volt NP-type batteries, respectively. They include a built-in LED status indicator. Also new from the company will be the AlphaX-2 charger range, with a built-in charge readout display and the DX-2 battery analysis system.

PAG Ltd. has four new products to display at IBC: The PAG analyzer, a test instrument for Nickel-Cadmium batteries; PAG AMS analyzer management software; the PAG MC124 four-channel combination fast-charger/discharger for all Nickel-Cadmium batteries in the 4.8 to 14.4 volt, 1 to 7Ah range; and the PAG OC124NP four-channel overnight charger for all 12 to 14.4 volt, 1 to 7Ah Nickel-Cadmium batteries.

Anton Bauer will line up its Logic Series, consisting of a dual charger, the TrimPac battery, an interactive battery system and microprocessor chargers. ■

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SEE US AT IBC

34 IBC SHOW

Video Recording Gear Shows Latest Advances

AMSTERDAM

As is the case in every facet of the video world, digital is the most popular seven-letter word, and recording systems have gone a step farther by continuing to evolve toward what someday could be a tapeless universe. Read on for a thumbnail sketch of what will be displayed.

PUTTING ON THE DISKS

Tektronix will be displaying its Profile PDR 100/101 professional disk recorder, a disk-based platform for filing digital video and audio. As reports the company, the Profile offers Betacam SP-quality pictures and has the ability to simultaneously record and play back across multiple channels. It accommodates multiple standards and platforms.

Distributor Greenway Ltd. will have among its wares the new ADT VSS.D1 digital disk recorder, which offers storage capacities ranging from 10 minutes to 12 hours or more, as well as random access and delay playback.

FOR.A Corp. has announced it will unveil the LDR-100 digital disk recorder, which supplies "around 15 minutes of Betacam or 20 minutes of S-VHS" quality video, according to the company. Three hours of additional storage are available, and the unit is being touted by FOR.A for use in commercial insertion and non-linear editing applications. It has interfaces for component serial digital, plus composite, Y/C and YUV.

Among Questech's IBC offerings will be the SSVR Animator, a solid state video recorder with up to five minutes of uncompressed, full bandwidth video storage available. It also boasts an Ethernet interface and variable-speed replay with acceleration and deceleration. An Action Replay version of the unit will be available for sports coverage while a Time Delay version will be available for satellite delay compensation and profanity delay.

Pioneer New Media Technologies will display the new DLD-V100S, a four-head digital laserdisc system for use in video-on-demand applications. It will be displayed along with Pioneer's well-known VDR-V1000P and VDR-V1100P magneto-optical videodisc recorder and player.

Accom also will show the WSD Workstation Disk, a disk recorder that will be demonstrated with a custom GIO bus interface for Silicon Graphics workstations and an interface to the Macintosh as well.

FROM THE TAPE WORLD

Of course, Sony Corp. will be on hand to display its Digital Betacam family of products, and the company reports that plenty of machines will be available for hands-on evaluation. The machines will also be demonstrated in various post production and transmission applications.

BTS will present a number of models, such as the DCR 6000 gigabit recorder and the DCR 500 and DCR 300 D-1 recorders.

For its part, Thomson Broadcast, along with a host of varied products in its booth, will play back for IBC audiences material from a compression unit the company has designed to record high definition signals onto a 4:2:2 VTR.

JVC says that among its wide range of product displays it will highlight the new BR-S500E and BR-S800E S-VHS machines. The former is a feeder/player and the latter is a recorder/player.

Established recorders on display from JVC will include a broad selection of S-VHS units, featuring the BR-S525E feeder/player with variable tracking.

From HiTech Systems Ltd. will come a new VTR remote controller that is housed in a IRU case and has time code display and a tape direction and speed indicator.

And last, but not least, from Dwight Cavendish will come a new unattended duplication system alongside its established Copymaster 2500 and Copymaster 5000 series duplicators. ■



FOR.A's LDR-100 disk recorder offers 15 minutes of Betacam-quality video.

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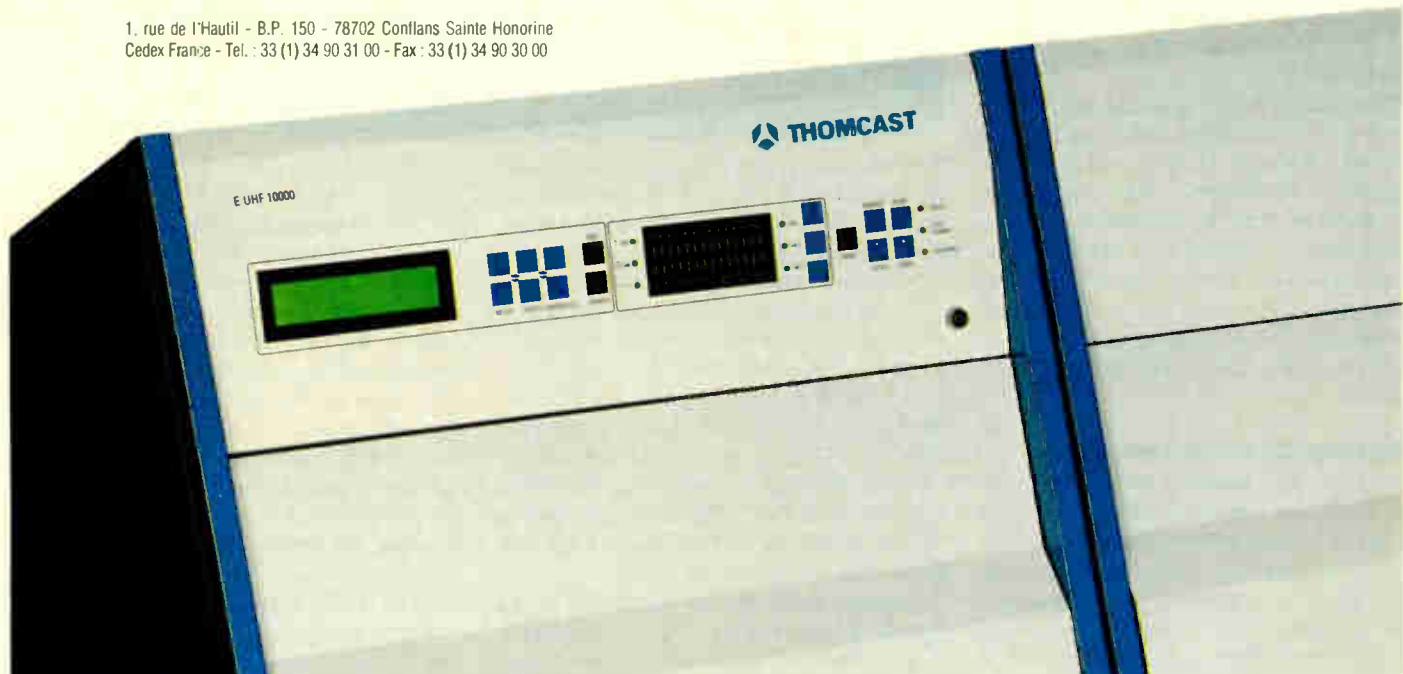


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To learn more about D/ESAM® mixers, call Graham-Patten Systems at (800) 422-6662 in the United States or +1 (916) 273-8412.

See the entire array of Graham-Patten products at the IBC Stand 10.125 Delta Hall.

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Graphics Systems Generate Interest

AMSTERDAM

As video graphics continues its trend toward the workstation and personal computer platform environment, this year's IBC helps to further underscore the broad range of products available to graphics professionals. What follows is a sampling of what can be found among the exhibit floor aisles.

Parallax Graphics reports it will introduce to the IBC audience a new version of its DIPSS digital ink and paint system, which will feature a new digital exposure sheet. Also on hand from Parallax will be the Matador paint and 2-D animation and effects system.

New from Vertigo Technology will be Version 9.5 of Vertigo, billed as the first software package to fully integrate and support PIXAR's PhotoRealistic RenderMan. The new feature enables shaders to be interactively modified and visualized from within Vertigo. Version 9.5 also features Effectors modeling and animation tools for creating special effects such as wind, water, waves, joints and magnets.

SOFTWARE SYSTEMS

Discreet Logic reports it will have on display the Flame and Flint software packages for special visual effects. Flame offers resolution-independent digital editing, compositing, color correction and animatable 3-D and paint effects using the SGI Onyx supercomputer. Flint runs on SGI's Indigo

IRIS workstation.

GEE Broadcast will also have Autodesk's 3-D Studio modeling and animation software and the Artworks 32-bit graphics design package.

Intelligent Resources, along with a promise of new products to be announced at the show, will display its established Video Explorer digital video processing

system, which supports applications such as image capture, processing, real-time and special video effects, multimedia, animation, paint and character generation.

Digital Processing Systems will introduce a line of personal animation recording systems on computer cards as well as a line of hard drive recorders.

Matrox Electronic Systems will have among its displays the Matrox Animation Xpress (MAX), a digital animation recorder that provides record and playback capabilities at full CCIR 601 resolution in 30 fps (60 field) NTSC and 25 fps (50 field) PAL, in true 24-bit color.

Graphics mainstay Quantel reports it will be showing Domino, the company's Digital Optical for Movies system, which

boasts a new family of modular products called "Domino: the Next Generation."

Of course, Quantel will also have on hand the established Picturebox still store and Paintbox graphics systems.

Abekas will present the HEXUS 10-bit multichannel multi-user digital production disk system, designed for the post production environment.

Abit will display the IRUPC Series 2 and Series 3 rack-mounting PCs. Designed for the broadcast market, the Abit computers are one rack unit high and have either two or three full-length spare expansion slots, depending upon configuration. They also offer a broad range of Intel processor options and up to 64MB of on-board memory. Ports are RS-232 and or RS-422 and the units boast IDE or SCSI controllers, floppy disk controllers, hard disk drives, 3.5-inch floppy disk drives, internal power supply (85-264 VAC) and positive air pressure side ventilation.

IBM will display its Power Visualization System (PVS) platform for entertainment and post production. IBM also will make displays of video-on-demand digital video

server technology and MPEG compression electronics.

Newswire Systems Ltd. will introduce "Desktop News Production" (DNP), which incorporates text, video and stills in a Windows environment on the same screen. The product allows users to move graphics between journalists and the art department. A complete Arabic DNP system also will be available.

Established products from Newswire Systems will include the Newswire 2000 news automation system, text and video archiving systems and machine control interfaces.

New from ORAD will be the VIRTUAL STUDIO, an on-line or post production system for the merging of foreground and background scenes to be used in television programming.

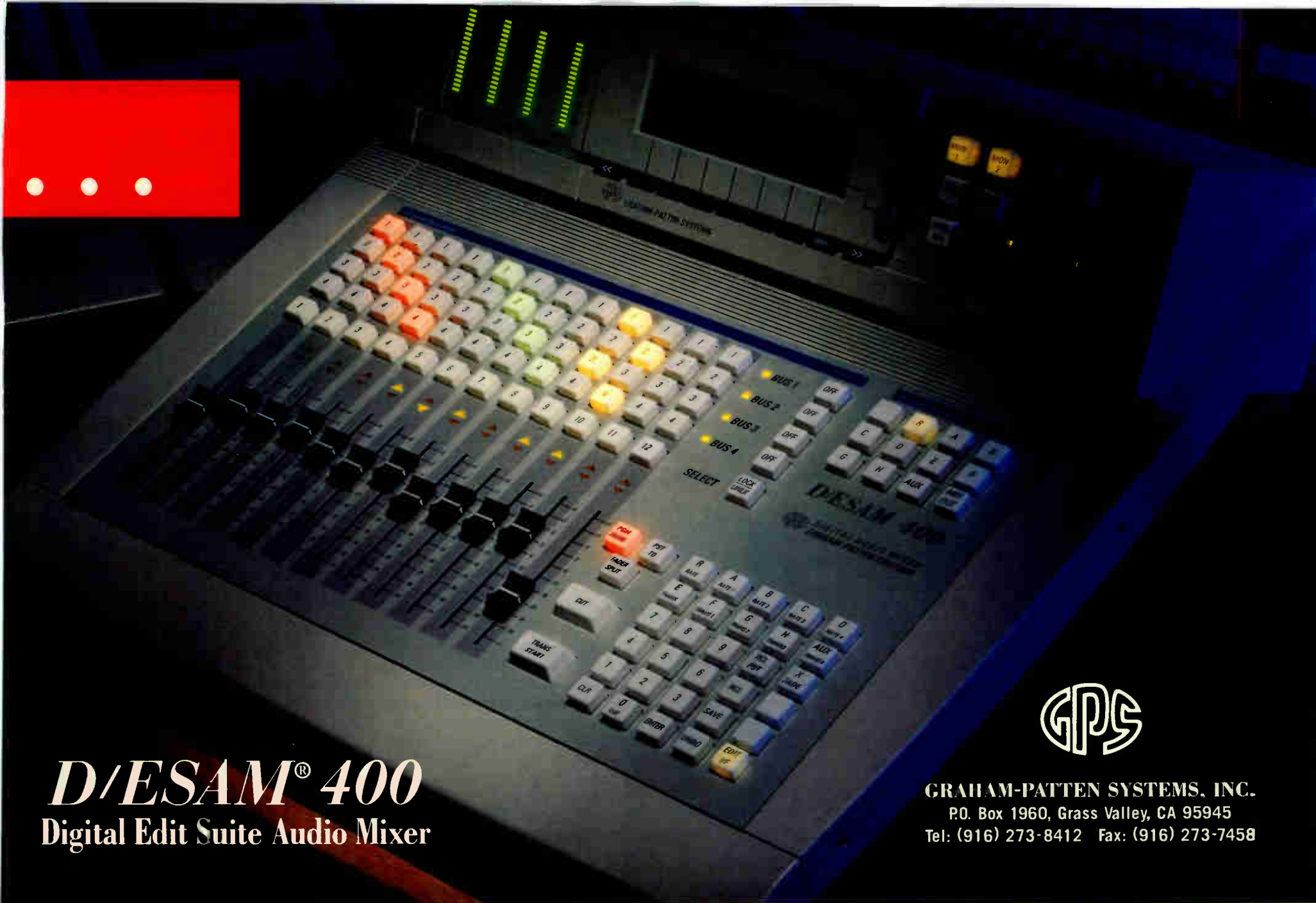
CREATING CHARACTERS

Character generators will be presented in various shapes and sizes this year.

PESA Electronica SA says it will unveil the CG Stylist character and graphics generator alongside new networking capabilities for the CG Plus and CG Stylist systems. PESA will also show the established CG4722 and CG4711 character generators.

The Collage character generator from Pixel Power Ltd. will display new features at this year's IBC. These include 2-D animation software, a CD-ROM interface and live editing capability.

From Aston Electronic Designs Ltd. will come the debut of the Ethos character generator, a dual-channel unit with two full broadcast-quality output channels.



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Pixel Power will also launch Collage CG, which is based on the same RISC processor technology as the Collage but does not offer the full graphics package. The product will have an upgrade path to the full Collage specification.

Meanwhile, Abekas Video Systems will be present to display the A72 character generator. It will be shown with a new Turbo option that, together with FontMaker and IconMaker, enables Postscript typefaces and icons in the TIFF format to be converted for use with the A72.

QUALITY OUTPUT

From Aston Electronic Designs Ltd. will come the debut of the Ethos character generator, a dual-channel unit with two full broadcast-quality output channels. The company also will display the established Motif and Motif ESP character generators. Motif will be shown running the latest version of software together with a range of options including the Clock and Texturer packages. Motif ESP is a single-channel CG offering a fully-featured static plane in addition to the dynamic display plane. It shares page compatibility with Ethos and Motif and is available as an upgrade to the standard Motif.

AVS Graphics Ltd. will introduce the "FX" 3-D character generator for flying captions. It employs word-processor style text entry, multiple key frame flight paths, flexible light sources, and infinitely variable flight timings. It is fully networkable.

Also new from AVS will be an OmniBus graphics control network aimed at broad-

casters and top-end facilities who want to control still stores, character generators, renderers and VTRs.

Established AVS products include the Manuscript series of 2-D character generators.

New from FOR.A will be the VTW-180 character generator, a PC-based CG with an

**Vertigo Ver. 9.5
 can be used to create
 startling animations.**

extensive font library and specific keyboard options that include Greek and Arabic.

Courtyard Electronics Ltd. said it would be at IBC to display, among its product lines, the Credit character generator.

GEE Broadcast, among its wide variety of displays, will show the Inscribe VMP character generator, which offers full color preview on a VGA screen under Windows, as well as DVE effects and soft edge shadows. On- and off-line modes are supported with integrated preview and program outputs as well as full linear key channels.

Traditional effects boxes will see several new systems, proving that even among graphics users, desktop computers have not

completely taken over.

Questech Ltd. announced it would debut "significant enhancements and additions" to its range of digital video effects units. A standard version of Charisma will include 3-D solid geometry curved effects that can be interactively controlled in real time. The system will also feature an integral key channel, mix/effects, multifreeze



sparkle, shatter and explode and an enhanced graphics operator display.

Dynatech Video Group's DELTA Concorde and DELTA Classic text and

graphics systems will be on display. The Concorde is available in single- and dual-channel units, as is the DELTA Classic.

Grass Valley will deliver the DPM-4300 DVE and the Graphics Factory Halo system.

FOR.A says it will unveil to IBC audiences the MF-3300 D-1 3-D digital effects system with high-end effects that include cylinders, intersecting planes, light source,

warp, flying key and dual channel. The company will also show the VPS-300P video production system that combines the mixing and keying of a single-M/E vision mixer with 3-D digital video effects and full 4:2:2 processing. Also new will be a software release for the MF-300P effects processor (with rear page turn highlights and an expanded effects library) and the MF-3200P effects processor.

GEE Broadcast will display Pinnacle Systems's Prizm 3-D digital video effects system with curved effects, shadows, trails and sparkles.

Iceland's OZ says it will display PRIMA SUP, a system for producing graphics and captions in an on-line broadcast environment. Text can be either pre-arranged or created on the fly, and the operator has access to a database of previous captions and topics and can create them

by pointing and clicking.

OZ will also show PRiMA Sport, a text and graphic titles system designed for live sports applications. ■

Listening In on Audio Products

AMSTERDAM

As always, audio-for-video gear will see its share of product introductions this year.

When cruising the floor, look for new surround sound capabilities and more all-in-one solutions from digital audio workstation manufacturers.

In its first appearance at IBC, Digigram will showcase the Xtrack post production workstation for the PC. The system utilizes MPEG audio compression and features a range of abilities from simple cut-and-paste to sophisticated time-stretching.

Saidi Inc. will present its PC-based audio editor from U.K.-based Studio Audio and

Video Ltd. The unit offers 18-, 20- and 24-bit editing, full PQ editing for CD mastering and a nine-pin interface for external machine control.

Akai will show the new DD1500 system that offers 16 tracks on a single hard disk or eight tracks on optical disc. The system's 16-track mixer has an optional digital equalizer, while off-line DSP functions include time-stretch and pitch-shift as well as a wide range of interfaces.

Digital Audio Research of the U.K. will unveil the SoundStation Gold system, offering eight or 16 channels of hard disk or optical disc recording, editing and play-

back, as well as mix controllers, DSP, segment-based processing and moving faders.

The SoundStation Sigma Plus with 22 hours of disc storage will also be presented, as will the SoundStation Delta Plus low cost unit. Also from DAR will be the Sabre eight-channel optical disc workstation and the DASS 100 audio interface and sample rate converter.

Audio Processing Technology will show the ACE100 series of PC and Mac digital audio expansion cards and the X-console audio editing software package.

As for traditional consoles, Solid State Logic will present several new products. The SL 8000 GB offers master switching to provide quick configuration of on-air production or recording or remix use. The Scenaria OmniMix provides configurable mix buses for surround sound output. Also on hand will be the ScreenSound V5 editor with unlimited remakes and the optional VisionTrack random access system.

SSL's established Scenaria console, the SoundNet networking system and the SL 5000 on-air console will also be available.

Amek Technology Group will offer the 9098 console in three module types: mono input, a dual-monitor channel and stereo channel. The system also features various automation systems, such as Supermove moving faders and the Superloc sync controller.

Amek will also show Langley's BIG and RECALL consoles, the Amek BCIII broadcast console and the TAC Bullet/B2 compact console.

Audix Broadcast will show the ALB series mixer designed for smaller stations requiring up to 16 channels and 10 outputs. New modules include automatic crossfade and computer interface systems.

Eela Audio will present the S440 broadcast control center for on-air or production work, as well as the CAPS control system for CD players and DAT recorders.

From Graham-Patten, attendees will see the new D/Esam 400 digital edit suite and audio mixer capable of handling up to 32 analog and digital inputs, enhanced routing abilities and compatibility with a full complement of digital VTR formats, including Digital Betacam.

Also at the stand will be the D/Esam 800 mixer with a new audio delay function and processing loop module.

RECORDING INNOVATIONS

Of course, audio manufacturers would be remiss not to offer new lines of recording equipment.

Nagra will offer the Nagra-D four-channel digital audio recorder featuring open-reel quarter-inch tape and helical rotary heads to provide 24 bits per sample, 16 bits of dynamic range and full SMPTE/EBU timecode.

Nagra will also be on hand to discuss its turnkey services for pay television.

Sony will demonstrate the MXP-700 analog console, available with 12 to 44 inputs.

Questech Ltd. of the U.K. will showcase a solid state audio recorder that can operate as a time delay unit with SSRV or frame synchronizers. The unit offers two-channel stereo with three optional sampling frequencies and analog or AES/EBU inputs and outputs.

In addition to its workstation systems, Akai will show the DR8 eight-track hard disk recorder featuring a range of interface cards and compatibility with Akai's DD1500 post production system. The DD1000 optical disc recorder will also be shown.

Broadcast Electronics will present the

Audiovault 100 digital audio storage system outfitted with an editing feature.

Fostex Corp. will introduce the Foundation 2000 digital eight-track recorder outfitted with RS-422 connections and Sony protocols. Fostex' D-10 and D-30 DAT recorders will also be on display.

HHB Communications will exhibit the PortaDAT PDR1000 four-head portable DAT recorder. The battery or DC-powered unit records time code in all existing standards. In addition, the Panasonic SV3700 and SV4100 DAT recorders will be shown.

Telex will present its lines of audio tape duplication equipment, available in mono or stereo configurations. Included are the Copyette series, the ACC/ACCXL series, expandable to 27 positions, and the 6120/6120XL series for reel-to-reel or cassette-to-cassette operation.

SOUND IN MOTION

Also located throughout the exhibit hall will be audio processing and test equipment, such as Leitch's ASM-6800 monitoring audio demultiplexer. The unit accepts a serial data stream with embedded audio and disembeds up to four channels before converting it to analog for monitoring.

Japan's NEC Corp. will present the new SQE-3301 solid-state audio filing system, as well as its established digital audio limiter products.

NVision will present two new products, the NV1055 four-channel mix/minus for modifying gain levels and routing two AES pairs, and the NV9055 remote panel for the 1055. Also on display will be the NV1000 analog and digital converters, the NV2000 digital audio transmission system and the NV3000 line of digital audio routers.

Options International will show the Z-8.8 digital audio router, switcher and distribution amp.

Panasonic will exhibit its new multi-audio processor that multiplies the number of channels that Panasonic VTRs can record and play back.

Pesa Electronica will present the AD2002 stereo/mono audio distribution amp along with the TL2000 terminal line. Also on display will be the TG2000 alignment tone generator.

Pro-Bel will introduce an AES/EBU digital audio compressor/limiter.

Shootview Ltd. will offer a new line of AES/EBU serial digital audio converters.

From Wohler Technologies, there will be the new Amp-2SUR, a 2RU surround sound monitor with separate input level meters. Also available will be new serial digital AES/EBU DA conversion in the company's powered monitor speakers. Wohler will also show its existing line of stereo monitor speakers, visual monitoring units and audio routers.

AAVS will present the MA12 audio monitor.

Audix Broadcast will display its audio rack mounting series, now including 1RU mains powered chassis, stereo/dual channel distribution amps and a dial stereo crossfade module.

CRL Systems will roll out the TVS-3010 audio controller for audio-for-video and the DAA-50 digital audio decoders.

HiTech Systems will present the HT440 four-input audio matrix and the PRO-IF audio interface.

Vortex will provide the VX-3000 AES/EBU audio converter modules offering 18-bit, 64x oversampled A-D and D-A conversion. The VX-3100 1-8 field digital audio delay module will also be available.

DTL Broadcast will offer a range of Avey audio and video routers in sizes ranging from 8x1 to 16x2, as well as serial control and Windows software for the Routemaster router control. ■

You still wonder why you should buy the



S310 DIGITAL VIDEO ANALYSER

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Accom Inc.	USA	NBC Broadcasting	USA
ADC Telecommunications	USA	Norddeutscher Rundfunk	Germany
Alcatel	USA	Noerweigen Telecom	Norway
ASTRA	Belgium	Pacific Bell	USA
ATS Acquisition Corp.	USA	Paramount Studios	USA
BRT	Belgium	Post Perfect	USA
BTS Darmstadt	Germany	Public Broadcasting System	USA
CBS TV Network	USA	Rundfunk Betriebstechnik	Germany
CLT	Belgium	RTBF	Belgium
Complete Post	USA	Sandar Electronics	Norway
Di-tech	USA	Schule für Rundfunktechnik	Germany
Dynatech/Quanta Corp.	USA	Sende Zentrum (Pro 7)	Germany
EBU Geneva	Switzerland	SMA Video Inc.	USA
Editel	USA	S.F.P.	France
Euronews	France	Süddeutscher Rundfunk	Germany
European Parliament	Belgium	SVT	Sweden
Eurosport	France	Télédiffusion de France	France
France 2	France	TF1	France
France Telecom	France	The DI Group	USA
GTN	USA	Thomson	France
Hessischer Rundfunk	Germany	Westdeutscher Rundfunk	Germany
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Walking the Distribution Path

AMSTERDAM

The continuing trend toward digital routing switchers is evident in the new products set for display during this year's IBC show.

Leitch will introduce a number of routing switchers, including the VSR 16x1 and VSR 32x1. The VSR 16x1 is a 16x1 serial digital routing switcher module that is fully equalizing on all inputs and has re-clocked outputs. It can handle all current serial digital data rates for composite and component signals. The router is user-expandable to 32x1 by adding a second module.

Other routing switchers being introduced by Leitch are the VSR 16x2 and VSR 32x2. The former is a serial digital routing switcher module that is user-expandable to 32x2 by adding a second module. The VSR 16x16 switcher is housed in a 1RU frame. It is fully equalizing on all inputs and has complete re-clocking on all outputs.

BTS will add the Series 300 and 3000 router control panels to its line. Also on display will be its existing galaxy of Venus and Venus Compact routers, the Venus and Jupiter control systems and the Mars router.

AT A CROSSPOINT

Genum Corp. will show its line of analog video crosspoints, featuring the GX4201 wideband 1x1 video crosspoint switch and the GX4314L, GX214A series of low-power, 4x1 video crosspoints.

DTL Broadcast is set to introduce a range of small audio and video routers in sizes from 8x1 to 16x2, available with local and remote panels and RS-232 and RS-422 control. In addition, the company is introducing a serial control option with Windows software for the Routemaster range of analog and video routing switchers.

Touring Pro-Bel's stand, attendees can examine numerous routing equipment. New products include the TM series 16x16 telecom router and the 5281/5282/5283/5284 range of compatible AES/EBU audio modules providing single or dual five-output DA, wordclock separator, video lock, and reframer functions.

Greenway Ltd. will introduce the LightSwitch digital video fiber/coax router and audio and video patchbays.

NEC will display its Serial Digital Routing Switcher NSMX series.

Dynatech is introducing its ADS-300 analog/digital routing system, which converts between analog and digital signals. It is compatible with current and earlier control systems and is upgradeable for digital television.

The AV-402 Event Switcher is set for display at the Procion stand. It provides simultaneous control of up to four event lists, which can be any combination of router, VTR and GPI commands. Features include touch-screen control, which allow events to be programmed on-line and switched to air in any order.

Vistek is introducing the V2000 Windows router control system and displaying the V2100 array serial digital router.

AAVS will highlight the ONYX routing switcher, along with a wide variety of products.

DISTRIBUTION AMPLIFIERS

For its part in displaying distribution amplifiers, Leitch is planning to display the VEH-6800 Wideband VDA, a 200 MHz bandwidth unit with equalization to 200 meters. It is designed for use with computer graphics and HDTV applications, providing eight outputs of incoming video.

DTL Broadcast is exhibiting the AVEY

range of analog audio and video distribution amplifiers, namely, the 2600 series of individually powered audio and video units and its clamped equalizing DAs.

In addition to routers, Pro-Bel is displaying its 5263/5264/5265 family of eight output 360 Mbps serial digital video distribution amplifiers.

GEE Broadcast will exhibit IRT Electronics' DAs and switchers, Eurocard and 1RU systems, Vimcas/Viscas for inserting audio into the vertical interval and fiber optic systems for all applications.

Microvideo Ltd. will exhibit the D1 proc amp, which offers adjustment of black level, gain, Y-C delay and horizontal picture posi-

tion in the digital domain.

Among its many products on display during the show, VIP is planning to show audio and video distribution amplifiers.

MAKING A CONNECTION

Protec will exhibit a new video distribution amp, VV 1560, as well as its line of audio and video jackfields.

R&R Broadcast Systems is also introducing audio and video jackfields, and will show IEC distribution blocks.

BES Electronics plans to display undermonitor display panels, audio balancing units, and mains distribution units among its many products. New products include video jack-

fields incorporating the BES 10/1 MUSA to BNC connectors designed for serial digital composite and component signals.

Two other new products are set for display by BES: a fully shielded general purpose Data Patch Panel with two rows of RJ 45 connectors connected to nine-way D sockets and shielded patching cables, and a sequenced switching mains distribution panel with 240V 10 amp input and 10 outputs via IEC sockets in a 1RU panel.

MIT Inc. plans to show various types of patch cords, including a Bantum patch cord. Also on display will be a wide range of microphone cables, console wiring cables and various types of digital interface cables.

LEMO SA is exhibiting coaxial connections for distribution of video and synchronization signals in studios and television control rooms. ■

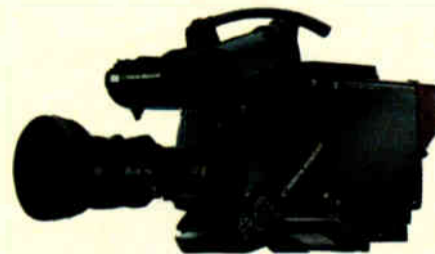
16/9 format : The Way Forward. THOMSON BROADCAST takes a major step forward with its new 1657 portable camera. It offers a new level of handling, ergonomics and performance. Designed with EFP production in mind, the 1657 boasts many of the functions normally reserved for studio



cameras, making it extremely versatile. Special features include two motorized filter wheels, sophisticated exposure control, a digital pixel correction system - and, above all, the capacity to switch from 16/9 to 4/3. With the 1657, THOMSON BROADCAST offers you maximum reliability in a camera designed for portability and ease of use. The 1657 will give you the best pictures time after time, whatever the shooting conditions.

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Camera Support Standing Tall

AMSTERDAM

Camera support and lighting manufacturers will be out in force showing systems designed for wider varieties of weight limits and brightness.

HEIWA Japan reports it will introduce the LIBEC small-size pedestal P100, an air pressure system with a load capacity up to 30 kg. The pedestal is suited to CATV, small studio, and other applications. Also on hand from HEIWA will be the rest of its established lineup of LIBEC fluid head tripod series.

Goedecke & Co. says it will show its EWA-MARINE lightweight waterproof camera housings for still, cine and video cameras. The housings have been specially designed for sports events and other outdoor recordings and they are made of laminated transparent foils molded into the shape of the camera.

Chapman/Leonard reports it will feature its newest product, the Pedolly, a unit that acts as both a pedestal and dolly in one. All movement is along a four-stage telescoping center column that can be controlled manually or hydraulically.

Broadcast & Surveillance Systems Ltd. has developed a range of gyrostabilized camera platforms for use on helicopters, fixed-wing airplanes and blimps. The range covers newsgathering and general aerial shots with the small BSS 400 (rigged with the latest Sony camera and Fujinon lens) through to the BSS 900, which is designed to deliver long-range zoom pictures.

The PEE-POD 1000 video remote head,

recently introduced by A&C Services Ltd., will be available for viewing by IBC attendees. The system uses a standard remote digital link.

Vinten Broadcast Ltd. will introduce, for the first time to European audiences, the Vinten VECTOR 70 pan and tilt head. In the remote control area, the company will show TSM Autocam's HS-107P dual manual/remote head with fluid drag.

Universal AV Services Ltd. will bring to the show the Universal Pro Jib, a lightweight portable camera jib arm that will fit any 100mm or 150mm tripod legs, with a raise from ground level to two meters and a full 360 degrees of pan.

RADAMEC EPO, for its part, will have on hand its newest pan and tilt heads, Types 435 and 435H. They support maximum payloads of 50 kg and 70 kg, respectively. Both offer full manual control with adjustable fluid damping. Also new will be the Touch Control Panel (TCP) system, which provides full shot storage and recall facilities directly via a VGA touch-screen.

Meanwhile, Panther Corp. announced that its IBC display would include double-speed Super Panther units with different settings of smooth start/stop ramps.

Matthews Studio Equipment will have on hand its line of grip equipment and mounting equipment.

Miller Fluid Heads will highlight its lines of camera tripods and other support products, such as the Series II ENG/EFP

tripods.

In lighting products, Chimera Co. plans to show off its lineup of Lightbanks and other light control accessories that can adapt to more than 300 different production fixtures from DC on-board lights to 20 K fixtures.

Debuting in England and Europe this year from Kino Flo Inc. will be the latest additions to the company's line of fluorescent lighting products, including its high-output, color correct, flicker-free "Flos." New this year are single, double and four-bank 220VAC systems, the 220VAC "Wall-O-Lite" and the Mini and Micro Flo Kits.

Bron Elektronik's Broncholor HMI is a new continuous light source that will be unveiled before IBC crowds. It can be used as a substitute or as a supplement to natural source daylight.

The Fluxlite 300 (six lamps), Quadlite 200 and 160 (four lamps) and other accessories will be shown by BALCAR, an established manufacturer of fluorescent lighting equipment.

ARRI Corp. promises to be on hand with its line of professional lighting products, which includes the Arrisun 40/25 and the new Arrisun 12 Mk3 products.

Roscolab Ltd.'s exhibit reportedly will include the Supergel range of filters, which includes the Cinegel and E-Colour for light control in film and video as well as the new Straw ranges for HMI control.

Anton Bauer will display its popular UltraLight quick-change head module light.

Included among the product displays of France's R.D.E. will be a new HDI system, a digital and analog RVE dimmer system available in cabinet or in-rack and portable units.

LTM Corp. will show its Daylight fixtures ranging from 200 to 18,000 W. Also shown will be the company's halogen fixtures from 100 to 20,000 W.

Power Gems Ltd. will display its full range of Gem Series electronic ballasts, including the latest model, EB 1260P, a dual-output 12 kW and 6 kW electronic ballast with unity power factor.

Kobold Licht will show its extensive line of halogen fixtures, daylight fixtures and fresnel fixtures. ■

Transmitters Highlight Latest Developments

AMSTERDAM

Terrestrial transmission systems are seeing further evolution as new tube designs and all solid-state systems reduce costs and add overall operational flexibility.

Thomson Tubes Electroniques will showcase several new UHF models, such as the IOT TH 760 40 kW combined amplification unit and the Diacrode TH 680 60 kW combined amplification transmitter. Also at the stand will be high power tetrodes for up to 30 kW combined amplification, along with associated cavities.

KEEPING CONTROL

Italy's Itelco will debut a 2 kW solid state UHF transmitter featuring a new control system and easy replacement of power devices. Also new will be a 5 kW solid state UHF model and a 20 kW common amplification IOT transmitter for UHF.

Italiana Ponti Radio will show a new slimline 200 W UHF solid state transmitter, as well as a range of UHF and VHF LP transmitters and antennas.

Harris Allied will display its DX 10 kW solid state medium transmitter and the PT 5FM 5 kW solid state FM transmitter.

GEC-Marconi will be on the floor showing its line of 5 to 20 kW solid state and 20 to 40 kW IOT transmitters.

Technosystem will showcase its new UHF IOT and tetrode 30 kW transmitters.

Fuba Hans Kolbe will present a number of low power systems, including Band III and IV/V transmitters and transposers ranging from 1 to 200 W.

BEI U.K. will unveil a new 3 kW solid state transmitter to be presented with its existing AM-1 solid state unit.

NEC will present the PCU 1110SS solid state 10 kW transmitter, as well as a 5 kW FM unit and a multicarrier amplifier.

Larcan will be available to demonstrate its line of solid state UHF and VHF transmitters.

From Canada, Nautel will unveil the NA series of modular transmitters available in 100 to 300 kW and reporting an overall

efficiency rating of 85 to 88 percent.

EEV Ltd. will line its stand with klystrons and IOTs for UHF systems, as well as Ledicon pick-up tubes for cameras.

Siemens AG will present its high power tubes, as well as VHF and UHF tetrodes.

TRANSPOSER OPTIONS

The Netherlands' Heynen will show a new line of TV transposers and transmitters, including the UEE 700 20 W in-band IV/V transposer and the STV 700 20 W in-band transmitter.

Tecnologie Elettroniche Milanesi will show a range of solid state gear, including IF modulators, transmitters and transposers from 2 to 400 W in both VHF and UHF.

Kinronic Labs will offer the RFC100-35-1/2, 100 amp, 35V RF contactor, as well as new, fixed RF inductor designs for high power applications.

Teko Telecom will introduce a 300 W, 5RU solid state amplifier, as well as a 500 W FM amplifier, FM transmitters and TV transposers.

Jampro Antennas will display a number of UHF and VHF panels, slots and corner reflectors. Heading the line will be the JHD VHF panel antenna, the JUHD UHF panel, and the JA/LS UHF slot antenna.

Andrew Corp. will be available to supply a wide range of antenna and tower supplies, such as Helix coaxial cable, broadcast antennas and the HRLine rigid transmission line.

When it comes to signal monitoring, AAVS will display START, its remote network transmission monitoring system. Also at the stand will be the non-linear version of its EVA transmission automation system.

Heynan will also show a range of measuring systems, such as the FME 488 TV Nyquist receiver and the VRM 100 signal generator.

Indu Electric Gerber will show its lines of Thermolene power distribution boxes and socket outlet combinations for the television and film industries. ■

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Switchers Show Key Technology

AMSTERDAM

Switching and automation products continue to gain greater functionality as manufacturers prepare for a wide-screen future.

New to this category of products are media servers, also known as video servers. These units can range from relatively simple hard disk or optical storage units for stills or short clips to large mainframe systems designed to store hundreds of hours of video and audio for over-the-air or wired delivery systems.

SWITCHER GALLERY

On the production switcher scene, Snell & Wilcox will introduce the DVS1000 digital switcher and router, featuring a digital keyer and 16:9 operation. With a 4:2:2 switcher and one M/E bank, the system is designed for telecine suites and special project areas. Ten wipe patterns are provided, as is an 8x4 serial digital router.

Grass Valley will bring out the Model 1200 production switcher, as well as the Model 1000, 3000 and 4000 switchers.

FOR-A will demonstrate the new PAL version of the CV-132 D-1 mixer. The unit features 16 inputs (expandable to 32) and is priced at US\$30,000.

Panasonic will show the DS CART for use with any combination of Panasonic VTRs and a new Unix windows-type of software for the MARC III system.

Bluescreen specialist Ultimatte Corp. will present new features to its Cinefusion compositing software. Most notable will be "Grainkiller", which eliminates background film grain noise. Also new will be the Ultimatte 7 fully digital compositing device featuring CCIR-601 compliance and serial D-1 inputs and outputs with auto-selectable 525/625 line standards.

NEC will unveil its new MA-2000D digital master control switcher, along with a wide variety of transmission, signal processing and audio gear.

Pro-Bel will introduce a component master control switcher with AES/EBU audio.

Along with BTS' production mixer entries will be the company's Saturn master control switcher and Jupiter facility control system.

Procion Innovative Control Solutions will feature its AV-408 cable playout system, which uses a personal computer to control VTRs, still stores, character generators and presentation switchers.

Amid its wide range of products, Sony will show several transmission automation products, including the Sony LMS and Flexicart systems. The units can be designed for entry-level use or for fully automated digital transmission for satellite or cable systems.

Odetics will display new lines of broadcast library management systems, including the CachMachine digital disk cache device for spot-playing from disk directly to air. The TCS90 cart machine will also be available.

Integrated Broadcast Information Systems Ltd. will present two new automation products: the Icon teletext-based network control system and the OptIcon PC-based playout system.

DIRECTING TRAFFIC

Focus International Media Systems will debut a new release for its ProPlan scheduling system, as well as its sales/traffic, media library and program and production management systems.

Among newsroom automation systems, Basys will introduce the Maestro system working on the NetStation for Windows PC. Functions include multimedia archiving and video thumbnails to catalog media libraries and digital video servers. Basys' established Newsroom automation system will also be on the floor, as well as the D-Cart audio playback system and the Alexis election, weather and sports package.

Newswire Systems will provide its Newswire 2000 automation system used for news automation, archiving and machine control.

A number of control products will be featured under AVS Graphics' OmniBus network line. New to the system are Resource Control for operation of non-production equipment, such as UMDs, routers, etc.; Graphics Control for the operation of still stores, character generators, renderers, etc.; and Post Production Control to oversee mixers, slate clocks and bookings.

The U.K.'s Abit will display Present It, an integrated presentation automation system that interfaces with air-time sales and scheduling systems. Using Motorola processors, the company claims the system can control any broadcast device on the market.

Columbine Systems will offer its lines of

traffic systems, program management tools and master control automation.

SERVING UP VIDEO

Among the new video server products is Accom's Brontostore device for stills and clips. The unit is designed to act as a single storage point for a networked series of desktop video production suites.

International Business Machines will demonstrate its video-on-demand server system based on the RS/6000 platform. The company will also be partnered with Columbine Systems to show station automation products running on IBM AS/400 and PS/2 systems.

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The U.K.'s Vistek

Electronics will unveil a new 4:4:4:4 D8001/4 vision mixer, as well as the D2401/P presentation mixer.

The U.K.'s Vistek Electronics will unveil a new 4:4:4:4 D8001/4 vision mixer, as well as the D2401/P presentation mixer.

JVC will present its KM-500E vision mixer designed for use in the component digital domain.

BTS will exhibit its popular line of Diamond Digital mixers. The stand will feature the DD5, DD10, DD20 and DD30 devices.

EchoLab will introduce a new picture-in-picture option for its MVS 6 vision mixer to allow outputs to display preview, program, M/Es and "clean" feeds. EchoLab will also show an upgrade path to bring the MVS 5 and MVS 6 from composite to component operation.

The Dynatech Video Group's Alpha Image subsidiary will have three digital vision mixers on the floor: the new Elite component unit featuring new timeline management and motion control; the Alpha 500 component unit with Superlayers; and the Alpha compact component unit for telecine and small edit suites.

AVS Broadcast will unveil the Integra fd digital mixer and 3-D DVE unit. Features include image mapping and warp capabilities, as well as five key layers working with up to 20 sources, all utilizing 4:2:2:4 processing.

Abekas Video Systems will debut the ASWR8100 component switcher offering 10-bit CCIR-601 quality, a single M/E and Program/Presets and 16 inputs. Also included are three keyers, two wipe generators and numerous options.

Thomson Broadcast will release the 9200 4:2:2 component mixer that offers a configurable architecture for medium-sized installations. Also available will be the 9500 mixer for larger suites.

From Panasonic, attendees will see the AS-D740, the company's first component digital vision mixer. In playout systems,

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 Model TSCA-189 TV Sidekick SAP Generator
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TV SIDEKICK

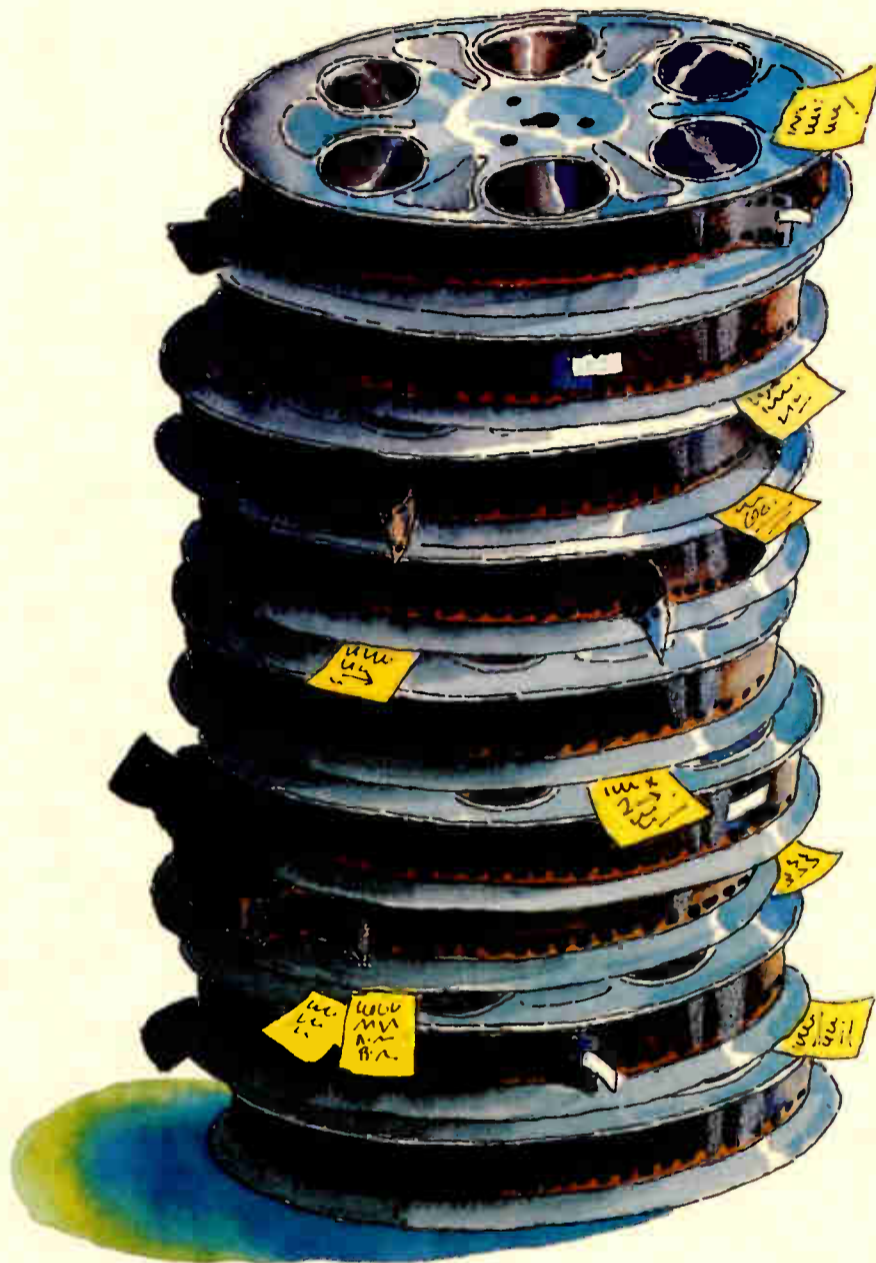
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EXHIBITOR LISTINGS



A&C Services Ltd. 11.510
On Display: PEE-POD 1000 video remote head. Power Pod remote head for film and TV.

AATON 8.430
Introducing: Aaton 35-III sync-sound camera. The XTRprod. Time code chain machines.

AAVS 10.120
Introducing: Non-linear version of the EVA transmission automation system. VDA310 digital video analyzer. START system for remote automatic monitoring of network transmissions. S560LC digital logo generator. Coding/decoding boards.

Abekas 11.370
Introducing: Diskus desktop disc recorder.

Abit Ltd. 8.141
On Display: Present It integrated presentation automation system. 1RUPC rack-mounting PC.

Accom Inc. 11.460
Introducing: Brontostore Video Server. Work Station Disk digital disk recorder. RAVE (Random Access Visual Editing) on-line editing system. Axial 2010 editing system.

ADC Telecommunications Inc. 10.244
Introducing: LightSwitch digital video fiber/coax router. LightLink digital E/O converter.

Advent Communications Ltd. 8.531
Introducing: NewSwift Ku band SNG uplink. NOMAD earth station. Mantis 1900 C-band SNG fly-away. Lynx C- and Ku-band lightweight SNG vans.

Akai 9.334
Introducing: DD1500 post production system. DR8 8-track hard disk recorder.

AKG 9.442
On Display: Handy Mic wireless microphone. SR 800 diversity single UHF receiver. PS 800 19-inch main-frame power splitter. PR 900 portable UHF receiver.

Alcatel 11.212
Introducing: 1715 OV (OVID 5) and 1715 VC (DIVA 5) video/audio transmission systems. 1716 OV (OVID 6) multichannel video transmission system.

Alpermann & Velte 11.153
Introducing: TC 60 timecode readers. ADP 11 DVITC reader. MTD 10 timer system.

Amek Technology Group 9.435
Introducing: System 9098 EQ. Amek Supermove, Amek Recall, Amek Virtual Dynamics and Amek Superloc automation systems.

Andrew 11.233
On Display: HRLLine rigid transmission line. Helix coaxial cable and products. Terrestrial microwave antennas. ALP, HMD and MDS broadcast and earth station antenna systems.

Angenieux 8.421
Introducing: AIF (Assisted Internal Focus) lenses, including 15x8.3 AIF 2/3" and 62x9.5 AIF 2/3" zooms.

Anton Bauer 8.310
On Display: Logic Series dual charger, TrimPac battery and interactive battery system. Ultralight quick-change head module light.

ARRI (GB) Ltd. 8.524
On Display: Arrisun 40/25 and Arrisun 12 Mk3 professional lights.

Aston Electronic Designs Ltd. 8.210
Introducing: Ethos character generator. File Server central storage device.

Audio Engineering Ltd. 9.434
Introducing: UHF/VHF hand-held radio microphone. UHF/VHF small diversity receiver.

Audio Processing Technology 9.210
Introducing: DRT128 digital reporter terminal.

Audix Broadcast Ltd. 9.424
Introducing: DTX digital telephone phone-in system

with on-air user interface.
On Display: ALB and ABS audio systems. Digital On-air Integrated Technology (DOIT) computerized network system. Audio rack mounting series.

Autocue Ltd. 10.110
Introducing: QCP-LT, CueMac, QCP and NewsPrompter 2 prompting software. NewsMaker PC-based electronic newsroom system.

Avid Technology Europe Ltd. 11.470
Introducing: NewsCutter 3.0 and AirPlay 3.0 operating with AvidNet/ATM (Asynchronous Transfer Mode) networking architecture.

AVS Broadcast 11.160
Introducing: Integra fd digital video switcher and 3-D DVE. Freeform DVE system.

AVS Graphics 11.261
Introducing: PortFolio still store. FX 3D character generator. OmniBus networks, including Resource Control, Graphics Control and Post Production Control.

Axon Digital Design BV 8.712
Introducing: FS-100 framestore synchronizer. UMD-1 and -2 under monitor displays.

BAL Broadcast Ltd. 9.145
Introducing: DRX 4660 series encoders. Serial digital decoders.

Balcar SA 8.425
Introducing: Fluxlite 300 and Quadlite 200 and 160 lamps.

Barco 8.110
On Display: CVM 3000 and CVM 3500 auto-setup monitors. CVS series color monitors. CVM 2000 monitors.

Basys Automation Systems Ltd. 11.464
Introducing: MAESTROworks multimedia digital newsroom system.

(continued on page 44)

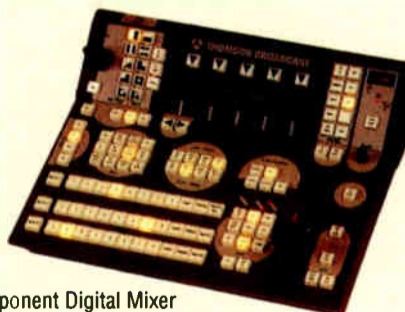


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ways. The 9200 is a compact mixer (1M / E + DSK) that represents an impressive advance with functions never before available in a mixer of this size : M / E or multilayer, video or key freeze, fluorescent display, double transition, input level correction, source memory Mem Box with keyframes and sequences, timeline control, 6 auxiliary buses, and more. The 9200 Mixer is ergonomically designed, surprisingly quick to learn and easy to use. You'll be amazed how far the 9200 will take you.

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9200 Component Digital Mixer

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- BDL-Autoscript** 10.520
Introducing: PC Promptcard. PC distribution amp. Scrollbuddy miniature location prompter. WS-17 on-camera monitor. G-Plus prompter.
- BES Electronics Ltd.** 10.142
Introducing: Video jackfields incorporating the BES 10/1 MUSA-to-BNC connectors.
- Broadcast & Surveillance Systems** N/A
On Display: BSS 400 and BSS 900 gyro stabilized camera platforms.
- Broadcast Electronics Inc.** 9.310
Introducing: FM-3C 3-kW solid state transmitter. AV-100 digital audio storage system.
- Broadcast Store Inc.** 8.716
Introducing: Avid non-linear systems. Systems engineering installations and design.

- Bron Elektronik AG** 11.539
Introducing: Broncolor HMI daylight system.
- BTS** 8.120
Introducing: Media Pool video server. LDK 10 and 10P series cameras. Widescreen camera. FLH 1000 HD and FDL Quadra telecines. LDK 4062 bit-rate reduction unit. MNR11 multipurpose noise reducer. Saturn master control switcher. Series 300 and 3000 router control panels. 2002 serial component OB van.
- BT Visual and Broadcast Services** 8.142
On Display: International TV services. Permanent lease circuits for TV distribution services.
- Canon** 8.630
Introducing: IFplus J15ax8B IRS/IAS lens. J14ax17B VAP image stabilizing ENG lens with VariAngle Prism.

- C-Cor** 9.440
On Display: 3800 digital RF fiber optic terminal. 3000 series fiber optic transmission systems
- Century Precision Optics** 8.135
Introducing: Compact low-angle prism. .6X aspheric wide angle adapter.
- Chapman/Leonard Studio Equipment** 8.711
Introducing: PEDolly combination pedestal and dolly. Hybrid II nickel-plated electric charging system..
- Chimera** 8.621
On Display: Lightbanks and other light control accessories.
- Circuit Research Labs (CRL)** 9.317
On Display: BAP 2000 audio processor. Audio Signature digitally-controlled processing system.

- Amigo FM processor. TVS-3010 television audio controller. DAA-50 decoder.
- Cirro Lite (Europe) Ltd.** 8.710
On Display: Redesigned Kino Flo fluorescent lighting system. Lightning Strikes.
- Columbine Systems** 8.125
On Display: Automation systems for program traffic. sales analysis. audience research and master control.
- ComStream** 8.342
Introducing: DR200 audio receiver.
- Continental Microwave Ltd.** 11.542
Introducing: SNG-60/140DT compressed video SNG uplink system.
- Courtyard Electronics Ltd.** 11.430
Introducing: CY356 SPG changeover unit. C4381 serial digital DA. C4450 digital SPG and pattern generator. C4600 color corrector.

Where's the satellite and broadband technology that bridges the gap between yesterday and tomorrow? Right here at Standard.

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Need examples? How about our Agile Omni Broadcast series, very possibly the most acclaimed commercial satellite TV receivers of all time? Or our TVM series of modulators that revolutionized

how MSOs regarded frequency-agile performance? Or our space-saving, cost-saving CSG-60 BTSC stereo generator? Or the CATV industry's top-selling IRD, the one-rack-high Agile IRD-II?

Standard will help you cope with the challenges of bandwidth expansion with our new TVM550 frequency agile modulator and a changing industry with advanced technologies like our remarkable Stratum Series of signal distribution products. Stratum can put 78 channels in a six-foot rack space, and give you all the status monitoring, redundancy and remote control you could ask for.

Year after year, Standard has continued a tradition of quality and

innovation. And we aren't stopping now. To learn the latest about the right technology for right now, use that old tried and true technology at the bottom of this ad.

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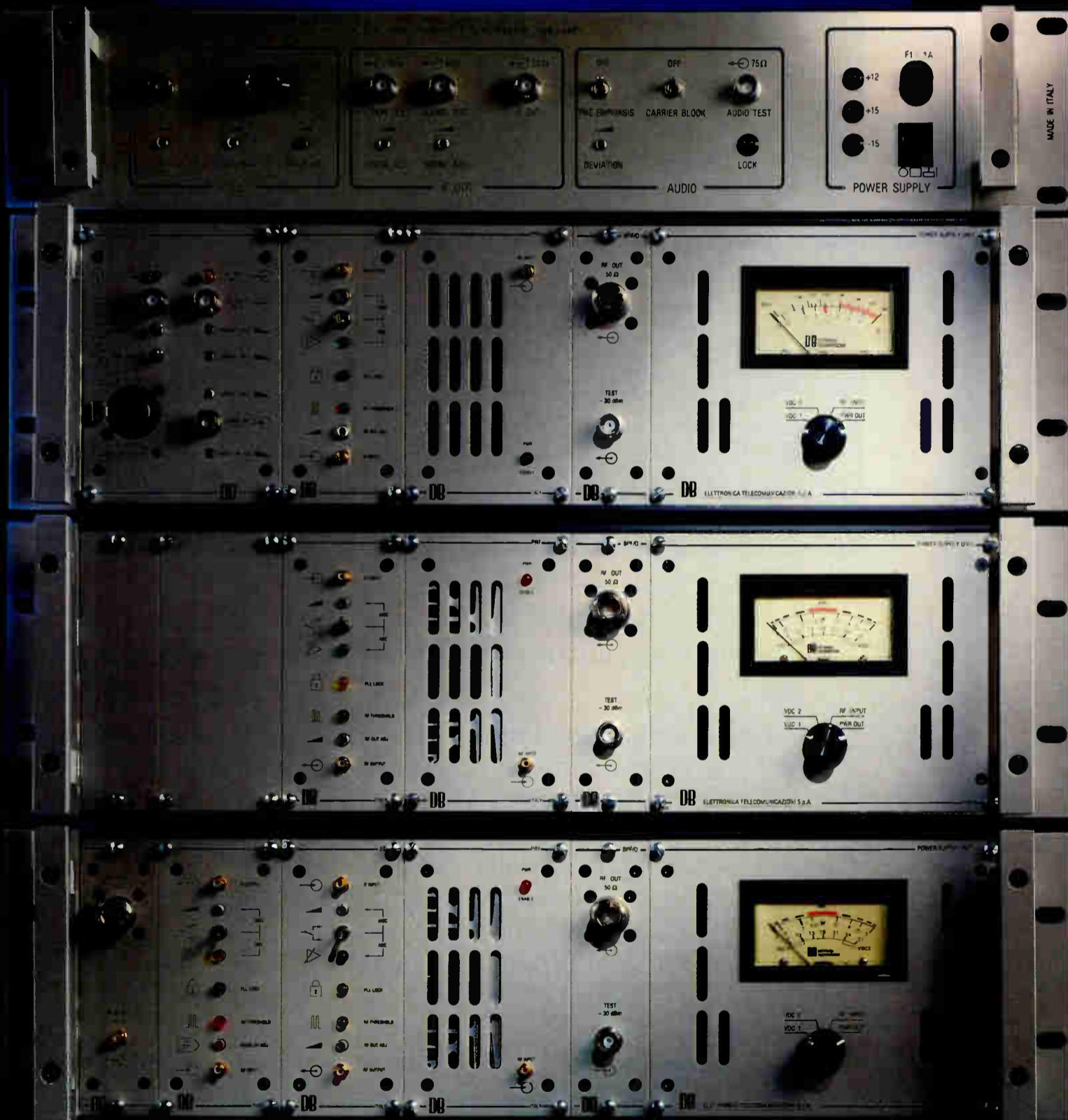
See the entire Standard line at IBC '94 Sept. 16-20, stand 9.123.

- CP Cases** 11.110
Introducing: M-rack 19-inch modular rack frame.
- DCE Satellite Communications** 10.430
Introducing: VC-220 Video Code II integrated receiver decoder.
- Digigram** 9.411
Introducing: Xtrack post production workstation.
- Digital Audio Research (DAR)** 9.431
Introducing: SoundStation Gold audio production system. SoundStation Sigma Plus. SoundStation Delta Plus.
- Digital Processing Systems Ltd.** 11.485
Introducing: DR-3100 PC animation recorder and AD-3000 PC capture card. DR-3150 Amiga animation recorder and AD-3000 Amiga capture card.
- Digital Vision** 9.120
Introducing: CVP color vector processor. AFC anamorphic format converter. AAC advanced aperture corrector. BitPack MPEG 2 codec.
- DIGITEYES Pty. Ltd.** 9.343
Introducing: Portable logger with pen recognition. Shotlister Midline Machine editing system.
- Discreet Logic Inc.** 11.420
On Display: Flame system for special effects for SGI Onyx. Flint effects system for SGI IRIS Indigo Extreme.
- Dornier GmbH** 8.443
On Display: Turnkey SNG earth stations. Fixed TV uplink and TV receive only (TVRO) earth stations. 300-W Ku-band HPA. Power combiners. Antenna tracking systems. Monitoring and control systems.
- DT Electronics Ltd.** 11.572
Introducing: Miles MDSS36 multiple digital signal source. M42 logo generator. M57 serial digital safe area generator.
- DTL Broadcast Ltd.** 8.113
Introducing: Serial digital video DAs, routers and test generators for Avey frames. Horita time code readers. generators and inserters. Nova timebase correctors. synchronizers. encoders. decoders and transcoders.
- Dwight Cavendish Developments Inc.** 11.121
Introducing: Unattended duplications system. VS-900-01 auto control unit. VP-750-01 VTR changeover unit. CS-600-01 VCR Autopilot.
- Dynatech Video Group** 11.280
Introducing: Alpha Image Elite component digital vision mixer.
- Echo Lab** 11.314
Introducing: MVS6 mixer with P.O.P option.
- Ediflex** N/A
On Display: Ediflex Digital PC-based linear editing workstation.
- EDS Portaprompt Ltd.** 11.392
Introducing: Digiprompt DP600. Microprompt on-camera prompter. Micro-scroller.
- EELA Audio** 9.410
Introducing: S24 Reportophone Plus.

(continued on page 47)

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Circle 109 On Reader Service Card

USER REPORT

S&W Alchemist Boosts VideoTime

by Candida Fry
Managing Director
VideoTime

LONDON

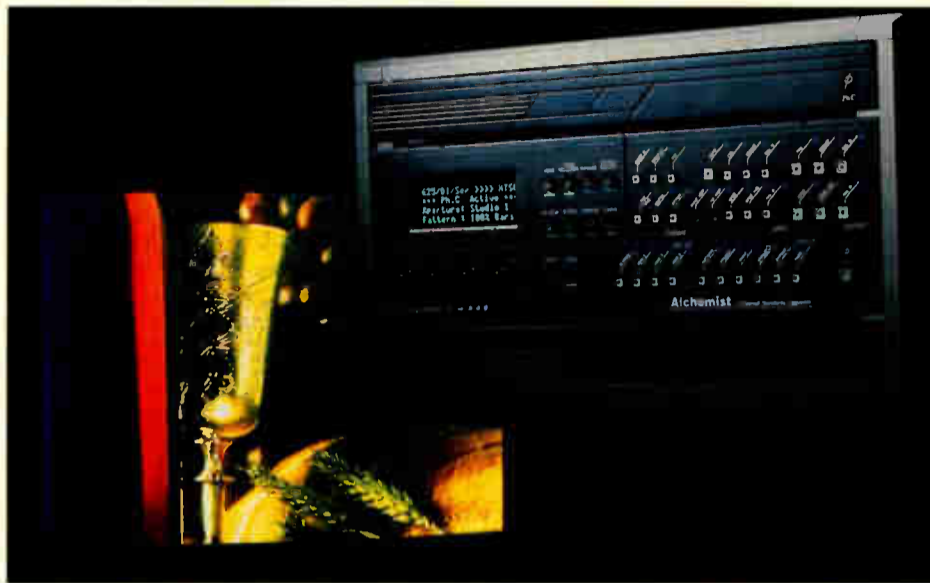
With the acquisition of Europe's first Alchemist with Ph.C motion estimation from Snell & Wilcox, VideoTime has continued its tradition of offering clients the most technologically sophisticated standards conversion available.

The Alchemist is the first converter to offer a fully specified all-digital path, featuring 10-bit digital processing throughout, component and composite digital interfacing and unsurpassed TBC and decoding performance.

The use of Ph.C — phase correlation motion estimation — is based on a theory developed by pioneering BBC researchers as one of the only methods powerful enough to meet the exacting requirements of broadcasters.

LEAP OF FAITH

At the time of its development, it was considered too great a technological challenge given the contemporary limitations of data processing hardware. Convinced that Ph.C would eventually have the accuracy, versatility and reliability needed for high-quality conversion, Snell & Wilcox took on the development challenge in collaboration with the BBC.



VideoTime takes advantage of Alchemist's powerful Ph.C technology

The superior quality offered by the Alchemist is, in the opinion of VideoTime, a full justification of Snell & Wilcox's decision to develop Ph.C. VideoTime has a sophisticated, worldwide client base to service, and it needs to meet the exacting technical requirements of its clients using any one of the many analog and digital tape formats currently in use.

The quality of conversion offered by the

Alchemist has come just as VideoTime is completing a rewiring project at its premises, using a Probel 64 x 64 digital matrix to link nine floors of equipment.

This now means that all of VideoTime's facilities now have the benefit of the clearest possible signal path.

Because Ph.C. was designed specifically for real-time broadcast video applications, it avoids the pitfalls associated with the adaptation of motion estimation technologies, such as the gradient and block matching methods that were originally developed for lower-level use in the telecommunications industry.

This means that we can accommodate a wide range of material that caused problems in the past when it came to standards conversion. We can now handle fast-moving action, such as downhill slalom skiing or Formula One Grand Prix racing where one of the principal requirements is to have a clear view of what is going on in the background.

We are also able to handle the latest morphing and digital effects. The age-old problem of credits and titles scrolling across the screen has also become less of a problem.

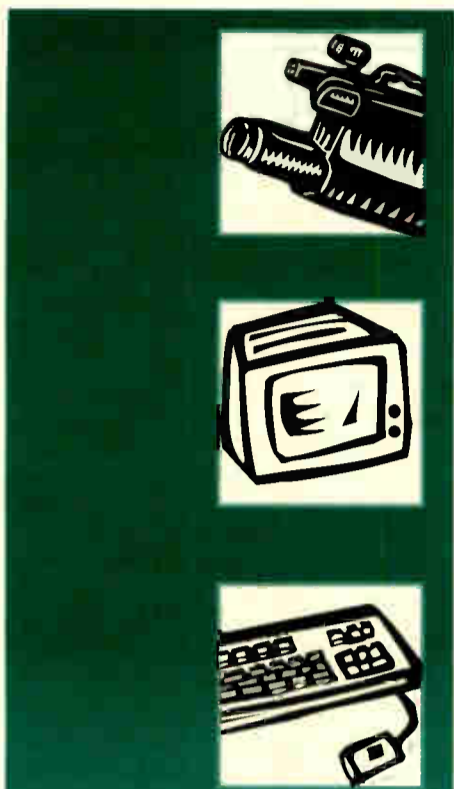
MAIN ATTRACTION

VideoTime's decision to acquire the Alchemist has been justified by the wide variety of business it has attracted. We have had clients flying in from mainland Europe to use the Alchemist. Quite clearly, we are offering a degree of technical sophistication which is unavailable outside of the United States.

VideoTime has a record of innovation and excellence. It was the first London facility to invest in the ADAC standards converter, the first and only company to offer a LaserDisc cutting service, and we have recently invested in CD-ROM technology to maintain our position of technological innovation and technical excellence. The Alchemist is a continuation of this tradition. ■

Editor's note: Candida Fry came to VideoTime in 1982 after working for the ad agency Lintas and several production companies in South Africa and London.

The opinions expressed above are the author's alone. For further information on the Alchemist, contact Snell & Wilcox (telephone: +44-705-268827; FAX: +44-705-241252), or circle Reader Service 86.



BUYERS GUIDE

STANDARDS

CONVERSION

BUYERS GUIDE
c a l e n d a r

OCTOBER

ENG/EFP Cameras,
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Equipment

NOVEMBER

Audio
Equipment

DECEMBER

Graphics &
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ITALIAN TECHNOLOGY FOR WORLDWIDE MARKETS

USER REPORT

WIT Excels with Cyrus Prime

by Peter Browne
**Vice President
 Engineering and Operations
 Washington International Teleport**

WASHINGTON, D.C.

Washington International Teleport (WIT) is a full-service satellite communications hub that operates more than two dozen earth stations with access to all U.S. domestic satellites and major international systems.

It serves a wide-ranging clientele that encompasses the leading networks and news and sports organizations, such as NBC, ABC, CBS, Reuters TV, CNN and ESPN.

As an international gateway with full-time transmission on four different transatlantic satellites (Intelsat 310 and 332, TDRSS and PanAmSat 1) plus agile C and Ku capacity, WIT frequently needs to convert among the various video standards, particularly NTSC, PAL and SECAM.

PRIME CONVERSION

The AVS Cyrus Prime standards converter is designed to provide a total solution to the stringent requirements of motion compensated standards conversion. It converts between all world standards, supports all variations of analog and digital component and composite video in serial and parallel, offers comprehensive signal processing and features all-digital, 10-bit decoding, encoding and core conversion to assure integrity throughout the signal path.

Cyrus Prime is based on the PHAME (Predictive Hierarchical Advanced Motion Estimation) algorithm developed by a collaboration of the British Vistek and Swedish Digital Vision companies.

The fundamental approach to dealing with some of the limitations inherent in linear conversion systems, such as judder and blurring, is called motion vector compensation. This solution compares the position of objects in adjacent fields and describes moving objects in terms of a vector with direction and magnitude. Past motion is used to predict future motion.

Rather than simply repeat a frame when needed, a new frame is created with objects in motion in their correct position in time. This correct position eliminates noticeable judder in older generation converters and provides better resolution of moving objects, especially in fast motion situations.

The Cyrus Prime standards converter can actually improve video signals that have gone through multigenerational processing or have picked up noise along the way, such as in a local rain fade on a Ku-band downlink.

WIT was attracted to high end standards conversion employing motion vector compensation after we obtained a contract to transmit a mix of live and recorded NBC and CNBC programming to the London-based NBC Super Channel. WIT downlinks the programming from domestic satellites, converts the 525-line, 30-frame NTSC to 625-line, 25-frame PAL.

LETTER PERFECT

This conversion was made particularly difficult because of the left-to-right "ticker-tape" crawl at the bottom of the CNBC Money Wheel program. Without motion vector compensation to handle this horizontal movement, the stocks and trading prices

would be illegible to the potential 55 million European cable viewers.

The initial linear interpolation Cyrus unit arrived within a day of our request, and the motion vector compensation Prime unit arrived a few days later, hand delivered from Surry, England. A redundant pair arrived within a few months to give our client a sense of security in the event of a failure of either of the primary units.

The initial units were placed in operation in a test mode. The test results were excellent and we went from test to contract operation without interruption.

The unit has a user-friendly control panel that provides access to all major functions via the main menu screen, a 512 x 256 LCD display. But the unit's most appealing feature is that once set up, it provides hands-off, 24-hour-a-day high quality performance.

Service and support of the Cyrus Prime units have been excellent. WIT had to send one unit back to the AVS shop in Northvale, New Jersey, but the turnaround was very quick. Other repairs and upgrades have been made by WIT technicians at the board level.

As the world gets smaller through video communications, events are viewed virtually as they happen. This immediacy demands a seamless removal of the standards barriers. Cyrus Prime does this for WIT. ■

Editor's note: After a 20-year career in the U.S. Navy, Peter Browne began working at WIT several years ago. He holds an undergraduate degree in engineering from the Naval Academy in Annapolis, Maryland, and a Master's in business from George Washington University in Washington, D.C.

The opinions expressed above are the author's alone. For further information on the Cyrus Prime, contact Lyndsey Andrew at AVS Broadcast (Telephone: +44-81-391-5678; FAX: +44-81-391-5409), or circle Reader Service 65.



Seriously?

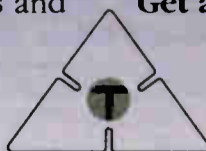
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51 BUYERS GUIDE

EQUIPMENT EXCHANGE

TV Technology's Equipment Exchange provides a FREE listing service for all broadcast and pro-video end users. Brokers, dealers, manufacturers and other organizations who sell used equipment on an occasional basis can participate in the Equipment Exchange on a PAID basis. All free listings run at the discretion of the publisher. Call 1-703-998-7600 for details. Submit your free listings on your letterhead and state the make, model number, a brief description, sale price and complete contact information and mail it to: TV Technology, PO Box 1214, Falls Church VA 22041

CAMERAS

Want to Sell

Sony VX3 3-chip camcorder, new in box, used once, superb picture & color, \$2500. CJW Productions, POB 1849, Orangeburg SC 29115. 800-531-1662.

Sony BVP 30 Betacam Plumbicon camera docked to BVV-1, looks great, \$2500. Denny, 502-473-0406.

Hitachi FP Z-31 3-tube video camera w/ENG viewfinder, studio viewfinder, Fujinon 16x lens, pwr sply, extender cards, VTR cable & flight case, \$3600. Jacque/Daryl, Ricks College Purchasing Dept, ASB 104, Rexburg ID 83460-8010. 208-356-2312.

Canon VC50A Pro 2 1/3" hi-band Saticon, 420 lines, 10X zoom, interval rcdg, title, keyboard, manual, overrides, icl pwr sply, tele & WA lenses, manual, original box/packing, \$350/BO. W Johnston, Johnston Rcdg, 2 Ruth Ln, Downingtown PA 19335. 610-873-7182.

Ikegami H1-79D 3-Plumicon camera bodies (2), \$250/ea. Ugly George, 600 W 58th St Ste 9020, NY NY 10019. 212-969-0240.

Sony DXC-M3A Mark II camera w/PortaBrace Quick Draw case, new viewfinder, Canon lens, cable, dbl batt pack, lw corp hrs, \$1800; Vinten Vision 5 tripod/head, \$1900. K Robinson, Alltech, 606-885-9613.

Sony M3-A camera, AC adapter, hard case, VO-8800 w/TC, PortaBrace batts & chrg, excl cond, \$3800/pkg. R Wiltse, New Frontier Prod, POB 7938, Boulder CO 80306. 303-444-8439.

Sony DXC 1640 w/AC adapt & cables, \$300/trade. J Baltar, 67 Green St, Augusta ME 04330. 207-623-1941.

Panasonic WV3260 (3) cameras, \$450/ea or BO; Panasonic WV3640 (2) cameras, \$150/ea or BO. S Gelfin, 215-576-5102.

Sony DXC 3000 w/Fujinon 12x lens & PortaBrace camera bag, vih, \$3200. Bud, BVP Prod, 309-697-9669.

Sony DXC M7 very light use, case, plate, viewfinder, 3CCD, 26-pin cable, \$5000/BO. B Anderson, POB 617, Sausalito CA 94966. 415-331-6234.

Ikegami 730 camera w/12x1 lens, case, rain gear, tripod plate, gd cond, \$1200. Bruce, Chromavision, 212-686-7366.

Panasonic WV 250 ENG AG 7450 A w/12:1 lens, \$5900; Panasonic 300 CLE w/pwr sply case, \$4500. G Underwood, 214-406-9297.

RCA TK-44 studio cameras (10) w/lots of extras, BO. J Long, WHKY-TV, Box 1059, Hickory NC 28603. 704-322-5115.

Sony/Ampex BVP 30 camera head only with tripod plate, manuals & extender brd, like new, less than 200 hours, \$3000; RMP-3 paint box also avail. G Johnson, 415-558-8339.

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BVU-900 w/T.C., TBC & Remote
BVU-950 w/T.C., TBC & Remote

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SONY VO-9800P w/ T.C. BK-704
SONY VO-9850P w/T.C. BK-705
SONY RM-450 Controller w/Cables

TBCS
Fortel Y688 TBC
Fortel Turbo 2

CHIP CAMERA-BETACAM RECORDER
NEC SP3A/Fujinon Zoom,
SONY BV-1A

BETACAMS
BVW-25
BVW-35

BVW-10 Good condition
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BVW-65

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SONY MXP-290 Audio Mixer
Grass 100 Switcher
TEK 1720 waveform
TEK 1730 vectorscope

Color monitor, 4 9" Black & Whites
Grass Valley Sync gen., Video distribution
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NEED SONY TYPE S, 7 or 9 3/4"
VTRS & SONY M7 CAMERAS

Panasonic WV-RC30 CCU for WV-F777 camera, ops manual, works great, \$500/BO. M Friedman, 1100 Guns Rd, Green Bay WI 54311. 414-468-3333.

Fujinon .8x WCV75/80 wide angle converter, permits zooming (2), 1 with Calzone case, \$1200/BO. R Eather, 617-734-7305.

Anton Bauer LSFC chrg, Canon Z-21 remote zoom cntrl, Canon 2X extender, Ikegami/Anton Bauer QPY9N chrg, BO. Phil, 212-988-6929.

TEMMER VIDEO SPECIALS
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CANON J25X11.5 25X LENS W/2X EXTENDER
USA TEL: 212-206-1475 FAX: 212-929-9082

Anton Bauer ultralight kit, batt belt, case, spare bulbs, Cine 60 batt, Anton Bauer 30/13 batt belt, \$1200/all. Dallas, 800-634-8917.

Panasonic AG2400 (3) VTRS, \$175/ea or BO. S Gelfin, 215-576-5102.

Sachtler 25 tripod w/standard carbon fibre styx, baby legs, hi-hat, cases, \$4500; O'Connor 30 w/lightweight styx, \$595. Denny, 502-473-0406.

Sony DXC 537 hard case, never used, \$200. Charlie, 703-922-1852.

Sony DXF-40 4" studio viewfinder for DXC cameras w/8-pin VF socket, gd cond, \$325. 203-296-2972.

DIGITAL EFFECTS

Want to Sell

Sony MVR-5500/RM-E5500, ProMavica rcd/plyr & edit cntrlr, 15 & 40' cntrl cables, several disks w/manuals in cartons, excl cond, \$1200. M Rainer, On Location Video & Post, POB 35657, Houston TX 77235. 713-728-1020.

Sony DME-450, \$2900. T Tarulli, Tarulli Video, 111 E Slingluff Ave, Dover OH 44622. 216-364-8273.

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NEC DVE-15 2D, sgl chnl, xlnl, \$3000. G Larson, Advanced Media, HCR 31 Box 215, Sandy Valley NV 89019. 702-264-7065.

Sony DME-450 digital multi effects switcher, 117 effects, 156 wipes, 3 source inputs, no TBC needed, A/B roll ready, \$2300. J Soyk Jr, 208-746-8134.

EDITING EQUIPMENT

Want to Sell

JVC RM86U edit cntrlr, vgc, \$450. 703-527-1200.

Sony 5850, \$2600; Sony 5800, \$2100; For-A FA-420 TBC, \$850; convergence 195 A/B roll editor w/cables, \$1200. G Frei, NY Eye Surgery Ctr, 1101 Pelham Pkwy N, Bronx NY 10469. 718-519-1000.

Calaway CE-150 ver. 4.49, 6 parts, GPI pkg, preview switch, hard disk, 3.5" drive, excl cond, \$4500; 3M D-5000 char gen, 35 fonts, 2 disk drives, gd cond, \$1000. Bruce, Chromavision, 212-686-7366.

S-VHS A/B roll edit suite w/Toaster, Amilink, waveform vector, monitors, etc, \$25000; Panasonic S-VHS edit syst w/2 AG 1970's & WX 30 mixer, edit cntrlr, CG, monitors, \$7900. G Underwood, 214-406-9297.

Panasonic S-VHS edit system including AG-7510 HiFi video player, AG-7500A edit recorder & AG-A650 edit controller, excellent condition, \$5800/ BO. Moonlight Video Productions, 345 First St Ste Q, Encinitas CA 92024. 619-942-9687.

Ami-link VT/Video Toaster system complete without VTRS, A/B roll Ami-Link with serial control for 3 decks & Video Toaster 2.0, including Amiga 2000 computer with GVP G-Force 68030 @ 40mhz, 13 MEG RAM, 120 MEG HD, 1084s monitor, (3) Sony PVM 1380 NTSC monitors & Konx black burst generator, \$7050/BO; sell all or part; 2 Beta SP players also available. Arden Media Resources, 302-571-1754.

JVC CR-600U U-matic edit deck w/op manual, well maintained, works great, \$2500/BO. M Friedman, 1100 Guns Rd, Green Bay WI 54311. 414-468-3333.

Panasonic AG A750 editor/controller, excellent condition, \$1000; Panasonic WJ MX 12 AV digital mix effects, excellent condition, \$1500. M Ziegenbein, Primerica, 404-564-7987.

AVID Media Composer 400S & Media Composer 1000 non-linear video editing system, brand new, offline or online Beta SP quality, incl everything needed for editing video & audio, plus creation of CG, DVEs & special effects. Ken, 703-821-6800.

TAO Editizer Shuttle Knobll for use w/Editizer 2.0, brand new, BO. M Susman, Videofiles Prod, 50 Briar Hollow #400, Houston TX 77027. 713-622-5515.

Convergence ECS-90 edit cntrlr w/Panasonic interface cards, \$500/BO. D Broomfield, Mtn View Comm TV 6, 950 N Rengstorff Ave, Mtn View CA 94043. 415-968-1540.

Pride Integrated Video 2001 A/B roll edit cntrl system for Amiga, integrated Toaster cntrl, incl all cables & latest software, new w/registration card, \$1500; DPS Personal TBC II full-frame TBC card for Amiga or PC w/computer cntrl, full proc amp cntrls, color correction & monochrome mode, excl in Toaster set-up, like new, \$350/BO. B Jones, Digital TV Prod, 1015 Clifford St, Pullman WA 99163. 509-332-5858.

Panasonic VHS edit syst w/2 AG6500 rcdrs, AG650 edit rcd, \$2200/BO; JVC VHS edit syst w/BR8600U edit rcd, BR6400U rcd, BP5300U plyr, RM86U edit cntrlr, \$2000/BO. S Gelfin, 215-576-5102.

Ives II A/B V2.4C cntrlr, frame accurate, programmable A & V fades, GPI, TC, EDL print & serial, TC gen/read, w/3 parallel interfaces, excl, \$1450/BO; Ives II cuts system, \$950; A/B Box, \$650; interfaces for above: 3 JVC, 2 Sony, 1 Panasonic, \$175/ea. Steve, 608-251-8855.

Panasonic S-VHS system incl AG7500 (2), AG750A, Panasonic BTM1310Y & CT1331Y monitors, Tascam M106 mixing console, Shure M67 mic/mixer, TOA amp, patch panels (2), rack, TOA speaker, cables, \$7850. M Adel, Quick Info Systems, 377 62nd St, Oakland CA 94618. 510-654-3920.

ARTI edit cntrlr, Mac based computer cuts only, jog-shuttle module, lime code, all software & cables, but w/o Mac or decks, \$1750. Denny, 502-473-0406.

Supergen Genlock for Amiga, excl cond, meets RS-170A, keys, encodes, may be computer cntrlr, \$400. W Johnston, Johnston Rcdg, 2 Ruth Ln, Downingtown PA 19335. 610-873-7182.

Hi-8 A/B roll edit suite incl (2) Sony Hi-8 EVC-100, Sony EV-S7000 1W time code, RM-700 edit cntrlr, Videonic char gen, Hi-8 L1 camcorder, \$5700. Willie, CVN Video Production, 800-692-2848.

Comprehensive Edit Lister software release 3.0, original discs & documents, \$250. G Johnson, 415-558-8339.

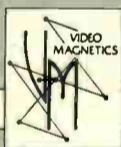
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JVC 210B industrial camera w/compo- nent adaptor, AC chrg, 2 batts, mic, \$1500/BO; JVC 4900 industrial U-Matic w/AC chrg, 14-pin roll, cable, 3 batts, \$650/BO. M Friedman, 1100 Guns Rd, Green Bay WI 54311. 414-468-3333.

Sony BVW-507 pkg w/BVV5 rcd, Canon 15X lens, Gitzo tripod & plate, mint, \$23000; Sony M-7 camera w/Sony VO-8800 w/timecode, Kangaroo case, Canon 15X lens, camera plate, mint, \$8500. Dallas, 800-634-8917.

Sony DXC-M7 camera w/Canon 9.5 to 143mm lens, viewfinder, studio adapter, lw hrs, BO; Sony DXC 537 w/adaptor, case, plate, cables, accessories, lw hrs, BO. J Ortiz, 713-498-4966.

Sony DXCM7, Fuji A16x9.5BRM lens & Anton Bauer batt plate, lw hrs, \$5500/BO; CMA-8 pwr sply, \$275. Phil, 212-988-6929.

Sony DXC 537/CA-3 camera, carrying case, excellent condition, \$4500. M Ziegenbein, Primerica, 404-564-7987.

Sony BVW-25 port rcd & BVP-3A camera, lens, case, cables, like new, \$4500. 614-882-2228.

Sony DXC3000 w/Fuji 12x10BRM, 1.5"VF, plate, case, VTR cable, CCU-M3 cam cntrl unit/rack mtn, CMA-8 pwr sply, Sony CCU cable 14-pin 300'/Canare reel, BC-1WA batt charger, \$3700. Dennis, 509-529-9149.

Panasonic WJ-521 sequential camera switcher, auto & manual modes, like new, w/manual, \$200. M Price, Video Trading, Box 885, Snellville GA 30278. 404-985-2534.

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Lights Fantastic 16x1200 M, 16 chnl light chaser, chase, zig zag, shimmer, scramble, memory scan, wrks off audio signal, \$200. W Feinberg, Totaltape Pub, 9417 Princess Palm Ave #400, Tampa FL 33611. 813-621-6200 x337.

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New variable speed, combo 8 & Super-8 silent Yelco film projectors w/diffuser, \$495; w/o, \$475. Matrix Video, 6975 Washington Ave S, Edina MN 55439. 612-944-9525.

CECO stop-frame animation mini gear-head tripod, recently overhauled, w/wood legs & cast metal hi-hat, \$390. 203-296-2972.

Kodak Ectographic slide projectors (6) w/pwr & wired remote, \$100/ea; slide traps, \$2/ea + shpg. W Feinberg, Totaltape Pub, 9417 Princess Palm Ave #400, Tampa FL 33611. 813-621-6200 x337.

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CVS 516 digital TBC 16-line, composite, newly refurbished, works perfectly, \$500. E Lambert, 614 Delaware St, Ironton OH 45638. 614-533-3328.

Harris 630 TBC/sync with remote operations panel, 1/4 screen com-pressor/positioner with memory, switchable noise reduction, good cond w/extender board & manual, \$3500. M Rainer, On Location Video & Post, POB 35657, Houston TX 77235. 713-728-1020.

Alta Pyxis dual chnl TBC/SEG with operating manual, new fans, works great, \$2000/BO. M Friedman, 1100 Guns Rd, Green Bay WI 54311. 414-468-3333.

Nova 620 full frame TBC, \$650/BO; waveform monitors (2), \$350/BO. S Gelfin, 215-576-5102.

Microtime T-120 full frame TBC, BO/trade. Brian, 203-270-0329.

SWITCHERS

Want to Sell

Panasonic WJ-AVE5 A/V switcher, mint, never used, in original box, \$900. J Vern, Camera One Video, 718-259-9424.

Image Labs MPS-50 2 input miniature production switcher, dissolve, wipe, mix, cut, battery or AC, mint, manual, \$425; Panasonic WJ-MX10 like new with manual, dissolve, key, wipe, special effects, use with Toaster without TBC needed, \$900. W Johnston, Johnston Recording, 2 Ruth Ln, Downingtown PA 19335. 610-873-7182.

Sony BVS-3100 10 input switcher w/DSK, chroma key, like new, \$8400. 614-882-2228.

JVC KM1200 4 input special effects switcher, \$900. T Tarulli, Tarulli Video, 111 E Slingluff Ave, Dover OH 44622. 216-364-8273.

GVG 100 video switcher, \$6000. D Gebauer, 605-334-9701.

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Laird 1500 char gen w/dual disc drive, brand new display card & 1032 color encoder w/rack mount kit, \$3000. T Tarulli, Tarulli Video, 111 E Slingluff Ave, Dover OH 44622. 216-364-8273.

Sony BVE 800 edit cntrr, A/B roll, time-code, serial ports w/3 cables, \$1800. J Soyk Jr, 208-746-8134.

Sony VPH 1270Q/PC 1270 switcher, projector/switcher, w/cards RGB & 3YC, low hours, original boxes, \$12K; Sony VPH 2020Q HR w/VPR 722 remote, BO. Instant Replay, 215-794-3616.

Ikegami ITC-730AP 3-tube Plumbicon camera, lw hrs, Canon J15X 9.5B 15X lens, Ikegami AC pwr box, Anton Bauer Pro Pac 14 batt, Anton Bauer MC-14 batt chgr, Ikegami 10' VCR cable, Ikegami shpg case w/wheels, JVC-CR4900 3/4" port rcdr w/batts & chgr, JVC-47U AC adaptor, Shure M267 mic mixer, Electrovoice CO-90 lavalier mic, camera rain cover, manuals, camera head module extender card & 3/4" tapes, all in excl cond, \$5000. Jim Murphy Productions, 247 Dawson Ave, Sewickley PA 15143. 412-741-4469.

PortaBrace G-2 prod cart w/tripod quiver & light stand, gd cond, BO. M Tabas, LVS, 33 Rock Hill Rd, Bala Cynwyd PA 19004. 610-668-1119.

Dubner 20K char gen (2), gd cond, \$8000/ea. M Ziegenbein, Primerica, 404-564-7987.

VCR/VTRS/RECORDING MEDIA

Want to Sell

Sony VO5800 late model, 50 head hrs, excl cond, \$1500. 703-527-1200.

Panasonic AGDP800 supercam, (3) CCDs, 700 lines, 60 db, 2-lux, 13 lbs, BO; Panasonic AGDS850 S-VHS edit VCR, digital slo-motion, TBC, time code gen/reader, BO. 607-687-0545.

Panasonic AU-300B 1200 hrs, TBC, excl cond, manual, extender brd, \$1800; Panasonic AU-500B lw hrs, excl cond, manual, \$6500; Hitachi HR-300 1", 3 hr capable in console w/TBC, HST, manuals, extender brd, \$15000; Sony VP-2000 3/4" plyr, \$450. M Rainer, On Location Video & Post, POB 35657, Houston TX 77235. 713-728-1020.

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Sony VP-5040 3/4" U-matic plyr, tri-standard PAL, Secam, NTSC 4.3, 5 hrs on heads, like new, \$400. P Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

Sony BVW40, lw hrs, mnt, vgc, \$5000; Sony BVW15, lw hrs, rk mnt, vgc, \$5000; Sony BVW25, gd cond, PortaBrace case, \$3000; Sony BVH 2500 1" w/mon bridge/WFM, clr mon, audio mon & BVT2000 TBC, lw hrs, excl cond, \$18000; Sony BVH 3100 1" w/mon bridge, WFM, clr mon, audio mon & TBC, lw hrs, exc cond, \$21000. M Ziegenbein, Primerica, 404-564-7987.

JVC BR-S 811U S-VHS edit rcdr, 150 hrs, excl cond. A Radig, Green Bay Diocese, 414-437-7531.

Toshiba SV-F990 S-VHS edit VCR (2) prosumer decks, excl cond, lw hrs, manuals & boxes, call for details. \$675/ea or \$1150/both. Steve, 818-505-8047.

Panasonic AG6500 rcdr, \$550/BO. S Gelfin, 215-576-5102.

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Beacon teleprompter system with computer & custom built camera prompting head, \$1495. Denny, 502-473-0406.

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JVC BR4700 3/4" port w/PortaBrace case, BO. M Susman, Videofiles Prod, 50 Briar Hollow #400, Houston TX 77027. 713-622-5515.

Sony VO 8800 field deck w/time code, Sony DXC 3000 camera w/Fujinon 12x lens, PortaBrace camera bag, vjh, maintained after every use, \$5600; Sony VO 9850 3/4" SP rcdr w/BKU-705 T/C reader-gen brd, lw hrs, maintained daily, \$5300. Bud, BVP Prod, 309-697-9669.

Hitachi HR-310 studio 1" edit VTRs (2), w/cntrr, dynamic trckg, 3-hr cap, job, shuttle, excl cond, \$6000/ea. Ugly George, 600 W 58th St Ste 9020, NY NY 10019. 212-969-0240.

Panasonic AU60 MII edit rcdr, incl cables, service manual, diagnostic brds, excl cond, \$5250. B Jones, Digital TV Prod, 1015 Clifford St, Pullman WA 99163. 509-332-5858.

Sony EVO 9800 Hi-8 VCR, chroma noise redctn, HiFi sound w/AFM & PCM, recd & plybck of time code, excl cond, \$2795/BO. Moonlight Video Prod, 345 First St Ste Q, Encinitas CA 92024. 619-942-9667.

Sony PVW 2600 (2) Betacam SP plyrs, like new, vjh, \$7000/ea or BO. Arden Media Resources, 302-571-1754.

Sony BVW-10 Betacam plyr, excl cond, lw hrs, incl rack slides & Horita WG-50 TC window gen, \$6000/BO. J DePonte, JDePonte, 45-508 Lollie St, Kaneohe HI 96744. 808-235-0335.

Sony VP5020 U-Matic PB VCR, brand new, rebuild everything, works great, \$1200/BO; Evertz E2 A/O converter VTR cntrl w/JVC U-Matic cable, manual, like new, \$1200/BO; Sony VO-4800 U-Matic portable, w/PortaBrace, lots of extras, \$500/BO. M Friedman, 1100 Guns Rd, Green Bay WI 54311. 414-468-3333.

Sony VO-8800 port 3/4" SP w/time code, PortaBrace, AC sply, XLR & BNC cables, hand mic, lav mic, manual, great, \$2000/BO. T Kremer, 5228 Carmen Blvd, Las Vegas NV 89108. 702-648-0526.

Sony VO-5600 recently dealer reconditioned, great shape, \$1100. J Freedman, Global Video Prod, POB 944, Brookline MA 02146. 617-924-9644.

Sony VO-5850 (2) edit machines, great shape, \$1800/ea. J Kessler, WOBZ-TV, POB 644, Livingston KY 40445. 606-843-9999.

Ampex VPR-2/TBC2 slo-mo, great cond, \$6500; Sony VO 5800 3/4" edit source, new rubber, \$1400; Sony CVP-G700 color video printer, like new, \$800. G Larson, Advanced Media, HCR 31 Box 215, Sandy Valley NV 89019. 702-264-7065.

IVC 200 1" port VCR, needs rubber capstan, \$100 + shpg; NEC 3/4" time lapse VCR rcds up to 72 hrs, \$350 + shpg. J Ballar, 67 Green St, Augusta ME 04330. 207-623-1941.

Ampex CVR-10 Betacam/Betacam SP source deck, excl cond, \$4000. M Levin, Quark Video, 109 W 27th St, NY NY 10001. 212-807-7711.

Sony VO-5800 3/4" rcdr/plyr w/address track time code option, excl cond, \$2000. G Johnson, 415-558-8339.

Sony BVU-150 SP, 3/4" U-matic w/time-code, gd cond, lw hrs, \$2500; KCS-20 3/4" mini-video cassettes (100) new & used, \$225. B Mong, 800-582-0582.

JVC KRM-800U MII edit VCR, lw hrs, excl cond, \$3400/BO. Alan, 215-649-8482.

Sony VO-6800 3/4" rcdr w/PortaBrace case, gd cond, BO. J Ortiz, 713-498-4966.

JVC CR-4400U 3/4" port VCR w/chgr, \$475. J Long, WHKY-TV, Box 1059, Hickory NC 28603. 704-322-5115.

Sony EVS-3000 editor w/tuner, like new, in box, \$950. 614-946-6611.

Sony EVO-9500A Hi-8 VCR, like new, used 15 hrs, \$1650. CJW Productions, POB 1849, Orangeburg SC 29115. 800-531-1662.

Sony EVV 9000 Hi-8 dock rcdr, mint cond, lw hrs, \$1500. Charlie, 703-922-1852.

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With the exception of the rubber drive roller, all other transport rollers, including the gate, only touch the film along its edge. This tends to keep the picture area clean of any sparkle and further reduces the chance of damaging while in operation.

A problem with the earlier BTS telecines was a tendency to show the CCD array or picture output when resolving the darker areas of the prints (or the lighter parts on negative sources). The systems also produced a lack of detail in denser films.

This has been addressed very well on the FDL 90, with more light sensitive CCDs and a much larger number of elements in

the array allowing an over-sampling that gives a very sharp and bright picture.

BTS machines, like most modern telecines, feature a framestore that takes in sequentially sampled lines and outputs the interlaced television signal. This allows a wide variation on input/output rates giving a powerful varispeed from 6.25 to 50 frames per second.

Although the common varispeed for pop videos of 12.5 is unavailable, it is useful to be able to select any speed between 16 and 30 frames per second to within two decimal places, enabling shots to be correctly sized when over or under length.

Because of the ability to change telecine parameters, such as bulb brightness and relative RGB CCD response, prior to the framestore, it is possible to make changes while the telecine is stationary that cannot be seen until the next frame is scanned.

This would be annoying except for the fact that these factors are usually only set up at the start of a transfer, such as when balancing for a particular negative stock.

From an operational point of view, the BTS FDL 90 is a very reliable and easy machine to use. The very stable color balance does not drift over time, so month-old grading lists do not require trimming to give the same pic-

tures as they did originally.

It also requires very little tweaking and produces excellent pictures with satisfying consistency. ■

Editor's note: Max Horton holds a degree in physics from the University of London. He spent six years as a telecine operator at London's Telecine/Cell before moving to Dean Street Post in May of this year.

The opinions expressed above are the author's alone. For further information, contact BTS in Germany (telephone: +49-6151-808-539; FAX: +49-6151-808-359), or circle Reader Service 74.

U S E R R E P O R T

Vistek Outfits Titan

by Michael Grossman
Production Manager
Titan Sports

STAMFORD, Connecticut

Titan Sports, the video production arm of the World Wrestling Foundation, is now processing its programming for the U.K. and Europe from its headquarters using Vistek's V4401 standards converter.

The World Wrestling Foundation Television Network is one of the largest syndicated networks, with more than 250 affiliated broadcast TV stations in North America covering 95 percent of U.S. homes. The WWF has long been active in the basic cable programming arena as well, producing three weekly one-hour programs exclusively for the USA Network.

We are also distributed in more than 40 other countries in eight languages (English, French, Spanish, German, Italian, Japanese, Portuguese and Swedish).

At our main operations center, we have a staff of about 60 people. Programming is recorded on one-inch and Betacam formats. Grass Valley editors are in all three edit suites, along with a multichannel Grass Valley Kaleidoscope, Abekas A53 special effects units, A72 character generators and Leitch StillFile systems.

The feedback from our international customers on the Vistek conversion system has been outstanding. Several of them have stated that the quality of our product has noticeably improved since integration of

the systems. Our operators are also impressed with the pictures and the Vector Motion Compensation system.

The decision to acquire a standards converter began more than a year ago when the demand for U.S. professional wrestling in Europe and around the world exploded. We were doing our conversions in New York, and the cost was getting out of hand. We decided it was time to acquire our own system.

By doing our standards conversion in-house, we literally save several hundred thousand dollars a year, and we will recoup our investment in less than a year and half.

The WWF international programming differs from the U.S. programming in that it features more matches, fewer interviews and less surrounding promotion. We are now producing about 24 shows per week.

For European distribution, we drop-ship video tapes. Once overseas, footage for the U.K. and Ireland are uplinked on British Sky Broadcasting (BSkyB). In France, we are on Canal+, in Spain, Editmedia. We are also seen in Germany, Belgium and all of Scandinavia. ■

Editor's note: Michael Grossman has been with the World Wrestling Foundation for five years, originally as a senior videotape editor before becoming production manager last year.

The opinions expressed above are the author's alone. For further information, contact Vistek in the U.K. (telephone: +44-628-531-221; FAX: +44-628-530-980), or circle Reader Service 110.

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INDEX

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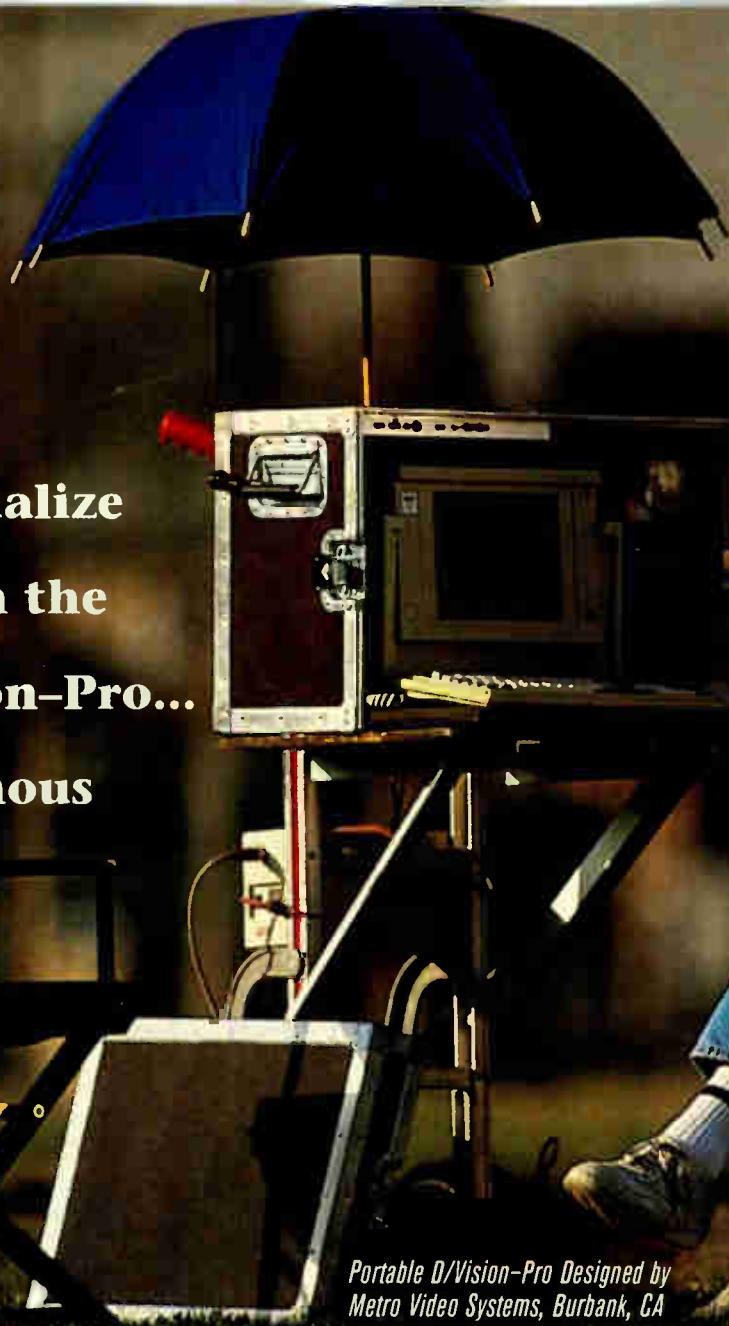
PAGE	ADVERTISER	READER SERVICE	PAGE	ADVERTISER	READER SERVICE
38	AAVS	35	30	Linear S.r.L.	27
12	ABE Elettronica SpA	121	8	Matrox	83
31	ATI	76	41	Modulation Sciences	135
18	AVS Graphics	62	11	*Panasonic	41
24	Altronix Research	3	25	Pro-Bel	88
48	*Avid Europe	89	42	Rank Cintel	95
34	BAF Communications	57	13	Sachtler	63
26	BDL Autoscript	33	27	Sachtler	108
28,29	BTS Breda BV	77	7	Sigma Electronics	127
6	C-MAC Microcircuits Ltd	78	1	Snell & Wilcox	53
50	CTE International	71	4	*Sony Broadcast	100
45	DB Elettronica	97	44	Standard Communications	40
53	Dtk Inc.	17	16	Teko Telecom SRL	115
55	DVision	38	25	Telecast Fiber Systems	120
47	EMCEE	109	25	Telecomunicazioni Aldena	113
25	ESE	24	25	Television Systems Ltd.	72
40	Elca SRL	119	17	Tennaplex	7
54	*Feral Industries	80	35	Thomcast	124
25	Gamer Industries	1	39	Thomson Broadcast	102
36,37	Graham-Patten Systems	92	43	Thomson Broadcast	66
22	Hamlet Video	94	55	Touchvision	38
14	Harris Allied	29	25	Tower Trading Corp.	8
56	Harris Allied	122	51	Trident Audio	11
10,11	*Hewlett Packard	70	32	United Media	6
53	Horita	49	23	Verity Systems	47
46	Interbee	—	52	Videomagnetics	81
5	Itelco	32	49	*Vinten	129
20	JVC International	25	25	Weircliffe International	56
9	Leitch	37	3	Wohler Technologies	43
2	Lightworks Editing Systems Ltd	20	15	YEM	50

*These ads appear only in one demographic edition

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