INTERNATIONAL EDITION

This edition is circulated to readers in Europe, the Middle East, Africa and Canada

VOL 13 NO 7, JUNE 1995

IN THIS ISSUE

Hopes Running High for Montreux

Exhibitors and Attendees Alike Gear Up for ITS '95

by Arthur Cole

MONTREUX

The first salvo in the battle of the European trade shows kicks off this month as the International Television Symposium takes center stage at the Montreux Convention and Exhibition Center.

The show will take place June 8-13, and will highlight a wide range of television production, post production and broadcasting advances, both in actual equipment and on paper.

For the first time, however, Montreux will compete for exhibitors and attendees with the IBC show in Amsterdam. Instead of holding its event in alternate years to Montreux, the IBC decided last year to launch an annual show, putting it head-to-head with Montreux in 1995.

UNTIL THE END

Still, Montreux organizers are undeterred and vow to continue to draw leading broadcasters, manufacturers and video post professionals to the biennial event.

"All major manufacturers will be at Montreux," said Dan Kramer, chairman of the Montreux executive committee. "We have been able to manage everybody under one roof."

While powerhouse corporations like Sony, Panasonic, Avid Technology, Thomson and BTS will have major presences at the show, a number of smaller (and some not-so-small) companies have declined to attend. Among the largest no-shows this year are transmitter manufacturer Harris Allied and signal processing equipment maker Digital Processing Systems, both of the United States. The two companies have decided to attend the IBC this fall.

Still, Montreux will play host to the first European presentations of a number of new products first released at the National Association of Broadcasters (NAB) convention in the United States in April. At the top of this list are new ENG formats presented by Avid, Panasonic and Sony.

For Avid's part, the new disk-based CamCutter camera that was developed jointly with Ikegami should prove a major draw at ITS. Although it is a bit more expensive than most tape-based cameras, the unit has the advantage of being a field editor in that only selected clips need to be downloaded into a video server system for final editing. Because it is recorded on disk, material can be transferred to a server quickly, just as any digital data can be rapidly stored on a mainframe computer system.

However, Panasonic's solution, the DVCPRO line based on the DVC consumer format, allows taped material to be digitized at four times normal play speed, adding a few minutes to the storage procedure compared to the Avid/Ikegami system but costing considerably less.

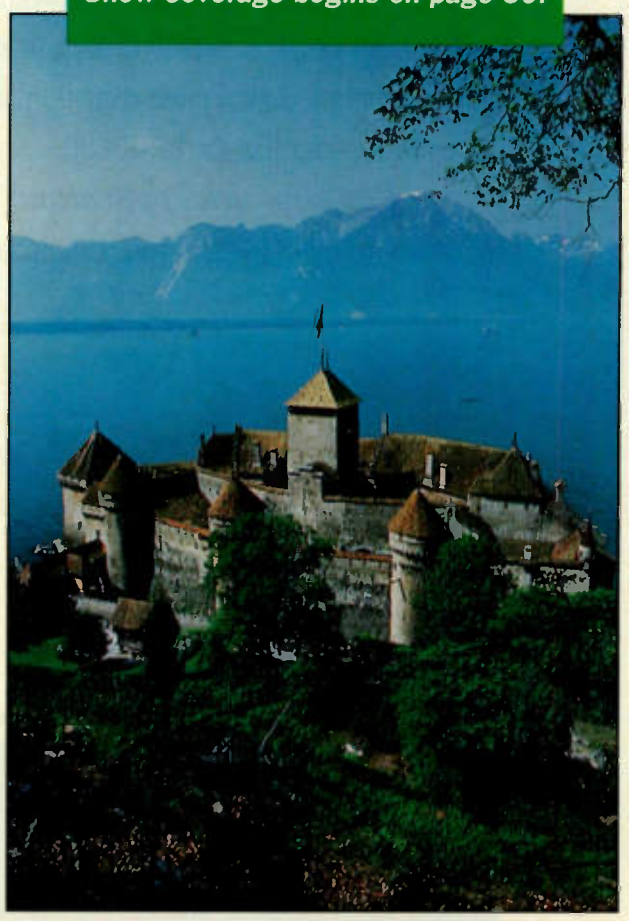
NEWS ON DEMAND

In addition, Sony is expected to outline its solution for an integrated newsgathering system featuring video server products jointly developed with the database software expertise of Oracle Corp. of the United States, plus a wide range of editing and automation systems. For acquisition, it was unclear at press time whether Sony would present a

(continued on page 30)

Clear mountain air and marvelous vistas will greet visitors to this year's Montreux exhibition.

Show coverage begins on page 30.



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NAB Marks Record Attendance
See Page 13

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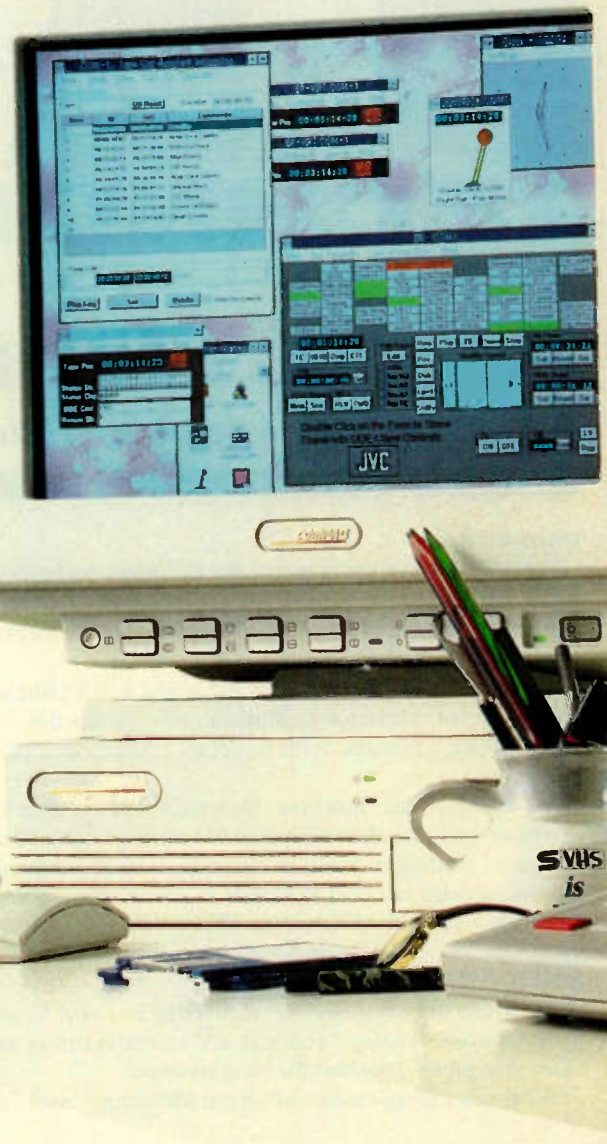

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NEWS WATCH

HDTV

GROUP SETS STANDARD FOR CONSUMER VTR

TOKYO

Officials of more than 50 electronics organizations, meeting at the HD Digital VCR Conference in April, have endorsed specifications for a digital consumer HDTV VCR standard.

The group has been working on the standard for more than a year, nailing down details governing the format's compatibility, baseband configuration and compatibility with professional ATV standards emerging in the Europe, Asia and the United States.

Just prior to recommending the final standard, the group added a number of specifications designed to add compatibility with the U.S. Grand Alliance ATV format, current under test to become the U.S. standard. Technical documentation of the Grand Alliance system was completed in February. Compatibility with the Japanese MUSE HD format had already been incorporated.

In addition, the consumer format will allow HD VCRs to record and play back standard definition 525/60 and 635/50 signals.

Among the groups represented at the conference were Apple Computer, Canon, Dolby Labs, Eastman Kodak, Fuji Photo Film, Hewlett-Packard, Hitachi, IBM, Ikegami, JVC, Matsushita, Pioneer, Thomson and Sony.

NETWORKS

CHINA EXPANDS CONFERENCE NETWORK

BEIJING

The Chinese government has undertaken a substantial expansion of its videoconferencing network operated by the Ministry of Posts and Telecommunications (MPT).

The ministry is looking to increase the number of conference sites to more than 60, thereby connecting the provinces of Beijing, Anhui, Hebei, Jiangsu and Zhejiang, as well as numerous cities within each province.

The government recently awarded a contract valued at $1.4 million to Compression Labs Inc. (CLI) for its Radiance videoconference system and Multipoint 2 control units.

In addition, CLI provides videoconference systems to China's Customs House and the Ministry of Railroads.

In other news, CLI recently concluded an agreement with TeleSystems International Corp. (TSI) of Taiwan in which TSI will include CLI's MPEG-based Magnitude encoder and decoders in its turnkey network systems throughout the Asia-Pacific region.

For further information, contact CLI in the U.S. at telephone: +1-408-435-3000; FAX: +1-408-922-5429, or circle ***Reader Service 11****.*

NEW TECHNOLOGY

DVB PROJECT TARGETS INTERACTIVITY

FRANKFURT

Having recently submitted its recommendation for a common standard for digital satellite, terrestrial and microwave delivery, the Digital Video Broadcasting (DVB) Project has set its sights on a new area: interactive services.

The group has established a commercial group headed by Graham Mills of British Telecom and Gabor Toth of Beta Technik that will focus on the requirements of interactive television.

Among the services the group hopes to foster are interactive games and game shows, advertising, home shopping and polling and survey services. Some of these services are already being investigated by European broadcasters.

Much of the group's work will focus on the commercial aspects of interactive systems, including market requirements, costs and other non-technical areas. However, it will coordinate its investigation with other groups within the DVB, including the technical, cable, satellite and terrestrial groups.

"DVB is keen to involve the participation of existing and emerging interactive service providers in these exciting new activities," Mills said. "Input from service providers will contribute valuable understanding to the specification of new interactive services."

For further information, contact the DVB Project Office in Geneva at telephone: +4122-717-2719; FAX: +4122-717-2727.

NETWORKS

CTC EXPANDS NETWORK

SANTIAGO, Chile

CTC Chile (Compañia Teléfonos de Chile) has launched a major expansion of its video distribution network designed to increase the number of services offered.

The company has selected numerous Alcatel 1715 video codecs for installation. So far, 12 codec subracks have been delivered with the capability of transferring 64 video and 128 audio signals from one headend to two distribution centers. At presstime, CTC was preparing to receive an additional four subracks.

For further information, contact Alcatel in Switzerland at telephone: +411-465-2111; FAX: +411-465-2411, or circle ***Reader Service 90.***

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TV Technology (ISSN: 0887-1701) is published monthly, except for April and November which have 2 issues, by Industrial Marketing Advisory Services, Inc. 5827 Columbia Pike, Suite 310, Falls Church VA 22041. Phone:703-998-7600; FAX:998-2966. Second-class postage paid at Falls Church VA 22046 and additional mailing offices.

POSTMASTER: Send 3579 forms and address changes to TV Technology, P.O. Box 1214, Falls Church VA 22041.

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A Tour of China's TV Industry

by Du Baichuan

GUEST COMMENTARY

The concept of the "television industry" sometimes has a different meaning in China than in Western countries. In America, for example, the television industry encompasses all kinds of businesses involved with TV. But in China, people normally understand it to be only those industries that manufacture television equipment.

The actual broadcasting of television and radio signals is a function of the government. TV program production, broadcasting, CATV networks, microwave links, satellite transmission and DBS, as well as some TV equipment manufacturers and even the film academy and related companies, are administrated and regulated by the Ministry of Radio, Film and Television.

BILLIONS OF VIEWERS

In China, watching TV at home is the single most popular type of entertainment. China already has more than 240 million TV receivers in use, covering about 82 percent of the population. In contrast, the coverage for telephone sets is only 3 percent.

So far, cable television is developing very fast. There are already 30 million subscribers in the entire country and the number of subscribers is increasing by four million every year. Because CATV is new in China, we could launch systems using a higher level of technology than in the West, using 750 MHz or higher coax, for example, as well as optical fiber networks and digital compression technology. In fact, there are already near-video-on-demand (NVOD) and asynchronous transfer mode (ATM) trials taking place in Guang Dong Province.

On the other hand, there is also a risk of introducing a new technology at the incorrect time. Right now, I do not think there is a strong demand to build up a National Information Infrastructure (NII) in China or to propagate some other future technology. We must use the technology that has been proven to be practical and economical.

One of the largest difficulties in television broadcasting is that we do not have enough programs for the audience. China has 700 TV stations capable of producing programs. These stations broadcast 35,000 hours per week, but only half is locally produced material. Even in Beijing, the average family can only receive a maximum of 17 channels: five China Central Television (CCTV) channels, three Beijing Television (BTV) channels, seven cable TV channels (including four province satellite channels), Hebei province TV and Tianjin TV.

In the next five years, we plan to double our program production capability. During that time, the CCTV will launch three new channels per satellite: a movie channel, a sport channel and an entertainment channel. They will use compressed video/audio and conditional access control to contribute the program to CATV headends and TV stations.

Digital program production on a wide scale will be introduced a little later. Currently, there are only a few D-1 and D-2 (19 mm tape format) machines in China, but CCTV is now equipped with half-inch digital VTRs from Japan, Digital Betacam units from Sony and D-3 and D-5 machines from Panasonic. More than a hundred digital VTRs are working in different areas including two all-digital OB vans — one six-channel and one eight-channel — three all digital post production rooms and one all-digital, 800-square-meter TV studio that will soon be ready for use.

Already, CCTV produces 30 percent of its programs using digital equipment. There are three SGI graphic workstations and several PC based 2D or 3D animation systems for producing animated series and TV program titles.

At this point, smaller TV stations are not ready to purchase such expensive equipment. Instead, they favor low cost component VTRs, multifunction character generators, non-linear editing systems and desktop studios. More than a hundred Chinese companies manufacture multifunction character generators based on PC and Chinese software. These systems can execute multiple tasks, such as generating characters, producing 2D or 3D animation, creating special video effects, and even editing compressed video material on-line.

...we have officially started a Chinese HDTV project, directly under the State Coordinate Committee.

Another big issue later this year will be a pilot network in Guang Dong province. This is a part of a DAB/DVB cooperation project between the European Commission and China. The total budget for the project is estimated at about US$10 million. We are interested in the in-band, on-channel (IBOC) DAB system being developed in the U.S. Later this year National Semiconductor will demonstrate its system or hold a seminar in China. All those activities will help us choose the digital audio broadcasting system for China.

What will the next generation of TV be in China? Different people have different answers. Will it be HDTV? A digital version of today's PAL-D format? A combination of both? I believe that normal digital TV and digital HDTV are based on the same technology of video compression, but in a different application. We do not want to always buy professional video equipment from other countries, so we have many intelligent engineers working in these areas. Some of them are employed by world-leading companies in very important positions. In the Academy of Broadcasting Science, we are using a computer simulation system to evaluate different source coding and channel coding methods working with several universities and research institutes. Some of the results are very interesting.

Also, we have officially started a Chinese HDTV project, directly under the State Coordinate Committee. Many ministries — like the Ministry of Radio, Film and TV, the Ministry of Electronic Industry and others — are involved in this project. Special offices and expert groups have been established to determine the Chinese HDTV standard and a suitable system. We are hoping to devise a digital system with channel compatibility and some aspects of interoperability, multimedia and communications capabilities.

I expect that we will build experimental HDTV hardware in the next few years and have a trial around the year 2000. Nevertheless, the first application of video compression technology will be in normal digital TV over satellite or cable.

I prefer a system in which numerous digital services are combined. Compression technology combined with new channel coding methods offer the broadcaster an economical way to increase the value or his frequency. In a cable system, using this technology can transmit 45 Mbps in a single 6 MHz channel, meaning a normal 750 MHz system can transmit a total of 5.625 Gbps for a very economical price. Some people argue that cable is a single direction service, so it is not suited for communications and interactivity. But not all information is designed for bi-directional communication. CATV is highly suited to asymmetrical communications, in which most of the information is going from the cable headend to the home, while only small bursts of data follow the return path.

CURRENT EXAMPLES

Considering the situation in China, I think the best way to construct the China Information Infrastructure is to base it primarily on the current radio, television and CATV networks, since it is relatively well developed and is in the transition stage to a new digital technology. Eventually, we could consider a computer-based network. We are planning to build up a pilot network, but we do not intend to call it a pilot of information superhighway or multimedia services. It is planned to have audio and video, both digital and analog, data and computer network services.

I believe that the success of this new technology depends on three conditions: sufficiently advanced technology, urgent demand and the right introduction strategy. All three conditions are somewhat different than in the West. I hope U.S. and European companies will realize this important factor. ■

Du Baichuan is vice president of the Academy of Broadcasting Science, chairman of the State Commission's Expert Group on HDTV, manager of the DVB/DAB Project between China and the European Commission and is affiliated with numerous broadcast groups in China. Born in Jiangsu, China, he was educated at Peking University and has published several books about digital television.

ERRATA

April's Guest Commentary previewing China's BIRTV show in August misstated the approximate number of TV sets in China. The correct estimate is about 240 million, although this still represents a viewership of about 82 percent of the population. ***TV Technology*** regrets the error. ■

SHOW LISTINGS

12-17 JUNE — INFOCOMM INTERNATIONAL

Dallas. The International Communications Industries Association presents this event for film, video and communications professionals. For information, contact organizers at 3150 Spring Street, Fairfax, VA, 222031-2399 USA; telephone: +1-703-273-7200; FAX: +1-703-278-8082.

21-23 JUNE — APRS, AUDIO TECHNOLOGY '95

London. The National Hall at Olympia will host the 28th APRS. For information, contact organizers at 2 Windsor Square, Silver Street, Reading, Berks, RG1 2TH, U.K.; telephone: +44-734-756218; FAX: +44-734-756216.

26-28 JUNE — EUROLINK

Prague. The first annual conference focusing on pay-TV issues in 14 Eastern European countries. For further information, contact Global Exposition Holdings, 1909 Avenue G, Rosenberg, TX, 77471, USA; telephone: +1-713-342-9826; FAX: +1-713-342-1158.

27-29 JUNE 1995 — NETWORKS '95

Birmingham, U.K. IDG World Expo and the Belnheim Group will unite to present this event covering communications and networking. For information, contact IDG at 111 Speen St., P.O. Box 9107, Framingham, MA, 01701-9107, USA; telephone: +1-508-879-6700; FAX: +1-508-872-8237.

18-20 JULY — DIGITAL MEDIA WORLD

Singapore. The Singapore Convention Center will be the scene for this show highlighting digital media's growth in the television, film, government, science and other industries. For information, contact show organizers at 10 Barley Mow Passage, London, W4 4PH, U.K.; telephone: +44-81-995-3632; FAX: +44-81-995-3633; e-mail: digital-media.demon.co.uk

20-23 JULY - ITS

San Francisco. The Eighth Annual International Teleproduction Society Forum and Exhibition will take place at the Parc Fifty-Five Hotel. For information, contact show organizers at 185 West End Ave., Ste. 22C, New York, USA, 10023-5569; telephone: +1-212-877-5560; FAX: +1-212-877-6254.

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Eastern Europe's Post Houses Grow

by Charles Recknagel

PRAGUE

When advertising came to Eastern Europe with the end of communism in 1989, post production studios were almost impossible to find.

Today, the situation has changed dramatically. In the Czech Republic alone there are some 24 studios, and in the other countries of the region the numbers are also growing rapidly. A few of the studios have already invested in fully digital operations.

BOOMING ECONOMIES

The reason for the surge in post production in Eastern Europe is good economics: the region is experiencing a boom in local advertising activity, and its low production costs also are attracting foreign teams here to shoot ads for Western markets. But until recently, post production was the missing last link in the process. That work still had to be done in the West, usually in nearby but expensive Vienna or Munich.

The experiences of Bob Rickerd, an English film director who heads Post Produkce Praha, one of the Czech Republic's two fully digital post studios, tell the story of how things have changed. When he came to Prague five years ago to film a commercial, local post production proved to be so difficult that he decided to come back last year and invest US$2.4 million in his own studio.

"I originally came to shoot a commercial in Eastern Europe for the same reasons many foreigners do," Rickerd recalls. "The production costs average one-half to one-third the prices in London, but the technical skills of the local filmmakers are excellent."

He notes that one of the legacies of socialism is a highly developed film industry with world-class experience in staging, lighting and camerawork.

But when the film team looked for post production, he says, it suddenly entered the dark ages. The only equipment for transferring film to video in Prague was an aging telecine at the then-state television station, and it could only be used through high-level string-pulling or low-level bribes.

Post production studios in Eastern Europe are counting on growth in the region's ad business to make their investments pay off.

As head of Post Produkce Praha, Rickerd has invested his money into converting a basement cinema into a full-service post-production studio with equipment ranging from a Rank Cintel III Digital Telecine to a full-digital editing suite with a Grass Valley 4000 mixer. The team of 10 Czech, English and American technicians competes with six other top-level post production houses in the city which, he estimates, have typically invested about US$375,000 each in analog studios.

FOREIGN DRAW

Purchasing digital equipment at Western prices and selling time at Eastern European prices is financially risky, as Rickerd freely admits. But Post Produkce Praha made the gamble in hopes of encouraging more foreign production teams, which insist on digital masters, to finish their work in Prague, as well as to appeal to increasingly technology-sensitive Czech producers. Today, producers broadcasting in the Czech Republic still need analog broadcast copies. But, Rickerd notes, "many local producers insist on digital quality now, even if they still have to wait to see it on the air."

To help clients afford digital post-production, the studio has had to develop a non-Western pricing schedule where time is charged by the quarter-hour. The strategy is low-price, high-volume, with tight scheduling to avoid losing time and money either for the client or the studio.

But lower price schedules are just one challenge to doing business in Eastern Europe. Servicing equipment is another. Until this year, post production studios have been bedeviled by a lack of manufacturers' representatives in the region and long turn-around times for service.

"There is still very little possibility to lease equipment locally and service is within 24 hours, not a couple of hours as in the West," Rickerd says.

Rickerd's studio rents equipment from Vienna and London and, until two manufacturers opened offices in Prague this year, repair technicians had to be called in from Germany. There is no available servicing for the telecine, so the studio employs an English telecine operator who knows how to fix it.

"That's expensive, but it's cheaper than flying someone in from England," Rickerd notes.

Post production studios in Eastern Europe are counting on growth in the region's ad business to make their investments pay off. Advertising expenditures on Czech television jumped from less than US$25 million in 1991 to US$64 million in 1993, the most recent year for statistics, and spending increases are expected to continue, though less dramatically, in the next years.

"I estimate our first two years of operation will be pure investment," Rickerd says. "After that, we'll learn if our gamble pays off." ■

BUSINESS BRIEFS

SATELLITES

ASTRA GOES DIGITAL

LONDON

The European Astra satellite system has delivered its first digital transmissions in a test for the News Datacom direct-to-home provider using NTL video compression modules.

The test aboard the Astra 1D bird consisted of four digital TV services multiplexed together using a variety of bit rates under the Digital Video Broadcasting (DVB) proposed standard.

The tests coincide with digital direct-to-home services about to be launched on the Asian Star TV network originating in Hong Kong.

NTL and News Datacom hope to provide 10 or more services within the bandwidth currently reserved for one service.

For further information, contact NTL in the U.K. at telephone: +44-1962-823-434; FAX: +44-1962-822-378, or circle Reader Service 77.

TRANSMISSION

ITALIAN MANUFACTURERS UNITE

ROME

Three leading Italian RF manufacturers have formed a consortium designed to provide turnkey transmission systems to the broadcast industry.

The three firms — Technosystem, Elbas and InTech — will offer broadcast systems in the name Italcast. Systems will consist largely of Technosystem's UHF and VHF transmitters, modulators, amplifiers and transposers; Elbas' high power transmitters and lines of IOT products and InTech's system design expertise and management.

The three companies are looking for other manufacturers to join the group. Already, the Italcast has installed systems in Turkey, Poland, Israel and other countries.

For further information, contact the group in Italy at telephone: +49-6-228-4310; FAX: +49-6-228-2355, or circle Reader Service 2.

TRANSMISSION

KATHREIN WERKE BUYS SIRA

ROSENHEIM, Germany

RF systems manufacturer Kathrein Werke KG of Germany recently completed the acquisition of all outstanding shares of Italian transmitter manufacturer Sira Sistemi Radio.

The deal coincides with the retirement of one of Sira's founders, Dr. Vittorio Raviola.

The deal leaves much of Sira's management intact. Franco Mauri will remain as managing director, and Ermenegildo Ventura will stay on as deputy managing director. Sira will function as an independent company within Kathrein.

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South Korea Rushes Into Cable

by Mike Young

SEOUL, South Korea

South Korea is on a government-administered fast track to develop cable television systems. The plan is to provide a divergent menu of programming to a populace unaccustomed to Western and even other Asian cultures.

Kicked off in 1993, the program calls for an initial 22 program providers that will compete for a total market of 20 million households by 1996.

IN THE FAST LANE

Cable television represents only about 20 percent of an ambitious plan by the Korean government to achieve a country wide "super highway" by the year 2000. Government investment is estimated to be US$100 billion by the end of the decade. To achieve its goal, the government intends to wire every home in the nation with fiber optic and/or coaxial cable.

Additionally, in July of 1995 Korea plans to launch the "Mukungwha" DBS satellite that, if successful, will start transmission tests in October. Six full transponders are set aside for CATV usage, although discussions are still taking place regarding "footprint issues" to determine the markets to be served.

Primarily, these discussions revolve around three issues: "full Korea area" coverage, service to "overseas Koreans" in North America and service to Koreans living in other parts of Asia, such as Japan and China. Programming of the transponders will be controlled by the government and will be a mix of programs pooled from cable providers and broadcast sources.

For the wired portion of the network, laying fiber and cable to switching hubs and into households is going slower than planned.

Kang-Duk Keun, director of the government's Broadcasting Division, said 21 system operators licenses have been given out for the Seoul area alone and that "all 21 have completed construction." The government start date for these systems was March 1, 1995. Although Kang said that 20 program providers were up and running by that date, they reached a greatly reduced subscriber base than was originally planned.

Signal distribution from program providers to system operator is handled by three government licenses awarded to Korean Telecom (the government controlled phone company), Korean Electric and Dacom. Korean Telecom is strongest in inner-city cabling, utilizing conventional coax. Korean Electric is installing high technology fiber cable primarily in urban and countryside areas. Dacom has not signed any program providers as yet. Cable runs outside of established cities are primarily fiber mixed with a number of new technologies.

Jl-Seaun Byun, director of the Broadcast Systems Department of Daewoo Electronics, one of the initial program providers, said Daewoo chose Korean Electric as its network operator primarily because it was installing fiber to hub switch centers and then running coax to subscriber homes. The fiber being utilized is contained in the core of 50 high voltage power cables that are being installed throughout the country.

Due to delays in getting their signals to subscribers, program providers have revised their financial break-even schedules and overly optimistic subscriber estimates. They are also telling investors to expect a one- to two-year delay in financial returns due to late subscriber sign-up.

This should not be too much of a burden on program providers because each was carefully selected and is financially strong. System operators, however, are financially weaker to varying degrees and could seek mergers to survive the delays in receiving subscriber fees.

Operators at MY-TV monitor the channel's output.

Doh-jin Kim, president of Mirea Youth Television Inc. (MY-TV), expects his subscriber levels to reach one million by the end of 1995. "Our estimated break-even point is two million subscribers, and we expect to take approximately three years to reach this point," he said.

Ju-Ho Jung, executive managing director of Daewoo Cinema Network, said he believes that three million subscribers are required for Daewoo to reach a break-even point. One example of the slow start of cable in Korea was Daewoo's recent carriage of a delayed Academy Awards broadcast. The event was delivered in mid-morning, and Daewoo officials estimate that it reached only about 1,000 people.

Most, but not all, of the program providers have selected analog technology equipment to outfit their stations.

Moon-Soo Song, managing director of A&C Kolon, said he does not believe in hiring "previously experienced" engineering staff and "expert consultants." Instead, he prefers to rely on his own counsel despite the fact that he has only a few months of television experience and by his own admission is taking a "risky" path. Song has found that "expert" advice has been generally biased and does not always reflect what is best for the corporation.

ON THE FENCE

Song admits that he finds himself on opposite sides in internal discussions over whether to purchase digital or analog hardware.

"Digital hardware is too expensive and does not provide enough benefit either in production quality or long-term financial advantage over basic analog technology," he said.

Jung said he believes that "analog technology is sufficient for the moment."

The lack of engineering experience and the influx of digital technology into Korea is thought by many to be a looming problem. The government controls the foreign content of purchases primarily to adhere to a larger scenario of import balances and trade deficits in the midst of a globalization program.

In the short term, this policy has served to slow the importation of new technologies in general, unintentionally providing some relief for program providers faced with a shortage of experienced engineers. It is generally believed that engineering labor costs will continue to rise as engineers seek better jobs and higher pay.

These restrictive policies also benefit local television manufacturers by providing protection from serious competition, thus allowing Korean manufacturers to make product improvements. However, the relief will be short-lived as pressure to obtain the latest technologies continues to mount. ■

Mike Young is an independent video and audio contractor with extensive experience in Korean and other Asian markets.

Drive for 3-D TV Continues

by Mark Hallinger

OXFORD, U.K.

Although it is many years away from commercial introduction, 3-D television is continuing to see major advancements.

In the past few months, several companies have announced new systems that utilize slightly different versions of the same image to create the 3-D illusion.

At a technology demonstration here in the U.K. recently, Sharp Laboratories of Europe presented a system using "Twin-LCD" technology. The system consists of two superimposed flat screen liquid crystal display panels. Unlike some past systems, Sharp's effect does not require special glasses.

The 3-D effect is provided by an optical arrangement that allows the viewer to see one panel with the left eye and the other panel with the right eye. Each eye views a slightly different image which the brain combines into a single image.

"We have reproduced the way humans see in 3-D," said Dr. David Ezra, general manager of Sharp Europe's Imaging Technology Department.

Ezra said knowledge of the viewer's position is used to update the image, so viewers can "look around" an object without "image flipping," the tendency of an image to flicker as different camera views are displayed.

Multiple camera views have been tried in the past to alleviate this problem, but these attempts have been mediocre at best.

"Even if we used 10 cameras to get look-around, image jumping would remain," Ezra said. "And using 100 cameras isn't feasible. What we do is detect the position of the eye with a sensor. The position is fed to a computer and as you move, the display presents the appropriate image."

Viewing angle, always a limitation in 3-D systems that do not use glasses, is about 20 degrees, Ezra said. Some prior systems did not work at all if the viewer's head tilted even slightly. The Twin-LCD method, according to Ezra, allows "one (person) to sit and comfortably move around the display."

Ezra said the most important feature of the new system is the high image quality, which he described as clearly superior to past 3-D systems that often caused headaches because of poor picture quality and fuzziness.

For its demonstration, Sharp showed the effect on 14- and 8.6-inch screens. The images were computer graphics and look-around shots from a Silicon Graphics workstation, as well as video from two synchronized laserdisc players and 3-D photographs from a personal computer.

As for the possible use of this technology in broadcasting, Ezra explained that the model requires two channels of input, so it cannot yet be utilized with standard cable or broadcast feeds.

"Obviously, television is one of the biggest ambitions," he said. "Our final ambition is television but it will be quite some time before that (comes to fruition)."

Ezra also expressed uncertainty over what the industry's infrastructure will consist of in the future.

"Nobody is certain what broadcasting will look like in 10 or 15 years," he said.

Meanwhile, Korea's Samsung Electronics recently forged an agreement with Australian start-up company Xenotech to bring a 3-D effort developed by Australian engineer Angus Richards to market.

In many ways similar to the Sharp system, Xenotech uses two LCD projectors, separate images for each eye and an eye tracking system to convey a 3-D effect to a single viewer who has limited movement.

And like the Sharp system, the technology is initially expected to be used in single-viewer applications like video games and design and medical imagery.

Xenotech's pictures also cannot come from regular broadcast. Computer graphics with separate channels, pre-recorded 3-D PAL/NTSC video cassettes or a stereoscopic video camera are possible picture sources.

Japanese network NHK is also moving ahead with its 3-D HDTV scheme, a plan that has been demonstrated in some form for several years.

NHK also requires two channels of input, but seating restrictions are said to be minimal and special glasses are not necessary. ■

Firms Fret Over Weaker Dollar

by Arthur Cole

WASHINGTON, D.C.

The volatility of the U.S. dollar is taking its toll on the video and audio industries.

Manufacturers from around the world say it is becoming increasingly difficult to make long-term pricing and availability decisions while the dollar continues its precipitous slide against the Japanese yen and the German mark. So far this year, the dollar has lost about 15 percent of its value against both currencies but seems to be holding steady against others, such as the British pound and the Canadian dollar.

Hardest hit are the Japanese manufacturers who, in addition to a stubbornly sluggish market at home, are finding it increasingly difficult to maintain profit margins abroad.

NO CHOICE

According to some manufacturers, it is not a question of when price increases will take place, but how much they will be.

"We will probably be forced to raise prices," said Mike Yoshida, president of JVC. "Maybe in three or four months, we will see some changes."

While the weaker dollar certainly has had a detrimental effect on profits, manufacturers say its shear volatility is causing the greater problem. That is mainly due to the fact that there are few quick remedies to day-to-day fluctuations in exchange rates.

The two main weapons against a weak dollar — price increases and transferring manufacturing to more favorable areas of the world — are both long-term decisions that cannot be made in times of uncertainty.

Still, there comes a point when tough decisions have to be made in the hopes that the situation will become better.

"We are looking for other ways to continue doing business in the U.S.," said Yasushi Yamashita, of Yamashita Engineering Manufacturing. "We are increasing our design, development and manufacturing in the U.S., and we are using more American components."

...it is unlikely the dollar will be able to regain its former strength.

YEM has outfitted a manufacturing facility in Torrance, California, where it is producing component switchers and video-on-demand systems.

JVC's Yoshida, said much of the company's professional lines are manufactured in Japan, while a good portion of the consumer products are made in Southeast Asia.

"We have a consumer VTR facility in Malaysia, so more than likely, we would transfer operations to Singapore or Malaysia if that were to become necessary," he said.

Among German manufacturers, particularly those with strong sales in the U.S., the situation is much the same, with the solution being either to shift manufacturing or increase prices.

"It looks like we will have to have a second round (of price increases)," said Jürgen Nussbaum, director of marketing of support and lighting manufacturer Sachtler. "By looking at past drops, the dollar has never come back to its original strength, so we are not expecting it to return to what it was."

But while Japanese and German manufacturers have their difficulties with the dollar, manufacturers in countries with much weaker currencies face an entirely different set of problems.

Italy, for example, is currently trading at about 1,700 lira to the dollar, roughly the same as a year ago. That makes it very easy for Italian companies to sell products overseas, but it increases the cost of imported components needed to make the final product. In Italy's case, there is also the uncertainty over the current government now that President Silvio Berlusconi has been voted out and there is an interim government.

"The Italian economy is actually very strong," said Maurizio Martinelli, commercial director at microwave transmitter manufacturer IRTE of Gallarate, near Milan. "It is our government that is causing this latest round of speculation."

HOW LONG?

No one doubts that before too long the currency markets will settle, but the consensus among manufacturers is that it is unlikely the dollar will be able to regain its former strength.

Meanwhile, U.S. companies say they are seeing only modest gains in sales because the dollar is only weakening against two main currencies, the yen and the mark. While Japan and Germany may make up a certain percentage of overseas sales, much of the world retains a fairly steady exchange.

"If we sell a system in New Zealand, for example, that buyer or his agent have a choice of paying in dollars or yen or marks or whatever is most favorable," said Jack O'Dear, director of international sales at Harris Allied.

For the time being, most companies are ready to ride out the storm and are hoping that the dollar bottoms out soon. However, if the slide continues, there will be some major shifts on the international markets by year's end. ■

BBC Is Undecided Over Transmission Options

by Chris Dickinson

LONDON

The venerable government-backed British Broadcasting Corporation is examining ways to turn its transmission network into an autonomous unit so it can more easily launch digital terrestrial television services.

However, the corporation has rejected proposals by two independent research groups that it be sold off to the private sector.

Michael Starks, the executive responsible for formulating an overall transmission policy for the BBC, said he had "no problem" with a proposal to separate out the transmission operation into an autonomous unit with its own financial controls. But he said the existing system of finance, through license fees charged to broadcasters and other users, already work well.

Starks was speaking at a seminar organized by the Adam Smith Institute, at which it launched a paper arguing for the privatization of the transmitters. The paper's author, Keith Boyfield, said the BBC commercial operations and core license fee activities have become too closely intertwined. He argued that full privatization was the only way to take advantage of new digital technologies because it would free investment in the network from "the shackles of public sector constraints." He added that there should be open competition between the BBC network and its main rival, NTL, for business from BBC TV and radio, ITV, Channel 4 and independent radio stations.

Privatization of the network could also form a blueprint for spinning off transmitter networks elsewhere in Europe. A separate report by the accounting firm Price-Waterhouse also argued for the privatization of the BBC network. At the same time, the BBC has unveiled plans to launch digital TV services in 1997.

It is widely rumored that the BBC wants to simulcast BBC1 and BBC2 in a widescreen digital terrestrial format and also launch a subscription-based digital terrestrial version of its European satellite channel, BBC World. The BBC study into digital TV, headed by Starks, concluded that the BBC would only go ahead with digital simulcasts if ITV and Channel 4 follow suit.

The U.K. government is considering a plan to make up to 12 new digital channels available, some or all of which would be handed to terrestrial broadcasters. ITV is also working on proposals for launching its own digital simulcasts plus further, subscription-based channels consisting of a second ITV service, a movie-and sports-only channel or possibly a channel devoted to re-runs.

To receive the new channels, viewers would need to buy a set-top decoder box or a new digital TV set. But broadcasters hope that by packaging 12 new services together — including widescreen versions of BBC1, BBC2, ITV and Channel 4 — consumers will be more willing to invest in the new equipment.

Satellite Broadcaster BSkyB has also announced plans to start digital TV transmission by satellite next year. The company said it plans to book space on the Astra 1E and Astra 1F satellites, which will be the first of the line to have digital capacity.

If all goes well, BSkyB will launch up to 20 new thematic channels, as well as set up interactive and near-video-on-demand-style services. ■

NAB Marks Record Attendance

Manufacturers Focus on Newsgathering Systems As Digital Technology Invades All Aspects of TV

by Mark Hallinger

LAS VEGAS

The video industry is alive, well and expanding into a digital disk-based multimedia future if NAB was any indication this year.

A record crowd of 83,408 flocked to the Las Vegas Convention Center April 10-13, a 17 percent increase from last year's crowd of around 71,000.

International attendance continued in force, with 17,524 overseas attendees, up 19 percent from 1994. The international crowd is playing a significant role in the convention's growth in the 1990s. Visitors from abroad represented more than 20 percent of all attendees for the second year in a row.

On the display side, floor space was so in demand that an additional hall was opened to handle the overflow. In total, more than 990 exhibitors covered 550,000 square feet of space.

MultiMedia World, the jointly held showcase of computer video technology, showed such strong growth that next year the display will move to the Sands Expo and Convention Center (SECC) located just off the main hotel strip. The SECC will also house non-MultiMedia World displays at NAB '96, set for April 14-18.

"NAB MultiMedia World is busting out at the seams," said Phillip Dodds, president of the Interactive Media Association, the organization which co-produces MultiMedia World with the NAB. "Exhibit space (50,000 net square feet) is sold out this year, and the Sands convention facility will allow continued growth."

FLOOR ACTION

However, attendance alone does not make a show. The products themselves must also generate some excitement among the crowd. On this score, most attendees were not disappointed.

"A couple of years ago I thought I wouldn't see any more gee-whiz products," said long-time NABer Don Zeikel, production manager for WFRV-TV in Green Bay, Wisconsin. "But this year I have seen a number of impressive items."

Zeikel said he was particularly excited about the low cost and high quality of PC-based character generators.

"They are cheaper now than just a few years ago and the quality is also better," he said.

And though he does not plan to place an order anytime soon, Zeikel said he could not help but be intrigued by the much-anticipated Avid/Ikegami CamCutter disk camera.

The camera, probably the most attention-getting OB product in years, made its debut in front of an impressed, but often skeptical, crowd of journalists at a press conference the night before the show.

The cost of the FieldPaks, along with the overall weight and energy needs of the system, kept many from getting too excited about going completely tapeless in the near future. But Sony and Panasonic offered innovative, if less glitzy, alternatives to CamCutter.

Visitors from abroad represented more than 20 percent of all attendees for the second year in a row.

Panasonic's new ENG format, the tiny and light DVCPRO, was said to offer very high quality from tapes similar in size to standard audio cassette tapes. The DVCPRO ensemble also included a 5.5-pound camera and a laptop-size editing system.

Sony debuted Betacam SX, a streamable 4:2:2 MPEG video acquisition system. Although not available in a working model, the SX camcorder, part of Sony's new-at-NAB all digital television station, proved to be a focus of attention. Sony was also showing its own magneto optical disk-based laptop editing system to an invited audience.

Although overshadowed by the OB format competition, other product areas and trends were noticed by floor-walkers. The steady flow of digital technology, for example, accelerated to a torrent.

Consider non-linear digital editing systems. Progress in this area has changed from revolutionary to evolutionary as more than 30 companies displayed systems on the show floor, with more and more stations putting them to use. Studio cameras continued to move into digital signal processing as well.

Sony's Shooting Star digital OB truck was also a hot item, with a steady stream of on-lookers admiring Sony's anticipated full-scale entrance into the U.S. truck market. The truck was a display of Sony's digital prowess, containing a host of the company's digital switchers, audio boards, cameras and editors.

The transition to digital technology was viewed as expected, inevitable and necessary by CBS network executives.

"This is one of the show's cyclic peaks," said Joe Flaherty, senior vice president of technology for CBS. "The digital technology of the last two years has materialized into practical digital realities."

ENGINEER'S DELIGHT

Practical digital applications were just what a lot of engineers and station managers were looking for on the floor. Curtis McKnight, chief engineer at WLBT in Jackson, Mississippi, said that although he came to buy a switcher (which he did), he was also impressed by all of the non-linear editing systems he had seen.

"They all had good features," McKnight said.

WLBT is not non-linear yet, he said, but it expects to be in a few years. McKnight added that he was impressed with the improvement in existing products evident at the show.

Drew Barlow of Esprit Communications and Bill Hellams of Video Producers, both of Oklahoma City, said they were impressed with the quality of available systems at a reasonable cost.

"I think the entrance of desktop into the industry has forced a lot of the pro guys to reconsider prices and design products for the medium-range user," said Barlow.

Hellams said he had reservations about the new technology because of his heavy investment in the old.

"The show made me decide to keep what I have for now," said Hellams. "I cannot yet go from top-of-the-line old to bottom-of-the-line new."

Barlow said attending NAB was necessary just to keep up with what is happening in the industry.

"The amount of time it takes for a technology to revolutionize the industry has shrunk by a factor of four," he said.

Daniel Murphy, a photographer for KRON-TV in San Francisco, echoed Hellam's and Barlow's thoughts. He said he sensed great reservations among stations about jumping into a new system too far and too fast, but the alternative of standing still is not acceptable either.

"You have to come each year just so you do not miss the future," said Murphy.

Whether NAB '95 demonstrated consensus or discord on the future of broadcast television is a matter of perception. On the one hand the format wars in OB continue, but other issues point toward harmony.

NAB '95 may be remembered, for example, as the year MPEG really became the compression standard. On the issue of HDTV, the idea of "flexible use" to broadcast data services was demonstrated by the Grand Alliance HD development consortium.

And new target dates for HDTV have been set: two or more U.S. networks plan to begin prime time HDTV broadcasting in the fall of 1997, shortly after a new breed of HDTV sets hit the market. ■

The Softer Side of Lighting

by David Clark

FOCUS ON LIGHTING

I used to divide all lights into spots and floods. But thinking about it lately, I find that a more accurate division is between softlights and everything else.

Softs are unique and cannot be converted to a hard source. By softlight I mean a large luminous panel produced either by a frame of extremely diffuse filter lit from behind by hard sources, or a solid matte white panel lit from the front by hard sources. Softs include hard light bounced off a white ceiling, wall or white card.

It may seem strange to assign such importance to soft sources, and I certainly do not mean to minimize the importance of Fresnels, broads, scoops and ellipsoidals. I would offer the comparison of natural light outdoors, where the sun is the hard source that can be softened with large enough panels of silk diffusion to "shade" the people involved in the scene. Another example is the open-sky soft surround that finds its way into every nook and cranny to decrease the contrast of everything. The sky light cannot be forced to make sparkling highlights and crisp shadows.

OVERCAST DAYS

If we plan to shoot exterior remotes cheaply, our best hope is for an overcast day with no direct sun. An overcast day is very blue. An HMI burning at average daytime color of 5500 Kelvin will appear quite warm, like the sun, and will allow a natural sparkle in our foreground scene.

Properly placed and blended,

Fresnels can produce a warm and comfortable look

with a lot of sparkle.

The HMI is our "sun" and can be color corrected or softened a little.

The choice of soft sources used in TV, film and still photography depends on the methods of shooting. In TV, we have grown up with the need to shoot continually as in live TV, even though we frequently shoot scene for scene almost like film.

Our soft lights are smaller, lighter and hang from a grid. There is no clutter on the floor to interfere with camera movement. TV camera movement is not as carefully planned as in film. We have never been able to slow the pace of TV shooting long enough to ponder the fact that the lights should be mounted in relation to the camera lenses, not the faces. No wonder we end up with what looks like a ceiling full of garbage.

But maybe this type of arrangement will be useful for the future when budget pressures force more and more speed in shooting. TV has taught us to make changes in our setup during shooting. Our dimming equipment is enhanced by current computerized controls that allow a seamless transition that we never could have accomplished when our dimmers were controlled by hand. The idea of "following" the scene by subtle cross-fading of sources is enough to scare a director of photography (DP) to death. I expect that future DPs will have someone from TV on his team to handle this technique.

The soft sources used in the film studio are not so different from TV, except in the mounting. Large softs in film are on wheeled stands that allow adjustment from the floor for height and position in relation to the prime lens and actor movements. They can be backed away for the wide shot and moved in for medium and close-up shots. TV hangs several softs to cover each situation, and our fine-tuning is done as a best guess before we roll tape.

We must not overlook the lighting equipment that has been developed for still photographers. Here you will find a large, soft surface of milky diffusion material sewn into black fabric to form a box that is made rigid by a snap-open wire frame. The light is contained inside. Lightweight, collapsible and super soft, the popular term for these devices is soft boxes.

Even quicker to set up are white umbrellas with one light bouncing off the entire interior. A smaller version of the umbrella is a favorite of mine from Lowel-Light. I have noticed ads for the new Lowel "RIFA" light, which looks like a quick set-up version of the soft box.

We must not limit ourselves to equipment made specifically for TV. Our cameras simply require light from something, and we use whatever is available.

The special quality that identifies the use of soft sources is the ability to wrap around objects, including faces. Maximum wrap-around occurs when the soft is close to the subject. As we move the soft away from the subject, we see a decrease in wrap-around as the source of light becomes smaller. We also notice a rapid decrease in intensity.

The light rays coming out of a soft are totally undisciplined by design. Softs are not for reaching deep — we have Fresnels for that. However, large softs across the front of a sitcom set do have a blending, high-key effect on everything. This front fill is especially effective on faces if the softs hang as low as possible or are on floor stands next to the cameras or directly under the boom. Floor positions for lights in TV are tough to negotiate.

The director, floor manager and camera people need continual stroking to allow a floor stand on the set. But you and I know the difference between a light that is ten feet high and one at eye level. The beast and the beauty.

So we see that soft lights are really hard sources bouncing off dull white surfaces or through very heavy diffusion. The only soft lights that do not start out with a hard "bulb" are fluorescent. These lights are gaining favor rapidly in TV because of their low wattage and cool operation. The fluorescents are inherently soft.

Manufacturers are playing with filters of lens-like material that will force the scattered rays of the fluorescent tubes to organize into a pattern simulating a Fresnel spotlight. I will not say this will never happen, but it is a tough problem that has only begun to be solved. The fluorescents, like softlights, do not project their light well — work must be accomplished close to the subject (around six to 10 feet). They can be used on small news and interview sets and over an audience. They would cause a messy wide shot hung low over a large talk show home base, in which we hide our key lights outside of the wide shots with a resultant throw of 20 to 30 feet.

The special quality

that identifies the use of soft sources is the ability

to wrap around objects.

I am trying to be kind in my comments about fluorescents. I suppose it shows that I am not fond of the prospect of a future soft lighting world totally without brittle sun light patterns. I am sure I will hear from some fluorescent people and I will pass along whatever I learn.

DARK SHADOWS

Hard lights seem to describe every light that is not a soft light. I never say I am going to light a show "hard" because it sounds sort of brutal and insensitive. I try to explain that lighting entirely with spotlights (Fresnels) does not have to mean stark and full of contrast.

Properly placed and blended, Fresnels can produce a warm and comfortable look with a lot of sparkle. The huge range of diffusion material available now allows us to just take the hard edge off a Fresnel or alter it all the way to a soft light, just short of being able to wrap around because it is not a large area source.

All lights, soft and hard, make shadows. Highlights and shadows are how our eyes tell us the shapes of things. I will not discuss the shadows I like before a show because most directors find it simpler to dislike all shadows rather than try to understand that there are good and bad ones.

All lights start with the bulb or lamp. Every time a new lamp is invented, we get a whole new line of instruments as in the quartz halogen and the HMI. The more compact the filament of a lamp, the more designers are able to control the output. Current large lamps have a flat filament design with the flat side facing the lens and the opposite flat side facing the reflector.

Most of the light is therefore directed forward to the lens, where it is organized into a circular field of illumination. The back of the lens is stippled slightly to further smooth out the field. Moving the lamp and reflector toward the lens widens the field and lowers the intensity. Moving the lamp and reflector away from the lens narrows the field and increases the intensity.

The field is smoothest at the forward or flood position, and the barndoors or cutters shape the beam best. As we move to the rear or spot position to compensate for a longer throw we notice an unevenness in the field and a decrease in the effectiveness of the barndoors.

Fresnels are rated for output without any accessories attached. Focus a Fresnel with an unobstructed lens on a white wall and notice the slightly fuzzy edge that allows us to blend one light into another without noticeable gaps. Notice that the addition of barndoors, even with the doors wide open, makes this beam edge less fuzzy. The round opening of most barndoors and color frames are the same diameter as the lens, but because they exist about an inch in front of the lens they rob some of the edge softness.

These minor problems are not enough to cause trouble in day-to-day lighting. It is just nice now and then to remember that even the largest manufacturers are not always right. But one company, Arri, with its current entries into the studio Fresnel market, features barndoors with a large enough ring to allow all the light to escape the lens. This happened because Arri spent a lot of time talking with lighting people before the company started production.

The compact filament in the 650W FRK lamp has spawned a whole line of improved lights. I first noticed the difference in the Lowel Omni open-face lightweight location fixture. The Omni has a unique three-stage reflector that delivers a surprisingly even field for a unit with no lens. Then, Mole-Richardson used the FRK in its efficient Tweeney II Solarspot with a four-inch Fresnel lens. Lately, we see the FRK used in "source four" ellipsoidals from ETC. This equals the output of 1 kW lamps common to most ellipsoidals with noticeable improvement in evenness of field and sharpness of image — all because a lamp designer figured out a way to compress the filament dimensions. ■

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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.

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Tackling the Training Video

by Dennis J. Hamilton

PRODUCTION POINTERS

To many industry professionals, the "training video" is considered one of the most difficult to produce. From the complexity of the psychology employed when creating the script to the casting of the talent and site selection, the training video is a challenge to even the most experienced.

IGNORANCE IS BLISS

The best type of video is one in which the viewer can watch and learn from the information presented without ever being aware of production techniques. The first time and every time the viewer is distracted by poorly planned shots or edits, a portion of the message is lost. Naturally, when portions of the total message are lost, the viewer cannot gain what the producer intended.

It is hypothetical to suggest that the people watching the videotape will comprehend 100 percent of everything they see. However, the goal of the production should still be to present everything in a clear, concise, illustrated manner.

As producers, many of us are approached by clients from areas in which we have very little knowledge. After all, we are television people — we cannot be expected to know enough about everything else to produce a training tape. Just as you approach the skilled surgeon for his talents in medicine, that same surgeon must approach you for your talents in television production.

You should begin by meeting with the "one" person who is knowledgeable in the subject matter. Whether it is the surgeon, the machine operator, the management supervisor or the investment broker, meet with the person who is the resident "expert" and begin to discuss the message the video will convey. This may be an informal meeting that allows the "non-television" people to feel comfortable discussing what they know best. Do not allow them to be concerned with the television end of the production — just what they hope to share with the target audience.

CREATING THE SCRIPT

As the producer, you must ensure that the finished product meets its projected goal: information disbursement to get the important data to the viewers. Create several headings on a sheet of paper:

- Goals/Objectives
- Areas of Concentration
- Definitions/Nomenclature
- Demonstrations
- Closure

While meeting with those people selected to work with you on the project, specifically ask them what they would hope to achieve by producing this video. Do not ask for details — just general information about their goals, such as what they hope the viewer will have learned. Write down these clearly-stated goals and objectives. This is something that must be reviewed at each phase of production. Do not consider it a blueprint, but an artist's rendition of the final product.

Begin to narrow down the information into specific areas of concentration. Be demanding as your questioning continues and create specific areas on which the video will concentrate. Learn to ask questions for clarification.

You do have one advantage as a producer with little knowledge of the subject matter: You may ask some very legitimate questions that others closer to the vocation may overlook. When this has been accomplished, you will have a working outline to follow. Take this outline and ask the knowledgeable person to further elaborate on the headings and subheadings.

As this person continues to explain the details involved in the presentation, make notations on the specific "jargon" or terms familiar only to those in the business that may need further clarification. These terms will need emphasis in the final program, both verbally and visually. Generally, a still is created to show the term and its definition — the background can even be a still of the subject being discussed. Remember, as learners, humans benefit greatly by being able to see what it is they are trying to learn, as well as being told. This is a very important aspect of any training video — clarification.

GOAL-ORIENTED

Remember the "goals and objectives" we established earlier? Continue to emphasize the purpose of the videotape — what do we want the viewer to gain by watching this program? A storyboard, no matter how crude, is highly recommended, and never before has the term "client approval" been more important. We are the experts only on the equipment we use. We are novices when it comes to the subject matter, and we become extremely reliant on the expertise of the client.

This might be a great time to visit the locations for the shoot. Again, take the client and continue to ask questions concerning all the "visuals" that will assist in presenting this information. We have a great opportunity for triple reinforcement at this point - we can show the action taking place, have the talent explain this action and include graphics keyed over the action for the final reinforcement.

A major advantage to working so closely with the client is that the final project will include few, if any, negative surprises. And this will ensure that most all of what you do in the production process will indeed meet your stated goals.

A final note: The finest educators agree that the end of your presentation is as important as the main text. "Closure," or the "wrap-up" portion of your video, reinforces all of the major points. Do not underestimate the effectiveness of your closure. Take pertinent steps in writing and shooting this portion. Some degree of redundancy is necessary for good closure. Again, discuss this part of the script very closely with the client and stress its importance.

Training videos represent a major facet of television production and television in our society: They represent a very effective tool for education. Your success will depend upon your ability to seek understanding. ■

Dennis J. Hamilton is television coordinator for TPS Television in Trenton, Michigan. He has authored more than 30 articles related to television production and has toured the country speaking on production and production techniques. A freelance producer, Mr. Hamilton has two master's degrees, one of them in television production.

London Readies For APRS

LONDON

Audio aficionados are set to descend on the National Hall at Olympia here this month for the Audio Technology '95, the newest iteration of the Association of Professional Recording Services (APRS) show.

The show, scheduled to run from June 21 to 23, will play host to numerous long-time audio manufacturers, such as Avid, Sony, AMS/Neve, Calrec Audio, Pro-Bel, Sennheiser, Amek and Dolby, although there will be a number of new companies as well. Among them are Micropolis, Euphonix, Audio Toyshop and The Sound Network.

Exhibitors are expected to deliver the latest advancements in mainstream recording, film, duplication and replication to live sound.

In addition, a full conference and workshop program has been arranged. Among the presentations will be a discussion of radio microphones led by John Wykes, of Audio Engineering. Also, John Watkinson, with the help of Studio Sound, will present an update on audio synchronization.

Other speakers include Nicral's Detief Wiese who will present new platform concepts for Musicam, and Tim Frost, speaking for Data Production International, who will discuss multimedia developments.

"Over the past 28 years, our objective has been consistently to develop the APRS show to reflect the many facets of our industry," said Philip Vaughan, an APRS spokesman. "Its new name, Audio Technology '95, encapsulates the whole story: the longstanding APRS tradition combined with the dynamics of today's audio environment." ■

For further information, contact the organization at 2 Windsor Square, Silver Street, Reading, Berks, RG1 2TH, U.K.; telephone: +44-1734-756-218; FAX: +44-1734-256-216.

Moving into the Analog/Digital Mix

Pythagoras Helps Explain the Constraints Broadcasters Face with TV Satellite Links

by Brian Flowers

ENGINEERING CORNER

Broadcasting services and carriers are currently introducing compressed digital transmission of TV signals with a consequent increase in the number of channels available in a given bandwidth. This is particularly significant for satellite links, so it is perhaps useful to take a closer look at some of the constraints that apply to a mixed analog/digital situation.

Figure 1 shows interference from an x-polar analog TV signal (EUT-A) next to a modulated analog TV channel (EUT-C) on transponder 25 of EUTII/F4 that is leased by the European Broadcasting Union. Eutelsat requires that the uplink dish has an x-polar discrimination of 35 dB for analog signals, with a polarization alignment accuracy tolerance of 1 degree. The corresponding tolerances for digital signals are 25 dB and 2 degrees respectively, reflecting the more rugged nature of digital signals.

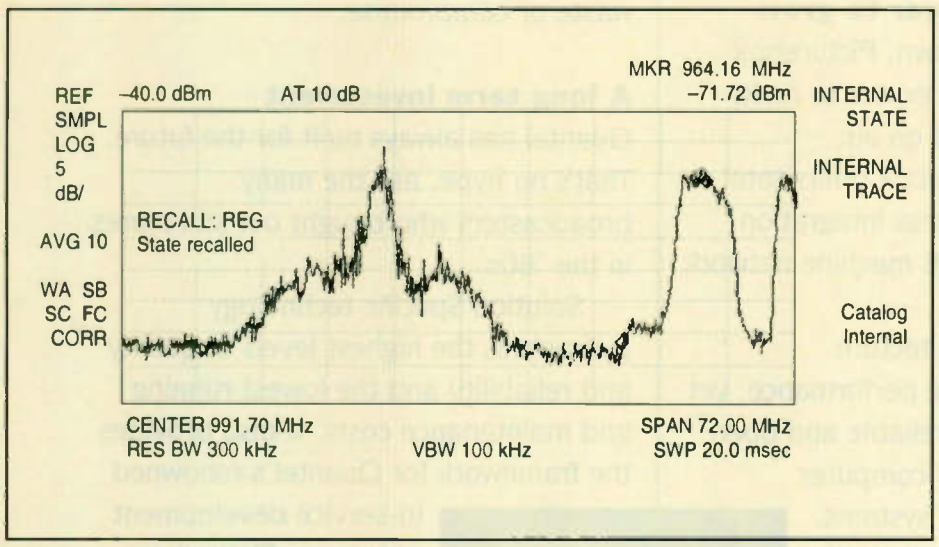

Figure 2.

WHEN IT RAINS...

Heavy rains at the uplink site can affect x-polar separation by attenuating one polarization more than the other, which can cause the x-polar interference seen in Figure 1.

Figure 2 shows a problem that is more critical with digital signals than with analog signals. Once again, we see the EBU's EUT-C analog TV channel, but now with an 8 Mbps MPEG 2 signal and a 2 Mbps Euroradio signal present in the same transponder.

The 8 Mbps uplink EIRP has been set to 67 dBw from a transportable earthstation, which is therefore working quite close to its maximum power. A digital signal at this power level drives the travelling wave tube transmit amplifier into a non-linear transfer characteristic, thereby causing significant spectral sidelobe power, which can be seen on the left of the 8 Mbps spectrum.

When this 8 Mbps signal was moved to the adjacent 8 Mbps slot nearer to the analog EUT-C signal, it caused interference on the analog signal. Reducing the uplink EIRP by 6.5 dB to its correct value of 60.5 dBw cured the problem, as can be seen in Figure 3.

In general, TWT/HPAs (travelling wave tube/high-power amplifiers) must be backed off at least 8 dB from their maximum power to avoid this problem with digital signals. However, SSPAs (solid state power amplifiers) are much better in terms of linearity, so they can be driven nearly to maximum power by digital signals without running into problems. This means that a 50 W SSPA is equivalent to a 125 W TWT/HPA for digital transmission. SSPAs are now being produced with power ratings of 125 W and even 300 W, so clearly they have a future for the transmission of digital TV signals.

In the domain of TV distribution networks via satellite, the requirement for carrying both analog and digital TV signals can be neatly met by combining an 8 Mbps MPEG 2 signal with an analog TV signal in a 36 MHz satellite transponder, provided the above constraints are taken into account.

It must also be remembered that if the analog and digital signals are combined at the earthstation's HPA input, intermodulation products will be produced due to non-linearity of the HPA, and they may interfere with adjacent channels. Eutelsat stipulates that these intermodulation products must not exceed 4 dBw per 4 kHz, nor 42 dBw per 12.5 MHz.

In the context of digital transmission, I would like to digress a little into an interesting analogy between digital TV transmission and DNA. It has been known since 1953, when Francis Crick and James Watson unravelled the molecular structure of the gene, that the template of life is passed from generation to generation in the DNA double helix, using effectively quaternary digital coding. The four bases — Adenine, Thymine, Cytosine and Guanine — are utilized to form quaternary codes on the DNA chains. This means the information required to create the characteristics of all living creatures is passed from one generation to the next.

At IBC Amsterdam in 1994, I remember seeing a digital recording of an American marching band leader marching in formation with 99 cloned copies of herself. This was to demonstrate that the digital VTR could replay and record 100 generations with no loss of picture quality.

Similarly, if we go back 100 generations to the time of the ancient Greeks, we immediately recognize people very similar to ourselves. Nature has chosen quaternary digital coding of the template of life because it survives for 100 generations of more without degradation. Sexual reproduction and the few coding errors that turn out to be beneficial enable evolution based on natural selection to slowly modify each species and hence enable it to cope better with a changing environment. However, this normally becomes evident over thousands of generations rather than 100.

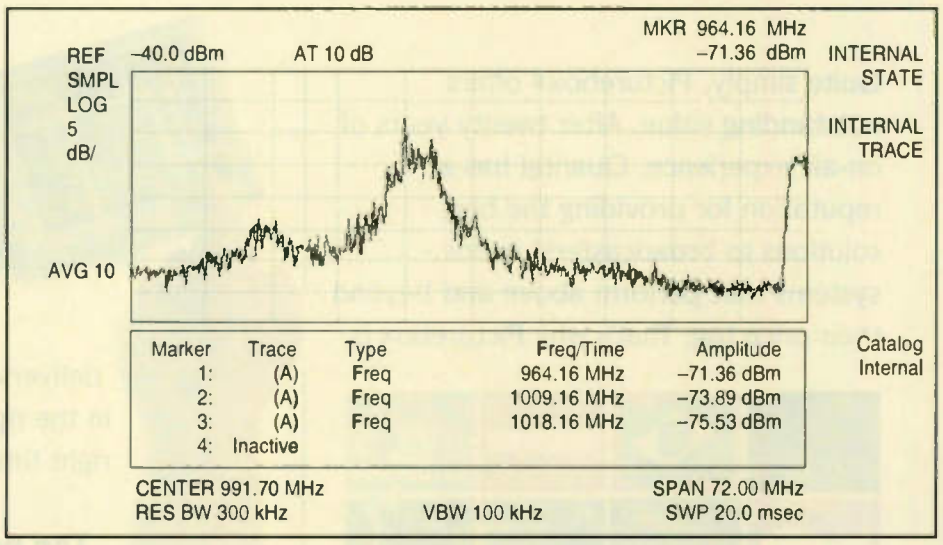

Figure 1.

CLEAN MATH

I have great admiration for the mathematical ability of Pythagoras. One day, he was relaxing in his bath, thinking about musical intervals in terms of frequency ratios when he realized that seven octaves should equal 12 perfect fifth intervals. (The perfect fifth interval has a frequency ratio of 3/2 and is the root of the seven Greek musical modes, two of which are used as the basis of most western music. They are known to us as major and minor.) Pythagoras ran down the road shouting "Eureka," but unfortunately forgot to grab has bathrobe and hence became the world's first recorded streaker.

In mathematical terms, Pythagoras' idea means that 2 should equal 1.5. Unfortunately, it does not quite work out ing 1 percent in the worst case.

Anyway, the story illustrates that Pythagoras was as gifted in math and physics as present-day Nobel prize-winners 100 generations later. And the fact that we differ so little from the ancient Greeks is due to the quaternary digital coding utilized by our DNA molecular chains.

Hence, the use of QPSK digital coding in TV transmission satellite links is based on a system well-proven by nature. We can go ahead with confidence. ■

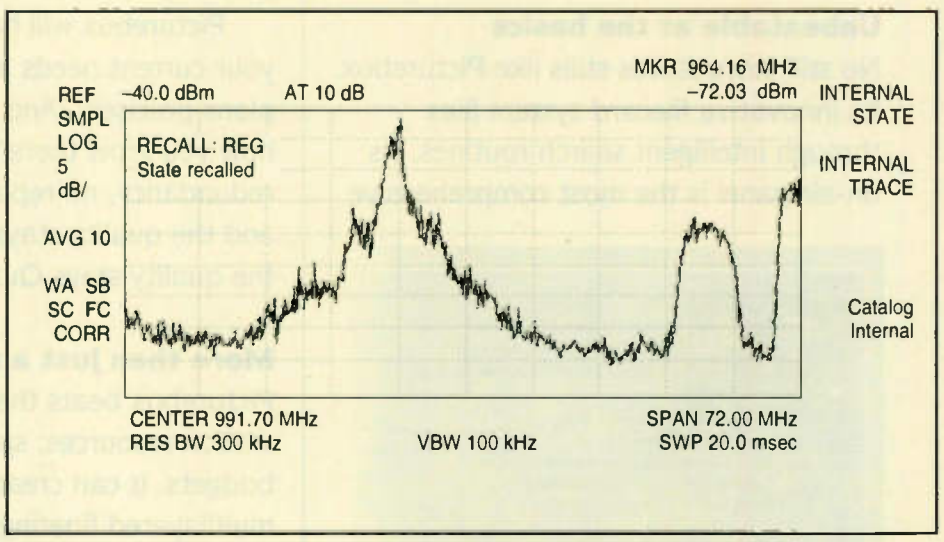

Figure 3.

An engineer at the European Broadcasting Union for 33 years, Brian Flowers is the former head of service and project manager for the EBU's new Eurovision Control Center in Geneva. He was recently transferred to the Transmission Technology sector at the EBU. He studied engineering at the University of Southhampton and served for two years in the Royal Air Force before joining the BBC. He is a member of the Royal Television Society and was recently accepted as a member of the IEEE.

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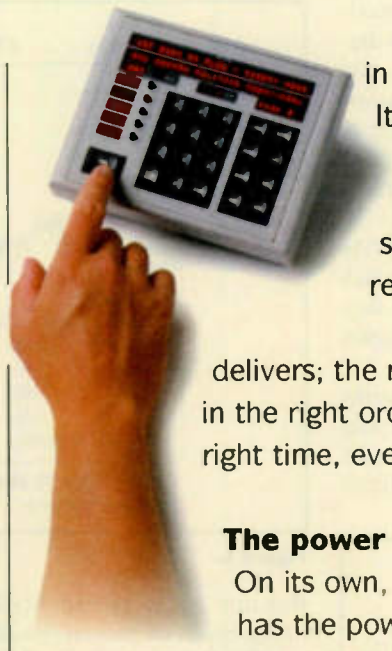

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A Line-by-Line Look at ADR

by Ken Hahn

AUDIO FOR VIDEO

I introduced the topic of ADR (Automatic Dialogue Replacement) or looping in the April issue. This term describes the process by which on-camera dialogue is replaced by newly-recorded dialogue. I explored the many circumstances that might necessitate replacement of production dialogue. This month I will resume by examining the process that is collectively termed ADR.

As was revealed in April, a variety of circumstances justify the need to loop a line of production dialogue. Many concern themselves with whether the dialogue is intelligible, although the dramatic delivery or accuracy of factual details is another typical justification. But the overwhelming majority of looping is performed in a program language that needs to be translated for foreign distribution. In all cases, the ADR process begins by deciding what line(s) of dialogue need to be replaced.

SOUND SUPERVISION

Most of the dialogue replacement is utilized in feature films, but the process is used in programs of all types and budgets. Features usually employ an entire team, part of the much larger sound editorial team, devoted entirely to the dialogue track. This team is led by the sound supervisor.

The supervisor is responsible for all sound in the film. Under this person are various people who perform all of the tasks associated with the editing and mixing of the sound track. This crew could number anywhere from five to more than 75. But one does not need 25 people to do looping. The tasks can be performed by an individual or shared by many people. The number of lines to be looped, the available budget and the amount of time allotted bear great influence on the process.

The first step in the ADR process is known as "spotting." At a time soon after the picture edit has been finished and locked, the program is screened with the specific intention of locating (spotting) any lines that many need looping. A complete and accurate script and production sound track of the final edited version are required.

The director or person holding a similar position will identify those lines requiring a change based on nontechnical grounds. Off-camera scripted dialogue that needs to be added is also indicated at this time. This might include announcements that will be heard as hospital pages, police radio calls, radio disc jockeys, television newscasters, etc.

All of the lines of dialogue are then compiled and looping sheets prepared. Information contained on these sheets includes the exact dialogue to be spoken, the name of the character who reads the line, the time code (footage for film) location of the exact start and stop time of the line and any notes that might specify the desired dramatic effect. This process must be all-inclusive and absolutely correct, as it is the basis from which all of the subsequent ADR-associated work hinges. Copies of the ADR script are used by the actors, ADR director, ADR recordist, ADR and other sound editors and mixers throughout the process.

The term "looping" originated from the way the early films accomplished dialogue replacement. To do this, a copy of the sound and picture for a specific line was cut from the film. Three evenly spaced audible beeps were edited onto the beginning of the line to serve as a countdown for the actor performing the replacement line. The ends of the selected film segment were joined to form a loop.

OVER AGAIN

This loop would be projected in a sound stage and the actor would perform the line repeatedly until an appropriate reading and synchronization was recorded. The repetition of the looped film was a tremendous asset to the actor who was trying to establish a rhythm for the delivery of the dialogue. It is an ingenious technique. And although it is primitive in nature, no linear (tape or film) system has ever adequately replicated it. Disc-based systems promise this capability when combined with a well-devised software routine.

The ADR recording process is designed to obtain a recording that appears to be in perfect synchronization with the picture. But it is up to the ADR team and actor to replicate the proper energy and dramatic effect for the scene. One of the primary reasons why looped lines are not successful is that their delivery does not match that of the production. Anything that will inspire the actor to achieve the mood of that in the production is advocated. A line might be in perfect sync, but no amount of electronic massaging will make it convincing to the audience if it isn't delivered properly. Once the take has been selected, it must be edited with the other dialogue tracks. At each instance of a

(continued on page 20)

Taking VHS to the Next Level

by Mario Orazio

SOMEWHERE OUT THERE *You might not have noticed* that you probably record more VHS tapes than any other format. I am not saying you definitely do. I can imagine a reader stuck on an ice floe off the Antarctic Peninsula with a Betacam SP camcorder, a sack of cassettes, a case of candy bars, and not much else.

(By the way, I promise this soiling of an otherwise perfectly good sheet of doodle paper will have a point that is not VHS-related by the time I am done writing it. I just hope you can figure out what it is, and maybe let me know).

Anyhow, for the rest of you who are not shooting penguins in their natural environment, VHS is the tops, and I am not just talking about home use. The last time I designed a facility, I gave very serious thought (well, as much as a pea-brained clown like me is capable of) to the idea of putting in an in-house VHS dubbing center.

What do you use for quick scanning of archive sports and news? VHS. What about when the director wants to go over shots with the camera folks? VHS. Grass Valley wants to push a new product by sending out demo tapes? VHS. At Emmy Award time, what do you view entries on? VHS. What if you need to distribute a site survey shot with your 8 mm video camera? VHS. What if the gang at the transmitter shack grows bored with your programming? VHS.

I can remember one project when I had to stuff 14 VHS machines into a remote truck (I think one copy was for the producer's roommate's mother's dentist's uncle's hairstylist's friend), but given that I cannot even remember my own birthday sometimes, I sure would not be surprised if I went beyond that record once. Anyhow, the point is that VHS is everywhere, and it should be. It is dirt cheap, and it is not half bad. If it was around in 1956, you can be sure we would never have had quad (for those of you born after 1965 — oh, never mind).

"Not half bad" is a bizarre little expression. It could be 0.01 percent or 99.99 percent awful, and it still would not be exactly half bad. Well, whatever the percentage is, that is the only reason we ever record anything else, so some folks have been trying to attack that percentage by making VHS better.

SLACK JAWS

You could just hear the jaws dropping at traditional ENG equipment manufacturers when Rupert Murdoch's Fox network in the U.S. announced a few years back that it was choosing S-VHS for news. "S" is supposed to stand for "super," but I heard many people calling the move "stupid."

Whatever else it is (and it is not miracle, monster or mediocre), S-VHS is just one of approximately eleven-zillion-and-seven compatible, quasi-compatible, and incompatible modifications of the format since it was introduced 20 years ago. Most of them came from VHS's creator, JVC, but I do not think JVC's forgiven its mom, Matsushita, for coming out with the illegitimate four-hour version, even though I would bet that you might not even own a VHS VCR today had it not been for that half-speed mode. VHS beat Betamax because the leading consumer electronics brand, RCA, backed the former and not the latter. RCA would not have sold VHS if it did not get a more-than-two-hour version to market as special.

So let's take stock. You have your basic VHS (SP), your slowed-down VHS (LP), and your really slowed-down, narrower-head VHS (SLP or EP). Only the first is compatible with all machines. Ditto mono longitudinal audio, stereo longitudinal audio (with and without Dolby B), and AFM stereo. I will not even count the machines that squirted out pitch-corrected audio at twice-normal playback speed.

Then you have your basic coercivity tapes and your high coercivity tapes (for S-VHS), and your even higher coercivity tapes that come in lengths up to — what? — I think I read somewhere in the area of 10 hours, but I sure would not want to archive my funeral ceremony on anything that thin.

You also have your normal-size cassettes and your "compact" cassettes, and neither is compatible with all machines unless you stick the little guy in an adapter. You have your fully compatible HQ quality improvement, which, if I have done my math right (which I would not trust if I were you), comes in seven different varieties all by itself, all entitled to be called HQ. One of my shoeboxes has a piece of paper in it saying that someone once tried to market another compatible enhancement called "Lumachrome," but I cannot remember if that is something I picked up in research or while walking through litter.

There is that aforementioned S-VHS, which is only upwardly compatible unless you have something called "Midoki" playback, in which case why not just buy an S-VHS machine in the first place? JVC did not think plain-old S-VHS was good enough (and — believe me — it was not alone), so the company came up with more variations, collectively called "Professional S."

At last year's NAB show, JVC made a big deal out of W-VHS, which records HDTV (they knew you were desperate to find a consumer HDTV recorder) or something like nine hours of ordinary-resolution component video — using special tape, an "even higher coercivity" version. I once swore a solemn oath that I would never mention the fact that ordinary VHS cassettes were used in the RCA Hawkeye — Panasonic Recam Type M professional camcorder format.

NEW MATH

Has anyone been multiplying out the different possibilities? Here come some more: JVC's got some new bizarre version of auto head tracking that they call "Dynamic Drum." You might expect some form of track following to give benefits like noiseless varispeed and improved SNR, and JVC agrees. The company is also talking about time-lapse and animation recording, a la Sony's old BVH-2500.

But here is my absolute favorite new Dynamic Drum feature: endless recording without rewind. Once the tape reaches the end, it automatically continues recording in the reverse direction.

What? Oh, Mario! How could you be so stupid as to try to record a 90-minute show on a one-hour cassette?" "Well, it was no problem. I have a new Dynamic Drum VHS machine. When it runs out of tape, it just continues recording in the reverse direction, thereby obliterating whatever was recorded before the machine reversed due to the guard-band-free VHS tracks occupying the entire tape surface.

I am not making this up, but I also find it hard to believe that JVC is that dumb. But I don't know. Maybe the old recording does not get obliterated. Dynamic Drum is supposed to do something about narrower tracks, too. Watch this space for further developments, but in the meantime, do us all a favor and make sure you have enough tape in the machine for what you plan to record.

Along with Dynamic Drum, JVC is going to introduce something called "3-Dimensional Super Color," which, I am told, is not based on red and green glasses. I think I smell a temporal color comb, but what do I know?

And then there is "Digital S," which is 4:2:2 compressed to 50 Mbps (3.3:1 ratio, which is not a heck of a lot more than Digital Betacam) recorded on W-VHS cassettes with players upwardly compatible all the way from regular VHS, so you can play a rental movie on a US$25,000 Digital S machine when you get bored.

Now I get to make my point.

Digital S is just one of the many new formats in the process of being introduced for possible field acquisition, from the Avid-ly awaited Ikegami "disera" (disk-drive-based camera) to Digital Betacam, Jr. to whatever Quantel's mysterious SMPTE paper is supposed to indicate.

PRO CONSUMER

And then there is Panasonic's DVCPRO. My friends at the ABC network in the U.S. seem to like it. Panasonic took the consumer 1/4-inch digital video cassette format and made a few modifications to it, like increasing the track pitch from 10 microns to 18 (which should greatly enhance editing capabilities) and adding cue tracks and time code and other toys.

But — and here is the catch — it did not do a blessed thing to the video. Nada. Zilch. Niente. Zero. Squat. Sifir, rei, ling, si kitu, meethen, soon, guan, nul, null, nol, noll, nula, nulla, and zip. Nothing.

Let me put that another way: If and when DVC ever arrives as a consumer product (which is something not only Panasonic but also JVC, Sony, Apple, IBM, and about four dozen other companies say they want to see happen), and if it ends up using the video system (4:1:1, 25 Mbps — about 5:1 compression) that Panasonic took from the developing standard, then, for the first time in history, consumer camcorders will lay down pixels identical in quality to those of a professional format. Exactly identical. Precisely the same. No difference whatsoever.

With 10 micron tracks, it sure will not be as easy to edit a consumer tape as a pro tape, and those wild and crazy error correctors will probably also get a better workout in the consumer version — especially when a two-year-old with oatmeal-covered hands attempts to add filthy young digits to the ones already recorded on the tape — but if they come out at all, the pictures will be the same. There are a couple hundred million VHS machines in use now. If DVC gets only half as popular, that would be a mere hundred million broadcast-news-quality VTRs. If it is only 1 percent as popular, that is an insignificant couple of million Betacam SP digital equivalents. ■

Mario Orazio is the pseudonym of a well-known television engineer who wishes to remain anonymous. Send your questions or comments to him c/o ***TV Technology****. Or drop him a note on e-mail 581-6729@MCIMail.com.*

CONTINUED FROM PAGE 19

A Line-by-Line Look At Dialogue Replacement

spotted ADR line, the original line must be cut out of the production track. It is not discarded but is moved to another track called the "X" track. This preserves the opportunity to use the original track if so desired. The hole left in the production track must by "filled" with tone that matches the scene. The use of tone to provide a seamless match cannot be over-emphasized. This is one of the keys to a successful dialogue cheat. The newly recorded ADR line is then synchronized to the picture and edited appropriately onto yet another track.

The last step is the mixing stage. It is at this point that any final matching of the ADR to the production dialogue track occurs. By this time the looped lines should be in sync and have a dramatic delivery that matches that of the lines around it. All that is left to do is to correct any equalization, filtering and reverberation that will make for a perfect dialogue match that is undetectable to the audience. ■

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****.*

Launching an INTELSAT Bird

by Phil Dubs

VIA SATELLITE

On Tuesday, March 25, 1995, at exactly 1/10 of a second past the original 1:18 a.m. launch time, Lockheed Martin and INTELSAT celebrated another successful launch. Destined for an orbital location at 310 degrees east, INTELSAT 705 made a spectacular liftoff from Launch Pad 36 at Cape Canaveral, Florida. A flawless launch hurled the latest INTELSAT series 7 satellite to its home for the next 14 years, 22,000 nautical miles above the earth.

Launching is a very tricky business. Things were not all that perfect in the days preceding the delayed launch and deja vu was starting to set in. If you have any contact with the satellite industry, you cannot help but remember the many launch failures that have occurred in the last six months.

Originally scheduled to launch in the early morning of Thursday, March 15, late delivery of the satellite to Lockheed Martin pushed the launch back two days to Sunday, March 17. This is a normal delay, as indicated by Lockheed Martin officials. The delay, however, provides me with a perfect opportunity to drive to Cape Canaveral, which is only a 3 1/2 hour drive from my home in Ft. Lauderdale.

With a US$100 million satellite and a US$100 million launch, there is not much room for error.

READY AND WAITING

The "Launch Weekend" looks like this: Drive up Friday night after work, get a tour of the Lockheed Martin launch site Saturday morning, attend the pre-launch dinner hosted by Lockheed Martin, see the launch from the bleachers at the Cape, celebrate the successful launch afterwards at the Lockheed Martin party, and then attend the COMSAT brunch Sunday morning. An action-pack weekend ... I could hardly control my enthusiasm.

But fate was going to extinguish any hopes of the my firsthand attendance of the launch of INTELSAT 705. The week before the Sunday morning launch, one of our typical cold fronts swept across the Florida peninsula, bringing with it strong winds, cold temperatures, cloudy skies, rain and a two-day launch delay. Pre-launch attachment of the payload (satellite) to the launch vehicle cannot be accomplished on time.

The word is passed along from COMSAT, and the 60-plus attendees scheduled to share the weekend launch dissipate to just a few from the COMSAT organization and a couple of diehard clients. GEMS TV Operations and Engineering is already short one engineer, and the workload does not permit me the luxury of taking off two or three mid-week workdays. The launch, now scheduled for Tuesday morning, March 21, will go without this writer's presence.

All the way up to late Sunday night, before the delayed launch, I check with Lockheed Martin for hopes of a longer delay, maybe even pushing it back to the next weekend. But this is not to be. So I go to sleep Monday night, figuring that INTELSAT 705 should be spinning around the earth when I wake up Tuesday morning.

However, on Tuesday, Lockheed Martin states the launch is held at T-minus five minutes, two seconds. With or without my presence, this is not a good sign. Two problems hold up the launch. The first is an indication of an incomplete closure of the liquid oxygen filler/drain valve. As is explained later, this would not abort the launch in and of itself. The second, more serious, problem is with the Pogo Suppresser, and the launch is aborted for this morning.

WINDOW OF OPPORTUNITY

The problems are corrected easily by the launch crew, and it is rescheduled for Wednesday morning, again with the same launch window that opens at 0118 hours. The Atlas/Centaur rocket is once again poised ready for its trip into space. Weather is very cooperative and rated by Atlas Launch control as the best in many years.

The launch site comes alive again Tuesday evening at about 2000 hours when the mobile service tower starts its trip back from the launch vehicle. A distance of 300 feet is covered in 15 to 20 minutes at 3 knots.

At 90 minutes before scheduled liftoff, the fuel is loaded into the launch vehicle. Liquid oxygen is maintained at minus 290 degrees, and the liquid hydrogen at minus 428 degrees. At T-minus 90 seconds, the fuel will be topped off at flight levels and secured.

A planned hold at T-minus five minutes is reached and additional checks and safeguards are made by the mission directors. The excitement builds as the visitor public address system crackles with positive "go" signals from each mission director. Mission directors are responsible for specific systems of the launch vehicle. The verbal responses are fired off as each is requested for a status report of the director's specific system. Everything comes back positive, and the five-minute planned hold is about to be released and the normal countdown resumed.

The countdown is resumed. Now at two minutes and counting, the responses are getting quicker and you can hardly digest what is said when the next response is announced. This is the 99th Centaur launch, and you can tell the launch crew has done this before. No hesitation is detected. With a US$100 million satellite and a US$100 million launch, there is not much room for error.

The countdown is flying along now, the words are strung together and you watch the launch pad for the first sign of engine ignition. Surprisingly, at T-minus 31 seconds, the actual launch sequence is started manually. And as described to me, the proverbial red button is pushed, providing the last chance of human intervention prior to the launch vehicle leaving the ground.

Launch release is reached at T-minus 1 second. Engine ignition is not hard to miss, feel or hear. The launch vehicle lifts off from pad 36B on a one-way trip to the stars. Actual liftoff is marked by a two-inch movement of the launch vehicle, reported back from the pad when a wire connected to the bottom of the rocket pulls apart. I did not see the wire, but my source is accurate, and I will look for it when I get my in-person tour.

PLAY-BY-PLAY DESCRIPTION

All stages of the mission are right at anticipated nominal values. It is as perfect a launch as one could expect. Rod Gagnon, a Telemetry Lab engineer, reports the various stages and progress of the launch. His actions are clear and concise. He darts back and forth in the telemetry lab reading strips of papers generated by endless recorders. He interprets the results as we look over his shoulder from a video camera that captures the action and follows his every move.

Larry Fosse, Atlas Launch Control narrator, provides the bits and pieces that make this whole thing understandable from an outsider's vantage point. Excellent coverage of the launch is provided by color cameras mounted in just the right places and fed live to a feed, which I am watching from Galaxy 3 in Miramar, Florida. The pictures from the cameras following the launch vehicle are spectacular. A huge piece of glass hung on the front of the camera makes pictures the naked eye cannot see. The detail is great — you can see the SRBs falling away as their fuel is depleted.

Rod indicates each stage of the launch mission, which I explained in part one in my last article. SECO, MECO and Sustainer terms are easily understood. I follow the progress of the satellite as it makes its way to a super-synchronous transfer orbit 20,769 nautical miles above the equator. Reaching the highest energy orbit possible, expending all the available fuel on the Centaur, spin up of the satellite and separation are attained.

After separation, spin down of the satellite occurs followed by multiple apogee motor firings. The satellite will find its way to 310 degrees east longitude over the next few weeks. A "Hot Vehicle" in this launch provides for a transfer orbit at 21,810 NM. The higher orbit will require less fuel expended by the apogee kick motors, and it ultimately will provide a longer station-kept life for INTELSAT 705, predicted at 14 years.

If all goes as planned, INTELSAT 705 will be in service by the time you read this. During the following month, deployment of the solar panels, battery initiation and a comprehensive checkout of all the onboard electronics will be completed. It has been interesting to follow this launch from start to finish. Once again, congratulations to the employees at INTELSAT, Lockheed Martin and Space Systems Loral for a job well done. My thanks to the members of COMSAT who had arranged for me to be part of this memorable launch. ■

Phil Dubs is director of operations and engineering for Gems Television, a programming service of International Television Inc., of Miami, that provides two network feeds, serving 18 Latin American countries, Mexico, the Caribbean and the United States. He can be reached via the Internet at PhilipSat@AOL.com

Learning the Art of Communication

Understanding Comes Not from What You Say, But from What People Think You Say

by Brian Kelley

CONTRACT ENGINEER

There are three things that contribute to good communication: the person doing the communicating, the manner in which the idea is presented and, finally, the idea itself. Often, it is the third element that matters least.

A basic truth about communication is that it is much more than what we say. It is more about what people understand. When working internationally, the importance of proper communication grows because it becomes much easier for things to go wrong.

I have a friend who, while a new expatriate, has struggled to take command of the German language in spite of his almost constant attention to language studies. In the midst of this learning a visitor came from out of town, and this required my friend to go to one of his neighbors to borrow an extra pillow. The visit took place without incident, but when my friend returned the pillow to the woman of the house, his new German fled him. Instead of uttering the carefully rehearsed phrase: "Thank you for the Kissen (pillow)," he managed to mutter in the presence of her understandably startled husband, "Thank you for the Küssen (kiss)."

Both my friend and his neighbor's marriage survived this miscommunication, but it shows just how easy it is for things to go wrong even when we try so desperately to insure that no mistakes are made.

A person's understanding of an idea takes place against a backdrop of culture, language, religion, marital status, nationality, race, educational background and economic status. I am personally convinced that unless you have lived in another culture, you never realize how differently things can be looked at. Sometimes it is more than one person seeing a glass as half full and another seeing it as half empty. There will inevitably be those who see no glass at all.

In your own culture, good communication undoubtedly requires attentiveness and flexibility. In conversing across different cultures, this need is greater still.

One way to ensure that you understand what is being said is to ask questions. I have had to spend a fair amount of time learning this skill. When working out a new contract, there are so many tasks of greater importance that it is often a burden to simply repeat things that have already been said. But this approach will almost always avert more work and frustration at a later stage. If you do not take the time to make yourself clear and insure that it is also clear to your partner, it will become necessary to clarify yourself many more times. It is always more work to clean up a mess than to avoid it in the first place.

Earlier in my career, I was working with a broadcaster in a developing market. She presented their ideas on growth and the need for investment in the company. She requested that I pass the information on to "interested Western partners," which I did. The problem was that I did not really listen to what she was saying. She was actually telling me that I was the hope upon which they were resting, the knight in shining armor to their struggling company. But from my perspective, I was merely trying to be helpful.

One way to ensure that you understand what is being said is to ask questions.

Now when similar requests are made, I explain in great detail exactly what I will do and exactly what I will NOT do. It initially takes more time, but it always takes less time than if I have to come back to the discussion and clarify what I meant (but did not say) in the first place.

U.S. physician and writer Oliver Wendell Holmes once said: "Many ideas grow better when transplanted into another mind than in the one they sprang up in." The only way to transplant a thought or creative idea to someone else is to let them know that you have it. This sounds easy, but it first presumes that you are willing to part with, or at least share, that which is uniquely yours.

I have a friend with whom I can share ideas quite openly. I can tell him good and

(continued on page 24)

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This new four channel, autoranging model fast charges *any* four batteries in the range of 12 to 30V (2-10Ah), via XLR4(M) connectors, simultaneously. This fast charging technology which was previously only available to lower voltage battery users now enables the charging of higher voltage batteries in 1 to 2 hours. Measures only 9.5"x5.5"x3" and weighs less than 2.5 lbs.

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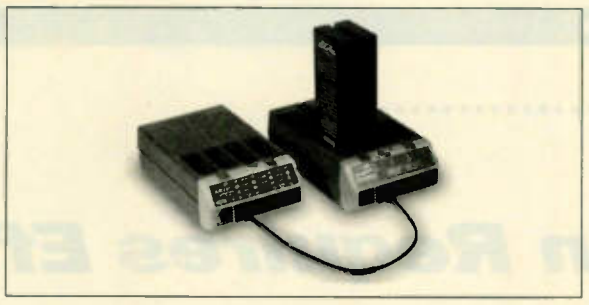

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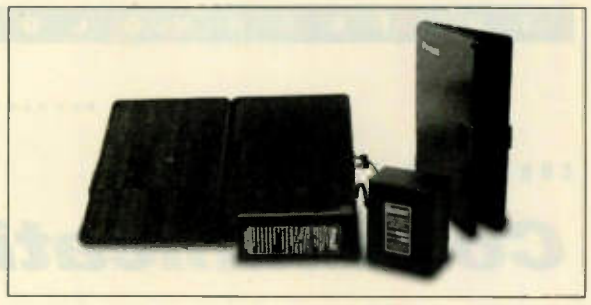

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Frezzi's popular Mini-Fill light is now available with built-in dimmer control and has won Videomaker's product of the year award. The MFIC Mini-Fill with pulse width modulation, provides the performance of a 50 to 100 Watt light for added flexibility in different shooting environments. Originally designed by Frezzolini for the first televised Mount Everest climb (ABC Network) the MIni-Fill has become a light of choice among broadcasters.

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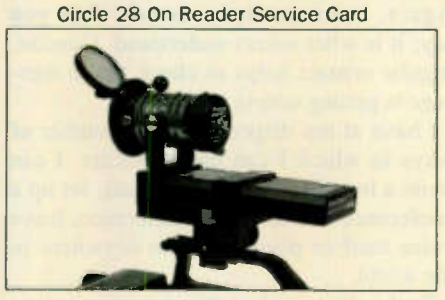

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ENERGY SYSTEMS

The Frezzolini NP Bracket System mounted on a Sony BVW-400 camcorder.

The Frezzolini NP Bracket System is an external battery holder designed to attach to the Sony NP battery box. When the Frezzolini NP Bracket is attached, it enables a second NP battery to be mounted on the camera for powering a Frezzi Mini-Fill light. The advantage of this system is to allow the use of NP batteries to power both your light and camera without a side battery pack or external cables getting in the way.

NP batteries are lightweight and relatively inexpensive. With the NP Bracket attached, the camera will easily fit into its carrying case. The Frezzolini NP Bracket system is a perfect choice for camera operators to fully utilize their originally supplied equipment by adding the Frezzi Mini-Fill quickly at minimum effort and cost.

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Communication Requires Effort

bad things and be honest and vulnerable. He can do the same with me. He is an unusual person — an investigative journalist and a professional magician. When we speak about the news stories on which he is working, he bubbles ideas, progress reports and discusses willingly his discoveries. However, I have learned not to ask him how he performs a feat of magic. One rule of the professional magician is not to reveal secrets of the trade unless they are paid for or traded.

If you are looking for information, this is a good point to remember. Giving what you know can result in getting what others know. The world is a very different place than it was a generation ago. Today even competitors are cooperating on projects. Look at the way high technology companies are pooling their resources to go into the brave new world of the late 20th century.

One of the greatest fears that Western businesses have regarding relationships with partners in developing markets is an apprehension about losing intellectual property. The concern is legitimate. These are shark-infested waters, but not everyone is out to steal. There are honorable people in every country who work in the TV business. To find them, one must be ready to wade into the sea, but bring along some shark repellant.

Large multinational corporations are betting fortunes on the sharing of ideas. For example, AT&T, Sony, Philips, Motorola, Apple and Matsushita have joined together to develop integrated software and hardware that will merge TVs, computers and a host of other devices. The venture, which operates under the name General Magic, may seem a bit like sleeping with the enemy, but by giving information and ideas — communicating — there is much to be achieved.

A rule of thumb is to take risks, but be sure to measure them.

When I get messages telling me about the wonderful things some company or individual is doing, I find that I can grow quickly bored. When communication comes that lets me know how the work they are doing can benefit me, the interest level grows considerably. This is basic human nature, but it is incredible how often this is forgotten as we communicate with others.

A situation in which both partners come out ahead is attractive and gets attention. I strive to do this myself, and I look to work first and foremost with partners who can do the same. It is far easier to run with someone than it is to have to push them to get started.

The Bible says that as iron sharpens iron, so one man sharpens another. In management terms, this is underlined by the concept of synergy; the whole is more than the sum of the parts. If you have the privilege of finding a partner who is a good communicator, you will experience the wonder of a positive exchange of ideas. In most cases, such exchanges result in a better concept or a better product and increase the joint venture's value, for the profit of all parties involved.

A situation in which both partners come out ahead is attractive and gets attention.

Communication is oil to the wheel of human relationships, and it is best to see that the grease is applied often. I have found that it is more important to communicate on a regular basis than to deliver large amounts of information at one time. Again, communication is not what you say; it is what others understand. Concise, regular contact helps to check that a message is getting across.

I have at my disposal a large number of ways in which I can communicate. I can write a letter, send a fax or e-mail, set up a conference call or video conference, leave voice mail or place a call to anywhere in the world.

Technology makes this communication easier, but in places not so blessed with these modern tools, this requires more effort. If you are trying to work somewhere where this difficulty is evident and you still hear from someone, remember that person. When motivation is high, positive results are usually not far behind. ■

Brian Kelley is director of Germany's New Life Network, an international distributor of family and educational television programming produced around the world.

The Moral of the Mobile Tale

by Jon Hazell

Once upon a time there was a television station general manager with a taste for adventure and an eye on costs. One day, while he was perusing the annual expense budget, a particular number jumped out at him. It was the cost of production for the State College Sports Network (SCSN). His station, WOOPS-TV, was the flagship for the network and it contracted with Colossal Mobile Television Inc. to provide facilities, crew and distribution for network sporting events.

"I have been in the television business 20 years," the manager said to himself. "I know our crack staff could do a better and cheaper job than Colossal. And if we built our own mobile production truck, we could make a lot of extra money doing high school sports and telethons. We could even compete with Colossal for work. With the increase in sports television, it is doing very well indeed. Mobile television will be a gold mine for us! And what a great local presence a big truck with our call letters plastered all over the side will have in the community. The other stations will eat their hearts out! I will really earn my bonus this year!"

FIRST THINGS FIRST

His first step was to call in the director of engineering. After a slight delay (troubleshooting the e-mail function on the receptionist's computer), the DE arrived. "Fred," said the general manager, whose name was Dick, "I want to ditch Colossal Mobile and start producing SCSN sports ourselves. What would it take for us to build a mobile television truck, and when could we get it up and running?"

"Well Dick, it couldn't be too hard," Fred responded. "After all, a mobile truck uses the same equipment we use in our studio control room. We already know most everything there is to know about producing live newscasts, and we put on the Small Children and Animals Benefit Telethon every year. I do not see any reason why we should not be able to easily put a truck on the road by the start of college football season in three months."

"Great! I'll call Colossal to tell them its services are no longer needed!" Dick was so delighted he broke 80 on the golf course that afternoon.

Fred was an accomplished engineer with many years of experience in the industry. He quickly drew up a design proposal and sent it out for bids. His design had a number of conservative engineering features. He specified the same brand and model switcher and cameras as he had in the studio to allow for easy parts interchange and lower inventory costs.

He negotiated a great deal on a new model character generator, taking advantage of the latest computer technology at half the cost of earlier models. The station had recently replaced its audio board and intercom system. The old units would work perfectly in the truck. He negotiated with a local school bus manufacturer to provide a truck box and rolling chassis at a great price. The station's engineers would have no trouble installing the racks, wiring and hardware.

With the general manager's approval and the blessings of the station's parent company, he went ahead with the mobile truck project. Dick fired Colossal and renegotiated the television contract with a surprisingly skeptical college administration. Fred ordered the equipment and the truck and drew up detailed plans.

RUSH ORDERS

For a week, everything was sweetness and light — then the school bus company called. It had just received a rush order for 50 school buses. Regrettably, because of the size and importance of this order, it would have to push construction of the WOOPS-TV production truck back six months unless the station wanted to pay a significant premium to assure on-time delivery. With no real choice, Fred gave in and the truck was delivered to WOOPS only two weeks late.

With the general manager's approval...he went ahead with the mobile truck project.

The engineers parked the new truck in the garage, forcing disgruntled news department personnel to park outside in the hot sun. Everyone was getting ready to install the racks and equipment. This turned out to be a much larger job than expected and the engineers encountered a number of installation problems: each equipment rack was an inch and a half too wide so that a row of four racks was too wide to fit in the truck; the high-quality, double-shielded video cable they ordered was too fat to fit in the rack behind the patch panel; the carpenter hired to build the console disappeared and could not be found; and one of the engineers quit in frustration.

Finally, three-quarters of the way through the season, the great day arrived.

Even with his staff working tremendous amounts of overtime, it became apparent to Fred that the truck would never be ready in time for the start of the college football season. He reluctantly climbed the stairs up to the manager's office and told him the dismal news. Dick had no choice but to call Colossal and beg for a game-by-game agreement to cover SCSN sports until the truck could be finished. Colossal was willing to do it, but demanded double rates because its trucks had been rescheduled elsewhere.

Meanwhile, work on the WOOPS-TV truck continued. Despite many setbacks, Fred was pleased with how things were shaping up. His staff was doing a neat job with the installation and the replacement carpenter did a quality job in building the consoles. Fred looked around the truck and saw a rolling studio production control room of which he could be proud.

READY TO ROLL

Finally, three-quarters of the way through the season, the great day arrived. The truck was ready to roll out to the stadium for its first college football game. Everything went relatively smoothly at the park-and-power, though there was a hum bar in the video when the engineers connected the truck's ground to the stadium ground.

But when the producer arrived with the floppy disks for the graphics, they were not compatible with the truck's high-tech new character generator. There was no time to do anything else, so the operator had to build graphics on the spot, which did not go smoothly because she did not know how to use the CG.

The truck's engineer-in-charge (EIC) had to spend a lot of time with the technical director (TD) figuring out how to operate the switcher, which was a brand and model the TD had never used before. It was the same story with the DVE. The used audio board had several flaky switches and the input the A-1 wanted to use for a talent mic had a scratchy pot.

The ex-studio intercom system had only two channels, but the show needed at least four. This resulted in a lot of confusion on the line. Thanks to the hard work of the crew and the EIC, the show did make it to air although it was quite rocky; it was obvious to SCSN viewers something was wrong.

On Monday morning, Fred and Dick met to discuss the first show. Fred acknowledged some problems but said that things would get better as they went along. Dick mentioned that he had assigned Scott, one of the station's account executives, to present the truck to potential clients. He had not yet made much progress, however.

Later that morning, Scott stopped by Fred's office. "Say Fred, is it customary for a mobile television company to supply luxury cars to clients?"

"Not that I know of," replied Fred. "Why?"

"Well, this morning a potential client asked it we provided an iNFiNiT! with our truck. Do we have a trade-out with the local iNFiNiT! dealer? Wouldn't a Lexus do?"

That's when Fred started to realize there was a problem. His concern was confirmed when the college called later that afternoon, refusing to allow the WOOPS-TV truck to do another game. It wanted a Colossal truck there for the next game, and it was thinking of accessing a penalty against WOOPS-TV for the problems. Lawyers were being consulted.

SECOND SHIFT

The WOOPS-TV truck never did another game for State College, though it did tape a play for the Drama Department once. The SCSN contract was given to the local Fox affiliate the next year. Scott backed off actively selling the truck when he realized the commission structure for selling ads was much better. Fred became very busy installing the station's new computer network. Dick got his bonus anyway, but he has not shot an 80 since.

Once a year the truck is rolled out to do a live shot from a downtown hotel for the Small Children and Animals Benefit Telethon. It mostly sits parked out behind the station with grass growing between its wheels; this makes a very useful place to rewind tapes, a handy source of spare parts for the studio equipment and a great place for engineers to catch naps on hot sunny afternoons.

The moral of this story is this: While on the surface mobile television production looks a lot like other forms of production, it has special requirements not found anywhere else. More than most businesses, a company's good reputation is vital. There are usually no second chances. Excellent money can be made in mobile television, but if you decide to build a truck, make sure you know what you are doing or you will likely be building a very fancy place to take a nap on a hot day. ■

Jon Hazell is a contract engineer and may be reached c/o ***TV Technology****.*

BUSINESS BRIEFS

BUSINESS

TEKTRONIX MERGES UNITS

WILSONVILLE, Oregon

In a move to "develop more synergies" between its video and networking operations, Tektronix Inc. has decided to merge its Video Systems and Network Displays divisions into a single unit.

The new organization, called the Video and Networking Division, will be headed by former IBM executive Lucie Fjeldstad who joined Tektronix in January.

Within the new division, many of Tek's current organizations will continue to operate independently. Among these groups is the Grass Valley Group subsidiary, as well as the video disk recorder unit and the network displays operation.

In the meantime, other groups will be created to focus on developing specific application environments with as-yet unnamed partners and to develop new products, such as video compression and high-speed networking systems.

In announcing the new organization at NAB, Fjeldstad mentioned a number of current Tektronix systems — namely the Profile disk recorder, the WinDD Unix application and Grass Valley's VideoDesktop system and Model 1200 and 2200 switchers — as crucial to Tek's future development.

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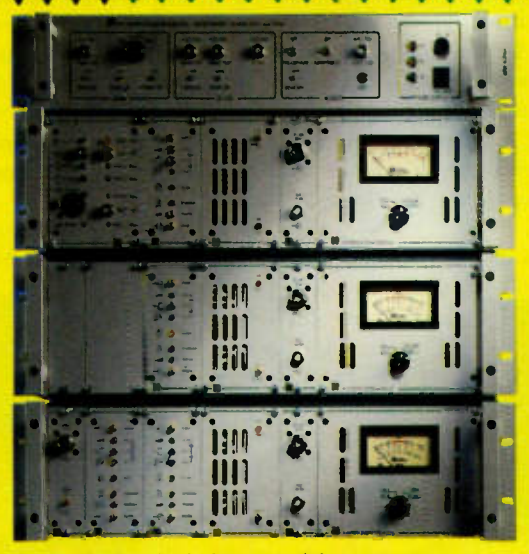

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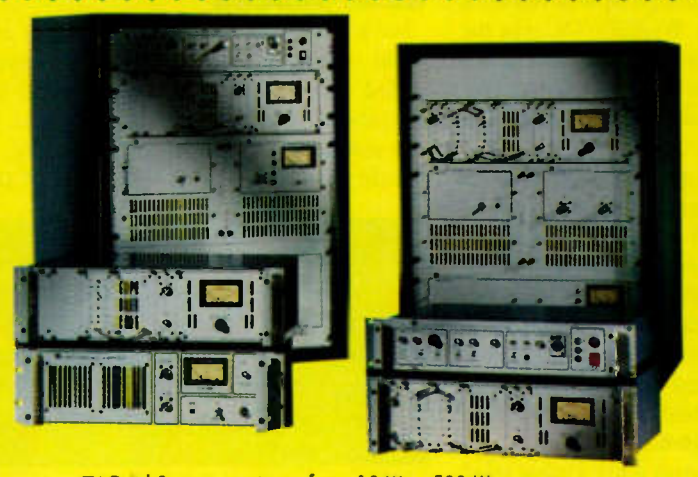

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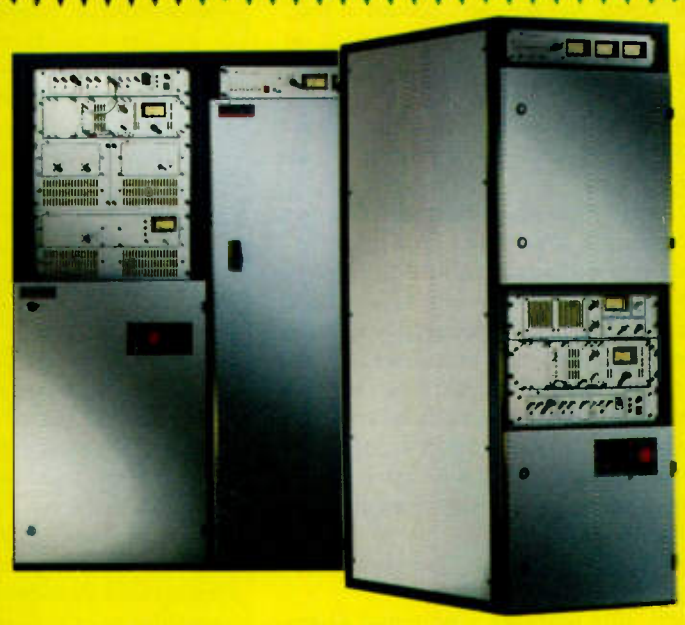

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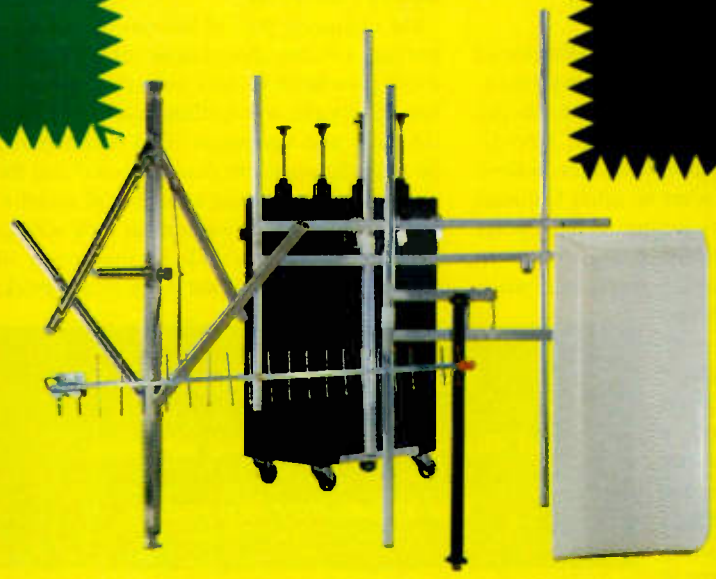

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Some Reflections on NAB '95

by John Watkinson

VIDEO WATCH

Two weeks before NAB '95, the NASA/Goddard Conference on Mass Storage Systems was held in Washington, D.C. After attending both, I was able to find a common theme.

Airline pilots can find the runways at Las Vegas airport very easily at night because they are the darkest part of town. As far as I can see, the reason Vegas exists is to form a dummy load for the Hoover Dam.

The only part of Vegas that I approve of is the convention center. Unlike many of the dumps I get to see in this industry, it is actually quite good. It is large enough to hold everything, the air conditioning can cope with the heat from the equipment and it is easy to reach.

It is impossible for one individual to see every stand at NAB, and so I will restrict my comments to a few areas which I found interesting and which I feel reveal significant trends.

NEW FRIENDS

The hot news was that Tektronix and Lightworks have joined forces. Combining Lightworks' understanding of the production process with the mass storage technology and muscle of Tektronix/Grass Valley should produce some interesting results, provided Tektronix is smart enough to leave the Lightworks crew to do what they do best.

One truth which came across at NAB '95 is that the announcement of the death of tape is premature. I have argued in this column and elsewhere that tape is not going to go away and it was nice to see that confirmed by the launch of a new VTR format which had punters flocking to the Panasonic stand like bears to honey.

In the other corner was the Avid/Ikegami disk-based camcorder, which was introduced with serious hype. A pop song had been commissioned and this was belted out for the whole show to the annoyance of nearby stands.

The DVCPRO (Digital Video Cassette - Professional) is the pro version of the quarter-inch DVC format that is a Japanese multi-manufacturer standard. The parallels with the audio DAT format are quite striking. DVC is intended to be a consumer digital VCR and as such, compactness and playing time are paramount. The starting point is 525/60 component digital in 4:1:1 format, which is then compressed by approximately 5:1. Naturally the audio is also digital.

The transform-based compression uses DCT like Digital Betacam, but instead of compressing each field individually, DVC compresses entire frames individually, making frame-accurate editing possible. The compressor has a simple motion detector that determines whether to de-interlace two fields to make one DCT block, or to leave them as two separate blocks. The technique gives a better result than a field-based coder for a given compression factor without seriously affecting editability in the way MPEG does. Think of it as halfway between JPEG and MPEG.

Because the only factor determining picture quality in a well-engineered digital recorder is the compression system, DVCPRO should give good pictures. The compression factor is relatively mild, so artifacts should be relatively rare. On a picture monitor, the results will compare well with 4:2:2 from D-1, D-5 or Digital Betacam. The subsampled chroma will show up if you try any fancy chroma keying.

The regular DVC format has a phenomenal recording density of more than 0.4 megabits per square millimeter.

However, comparing this format with top-end post production formats is missing the point. The real point is not that it makes D-1 look like something from Jurassic Park, but that DVCPRO has the quality to wipe out all analog VTR formats, VHS, U-matic, Hi-8 and analog Betacam included. For ENG purposes I believe that DVCPRO is the way to go, and I am sure it will get used for production work as well because of its appealing economics.

The DVC format uses ME tape, which has very high coercivity. This means that incredibly narrow tape tracks can be used. To follow such narrow tracks, two steps have been taken. First, the tracks have been kept quite short. With a 180-degree wrap transport, the drum only needs to be 21mm in diameter. Secondly, an embedded track-following system is used as standard. There is no control track: audio, video and timecode share the slant tracks.

The regular DVC format has a phenomenal recording density of more than 0.4 megabits per square millimeter. It also has two cassette sizes, giving one hour or four-and-a-half hours of playing time. In DVCPRO, Panasonic has sensibly reduced the recording density by roughly doubling the tape speed. This allows wider tracks with less sensitivity to tracking error and dropout and easier editing and a generally more robust format.

Panasonic has also introduced a new DVCPRO medium-size cassette which gives one hour of recording time at the higher tape speed. This modification has allowed Panasonic to use the DVC chip set, which is incredibly compact. The drive is so small that power consumption is relatively low, making it ideal for portable applications. The DVCPRO camcorder shown at NAB was no larger than a consumer analog device.

Although not yet available, Panasonic was also showing what future DVCPRO products might look like. There was a camcorder with a transport that was not much bigger than the lens, and a two-transport edit suite the size of a small briefcase, having twin flat displays in a laptop style lift-up lid.

However, the real advantage is a faster-than-real-time tape deck. This device can play a standard DVCPRO tape at 4x speed and recover all of the data for transmission to a non-linear editor. I have been saying for some time that one of the advantages of compression is that it allows faster-than-real-time transfer, so it was nice to see that the laws of physics are so reliable.

BEST OF BOTH

The laws of physics also say that tape will always be more economical than disk, but that disk will always be faster than tape. The computer industry has known this for years and sensibly combines the two technologies into useful data storage systems. At NASA/Goddard, the emphasis was on tape technology. Recent advances have brought the cost per bit way down and the throughput up. All the storage manufacturers were showing high-density tape products, especially robotic cart machines, which computer people call silos. These systems store terabytes before breakfast, and it does not bother them if the terabytes happen to be digital video and audio. These manufacturers are looking for markets, so if you have not met them yet, you soon will.

One product which caught my eye at NASA/Goddard was a tape silo with a cache memory using Winchester disks. Anything you use frequently automatically appears on disk for rapid access. Stuff you have not used for a while gets overwritten on disk so the next access to it will use the tape.

There are areas where tape is good, and areas where disk is good. Use either technology in the wrong application and disappointment is certain. While Avid has put disk technology to good use in editors, it seems that they have a disk-only mindset that says disks are automatically good for everything.

The disk-based camcorder unveiled at NAB '95 is evidence of the dogma. This 30-pound brute ("We'll take five pounds off that in the production model") uses 10:1 compression and records for all of 15 minutes on an exchangeable hard drive costing thousands of dollars. While the camera unit was capable of simple edits, the basic idea is that a disk from the field could be slotted straight into a non-linear editor, saving the time needed to dub. That is an admirable idea, but those damned laws of physics do not allow hard disks to get as much data in the space that tape requires, or at anything approaching the cost. And they never will, because any future magnetic or coding technology can be applied equally to disk and tape, maintaining the status quo.

(continued on page 28)

Taking Lightworks to the Edge

by Jay Ankeney

FOCUS ON EDITING

This month's editing odyssey was sparked by the question, "What does an assistant editor on a non-linear project do?" For those of us who work primarily in the linear editing realm, the only "assistants" we get are usually relegated to threading tapes or adjusting controls in a remote equipment room.

But in the film world, the assistant editor's position pre-dates the advent of moviolas. So now that there are several electronic edit systems revolutionizing cinematic post production techniques, often at a cost of well over US$100,000 per system, the position seems almost anachronistic.

Yet I have noticed that all the major non-linear digital edit system manufacturers emphasize the importance of the assistant editor, and most offer elaborate training classes to prepare people to take this job. So I signed up to take an assistant editor training course on a system that is gaining a growing reputation for electronic film post production: the Lightworks system.

Lightworks Editing Systems was recently purchased by Tektronix.

I learned that in the film world the assistant editor is still a very key player because he or she controls the whole flow of material through the post production process. In the past, this meant wrestling with film reels, trim bins, synchronizers, lab reports and lots of little cans holding tiny rolls of celluloid.

With today's digital video-for-film editing systems, the assistant editor's role has evolved into becoming the ultimate database manager for the whole project, and this person is often depended upon to understand the intricacies of the technology at hand even better than the editors themselves.

My excursion into the world of assistant editing began with a weekend at an assistant editor's training class at Lightworks, U.S.A., in Hollywood.

INTRODUCING...

After providing coffee and chairs to me and my fellow students, Director of Training Larry Breslow began by introducing us to the hardware.

"The Lightworks system is comprised of a 'main crate' holding a 486 IBM computer with three disk drives to handle editing files," he said. "The TAU drive is for 3 1/2-inch disks to input data files and output your final EDL or film cut list. The TBU drive is a port for backing up your edit database to optical disk. Then the TCU drive is the internal hard disk used to store the Lightworks software and all the event information generated during an edit session. A separate 'tower' of hard disks stores the actual audio and video material you are editing with. The new level 3.02 version of the Lightworks Turbo software currently lets you use drives holding up to 9 gigabytes (GB) each, with a maximum of seven drives per tower. Storage capacity is, of course, dependent on the level of digitizing resolution chosen for the project, but this configuration could give you up to 50 or 60 hours worth of audio and video material available to the editor at any one time."

Breslow proceeded to demonstrate the system's three monitors: a data display, a graphics screen and the main NTSC color picture monitor. In front of them sits a small keyboard used mostly for entering comments and DOS commands, a mouse, and, most uniquely, the Lightworks edit control module.

To those of us accustomed to standard computer keyboard layouts, this edit control module with its semi-circular jog-shuttle lever looks like a deceptively simple device. But to film veterans, its heritage from multiplate flatbed editors will be immediately recognized.

On the control module's periphery are conveniently positioned buttons for functions such as mark, un-mark, jump forward, jump back, fast forward and rewind. In addition, there are the two types of edits non-linear systems concern themselves with: "insert" (which cuts a new shot into an existing sequence, adding to the overall duration), and "replace" (which lays a new shot over existing material, not changing the sequence's original duration).

After loading the operating software from the internal hard drive via DOS commands, Breslow showed how the assistant editor starts to navigate through the system's intriguing style of graphic interfaces. At first, you are presented with a refreshingly bare screen called the "Lobby" containing just three icons: a "Door Generator," an "Exit" door and a little red shark in the lower right corner. A mouse click on the Door Generator creates a new Door icon, which the assistant can name.

Clicking on this Door gets you into a new room with a menu of existing projects hanging in mid-screen. The organizational logic is easy to use. The Lightworks system separates productions into projects. All the work for a given project is done in an associated room, and you access that room through a door created for that purpose. The shark, by the way, removes things from the screen. With a mouse command it "eats" them. This is called "sharking" an icon.

Inside our new room, selecting "Create New Project" from the displayed menu brings up a "Project Card" (looking very much like a chef's recipe card) on which you can enter the project name, the TV standard you are using (NTSC, PAL), the input audio parameters (sampling rate, quality), letterboxing aspect ratio for viewing and other relevant factors.

With this established, the assistant editor is ready to begin digitizing information into the Lightworks system. The Disk Manager, a tool new to Version 3.02, helps the assistant get an overview of the available storage capacity by displaying the space left on each of the disks in the towers. The assistant designates whether video, audio 1 or audio 2 are to be digitized and selects the resolution rate. On Turbo this can be from 30 minutes per gigabyte (to me it seemed approaching near Betacam quality) to 90 minutes per gigabyte (definitely off-line quality). In addition, the assistant begins entering material onto the storage disks through the digitization process.

For the purposes of this column, Breslow delineated three typical scenarios by which the assistant editor carries out this crucial task on the Lightworks system. Each scenario varies by whether the show was shot on film or tape and in what format the final product will be delivered.

TAKE ONE

On a feature film, usually a one-light workprint will be struck from the original negative, and the audio is transferred from the Nagra 1/4-inch tape to magnetic film stock. Once the dailies have been synced to sound by either the assistant or the post house, edge numbers — or Acmade numbers — are printed in tandem on both the workprint and the magnetic film sound track to permanently mark their sync relationship with each other.

This raw footage is screened with the editor, producer and/or director and sent to the telecine house to be transferred to a master video tape, usually D-2, and at the same time to a 3/4-inch cassette that will be used to input the material into the Lightworks system. Simultaneously, a data file of the telecine process is created on a 3 1/2-inch floppy disk. This file, often called a flexFILE, KEYLOG or KEYSCOPE file, indicates the beginning and end of each reel while correlating the printed Acmade edge numbers on the workprint to the time code on the 3/4-inch tape.

The assistant editor then puts this floppy disk into the Lightworks' "A" drive and converts the data file into the format the Lightworks system requires. The assistant now has a road map to guide the digitization process. For each shot that is digitized, the Lightworks systems creates three information records: a "video" media file (the picture), an "audio" media file (the sound) and a "database logging" file (where it came from and what it relates to). For the editor, however, the Lightworks system designates each shot as a "Tile" with icons that can then be either organized into "Galleries" and/or displayed by the information they contain as a "Database."

When editing is complete, the assistant retrieves information from these databases derived from the time code-to-edge number relationship and creates a film cut list by which the workprint can be cut to mirror the electronically edited show. After effects and titles have been added from additional workprint, a negative cutter correlates the latent key numbers on the workprint back to the matching key numbers on the original negative and conforms that negative to create final release prints.

TAKE TWO

The second scenario Breslow lays out for us differs only in the opening and ending acts. Sometimes, the producer will have the telecine house sync up the original Nagra 1/4-inch audio recording to the picture negative itself, and transfer directly from that negative and 1/4-inch tape to the 3/4-inch video cassette.

In this case, the data file created on the accompanying 3 1/2-inch floppy disk corresponds to the 3/4-inch tape's time code to the key numbers on the picture negative, which can also be burned into the 3/4-inch video. The assistant digitizes the material from the 3/4-inch tape into the Lightworks as before, but this time when it comes to outputting the film cut list, the numbers presented to the assistant are the key numbers by which the negative can be conformed directly.

The third scenario, often used for TV comedies, is invoked when the show is shot directly to tape for broadcast from tape. In this case, the master videotape is dubbed to the 3/4-inch cassette with matching time code, and the accompanying data file merely tracks the time code at the beginning and end of each take. When editing is finished, the assistant editor will create an EDL from the time code of the shots in the final version, and an on-line facility will reassemble the record master from the original tapes for distribution.

In all three cases, and these are merely typical examples, it is obvious that the assistant's credibility is dependent upon entering valid data at the beginning of the process to ensure getting valid cut lists or EDLs created at the end.

So the major responsibility of the assistant editor on a non-linear project is to manage the whole database that will eventually be edited down into the final show. Under the old rule of "garbage in/garbage out," this is not a situation in which you can be almost right. Woe unto the assistant who enters the wrong reel number, or cross-logs a batch of dailies, or lets the editor make a crucial cut on that phantom D frame of video that does not exist on film. ■

For further information:

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31-32 Soho Square
London, W1V 6AP, U.K.
Telephone: +441-71-494-3084
FAX: +441-71-437-3570

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CONTINUED FROM PAGE 27

Reflections On NAB '95

Let's compare Avid with DVCPRO head on for a 15-minute recording. The DVCPRO camcorder weighs half as much and uses half as much compression: 5:1 instead of 10:1, so the picture will be better. DVCPRO is a derated format for reliability; Avid will be using the highest capacity drive available. With tape, 15 minutes cost perhaps US$10; the disk costs several thousand. Where Avid wins is that there is no need to dub data into the non-linear edit system. With DVCPRO's 4x speed transport, this takes just under four minutes.

Interestingly enough, the Avid presenter I spoke to had never heard of DVC and looked amazed when I said that tape could dub at high speed. Thus, you spend all that cash to save four minutes. When the DVCPRO laptop editor becomes available, the tapes can be edited in the car on the way back to the studio. ■

John Watkinson is an independent consultant in digital audio, video and data technology and is the author of eight books on the subject including The Art of Digital Audio and The Art of Digital Video; acclaimed as definitive works. He is a Fellow of the Audio Engineering Society and is listed in Who's Who in the World. Based in England, he regularly presents papers at conventions of learned societies and has presented training courses for studios, broadcasters and facilities around the world. He is currently working on a video fundamentals book. John can be reached at +44-734-834285.

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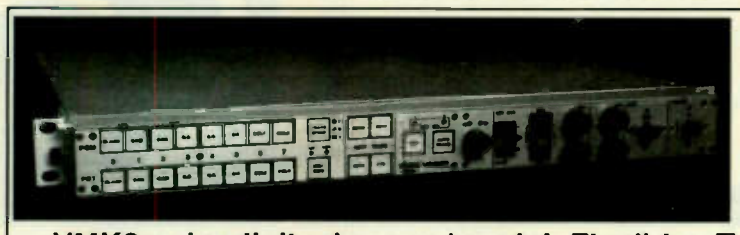

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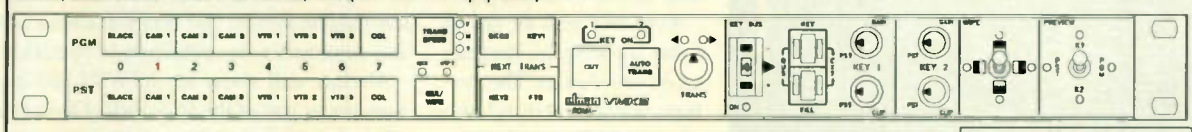

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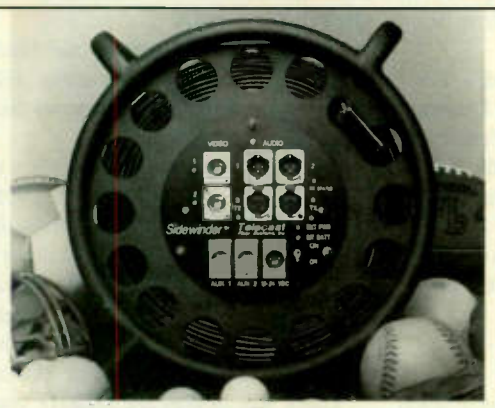

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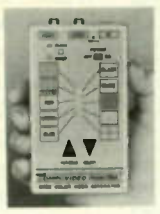

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International Television Symposium and Technical Exhibition

MONTREUX

June 8–13 1995

Automation Takes Center Stage

MONTREUX

From video servers to routers, switcher and automation products continue to rack up new advances designed to smooth out the operational hazards of modern broadcasting.

At Montreux, manufacturers will tout some of the latest advances that digital technology has to offer.

Sony is prepared to release a wide range of products under its integrated newsgathering focus this year. Sony will lay out a complete automated newsroom system featuring videoservers developed jointly with Oracle integrated to a wide range of recording and desktop editing devices.

In addition, Sony will present a number of standalone products that can be integrated into the overall system. Among them are the DVS-7000 switcher designed for either studio or mobile truck applications. The system offers mix/effects buses, a program/preset bus and up to four downstream keys.

Tektronix's Profile disk recorder

In addition, Sony will unveil the DVS-M1000C master control switcher capable of 12 component serial digital feeds with embedded audio. Also available are four downstream keyers.

Avid will also be out in force showing its integrated news solution. The system centers around the new Avid/Ikegami disk-based camera, which can be tied into the company's NewsCutter, AirPlay, AvidNet and Avid MediaServer systems for a tape-free news production process.

BTS will bring out its Media Pool videoserver, along with its existing Diamond Digital production switcher and Venus and Mars router. Also on hand will be the Saturn master control system and the Jupiter facility control system.

Tektronix will showcase the Profile disk recording system capable of multichannel recording and playout.

UNDER CONTROL

Barco will present the Rosa windows-based cable TV management system, along with various other systems for terrestrial and cable broadcast management.

At Broadcast Systems Software, the company will set up Sales Master, its latest Broadcaster Master software suite. The system handles numerous methods of airtime selling and commercial placement. The original Broadcaster Master for the PC will also be shown. The system oversees program acquisition, materials tracking, library management, program planning and transmission scheduling.

CSO International Inc. will showcase its Studio Automation Manager, a digital audio programming system for audio CD readers. The company will also bring out a line of addressable switchers.

Drake Electronics will provide its D-MAS multichannel automation system that provides fault-resilient control of transmission operations. D-MAS can operate in real time multichannel environments in which broadcast equipment is shared or dedicated to each channel.

Dynatech Video Group will unveil the NewStar for Windows newsroom automation system working under the Windows 95 and Windows NT operating systems. Dynatech will also power up the TAS and MC-500 facility automation and master control systems.

Also from Dynatech will be the DigiStore spot playback system featuring the Adware package for automated playback of commercials using GPI and master clock triggers.

Newswire Information Systems will show new low-end server systems for smaller newsrooms, as well as new automation products based on Sun MicroSystem workstations.

Pioneer Electronic will deliver the new Broadcast 2000 system, an automation system centered around the company's WORM optical discs. The system features a library module with near-line digital video storage for LAN networks, a multichannel cart unit for video-on-demand (VOD) applications and a near-VOD system using four-head players.

Pioneer will also show the DRM-5004X 500 CD-ROM changer with four readers/writers for commercial insertion.

Vistek will show the Autotran broadcast automation system that offers machine control and automation for multichannel operations.

Abekas will show its ASWR8100 digital switcher as part of the Vidi VideoDigital stand.

For-A will deliver its serial component system featuring the CV-132 component video mixer. An editing system containing the VPS-300P production mixer will also be on hand.

INTO THE MIX

Grass Valley will roll out the Model 2200 serial digital vision mixer, along with a host of desktop video and Windows-based production systems.

Thomson Broadcast will deliver a new line of production mixers, namely the 9250, 9300 and 9600 units. Also available will be the 9920 digital master control switcher and the existing 9200 and 9500 digital mixers.

Dynatech will provide the Alpha Image Alphie component digital production switcher, along with the Alpha Image Elite switcher.

Vistek will display the D2401P component digital master control switcher and a high-level router controller in a Windows environment.

Snell & Wilcox will line up the DVS800 eight-input and DVS500 two-input telecine switchers. Both units feature 10-bit, 4:2:2 processing with optional DSK.

AAVS will introduce the Onyx.D16 digital video router, as well as the S160LP dual stereo auto changeover unit. Among its existing lines of products will be the EVA (Equipment for Video Automation) system outfitted with a Tek Profile videoserver, and the ERA (Equipment for Radio Automation).

NTP Electronik will show the new Type 625 Multinorm audio router, along with the Type 660 Windows-based routing software. Also new from the company will be the 575-100 asynchronous AES/EBU switcher and the analog 575-200 switcher.

Cintel will show the Talia routing system and talk-back unit, along with its range of telecine gear.

In addition to its automation products, Dynatech will introduce the new Utah-300 router featuring a "Smart Architecture" for management of all analog and serial digital formats.

SAV of Paris will introduce a number of new matrix products, including a range of digital products in 8 x 8 and 16 x 16 sizes with active loop-through inputs and automatic cable equalization. Additional 12 x 1 digital matrices are available in all standards and can be coupled to form 24 x 1 and 36 x 1 units.

Sigma Electronics will have the new 2100 series of Micro-Matrix routers in 4 x 4, 8 x 4 and 16 x 4 analog video and audio configurations.

Talia Sound and Vision will present the new EOS digital video router, along with its lines of talk-back and data conversion systems. ■

CONTINUED FROM PAGE 1

Expectations Run High for Montreux

working version of its new camcorder based on the Betacam SX format. The camera was on display at NAB, but Sony was still developing several components when the show opened, so a working model was not available.

For its part, JVC will introduce its Digital S format, targeted mainly at the industrial video market. This is the latest format based on the popular consumer VHS line. The low-cost Digital S format provides digital quality in a backward-compatible system to the analog S-VHS range.

Other new products will also be highlighted at stands throughout the ITS exhibit floor. A number of manufacturers, NTL among them, will present compressed video systems conforming to the MPEG-2 standard. (Also, be on the lookout for a presentation from the DAB/DVC group.)

Off the show floor, Montreux will present a detailed conference program, with speakers from around the world discussing the latest advancements in terrestrial, cable and satellite broadcasting as well as post production and multimedia.

The conference will be led by a keynote speech from Ervin Duggan, a former member of the U.S. Federal Communications Commission and now head of that country's Public Broadcasting Service. Duggan has been under fire in the United States recently from a new conservative Republican Congress that is asking him to justify the Corporation for Public Broadcasting's US$250 million federal subsidy in the face of massive U.S. government debt.

In addition, this year will mark the show's first joint cable/satellite conference entitled "Cooperative Aspects of Cable and Satellite." The program will include European, U.S., Australian and Japanese perspectives on the way the two industries can work together to gain more viewers.

Other conferences and workshops will specifically target the needs and recent developments of the cable, satellite, terrestrial, production and multimedia industries. Among the topics to be discussed are digital compression, non-linear editing, disk-based recording, widescreen television, digital transmission and wireless cable.

Meanwhile, Montreux officials have begun discussing the creation of a special multimedia exhibition for future shows, in much the same way that the NAB has a separate MultiMedia World exhibit hall in Las Vegas each year.

"We will organize the first meeting of the Multimedia Board on 10 June," Kramer said. "We will have multimedia exhibits this year, but not a separate multimedia floor. The future will tell us what direction to take."

A greater focus on multimedia would distinguish Montreux from other video-related shows in Europe, particularly IBC. But with IBC determined to cut into Montreux's attendance, it is anyone's guess whether Europe will continue to see two major equipment shows every other year when IBC and ITS collide.

Still, for this year at least, Montreux organizers say support from manufacturers and attendees puts them in a very strong position to do battle. ■

Computer Video Systems Abound

MONTREUX

The use of computers in video applications has spawned a host of new applications and players, a continuing trend that will be evident at Montreux. The following companies will be on hand to show their products.

Abekas will display products at the booth of one of the company's distributors, Vidi Videodigital. The European launch of the Texus Live character generator will be accompanied by displays of established products such as the Diskus Graphics disk recorder and the A57 digital effects system. Also from Abekas will be the Hexus post production system.

Getris Images will debut Broadnews, a computer-based station for graphic creation and automatic broadcasting. Also new from Getris is Digitoon, cartoon production software that runs on a PC with Windows NT. New versions of Eclipse, Venice and Hurricane will also be shown.

Grass Valley will show off established graphics and effects products such as the Krystal 4300 DVE and TypeDeko Windows-based character generator.

Feral Industries will debut Feral Effect Plus, a product that adds zoom and cropping effects to the established Feral Effect. Also new is the Quad Split, a digital video/image manipulation device that combines up to four composite or Y/C video inputs into one output for display on a single screen.

Avid will show the Media Spectrum, the company's first product for the Silicon Graphics platform.

Pixel Power will debut enhanced 2D animation for Collage, an extended standard font library via CD-ROM and a serial D1 keyer. Established Pixel Power Products for attendee perusal will include Collage, Pocket Paint and PC Framestore.

Questech Limited display will include the company's established SSVR Animator-Editor and the new Charisma Ten digital video effects mixer.

Snell & Wilcox will show its Magic DaVE 4:2:2 DVE and digital switcher.

BLT Italia will demonstrate the VP830 3D digital special effects generator.

Dynatech Video Group will show the new Antero character generator for the SGI platform. The system features TrueType and PostScript Type1 fonts, as well as a range of border, layout and effects options.

Also out will be the ColorGraphics DP\MAX videographics workstation offering tools for graphics, typography, animation, special effects, image compositing and non-linear editing. Also at the stand will be the Delta Concorde text and graphics system.

Quantel will show the new, faster Paintbox Express as part of its new focus on news systems. The Hal system is also available as an Express package, as is the Picturebox.

Editing remains a strong component of computer video technology.

Avid will show the Media Spectrum, the company's first product for the Silicon Graphics platform. The system features an open architecture for editing, layering, compositing and special effects.

BTS will present the Bravo editing system among its wide range of products.

Dynatech will bring out the EditStar, a script-based editing system designed for newsrooms. Also on hand will be the EMC Primetime on-line editor featuring 60 field-per-second full bandwidth video.

Meanwhile, Fast Electronics will power up its Video Machine system, a hybrid editing suite now outfitted with the Alladin 3D effects generator.

For-A will bring out the Symphony linear/non-linear, on/off-line desktop system. For-A will also show a standard editing system consisting of the EC-780 A/B-roll controller and the VPS-300P production mixer.

Grass Valley Group will unveil its Videodesktop personal production suite, along with the Sabre 4300S SGI-based editing system.

Although now a part of Tektronix, Lightworks Editing Systems will make its presence known with the introduction of Newsworks, which was specifically designed with the fast-paced news environment in mind. Also out will be the Heavyworks One system and the Lightworks Turbo.

The Matrox Personal Producer 3.0 will be available at the Connexion stand. The system features A/B roll and non-linear editing. Also at Connexion will be the Film Maker non-linear software package and the Rotoscope computer-to-VTR editing software.

Videomedia, developers of the V-LAN control system, will show the OX-PCE (Production Control Environment) that integrates linear and non-linear systems into a single package. Also out will be the SES editing system for keyboard-style editing.

Quantel will show its new Post Production Network based on the Clipbox server. Also, new features have been added to the Editbox while the Henry will see new power with the HIPPO system. ■

PAG AR124NP Autoranging fast-charger. PAG MC124 battery management system, with PC link. PAG Lok-on Power SuperPack Ni-Cd battery.

RF Products Signal New Trends

MONTREUX

Cable and terrestrial transmission manufacturers this year offer both variety and an emphasis on the cutting edge as they present their latest systems to Montreux crowds.

ABE Elettronica S.P.A. will show its new line of solid state power amplifiers for operation in the VHF and UHF bands using MOS and bipolar transistors and employing Class AB technology.

Also on display from the company will be a number of established products such as microwave links for various applications, transmitters and translators using thermionic tube and solid state technology, antenna panels, parabolics, multiplexers and accessories.

CTE International will be showing the company's new VL62 60 W exciter/transmitter, a 250 W Transmitter with three band audio processor included in the same 4RU cabinet and a 3 kW MOSFET amplifier.

IRTE will bring out its complete range of VHF and UHF transmitters and repeaters from 2 watts to 10 kW. Also on display will be several broadcast antennas.

A new amplifier is one of several new products to be displayed at the Teko Telecom booth. The 500 W L4AMP500 UHF amplifier complies with CCIR B and G specifications and features 8 W unified driving, built-in output channel filter and high thermal stability.

The Digital Video Broadcasting Project will also have a booth at ITS. This project is an industry initiative of about 170 companies to introduce MPEG 2 based digital television services by cable, satellite and terrestrial means. Details on the first DVB services, scheduled for the third quarter 1995, can be obtained at the DVB booth.

New solid state UHF/VHF amplifiers in the 30 W to 1 kW range will be the big news at the T.E.M. Technologie Elettroniche Milanesi booth. The company's established line of 20 W to 1 kW FM transmitters will also be shown.

At the Thomcast portion of the booth, Comark will show its IOX UHF transmitter with new $(PS)^2$ technology.

Thomson Broadcast Systems will exhibit a new digital broadcast satellite system.

At the Thomcast portion of the booth, Comark will show its IOX UHF transmitter with new $(PS)^2$ technology.

NTL will have a demonstration of multichannel digital terrestrial TV at the company's booth. The latest "System 3000" MPEG 2 video compression products for professional or direct-to-home applications will also be shown, along with plans for a compact SNG system.

New products at the Coaxial Radio Systems (C.R.S.) booth will include a 1,000 W solid state TV amplifier from the Alien System Series. This product features a cavity tuned transistor that improves output power up to 1 kW. Also new is the 5 kW cavity for a Siemens 1034 tube.

Established C.R.S. products include the company's 5 kW tube transmitter, various RF components and the Alien 200W.

In the contribution arena, Alcatel will show the company's established 1718 VC and the new 1743 VC units. In distribution, the established 1570 BB will be joined by the new 1715 VC. The 1716 OV for closed-circuit TV will also be displayed.

Rediffusion and Cortaillod will share booth space with Alcatel. Rediffusion will show REDIvision, its interactive multimedia CATV-System, the PayTV coder/decoder system (RSC 4086, RSC 4087 and RMO 4035) and CATV components for primary and secondary distribution and headends.

Cortaillod will have coaxial trunk and distribution cables on hand (with their corresponding connectors), and optical fiber cables with splice and distribution accessories and optical connectors. Bosch Telecom will show an analog broadband distribution network that provides a frequency range of up to 860 MHz. With coaxial technology it is used for network designs with radii up to 4 km. Radii of up to 35 km (with return transmission capabilities) can be realized by using optical fiber tail links.

Bosch will also show its "Diamant" digital TV and audio signal transmission system for conventional analog TV and radio signals, digital compressed signals that are modulated for injection into the coaxial line and digital-only channels embedded in a digital data flow.

A channel processing unit for feeding compressed MPEG 2 satellite transmissions into cable networks and a DVB combiner will also be at the Bosch booth.

Cablerie Seneffoise will display its line of trunk-distribution and drop cables for CATV and SMATV networks. These products feature outer conductors that are either seamless or welded aluminum, corrugated or smooth welded copper, or a combination of tape and braid.

TO THE WIRE

C-Cor Europe B.V. will show established products such as Flexnet amplifiers, Linknet AM fiber equipment and the CNM cable network management system. New products from C-Cor on display at ITS include a recently developed amplifier range for AT&T and a Comlux Nicam option.

CSO International Inc. will be showing real-time "Videoplex" and slow-scan "Vidiscan" multiplexers that allow four to 36 pictures on a single screen. CSO will also have teletext encoding-decoding systems and subtitling units on hand at the show.

Delta OHM's line of components for civil and military telecommunications will be displayed. This line includes filtering, coupling and duplexing systems, coaxial and stripline components and quick mount connectors for downhill antennas and radiant antennas.

Elettronika S.R.L. will show a number of the company's established products, including an FM TV modulator, FM amplifiers, FM microwave links, antennas, converters and cables.

FUBA Hans Kolbe & Co. will display its established terrestrial transmission system and a number of new products. These new products include digital modulation headend equipment, CATV/SMATV/MATV products, an interactive CATV product and analog optical fiber systems.

Harmonic Lightwaves will come all the way from California to show the company's YAGLink externally modulated Nd:YAG laser transmitters, PWRLink DFB transmitters and receivers for bi-directional broadband communications.

Kabelrheydt will show both new hybrid cables and the NORDURA-F-CATV aluminum cables at ITS, along with a number of established products such as the copper design NORDURA-D and S-CATV cables, and Rheylux optical fiber cables.

Neurodata Design will show a new bi-directional management system using a CATV network. This can be used for remote control of cameras, active and passive detection and other uses. Also, a new, fiber-optic ready modular mini trunk line amplifier will be shown along with established products such as line amplifiers, data terminals and CATV power supplies.

ON-LINE DATA

At the Rohde & Schwarz booth, many new products will be shown. The ADAS audio data transmission system, that can be retrofitted to digital program feed, features non-audible data link with 2 x 400 bit/s on the modulation line, addressable remote control lines and no modems/point-to-point lines.

The NH 500 UHF solid state transmitter is another new Rohde & Schwarz product that will be displayed at ITS. The NH 500 is a fully transistorized TV transmitter family for frequency band IV/V and power up to 30 kW.

New solid state DAB transmitters and low power transmitters will also be displayed, along with a system for CATV headends.

S.A.E. will be showing its line of coaxial connectors and splices for cable TV, satellite reception and OEM applications. Also, the company will be showing custom coaxial connectors.

Signal Engineering & Electronics (S.E.E.) will also exhibit its range of coaxial connectors. The company will also show modular broadband amplifiers for coax networks and a transparent fiber optic transmission system, the AM 900.

Softel's booth will feature the company's Cyclone PC Windows Teletext transmission and management system for cable, satellite and terrestrial TV broadcasters.

Intelfax will show the new Vitesse teletext management system that provides powerful database and transmission management facilities using PC hardware. Transmission is based on a network-compatible version of the ATOM teletext inserter. Intelfax will also be showing a new interactive teletext system that gives viewers access to information using a teletext TV set and a touch-tone phone.

Plasma, a PC-based teletext management system with graphical user interface, will be a highlight of VG Broadcast's display. Plasma, now in service with six broadcasters, is a modular system designed for both small and large teletext operators.

VG will also be showing a PDC management system offering automated and manual options for the creation of teletext listings and output of the recording control data. ■

Consign your animation tape problems to history

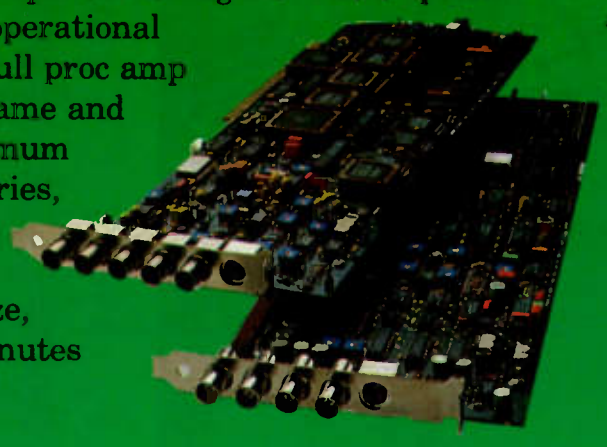
DPS have a PAR system that takes the aggro out of animation.

The DPS Personal Animation Recorders permit the recording and real-time playback of computer animation sequences directly from a hard drive.

For PC applications

The DR-3100 plugs into a 16-bit ISA bus expansion slot in any IBM compatible computer. It supports direct rendering from animation programs such as Autodesk 3D Studio and can also be used to build sequences from pre-rendered TARGA files. Once recorded, animations can be easily copied, trimmed, joined, appended and deleted. A variety of slow motion playback speeds are also supported.

When used in combination with a DPS AD-3000 Video Capture card, the DPS Personal Animation Recorder can perform real-time video capture for rotoscoping, time lapse recording and other special effects. AD-3000 operational features include full proc amp controls, freeze frame and freeze field. Maximum recording time varies, depending on image complexity and hard drive size, but six to nine minutes is typical for a 1 GB hard drive.



Captured video sequences can also be easily converted into TARGA files.

For Amiga applications

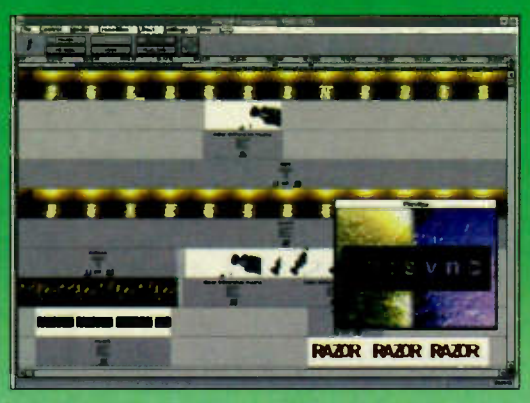
The DR-3150 card plugs into an Amiga expansion slot and replaces both the record VCR and the single frame controller. A dedicated hard drive (not included) and component digital recording techniques are employed to enable the recording and real-time playback of full resolution animation sequences. Bad edits, missed frames, dropouts and other mechanical glitches common to traditional VCRs are a thing of the past with the DPS Personal Animation Recorder.

Newtek Lightwave 3D

The LightWave 3D package is a full featured 3D graphics and animation system.
It is renowned for its easy to use interface which gives users quick access to a wide range of powerful features.
LightWave 3D's spline based key framing system allows fast creation of motion paths, while other features such as envelopes, skeletal deformation and displacement mapping allow virtually every element in a scene to be animated.

Razor Pro

Razor Pro features infinite video and audio tracks, an easy to use project management system, organic and customizable transitions, as well as the ability to apply transitions to multiple tracks.



Razor Pro handles digital video clips of up to 752 x 576 any colour, depth and audio of up to CD quality. It supports ANI, DVM, TARGA files, bmp files, and Video for Windows codes such as Microsoft Video1, Cinepak™ and Intel Indeo™ video.

To find out more about hassle free animation contact DPS on (01252) 718300.

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Circle 63 On Reader Service Card

Focusing on Camera Equipment

MONTREUX

For video professionals, Montreux will be the only place to be this month. In the area of cameras, camera support and lighting, a wide range of companies will be on hand for the festivities. Read on for a sampling of exhibitors and the gear they will display.

CAMERAS

Getting most of the pre-show publicity has been the Avid/Ikegami disk-based ENG camera, dubbed CamCutter. The system utilizes a rugged removable hard disk (FieldPak) to capture between 15 to 20 minutes of recorded material. Scenes are available as soon as the FieldPak is snapped onto an editing station, and news spots can be screened, edited and even played to air directly from the camera.

Ikegami is also expected to have a number of other camera developments on hand. The HC-390 boasts 800 lines of horizontal resolution, a continuously variable shutter, 36 dB gain and the ability to automatically return all camera adjustments to their default settings. In addition, the HL-57 is equipped with 2/3-inch FIT CCDs and offers a wide range of control over video matrix/color saturation, master gamma and other parameters.

BTS Broadcast Television Systems reports it will introduce to ITS crowds the LDK 10/10P CCD frame transfer cameras alongside other established cameras in the LDK CCD frame transfer series. BTS' product display will reflect the company's system solutions in four major application areas (broadcast, post production, imaging and telecine).

Amid its vast array of professional video products, FOR.A Corp. has announced it will highlight its HMC-1220 NuBus plug-in high resolution still camera as well as the SL-1200 lighting box.

HDTV veteran NHK will be present at Montreux to exhibit the Hi-Vision Super-HARP camera, a hand-held color camera for HDTV that comes equipped with Super-HARP tubes (18mm all-electrostatic focusing deflection type). Maximum camera sensitivity reportedly is 2,000 lux at f/25. The sensitivity can be controlled by manipulating the applied target voltage of the tube, allowing the camera to produce HDTV-quality pictures across a wide range of shooting conditions from daylight to moonlight.

NHK will also show the Bee-CAM, an ultra-sensitive color camera for NTSC. It is a three-tube unit that simulates insect vision by means of the false-color method.

JVC also will be displaying a new HDTV camera, the KH-100, which will be part of the company's display of HDTV gear including a recorder and monitor.

Thomson Broadcast will have on display its established 1657 switchable 16:9/4:3 portable camera as well as the A544 studio camera.

Look for Sony to unveil the new BVP-500 studio and 550 ENG DSP family. Both systems can be configured to different cost/performance levels depending on the selection of optional Integrated Imaging Capsules. All sensors feature 520,000 elements, while CCD imagers can be Frame Interline Transfer (FIT), FIT 16:9 or Interline Transfer (IT).

Sony will also roll out new BVP-700 and 750 models designed as compatible studio/outside cameras for high-end production. Both have switchable aspect ratios and utilize a high-speed command system for real-time control over all video parameters.

Also, keep an eye out for Sony's new Betacam SX camcorder. Sony officials reported that a working model was almost completed for NAB in April. The camera features a new digital format offering high-speed transfer of material to disk-based editing and storage systems.

Meanwhile, Panasonic should be out in force showing the new AJ-D700 camcorder utilizing the new DVCPRO format. Unfortunately, it appears Panasonic will only show a 525-line version, with PAL and SECAM models to be released later. Still, the camera features 10-bit digital processing, three half-inch, 410,000-pixel FIT CCDs and 63 minutes of recording. In addition, the DVCPRO line will feature the 4X Fast Transfer player that will stream video into digital storage systems at four times real time.

Hitachi Denshi is likely to bring out the new SK-2020P series portable digital camera that was recently introduced in the U.S. The low-cost units feature 400,000-pixel IT CCDs and wideband triax for longer cable lengths in the field or studio. Also, take a look at Hitachi's digital triax transmission system and the RU-Z2 remote camera control unit.

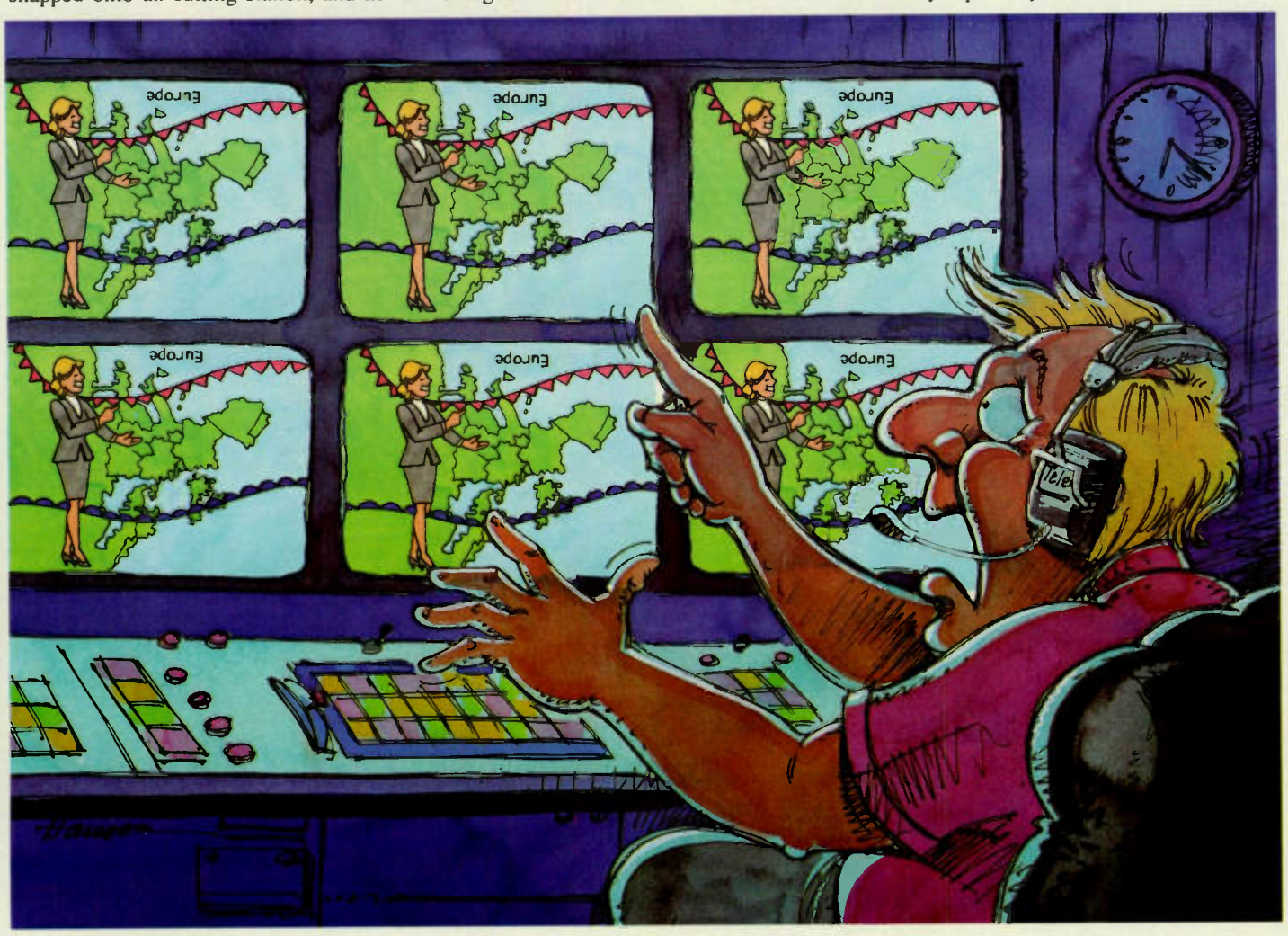
CAMERA CONTROL

The latest from Lightning Systems SA is the HF Link control system, which allows users to work with up to 30 cameras on two HF channels. It includes a complete remote control for the Sony BVP-7xx and BVP-90xx series cameras.

Radamec EPO Ltd. has two new camera control products to show to the Montreux audience: the ARC 2000 Touch Control Panel (TCP) system and the RP4 pedestal adapter. The ARC 2000 provides full shot storage and recall functions directly via an S-VGA touch-screen. The system displays a montage of frame-grabbed shots that can be selected to recall camera/pedestal positions for up to eight cameras.

The new RP4 pedestal adapter, when assembled on standard studio pedestals, provides full robotic control of x, y and z pan and tilt axes.

In addition to a broad range of professional video products, Thomson Broadcast will introduce the OCP camera control panel.

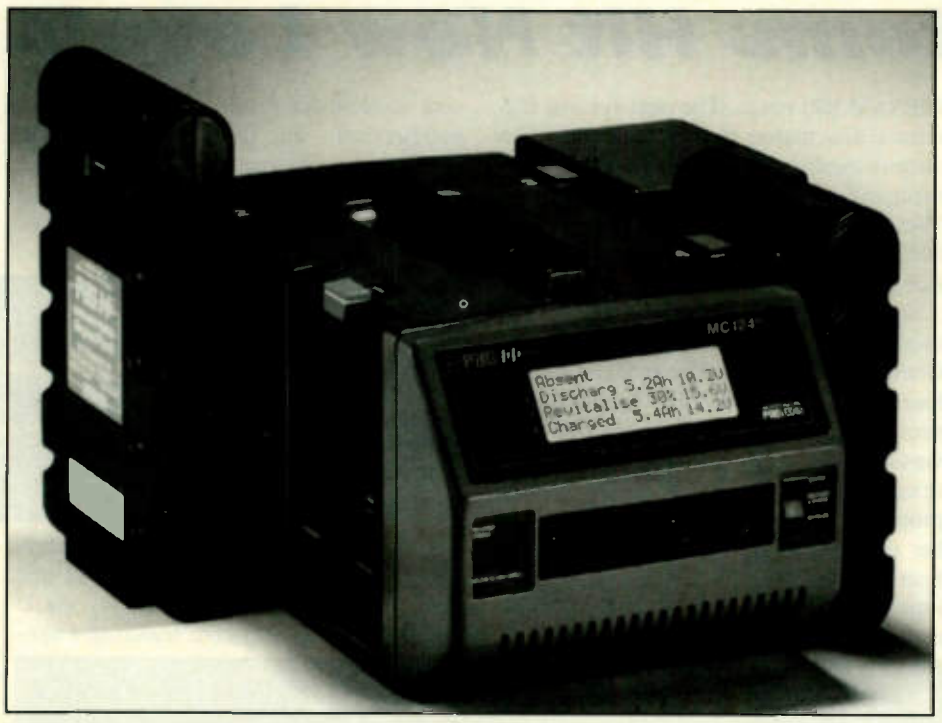


Lowel-Light Manufacturing reports it will unveil the Lowel Fren-L 650, a 650-watt fresnel light with 7:1 focusing range, sharp shadow quality and a curved Schott lens. Also new from Lowel will be Rifa-Lites, available in 1,000-, 750- and 500-watt configurations.

Balcar SA reports it will debut the TWIN-LITE, which consists of two one-lamp light heads operated by a remote ballast — in 220 V or 110 V — with tungsten or daylight lamps. The company also will have available a range of accessories such as a 40 degree grid spot and a lenticular concentrating lens, etc.

The new Ultralight Satellight from Anton/Bauer is part of the company's Ultralight System and includes an Ultralight 2 mated to a gold mount bracket. When combined with any spare camera battery, the Satellight becomes a self-contained portable lighting fixture.

For its part, Optex says it will introduce the Aurasoft soft light system alongside its other professional video displays.



PAG will power up the MC124 battery management system.

ALL CHARGED UP

From Anton/Bauer will come the new digital Trimpac battery, a lightweight (1.25 kg) design that matches the rear profile of most camcorders and provides energy equivalent to two original equipment slide-in type batteries.

Anton/Bauer will also introduce the Lifesaver dual charger, a compact two-position Logic Series fast charger. It provides sequential fast charging in the field of any combination of Logic Series batteries as well as 24 V to 30 V lighting belts.

From BRC International TV Production will come the new POWER JACKET, which offers users 10 Ah of electrical power (at 14.4 V). It has two industry-standard XLR-4 outlets to provide power to the camera and light simultaneously. The NiCd cell packets are distributed evenly for balanced weighting, and straps allow adjustable fitting.

PAG Ltd. will be on hand in Montreux to highlight its new PAG MC124 four-channel battery management system for all NiCd batteries in the 4.8 V to 14.4 V, 1 Ah to 7 Ah range. Also new from PAG will be the PAG SP2.5 NiCd battery, which is fitted with a Paglok connector. A range of 12 V, 13.2 V and 14.4 V (2.5 Ah) is available.

Miller Fluid Heads has announced that new accessories for the Miller Series II ENG/EFP tripods will be introduced at ITS. These will include above-ground spreaders and ground spreaders, available for all three Miller models (Lightweight, Single Stage and Two-Stage). The above-ground spreaders will have positive-grip rubber feet, which, says the company, enhance torsional rigidity of the tripod and increase system stability.

FRESH UNVEILINGS

Fresh from its purchase by Vinten TSM, Sachtler AG comes to Montreux to unveil the Video 90 fluid head and the OB 2000 heavy-duty tripod for OB and studio use. The Video 90 weighs 14.4 kg and can carry as much as 90 kg for any OB work. It comes with the company's patented leak-proof frictionless fluid damping. The OB 2000 has an integrated above-ground spreader and rotatable rubber feet. The spreader clamps to a hand-crank column, which negates the need for a separate spreader. The unit's hinge locks can be tightened and clamped to prevent unwanted movement between tripod legs and the base.

Speaking of Vinten, Vinten Ltd. reports it will make the European launch of the OSPREY Elite two-stage pedestal, which the company says offers continuous "on-shot" camera movement. The company also will highlight its full range of tripods and pan/tilt heads from the Vision and Classic ranges together with the VECTOR 70 pan/tilt head. Autocam will demonstrate its latest camera automation systems.

Cartoni says it will display its established lineup of camera support systems, including the ALFA, BETA and DELTA ENG models and the C20-S, C40-S and C80-S EFP units.

A new fiber-optic camera interconnection system will be unveiled by Lemo SA. It will be displayed alongside the company's existing 4A/4M and F/3T triax camera connectors.

Canon Europa N.V. announced it will introduce the J9ax5.2B IRS/KRS superwide ENG lens; the Digi-Super 70 70x field lens; the PJ24xSUPER-IF studio lens; and the CROSS-OVER WAS-type 16:9/4:3 switchable ENG lens.

Other featured Canon products will include the J15ax8B IRS/KRS ENG lens; the IF internal focusing family of lenses; and the SUPER Series OB/studio lenses.

New from Fujinon will be ENG ratio converter lenses for switchable (16:9/4:3) cameras as well as the Ah20x7ESH studio/EFP lens; the HAF 10/MSF10 high-resolution low-distortion macro lenses; and the EPT-5E serial pan/tilt head for use with ENG cameras. Fujinon also will feature complete ranges of high definition optics, EFP/studio lenses, ENG lenses, information network system lenses, macro lenses, and pan/tilt heads and remote control systems.

And last but not least, BDL Autoscript's stand will boast the new Graphics +Plus+ multi-lingual prompting software; a lightweight 17-inch on-camera monitor with a compact wide-angle hood; restyled on-camera units; and a nine-inch on-camera prompter with a compact ENG hood. The company's established line of prompter products also will be displayed. ■

Recording Gear Turning Heads

MONTREUX

With new formats arriving on the scene seemingly before the established ones take hold, the area of video recording is ever-changing. Montreux ITS crowds will have plenty to see this month, and what follows is a selected sampling of recording fare in the aisles.

New from JVC Professional Products will be the Digital S format, introduced this spring at the U.S. National Association of Broadcasters convention. The digital video compression and tape recording system is downward-compatible with the company's S-VHS format, and products in the format line will include an editing recorder, player, player with S-VHS playback and a docking recorder.

WIDE VHS

JVC also will highlight an HDTV VTR, the SR-W320, designed specifically for professional use. The unit uses the W-VHS format and has the capacity to record both in HDTV and NTSC.

Panasonic will tout its new DVCPRO line of products, based around the DVC digital consumer standard. Although a 625-line version was not expected to be available at the show, Panasonic will show 525-line versions of the AJ-D750 studio VCR under the DVCPRO format. The unit utilizes 6.35mm cassettes recording 4:1:1 component video with 5:1 compression.

The AJ-D750 offers two hours of recording, frame-accurate editing, jog/shuttle capability, two audio channels and digital serial component and RS-422A interfacing.

Sony will deliver new lines under the Digital Betacam format, namely the DVW-250P portable recorder and the DVW-522P streamlined unit. Sony bills the 250 as the first portable stand-alone component digital VTR on the market. It features 10-bit, 4:2:2 component video and four channels of 20-bit digital audio. Analog component and composite and serial digital interfaces are provided.

The DVW-522 player has been designed for quick screening sessions in that it easily plugs into composite monitors or basic TV sets using the two composite outputs with BNC connectors. Both large and small Digital Betacam cassettes can be used, and the unit features a jog/shuttle wheel.

BLT Italia will present the new VDR500 digital video recorder, along with a number of special effects and encoding products.

Connexion will provide the VDR video disk recorder and still store device.

Also with its disk products, Pioneer Electronic Europe will show the VDR-V1000P video disk recorder, now with controllers for instant replay and time-delay presentation.

For-A Corp. will present two new disk recorders, the DR-300 with super slow motion and the LDR-100 live recorder for spot insertion. Also new will be the FR-100 frame recorder.

Ampex Media Europe reports it will be unveiling seven new media products. Included among these will be Ampex 288 Hi8 and Ampex Digital Betacam cassettes. In audio, the company will spotlight the Ampex 480 Extended Play S-VHS cassettes for A-DAT recorders, Ampex Hi8 for Audio, Ampex CD-R, Ampex DDS and certified R-DAT products. Other events at the Ampex stand will include a technical presentation on Betacam SP head wear with specific recommendations for customer implementation.

From BTS Broadcast Television Systems Gmbh will come demonstrations of its D-1 and D-6 cassette recorders.

Though the product has already made a big splash for over a year with American audiences, the Montreux ITS gathering will have its first look at Tektronix's Profile digital disk recorder, an open system for multichannel recording and playout. Tek also reports it will have on display a range of digital video measuring and monitoring products.

And the Grass Valley Group, as it's under the umbrella of Tektronix companies, reports it will be displaying various potential applications of Tek's Profile.

TALE OF THE TAPE

At the Fuji Magnetic Tape stand attendees of the show can expect to find a line of Digital Betacam tape alongside tape for Betacam SP, D-2 and D-3, one-inch, DAT, Hi8 and M-II videotape.

New from Maxell Europe will be ceramic armour Digital Betacam tape, improved ceramic armour D-3 tape, and improved ceramic armour Betacam SP videotape. The new Digital Betacam tape boasts a newly developed Super Fine Ceramic Armour Crystal Particle coating; the D-3 tape, according to Maxell, offers improvements in head wear performance, digital bit error rate and RF output; and the Beta SP tape has better output, lower head wear performance and an improved back coating layer.

R.T.I. UK Ltd. says it will have two new recording products to introduce to Montreux audiences. The first is the Pro Line 4100D high-speed cleaner/evaluator for Digital Betacam, SP and Betacam cassettes. The unit identifies faulty/damaged tapes while simultaneously cleaning while erasing, if required. The second new RTI product will be the Lipsner-Smith Excel 900 film cleaner, which incorporates a combination of PTR rollers and Ispropanol "wetted" buffers.

Established R.T.I. products will include the TapeChek range of high-speed cleaner/evaluators for VHS, M-II, U-matic and one-inch; the Verity range of bulk tape erasers; and the Model V60 2-inch tape cleaner. ■

Audio Systems Hit New Levels

MONTREUX

This year's ITS show will be the setting for a whole host of audio product line introductions. Everything from mixing consoles to intercoms will be on hand to tempt the audio connoisseur.

New in the Studer booth will be the Series 980 mixing console, designed as an easy-to-operate automation system for broadcast, film and TV applications. The Series 916 broadcast mixing console will also be introduced, as it's specially made for local radio stations, OB vans and PA applications.

Studer will also feature the D19 MicAD, an eight-channel mic preamp with digital output, featuring 20-bit A/D converters and switchable DSP-dithering with noise shaping. The final product introduction at the Studer booth is the PostTrio system, devised to serve as the centerpiece of an audio post production suite.

A number of established Studer products will also be on hand: the D940 digital mixing console; the 990 digitally-controlled mixing console; the A827 analog multitrack tape recorder; the D827 digital 48-channel DASH recorder; and components of the CD and CD-R series and the integrated system for radio automation Numisys.

LOGICAL SENSE

Solid State Logic will exhibit its new Axiom digital production system, a fully-digital audio console with an integral hard disk multitrack/editor. Also new is the SL 9000 J series total studio system with an advanced analog console and an optional hard disk multitrack editor.

Also in the SSL booth will be its OmniMix digital surround sound audio/video system; Scenaria digital audio/video production system; Screensound VS with VisionTrack; and the SL 8000 DB on-air production console.

Graham-Patten will introduce the D/ESAM 820 digital edit suite audio mixer, the successor to the original D/ESAM 800 range. The new version features a new master processor board, audio output module, digital input card with integral sample-rate converter, and Version 4.0 software. Existing owners of D/ESAM 800 mixers can upgrade to the 820 mixer.

New model 854 and 858 digital input modules will also be a highlight of the Graham-Patten booth. The modules handle four/eight, 24-bit AES/EBU-format digital sources with continuous sample rate conversion from less than 30 kHz to greater than 50 kHz. Also new is the master processor board, which increases the number of D/MEM storage registers to more than 600, and the Model 848 analog audio input module that offers improved 20-bit resolution.

Stop by the Studer stand for a look at the D19 Micad mic preamp.

Sonosax is displaying a number of products at this year's show: SX PR4, an ENG mixer available in two-, four- and six-channel versions; SX-S battery-powered portable mixer providing up to 10 mic/line inputs, auxiliaries and direct outputs for multichannel digital recording; SX-T, a mixing console for mobile recording; JM-3 near-field monitor; FD-M4, a microphone preamplifier with remote control; and Stelladat, a portable professional R-DAT recorder with time code, built-in mixer.

New products include the SX-S film/intercom module for use in film or broadcast production; an input module with redesigned gain structure and an optimized position of control knobs; and PA-M4, a splitter card available with up to three transformer balanced outputs.

NVISION will spotlight an enhanced version of its Digital Audio Processing Suite...

A number of manufacturers are displaying new and improved intercom and mic gear. Beyerdynamic is introducing the U 600 UHF wireless system featuring a synthesized true diversity receiver in a 1U rack space format, enabling two receivers to be housed in a 1U space.

The system can operate 64 channels in one TV channel, grouped in four banks of 16 frequencies. It incorporates a multi-use LCD display, which enables the user to track all parameters of the transmitter and receiver.

Also on display from beyerdynamic is the V 200 VHF system that enables operation of 12 wireless microphones in one TV channel simultaneously. The DT 200 series is a series of monitor headphones and headsets with different boom mics and condensers for on-air applications.

Established products include mics for live performances, studio, announcements and special purposes; wireless transmission systems; studio headphones and headsets; audio input transformers, PA systems, loudspeakers and accessories for mics and headphones.

Drake Electronics will debut the DRM3400 digital intercom "mini-matrix." This unit provides 64 x 64 switching in 4U and uses the same technology as in the established Drake DRM3000 matrix.

Nagra will exhibit the new ARES-C, a solid state recorder that's a 3 kg portable machine, mono or stereo, with a single channel recording time of 40 minutes on a 20 MB card. It offers editing features and card copy on board using a double slot. Compression using G722 or MUSICAM ISO/MPEG Layer II techniques is also featured. In addition, Nagra-D, a four-channel, self-contained digital audio recorder and a range of analog audio Nagra tape recorders will be on display.

Telex will display its line of UHF and VHF studio and ENG/EFP wireless microphones, wired microphones, MicroMini microphones, RadioCom wireless intercoms, Audiocom modular intercom products, RTS two-wire and digital matrix intercom systems, wired and wireless IFB systems and professional headphones and headsets.

AUDIO PROCESSING

NVISION will spotlight an enhanced version of its Digital Audio Processing Suite, which includes two layers of 8 x 8 digital audio routing. DAPS II is a system package designed for interface and synchronization problems within audio, video, broadcast and post production facilities.

Also set for introduction is the NV1035 two-channel 20-bit A/D converter module, the NV1045 two-channel 20-bit D/A converter module and enhanced NV3128D series digital machine control routing switchers.

Established products on display include the NV1000 series modular terminal hardware equipment; NV2000 series digital audio transmission systems; NV3512 series expandable digital routing switchers; NV3064 series of compact digital routing switchers; NV4448 sample rate converter; and the NV 5500/5200/5100 sync generators.

MetaWave Ltd is launching its new MW series of embedded audio and EDH processing products for use with serial digital video signals. Up to 16 cards and redundant power supplies can be accommodated within a 2RU rackframe.

Decibel will highlight its SCHOEPS CCM series of new miniature condenser microphones, MC^2 power amplifiers, XTA DP100 digital delay processor, and Dateo BCS 70 broadcast mixer.

Teracom Svensk Rundradio is exhibiting its multimedia services in the Eureka 147 DAB system; data services in the Eureka 1197 project are based on the DARC subcarrier system on VHF/FM. Finally, Talia Sound & Vision is introducing its TB-48 digital talkback system. ■

Keeping an Eye on Test Equipment

From Signal Generators to Vectorscopes, the Trend Is Toward Digital Technology

MONTREUX

Test equipment continues to be essential for the broadcast industry, as detailed in the number of manufacturers introducing new testing and monitoring products at this year's show.

Tektronix is exhibiting Two TekTools, a handheld TSG95 signal generator, and the WFM91 signal monitor, providing portable test solutions for field service and installation.

Among the many products on display at the Snell & Wilcox booth are the Pattern Master, custom test pattern creation software, and the TPG21, a fully programmable, format-independent test image generator.

PHILIPS LINE

A number of new testing products will be showcased in the Philips TV Test Equipment booth. These include: the PM 5684 NICAM transceiver, the PM 5689 NICAM sound monitor, the PM 5639/02 auto color alignment system for Barco monitors, the PM5644 PALplus test pattern generator and the PM 5639/82/83 color alignment generators.

Established products include the PM 5695A monitoring demodulator, the PM 5696 monitoring receiver, the PM 5655 VITS generator and inserter, the PM 5639/00 CRT color analyzer, the PM 5640A video test signal generator and the company's range of NICAM modulators, demodulators, waveform monitors and vectorscopes.

Tekniche will present the 6079 EDH inserter and test signal generator. The system mounts on a Eurocard module and can be used as an EDH source with audio silence, video test pattern generation and a host of other features. The 6078 EDH module will also be available.

AAVS will introduce the S506 D/A video monitoring converter and exhibit the DSA309 digital studio video analyzer.

RTI's Pro Line Betacam SP tape evaluator

Monitoring products will be at the center of the Rohde & Schwarz booth. The TS6100 monitoring system for video and audio features a modular design and use of standard components (HW/SW). The system is designed for monitoring in the main video and audio parameters in attended and unattended TV stations in studios and at transfer points. The VSA video analyzer is the core of the basic model, while system software TS6100/Win is operated under MS-Windows 3.1.

Also new from Rohde & Schwarz is the AMON audio monitoring system, which allows continuous monitoring of key audio transmission parameters associated with program feed, transfer points and transmitters during the running program. The program signal itself is used as the test signal.

Finally, the company is displaying the following: VCA video analyzer for CCIR 601 signals; VSA automatic video measuring system; SAF/SFF video signal generators; SOKF TV network analyzer; and SFM multistandard TV test transmitter.

FAMILY OF MONITORS

Barco will introduce a new master control monitor version to its CVM 3000 monitor family; a safe area display feature on the CVM 3000 monitors; and a fiber optic link to transmit digital video signals over distances up to 30 km. Established products on display include the company's full range of monitors from 10 inches up to 28 inches with auto setup and digital interface features for viewing, control and measurement purposes.

JVC is showcasing its new HDTV monitor and the ILA super projector series 400.

Leader will present its component digital waveform monitor LV 5100D, which accommodates both digital and analog and offers two component serial digital inputs and a single three-channel component analog input. In addition, Leader is introducing its component digital signal generator LT 425D, which outputs component digital signals in the 4:2:2 format to accommodate the 525/60 and 625/50 systems.

Transvideo will offer a complete range of LCD color monitors in 5-inch (LCM05) and 6-inch (LCM06) and a range of accessories.

RTI UK will display its new Pro Line 4100D high speed cleaner/evaluator for Digital Betacam, SP and Betacam cassettes. At 30 times playspeed, it identifies faulty/damaged tapes while simultaneously cleaning and erasing, if desired. In addition, the company will exhibit TapeChek, a range of high-speed cleaner/evaluators for VHS, M2, U-matic and 1-inch. Finally, the D11 range of tape dropout analyzers is designed for both analog and digital format tapes.

Riemer GmbH Communication Systems is introducing the Videomax 84-inch rear projection system with presentation switchable for color temperature 6400 degrees and 3200 degrees. ■

BUSINESS BRIEFS

OB SYSTEMS

WDR GETS NEW OB VAN

GRIESHEIM, Germany

West German Broadcasting (WDR) has taken delivery of a new television outside broadcast (OB) van from BTS.

The truck is equipped with serial component systems, and represents the third OB contract for BTS since it launched its 2002 truck line in 1994. Two other vans are in the possession of the Dutch RTL 4 and Cinevideo stations.

For further information, contact BTS in Germany at telephone: +49-6155-870-539; FAX: +49-6155-870-359, or circle Reader Service 69.

Processing on a Digital Path

MONTREUX

In an industry in which almost everything is becoming digital, it is inevitable that signal processing equipment has a bent in the same direction. Many vendors at the ITS show will exhibit products reflecting this trend.

Prime Image is introducing its Penta standards converter, a 1RU high rack-mountable unit with anomalies reduced 2 to 1. Also new is the A/V delay, a 3RU high rack-mountable unit with audio and video delay independent of each other. It uses under 50 watts of power with no data compression.

The company will also display its Model 50II time base corrector/synchronizer, a multifeatured unit designed for many video production applications. The TBS/synchronizer is available in NTSC, PAL or PAL-M. The Model 10X is an all-digital TBS/synchronizer for up to 10 channels, offering digital technology in NTSC, PAL or PAL-M.

TBC ADVANTAGES

Feral Industries will display the Advanced 4:2:2 TBC/synchronizer with digital comb filtering, output to a 6 MHz bandwidth and high-resolution picture. Other features include bypass, freeze on loss of video and strobe. In addition, the Compact LC 4:2:2 will be featured. This TBC/synchronizer features proc amp controls, freeze and strobe.

Hotronic will introduce the Model AT61, a 10-bit frame synchronizer with companion audio delay for satellite feed; Model AU51, a 20-bit stereo audio delay for lip sync correction; Model AL82, a six-second video/audio delay for live broadcast; and Model AX81, an 8 x 2 no-glitch router that does not require a TBC or frame synchronizer.

In addition, Hotronic will also present some of its established products: Model AP41-SW/AP41-SP, an 8-bit full bandwidth TBC/frame synchronizer; Model AR71, a dual channel TBC/frame synchronizer; Model PC-TBC, a plug-in TBC card for IBM or Amiga computers; and Model AQ21, a broadcast TBC/switcher.

Questech Limited will exhibit its 2101P PAL CCIR 601 frame synchronizer; 1010 digital composite to CCIR 601 decoder; 1011 digital composite from CCIR 601 encoder; 1009 digital composite to analog component decoder; and the 1302 digital component frame synchronizer.

Fougerolle Video is introducing its GIL100, a fully digital inserter/generator that conforms to SMPTE 259M with storage up to 256 logos 64 x 64, logo animation, blinking and fading of the logo. Also new is a digital encoder RGB/YUV to serial 270 Mb; the DE 3500 digital decoder serial 270 Mb or parallel to YUV/RGB accepting up to five decoders in a 1RU rack; the DD3640 video and audio switchers; the digital synchronizer FS 1300 series; a complete range of adaptive synchronizers; and a PAL/SECAM/Y-C to serial 270 Mb serial converter CDT 3540.

Fougerolle will display its 3630 serial decoders.

Dynatech Video Group will display the da Vinci Renaissance 8:8:8 color corrector featuring the Artisan graphics user interface that offers control with a color graphical menu and an icon system for the SGI platform. Dynatech will also present the Super Glue line of digital/analog converters.

PROCESSING PRODUCTS

Among the many products in the FOR.A booth will be the DPR-AT, an MPEG preprocessor PC bus plug-in card; the UDP-510 frame store/TBC and noise reducer with drop-out compensation; the FA-30P frame store/TBC with a noise reduction plug-in card; and the MVP-3200 high-resolution broadcast scan converter (PC/Mac to video).

Highlighting the Vistek booth will be the new V4238 digital multistandard encoder with optional Varicomb clean encoding and the V1600 digital interface system providing a range of format conversion products.

Also on tap from Vistek will be its MPEG-2 variable rate video and audio codec system, 17 and 8 Mbps codecs to the ETSI standard. Vector VMC standards converter, V4228 digital varicomb decoder and TV345 34/35 Mbps ETSI codec.

Snell & Wilcox is displaying a host of new signal processing products. Its new decoders include the Golden Gate, an all-digital, 10-bit bridge from 4 fsc to 4:2:2; MDD1100, a 10-bit multistandard adaptive field comb and digital synchronizer; MDD500, a 10-bit multistandard adaptive field comb decoder; and the Kudos IQ. Its encoding products include the MDE500 multistandard adaptive field comb encoder and the Kudos IQ.

Other Snell & Wilcox products on display will include the ARC100 widescreen display processor; the TBS20 PAL-M synchronizer and PAL-M to NTSC transcoder; the TBS21 NTSC synchronizer NTSC to PAL-M transcoder; the TBS22 PAL-N synchronizer and PAL-N to PAL transcoder; and the TBS23 PAL synchronizer and PAL to PAL-N transcoder.

S.A.V. will unveil DVD 1 x 8 digital distributing amplifiers, offering 143 Mb to 360 Mb with cable equalization 300m with reclocking, and DVD 2 x 4, offering two distributing amplifiers with no reclocking. The company's established products include D/A and A/D digital converters (including SECAM); transcoders, decoders, encoders PAL/SECAM; and video and audio distributing amplifiers.

NTP Elektronik A/S is showing its new digital and analog PPMs, the 477 series and A/D and D/A converters, Type 560.

Be sure to stop by the Miranda Technologies booth with its plethora of new gear: the ASD-101i CAV to 4:2:2 converter; the SDM-101i 4:2:2 to CAV converter; the ASD-201i NTSC/PAL to 4:2:2 decoder; the SDM-201i 4:2:2 to NTSC/PAL encoder; the VFC-123Ni 4:2:2 to NTSC 4 fsc video format converter; and VFC-321i 4 fsc to 4:2:2 video format converter.

Also on hand will be Espresso, a SCSI to 4:2:2 interface for digital imaging workstations; Crystal ENC-100 NTSC encoder and DAC-100 4:2:2:4 DAC imaging series of digital video interface and signal processing cards: the SDM series of digital video converters and encoders; and serial to parallel and parallel to serial digital video converters.

Tekniche will unveil a range of new systems, such as the 6017 comb filter decoder, the 6033 D-A converter, the 6038 and 6039 parallel/serial converters and the 6064 delay module.

Also new are the 6055B and 6056B audio inserter and extractor, the DAC1440 D-A converter and the 6054 PAL/NTSC encoder.

DIGITAL RANGE

Matthey Electronics will present its new range of serial digital video interface cards, including A to D, D to A converters, serial distribution amplifiers and serializers/deserializers. The company will also exhibit video filters that include full CCIR 601 and

Eureka 95 HDTV devices, delay lines and video distribution amplifiers.

A.R.T. Video will show its new composite to digital converters, digital to composite converters, digital synchronizers, serial to PAL and component converters and digital encoders and decoders. Established products include PAL, SECAM, NTSC, Y/C encoders, PAL, SECAM, Y/C decoders, NTSC decoders, transcoders, component color bar generators and RGB/YUV translators.

VG Broadcast will tout its new WinCAPS, a Windows-based subtitle and preparation system incorporating live and off-line subtitling into an integrated product.

A centerpiece in the Thomson Broadcast Systems booth will be its Evolution interfaces and its standards converter TER7830.

Transvideo will showcase its standards converters and standard adaptations on professional machines such as the Panasonic AG7650.

Video International Development will introduce the DTC 1600PG digital TV broadcast standards converter, the DTC 1604 median filter noise reducer/format converter and the SCOG standard converter and the DTC 4600 motion vector standards converter.

Abekas will show its Clipstore audio/video clips and stills server.

BTS will feature its FDL quadra CCD telecine, MNR 11 median noise reducer, bit rate reduction unit and Series 400 analog/digital processing units.

Faroudja will unveil its new VP400-U video processor. This multistandard NTSC/PAL line quadrupler increases the number of horizontal scanning lines by a ratio of four times, while providing NTSC/PAL decoding and horizontal bandwidth expansion. It allows NTSC/PAL sources to be displayed via high scan rate monitors or projectors with increased details, brightness and depth.

Ghielmetti Communications will introduce its digital audio patch panel, digital audio matrix, electronic matrix for audio video data, video patch panel and a fiber optic data modem.

LEMO SA is displaying its new fiber optic connector range and fiber optic patch panels, as well as, exhibiting its S/E series of coax/triax connectors, B/K series of multicontact connectors and audio/video patch panels.

Cintel is exhibiting its URSA Gold Flying Spot telecine from Rank Cintel, Renaissance 8:8:8 telecine controller and color corrector from da Vinci Systems, and a noise reducer and signal processor from Digital Vision.

SEEM Subtitling is presenting its DIGIWRIT PC-based subtitling preparation unit with LTC and VITC time code reader, picture in picture facility and printout of text and time code. DIGITEXT is an editing and transmission subtitle workstation with up to eight different languages.

Sigma Electronics is introducing its TCD-2110 and 2111 RGB to component and component to RGB transcoders. These are modular units that rack in the same frame with switching and distribution systems. In addition, the company's distribution amplifiers will be on display.

Softel is launching a range of open caption subtitling technology for analog and digital transmission links, designed to accommodate the multilingual requirements of broadcasters. The systems are designed to be modular, easy to use and easy to interface with automation and scheduling computers. ■

Microwave, Satellite Systems Forge a Link

MONTREUX

Serving the continuing need of broadcasters to send material to the world from some of its most remote regions, manufacturers of mobile and remote broadcast products will be out in full force at this year's Montreux gathering. The following is a list of some of the companies planning to attend.

Standard Communications Corp. will bring to Montreux its Agile Omni Global Vu Model 830IBR satellite receiver, a re-broadcast quality international C/Ku-band unit. It processes multiple video standards and three channels of multiple standard audio subcarriers. Microprocessor control allows operation on all known satellites and channels.

Also at the Standard Communications stand will be the MT900 intercontinental satellite receiver and the MT620 continental satellite receiver.

New from Advent Communications Ltd. will be the NewSwift digital flyaway; NewSwift digital vehicular modulators and modems; the Mantis C-band flyaway; exciters, receivers and updownconverters; test and monitoring packages; communications packages; and the Lynx 2000.

BARCO reports it will debut new cable and satellite equipment such as the "Pulsar" TV modulator; and MPEG-2 digital compression and multiplexer system to encode TV pictures for digital cable and satellite; and a 34 Mbps video/audio codec based on motion JPEG.

BTS Broadcast Television Systems says it will have on hand an outside broadcast van configured with serial digital component equipment.

New satellite communications systems are on the agenda of Continental Microwave, including the SNG 60/140T. This is an SNG uplink package that complements 2/8 Mbps compressed video codecs, with true Ku/C-band operation. Also new will be other SNG systems on trucks, trailers and fixed earth stations.

Italy's CTE International has many new products it plans to display, among them the Model MC-1 panoramic satellite test receiver in frequencies from 950 MHz to 2050 MHz.

Deutsche Bundapost Telekom says it will present to Montreux audiences a stereoscopic transmission via the 20/30 GHz transponder of the satellite Copernicus. The transmission rate will be 34 Mbps and the equipment is laid out for use in applications such as surgery, architecture or mechanical engineering.

IRTE will exhibit a walk radio camera transmission system that delivers video footage directly from the camera across the 2.3 to 2.7 GHz band. The company will also demonstrate parabolic antennas for microwave and satellite networks, as well as fixed and mobile microwave links for 3 to 23 GHz.

FUBA Hans Kolbe & Co. reports it will demonstrate new products that include DVB uplink and downlink equipment, as well as MPEG-2 video and audio compression equipment.

NTL will have on display a live demonstration of multichannel digital terrestrial TV that will showcase the company's latest "System 3000" range of MPEG-2 video compression products for professional or direct-to-home applications. These products will include statistical multiplexing, a smaller version 6RU encoder and plans for a new SNG system.

The new BBC TRACS microwave system, as well as a range of new microwave link units will be highlighted at the stand of Optex.

Italiana Ponti Radio will debut the C series of fixed and mobile microwave links, along with the UMP series of ENG links. Also new will be transponder systems for helicopter units, as well as remote control pan/tilt systems. Existing products include the C/E series of fixed and mobile links and wireless cable systems.

T.E.M. (Tecnologie Elettroniche Milanesi S.p.A.) reports it will introduce at Montreux a series of portable links for all frequency bands, as well as Slimline analog links for all frequency bands.

Canon Europa N.V. will have a new transmission system to unveil, a new improved version of its original Cano-beam, the Cano-beam II. ■

International Television Symposium and Technical Exhibition

Exhibitor Directory

MONTREUX

June 9–13 1995

AAVS B141
Intro: Onyx.Dig digital router; S560LC digital logo generator and analog PAL logo generator; S160LP dual stereo auto changeover unit; EVA remote control of Avid Airplay system; S506 D/A video monitoring converter.
Also: DSA309 digital studio video analyzer; automation system for Tektronix Profile.
Contact: Guillaume Duboc
222-226 rue de Rosny
93100 Montreuil, France
Telephone: +331-4857-2164
FAX: +331-4857-3358

ABE Elettronica S.P.A. B130
Intro: Solid-state power amplifiers for operation in the VHF/UHF bands using mos and bi-polar transistors and class AB technology; solid-state TV transmitters and translators; linearity correction circuits.
Also: Microwave links for fixed, mobile and eng applications, from 2-14 GHz; television transmitters & translators for VHF/UHF bands using solid-state or thermionic tube technology with output powers to 10kW and higher.
Contact: Roberto Valentin
Via Galileo Galilei, 1
24043 Caravaggio (BG), Italy
Telephone: +39-363-52-550
FAX: +39-363-50-756

Abekas A109
Intro: Texus Live CG.
Also: ASWR8100 digital switcher; Hexus post production disk system; Diskus Graphics disk recorder; Clipstore audio/video clips & stills server; A57 digital effects systems.
Contact:
Portman House
12 Portman Road
Reading, Berks
RG3 1A, U.K.
Telephone: +44-0734-585421
FAX: +44-0734-462178

ABS SpA B182

Acousta B442

ADC Telecommunications Inc. B622

ADTT A401

Advent Communications Ltd. C930
Intro: NewSwift digital flyaway; NewSwift digital vehicular; modulaters; modems; C-band mantis flyaway; exciters.
Contact: Steve McGuinness
Preston Hill House, Nashleigh Hill
Chesham, HP5 3HE, U.K.
Telephone: +44-494-774-400
FAX: +44-494-791-127

Alamar B613

Albrecht Elektronik A206

Alcatel STR AG B332
Intro: 1743 VC video transmission equipment; 1715 VC distribution.
Contact: Felix Hausler
Friesenbergstr. 75
8055 Zurich, Switzerland
Telephone: 41-1-465-2885
FAX: 41-1-465-2431

Alpermann & Velte GmbH A134

A.R.T. Video B529
Intro: Composite to digital converter; digital to composite converter; digital synchronizer; serial to PAL and component converters for monitoring; digital encoder and decoder.
Contact: S. Garnero
38, Rue de la Station
95130 Franconville, France
Telephone: +331-3414-7777
FAX: +331-3414-7711

Alpha Technologies Europe B524

Ampex Media Europa A143
Intro: 288 Hi8 and digital betacam videocassettes; 489 extended play S-VHS cassettes for ADAT recorders; Hi8 for audio, CD-R, DDS and certified R-DAT products.
Contact: Thomas Wheeler
Unit 3, Commerce Park
Theale, Berkshire, RG7 4AB, U.K.
Telephone: +44-1734-302-208
FAX: +44-1734-302-383

Ampro Europe B198

AMS-Neve B408

Andrew Ltd. B196

Angeniuex SA B152

ANT Nachrichtentechnik B332

Anton-Bauer A131
Intro: Digital Trimpac battery weighing only 1.25 kg and providing more power than two slide-in type batteries; Lifesaver dual charger, two-position Logic Series fast charger for field use; Ultralight Satellight, an Ultralight 2 mated to a Gold Mount bracket.
Also: Logic Series interactive battery system, microprocessor chargers; Ultralight quick-change head modules and light.
Contact: LuAnn Teodosio
1 Controls Drive
Shelton, CT, 06484, USA
Telephone: +1-203-929-1110
FAX: +1-203-929-9935

Arcodan A/S B333

Argus Technologies B524

Arun Systems B612

ASC Audio-Video Corp. B406

Audio Bauer AG A142

Augereau Audio Video B104/C910

Autocue Ltd. B508

Avid Technology Europe B431/B405
Intro: Integrated digital news production system including the Camcutter disk-based camera, Media Recorder, NewsCutter, AirPlay, AvidNet and MediaServer; Media Spectrum high-end on-line production suite.
Contact: Lynn Gardiner
West Side Complex, Pinewood Studios
Pinewood Road, Iver
Buckinghamshire
SL0 0NH, UK
Telephone: +44-1753-655-999
FAX: +44-1753-654-999

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AVT Srl. B189

Balcar S.A. A202
Intro: Twinlite, with two 1-lamp lightheads and remote ballast, in 220v or 110v with Tungsten or daylight lamps. Accessories, including 40 degree gridspot, and lenticular concentrating lens.
Contact: Jean-Francois Bouzanquet
32 Boulevard Flandrin
75116 Paris, France
Telephone: +331-4503-0030
FAX: +331-4503-1248

Barco n.v. B114
Intro: Master control vesion and safe area display for the CVM 3000 monitor; fiber optic link for digital video transmission up to 30 km.
Contact: Kristien Verhaeghe
Th. Sevensiaan 106
B-8500 Kortnjk, Belgium
Telephone: +32-56-233-458
FAX: +32-56-233-461

Basys Automation Systems B405/B431

BDL-Autoscript B177
Intro: Graphics +Plus+ multi-lingual prompting software; 17-inch On-Camera monitor with compact wide angle hood; Compact 12-inch and 15-inch on-camera units: 9-inch on-camera with compact ENG hood; programmable rise and fall glass stands for conferences and presentations.
Also: +Plus+ prompters; +Newplus+; +Studioplus+; and +Locationplus+; PC promptcard and PC VDA for video outputs from a PC; and unit with paper white tube.
Contact: Chris Lambert
Unit A8, Poplar Business Park
10 Prestons Road
London, E14 9RL, UK
Telephone: +44-171-538-1427
FAX: +44-171-515-9529

Belden B202

Beyerdynamic GmbH & Co. A157
Intro: U 600 UHF wireless system featuring synthesized diversity receiver in IU half rack space format and receiver with multi-use LCD display; V 200 VHF system for operation of 12 wireless microphones in one TV-channel simultaneously; DT 200 series of monitor headphones and headsets for on-air applications.
Contact: Gunter Rosen
Theresienstr. 8
D-74064 Heilbronn, Germany
Telephone: +49-7131-617-131
FAX: +49-7131-60459

BFE Fernmeldetechnik & Elektronik A252

BLT Italia Sre. B119
Intro: VDR500 digital video recorder; VL400 stillstore library; MPE200 MPEG encoder.
Contact: Leonardo Bartelietti
Via Rosselli St.
55063 Lido di Camaiore, Italy
Telephone: +39-584-904-788
FAX: +39-584-904-789

Bosch Telecom B432
On Display: Coaxial and optical fiber analog broadband distribution network with a frequency range of up to 860 MHz; Diamant digital transmission system; MPEG 2 channel processing unit; DVB combiner.
Contact: Dr. Gerhard Ketterer
Postfach 10 60 50
D-70049, Stuttgardt, Germany
Telephone: +49-711-811-6638
FAX: +49-711-811-7069

BRC International B199
Intro: Power Jacket offers 10Ah of electrical power (at 14.4v) and includes two industry standard XLR-4 outlets for power to the camera and light simultaneously.
Contact: Carl Dutli
Ch. du Courtillet B
1261 Cheserex, Switzerland
Telephone: +41-77-244-288
FAX: +41-22-738-1015

Broadcast Systems Software B613
Intro: Sales Master sales system uses Microsoft's Windows interface and handles numerous methods of airtime selling & commercial placement.
Contact: Mark Cain
13 High Street, Leighton Buzzard
Bedfordshire, LU7 7DN, UK
Telephone: +44-1525-852-599
FAX: +44-1525-852-598

BTS A305/C930
Intro: Media pool video server applications for broadcast and post-production; FDL quadra CCD telecine; MNR 11 median noise reducer; LDK 10/10P CCD frame transfer cameras; Bravo editing system; Calrec's 'T Series' console.
Also: LDK CCD frame transfer camera series; D-1 and D-6 cassette recorder; Bit rate reduction unit; diamond-digital production switchers; Venus and Mars routing switchers; Saturn digital master control system; Jupiter facility control; Series 400 analog/digital processing.
Contact: Karl Reichardt
Im Leuschnerpark 1
D-64347 Griesheim, Germany
Telephone: +49-6155-870-539
FAX: +49-6155-870-359

Cablecon A/S B323

Cablerie D'Eupen B324

Cablerie Seneffoise B163
On Display: Trunk, distribution and drop cables for CATV, SMATV networks.
Contact: Michel Mandoux
6 rue du Canal
B-7180 Senneffe, Belgium
Telephone: +32-6454-8426
FAX: +32-6455-6941

Cables Cortaillod SA B332

Canford Audio Plc. B412

Canon Europa NV A103/C920
Intro: J9ax5.2B IRS/KRS super-wide ENG lens; Digi-Super 70 70x field lens; PJ21xSuper-IF studio lens; Cross-Over WAS-Type switchable ENG lens; Cano-Beam II infrared transmission system.
Also: J15ax8B IRS/KRS ENG lens; IF family of lenses in 9x, 15x, 20x and 33x; Super Series OB/studio lenses in 20x, 21x, 55x and 70x.
Contact: Kazuya Eguchi
Bovenkerkerweg 59-61
1185 XB Amstelveen, The Netherlands
Telephone: +3120-5458-905
FAX: +3120-5458-203

Cartoni B102
On Display: Camera support systems, in ENG models: Alfa, Beta, Delta; and in EFP models: C20-S, C40-S, C80-S.
Contact: Elisabetta Cartoni
13 Via Mirri
00153 Rome, Italy
Telephone: +39-6438-2002
FAX: +39-6435-88293

Catec AG B314/B315/B333

C-COR Europe B.V. B436
Intro: Comlux Nicam option; amplifier range for AT&T.
Contact: Hans Beus
Televisieweg IS
1322 AG Almere, Holland
Telephone: +31-36-536-4199
FAX: +31-36-536-4255

Cinema Products Corp. B408

Cintel GmbH A207
On Display: URSA gold flying spot telecine by Rank Cintel; Renaissance 8:8:8 telecine controller and color corrector by da Vinci Systems.
Contact: Jörg Schaefer
Unter den Eichen 7
65195 Wiesbaden, Germany
Telephone: +49-611-580-560
FAX: +49-611-580-562

Circuit Research Labs B614

C.R.S. Coaxial Radio Systems A153
Intro: 1,000 W solid state TV amplifier, Alien system Series; 5 kW Cavity for Siemens 1034 tube.
Also: 5 kW tube transmitter; RF components; Alien 200 W system.
Contact: Paolo Marini
Via Montenero n., 14
00012 Guidonia, Rome, Italy
Telephone: +39-774-36-3703
FAX: +39-774-36-3708

Comark A303
Intro: IOX UHF television transmitter featuring (PS)2.
Contact: Perry Priestly
P.O. Box 506
Route 309 S Advance Lane
Colmar, PA, 18915, USA
Telephone: +1-215-822-0777
FAX: +1-215-822-9129

Computer Assisted Technologies B403

Comstream Corp. B610

Connexion Ltd. B126
Intro: VDR video disk recorder/stillstore; Matrox Personal Producer 3.0; Film Maker non-linear editing software; Rotoscope computer-to-VTR editing software; Prisma music draw software.
Contact: Matt Vidmar
Paramount House
162-170 Wardour Street
London, W1V 3AT, UK
Telephone: +44-71-437-5701
FAX: +44-71-287-3269

Continental Microwave Ltd. B154
Intro: Satellite communications system including SNG 6G/140T; SNG system for uplink package to compliment 2/8 mbit/s compressed video codecs with C/KU dual-band operation.
Contact: Richard Martin
1 Crawley Green Road
Luton, Beds, LU1 3LB, UK
Telephone: +44-1582-424-233
FAX: +44-1582-455-273

CSO International Inc. B440
Intro: Real-time "Videoplex" and slow scan "Vidiscan" video multiplexers,
(continued on page 42)

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from 4-36 pictures on single screen; Teletext encoding and decoding systems with subtitling units.
Contact: Claude Stock
Avenue Molière 253
B-1060 Brussels, Belgium
Telephone: +322-346-3910
FAX: +322-346-4304

CTE International A212
Intro: VL62 Exciter/Transmitter (60 W); COMBI 250 W transmitter with 3 bands audio processor in 4U cabinet; VI3000 3 kW Mosfet amplifier; MC-1 Panoramic satellite test receiver with frequency from 950 to 2050 Mhz; change-over unit with coaxial switch and logic control unit; DIP11 2 kW Kipole demountable antenna; ADR3 directional, demountable antenna; PLC4/H 3 kW (wide band) and PLC5 circularly polarized antennas; APL1 Dipole antenna with back panel.
Contact: Enrico Antoniazzi
Via R. Sevardi 7, 42010 (Zona Ind. Mancasale)
Reggio Emilia, Italy
Telephone: +39-522-516-660
FAX: +39-522-921-248

Data Translation B511

Decibel S.A. B612
Intro: Schoeps CCM miniature condenser microphone; MC2 power amplifiers; XTA DP100 digital delay processor; Dateo BCS 70 broadcast mixer.
Contact: Jean-Pascal Ruch
Route de Chardonne
CH1604 Puidoux, Switzerland
Telephone: +41-21-946-3337
FAX: +41-21-946-1802

Delta OHM A154
Intro: Passive components for civil and military telecommunications; TV transmitters, cable TV network and radiotelephony; filtering, coupling and duplexing systems.
Contact: Frédérique Vacheron
105, bis rue du Général Leclerc
92270 Bois-Colombes, France
Telephone: +331-4780-1129
FAX: +331-4786-1739

Delta System B444

DeutscheTelekom AG A413/B155/C910/C920
Intro: Stereoscopic transmission via the 20/30 GHz transponder of the satellite "Kopernikus."
Contact: Dr. Breide
Research and Technology Center
P.O. Box 10 00 03
D-64276 Darmstadt, Germany
Telephone: +49-6151-83-8330
FAX: +49-6151-83-4842

Diamond SA B333

Digital Equipment Corp. B333

Digital Vision B408

Dinh-Telecom SA B522

Dornier GmbH B325

Digital Video Broadcasting A416
Intro: MPEG-2 based digital television services by cable, satellite and terrestrial means.
Contact: Peter MacAvock
European Broadcasting Union
Case Postale 67
17a, Ancienne Route
Ch-1218 Grand Saconnex/GE, Switzerland
Telephone: +41-22-717-2719
FAX: +41-22-717-2727

Drake Electronics B508
Intro: D-MAS multichannel automation system for simultaneous multichannel operation in real time allowing broadcast equipment to be shared or dedicated to each individual channel; DRM3400 mini-matrix digital intercom with 64 x 64 switching in a 4 RU unit.
Contact: Alan Brill
The Hydeway
Welwyn Garden City
Hertfordshire, AL7 3UQ, U.K.
Telephone: +44-1707-333-866
FAX: +44-1707-371-266

Dynatech Video Group B445
Intro: EditStar script-based non-linear editor; NewStar for Windows automation system; daVinci Renaissance 8:8:8 color corrector; Utah-300 router; Antero SGI-based character generator
Also: DigiStore digital storage system; Alpha Image Alphie production switcher; Elite production switcher; Colorgraphics DP/MAX production workstation; Delat Concorde graphics system; TAS and MC-500 master control systems; Super Glue digital converters.
Contact: Dave Keller
6 Votec Center
Hambridge Lane
Newbury RG14 5TN
Telephone: +44-1635-521-939
FAX: +44-1635-528-387

Eagle Comtronics Inc. B188

EBU/UER A402

Elenos Srl. A153

Elettronica Industriale Spa. B191

Elettronika Srl. B101
On Display: FM TV modulator; FM amplifiers; FM microwave links; antennas; TV converters; TV amplifiers; TV microwave links; accessories for TV and FM; electronics components and cables.
Contact: Raffaele Fasano
SS. 96 KM. 113
70027 Palo Del Colle (BA), Italy
Telephone: +39-80-626-755
FAX: +39-80-629-262

EPFL A415

Ereca B423

Erivision AG B424

Esser Test Charts B627

European Satellite Svces. A136

EVS Broadcast Equipment SA A141

Fairflight ESP Ltd. A113

Faroudja Laboratories A259
Intro: VP400-U multi-standard video processor/scan converter
Contact: Isabell Faroudja
750 Palomar Avenue
Sunnyvale, CA, 94086, USA
Telephone: +1-408-735-1492
FAX: +1-408-735-8571

Fast Electronic GmbH B144
Intro: Video Machine System 6000 for broadcast editing; Alladin 3D effect generator for Video Machine.
Also: Video Machine; digital player/recorder.
Contact: Bianka Reinhardt
Landsberger Str. 76
80339 Munich, Germany
Telephone: +49-89-502-060
FAX: +49-89-502-061-99

Feltronic International Ltd. B339

Feral Industries Ltd. B120
Intro: Feral Effect Plus, digital video/image manipulation device adds zoom and cropping effects to other DVE effects, including compressing positioning, aspect ratio control, "picture-in-picture," cuts, fades, and proc. amp control; Quad Split digital video/image manipulation device times four combines up to four composite or Y/C video inputs into one output; Plasmavision image display combines high impact displays with flat panel technology.
Also: Advanced 4:2:2 TBC/synchronizer features digital comb filtering; compact 4:2:2 TBC/synchronizer includes proc. amp controls, freeze, and strobe.
Contact: James Grunder
9204 Bond St.
Overland Park, KS, 66214, USA
Telephone: +1-913-492-4666
FAX: +1-913-492-5556

Fischer W.W. SA B105

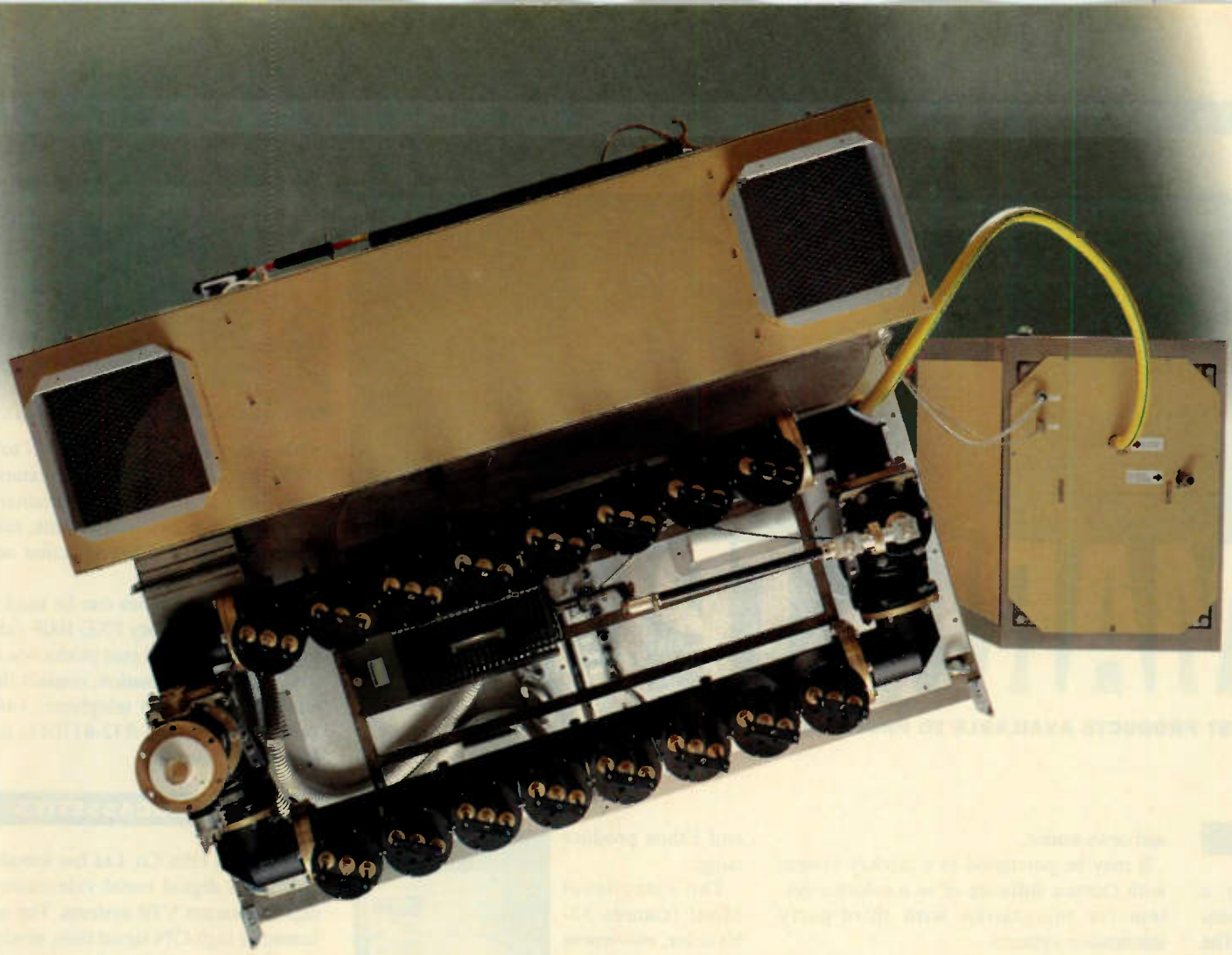
Flash TV A402

FOR.A Company Ltd. A233
Intro: DR-300 disk recorder; LDR-100 live disk recorder; FR-100 frame recorder; VTW-180PCX character generator; LG200P logo generator; DPR-AT MPEG 1 preprocessor; UDP-510 frame store/TBC; MVP-3200 scan converter; HMC-1220 nuBus still camera.
Contact: Brian Murray
Heritage House
21 Inner Park Road
London, SW19 6ED, UK
Telephone: +44-181-788-7664
FAX: +44-181-788-7435

Fougerolle Video A159
Intro: GIL100 digital inserter/generator; DE 3500 digital encoder RGB/YUV to serial 270 Mbit; DD3640 digital decoder serial 270 Mbit or parallel to YUV/RGB; Video and audio switchers; Digital synchronizer FS 1300 series.
Contact: Jean-Michel Durand
10, rue Charles Cros
95320 Saint Leu La Foret, France

(continued on page 45)

concept: Stefano Marelli



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U.S.A. offices: *Miami:* Phone 305 715 9410 Fax 305 715 9414 • *Denver:* phone 303 431 1699 Fax 303 431 2868

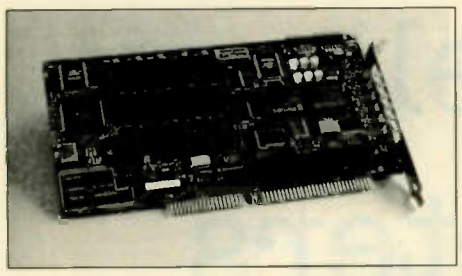
Circle 98 On Reader Service Card

MARKETPLACE

HIGHLIGHTING THE LATEST PRODUCTS AVAILABLE TO PROFESSIONALS IN THE VIDEO INDUSTRY.

PC-SLOTBOARD

Ajeco has released the PowerFramer, a halfsize 16-bit PC-slotboard for color video frame grabbing and image processing. The card digitizes video signals from six soft-



ware selectable video inputs, accepting NTSC, PAL or SECAM color video signals.

The PowerFramer combines a 40 MHz user-programmable digital signal processor with a video frame grabber, making it suitable for optical character recognition, machine vision, compression, and filtering.

An onboard PC/104 compatible expansion bus enables installation of one or more PC/104 modules.

For further information, contact the company in Finland at telephone: +358-0-7003-9200; FAX: +358-0-7003-9209, or circle **Reader Service 27**.

DISK RECORDER

Virtual VCR offered by Forefront D:V:P provides non-linear video access with a straightforward plug-and-play video box. It records and plays NTSC Composite or S-VHS video at full CCIR resolution along with CD quality stereo audio. Internal processing is done in the 4:2:2 digital domain using Drastic Technologies' VVCR recording engine.

Virtual VCR includes an industry standard RS-422 serial connection, emulation protocols from Drastic Technologies Betacam, and 4Gb of internal storage allowing up to eight minutes of video and audio.

For further information, contact the company in Canada at telephone: +1-416-636-4444; FAX: +1-416-636-4454, or circle **Reader Service 117**.

LIBRARY SYSTEM

Odetics has introduced the Prophet compact video library system, a scaled-down version of its TCS90. The Prophet features a laser alignment and bar-code system that targets bins and VTRs; archival storage for HVM applications; automated program/feed recording and direct-to-air replay of spots, program and news stories.

It may be purchased as a turnkey system with Odetics software or as a robotics system for integration with third-party automation systems.

For further information, contact the company in the U.S. at telephone: +1-714-774-5000; FAX: +1-714-774-9432, or circle **Reader Service 57**.

FEED SYSTEM

A new broadband feed system has been designed by Radio Frequency Systems Hannover to cover the frequency ranges of Astra and Eutelsat-Transponders. Existing TVSAT antennas can be refurnished, no extension of the IF band is necessary, and

existing channel amplifiers in the signal processing unit can still be used.

The feed system consists of a double polarized feed with an attached receiver multicoupler covering the frequency range of 10.7 ot 12.75 GHz.

For further information, contact the company in Germany at telephone +49-511-676-1; FAX: +49-511-676-3583, or circle **Reader Service 78**.

ANIMATION SOFTWARE

Pixibox has developed PEGS (Pixibox Extended Graphic System), a computerized system involving an ink and paint animation, the fabrication of backgrounds, and the composition of 2D/3D pictures for the production of cartoon series.

PEGS is based on the computerization of the production process and combines the setting up of the day-to-day management of a Production. PEGS has the capacity to produce and manage several series simultaneously, as well as ensuring quality of the final picture.

For further information, contact the company in France at telephone: +33-1-49-85-16-96; FAX: +33-1-49-85-16-96, or circle **Reader Service 134**.

CHARACTER GENERATORS

Aston Electronic Designs Ltd. has announced enhancements to its Motif, ESP and Ethos product range.

The entry-level Motif features 32-bit color, movement in roll and crawl and instant resizing. Motif ESP includes the strengths of Motif, and adds a full color static plane.

The dual-channel Ethos character generator offers two full broadcast channels and an animation capability.

For further information, contact the company in the U.K. at telephone: +44-1252-836221; FAX: +44-1252-837923, or circle **Reader Service 122**.

ENCRYPTION SYSTEM

The LS-256 encryption system from Nokia operates on digital line shuffling. To re-generate the picture, encryption keys are transferred to the decoder in an in-band data channel which also includes encrypted information for authorization, program allocations and on-screen display messages. Access can be changed or upgraded through a smart card function.

For further information, contact the company in the U.K. at telephone: +44-793-644-223; FAX: +44-793-619-959, or circle **Reader Service 12**.

DECODER

The HDM8211 SAVi (System Audio, Video) from Hyundai Electronics is an integrated, single-chip real-time decoder for video and audio decompression, as well as demultiplexing of MPEG system level compressed data streams.

The HDM8211M features full CCIR601 resolution, 720 x 480 at 30 Hz; bit-serial and parallel input capabilities for compressed data; on-chip DRAM controller, 32 Mbit maximum memory; and microcoded architecture based on MicroSPARC.

For further information, contact the company in Korea at telephone: +82-2-741-0661; FAX: +82-2-741-0737, or circle **Reader Service 46**.

EDITING VTRS

Sony Broadcast & Professional has introduced two S-VHS VTRs: the SVO-5800P and the SVP-5600P. Both machines provide direct Betacam SP interface and

allows users to edit from S-VHS to UVW, PVW and DVW. They also feature VSLI (very large scale integrated circuits), motherboard design and components, time base corrector, digital noise reduction and time code generation.

The new 5000 series can be used in conjunction with the Sony FXE-100P video editing system for a total post production system.

For further information, contact the company in the U.K. at telephone: +44-1932-816269; FAX: +44-932-817011, or circle **Reader Service 5**.

METAL VIDEOCASSETTES

Fuji Photo Film Co. Ltd has introduced its Fuji D321 digital metal videocassettes for digital Betacam VTR systems. The new tape features a high C/N signal ratio, newly developed lubricant facilitating tape transport, durability through an improved adhesion, and a backcoating material for low-friction coefficient allowing for stable tape transport.

Tape shrinkage and oxidation during long-term shortage are prevented by Fujifilms' production technology and a protective layer of the D321 particles.

For further information, contact the company in Japan at telephone +81-3-406-

2444; FAX: +81-3-406-2173, or circle **Reader Service 85**.

COMPOSITE EDITOR

Chyron Corp. has begun shipping the Jaleo composite post production editor that was introduced at IBC last year. The system is the first in a series of desktop production system the company is developing.

The system combines non-linear editing and digital compositing in a resolution-independent platform on an open platform aboard the Silicon Graphics Indy and Indigo 2 workstations. It is capable of editing composite video and audio from tape, disk recorders and 2-D and 3-D graphics systems.

Jaleo features unlimited layers that can be composited independently, allowing multiple modifications to each layer without affecting the others.

For further information, contact the company in the U.S. at telephone: +1-516-845-2000; FAX: +1-516-845-5210), or circle **Reader Service 17**.

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

(continued from page 42)
Telephone: +331-3932-7350
FAX: +331-3418-1566

FUBA Hans Kolbe & Co B206
Intro: DVB uplink equipment; DVB downlink equipment; video and audio compression MPEG 2; headend equipment digital modulation; CATV/SMATV/MATV; interactive CATV; analog optical fiber systems.
Also: Terrestrial transmission; telemetry.
Contact: Mr. Look
Bodenburger Str. 25/26
31162 Bad Salzdetfurth, Germany
Telephone: +49-50-6389-589
FAX: +49-50-6389-371

Fuji Magnetics GmbH A118
Intro: Digital Betacam.
Also: Line of Betacam products.
Contact: Mr. Imaaki
Fujistrasse 1
D-47533 Kleve, Germany
Telephone: +49-2821-5090
FAX: +49-2821-5092-15

Fujinon Europe GmbH A119
Intro: A8.5x5.5, A15x8 and A20x8 ENG ratio converter lenses for switchable cameras; Ah20x7ESM studio/EFP lenses; MAF10/MSF10 high resolution macro lenses; EPT-5E-10D serial pan/tilt head for ENG cameras.
Contact: Daniel Kuhn
Halskestrasse 4
47877 Willich, Germany
Telephone: +49-2154-924-0
FAX: +49-2154-924-290

Future Equipment Design B623

General Instrument Ltd. B441

Getris Images B145
Intro: Broadnews computer-based system for automatic broadcasting of news, featuring a character generator, image library, stillstore unit, graphic paint system and animation system; Digitoon, a Windows NT package that automates much of the cartoon production process.
Also: 5.0 software for the Eclipse, Venice and Hurricane packages.
Contact: Marie Francios-BAL
Zirst de Grenoble 4403
23, chemin des Prés
38244 Meylan Cedex, France
Telephone: +33-7690-9777
FAX: +33-7690-7234

Ghielmetti Communications A104
Intro: Main control for composite and RGB video combined with digital and analog audio channels.
Contact: H.P. Schwaninger
Industriestrasse 6
CH-4562 Biberist
Telephone: +41-6531-1196
FAX: +41-6532-1324

Gilbert Engineering B439

Gotham AG B188

Graham-Patten Systems A133
Intro: D/ESAM 820 digital edit suite audio mixer, featuring master processor board, audio output module, digital input card with integral sample-rate converter, and version 4.0 software; Models 854 & 858 digital input modules for four/eight, 24-bit AES/EBU format digital sources; Master processor board increases D/MEM storage registers to over 600; Model 848 analog audio input module with 20-bit resolution.
Also: D/ES AM 800 and D/ES 400 series digital edit suite audio mixers and accessories, including DATS balanced XLR to BNC digital audio interface converters.
Contact: Edward Hobson
P.O. Box 1960
Grass Valley, CA, 95945, USA
Telephone: +1-916-273-8412
FAX: +1-916-273-7458

Grass Valley Group Ltd. B317/B407
Intro: Video Desktop personal production suite; Tektronix profile disk recorder applications.
Also: Krystal 4300 DVE; Model 2200 serial digital vision mixer; Typedeko Windows-based character generator; Sabre 4300S SG1-based editing system.
Contact: Richard Hartley
Fourth Avenue, Globe Park
Marlow, SL7 1YD, UK
Telephone: +44-1628-478-833
FAX: +44-1628-478-140

Gruppo Manfrotto B113

Guenther, Dr. W.A. B161

Hamlet Video International Ltd. B409
Intro: 302WVR Video Scope; 503AR Stereo Scope; PLM1 program level meter; new digital encoders and decoders.
Contact: Steve Nunney
Oak House
266 Cartridge Lane
Chesham, Bucks, HP5 25G, U.K.
Telephone: +44-1494-775-850
FAX: +44-1494-791-283

Harmonic Lightwaves A151
On Display: YAGLink externally modulated ND:YAG laser transmitter; PWRLink DFB transmitter; receivers for bi-directional broadband communications; NMS network management system.
Contact: Josef Berger
3005 Bunker Hill Lane
Santa Clara, CA, 95054, USA
Telephone: +1-408-970-9880
FAX: +1-408-970-8543

Heiwa Seiki Kogyo Co. Ltd. B194

Hirschmann, Richard GmbH B333

Hitachi Denshi Europa GmbH B111

Horizon Video C910

Hotronic Inc. B611
Intro: AT61 10-bit frame synchronizer with companion audio delay for satellite feed; AU51 20-bit stereo audio delay for lip sync correction; AL82 6 second video/audio delay for live broadcast; AX81 8x2 no glitch router.
Contact: Linda Chang
1875 S. Winchester Blvd.
Campbell, CA, 95008, USA
Telephone: +1-408-378-3883
FAX: +408-378-3888

Hughes Aircraft Co. B183

IABM B302

IDX Technology Europe Ltd. B128

IAB A260

IBC B304

IBM Telco & Media B446

IEC Export n/a
On Display: Audio and video equipment for professionals.
Contact: Jean Paul Douin
3, rue Jean LeMaistre
3500 Rennes, France
Telephone: +33-9954-5666
FAX: +33-9959-0130

Ikegami Electronics GmbH A306

Immix A109

Independent TV Commission A402

Innovision Ltd. B404

Institut for Rundfunktechnik A402/C920

Intelfax Developments Ltd. B187
Intro: Vitesse teletext management system provides database and transmission management facilities using standard PC hardware; interactive teletext system includes teletext TV and touch-tone telephone.
Contact: Raymond Goff
142 Lower Marsh
London, SE1 7AE, UK
Telephone: +44-1-0171-928-3044
FAX: +44-1-0171-928-1836

Intelsis Sistemas Inteligentes B437

IRTE Spa. B134
Intro: Walk radio camera for A/V transmission on 2.3-2.7 GHz.
Also: 2 W to 10 kW VHF/UHF transmitters and repeaters; parabolic microwave and satellite antennas; broadcast antennas; fixed and mobile microwave radio links from 3 to 23 GHz.
Contact: A. Castelli
Via Pompei 35
21023 Gallarate, Italy
Telephone: +39-331-797-286
FAX: +39-331-776-082

Italiana Ponti Radio Srl. B377
Intro: MTS C series of fixed and mobile microwave links; UMP series of microwave ENG links; helicopter transponder systems; remote control for pan/tilt systems.
Contact: Antonio Salomone
Via Salvore, 20
21100 Varese, Italy
Telephone: +39-332-284-093
FAX: +39-332-283-369

Itelco Spa. C910

J&C Intersonic AG B606

Jampro Antennas Inc. B614

JVC Professional Products GMBH A110
Intro: Digital S, an advanced digital video compression and recording system for affordable, high-quality digital video. Products will include an editing recorder, player, player with S-VHS playback and a dockable recorder; the SR-W320 HDTV VTR utilizing the W-VHS format for recording HDTV and NTSC signals; KH-100 HDTV camera; HDTV monitors; ILA Series 400 light valve projector.
Contact: Jürgen Kupczik
Grüner Weg 10
D-61169 Friedberg, Germany
Telephone: +49-6031-6050
FAX: +49-6031-605-280

Kabelrheydt B609
Intro: Nordura-F CATV aluminum design hybrid cables (fiber optic and coax).
Contact: Wolfgang Waszkies
Bonnenbroicher Str. 2-14
D-41048 Monchengladbach 2, Germany
Telephone: +49-2166-27-2666
FAX: +49-2166-27-2867

Kathrein-Werke KG B334

Kellerer & Partner A114

Klein & Hummel B186

Kobold Licht A253

Leitch Video International A117

Lemo SA B338
Intro: Fiber Optic TV camera interconnection system; fiber optic connector range; fiber optic patch panel.
Contact: A. Pesci
Ch. des Champs-Courbes 28
1024 Ecublens, Switzerland
Telephone: +41-21-691-1616
FAX: +41-21-691-1631

Lexicon B188

Lightning System S.A. B421
Intro: HF Link allows up to 30 cameras on 2 HF-channels, including a remote control for the BVP-7xx and BVP-90xx Sony cameras.
Contact: Laurent Zwahlen
Ruelle Vaucher 22
2000 Neuchâtel, Switzerland
Telephone: +41-38-31-1478
FAX: +41-38-31-9496

Light Wave Systems B408

Lightworks Editing Systems A109
Intro: Newsworks for news environments; Heavyworks One to play and edit multi-camera material from one hard drive in real-time; The Fader Box audio interface to the Heavyworks, providing live audio mixing.
Also: Lightworks Turbo for major television and feature film productions; Digistation for transferring pictures and audio to disk, and Lightworks Assistant for logging digitized material.
Contact: Charlotte Campbell
38 Soho Square
London W1V 6LE, UK
Telephone: +44-171-494-3084
FAX: +44-171-437-3570

Lowel-Light Mfg. Inc. A216
Intro: Lowel Fren-L 650, a 650-watt fresnel light with 7:1 focusing range, shadow quality, and curved Schott lens, Lowel Rifa-Lites, available in 1,000 watts, 750 watts and 500 watts.
Also: Line of studio and location lighting systems and kits.
Contact: Marvin Seligman, CEO
140 58 Street
Brooklyn, NY 11220 USA
Telephone: +1-718-921-0600
FAX: +1-718-921-0303

Lynx SA B408

Macrovision UK Ltd. B425

Mamie Rundfunktechnik C910

Matra Communication A216

Matthey Electronics B121
Intro: Serial digital video interface cards including A to D, D to A converters, serial distribution amplifiers and serializer/deserializers. The IRU frame is designed to be EMC compatible.
Contact: Mark Townsend
Burslem
Stoke-On-Trent, ST6 3AT, UK
Telephone: +44-782-524-918
FAX: +44-782-524-977

Maxell Europe Ltd. B165
Intro: Ceramic armour tape in Digital Betacam, D-3 and Betacam SP formats.
Contact: T. Nakamura
Appley, Telford
Shropshire, TF6 6DA, UK
Telephone: +44-952-251-911
FAX: +44-952-222-658

Mecom B453

Media Solutions B619

MetaWave Ltd. B121
Intro: MW series of embedded audio and EDH processing products for use with serial digital video signals; up to 16 cards plus redundant power supplies can be accommodated within compact 2RU rackframe.
Contact: Tim Gale
11 Kingsclere Park
Kingsclere, Hampshire, RG15 8SW, UK
Telephone: +44-1491-410-323
FAX: +44-1491-410-181

Micro Giga D.O.O. B408

Microwave Radio Corp. A158

Miller Fluid Heads A215
Intro: New accessories for series II ENG/EFP tripods; above ground spreaders and ground spreaders for ENG/EFP tripod models (the Lightweight, Single Stage and 2-Stage tripods); positive grip rubber feet for use with above ground spreaders.
Contact: Grant Clementson
30 Hotham Pde
Artarmon, Sydney 2064, Australia
Telephone: +612-439-6377
FAX: +612-438-2819

Miranda Technologies Inc. B527
Intro: ASD-101i CAV to 4:2:2 converter; SDM-101i 4:2:2 to CAV converter; ASD-201i NTSC/PAL to 4:2:2 decoder; SDM-201i 4:2:2 to NTSC/PAL encoder; VFC-123Ni 4:2:2 to NTSC 4fsc video format converter; VFC-321i 4fsc to 4:2:2 video format converter; imaging Solo desktop imaging card desktop housing; Mindy 4:2:2 to SGI digital video port interface.
Contact: Christian Tremblay
8055 Trans Canada
St-Laurent, Quebec
Canada, H4S 1S4
Telephone: +1-514-333-1772
FAX: +1-514-333-9828

Monitora Broadcast Systems B204

Montage Group Ltd. n/a

Music Choice Europe B441

NAB A421

Nagra Kudelski SA A111
Intro: ARES-C solid-state recorder with PCMCIA support, is a 3 kg portable machine, mono or stereo, with a single channel recording time of 40 minutes on 20 Mbyte card. Includes editing features and card copy on board using a double slot.
Contact: Pierre Roy
Route de Genève 22
CH-1033 Cheseaux, Switzerland
Telephone: +41-21-732-0101
FAX: +41-21-732-0100

Nagra Lysis SA A111
On Display: Integrated Information System and Broadcast Architecture for Radio, which includes hardware and software for sound editing, scheduling, broadcasting, administration, statistical analysis, and news editing. Includes object oriented Information system that manages multimedia documents.
Contact: Pierre Roy
Route de Genève 22
CH-1033 Cheseaux, Switzerland
Telephone: +41-21-732-0101
FAX: +41-21-732-0100

Neumann Georg GmbH B179

Neurodata Design B629
Intro: Telecam bi-directional management system using CATV network for remote control of motorized cameras, active and passive detection, active displays, monitoring, and data & image transfer; MTX 450 and MTX 600 modular mini trunk line amplifier.
Contact: Jean Louis Baus
Avenue de l'Expansion 9A
B-4432 Alleur, Belgium
Telephone: +32-4146-9361
FAX: +32-4147-3179

Newswire Systems Ltd. B403
Intro: Low-end PC-based server system; news system based on Sun Microsystems; digital video and audio interface systems.
Also: NewsWire-2000 Mac-based newsroom system.
Contact: Detleu Henke
36 Alie Street
London E1 8DA, UK
Telephone: +44-171-488-3372
FAX: +44-171-488-3371

NHK A411
Intro: Hi-Vision Super-Harp hand-held camera for HDTV, is equipped with 18mm electrostatic focusing deflection Super-Harp tubes. Includes sensitivity up to 2000 lx, f/25; Bee-CAM ultraviolet sensitive color TV camera for NTSC, simulates insect vision by means of false-color method.
Contact: Keiichi Shidara
1-10-11, Kinuta
Setagaya-Ku, Tokyo 157, Japan
Telephone: +81-3-5494-2244
FAX: +81-3-5494-2256

Nokia B333

NTL A213/B311/B312/B313
Intro: System 3000 range of MPEG-2 video compression products, including statistical multiplexing, 6U encoder and compact SNG system.
Also: Multichannel digital terrestrial TV.
Contact: Barry Crompton
Crawley Court
Winchester
Hampshire SO21 2QA, UK
Telephone: +44-1962-823-434
FAX: +44-1962-822-378

NTP Elektronik A/S B204
Intro: 625 multi-norm audio router; 660 Windows-based software for routing systems; 575-100 asynchronous AES/EBU switcher; 575-200 analog switcher; 477 series digital and analog PPMs; 560 A/D and D/A converters.
Contact: Arne Mulstrup
Knapholm 7
DK-2730 Herlev, Denmark
Telephone: +45-4453-1188
FAX: +45-4453-1170

NVision Inc. B528
Intro: Digital Audio Processing Suite (DAPS) II system package, which includes two layers of 8x8 digital audio routing; NV1035 two-channel 20-bit A/D converter module; NV1045 two-channel 20-bit D/A converter module; NV3128D series digital machine control routing switchers (enhanced).
Contact: Birney Dayton
P.O. Box 1658
Nevada City, CA, 95959, USA
Telephone: +1-916-265-1000
FAX: +1-916-265-1010

Odetics UK Ltd. B461
Intro: Prophet cart machine; SpotBank transmission system.
Contact: Robert Stopford
58 Portman Road
Reading, Berks, RG3 1ED, U.K.
Telephone: +44-734-560-564
FAX: +44-734-560-571

(continued on page 46)

(continued from page 45)

OpTex UK B523
Intro: Aurasoft softlight system; BBC Tracs microwave system; range of microwave links.
Contact: Robin Thwaites
20-26 Victoria Road,
New Barnet, London, EN4 9PF, UK
Telephone: +44-81-441-2199
FAX: +44-81-449-3646

Opticable SA B153

Oracle Corp. A405

Ortel Corp. B433

Pacific Monolithics B197

PAG Ltd. B131
Intro: MC124 four channel battery management for Ni-Cd batteries in the range of 4.8 to 14.4v and 1 to 7Ah; PP240 ten cell 12v 2.4Ah slide-in battery pack; SP2.5 2.5Ah Ni-Cd battery fitted with Paglok connector, with range options of 12, 13.2 and 14.4v, 2.5Ah.
Also: Battery analyzer/laboratory test instrument; AR series 4 or single channel autoranging fast-chargers; line of Ni-Cd batteries.
Contact: Brian Walker
565 Kingston Road
Raynes Park, London SW20 8SA, UK
Telephone: +44-81-543-3131
FAX: +44-81-540-4797

Panasonic Broadcast Europe B108/B316/B350
Intro: New products based around the DVCPRO format adapted from the proposed consumer standard. Included will be the AJ-D700 camcorder and the 4X Fast Transfer player capable of streaming video over wired or wireless links at four times real time.
Contact: Michael Cox
Willoughby Road
Bracknall, Berks, RG12 8F UK
Telephone: +44-1344-853-108
FAX: +44-1344-853-071

Pandora International Ltd. B156

Parallax Software A120

Pastega Elettronica Professionale B123

Phasecom Ltd. B602

Philips Broadband Networks B333

Philips Semiconductors A132

Philips TV Test Equipment A214
Intro: PM 5684 Nicam transceiver; PM 5689 Nicam sound monitor; PM 5639/02 auto color alignment system for Barco monitors; PM 5644 PAL plus test pattern generator; PM 5639/82/83 color alignment generators.
Also: PM 5695 monitoring demodulator; PM 5696 monitoring receiver; PM 5655 VITS generator and inserter; PM 5639/00 CRT color analyzer; PM 5640A video test signal generator; line of Nicam modulators and demodulators; Waveform monitors and vectorscopes.
Contact: Steen Feldskov
Kornmarksvej 21
DK-2605 Brondby, Denmark
Telephone: +45-3288-5485
FAX: +45-4343-2390

PInnacle Systems B115

Pioneer Electronics Corp. A423

Pioneer Electronic Europe B504
Intro: Broadcast 2000 system based on optical digital discs, includes near-line library system, multi-channel cart as channel VOD transmission system, and near VOD play-out system using 4-mead players; RM-V4000 multi-projection cube, 100 Hz flicker free, multi-scan 40-inch monitors.
Contact: A. Okamoto
Haven 1087, Keetberglaan 1
9120 Melsele, Belgium
Telephone: +32-3750-0611
FAX: +32-3750-0894

Pixel Instruments Corp. B528

Pixel Power Ltd. B184
Intro: 2D animation for Collage (enhanced); Extended standard font library via CD ROM; Serial D1 keyer.
Contact: Trevor Bilcock
Unit 1
Trinity Hall Farm Industrial Estate
Nuffield Road
Cambridge, CB4 1TG, UK
Telephone: +44-223-423-399
FAX: +44-223-423-868

Pixelpark Multimedia B122

Plisch Nachrichtentechnik B117

Prime Image Inc. B410
Intro: A/V delay; Penta standards converter.
Contact: Bill Hendershot
19943 Via Escuela
Saratoga, CA, 95070, USA
Telephone: +408-867-6519
FAX: +408-926-7294

Primetime AG B525

Production Products Co. B333

Protec A135

Quantel Ltd. B501
Intro: Post Production Network non-linear, on-line system based on clipbox; HIPPO option for Henry editors; News Network system; Paintbox Express; Hal Express; Picturebox Express.
Also: Domino film system
Contact: Chris Whitely
Turnpike Road
Newburg, Berks, RG14 2NE, UK
Telephone: +44-1635-48222
FAX: +44-1635-31776

Questech Ltd. B401
Intro: Charisma 10 digital video effects mixer in live and post-production environments offers linear, warp and cleo versions in dual standard, dual aspect ratio.
Contact: D. Ackroyd
Eastheath Avenue
Wokingham, Berkshire, RG11 2PP, UK
Telephone: +44-1734-787-209
FAX: +44-1734-794-766

RACE HDSAT A403

Radamec EPO Ltd. B508
Intro: ARC 2000 touch control panel system (TCP) provides full shot storage and recall facilities via SVGA touch screen and displays frame grabbed shots for recalling camera/pedestal positions; Radamec EPO RP4 pedestal adapter package provides robotic control of x, y, z pan, tilt axes.
Contact: M.J. Wolfe
Bridge Road
Chertsey, Surrey, KT16 8LJ, UK
Telephone: +44-932-561-181
FAX: +44-932-568-836

RAI A402

Rank Cintel A207
(See Cintel GmbH)

Rediffusion AG B332

Retevision A402

Reuters A406

RF Systems GmbH B628

Riemer Communication Systems B438
Intro: Videomax 84-inch rear projection system for TV live-studio, presentation switchable for color temperature 6400 degrees and 3200 degrees.
Overweg 25
D-59494 Soest, Germany
Telephone: +49-2921-73057
FAX: +49-2921-79820

RMS Electronics B424

Robert Bosch GmbH B432
(See Bosch Telekom)

Rohde & Schwarz B103
Intro: TS6100 TV monitoring system; AMON audio monitoring system; ADAS audio data transmission system; NH 500 UHF solid-state TV transmitter; SM225D1 and SM250D1 solid-state DAB transmitters; line of test and measurement equipment.
Contact: Ruth Lutz
Postfach 80 1469
D-81614 München, Germany
Telephone: +89-41-29-2931
FAX: +89-41-29-2082

RTI UK Ltd. B203
Intro: Pro Line 4100D high speed cleaner/evaluator for Digital Betacam, SP and Betacam cassettes; Lipsner-Smith Excel 900 film cleaner incorporates PTR rollers and Ispropanol "wetted" buffers.
Contact: Ray L. Short, Jr.
Unit 6 Swan Wharf Business Centre, Waterloo Road
Uxbridge, UB8 2RA, UK
Telephone: +44-1895-52-191
FAX: +44-1895-274-692

Sachtler AG B112
Intro: OB 2000 heavy duty tripod with integrated off-ground
(continued on page 49)

SONY AND ANTON/BAUER ARE MAKING HISTORY...

Unpredictable shooting interruptions that occur with primitive "low battery" indicators are now history. Through a special InterActive™ circuit in Sony camcorders, such as the new BVW-D600 Betacam SP DSP camcorder, actual remaining battery capacity is transmitted to the viewfinder from the Anton/Bauer Digital battery's fuel computer. During operation, this highly accurate fuel gauge is displayed in the viewfinder and constantly updates remaining battery capacity to the cameraman.

Short runtimes, cumbersome battery belts and battery change disruptions are history. The Anton/Bauer InterActive battery and charger system deliver the high level of performance, reliability, and versatility demanded by the Sony Digital 1000 camcorders. A single high capacity Digital Propac™ battery perfectly balances the camera on the shoulder and powers camera, recorder *and Ultralight* for 2 hours.

High wattage on-camera lights, wasted battery power and "interrogation room" interviews are history. The advanced low light sensitivity of the BVW-D600 is enhanced dramatically by the Studio Quality Ultralight 2. Automatique™, an exclusive control circuit standard on all new Sony camcorders equipped with an Anton/Bauer Gold Mount™, synchronizes the on/off function of the Anton/Bauer Ultralight™ with the VTR stop/start button. The Ultralight's photometric design matches ambient light to transform a shadow filled scene to a studio image.

These history making advances are possible only with the Anton/Bauer InterActive system, part of the innovative technology and creative solutions™ in the BVW-D600.

anton bauer *The worldwide standard*

The BVW-D600 Betacam SP DSP camcorder, and the DVW-700 the world's first Digital Betacam camcorder, feature InterActive™ viewfinder, Ultralight Automatique and Sony's exclusive Hyper-HAD™ sensor with OCL (On-Chip-Lens) technology.

For your FREE "Video Battery Handbook"
call (in U.S. only) 1-800-422-3473 or fax (203) 929-9935

InterActive viewfinder and Ultralight Automatique are also standard features on Sony BVW 400A and UVW-100 camcorders.
Your Sony representative can provide you with details on Anton/Bauer InterActive Systems for all Sony products.

Circle 130 On Reader Service Card

Facing the Future

Imagine a specialist in electronics, the type always surrounded by instruments and electrical circuits. Invite him to visit the C.R.S., a company that produces television transmitters...

...I was immediately struck by the incessant noise of the machinery. I started to think how strange it was: "Today electronics doesn't make any noise". Inside: lathers, milling machines and five NC machines. These robots mould bronze as if it were clay. Complicated mechanical pieces rapidly take shape under the implacable graver of the "electric" artist. I get it! The C.R.S. is a company of mechanics! Mistake! Only a few steps and I discover a highly complicated board for measurements. Video generators, network and spectrum analysers and everything anyone hooked on measurements would dream of. I'm confused now, mechanics or electronics? An elderly engineer smiles and calmly explains to me how the C.R.S. has managed to happily combine mechanical precision with electronics. For example they produce a solid state amplifier costing the same as a tube amplifier but simpler and more reliable. Its international patent places the C.R.S. at the forefront of this field. Although some time has passed it is always a pleasure to return to this "unusual" company where we talk about the past and the future. Times which do not coincide with those of other producers. The future of most companies is now in fact on the workbenches of the C.R.S., whereas the distant future "of the others" is already in the desk drawers of their designers.

COAXIAL RADIO SYSTEMS

Circle 18 On Reader Service Card

Salvador Dominguez COMUNICAZIONI VISIVE

(continued from page 46)

speaker and rotatable rubber feet. Video 90 fluid head comes with patented leakproof frictionless fluid damping, reproductable at any payload and temperature, fully matched in pan and tilt.
Also: Open face and studio lights in Tungsten and HMI from R 20 watt on board camera light to 5 k director studio fixture; line studio cameras up to 90kg; line of fluid heads, pedestals and tripods.
Contact: Florian Granderath
Gutenbergstrasse 5
D-85716 Unterschleissheim, Germany
Telephone: +49-893-2158-200
FAX: +49-893-2158-227

SAE SA B439
On Display: Line of coaxial connectors and splice for cable TV, satellite reception and OEM applications; custom design coaxial connectors (i.e., F,N,3.5/12,IEC).
Contact: Pierre Fusteg
Z.I. Boitardière
37400 Amboise, France
Telephone: +33-4757-3231
FAX: +33-4757-3635

Sagem B208

Sandar Electronics A/S B428

SAV A304
Intro: MKR-100 digital keyer; Digital Matrix 8x8, 16x16; Digital Matrix 12x1, all standards; DVD 1x8 digital distributing amplifiers; DVD 2x4 2 distributing amplifiers.
Contact: I. Sales
31, Rue Bouret
75019 Paris, France
Telephone: +331-4240-5522
FAX: +331-4240-4780

Schmid Telecom AG B132

Schoeps GmbH B612

Schweizer AG A253

Scientific Atlanta Inc. B516

Screen Subtitling Systems B124

SEE B301
(Signal Engineering & Electronics)
On Display: Range of coaxial connectors for all types of 75 ohms cables; modular broadband amplifiers for coax networks (Cameleon LE910); AM900 transparent fiber optic transmission system.
Contact: Guy Rooman
Avenue du Commerce, 18
1420 Braine L'Alleud, Belgium
Telephone: +322-389-0020
FAX: +322-389-0030

Seem Subtitling A/S B426
On Display: Digiwrit PC-based subtitling preparation unit; Digitext editing and transmission subtitle workstation.
Contact: Tore Seem
1346 Gjettum, Norway
Telephone: +47-67-135-753
FAX: +47-67-137-707

Sefram Instruments B624/B625

Sennheiser Electronic KG B179

Siemens AG B402

Sierra Video Systems B826

Sigma Electronics Inc. B127
Intro: 2100 series of Micro-Matrix routing switchers; TCD-2110 & 2111 transcoders.
Contact: Bob Hivner
P.O. Box 448
East Petersburg, PA 17520, USA
Telephone: +1-717-569-2681
FAX: +1-717-569-4056

Signum Computer B616

Sira Sistemi Radio B116

SMPTE B303

Snell & Wilcox Ltd. A256/A257
Intro: Golden Gate 10-bit decoder for 4 fsc to 4:2:2 conversion; MDD1100 10-bit adaptive field comb and digital synchronizer; MDD500 10-bit adaptive field comb decoder and MDE500 10-bit adaptive field comb encoder; Kudos IQ encoders, decoders and digital interface modules; ARC100 widescreen display processor; TBS20, 21, 22 and 23 synchronizing transcoders; Pattern Master test pattern creation software; TPG21 test image generator; Magic DaVE 4:2:2 DVE/switcher. DVS800 10-bit, 4:2:2 telecine switcher; DVS500 10-bit, 4:2:2 telecine switcher.
Contact: Joe Zaller
57 Jubilee Road, Waterlooville
Hampshire PO7 7RF, U.K.
Telephone: +44-1705-268-827
FAX: +44-1705-241-252

Societa Italiana Software B119

Softel Ltd. B404
Intro: Open caption subtitling equipment for analog and digital transmission links to accommodate multi-lingual requirements of broadcasters.
Contact: Gordon Hunter
Horseshoe Park
Pangbourne, Reading, RG8 7JW, UK
Telephone: +44-1734-842-151
FAX: +44-1734-843-939

Solid State Logic B161
Intro: Axiom digital production system; digital mixing console with hard disk multi-track/editor; SL 9000 J series studio system; analog console with optional hard disk multi-track/editor.
Also: Omnimix digital surround sound audio/video system; Scenaria digital audio/video production system; Screensound V5 with vision-track; S 8000 GB on-air/production console.
Contact: Hazel Simpson
Begbroke
Oxford, OX5 1RU, U.K.
Telephone: +44-865-842-300
FAX: +44-865-841-782

Sonosax SA B408
Intro: SX-S film/intercom module; PA-M4 splitter card.
CH-1162 St-Prex, Switzerland
Telephone: +41-21-806-0202
FAX: +41-21-806-0299

Sony B318/B517/B555/B650
Intro: Digital Video Broadcasting (DVB) end-to-end production and transmission system acquisition. BVP-550P and 500P cameras. Post production: DES-500 system; DNE-300 edit station; DLE-100 live editor. Transmitting hard disk and MO servers. Facility Controls A/V servers featuring 5X compression.
Also: New Ditial Betacam gear, such as the DVW-250P portable recorder, DVW-522P office viewer and BKDW-515 control panel.
Contact: Karen Spriggs
Jays Close, Viables
Basingstoke, Hampshire, RF22 450, U.K.
Telephone: +44-1256-55011
FAX: +44-1256-474-585

Spinner GmbH B106

Standard Communications B178
On Display: Agile Omni Global VU satellite receiver, Model MT 830IBR; MT900 satellite receiver; MT620 continental satellite receiver.
P.O. Box 92151
Los Angeles, CA 90009, USA
Telephone: +1-310-532-5300
FAX: +1-310-532-0397

Starbird Satellite Services C910

Studer Professional Audio AG B143
Intro: Series 980 mixing console automation system; Series 916 broadcast mixing console for local radio stations, OB vans and PA applications; D19 MicAD 8-channel mic preamp.
Contact: Marcel Siegenthaler
Althardstrasse 30
CH-8105 Regensdorf, Switzerland
Telephone: +41-1870-7511
FAX: +41-1840-4737

Swedish Television A402

Sysflex B306

Talia Sound & Vision A207
Intro: W-Series data converters; TB-48 digital talkback; E.O.S. digital video routing switcher; E310 video distribution amplifiers.
Contact: A. McKwaine
Unit 1, 45 Gilby Ro
Mt Waverley VLC 3149, Australia
FAX: +61-3-720-7662

Tandberg Television AS A108

TDF A301

Technosystems Spa. A211

Tekniche Ltd. B404
Intro: 6017 comb filter decoder; 6033 composite video D-A converter; 6038 parallel-to-serial converter; 6039 serial-to-parallel converter; 6064 variable delay.
Contact: Tony Nowak
18 Boundary Way, Wokins
Surrey, GU21 5DH, UK
Telephone: +44-1483-728-006
FAX: +44-1483-770-195

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(continued from page 49)

Teko Telecom SRL B427
Intro: M405 TV modulator delivers standard IF signal and complies with CCIR B, G and SECAM, PAL, and NTSC standards; BLM type TV transposer with 5/10w RF output power features wideband circuits for input/output filters; L4AMP120 100w UHF TV amplifier compatible with BLM transmitter and transposer driver series; L4AMP250/B 250w UHF TV amplifier with 4.5w unified driving, output channel integrated filter and high thermal stability; L4AMP500 500w UHF TV amplifier, with 8w unified driving and built-in output channel filter.
Contact: G. Nanni
Via Dell'Industria, 5-C.P. 175
40068 San Lazzaro Di Savena, Italy
Telephone: +39-51-625-6148
FAX: +39-51-625-7670

Tektronix Inc. B406
Intro: Profile Professional disk recorder, an open system for multichannel recording and playout; digital video and audio measuring and monitoring products.
Also: TekTools: handheld TSG95 signal generator, and WFM91 signal monitor, provide portable test solutions for field service and installation.
Contact: Paul Dubery
Fourth Avenue, Globe Park
Marlow, Bucks, SL7 1YD, UK
Telephone: +44-1628-403-300
FAX: +44-1628-403-301

Telecom PTT A254

Telefunken Sendertechnik AG A208

Teleste Antenna Ltd. B335

Telecom Institute C910

Telex Communications Inc. B118
Intro: ENG-500 and FMR-150 wireless microphones; RTS ADAM intercom system and bus extender; RTS RM-325 intercom station; Radiocom wireless IFB; line of beltpacks.
9600 Aldnch Avenue South
Minneapolis, MN, 55420, USA
Telephone: +1-612-884-4051
FAX: +1-612-884-0043

TEM Tecnologie Elettroniche Milanesi SPA A105
Intro: Solid-state UHF/VHF amplifiers, 30w to 1 kW; portable links in all frequency bands; slimline analog links in all frequency bands.
Contact: Marco Castellani
Via B. Buozzi 18/20
I-20089 Rozzano
Milano, Italy
Telephone: +39-2-8920-0131
FAX: +39-2-8920-0129

Tenfore International B333

Teracom Svensk Rundradio AB A425
Intro: Multimedia services in the Eureka 147 DAB system; data services in Eureka 1197 project, based on DARC sub-carrier system on VHF/FM.
Contact: Tomas Persson
Box 17666
S-11892 Stockholm, Sweden
Telephone: +46-8-671-2145
FAX: +46-8-671-2086

Texscan Ltd. B151

Thomcast A303
Intro: Comark line of IOT transmitters.
Contact: Jean-Charles Daninos
1 rue de l'Hautil
78702 Conflans, Honorine, France
Telephone: 331-3490-3000
FAX: 331-3490-3100

Thomson Broadband Systems A303

Thomson Broadcast Systems A303
Intro: OCP camera control panel; 9250 & 9600 production mixers; 9300 mixer; Evolution interfaces; 9920 digital master control switcher and cart machine; TER 7830 standard converter; digital broadcast satellite system.
Also: 1657, 16/9-4/3 portable camera; 1544 studio camera; 9200 and 9500 digital mixers.
Contact: Claudine Cecille
17, Rue du petit Albi-BP 8244
95801 Cergy-Pontoise Cedex, France
Telephone: +33-1-3420-7000
FAX: +33-1-3420-7047

Thomson Tubes Electroniques B322

Transvideo SA B107
Intro: Range of LCD color monitors in 5-inch (LCMO5), and 6-inch (LCM06); line of accessories, including backs with support for batteries (Anton-Bauer or PAG).
Contact: Laurence Legallais
ZI-BP526
27535 Verneuil Sur Avre Cedex, France
Telephone: +33-3232-2761
FAX: +33-3260-1479

Tratec Telecom BV B422

Trompeter Electronics B443

TSS B333

Valentino Inc. B198

Varian International AG A145

VG Broadcast B129
Intro: WinCAPS Windows-based subtitle and preparation system incorporating live and off-line subtitling into integrated product.
Contact: Richard Oppé
Hayworthe Villa, Market Place
Haywards Heath
West Sussex
RH16 1DB, UK
Telephone: +44-1444-413-443
FAX: +44-1444-414-047

Videocom SA B522

Video International Development Inc. B133
Intro: DTC 1600PG digital TV broadcast standard converter; DTC 1604 media filter noise reducer/format converter; SCOG standard converter ASIC.
Contact: Gerhard Freitag
65-16 Brook Ave.
Deer Park, NY 11729, USA
Telephone: +1-516-243-5415
FAX: +1-516-243-4314

Videomedia Inc. B411
Intro: OZ-PCE (Production Control Environment) editing system; SES editing system; VLX-i V-LAN hardware.
Contact: Ian Weingold
175 Lewis Road
San Jose, CA, 95111, USA
Telephone: +1-408-227-9977
FAX: +1-408-227-6707

Video Optik Brahler B627

Video Plus B521
On Display: Broadcast equipment including DVW A500, DVW 700 WSP, and Grass Valley 1200.
21 rue de Clichy
93400 St. Ouen, Cedex, France
Telephone: +331-40-4010-3800
FAX: +331-4010-0947

Videssence Inc. B618

Vidi Video Digital AG A109

Vinten Broadcast Ltd. B113
Intro: Osprey Elite 2-stage pedestal offering continuous "on-shot" camera movement.
Also: Range of tripods and pan & tilt heads from Vision and Classic line; Vector 70 pan & tilt head; AutoCam camera automation systems.
Contact: Mike Martin
Western Way, Bury St. Edmunds
Suffolk IP33 3TB, UK
Telephone: +44-284-752-121
FAX: +44-284-750-560

Vistek Electronics Ltd. A109
Intro: V4238 digital multi-standard encoder; V1600 digital interface system; D2401P component digital master control switcher; router controller using PC-based Windows; MPEG-2 variable rate video and audio codec system; 17 and 8 Mbit/s codecs to ETSI standard.
Contact: Bob Wright
Unit C, Wessex Road
Bourne End, Buckinghamshire
SL8 5DT, UK
Telephone: +44-1628-51221
FAX: +44-1628-530-980

Vortex Communcations Inc. B125

Wavetek Corp. B601

Wegener Communications A112

WMD GmbH B429

Wohler Technologies B612

Yamashita Engineering Manufacture B443

Z&B Video AG B443

Zinweel Europe B422

USER REPORT

Tek Keeps Channel 7 on Time

by Frank Chlodi
Senior Technical Director
HSV Channel 7

MELBOURNE, Australia

As Australia's premiere sports television network, the Channel 7 Network broadcasts hundreds of hours of sporting events each year — from Australian Rules football and auto racing to Grand Slam tennis and water skiing.

To stay on the forefront of outdoor sports broadcasting, we have done pioneering work in developing and using advanced camera and RF technology for outdoor broadcasts. For example, we helped develop miniature cameras for auto racing that are now used by several U.S. networks as part of their auto racing coverage.

But even with the latest in camera and RF technology, our success in outdoor broadcasting would be impossible without the ability to synchronize the output from sources that cannot be genlocked. At Channel 7 in Melbourne, we rely on a state-of-the-art synchronizer from Tektronix — the VS211A PAL Video Synchronizer.

LOCK AND HOLD

The VS211A has three capabilities that make it ideal for us. First, it can lock on just about anything and hold the signal until the last possible moment. In auto racing, for example, we mount tiny "lipstick" cameras in the cars to show views of the drivers as well as the driver's view out the front of the car. The signals from the cameras are uplinked to a relay helicopter and retransmitted over another RF channel to our remote Outside Broadcast van nearby. There, we synchronize them using the VS211A, and they are ready for broadcast.

This is a noisy environment with plenty of signal interference. And when the route takes the cars under bridges or up the sides of mountains, as it does in the Mount Panorama race at Bathurst, the situation becomes extremely challenging. Most framestores usually lock and freeze, but the VS211A holds on for the last possible ounce of signal.

This great performance on weak and noisy signals also gives us an edge in our broadcasts of water skiing. To get a skier's eye view of water ski jumps, we have the skiers wear a special helmet with a built-in miniature camera and 10 GHz microwave link, plus a tiny transmitter and battery pack on a shoulder harness. The VS211A's superb locking ability helps us broadcast every last bit of video before the skier's impact with the water makes the signal momentarily unusable.

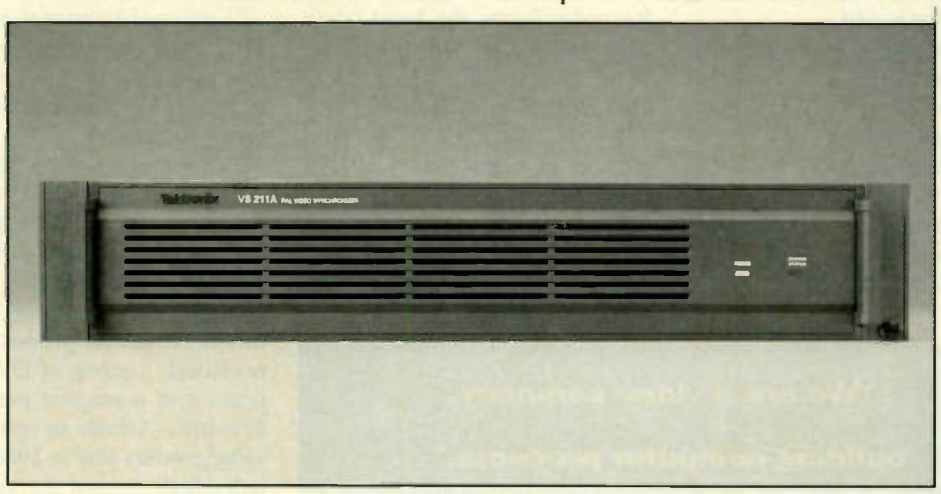
A second key feature of the VS211A is its exceptionally transparent results. The unit's 10-bit digitizing architecture gives it four times the accuracy and resolution of an ordinary 8-bit synchronizer, so there is virtually no degradation of the video signal. In addition, the framestore has eight fields of memory, giving it the ability to synchronize the incoming feed without decoding.

QUICK ACCESS

Finally, the VS211A gives us a great deal of flexibilibity and convenience. For instance, we can connect up to six framestores on a single rack unit controller, and the VS211 lets us quickly access and adjust the framestores in software without having to make physical adjustments.

In addition to its critical role in outdoor broadcasts, the VS211A is a great contributor in the studio when we need to sync still stores or feeds from satellites or other stations. With the framestore's eight memory fields, we have the flexibility to choose eight-field synchronization for match editing in post production, or switch to two-field synchronization with either notch decoding or picture shifting for color framing.

When it comes to synchronizing weak, noisy signals and producing clean, transparent output even in the most difficult broadcast settings, Tektronix' VS211A is a true champion. ■



Channel 7 uses the VS211A to sync OB sources.

Editor's note: Frank Chiodi has worked at Channel 7 for 15 years, starting out as an apprentice.

The opinions expressed above are the author's alone. For further information, contact Tektronix (telephone: +1-503-267-7111; FAX: +1-503-267-5139), or circle Reader Service 53.

USER REPORT

ISC Remains in Sync With Nova Systems TBC

by Tom Godwin
System Supervisor
International Sound Corp.

HOUSTON, Texas

In the ever-moving gaming industry, technology must be on the cutting edge with little room for error or delay of data. This is why we use a NovaMate TBC by Nova Systems at the Sam Houston Race Park in Texas.

The NovaMate consists of two chassis. One contains five genlock cards and a TBC card, while the other holds four genlocks. As the system supervisor, I need a piece of equipment that is worry-free.

If a problem does develop, one of my operators or I can call up Nova Systems' service department for help. For the most part, the NovaMate has been reliable. But one of its flaws is its susceptibility to power spikes. After about eight months of taking hits, the two power supplies in one of the chassis died when our building was hit by lighting. I called Nova Systems at 5 p.m. on a Friday, and with the company's help I was able to move all the pieces from one chassis to another to get through our production. A new power supply arrived on Saturday, and once installed, everything was back to normal.

One other time, we received a request from a client asking us to speed up video on the results of the race by showing them over a picture of the winning horse. I called Nova Systems, and the company said that it would send out a remote panel. I was then able to incorporate this into my console on a rack space unit, and remotely control all the functions of my TBC. After about half an hour of installation, I started using it. I was able to speed up the time of the production by about eight minutes every hour.

Setting the timing for the TBC cards was also easier with the remote panel. I put the remote panel near the switcher so that one person alone could do the timing without walking around the control console all the time. Even before receiving the remote panel, setting the timing was easy.

As a first-time user, I did not have any real experience with setting the timing. With the manual, which was sent with the NovaMate, I was able to read how to operate the TBC controller with ease.

I am very happy with the performance of the NovaMate system. It has held up well under constant use and abuse, and I am satisfied with the technical support I have received. Despite minor problems, I am sure it will perform well in the years to come. ■

Editor's note: Thomas Godwin is in charge of video production and video facilities, as well as Sam Houston Race Park in Houston, Texas for International Sound Corp.

The opinions expressed above are the author's alone. For further information, contact Nova Systems Inc. in the U.S. (telephone: +1-203-693-0238; FAX: +1-203-693-1497), or circle Reader Service 67.

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Editing Equipment

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COMPANY PROFILE

DPS Follows the Digital Path

by Jennifer Milliken

FLORENCE, Kentucky

Digital Processing Systems (DPS) is spinning the wheels of success as it continues to serve the "traditional" broadcast market while also realizing the potential of the growing computer-based video industry.

"We are a video company building computer products — not a computer company trying to build video products," said Brad Nogar, vice president of sales and marketing for DPS. "We think this gives us a unique perspective on the marketplace."

DPS entered the computer field three years ago with the introduction of the DPS Personal TBC, an infinite-window TBC on a PC card.

"The DPS Personal TBC offered the right combination of features, performance and price.... This helped us stand out from the competition and gained us some visibility in the computer world," Nogar said. Driving the market for low-cost TBCs was the NewTek Video Toaster, he said.

INNOVATIONS

After the success of its first TBC card, DPS followed with the Personal TBC II, III and IV, each of which provided increased features and performance. Another innovation was the DPS Personal V-Scope, a combination waveform monitor/vectorscope on a PC card.

"We produce top quality products, but price them lower than expected. Our philosophy is to continually better our own products by adding features and improvements without raising prices," Nogar said.

The company's hottest product right now is the DPS Personal Animation Recorder. It is a plug-in card that functions as a single-frame recording deck. Available in both PC and Amiga versions, the PAR provides component analog video (Betacam, M-II), composite and S-Video (Hi-8/S-VHS) outputs.

"We are a video company building computer products." – Brad Nogar, VP Sales and Marketing

"The PAR saves animators time and money, yet still provides excellent video quality," Nogar said.

At this year's NAB, DPS introduced Windows NT control software for the PC PAR. Originally an MS-DOS-only product, the PAR now provides multiplatform support for INTEL, MIPS and DEC-Alpha processors.

"Windows NT enables the PAR to be used in more computers than ever, especially the high performance workstations favored by animators," Nogar said.

DPS is also proud of its DPS Perception Video Recorder, introduced at NAB 1995. The PVR is a PCI card-based digital video disk recorder that features 10-bit video encoding with 2X oversampling, CCIR-601 4:2:2 processing and an integrated SCSI-2 hard drive controller.

"The DPS Perception Video Recorder forms the heart of an advanced digital video workstation," Nogar said. "Designed to also integrate with third party software, the PVR is the first member of a new family of DPS products.

"We try to keep one jump ahead. We would rather compete with ourselves than with other companies," Nogar said.

DPS was originally founded as Digital Video Systems in 1975, and it became a pioneer in the development of TBCs and synchronizers. Its first product, the DPS-1 time base corrector, can still be found in many of today's television stations.

"The DPS-1 set a precedent," Nogar said. Features included digital proc amp controls with memory, a built-in test signal generator, user diagnostics and field upgradeability.

"You could convert a DPS-1 TBC into a frame synchronizer by just plugging in more memory boards. This was unusual back then," Nogar said.

DVS was acquired by Scientific-Atlanta's Canadian DVS subsidiary in 1983, and the focus of the company shifted to satellite encryption technologies. Recognizing that the company's traditional broadcast products were neglected, a group of DVS engineers and managers persuaded Scientific-Atlanta to spin-off its video product line in 1988. These individuals formed the basis of a new company, Digital Processing Systems.

Today, DPS' traditional broadcast products continue to flourish, Nogar said. New studio products introduced at last month's NAB include the DPS MicroSYNC-X, a 10-bit, four field video synchronizer card. Fully compatible with DPS ES-2000 series rack frames, MicroSYNC-X features include freeze frame, strobe, GPI trigger, dual video outputs and a price tag of under US$2,000.

The MicroSYNC-X card is also a component of the new DPS MicroSYNC-AVX stereo audio/video synchronizer system. Housed in a compact 1RU chassis, the MicroSYNC-AVX can correct lip sync errors caused by up to 20 fields of video delay.

The company's corporate headquarters and manufacturing facilities remain in Toronto, Canada. Sales, service and distribution facilities in the United States are located in Florence, Kentucky, while an office in the U.K. oversees European operations. Pacific Rim countries are serviced by a satellite office in Australia, which opened this year.

Nogar said the coming years should be exciting for this company of about 65 employees, as it continues to compete with the changing worldwide marketplace. "It seems inevitable that the traditional players in the video industry will be overshadowed by giants from the computer industry."

However, with a foot already firmly planted in the computer video door, DPS is not too worried, Nogar said. ■

For further information, contact DPS in the U.S. (telephone: +1-606-371-5533; FAX: +1-606-371-3729), or circle ***Reader Service 59.***

USER REPORT

Reuters Relies on Snell's TBS24

Hari Parmar
Projects Manager
Reuters TV

LONDON

Reuters Television was created in 1993 when it acquired a controlling stake in Visnews, a company that was founded back in the late 1950s. This acquisition coincided with the rapid spread of worldwide television.

Since then, we have grown to become the world's largest provider of television news, covering more than 80 countries and over 600 broadcasters. Today, we have an extensive worldwide network via satellite and local links, which provides a flexible, reliable service to our customers.

UP FROM LONDON

Reuters TV has a large base in northwest London with an uplink to satellite for news transmission around the world. We have also leased a part of ITN's Gray's Inn Road headquarters in central London.

Last summer we launched Reuters Financial TV in Europe, a specialist news service for the financial world, delivering live coverage direct to traders' desks via VDU terminals. The channel is digitally compressed and uplinked on Eutelsat II, Flight 4, from Reuters TV facilities in Park Royal, also in northwest London. A dedicated broadband fiber optic link connects Park Royal and Gray's Inn Road. After its success in Europe, it is now preparing for launch in North America and Asia later this year.

Further evidence of our continued growth is shown by the fact that we are now supplying new programming to Fox Broadcasting Co. in the United States and to Sky News in the U.K., and we continue to move into new areas. Reuters TV supplies programs to Russian television stations and has established a strong presence in Spanish-speaking countries with Reuters Latin American Media Services, which began 24-hour news operations in 1994.

At Reuters, we are concerned not only with our reputation for speed, accuracy and reliability in providing news and information, but we are also dedicated to maintaining the highest levels of quality. Our setup is such that we are gathering news from many different sources and networks around the world, in many different formats and at various levels of quality.

To get these signals in and timed up correctly, we knew we had to invest in high-performance synchronizers. Thus began a process of evaluating what was available in the marketplace and what best fitted our requirements.

We were already familiar with Snell & Wilcox through the company's Kudos CVR45 four-field, four-line standards convertors. We had purchased 12 CVR45 convertors that, in addition to being used in our London bureau, have been distributed throughout our various news bureaus around the world, including Moscow, Washington, Hong Kong and Bangkok.

CHECKING AROUND

After evaluating the various synchronizers that were available, we again turned to Snell & Wilcox and purchased 10 of its TBS24 series multistandard, wideband TBC synchronizers.

One of the key reasons for selecting the TBS24 series was its flexibility. In a one-rack compact unit enclosure, it provides a wide range of features, including good signal performance, noise reduction, enhancement, transcoding, test pattern generation, and all analog interfaces. It represents a

(continued on page 53)

USER REPORT

Juntunen Grows with Ensemble

by Max Duckler
Vice President
Juntunen Video

MINNEAPOLIS

Juntunen Video is a mid-sized component digital post production and studio facility serving corporate, broadcast, agency and entertainment clients. We continue to grow with three digital component on-line rooms, two Avid 8000s, DFX, Halo and Mac graphics on the post side and complete television studio and remote camera packages on the field end.

The ability to work fast, while enabling creative input for a positive and economical experience for every client, has dictated a lot of our equipment purchasing decisions over the years.

CREATING MAGIC

A lamp we recently bought for our edit suite must have been magic, as right after the purchase a company from Grass Valley, Calif., answered our wishes. One of the easiest decisions we made was to put our VTRs on the Ensemble TC400D TBC control network. This product from Ensemble Designs showed us that we could store TBC settings in our edit list via our GVG editor.

As we have expanded by adding more rooms and VTRs, the decision to purchase more of these devices is the easiest one to make. The operators use them often because they never break down. In addition, they add value to the edit session and are well designed.

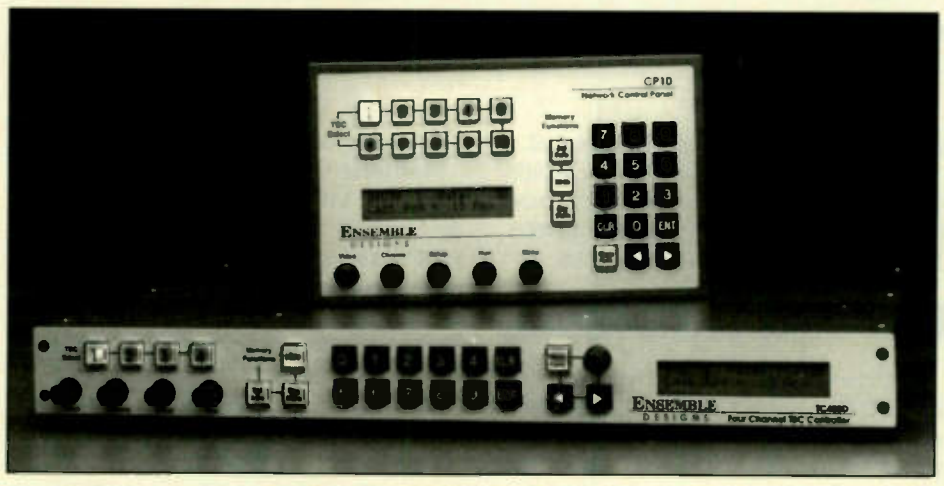
When we were a smaller company with just one analog on-line room, speed was a big issue. Our design decisions always took into account ways to make the edit session more efficient for the client. We listened as our clients told us they were tired of waiting around for technical things to get fixed. They were in a creative frame of mind and wanted to stay that way. And quite frankly, the editors would also like to stay on that same creative wavelength.

One thing that was extremely irritating in edit sessions was the ability to match frame into a scene after the TBC had been tweaked on for that VTR. Clients would often settle for a cut in place of a dissolve, proceeding to the next task rather than spending time finding perfectly matched levels. We wished there was a way to quickly get back to the TBC settings, as clients inevitably would come back months later to change a shot in the middle of a series of dissolves.

Although we wanted this ability as well, we did not want numerous individual TBC controllers clogging up the edit console. Luckily, Ensemble system knows which TBC to adjust by looking at the tally output of our switcher. By turning the knobs, the VTR was adjusted.

MORE ADVANTAGES

As Juntunen Video expanded, we found even more advantages in the TC400D. Whenever we added rooms or VTRs, we simply added more TC400Ds. Now with 24 VTRs on the network, we can access any VTR from any edit suite or our studio. Any room can store TBC settings on any machine. This is a huge time-saver for us.



Juntunen Video has six Ensemble TC400Ds on a LAN.

Our system is currently configured with six TC400Ds, all networked together via a LAN. Each edit room has a CP-10 controller capable of having any 10 machines on line, which can be "acquired" by pushing a few buttons on a simple menu. Each CP-10 is connected via nine-pin remote cable to the editor for direct serial control from the editor.

Our duplication department loves the TC400Ds because it just has to note the settings of a particular tape being dubbed and then come back to it to punch in the particular setting for that tape.

The studio also loves it because we do a lot of live business broadcasts that require numerous tape roll-ins from different formats. During rehearsal, each tape gets a TBC storage number. During a live feed when one tape comes out and the next one goes in, the TBC register is called up for that tape.

The editors love the 400Ds because they can recall settings directly from the editor and store them in the EDL. When a machine is acquired in an edit session, all the editor has to do is grab it via the CP-10 remote control panel from which he/she can have any combination of 10 VTRs on-line at any given moment.

The resolution of the settings is excellent. You have plus or minus 1,000 settings for each control, and operation is as straightforward as can be.

Another feature enables transition from one TBC setting to another via a GPI trigger or manually. Along with the ability to recall all the usual TBC settings (hue, chroma, video level and setup), you can also store up to five user defaults per machine. These defaults include other information such as SC and sync timing. If the studio's switcher requires a different timing setup than one of the other rooms, a default setup for timing can be recalled for that room.

The service and support from Ensemble Designs has been exemplary. There is always someone available to answer a question. Plus, software updates along with fast, friendly service and reasonable prices have made us customers of some of the company's other products.

As the facility has gone through changes — adding rooms, changing formats, adding services, etc. — the TC400Ds have stayed with us, becoming more and more valuable to the core of our operation. It is a product that makes perfect sense operationally and economically. ■

Editor's note: Max Duckler has been editing since 1989. Prior to this, he was a freelance architect in Minneapolis, creating large steel sculptures without the use of a TBC.

The opinions expressed above are the author's alone. For further information, contact Ensemble Designs (telephone: +1-916-478-1830; FAX: +1-916-478-1832), or circle ***Reader Service 95****.*

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Reuters Runs Smoothly

good value for the money.

The core of the TBS24 is a multistandard frame synchronizer. This enables free-running input signals to be retimed for studio or edit suite applications, making it ideal for use in areas where the input signal is totally asynchronous, such as outside broadcast feeds.

The TBS24s are used to ensure that the incoming lines into the newsroom are clean. We also use them to bring in pictures from financial dealing rooms for packaging and sending out on Reuters Financial Television. In fact, the synchronizers can really be seen as a link with the outside world, and they play a vital role in maintaining picture quality.

Another key feature of the TBS24 is its excellent decoding circuitry — it is able to accommodate poor quality input and produce a very clean component signal at the output. The TBS24 also gives us rugged TBC performance and all the signal correction features we require.

Due to their size and weight, these synchronizers are imminently useful for field use and in satellite newsgathering rigs, and they have also been installed in our studios. The TBS24 provides two composite inputs, a Y/C input and a component input. It is also an excellent tool for format interchange, as it provides simultaneous output of composite, Y/C, component and RGBS from the input signal selected.

We were also impressed by the noise reduction capabilities of the TBS24, which are vital for cleaning up poor signals. The TBS24 also provides full proc amp controls and a full broadcast spec SPG.

At Reuters TV, where we receive widely varying signals, many of indifferent quality, we have found the TBS24 synchronizer to be more than adequate for the task. Its diverse features also make it a highly flexible piece of equipment, which is invaluable in any modern working environment. ■

Editor's note: Hari Palmer has 27 years of experience in television broadcasting.

The opinions expressed above are the author's alone. For further information, contact Snell & Wilcox in the U.S. (telephone: +44-1705-268-827; FAX: +44-1705-241-525, or circle ***Reader Service 86****.*

BUYERS BRIEF

The DigiBus System by **Leitch Video Inc.** consists of six functional modules that, when combined, provide a complete decoder and synchronizer. Three of these modules can be housed in a single frame.

An NTSC serial decoder is composed of five modules, while the synchronizer function consists of a single module. Synchronization and conversion of audio to AES/EBU is achieved by adding two further modules, an input/output module and a synchronizer module. The audio may be embedded into the serial signal, as this function can be optioned on the synchronizer module. In addition, the system provides full control of all functions.

For more information, circle **Reader Service 75**.

COMPUTER MARKETPLACE

HIGHLIGHTING THE LATEST COMPUTER PRODUCTS AVAILABLE TO PROFESSIONALS IN THE VIDEO INDUSTRY.

EXECUTIVE PRODUCER

Version 2.0 of the Executive Producer for MS-DOS from Imagine Products is available as well in new Macintosh, PowerMac and Microsoft Windows versions. The logging and list conversion software is optimized for

non-linear editing systems. The company also announced a new line of portable ancillaries for Notebooks and Powerbooks that enables timecode and representative frame "thumbnail" capture directly off the video or film camera to make select before leaving the shoot.

VTR Direct is a PCMCIA card for RS422 deck control, VTR Direct Plus is a combination PCMCIA card for RS422, LTC and VITC timecode reader, respectively.

For more information about any of these products contact Imagine Products Inc. at telephone: +1-317-843-0706, FAX: +1-317-843-0807, e-mail 73532,334@CompuServe, or circle **Reader Service 50.**

SOFTWARE UPGRADE

Version 3.0 of Elastic Reality for Silicon Graphics workstations was just released by Elastic Reality Inc. New features include: hierarchical animation paths that lets users create sophisticated animation using the program's "Shape-to-Shape" interface. Any Elastic Reality shape can be used as a motion path for any other set of shapes.

Previous versions of Elastic Reality allowed a source shape to be blended into a destination shape. Version 3 adds the ability to blend a source shape through arbitrary other shapes before taking on the destination shape. In addition, blending may be placed along the arbitrary path and any number of mattes can track any number of objects. Elastic Reality further adds the ability to manipulate objects using real 3D transformations Many 3D effects can now be performed within the program. Elastic Reality can read Adobe Photoshop and Illustrator pen paths, allowing shapes defined in these programs to be imported.

For more information about Elastic Reality for Silicon Graphics workstations contact Elastic Reality Inc. at telephone: +1-608-273-6585, or circle **Reader Service 88.**

RACKMOUNT HYPERCONVERTER

A rackmount version of the HyperConverter from PC Conversion Corp., the 1280R is now available. The unit is a standard EIA rackmount unit that weighs 12 pounds and is compatible with all platforms, including Sun Microsystems, Silicon Graphics, Hewlett-Packard, DEC, IBM, Evans and Sutherland, Macintosh and PCs. It scan-converts computer outputs up to 1280 x 1024 pixels and produces broadcast quality composite (NTSC/PAL) Y/C and component (RGB/YUV) video. It works with all applications, all operating systems and all platforms with no software by simply intercepting and passing through the signal sent to the computer's monitor.

For more information about the HyperConverter 1280 contact PC Conversion Corp. at telephone: +1-408-279-2442, FAX: +1-408-279-6105, or circle **Reader Service 3.**

ARCHITECTURAL VISUALIZATION

Architectural designs can be brought to life using Wavefront Technologies Inc.'s ARCVISION software for architectural visualization. The software enables users to create computer animation illustrating how the new building will appear within existing environments. ARCVISION includes Wavefront's Interactive Photorealistic Rendering (IPR) technology for inactive fine tuning of all lighting, textures and materials on the scene. With this technology, a building can be shown with brick walls and them instantly changed to be made of granite, stucco or any other material. Architects and designers can create building walk-throughs using simple or sophisticated animation to view buildings or landscapes from any perspective.

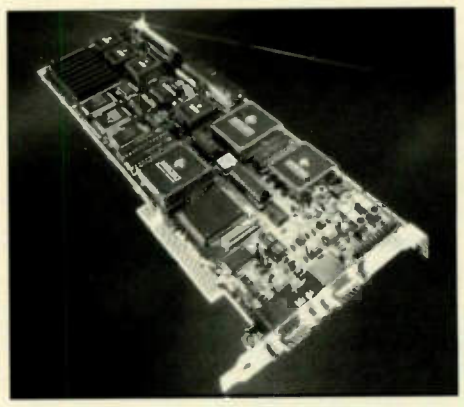
For more information about ARCVISION contact Wavefront Technologies at +1-805-962-8117, FAX: +1-805-966-2238, or circle **Reader Service 126.**

ANIMATION RECORDER

Digital Processing Systems, unveiled its new DPS Perception Video Recorder at the 1995 NAB. The PVR is a PCI card-based digital video disk recorder system featuring 10-bit encoding, CCIR-601 4:2:2 processing and an integrated SCSI disk controller. Component (Betacam/MII), composite and S-video outputs are standard.

Multiplatform support for Intel, DEC Alpha and MIPS processors is provided via the standard Windows NT-based software. DPS is also providing Windows 3.1 compatible software in order to facilitate the use of the PVR with such video editing packages as Adobe Premiere 4.0 and In:sync RAZOR PRO.

An optional real time video capture daughtercard provides the PVR with component (Betacam/MII), Y/C and composite video inputs. During live video recording, an



entropy prediction circuit is used to automatically determine the optimum amount of compression on a field by field basis.

For more information about DPS Perception Video Recorder contact Digital Processing Systems Inc. at telephone: +1-606-371-5533, FAX: +1-606-371-3729, or circle **Reader Service 62.**

RISC WORKSTATIONS

Aspen Systems is now shipping its entire line of ALPINE high-performance RISC workstations and servers. The ALPINE's "pop out chip and oscillator" design supports processor speeds of 166-, 200-, 233- and 275-MHz and allows for flexible upgrading. Based on Digital Equipment Corporation's Alpha AXP microprocessor, the ALPINE combines Digital's 21064 processor and 21072 PCI core logic chip set with a 128-bit RAM bus. A secondary cache RAM of 2MB is standard in the 275 MHz and 233 MHz configurations.

The ALPINE supports Windows NT, VMS and OSF/1 operating systems. Standard systems include a 2MB PCI video adapter; an Ethernet PCI adapter for networking; and a 17-inch monitor that displays up to 16.7 million colors in resolutions up to 1600 x 1200.

For more information about ALPINE high-performance RISC workstations contact Aspen Systems Inc. at telephone: +1-303-431-4606, FAX: +1-303-431-7196, e-mail via Internet: aspen@aspsys.com, or circle **Reader Service 38.**

FIGURE DESIGN TOOL

Fractal Design Corporation has introduced Poser, utility software for producing the human form in graphics design, illustration, multimedia and 3D software. Poser is a modeling and rendering application that allows users to create an infinite variety of human figures which can be posed and rendered with surface textures and multiple lights, and easily incorporated into artwork.

Poser provides male, female and stylized models that can be moved, modified, shaped into any pose and viewed from any angle. Poser offers body sizes ranging from infant to adult to super hero. Individual body parts, such as arms, legs and torsos, can be adjusted in size and dimension. Poser provides direct figure manipulation. The final composition can be exported as a RIB, DXF or PICT file.

For more information about Poser contact Fractal Design Corporation at telephone: +1-408-688-5300, FAX: +1-408-688-8836, or circle **Reader Service 104.**

GRAPHICS TRANS-CONVERTER

Extron's new INERTIA Graphics Trans-Converter is a scan converter designed to display high resolution workstation images on standard VGA display devices. It displays graphics from workstations like Sun, SGI, PowerPCs, SuperVGA and Quadras to be viewed on standard VGA and SuperVGA displays such as LCD panels and projectors by converting the horizontal output to 32–68 kHz down to either 31.5 kHz (640 x 480) VGA or 35 kHz (800 x 600) SuperVGA video. INERTIA samples the digital image determining what information must be kept and what part can be "thrown away" to retain picture quality at the lower resolution.

For more information about INERTIA contact Extron Electronics at FAX: +1-714-491-1517, or circle **Reader Service 61.**

CHARACTER GENERATOR

MainFrame Graphics Ltd. updated its Inscriber VMP Character Generator. New capabilities include a comprehensive paint function, Japanese and Chinese font support and support for the Pinnacle Alladin System. Inscriber VMP provides integrated Character Generation, Frame Grab, Digital Store, Paint, LogoMaker, DVE Editor and Event Sequencer. Full support for Composite, Betacam/MII component, D-1 in both NTSC and PAL is available. Both "on-line" and "off-line" modes are supported with integral Preview and Program outputs as well as full linear key channels. Events can be triggered via SPMTE/EBU time code, GPI, time of day or manually.

Character generator features include full TrueType/PostScript font import, ASCII/ANSC text import and complete international language support including Arabic, Cyrillic, Greek and Hebrew.

For more information about the Inscriber VMP Character Generator contact MainFrame Graphics Ltd. at telephone: +1-416-391-4500, FAX: +1-416-391-1999, or circle **Reader Service 44.**

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

USER REPORT

Prime Image Excels at Boyers

by Dave Boyers
Video Producer
Dave Boyers Enterprises Inc.

Prime Image's TBC/FREEZE unit

PLAIN CITY, Ohio

Dave Boyers Enterprises produces a weekly program about agriculture in the U.S. Midwest and is now in its 14th year, airing in 10 markets. Just like farming, everything must be done with one eye on the bottom line, and purchasing new equipment is no exception.

Our old composite TBC had seen better days, and one day finally made the trip to that "Big Farm" up in the sky. When it chose to do this, however, we were in our annual summer crunch during the Ohio State Fair, producing three shows in the time we normally produce only one.

CAREFUL CONSIDERATION

For some time, we had been looking at Prime Image's line of TBCs and framestores. We shoot Hi8 in the field, then RF dub to U-matic for editing. In the editing suite, we have always attempted to keep the video signal path as short as possible. To that end, purchasing a Prime Image TBC/FREEZE to take advantage of dub out of the type-5 source deck seemed like a good idea, avoiding composite playback to the TBC.

Additionally, Prime Image's wide range of boxes provided the flexibility we needed, enabling us to choose the options that best fit our needs without paying for bells and whistles we did not need. We knew we would probably end up with the TBC/FREEZE, but not quite so soon.

Under the rush of deadline, we set about trying to round up a new unit to replace our failed TBC. Although Prime Image made exactly what we wanted, there was a slight problem: there were no stock units available. When the plaintive wailing reached the pain threshold, someone at Prime Image took heart, and offered us a demo unit. It arrived a day later, and was hurriedly unpacked and installed in the edit suite.

The change was dramatic. In fact, set up properly, the TBC/FREEZE turned out to be as close to transparent as anything we had ever seen. Although chroma noise reduction is available as a front panel control, we found that the unit passed very little chroma noise, regardless of the control setting.

Another feature important to our operation is proc amp control. Shooting conditions in the field often leave us with "fix it when we mix it" video. Prime Image did a good job here, using basic pots (as opposed to digital controls) and a freeze switch that is equally easy to use.

PUSHING THE LIMIT

As shipped, our unit had the DOC threshold set at a somewhat conservative level, and this caused some concern when the unit had trouble finding and correcting glitches. A telephone call to the factory solved the problem, with a friendly "walk through" to the proper control. This resulted in very satisfactory DOC function.

The detail enhancement on the TBC/FREEZE is subtle, to say the least. But with the detail we gained by cutting out some composite in the path, we did not need much enhancement. This was borne out when our first show produced with the new unit aired.

Something else we gained was the ability to run other Y/C sources, such as our film chain, through the TBC/FREEZE. With its Y/C output plugged into the Prime Image, we gained the controls of the proc amp, and considering the quality of some of the slides we must accommodate, that is a big advantage.

Using what are usually considered industrial formats (Hi8 and standard U-matic) for broadcast and still managing to keep the stations happy is not always easy, especially when we get badly shot field footage.

Getting the best and the most out of what you have becomes an ongoing challenge, and any unexpected gains are certainly appreciated. Our Prime Image TBC/FREEZE definitely falls into that category. ■

Editor's note: Dave Boyers has worked in broadcast film and video production since 1964 and has operated his own business since 1969.

The opinions expressed above are the author's alone. For further information, contact Prime Image (telephone: +1-408-867-6519; FAX: +1-408-926-7294), or circle ***Reader Service 128****.*

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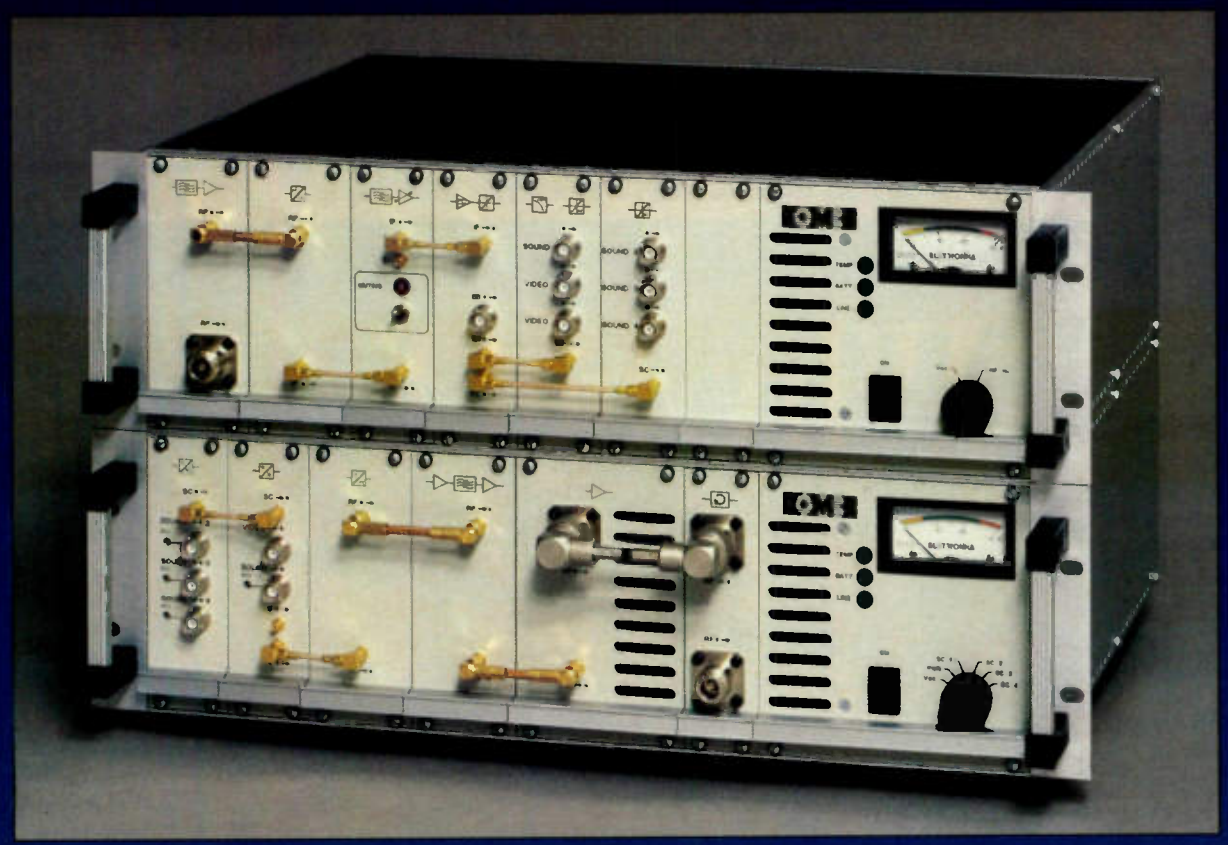

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USER REPORT

KOLO-TV Upgrades to Microtime

by Jennifer B. Nivens-Swezey
Director
KOLO-TV

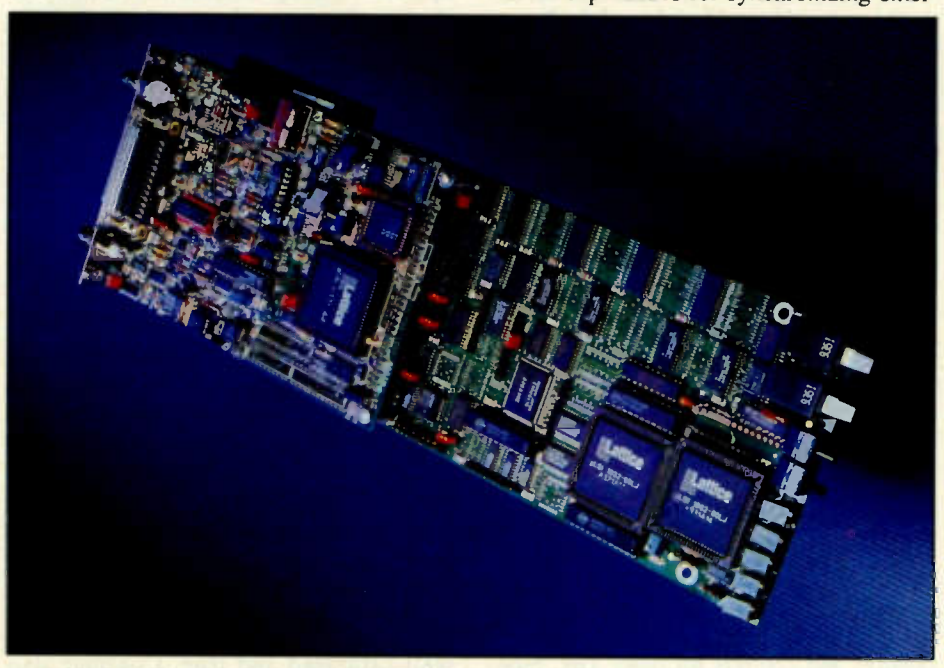
RENO, Nevada

Not so long ago, a television station in the U.S. aired programming from the ABC network without first routing it through a frame synchronizer. This resulted in a nasty phenomenon known as "sync roll" every time the station went in and out of the ABC feed.

This station was KOLO-TV, an ABC affiliate serving most of northern Nevada and parts of northeastern California. The station is seen on 29 cable systems and 336 translators. It has been on the air since 1953, making it Reno's oldest television station. Its programming consists mainly of ABC network material, with a variety of syndicated programs. The station broadcasts 24 hours a day and its local newscasts are seen five times a day.

Just recently, KOLO-TV made the big leap into the 1990s and purchased a frame synchronizer at the urging of some of us in the engineering department. When we finally made the big move, we settled on the Microtime DM-100.

KOLO-TV's master control is already using an Odetics TCS2000 beta commercial playback system, a GVG-21 master control switcher, a Quanta character generator and will soon see the arrival of digital, in-house audio.



The DM-100 offers 10-bit sampling at eight-times subcarrier.

The DM-100 is a single board modular design, which is inexpensive and makes all the difference in our look as we transition in and out of the ABC network. This synchronizer is available in both PAL and NTSC video standards and offers state-of-the-art capabilities for synchronizing external video signals. The DM-100 also incorporates 10-bit sampling at eight-times subcarrier, which results in an ultra-transparent signal quality and wide, flat frequency response.

In the event of noisy video or loss of input, the DM-100 can be programmed to either pass the bad video or freeze the last good field. If local power is lost, it immediately switches to bypass mode and the input video is connected to the output. To compensate for video delay, the DM-100 has a video timing output, which provides a pulse signal for the "steering" of an audio delay synchronizer.

KOLO-TV can utilize the DM-100 even when alternate use of our primary dish (ABC Network 1) is occasionally required. The unit's dual-channel configuration allows us to sync both the ABC main and ABC backup (ABC Network 2) feeds.

The DM-100 has been a very dependable frame synchronizer so far. Its single plug-in card design makes it easy to maintain. This product has a small physical footprint and very low power consumption, making it ideal for uses where space and power requirements are at a premium.

Although it is not a flashy piece of cutting-edge technology, like a video compression board, the Microtime DM-100 has pulled one television station into the same decade as the rest of the broadcasting world. ■

Editor's note: Jennifer B. Nivens-Swezey was recently promoted to morning director/TD, while still working in master control.

The opinions expressed above are the author's alone. For further information, contact Microtime in the U.S. (telephone: +1-203-242-4242; FAX: +1-203-242-3321), or circle Reader Service 33.

USER REPORT

Hamlet Sets the Stage For Video Progetti

by Umberto Crisafi
Systems Engineer
Video Progetti

ROME

Video Progetti provides a wide selection of video and audio products, both established and new. As a system house, our purpose is to install systems for a variety of clients; from production studios and post production suites to on-line and off-line editing and graphics houses, as well as TV stations and cable systems.

Cable is very popular in Italy, and the proliferation of channels has enabled us to experience a lot of the industry's growing pains. But most importantly, we have been able to respond with excellent products from such companies as Hamlet, which is well known for its range of test equipment.

TIME LINES

When we were looking for a new multimedia editing suite to replace one of our client's existing suites, it was clear that they could easily find a system to take external feeds from other types of video sources. This would require the client to install additional time base correction (TBC) units to enable the seamless editing and production techniques to which they had become accustomed.

Since the video sources could be anything from S-VHS and Hi-8 to Betacam, it was imperative to maintain the quality and integrity of the source material. The TBCs had to have both composite and YC inputs, as well as PAL and NTSC operation, and it had to be available at the right price. We also knew we would have to provide a system that could grow easily from a single high-quality 6 MHz bandwidth card inside a computer to a more sophisticated unit that could be rack-mounted and could provide more TBC inputs with full-featured front panel control of luminance, chroma, set-up, subcarrier and horizontal phase. It would also need the benefit of digital comb filtering and computer control via both IBM Windows and Amiga software.

Having investigated the market thoroughly, it became obvious that only one device could really satisfy all these needs completely. That device was the Hamlet A422, a combined TBC/frame synchronizer that could be sourced as a standalone card or installed into a 1RU space. This second option would include two cards with four inputs offering two sets of composite and YC input that would be selectable as required. An added benefit would be optional equalization of the signal up to 1,100 feet without frequency response roll-off.

An earlier Hamlet product, the C100, was reasonably successful at these tasks. But it had certain areas needing improvement to allow the unit to cope

(continued on page 60)

USER REPORT

Feral Effect Gets the Picture

by Mark Mahoney
Owner
Get The Picture Video Productions

KINGSPORT, Tennessee

As the owner of a small independent video production company, each piece of equipment I purchase must offer the most value to quickly bring in revenue. The Feral Effect, a board-level time base corrector/synchronizer by Feral Industries, enables just that.

Two years ago, a quality picture-in-picture video system was a high-ticket item. And for a small market such as mine, getting return from my investment would take many years.

However, my working relationship with Warner Cable of Kingsport, Tenn., known nationally as the Prevue Channel, prompted me to buy a quality processor that would compress video one-quarter its size for inserts.

FULL MOTION

Warner Cable began inserting three 30-second commercial spots every 10 minutes on the top half of its viewers' screens, while current programming of the cable system scrolled by on the bottom half. I had been creating 30-second still frame productions via the Video Toaster, but there was a growing concern to get full-motion video spots.

By offering full-motion to advertisers, Warner Cable could get already existing spots to clients who had TV advertising in their budgets. It was becoming essential to keep Warner Cable coming to me for its needs rather than have the local TV station do the processing and building of the Prevue Channel insert tape. Therefore, I was resigned to the fact that I needed to spend a great deal of money to get a quality picture-in-picture system that would do this job.

I fortunately read an article in late 1993 announcing that Feral Industries would soon release the Feral Effect with video image resizing and positioning — all costing under US$2,000. At first I was skeptical, but after talking with its techs, I became the first customer.

The Feral Effect was designed as a board to fit in a PC or Amiga. The card and software cost US$1,595. It has digital comb filtering and produces a high resolution 6 MHz bandwidth output, and it even does conversions from PAL to NTSC.

This time base corrector/synchronizer comes with software to run all its process amp level controls: luma, chroma, hue and setup. It also offers strobe rate and ratio controls and controls for other TBC functions such as H phase, SC phase, freeze frames, Y/C delay and mono. The software also offers the user the ability to store and recall settings. In addition, it has inputs for S-Video, composite and genlock. It has outputs for S-Video, composite and alpha.

Setting it apart from other TBCs is its video compression. Via the software, the Feral Effect can resize, reposition and squeeze the image horizontally and/or vertically all within the number of video frames the user requests. Thus, the user can have the video zoom in or out of compression and move anywhere on the screen over another signal in real time. The software has a graphical representation that moves in real time when you rehearse your squeezes.

COMPRESSED QUALITY

The quality of the compressed signal is good. although it is not without some artifacting, and the more you squeeze the more artifacting you will see. It becomes evident when there are thin horizontal lines on a moving object, or when the camera zooms or pans over thin horizontal lines. This is minimal, however, and out of the hundreds of commercials I have compressed to a quarter screen, not one advertiser has complained.

There is very little artifacting on half screen or larger compressions. Even with highly compressed video, the colors remain well-saturated and true. Contrast also remains true to the original signal. The Feral Effect has a better compressed signal than the local TV station's system, and as good as some I have seen on national TV.

The Feral Effect can stretch the horizontal and vertical aspects of the signal like a rubber band. However, it cannot crop an image or change the angle of perspective. In addition, it does not offer borders around the image.

The Feral Effect was designed to easily interface with the NewTek Video Toaster. When the software is activated, a crouton will appear on the Toaster's switcher so the user can toggle back and forth. Because the Feral Effect has a built-in Alpha channel, the user can assign that to one of the Toaster's inputs. Then by using the Artcard crouton, the user's background image is placed on the Program Out bank, and the image to be squeezed is on the Preview bank. Select the Alpha input on the luminance keyer and you have picture-in-picture.

I purchased the rack unit for US$2,190. It offers a power supply and manual control from the front panel. Also, a series of buttons and a small joystick can give you control of the unit. A small LCD panel informs the user of which parameters are being set. On the back is a serial output that can connect to your computer, and from there you can control the Feral Effect with the software.

There is also an optional add-on board called the Combiner, which will go into an Amiga, PC or Feral Effect rack unit. It will place a squeezed image on top of another, thus freeing your external luminance keyer for other duties, such as character generation. Although I do not own a Combiner and have not used one, it offers editing effects such as cuts and fades.

Much to my dismay, the Feral Effect cannot share the serial port. For Toaster users who might have other TBCs, single frame controllers or waveform monitors connected to the serial port, the units must be disconnected before using the Feral Effect via the software. An easy solution would be to use a multiserial port expander.

The operation and installation manual is informative and straightforward, with plenty of diagrams and a glossary of terms. A big plus is the technical support. Feral technicians are friendly, patient and very helpful.

The Feral Effect has been an important tool in my business. It not only serves as a great TBC, but it has been a great money-maker because of my clients' specific needs. And for small independent video production houses, the Feral Effect offers affordable and impressive video compression that can be used to spice up many of their daily projects. ■

Editor's note: Mark Mahoney is the owner/operator of Get The Picture Video Productions, which has been in business for five years, producing commercials, documentaries and industrial videos.

The opinions expressed above are the author's alone. For further information, contact Feral Industries in the U.S. (telephone: +1-913-492-4666; FAX: +1-913-492-5556), or circle ***Reader Service 121.***

USER REPORT

Zaxcom Puts C&C in Control

by Al Rider
Chief Engineer
C&C Visual
NEW YORK

Our company installed Zaxcom's HUB-1000 TBC control system more than two years ago. It enables us to control any VTR's TBC in our machine room or in any edit room in the facility. Thankfully, gone are the days when the editor would bark instructions for the TBC settings over the intercom to the poor tape operator, especially while the operator was busy trying to get the adjustment correct.

The system consists of an eight-RU router mainframe, which can hold up to eight crosspoint cards that control eight crosspoints each. This means that you can have control of up to 64 TBCs routed through the HUB-1000.

Up to eight hub control panels (HCPs) can be connected to the mainframe. The HCPs make the crosspoint selections and take control of up to eight of the 64 TBCs, which can be connected to the mainframe.

The HCP's control signals are sent through the HUB-1000 to serial device remotes (SDRs). The function of the SDR is to interpret the serial command string from the HCP and convert it to the proper signal for the particular VTR. One option allows the TBC to have its own set of controls for simultaneous local operation. This is helpful for VTRs such as Sony BVH-2000s and 3000s because their TBCs are always in remote and ready to be acquired by an HCP.

At C&C Visual, each edit room has an HCP-400 with the EDL option. The EDL option enables TBC data to be sent to our GVG edit systems for storage with the edit list. This data can also be easily retrieved. The EDL option also enables the HCP to follow source selections made by the edit system. This helps the editor to adjust the correct machine.

We also installed an HCP without the optional EDL (HCP-400 XY) in our machine room. This HCP, along with a VTR remote controller, gives the operator full control of VTRs inside the edit rooms. Each of our edit rooms at C&C has four to six VTR positions in the room. This has proven to be extremely useful when making those after-session dubs for clients. In the machine room where the dubbing machines are located, the operator can acquire control of a VTR that has been used during an edit session.

This has been a very powerful tool in our everyday work. It made the task of configuring an edit room for the day-to-day or even the hour-to-hour requirements significantly more efficient. The ability to acquire control of any machine in any room — from any room — provides us with the flexibility of not saying no to last-minute requests for services. The remote system allows the editor to focus on the creative aspects of the task without having to worry about finding the tape operator and then communicating with him via the intercom.

Everyone at C&C has been happy with the performance of the HUB-1000. The operations/sales staff can say yes to client requests, and the editors and operators can perform the request efficiently. And, most importantly, engineers can keep doing what they do best: drinking coffee and reading the latest trade magazines while their designs perform flawlessly. ■

Editor's note: Al Rider was formerly with Teletronics in New York. He is a member of SMPTE and IEEE, and holds an electronic engineering degree.

The opinions expressed above are the author's alone. For further information, contact Zaxcom (telephone: +1-201-652-7878; FAX: +1-201-652-7776), or circle Reader Service 127.

BUYERS BRIEFS

The Kitchen Sync from **Digital Creations Inc.** synchronizes two independent video sources for use with virtually any switcher or digital video effects system requiring synchronous video inputs.

The unit has two complete time base correctors on one card, which plug into any IBM AT compatible slot.

For more information, circle **Reader Service 19**.

Fougerolle Video has available the Parser and Serpar 270 Mbps interface units designed for 8- or 10-bit parallel serial systems.

The Parser serializer transforms the parallel intput to two 270 Mbps outputs, which can be forced in 8-bit by an internal jumper.

The Serpar deserializer outputs to 27 MHz, while equalizing the cable and amplifying the parallel ECL output.

For further information, circle **Reader Service 34**.

CONTINUED FROM PAGE 57

Video Progetti Applauds Hamlet

with the more cost-conscious user, of which there are many in Italy.

DAYS GONE BY

In the early days of videotape, 2" machines did not have TBCs. Instead, they had timing error correctors that attended to the static, fluctuation and velocity errors that were produced on these cumbersome devices. The circuits took up large parts of the machine. In fact, some of these early VTRs required eight rack units (RUs) of space.

It is funny to think that these giant units — which were one meter deep and two meters high — were sometimes "play only" machines. The parts of the machine that did the correction were called the Colortec, which used the color burst as a reference, and the Amtec, which used the synchronizing pulse as its reference. These were the only means of correcting the errors on the video caused by the intrinsic head-to-tape mechanism. The tape was pulled through its canoe guide and brushed by the two-inch diameter quad head, which revolved at some 250 revolutions per second suspended on a cushion of compressed air. These were, in fact, the first time base correctors.

As did videotape machines, TBCs progressed over the years to eventually become an integral part of the industry. By the mid-1970s, TBCs were large, heavy and cumbersome devices that cost as much as a VTR does now. Technological development by such giants as Philips and Sony has enabled the size to come down remarkably and the performance to remain the same or exceed the performance of the earlier devices.

One of our clients uses the Hamlet A422 TBC/synchronizer at cable transmission centers. During transmission, the error detect mode detects incorrect parameters or absence of signal so that the unit will freeze on the last good frame of picture, thus providing continuity at least of the signal source until a solution or apology can be made.

The likelihood of having non-technical people using the equipment makes the A422's recall function extremely useful. All front-panel level selections can be stored for easy recall to set modes of operation. This allows operators to re-establish standard modes of operation. Additionally, selection of the freeze mode with either field 1 or 2 of a moving picture is possible, as is full frame freeze. The bypass mode enables a picture to be assessed before and after signal processing.

TWO IN ONE

In the duplication industry, dual standard requirements are often on the list of required functions. It is useful to be able to provide both PAL and NTSC correction from just the 1RU of rack space, with one channel doing PAL while the other performs NTSC. Transcoding from PAL-M to NTSC or vice-versa is an unusual requirement, but the A422 unit can do this also.

For installation into a computer, the A422 card fits very nicely with the Hamlet PC Scope+ waveform and vector card, which is widely used in both on- and off-line non-linear editing situations. Video CD production systems also have them fitted. One installation in Germany is a notable system that relies on the Hamlet product for video and audio level measurement. The system is based on a card from Optibase, also from England.

For installation into a computer, the A422 card fits very nicely with the Hamlet PC Scope+ waveform and vector card.

Both the A422 and PC Scope+ can be controlled from a computer interface on an IBM or Amiga. The control panel appears on the computer screen with full functionality. It is an easy system to learn, even for beginners.

We understand we can look forward to a combined 1RU device from Hamlet, which may have the ability to contain a variety of products, including a mix of TBC/synchronizers, PC Scope+s and other devices. For instance, the unit could contain one TBC/synchronizer and one waveform vectorscope, thus solving level correction problems while still retaining the ability to monitor those variations easily and clearly. This would be a useful device. ■

Editor's note: Umberto Crisafi has been a systems engineer at Video Progetti for the last eight years.

The opinions expressed above are the author's alone. For further information, contact Hamlet in the U.K. (telephone: +44-1494-775-850; FAX: +44-1494-791-283), or circle Reader Service 51.

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.
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TV Technology, PO Box 1214, Falls Church VA 22041

ANTENNAS, TOWERS, CABLES

Want to Sell

Cablewave 6 18" 90 degree elbow, new in box w/hardware & bullet, $725+shpg. J Mulhern, KSCB, 1600 E 8th St, Liberal KS 67901. 800-373-3891.

CAMERAS

Want to Sell

Ampex/Sony CVC-105 bdct 3-CCD camera w/Fuji 14x lens w/extender, Sony BVV-1A docking Betacam rcdr, hard case, Porta-Brace soft case, batts, batt chrgr, pwr sply, manuals, mint cond, $13,500/BO. Jim, 602-412-9326.

JVC KY-210, ENG pkg, $850; Studio pkg, $1250; very good cond. D Harris, 703-319-1431.

Hitachi Z-31P plumbicon camera, xlnt cond, component & composite boards w/both cables, hard & soft case, Anton Bauer snap-on adapter, pwr sply, full manual, tripod plate, Canon J15x9 lens, $1700. N Manning, 53 Hamilton Ave, Staten Island NY 10301. 718-981-0120.

Panasonic WV 777 3-tube camera w/2 batts & AC pwr sply, xlnt cond, $495. Bill, 201-767-0565.

Ikegami HL-791 3 camera syst incl 3-HL791 cameras, 3 Fuji 14x1 bdct lens, 3-MA-79 camera cntrl units, 3 studio configs, 2-25M CCU cable, 6-50M CCU cable, 4-100M CCU cable,plus accessories, $20,000. D Bell, Show Solutions, 5201-N Brook Hollow Pkwy, Norcross GA 30071. 404-242-3600.

JVC BY110 video camera, BO. D Ludovici, The Video Standard, 412-654-1313.

Sony BVP-7A bdct 3-CCD camera w/CA-3A, new chip block, never rented, xlnt cond, pictures, $11,500. Jeff, 610-539-7788.

Panasonic 300 CLE w/stand-alone, custom batt syst, tripod plate, low hrs, perfect, w/12x Canon lens, $3300. John, 808-955-6742.

JVC KY-210 3-tube camera with 12 to 1 lens with 2x extender, excellent condition, Porta-Brace case, JVC carrying case, Shotgun mic, ACpower/batt chrgr, 2 batts, Anton Bauer batt bracket, manual, $1350+shpg. B Osborne, 317-253-8562.

JVC KY-210 studio config video cameras (3), good cond, $2000/BO. M Peterson, WaterMark Video, 813-530-0354.

Betacam BVV1 w/BVP3 rcdrs or port BVV 25 plyr/rcdr for field use in PAL or BVV10 or 40 in PAL or other PAL equip. Elaine, 904-689-1009.

Ikegami HL55 FIT chip, low hrs, handled w/TLC, Fuji Peg III 14x8.5 w/2x & macro, CA95C adapter (26-pin), $16,600. D Watson, 310-390-4246.

Sharp XC-A1 3-tube camera vgc, 650 line 58db S/N, W-10x Canon lens, LCD color monitor, $1000/BO. Mark, 619-225-8687.

Panasonic RCUs (2), model WV-RC30 rack mount, no cables, $200/ea; Panasonic WV777 hard molded case, $30. Elaine, 904-698-1009.

JVC KY1900CH cameras (2) with 2 AC power supplies/chrgrs & 2 JVC DC-C19 batts, viewfinders, Tamron 10x1 lens with power zooms, hard case for one, also 14-pin & 10-pin cables (2), one 25', one 6', $950/both; Sony DXC 1920 cameras (2)with built-in condenser mics & external mic jacks, Genlock in, video out, fade cntrl, neg & 180 switch, very clean, locking case, 6' 14-pin cables, $200/ea; AC power sply, $250; Sony BVU 110 port field recorder with plybk (2), $300/ea; Sony BVU 50 port field recorder, no plybk, take both cameras & 1 port BVU 50 & BVU 110 & AC power sply, $1100; Sony DXC 1800 camera with case, viewfinder, power zoom on lens only works manually, $75. Elaine, 904-698-1009.

Sony DXC-1820 camera heads, $120+shpg. 916-354-1990.

Hitachi SK-91 camera, Monitor 23-1 chone, A/C adapter & NiCad batt, $2500. N Kent, Norman Kent Prod, POB 1749, Flagler Beach FL 32136-1749. 904-446-0505.

CAMERA ACCESSORIES

Want to Sell

RS-110U remote control unit with 65' 14-pin camera cable for JVC BY-110 camera, like new with manual, $400+shpg. R Wanken, 817-589-7901.

Sony CCU-1800 camera cntrl unit, $95+shpg. 916-354-1990.

Panasonic AU-45HP MII dockable camera/recorder, new in original box with all manuals & accessories, $5600; Panasonic AU-520P MII deck, records large & small tapes, 9-pin for edit source, 24-pin camera in, almost no use, new Kangaroo case, 2 new batteries, $5250. 918-258-6389.

Tripods, all types; Fuji & Canon rear lens controls; 24x1, 33x1, 50x1 ENG or studio lens, Sony B4 mount; 26-pin CCU cable, any length. AVPS, 703-527-1200.

Fujinon Eagle II lens 16x9.5 with Macro for chip cameras, $1000; Fujinon X1.8 Teleconverter, $500; 19" Anvil shock case with double rack rails, $600. Craig or Chris, 334-433-7733.

Sony CMA-8 pwr splys (2), mint cond, dual carrying case, $300/ea. Steve, 813-969-4221.

Sony RM-500 remote controller, good condition, $100; Sony CMA-6 camera adaptor for DXC-1610, $100/BO. J York, Nutmeg TV, 203-677-8826.

Panasonic WV-RC30 CCU for WV-F777 camera, works great, $500/BO. M Freidman, 414-468-3333.

Strand HMI lights 575, 1200w, most with bulbs, never used in production, BO. Dan, 216-947-2030.

JVC VF550 4" studio viewfinder, xlnt cond, $100. Joe, Starfire Video, 910-867-5149.

Steadicam EFP package, like new, battery & charger, $22,500. 413-967-0240.

Sachtler 14 tripod, like new, $1750. Lou, 408-947-7030.

Schneider lenses, large selection, sport lenses, ENG, TV44, TV56, TV80 17x8.5 with 2x studio, like new, Best Offer. Andy, 216-947-2030.

JVC VC-545 CCU ext cables, 170' each (6), $400/ea. M Peterson, WaterMark Video, 813-530-0354.

O'Connor 30 fluid head with Gitzo sticks, mint condition, $900. Jim, 602-412-9326.

DIGITAL EFFECTS

Want to Sell

Ampex ADO-1000 keyboard, $495. 916-354-1990.

EDITING EQUIPMENT

Want to Sell

Ampex Ace keyboard, $295. 916-354-1990.

Sony BVE-5000 computerized edit, will sync roll 6 players, & 2 edit simultaneously, $5500. D Ludovici, The Video Standard, 412-654-1313.

Sony VO-2860 3/4" edit rcdrs (4), 2 work, 2 don't, $1000/all. B Curtis, 704-665-1687.

PC-2 character generator cart with PC paintbrush, Install in a 286 with keyboard & monitor, $900. Lou, 408-947-7030.

RM-440 w/cables, $500. J Kesler, 606-843-9999.

JVC CR-600U umat edit deck, op manual, $2000/BO. M Freidman, 414-468-3333.

TC20 TCB for Sony BVU-850 3/4" SP VCR, good cond. A Young, 415-641-4767.

Paltex Abner AB roll edit controller with 3 TC rdrs, 3 R-SID serial cables, 2 parallel cables & 8" BW status monitor, works great, $2500/BO. 360-805-0148.

Sony RM-450 edit controller, single event, split edits, 9 & 33 pin terminals, TC or CTL modes, manual, original box, mint condition, $1250; Sony RCC5G 16' 9-pin edit control cables (2), $130. Charley, TVE of NY, 718-263-6300.

Sony 5850, 5800 & RM-440 controller, dub cable & manuals, excellent condition, low hours on original heads, $3950+shipping. B Osborne, 317-253-8562.

Fast Video machine, professional version for IBM, A/B roll edit, titler, EDL, special effects, including hardware, software & manuals, works great, 1 year old, $3000. Anthony, 619-595-1811.

Sony TC-13 CTL code plus ins, $100; BKE-915, BKE-916, EKE-906, BKE-901, BKE-915A, $300; FCG-700 frame code gens, new, $300. Joe, Starfire Video, 910-867-5149.

Bdct quality real time D-2 proc nonlinear system Newtek Flyer, with Amiga 4000 comp 12MB RAM, 13GB video storage, 1x9GB plus 1GB for audio & 300MB for progs, MIS software, 1084 monitor, cables & drive-in for HDs, plus Sony CD ROM, $15,000. Philip, 609-848-3770.

LIGHTING

Want to Sell

Lowell VIP lighting kit, mint condition, $300. Jim, 602-412-9326.

Cine 60 Sun Gun with 30v belt & charger, $400. Bill, 201-767-0565.

MOVIE PRODUCTION EQUIPMENT

Want to Sell

Morton Soundmaster 16mm with 200' magazine, power supply cord & manual, no sound recorder, $400; Moviescope for 16mm, $150; Neumade Super X power rewinds, model SPRX-2, $350; Sound rdr/precision model 800 RL, $200; Auricon-EB 10, $55. Elaine, 904-689-1009.

SIGNAL PROCESSING

Want to Sell

MI TV TF2920 interval timer, $300. J York, Nutmeg TV, 203-677-8826.

Lyon Lamb ENC-VI bdct color encoder & sync gen, RGB inputs w/composite & component outputs, BO. J Bryan, 334-832-4110.

NOVA 920SP TBC color bars, fade to black, strobe, freeze, mosaic, posterize, xcodes composite, Y/C, Beta, proc amp controls, 100% up to spec, manual, original box, $2650/BO. Charley, TVE of NY, 718-263-6300.

Nova 511 16-line TBC & Digital SP-170 16-line TBC, $550/ea; Lenco master sync gen, $500. Howard, HK Video, 708-392-8115.

Hotronic AE61 16-line window TBCs (6), variable 24/30 frame, proc amp, Genlock, $450/ea or trade; Ampex VPR1SC with TBC (2), many extra parts, front panel remote, convergence card & cable, needs adj, $2500/Best Offer; DPS 220 frame sync, full frame TBC, Net/Direct, proc amp, Genlock, $1200. Don, Classic Image Productions, 602-350-9300.

Panasonic WJ-4600B SEG, very good cond, $1000. M Peterson, WaterMark Video, 813-530-0354.

Sony BVS 500 video/audio switcher, good cond, $300. J York, Nutmeg TV, 203-677-8826.

Panasonic WJ-5500B spec FX gen, xlnt cond, $700. B Rosswarm, 219-490-4021.

ISI 902 switcher, BO. Craig or Chris, 334-433-7733.

MX-30 switcher, w/warranty, like new, $1400. 814-382-7837.

Cross Point Latch 6119 switcher, gd cond & 6045 YC chroma key for 6119, never used, $1200/both. Lou, 408-947-7030.

JVC KM-1200EB PAL 5-input switcher, new, never used, $1000; Video Tek RS-IO 10x1 routing switcher, audio follow video, vertical interval switcher, new, $500. Joe, Starfire Video, 910-867-5149.

CDL 1080 24-input 10 bus switcher, loaded, (2) SFX groups, (4) chr keys, (2) extended wipe groups & much more, $10,500. D Ludovici, The Video Standard, 412-654-1313.

Panasonic WV-5500 8-input prod SEG, lumakeying, black burst, bars, etc, $900/BO; Shomi dual channel inf window, TBC, dual proc amp, dual field/frame freeze, $1400. Mark, 619-225-8687.

Alta Pyxis dual TBC seg, 2-channel cuts, wipes, fades, dissolves etc, excellent condition, low hours on original heads, , $1500/Best Offer. Bill, 201-767-0565.

TRANSMITTERS

Want to Sell

Dynair Sync gen, $200; CVS 504 TBC, $200. Elaine, 904-698-1009.

SWITCHERS

Want to Sell

Panasonic WJ-4600 6-camera switchers (2) w/genlock, Shintron 383 color bar/color black/color BG gen, $500/both. 360-805-0148.

TV FILM EQUIPMENT

Want to Sell

Kodak Ektagraphic AF2 slide proj, $150; Telex C140 slide-sync cassette player, $150; Elmo 16CL slot-load 16mm projector, $200. B Curtis, 704-665-1687.

Services

VIDEO PRODUCTION EQUIPMENT

Want to Sell

Alta Pictoris compressor with efx clean mosaic, poster, negative, invert, dissolve, compress plp motion, field/frame freeze, GPI 50 event memory, $2800. Joe, Starfire Video, 910-867-5149.

Knox K40 character generator, excellent condition, $675. B Rosswarm, 219-490-4021.

Remote prod trailer without video equipment, 20' long, dual axle, 6.5 KW gen, Heart power inverter, Constavolt filter, battery charger, back-up UPS, Coleman A/C, standard & custom racks, good condition, $10,000. M Peterson, WaterMark Video, 813-530-0354.

Tamronfotovix IIX, brand new in box, transfer slides, pictures negs to video tape, color correction & cropping available, $995/Best Offer. Bill, 201-767-0565.

Matrox ABC roll edit system, 4-channel audio, 2-DVE, inscriber C/G, 286-DX2, 15" monitor, much more, $14,000/Best Offer. J Boyer, Lewiston ID, 208-746-8335.

Sony RM440, $500; Smith KDP-A440 GPI trigger for Amiga, $75; $550/both. Stu, AV Consultants, 510-839-9745.

Mycrotek Ernie character generator, stand-alone unit with issolve knob & color bar generator, 4 fonts with variable borders & drop shadows, 100 pages of programmable playback, $450. Howard, HK Video, 708-392-8115.

VCR/VTRS/RECD'G MEDIA

Want to Sell

Panasonic AG-7300, just refurbed, cosmetically perfect, $1800/BO; Sony VO-2600, good condition, $325; Sony VO-2860s (2), good condition, $450/ea. Brian, Tracon, 3657 Eureka Way #210, Redding CA 96001. 916-241-3468.

Panasonic AG-7450 dockable rcdr, very low hrs, as new, $1500. D Harris, 703-319-1431.

AG-450 S-VHS camcorder, w/all orig accessories, xlnt cond, $850; Panasonic AG-1960 S-VHS editing decks (2) w/A95 cntrlr, $1800. 814-382-7837.

Panasonic AG-7450 stand-alone adapter w/new cable for 2-pc set-up, hard to find, $500. John, 808-955-6742.

JVC CR-4700 3/4" field decks (2) w/Porta-Brace cases, $600/ea+shpg. Mark, 619-225-8687.

Panasonic AG-455 S-VHS camcorder, xlnt cond, incl case, AC pwr sply/chrgr, & 3 batts, $1350/BO. Rob, 503-344-1413.

Panasonic AG-6400 VHS rcdr, AC/DC, soft case & strap incl, xlnt cond, $600. Steve, 813-969-4221.

Sony VO-2600 3/4" cass rcdr, good cond, $200. B Garofalo, 58-10 Maurice Ave, Maspeth NY 11378.

Sony VO-6800 port 3/4" rcd/plybk, xlnt cond, $750. B Rosswarm, 219-490-4021.

JVC 525 S-VHS slo-mo VCR w/TC, TBC, & digital video NR, xlnt cond, like new, under 190 capstan motor hrs, $5300; Sony 5850 3/4" VCR, works great, looks great, $2300/BO. B Franco, 408-372-2308.

Sony 9800 3/4" SP decks (2), $3500/BO. 630-805-0418.

Sony VO-5850, 5800 & RM 440 cntrlr, $5000; Sony VO-5850 3/4" edits (2), $2500/ea; Sony BVU-110 3/4" w/TC & Porta-Brace, $800. Craig or Chris, 334-433-7733.

JVC CR-6300U rcdr, like new, also compl parts machine incl, new head, $800. J Kesler, 606-843-9999.

JVC CR-4900 3/4" port video rcdr, like new, only 200 hrs, Porta-Brace case, AC pwr sply, 4 batts, 10' 14-pin camera cable & manual, $1250+shpg. B Osborne, 317-253-8562.

Sony SL-2000 port Beat rcdr, compl w/AC pwr sply, dead NiCad batt, tuner-timer mod, cables & full documentation, $215/BO; JVC HR-S10U port VHS rcdr, compl w/companion tuner/timer unit, $215. R Streicher, 818-359-8012.

1 ea Lake Systems, La Kart, TV commercial sopt plybk syst, mod for component video output, has 8 Sony VO-5000 3/4" plybk machines, all equip installed in compact roll-around rack unit, also have 1" tape machines & other equip. B Brister, WRBW-TV, Orlando FL, 407-248-6500.

Sony VO-5800 3/4" edit deck, xlnt cond, $1500. 415-284-6669.

JVC CR-4900 port VCR w/Porta-Brace case, TC gen & A/C pwr adapter, $1000/BO. M Peterson, WaterMark Video, 813-530-0354.

Ampex 1200 Quad machines (2), work but need pwr sply capacitors, you ship, BO. M Seacer, KHQA, 217-222-6200.

Sony BVR-820 remote cntrl unit, $595. 916-354-1990.

Sony VO-9850 3/4" SP edit VCR w/Dolby C, 299 hrs, orig head, manual, orig box, mint cond, $6550/BO; Sony VO-9800 3/4" SP plyr/rcdr w/Dolby C, 425 hrs, orig head, manual, mint cond, $3450/BO. Charley, TVE of NY, 718-263-6300.

Ampex VPR-2B w/TBC, TC, DT, 525 hrs, $4500; Sony VO-6800 3/4" field rcdr, 50 hrs, new cond w/Sony bag, $1300. Joe, Starfire Video, 910-867-5149.

Panasonic 9400 3/4" tape deck w/2 batts & AC pwr sply, $500/BO; Panasonic 8500 tape deck, xlnt cond w/4 batts & AC pwr sply, $795/BO. Bill, 201-767-0565.

Canon A-1 digital S-VHS camcorder, xlnt, $895; Steadycam JR, $295. Brennan Prod, D Brennan, 205-823-0088.

Sony VO-8800 w/TC, Porta-Brace, manual, good cond, only 200 hrs, $1500. 415-648-3695.

Panasonic AG-7650 S-VHS Hi-Fi ind plyr w/TBC & DNR 9-pin rem cntrl, RS-422A, xlnt cond, $3450/BO; Sony EVO-511 video 8 VCR, $245; Panasonic Pro-series VCRs, AG-1240s, 1250s, 1270s, 1740s, Hi-Fi, good cond, $195/ea/BO. Greg, Moonlight Video Prod, 345 1st St Ste Q, Encinitas CA 92024. 619-942-9687.

Sony UVW-1600, xlnt cond, $5850/BO. Jeff or Rick, 800-283-2432.

JVC CR-6060U 3/4" VCR, $295+shpg; Panasonic NV-9300 3/4" VCR w/tuner, $295+shpg; Sony VO-2610 3/4" VCR, $295+shpg. 916-354-1990.

Sony BVW-25 (Ampex) port Beta deck w/AC & Porta-Brace case, recently cleaned & svcd, $3800. S Mitchell, 916-581-0525.

Sony BVU-50 3/4" rcdr w/manual, $250; Sony BVU-110 3/4", $300; TC card for 110, $150; Convergence ESC-90 edit cntrlr w/TC rdr +JVC CR6600U plyr/rcdr & JVC CR8200U plyr/rcrdr, $2000; Panasonic NV 9300A plyr/rcrdr w/TV tuner, works exc, extra 1 for parts, $650/both; JVC 5000 3/4" plyrs for parts (2), $100/both. Elaine, 904-698-1009.

Sony VO-8800 3/4" SP w/Porta-Brace case, low hrs, mint cond, $1995. Mike, Birdger Prod, 307-733-7871.

Evertz E2 A/D converter VTR cntrl, JVC U-mat cable & manual, $900/BO; Sony VO-5850 U-mat edit VTR, A/C pwr cord, $2000/BO; Sony VP-5020 umat PB VCR, brand new rebuild, everything new, works great, $1200/BO. M Freidman, 414-468-3333.

Sony VO-5800, good cond, $1600; Sony VO-5850, good cond, $1800; Sony VP-5000s (3), good cond, $600/ea. J York, Nutmeg TV, 203-677-8826.

Sony VO-6800 w/Porta-Brace, BO. D Ludovici, The Video Standard, 412-654-1313.

ACTION-GRAM
EQUIPMENT EXCHANGE

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G. Network/group owner	Q. Recording studio
J. Broadcast consultant, mfg. dist, or dealer	K. Other (specify): _____

II. Job Function

A. Corporate mgt	D. Prod/oper mgt or staff
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While every care is taken to ensure that these listings are accurate and complete, TV Technology does not accept responsibility for omissions or errors.

*These ads appear only in one demographic edition

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1 Type of Firm *(check one)*

☐ A. VHF-TV station	☐ L. Corporate TV facility
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☐ D. Prod/post-prod studio	☐ N. Government TV facility
☐ E. Cable TV	☐ P. Educational TV facility
☐ G. Network/group owner	☐ Q. Recording studio
☐ J. Broadcast consultant mfg, dist, or dealer	☐ K. Other (specify): _____

2 Job Function *(check one)*

☐ A. Corporate mgt	☐ D. Prod/oper mgt or staff
☐ B. Engineering/tech mgt	☐ E. News mgt or staff
☐ C. Engineering/tech staff	☐ G. Training
☐ F. Other (specify): _____	

Reader Service

June 1995 Issue Use Until October 1995

Use this section to receive free information about products or services advertised in this issue. First fill out the contact information to the left. Then find the Reader Service number printed at the bottom of each advertisement you are interested in, and circle that same number below.

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001	016	031	046	061	076	091	106	121
002	017	032	047	062	077	092	107	122
003	018	033	048	063	078	093	108	123
004	019	034	049	064	079	094	109	124
005	020	035	050	065	080	095	110	125
006	021	036	051	066	081	096	111	126
007	022	037	052	067	082	097	112	127
008	023	038	053	068	083	098	113	128
009	024	039	054	069	084	099	114	129
010	025	040	055	070	085	100	115	130
011	026	041	056	071	086	101	116	131
012	027	042	057	072	087	102	117	132
013	028	043	058	073	088	103	118	133
014	029	044	059	074	089	104	119	134
015	030	045	060	075	090	105	120	135

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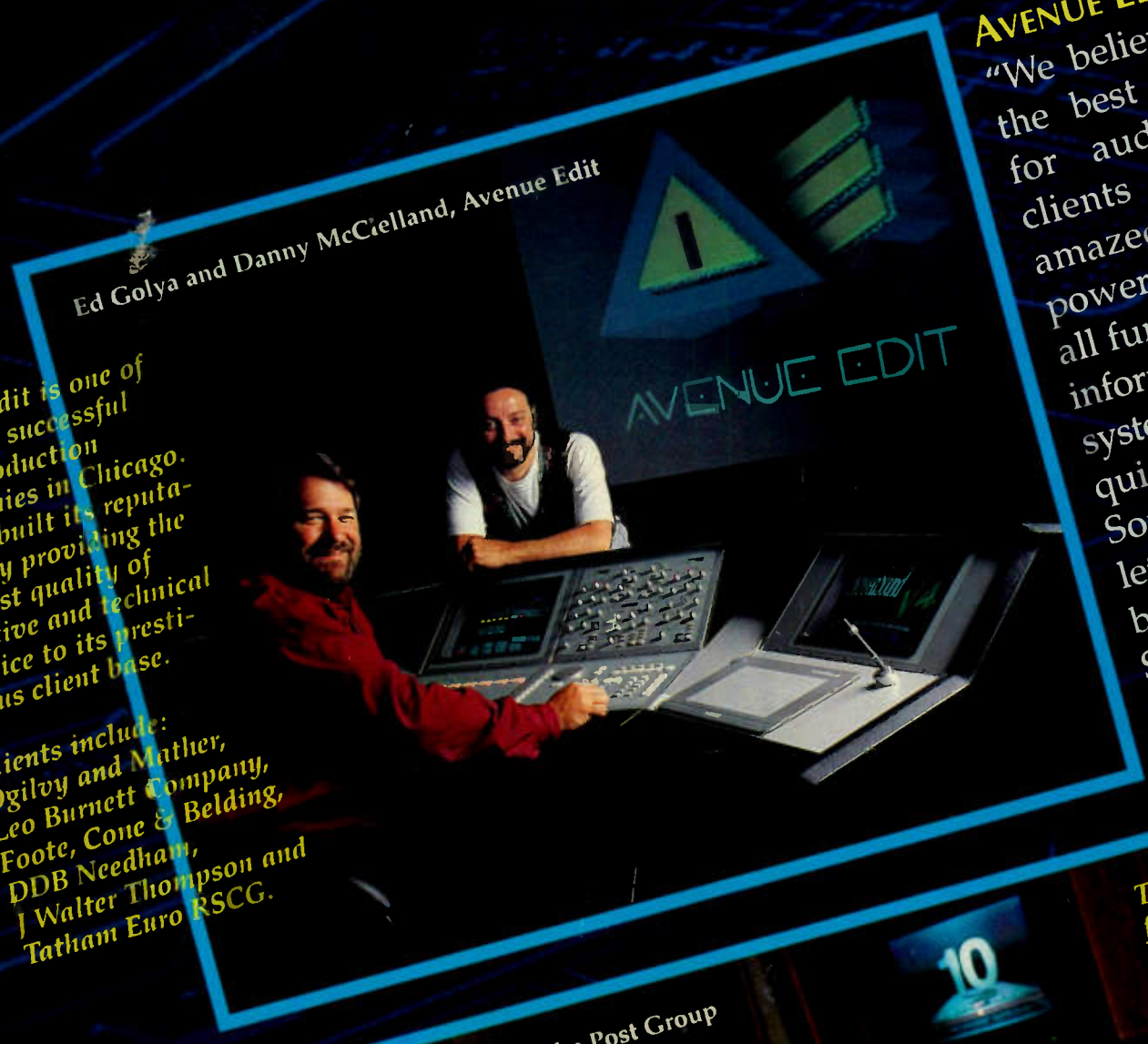

Ed Golya and Danny McClelland, Avenue Edit

Avenue Edit is one of the most successful post-production companies in Chicago. It has built its reputation by providing the highest quality of creative and technical service to its prestigious client base.

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The Post Group is a full service post-production facility with a four room audio department. Their ScreenSound and Scenaria systems are used for a variety of projects from music videos and commercials to interactive video games.

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