Taiwan Broadcasting: A View From Inside

New Services Point to a Thriving Industry

By Jeremy Hoare

Editor’s note: Freelance lighting designer Jeremy Hoare recently completed a project for China Television Company of Taiwan. While there, Hoare got a first-hand look at the inner workings of CTV and the state of Taiwan broadcasting in general. He shares his observations with TV Technology readers this month.

TAIPEI, Taiwan

Because of Taiwan’s relationship with mainland China, politics is always in the news. Television demonstrates its power by the fact that 95 people out of every 100 watch TV news.

With a population of nearly 21 million in 4.7 million households, Taiwan has an estimated 6.7 million television sets supplied with programs mainly from three commercial stations: CTV, China Television Company; TTV, Taiwan Television Enterprise; and CTS, Chinese Television System.

In addition, satellite reception is estimated to be in one in three homes and Star TV’s Mandarin-speaking Chinese channel has effectively become Taiwan’s Channel 4 alternative to the three main networks. Because it is beyond the control of government regulations that restrict the Taiwan stations from showing Japanese programs, Star TV quickly drew ratings in its early days by broadcasting a Japanese soap dubbed into Mandarin. Star TV also shows Star Plus Channel, MTV, a sports channel and BBC WSTV. Other satellite channels available are CNN, two Japanese NHK channels and WOWOW.

LEGAL CABLE

Cable television has up until recently been operated by about 300 illegal operators reaching 1.6 million subscribers. However, a law passed last July will legalize them. Political parties will be allowed to operate cable systems, and at least 20 percent of programming must be locally produced. Foreigners will not be allowed to invest in cable.

A non-commercial public service station, CPTV (Chinese Public Television) struggles hard in this commercial environment with only 15 hours of air time a week. But

(continued on page 6)
JVC Professional focuses on affordable products for your application; standalone and interfaceable with component video systems.

- Capture more footage with the tough KY-27E/BR-S42E and GY-X2E, full size 3-hr cassette, Professional-S, low-light 3 CCD Camcorders.

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JVC Professional-S 22 Series Editing and Production Systems are not just well accepted; they are measuring standards for performance.
**PIONEER DEVELOPS BLUE LASER SYSTEM**

**Tokyo**

In a development that could greatly increase the storage capacity of optical discs, Pioneer Electronics Corp. has announced that it has developed a blue laser system utilizing a wavelength of 425nm that is capable of operating at room temperature.

The system uses what it calls the "second harmonic generation" (SHG) method to halve the 780nm beam width of a standard red laser to an effective blue laser. The method involves passing the red beam through a crystal consisting of phosphoric titanic lithium (KT,PO4,KTP) developed by DuPont.

Based on a study showing Pioneer reduces the track width of optical discs, allowing more tracks per disc and, consequently, greater storage capacity. Pioneer expects to begin production in 1997.

**NEW TECHNOLOGY**

**SATELLITE**

**NEW SERVICE LINKS U.S. AND EUROPE**

**Paris**

France Telecom has announced a new trans-Atlantic digital satellite service catering to the burgeoning market for television feeds between Europe and the U.S.

The service, set up by France Telecom, uses its U.K. uplinking subsidiary Maxat, and its European network to enable it to provide coverage to parts of North America. The service will be used to uplink satellite television programs from Europe to the U.S.

**DYNATECH GROUP REVAMPS UNITS**

**Madison, Wisconsin**

In an effort to increase coordination among its member companies, Dynatech Video Group has undergone a comprehensive reorganization.

Dynatech has consolidated its companies under two main product divisions: the Distribution Products Business Group and the Production Products Business Group. Combined, the distribution products group will be:

- **David Video**, the company’s manufacturer of such products as disk-based commercial playback systems.
- **Quanta**, a manufacturer of digital data and graphic output devices.
- **Alpha Image**, a digital imaging and production switcher.
- **Cable Products**, Dynatech’s main unit aimed at cable automation systems.
- **Editing Machines Corp.**, a non-linear editing systems company that Dynatech recently acquired.
- **Calaway**, a maker of PC-based editors.
- **Alta**, offering still stores and special effects units.

Under the reorganization, D2S-2 Video Graphics, Quanta, and Cable Products are being relocated to the company’s main manufacturing facility in Salt Lake City. Two other companies, da Vinci Systems and NewStar, will continue at their present locations, maintaining their own manufacturing, as well as sales, marketing, and support operations.

**IDB DEVELOPS LIVE IN-FLIGHT SATELLITE SYSTEM**

**Los Angeles**

Live television feeds to passenger airliners could become a reality in the very near future. IDB Communications of Los Angeles has successfully tested a new broadband satellite system.

On a recent Swissair flight from Zurich to Los Angeles, IDB’s Inmarsat live CNN International programming was seen by passengers on the plane.

The demonstration was conducted in coordination with ELTA, the electronics division of Israel Aircraft Industries using a satellite manufactured by INFORMKOMOS of Russia.

The system is designed to allow airliners to receive satellite television signals from outside the aircraft, providing them with entertainment and news content.

**FEATURES**

- **Audio**
  - The sound quality of the system was described as exceptional.
  - The system was noted for its ability to handle a wide range of audio sources.
- **Video**
  - The system was praised for its clarity and sharpness.
  - The color reproduction was also highlighted as being vibrant.

**TECHNOLOGY**

- **Satellite Systems**
  - The system used a new technology that allowed for higher data rates and better signal reception.
  - The system was designed to be compatible with existing satellite networks.
- **Broadcast Equipment**
  - The system included advanced broadcast equipment that enabled real-time transmission of live events.
  - The equipment was designed to handle high-definition video and audio signals.
An Inside Look at Taiwan TV

this is due to change, as it will soon begin broadcasting on its own frequencies. Programs will be satellite-relayed from Taipei to 10 sites for UHF broadcast.

A feature of every city is MTV, a system of viewing rooms where people can watch films on video together. This is popular, no doubt because of the inherent gregarious nature of the Taiwanese.

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CTV went on air in 1969 and was the first of the three stations to transmit all color programs. Its studio complex was also the first to be custom-built in Taiwan and currently comprises all the conventional equipment found in large TV centers throughout the world.

With a staff of around 800, it is on the air for about 20 hours each day covering an entire range of programs. CTV News, which is aired in seven segments daily, comprises 21 percent of the total output. Educational and public service adds 11 percent, and entertainment is by far the biggest sector at 47 percent.

The largest studio currently is 6,400 square feet and equipped specifically for light entertainment shows.

The lightning grid, a barrel hoist system designed by the chief lighting engineer and made in Taiwan, has a sparse amount of Japanese-manufactured lamps rigged on it. Special lighting equipment is brought in as required, usually including movable mirror servo lights from the local Walline Company.

**SHOOTING WITH SONY**

On the floor are four new Sony CCD studio cameras with Canon J20 lenses mounted on Vinten cameras with Canon J20 lenses mounted. These are manufactured lamps riggered on it. Special lighting equipment is brought in as required, usually including movable mirror servo lights from the local Walline Company.

**Program quality standards are variable, with some programs excellent and others bad.**

The main VTR system is one-inch with D2 as back up. All post production is done on Sony D-2 through a DFS-8000 desk.

Program quality standards are variable, with some programs excellent and others bad. The constant Mandarin Chinese subtitles plastered over every program are annoying, but are regarded as partly educational for illiterate people. The ability to send subtitles via teletext, which would give viewers the option to switch subtitles on and off, is being considered for the future.

The programs with the highest production standards are those made by independents, who contribute 50 percent of the schedule, as well as those imported from Hong Kong.

One modern-day soap with a high production standard has the pictures overexposed by 3/4 or more of a stop with a fog filter added. This gives very unmaturated colors and a vaguely surreal look that is pleasing to watch.

The main ratings success currently for CTV is an independently produced one-hour soap stripped five days at evening prime time. Set in 12th-century mainland China, it has exterior night battle scenes that are very well lit, but the interiors have an overall soft illumination that is completely bland.

The Taiwanese have an ongoing political dilemma with mainland China, and must contend with a lack of recognition by the United Nations. By nature, they are very hard-working and tend to look to the future, however uncertain it may be.

But in the world of television, Taiwan is thriving, expanding and most certainly has a future. There can be no argument about that.

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**THIS IS THE AD OUR COMPETITORS DON'T WANT YOU TO SEE... but we do!**

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<thead>
<tr>
<th>Manufacturer</th>
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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.

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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 114 On Reader Service Card
Fiber Technology Continues to Grow

By Roger Ewald

Fiber optic technology continues to evolve as manufacturers realize even greater efficiency and signal strength than was possible even a few years ago. At this spring’s NAB show in Las Vegas, numerous booths highlighted fiber optic switching, transmission and reception equipment.

AT&T, the U.S. long-distance telephone company, demonstrated developments from its Network Cable Systems and Fiber Products divisions (Circle Reader Service 51). Specifically, the company showed products that support a fiber solution for serial digital transmission, demonstrating products by interconnecting to several other vendors at the show.

For instance, AT&T shared booth space with Force Inc., of Christiansburg, Virginia (Circle Reader Service 81). Force demonstrated its high-speed Model 2653 digital video/serial data link, which operates at speeds up to 1.2 gigabits per second (Gbps), which is suitable for HDTV.

NEW AT C-COR

C-COR/Comlux Inc. (Reader Service 116) had its new Model 3300 single-channel optical transmission terminal on display. The 3300 utilizes 9-bit video and 16-bit audio codecs to transmit transparent point-to-point signals over single or multimode fiber.

C-COR/Comlux also displayed its 3000 Series RF processors. The 3843d up/down converter accepts 45.75 MHz RF signals from splitters for digital transmission. As part of its “Dyonetics” line, DYNAIR Electronics (Reader Service 29) is offering the new DATA-Link RS-232 bi-directional data transceiver. The DATA-Link provides three separate channels of RS-232 data multiplexed onto one fiber for distances of up to 2.5 km.

IRT Inc. has also added the Genesis digital interface. The Genesis system includes a complete selection of analog, digital and optical signal conversion and interface modules. The versatile DYNAIR 1200 Series of frames allows mixing of fiber modems and coax amplifiers and DAs in one package.

Fiber Optics (Reader Service 38) displayed its new 1312B digital stereo audio link, which features 18-bit processing and a 48 kHz sampling rate. The 1312B can operate using single or multimode fiber. For less demanding applications, the model 312B is a high-quality analog audio link.

Fiber Optics also showed the Series 240B video and stereo audio link. Fiber Optics offers a complete line of audio, video, and data links targeted to the needs of broadcasters.

Grass Valley (Reader Service 104) demonstrated the MCF Series digital transmission system. The MCF frame provides up to six T1/E1 signals, broadcast with two channels of 18-bit audio. Any stereo audio pair may be associated with any video channel and can be dynamically re-assigned by a remote terminal using MCF interface software.

The Australian company IRT Electronics (Reader Service 43) displayed the VA-503 wideband RF fiber link. Intended for transmission of broadcast RF signals, it features a 10 MHz to 600 MHz response and a 6 dB path loss over seven miles. IRT also offers a 270 Mbps serial digital video link and a portable audio/video link.

Lighthouse Digital Systems, of Grass Valley, California, (Reader Service 79) brought three digital switching products: the SRXAll purpose 400 Mbps unit; the Pathfinder 1.5 Gbps HDTV grade switcher; and the DCR 300 Mbps switcher.

Lightwave Systems of Dallas, Texas, (Reader Service 13) introduced the FIBOX two-channel high-speed fiber optic audio transmission system. Using 20-bit technology, the FIBOX claims a dynamic range of 108 dB.

Connectivity was the concept that Ortel Corp. (Reader Service 61) designed into its new System 8000 digital video interface link. Intended for connecting earth stations to distant control centers, the System 8000 provides direct fiber connection via single mode fiber for C and Ku Band, L Band, 70/140 MHz IFs and full duplex intercom and control systems.

Telecast Fiber Systems (Reader Service 32), makers of fiber optic systems, introduced three new optical fiber products. The Viper, an audio/video snake, uses two separate enclosures to house input and output connectors and internal electronics. The Viper is available in a portable configuration, with normal or ruggedized housings or in a rack-mounted version.

Audio Is the Key at Merjihur

By Alan Carter

COURBEVOIE, France—Audio enthusiasts gear up for the World Cup to be held this year in the U.S., the audio animation team at Merjihur Studios, located here in a suburb of Paris known for its concentration of production houses, is having fun with a match of its own: the “World Cup” of sound.

Participants for the World Cup finals are unknown, but the animated Zoo Cup series pits the Bulls against the Porcupines.

The crowd roars. There is the charging sound of the players bounding down the field. The thump of the kickoff. The swish of a pass. A referee blows a whistle for a foul. Boon rise from the grandstands. Plays start again. Kick. Crunch. Swoosh. A score. A mix of cheering and jeering. All in a day’s work at Merjihur.

Sounds like fun? It is.

From sound tracks for cartoons and musical scores for films to audio mixes for radio commercials and jingles, Merjihur provides a variety of audio-only and audio-visual production.

“We are one of France’s leading studios of audio for cartoons,” said Thierry Lebon, managing director of Merjihur. In addition to animation projects such as Zoo Cup, jobs include Coca-Cola and Marlboro clothing commercials for radio and television. Lebon also co-produced the movie, “Little Buddha.”

Among the array of equipment in the eight-track and 24-track studios is the Digigram Xtrack multitrack audio editing system. Lebon and free-lance engineer Laurent Kossayan credit the digital audio system with helping Merjihur produce many of its successful projects.

“We use it for the practical aspects and for the creativity it allows,” Kossayan said.

He plays a section of the Zoo Cup video, while matching the audio track seen visually on an Xtrack workstation screen. The synchronization is off just a fraction. He squeezes the audio ever so little to get the sound just right with the video. He could also stretch the sound if need be.

Merjihur is one of the first production houses that used Digigram Xtrack and continues to be a beta test site for the system. What appears to be an important aspect of Xtrack that Lebon and Kossayan like is the flexibility in both editing and use of source material, whether live or from the library.

They described a live mix from a six-way sound system: “If you haven’t got the flexibility, the show will sound straight,” Kossayan said.

Digigram promotes the flexibility and ease of use with the Xtrack.

Among the features in Version 3.21 software that Digigram recently introduced is that Xtrack can manage up to 16 independent tracks on four PCX boards in real time. Equalization also is available. It is applied independently on each track with three sub-bands: bass, medium and treble.

The input channel parameters allow users to assign an input channel and an output channel independent from each other to each track.

Processing functions also simplify operation. “Jog” and “Shuttle” functions enable a fast search.

An “Export Sound” function allows the generation of a MUSI-CAM file from a multitrack title. Format conversion, integration of volume curves and merging are applied globally to all tracks. This single file is used directly for broadcast.

For post production, the Xtrack with the new software can drive an external video tape recorder and the video image can be displayed on the control screen. These two functions allow users to simultaneously handle the image and the sound that is controlled directly on the Xtrack.

Alan Carter is editor of the international editions of Radio World, sister publication to TV Technology.

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* editing products, argues that if its systems are being used to create finished programs, then they are, by definition, on-line.
Amiga Fonts for All Occasions

by John Spofford

The original Amiga operating system was designed with built-in system fonts. The default Amiga system fonts have a single source of fonts available for every Amiga application. This was not a new concept, even for 1986, as Apple had introduced the same idea with the Macintosh.

The Amiga's advantage over the Mac was its ability to color. The original one-piece Mac used a low resolution monochrome screen, and every Mac pixel was either black or white. From its inception, the Amiga could generate high resolution graphics and access a palette of 4,096 colors.

Early Amiga graphics programs also tapped into the Amiga's library of fonts. The ability to display high resolution fonts in color led to the development of specialized character generator software. In addition, it arguably started the desktop video phenomenon.

**CHOOSING SIZES**

As computer typography became more sophisticated, scalable fonts were developed to solve this problem. Unlike fixed size bitmapped fonts, scalable fonts are represented in the computer as points, straight lines, and curves.

These mathematical descriptions can be used to create both outline and bitmapped fonts—i.e., a font of any size with exactly jagged edges. Two major sources of scalable fonts are Compugraphic Outline fonts, developed by AGFA Compugraphic Corporation (Telephone: +1-201-440-2500), and the more common PostScript font format from Adobe Systems Inc. (Telephone: +1-415-961-4400). Commodore added direct operating system support of Compugraphic Outline fonts with AmigaOS version 2.0. Many Amiga applications use this support to access scalable fonts with this addition. Outline fonts are an improvement to the Amiga font standard but have had virtually no impact on Amiga desktop video applications.

Only two or three outline fonts are provided with an Amiga. Additional fonts are licensed from Compugraphic Corporation and are only available in commercially available font libraries.

Most Amiga paint programs and some image processors support the outline fonts, but rescaling is very slow and the on-screen appearance of most font styles is not very good. Compugraphic font types have no printout output, but no character generator makes use of them.

The development of Amiga-based character generators followed an evolution similar to that of the Amiga system fonts. Several early CGs actually used the available Amiga fonts. While these programs are long gone, some of their fonts live on in the Amiga font collection.

Developers of high-quality character generators such as the Pro Video Series from Sheerff Systems (Telephone: +1-503-591-5994; Fax: +1-503-591-0224) and Broadcast Ticker from InnoVision Technology (Telephone: +1-503-638-0800; Fax: +1-503-638-6453) used scalable bitmapped fonts. These respective font libraries were designed specifically for video production and could be used to video the text using a fiddling mess.

Sheerff Systems software is designed for video production and could be used to video the text using a fiddling mess. InnoVision also offers a scalable character generator that can be used to create its proprietary fonts, after which the original Amiga system fonts can be used to video the text using a fiddling mess.

The advantage is that scalable fonts can be designed specifically for video. In addition, it is possible to create a scalable character generator that used yet another proprietary bitmap font. The Video Ticker provides scalable fonts from the Amiga character generator. While this is expensive, the original Video Ticker was a mediocre performer. Only in its third revision has the Video Ticker realized the full potential of the character generator I have been using for years.

Scalable font technology has finally made its way into Amiga CGs. This new technology was simultaneously introduced by NewTek as part of the Toaster/3.0 character generator software and by InnoVision Technology in Montage for the Video Toaster, as well as the standalone version Montage 24. Montage is a character generator, image manipulation and composition program that works with and improves the picture resolution of the Video Toaster.

The first Toaster Teasefonts gained scalable font technology by adopting a proprietary standard Adobe Type 1 PostScript fonts. NewTek further sweetened this option by including a large library of PostScript fonts with the Video Toaster 3.0 software upgrade.

NewTek CG users request into which the user types in the desired size in scan lines. Of the two scalable font implementations, Montage seems to work better. Montage uses an on-screen bounding box to interactively resize and reposition text with the computer mouse. In its initial release version, however, Montage could only rescale its own fonts.

By the time you read this, InnoVision will have released its PostScript Module for use with the Video Toaster and Montage 24. According to InnoVision, this add-on module will allow users to scale PostScript fonts in real time with an effective scalable character generator.

This allows users of Montage for the Video Toaster to use Toaster CG's PostScript library. More importantly, the module also adds PostScript compatibility to Montage 24 for those Amiga artists not using a Video Toaster.

**MORE CHOICES**

Access to PostScript has become an important issue. I frequently use a variety of Amiga fonts, but one font I particularly like is not available on the Amiga. Several other fonts are available, and they are very aware of the range of typefaces.

They often show up with their PostScript file. If the font is not available, then it will show up as a font from the original FreeType Library.

Although this analogy is not perfect, it will give you an idea of whether the font will work for video graphics. In terms of scan lines, any font under 25 points will not be legible after the computer screen is encoded to composite video. The fonts I use range from about 50 to 120 points in size.

The best thing that can be said for the Amiga system fonts is that there are literally hundreds available, and in many cases, they are free. About a dozen fonts are provided with the Amiga, with many more available in the public domain.

Now the bad news. Most Amiga fonts were developed long ago for dot matrix printers and tend to be very blocky when seen on a video screen. Some fonts use single lines, which flicker badly or create rainbow on video monitors. In my endless collection of Amiga fonts, perhaps 25 styles are useful for professional video work.

As you collect Amiga fonts, you will occasionally find a variant, the colorfont. Colorfonts are multicolored bitmapped fonts with an integral palette. Colorfonts are directly supported by the Amiga operating system and can be imported into most Amiga graphic programs.
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BVW-D600

A new DSP (Digital Signal Processing) camera built into the body of the Betacam SP Camcorder. Over 850 TV horizontal line resolution provided by the Hyper HAD1000 CCD, 10-bit A/D, 36 MHz/14-bit DSP. The Setup Card system is also provided, as the DVW-700. The BVW-D600 offers both excellent portability and ease of operation within the Betacam SP concept.
DVW-700
A fully digital system combining both a DSP camera and Digital BETACAM VTR. The new Setup Card simplifies setting parameters such as gamma and detail, while the 10-bit A/D, 36 MHz/14-bit DSP ensures superb image quality. The DVW-700 is the world's first fully Digital BETACAM Camcorder.
Fiber In My Plant? I Think I’ll Stay

by Mario Orazio

S

OMWHERE OUT THERE You might not have noticed that the phrase “dirty simple” does not apply to the future of TV distribution. Or maybe I should say “sand simple.” In essence, what I am trying to say is that there is more to fiber optics than melted sand. Several years ago, a Mitsubishi executive became quite upset when someone suggested fiber made of plastic instead of glass had limited uses. Plastic “can fulfill the needs of 80 percent of the current copper market,” quoth he.

Anyway, I did not wake up my computer this month just to rant about the relative merits of plastic or glass (and not just ordinary glass, mind you — glass that is so transmissive that it is to window glass roughly as window glass is to an opaque piece of cardboard). As they say on TV lawyer shows, I am willing to stipulate to the wonders of either plastic or glass optical fibers, including vast information carrying capacity, light weight, freedom from interference and non-conductivity. As far as I am concerned, fiber is great, and I use it all the time to ship TV shows around the U.S.

COPPER IN THE PLANT

Around my plants, however, I still use copper, and I expect to do so for quite some time. The main reason is that last fiber advantage: non-conductivity. Let me give you a trivial example: triax camera cable, a technology that won an Emmy Award in 1992. A camera head squirts out red, green and blue video signals. It gets back viewfinder, sync, power and control signals. Heading both ways is at least one channel of intercom. Forgive me if I have oversimplified. In the good old days, cables with over 80 copper conductors connected camera heads to their CCUs. A 100-foot cable weighed 100 pounds and I, personally, once spent an entire day trying to repair one connector.

Along comes triax. All signals are modulated and sent down a single conductor, just as in a cable TV system. Even I, who have a hard time keeping a toothbrush aimed the right way, can field-install a new triax connector in usually less time than it takes to find the crimping tool. And for those cases when a camera needs to be mounted on a remote panning device (Louma crane, Cam-remote, Hot Head — whatever), all that is necessary is a triax-to-coax adapter or two.

I cannot remember who first showed fiber optic camera cable at an NAB show, but I remember RCA showing it, and RCA’s been out of the video business so long that I recently ran into a young engineer who had just learned what BNC stood for) trying to puzzle out the RCA associated with phono plugs; she was pretty sure the “C” had to stand for “connector.” Anyway.

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and lenses; I am just saying no one has.

But, heck, you say, what about all those camera applications not using remote pan heads? Fine, let’s go down the list together.

—Fiber is extremely lightweight. Triax is no backbreaker either, but it sure cannot compete with a strand of grass the thickness of a human hair. But if you lay that strand of glass on a golf course, the first golf cart to run over it will snap it. So it is true that fiber is extremely lightweight, and fiber optic cable with strength members added is not too bad, but it is not at all different from triax.

—At some point, the cable is going to break. Maybe a tank will roll over it. Maybe it will get caught in a pickel slice.

A common term among technicians in the fiber transmission business is “backhoe fade.” Like I said, even I can field repair a piece of triax. In the old days, field repair of fiber was all but impossible. Nowadays, it is possible, but it is not quite like triax. Look through any fiber optic trade magazine and you will see ads for 100-power microscopes, precision polishing kits and other devices. These gadgets are not exactly what you want to use on a muddy football field in the rain. Dirt is not transparent in a triax connector, but it is a disaster in a fiber connector.

—Fiber is non-conductive, so it does not carry power. Therefore, the fiber is on its own as far as power is concerned. Yes, battery technology has made great advances, but I do not think I would like to be concerned about changing camera, lens and battery packs all day long.

Of course, you could run some power conductors along with the fiber in the cable. To keep the voltage drop low, they will have to be of a relatively healthy gauge. But I have a better idea. Why not just continue to run triax for now?

The conductivity issue is one of the strongest arguments against fiber out of homes (at the moment). The phone companies have two terms in their lexicon describing a part of what they do: POTS and BORSCHT. POTS in plain old telephone service (though I have no idea what a phone company would do if a central office must provide to a subscriber loop (a phone line) to effect POTS. BORSCHT is battery (talk power), over-voltage protection, ringing (for the bell), supervision (to tell when the phone is picked up and what number was dialed), codec (for digital circuits), hybrid (two-wire to four-wire conversion) and testing.

TOUGH SHT

Fiber eliminates the need for O andショーター in these problems with C-SHT is, to put it mildly, challenging. The hybrid function needs to get moved to the other end of the line, and it is not easy testing loop resistance on a non-conductive loop. Also, television can no longer depend on DC through a relay coil. B and R are pretty near impossible. Using high-power lasers, scientists at American Telephone and Telegraph (AT&T) in the U.S. have managed to get a phone at the end of a fiber to make a noise without applying any power other than light. But in the real world, I am sitting here ringing for a fiber optic circuit means one of two things: adding conductors to the cable or having the customer power the phone. Adding conductors to a fiber camera cable is maybe not a terrible idea. There is still video and audio to be carried in two directions on the fiber, whose freedom from interference can be a vital (one 12-camera triax shoot, in the RCA days, near an AM transmitter, was an utter disaster when the radio signal crept into the triax control stream).

Adding conductors to a POTS fiber is ridiculous. POTS is already carried on the exact same conductors that would be needed. What is the fiber supposed to do, besides sit there ready to supply HDTV and other non-POTS services?

As for customers powering their own phones, there is not a single technical reason it would not work, but it would be a lie. It is not devastatingly hard anymore to install a fiber connector. AT&T has shown people how to do it themselves at the NAB show. I recommend the experience, especially the part where you get to go to lunch while the glue dries. No, my concern about the connectors is simpler. Which one should I use? I read that the TR-41.8 committee picked two fiber connectors as the “best" standard: ST for multimode and SC for single mode. The same place where I read that, I saw ads for fiber test equipment that uses just about any connectors except those: bicone, FC, D4, mini-BNC, Super PC, FDDI — take your pick.

FDDI, for those of you with video blinder, is the fiber distributed data interface, the digital interconnection system of the near future. If you want to get paranoid about not using fiber, just look up a year’s worth of notes of FDDI’s standardization committee, ANSI X3T9.5. Much of the discussion has been about how to transmit FDDI over copper.

Test equipment is another interesting issue. First, let me say that I love it. Optical time-domain reflectometers are a lot of fun and not much harder to use than non-optical TDR’s. But if you have ever "ruined" a cable with an ohmmeter, forget it; the minimum you can get away with on an optical cable is a light source and a power meter. You cannot even look into a fiber and see if light comes out, since all fiber optic communications equipment operates in the infra-red range; look into a cable and you will see nothing, even as a laser proceeds to burn pits in your retina.

FIBER IDENTIFIERS

I especially like devices known as fiber identifiers. You know how fibers are completely self contained? These devices "sniff" the fiber non-invasively and tell you which way the light is traveling and maybe even what kind of signal is on it. The way I see it, digital might be the key to converting my plants to fiber — serial digital, that is. I have no desire to stick added active devices on each end of each cable in my plants, but if I have to stick on serializers and deserializers anyway, I probably would not complain too much if the inputs and outputs were optical instead of electrical, as long as someone could point out some advantage to doing that. After all, serial digital is already less susceptible to problems like ground loops.

So, if there is a reason to do so, I am all set to switch to fiber. After there is a connector standard... and things get easier... and cheaper.

I am not being unreasonable, am I?

Mario Orozio is the pseudonym of a well-known television engineer who wishes to remain anonymous. Send your questions or comments to him through TV Technology.

You cannot even look into a fiber and see if light comes out... even as a laser proceeds to burn pits in your retina.
Avoiding the All-In-One Trap

Multitask Systems Can Bog Down Your Production Unless You Plan Very Carefully

by Craig Johnston

show, or ball game is more of an orchestral performance, with a number of players. Several pieces of equipment combined into one tends to create a log jam because it is impossible to divide tasks between several production team members. For instance, you will find that you cannot use the still store because the artist is finishing up his work on its paint system function.

Still, I think these combined systems can be attractive in financial and other ways. So how do you figure out if they will fit into your operation?

MAKE A TIMELINE

I suggest you construct a timeline, graphically depicting the use to which you presently put each piece of production equipment. Because most production schedules operate on a weekly cycle, you will need to do this for each day of the week. (It is likely that many parts of Monday through Friday are the same day to day, and that the two weekend days are also similar.) Although you may not have active production in progress through the

Several pieces of equipment combined into one tends to create a log jam because it is impossible to divide tasks between several production team members.

it may seem odd that I think that a combination character generator/paint system, for instance, may not be a good purchase. My reasoning has to do with some very basic differences between post production editing and studio or remote video production. Post production is a one-man task. Video production of a newscast, talk night, make the timeline 24 hours long anyway. The following example I have constructed is for a normal weekday at a mythical television station. To make it simple, I have included just three categories of equipment: character generators, still stores and a paint system. This TV station does a 6 a.m. newscast, commercial production in the studio from 10 a.m. to noon, tapes a local program in the afternoon and has an evening and late night news block.

In addition to studio production, the facility also houses a post production suite

and a graphics center. Post production opens at 7 a.m. and continues operation until midnight. The graphics center opens at 8 a.m. and operates until 11 p.m. Equipment is assigned as follows:

Studio: Dual User Character Generator 1
Still Store 1
Post: Single User Character Generator 2
Still Store 2
Graphics: Single User Character Generator 3
Still Store 3
Paint System 1

Because CG 1 in the studio is the dual user, I have depicted it as two lines on my chart. Prior to newscasts, one user is

2 are tied up for great periods of time during the day. To use a paint option on CG 2, for instance, means sacrificing post production time while it is in use. The same would seem true for still stores 1 and 2. However, the still store in the graphics center is sporadically used until shortly before the evening and late newscasts. If we can live with a paint system option to SS 3 (or CG 3, for that matter), that might be a good plan.

YES, BUT... There are three observations you should keep in mind as you do this exercise:

— Just because you add a combination option to a piece of equipment does not mean the normal operator is going to be able to make good use of it. For instance, if you did find that a paint system could be added as an option to the post production character generator, you might also find that few, if any, of your post operators had the artist's skills to actually create graphics with it.

— Showing a timeline like the one in the example to a general manager or facility ownership might generate questions as to why you did not make use of the existing paint system between 11 p.m. and 8 a.m. the next day. You would want to be prepared with the fact that the clients for video paint projects (producers, news reporters, commercial production clients) need to be able to talk directly with the paint system artist and offer mid-project guidance. They are not going to want to do that at 2 a.m.

If you end up adding an inappropriate combination option to an existing piece of equipment, in-station and outside clients are going to avoid it. They are going to find all sorts of reasons that their project has to be done on the state-of-the-art system, and everybody else can use the lesser system. It takes an iron hand to get them to do otherwise, and few of us really have that option.

Craig Johnston is the production manager at KDRV-TV in Medford, Ore. Write him c/o TV Technology.
DIGITAL COMPOSITE MIXER

FOR-A has released the Dx-120 digital composite mixer. Designed for the medium-sized post production facility, the Dx-120 has 10 primary inputs, five key inputs, two full feature keys, a full selection of wipes and optional drop shadows and chroma key. The Dx-120 can accept a mixture of composite digital and analog sources for ease of integration between digital and analog equipment.

For more information, contact the company in Japan at +81-3-346-0591, FAX: +81-3-349-8556, or circle Reader Service 76.

STANDARDS CONVERTER

The Alchemist standards converter by Snell & Wilcox is the first converter with a fully specified all-digital path.

Features include 10-bit digital processing throughout, component and composite digital interfacing and TBC and decoding capabilities.

SUBTITLING SOFTWARE

Comsets Video of France has introduced ST-500-CODI software, a multi-language, high resolution subtitling program designed to control the Chyron CODI text and graphics generator.

The ST-500-CODI and CODI system allows users to create subtitling on a personal computer that can be displayed in English, French or German.

ST-500-CODI offers both text and time code editing and allows import of ASCII, Microsoft Word 4 (or higher) files from DOS and Macintosh platforms, flat files with predetermined separators, as well as files from the Quanta QCG 500.

For more information, contact the company in France at +33-4-4177-5440, FAX: +33-4117-7441, or circle Reader Service 93.

TALKBACK SYSTEM

Trilogy Broadcast Ltd. has launched Commander, a processor-based talkback system.

Commander has a capacity of up to 380x380 ports and is suited to systems which may require future expansion or frequent changes in configuration.

Compatible with all common audio interfaces, including 2/4 wire, telephone handsets and radio systems, Commander offers a wide range of standard and custom-programmable panels.

For more information, contact the company in the U.K. at +44-730-821198; FAX: +44-730-821199, or circle Reader Service 2.

LIGHT CONTROLLER

Frezzolini’s Mini-Fill Intensity Control has a built-in dimmer control using pulse width modulation for adjusting light output.

With this feature, a user can get the performance of a 50 W light and a 100 W light from one bulb when using a 100 W lamp.

For more details, contact the company in the U.S. at +1-201-427-1160, FAX: +1-201-427-0934, or circle Reader Service 128.

WIRELESS RECEIVER

The PR 900 UHF receiver from AKG is designed primarily as a portable non-diversity receiver for broadcast applications but can also be used in stationary configurations.

Battery operation allows the PR 900 to be used for ENG. Tuned to one TV channel, the PR 900 may be switched to any one of its twelve subchannels.

A stacking cable allows two PR 900s to be combined for diversity operation.

For more information, contact the company in Austria at +43-1-222-98-124-241; FAX: +43-1-222-98-124-205, or circle Reader Service 85.

AUDIO CONSOLE

Soundtracs has launched the Megas II Stage sound reinforcement console.

The Megas II Stage comes in four different frame sizes (30, 38, 46 and 54 rack units) and can be loaded with both mono and stereo input modules and a maximum of four matrix modules to provide an 11x8 matrix.

For more details, contact the company in the U.K. at +44-81-399-3392; FAX: +44-81-399-6821, or circle Reader Service 44.

GRAPHICS MODULE

The new Composer module for Gerris Images’ Studio Venice graphics and animation system enables users to combine graphics with live action video.

The Composer provides new tools for adding different foreground video to other video or graphic backgrounds and offers a greater range of creative faculty for Venice users.

For more information, contact the company in France at +33-76-90-1958; FAX: +33-76-90-7234, or circle Reader Service 62.

PARALLEL PROCESSING SYSTEM

Satlink UK Ltd. is offering The Warp System parallel processing acceleration systems featuring a 32-bit transputer processor with an on-board 64-bit floating unit that operates parallel to the main processor.

The transputer may be interfaced via the Warp Board library. This library contains various functions for uploading from the Amiga to the Warp Board and communicating with them.

A Warp Board is not limited to rendering, but the board does excel in areas where parallel processing may be used to improve performance.

For more information, contact the company in the U.K. at +44-71-371-7471; FAX: +44-71-371-7494, or circle Reader Service 63.

DIAGNOSTIC SYSTEM

Fujinon has developed a self-diagnostic system to provide immediate analysis of its lenses’ electronics systems.

This new system, called Focused Intelligent Network Diagnosis (FIND), is available as an option to the newest series Ah and Sh studio and field lenses.

FIND can be accessed either with an optional circuit board or with a personal computer.

For more details, contact the company in Japan at +81-48-668-2152, FAX: +81-48-651-8517, or circle Reader Service 91.
Zaxcom Puts TBCs Under Control

by Mark Tyler
Staff Editor
Post Perfect

NEW YORK
The Zaxcom Time Base Correction (TBC) Hub remote system offers editors and technicians a unique advantage that they did not have a few years ago: the ability to change TBC settings from within the edit room.

The obvious advantage to having a remote TBC system in the edit room or master control suite is the ability to change levels while looking at the main room monitor. This is usually the most accurate color a technician will find at a video or broadcast facility.

Clients love the fact that when they ask for a color change, the editor is able to quickly make the change. It is easy to compare before and after setups by storing two or more setups for the same tape in different memories.

COLOR SETUPS
The Zaxcom system can store up to 15 color setups per machine in memory. That means an editor could put a tape on a machine, set it up, do an edit, change the tape several times and then retrieve the setup of the original tape when it is rethreaded.

Naturally, this sounds easier than it is. If an editor or an assistant does not keep track of which tape is in each memory, things tend to get changed.

When using the Zaxcom system, it is possible to enter a reel number for each memory, but very few editors that I have talked to actually require such a function. In big facilities such as Post Perfect, there are many video tape machines that are not dedicated to any one edit suite.

With the Zaxcom remote TBC system, any machine's TBC can be called into a room relatively easily. In the Zaxcom system, each machine has a local (at the machine) Zaxcom panel and is routed into a central Zaxcom Hub.

Any edit room in the facility with a Zaxcom Hub control panel can access the TBC of any machine. It is therefore possible to adjust the TBC of a machine in one part of the facility from elsewhere in the building.

Once the machine's TBC is acquired into the edit room, another edit room cannot acquire that machine and change its TBC settings. However, the Zaxcom panel at the machine is always active. If it is adjusted, it will affect the settings of the particular machine.

ADDING ON
When adding a machine into an edit room using the Zaxcom system, horizontal timing and subcarrier can be adjusted to put the machine "in time" with the room. The Zaxcom also has the ability to store alternate timing setups if a machine has to be shared between two rooms.

Another advantage of the Zaxcom system is the ability for correction levels to be stored directly to the edit decision list with each edit. Although doing this is a function of the editing computer, such as the CMX Omn, it is nice to have.

Remember, because each machine's TBC is slightly different, tapes have to end up on the same machines for this to be useful. A slight problem with this is that TBCs tend
to drift from day to day, so settings still have to be adjusted each day a tape is used.

Newer Zaxcom functions include auto setup and auto transitions between memories.

Broadcast technicians would also enjoy the benefits of a remote TBC system. When I first started in the television business, I was a master control operator at what was essentially a "one-man" shop. If I wanted to change the levels of a playback VTR, I would have to run across the machine room floor to change levels.

The Zaxcom TBC Control System offers the ability to change TBC settings from the edit room.

Leitch DigiBus Offers Greater Flexibility

by Karl Heinz Wennisch
Engineer
InPhase Videotechnik

MUNICH, Germany
Have you ever sat down and designed the ultimate piece of equipment? Well, I wonder if you and all the others who did the same came up with different answers.

Let's look at the scenario: You want flexibility, modularity, adaptability to new standards, as many outputs as you need, universal control and many other good criteria. But does such a product exist?

The DigiBus from Leitch Technology Inc. (a new name for the company), is the ultimate in flexible, adaptable designs for digital engineering equipment. It consists of a standard three-rack-unit frame and individual module groups that are used to build functions. The application is for anyone designing, installing or running digital systems.

CONVERSION MAGIC
The system is typically used for analog-to-digital and digital-to-analog conversion, as well as encoding, decoding, delay and timing, to name a few examples. The main advantage is the system allows multiples of the same function or even different functions to run together in the same frame under a single control system.

The DigiBus family consists of signal input modules, output modules and processing modules. You take the appropriate modules, physically group them together in the frame, and you have a function. Each frame has 14 front slots and 13 rear slots, providing the opportunity to house six functions in a single frame. A single function may take between two and five slots. If you have a function and want to add it to, you simply add another module, alleviating the traditional need to separately rack equipment and cable it up.

For a simple function such as parallel-to-serial conversion, you simply need a parallel input module and a serial output module cabled together in a DigiBus frame. If you decide that you need to synchronize or freeze the signal, just insert a frame synchronizer module in front of the output module. This takes the video signal off the internal bus, synchronizes it and puts it back in for the output module to level check and serialize as CCIR-601. This function takes up only two rear slots out the 13 available, leaving the opportunity for other functions.

(continued on page 27)
T E C H N O L O G Y  U P D A T E

Hamlet Keeps Signals in Sync

by Renata Lourenco
Chief Engineer Sterling do Brasil

RIO DE JANEIRO
As suppliers to the vast base of professional broadcast, satellite and cable networks in Brazil, Sterling do Brasil is constantly required to provide the very best performance at the most cost-effective price.

Hamlet, inventor and patent-holder of the "in-picture, on-screen" measuring technique used in its Video Scope product, is already held in great esteem in this part of the world. So when we learned of the development of the Advanced time base corrector/frame synchronizer, we were anxious to see it in operation.

The unit's bandwidth offers flat operation at 6 MHz in PAL, NTSC, PAL-M composite and Y-C. It uses no compression, which would degrade the signal. Signal to noise is measured at 58 dB p-prms./RMS.

QUALITY PROCESSING
The enhanced quality of the Advanced TBC is due to the unit's 13.5 MHz processing, as well as its 8-bit 4:2:2 sampling and digital comb filtering.

Unlike the C100, the Advanced TBC does not have two inputs. But it does have built-in noise reduction, enhancement, strobe, freeze on loss of synchronized video input (something that can happen to the best of operations) plus optional 1,100 feet video equalization to eliminate line loss. The Advanced TBC, like the C100, was designed for user convenience, with obvious consideration to operational constraints. The front panel is clearly labelled with control areas, and it can be easily remote-controlled from an RS-232 remote port.

Composite or YC channels can be selected for input or output. But where no compromise is allowed, the signal may be sent in its composite form, providing a much higher quality transfer characteristic.

The processing amplifier controls include adjustment of luminance, chrominance, setup and NTSC bar. The control panel provides sub-control facilities, which are normally required at all times. These may be accessed by way of a shift button that activates the lower case functions, including television standards, subcarrier and horizontal phase adjustment, genlock or mono operation and the strobe control of rate and ratio.

Further features include corning, aperture control and freeze field 1 or 2, or both for flicker-free freeze of moving pictures. The unit also conveniently provides processing amplifier level control memory for setting and storing the levels you desire.

The Advanced TBC synchronizer can be fitted in a single rack-unit enclosure, or it is available as a board that can be fitted into an IBM full-length computer slot. One of the most useful aspects of the Advanced TBC is the way it complements Hamlet's latest waveform vector scope, the PC Scope Plus, which I believe to be the very first full-spectrum unit to become available.

The PC Scope Plus is very useful where any computer is used for operations, whether on-line or off-line, or in a master control area where multiple channels need to be monitored. Since the PC Scope can measure and monitor both audio and video to full broadcast specification, it is second to no unit I have seen.

HANDS-FREE TIMING
The PC Scope has many new facilities. One is called HFT (hands-free timing), which is a proprietary method to time signals.

In a shared unit situation, the three-step function set-up memory is a real advantage, enabling three people to have their own particular set-up. Additional useful features include a built-in black generator and 1/4-, 1/2- and full-size picture displays with combined, individual or mixed displays. For PAL operation, the need to turn the PAL switch off is also useful when setting up phase and looking at burst-to-chrominance errors.

Where the PC Scope card will not fit in the computer, Hamlet has invented the Micro Scope 301WVA, which performs all the tasks of the PC Scope but is enclosed within a small portable battery or 12VDC operated box measuring 5.5x5.1 inches. More importantly, the Micro Scope can be operated from RS-232, just like the Advanced TBC/synchronizer unit.

The Advanced TBC/synchronizer will provide the means to enhance the quality of video productions, which in turn can be assessed during production with the PC Scope or Micro Scope.

Editor's note: As chief engineer at Sterling do Brasil, Renato Lourenco is responsible for technical operations and installations.

The opinions expressed above are the author's alone. For further information on the Advanced TBC, contact Steve Nunney at Hamlet (telephone: +44-494-773580, FAX: +44-494-791283) or circle Reader Service 39.

Strongest link.

Your satellite receiver is the most important link in your reception chain. And the one thing you can always count on - the signal never gets better than it is at the receiver. It creates the most important link to video and audio technical performance and initial S/N ratio.

Which is a very good reason to specify Standard Communications Corp.'s new broadcast "Intercontinental" satellite TV receiver - but it's not the only reason. It has all the features professional operators need most: total flexibility in both C/Ku-band operation, broadcast quality certified video on NTSC, PAL and SECAM signals, and a universal power supply built for the rigorous demands of 24-hour-a-day operation.

Never before has one receiver worked so well from INTELSAT to all DOMSAT formats in C, Ku and S-band frequencies. The 800 MHz or optional 1 GHz input will work with all known LNBs on all worldwide ITU regions. And our synthesized PLL tuning circuit provides direct frequency selection with crystal tolerance - 100 KHz accuracy in a continuous, self-monitoring control loop. The new digital AFC circuit improves performance in low threshold, severe interference, and multiple carrier per transponder operation.

A unique 70 MHz I.F. spectrum inversion circuit allows Ku-band to C-band or vice versa I.F. uplink or downlink turnarounds.

The Intercontinental is built for knowledgeable and discriminating engineers and offers proof of performance RS250C and CCR1567 certification. It features six I.F. bandpass filters, from 36 MHz to 16 MHz, five audio filter selections from 880 to 75 KHz, and six audio de-emphasis circuits.

There is much more you should know about the Intercontinental - and Standard Communications - than we can tell you in a single ad. Call us or fax us. We'll send you more information showing you how to get the best performance and peace of mind. Link up with our new Intercontinental.

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Circle 97 On Reader Service Card
Home Shopping With Tektronix

by Robert B. Hall
Chief Engineer
Home Shopping Network

CLEARWATER, Florida

The Home Shopping Network (HSN) prides itself on a pioneering spirit. We effectively created the electronic retailing industry when we began our U.S. operation back in 1985. Today, our state-of-the-art facilities in St. Petersburg, Florida, house nearly 5,000 employees, the world's largest telemarketing center, and three program operations.

Three years ago, when we started new studio construction, we could see how important digital and fiber would be. Our programming originates from St. Petersburg, with many promotional tie-ins and special events, such as last year's Pre-SuperBowl show, produced on location and uplinked to satellite. In addition, we move lots of signals, both within and between HSN sites.

DIGITAL FUTURE
To start us on the path to a digital future, HSN Telemation, a sister facility eight miles away, has two C band dishes and one Ku band dish for signal capture, and is linked to us by fiber. Our main location has three C band dishes and a Ku band dish plus five studios, two of which are digital.

We have a studio to support each of our three program services, Studio A for HSN1 (cable), Studio C for HSN2 (broadcast) and Studio F for HSN4 (Home Shopping Spree). Another, Studio D, is dedicated to specials, including celebrity shows we produce in-house.

Studios A and C are digital. In the newer of the two, Studio C, a pair of Tektronix VS210 video synchronizers play a key role in keeping signals synced in a process that involves converting between serial and parallel digital.

We take a signal through fiber, convert it to NTSC, then send it to a composite serial digital converter. At this point, the serial signal is fed to a digital router, which sends it on to a deserializer so it can go through the Tektronix VS20. The VS210 locks the outside signal to the house reference. A serializer converts the signal from parallel to composite digital back to composite serial before being passed through a distribution amplifier. From there, it is sent to a composite digital switcher and back to the router.

I/O OPTIONS
Today, Tektronix offers a serial digital I/O option that would eliminate the serializers and deserializers in our system. With Option 1S, the VS210 synchronizer becomes the gateway for conversion from composite analog to composite digital and from serial composite digital to composite analog.

Because part of pioneering involves forging your own way ahead of the crowd, we set up our system before that option became available. As it stands, though, the flow sequence in Studio C is realistic, and the VS210s work quite efficiently.

The VS210 was an obvious choice for our system. We were using eight of its predecessor, the 110-S video synchronizer, and were as satisfied with its performance as we were with the VM700A video measurement set and various Tektronix monitors in use throughout our facilities. Because it is fitted with both analog and composite digital inputs and outputs, the VS210 was ideal for a mixed analog/digital system like Studio C. Other features, like a 10-bit architecture and oversampling, deliver the accuracy and resolution we need.

If we were doing a remote (from Las Vegas, for example), we downlink to fiber, go to the fiber hub, fiber the signal to the appropriate program services, frame sync it and then take the signal to air. In Studio C, we do our own frame sync using the VS210.

In the other studios we use the 110-S.

As technology advances and disk recording, video-on-demand and other digital services become reality, you can expect to see HSN continuing its pioneering ways. And in the process of bringing new and exciting products to Home Shopping Club members, we will be taking advantage of the new and exciting products digital pioneers like Tektronix continue to offer.

Editor's note: Bob Hall is chief engineer of studio operations at the Home Shopping Network where he has worked for the last seven years.

The opinions expressed above are the author's alone. For further information, contact Tektronix (telephone: +1-503-627-3124; FAX: +1-503-627-5801), or circle Reader Service 69.
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**TECHNOLOGY UPDATE**

**DPS-365 Syncs to All Formats**

by Klaus Seidel

**Video Technical**

**FRANKFURT, Germany**

In the spring of 1991, Video Technical began distributing the DPS-365 universal synchronizer from Canadian manufacturer Digital Processing Systems. As everyone knows, the German market is a bit different from the rest of the world. Before the final sale, there is always a series of acceptance tests, followed by more tests, and then still more tests.

This leads to a rather long decision-making process, but there is one important advantage. Once you have sold studio equipment in the German market, you will have no problems selling to the rest of the PAL market.

With distribution rights to Fujinon and Fuji Magnetics, Video Technical is well-known in Germany. But it is always better to have a greater presence, so we are pleased that we have been chosen as the exclusive distributor of Digital Processing Systems products to German-language areas.

One of the products that has drawn substantial interest from the professional video community is the DPS-365 universal synchronizer. The price/performance relation and the mass of special features found in the 365 has made it one of the most powerful devices on the market.

The 365 is now established at government and private broadcast facilities in Germany, and they are doing a perfect job in OB vans, with one unit making a trip from Germany to Greece and back without any problems. They are also being put to numerous other uses where a need for reliable synchronizing is necessary. During the last three years while we have been distributing the 365 throughout Germany, there was only one serious defect on a machine, and this was due to damage during shipment.

If ever there are special requests from customers, we have no problem responding because of the very fast reaction from Digital Processing Systems in the U.K. and Canada. I think that there can be no better relationship between manufacturer and distributor.

One of the newest requirements in our area is compatibility with PAL PLUS. This is no problem for the DPS-365.

At the 1992 IBC show in Amsterdam, the 365 was tested against six established synchronizer brands. Only the 365 worked with PAL PLUS in the outgoing.

With a wide range of television formats these days, one of the most valuable tools will be universal compatibility with all formats. This is one of the chief functions of the 365, which is why I think it is a product that every facility must have.

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**Editor's note:** The opinions expressed above are the author's alone.

For further information on the DPS-365, contact DPS in Europe (telephone: +44-252-718300; FAX: +44-252-718400), or the main office in Canada (telephone: +1-416-754-8090; FAX: +1-416-754-7046), or circle Reader Service 67.

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The 1302 digital frame-store synchronizer from Questech Ltd. synchronizes digital video of any input phase to any output phase. The unit's output phasing ranges are 64 μsec for horizontal and 625 lines for vertical. Also featured are CCIR-656 inputs and outputs, digital reference input loop through and full bandwidth frame freeze in a 4-2-2 environment.

Front panel controls include freeze field 1 and 2, freeze, mode selection and incrementation, and decrementation controls for horizontal and vertical phase, strobed freeze and posterize.

For further information, circle Reader Service 9.

YEM offers the RS-170C dual sync generator consisting of two sets of genlock boards plus an interface board with a change-over function and an alarm circuit. The unit utilizes a digital temperature compensating crystal oscillator and fully conforms to the RS-170A and EBU standards.

Included are 16 different test signals, four outputs for black burst signals and SC frequency stability to ±1 Hz.

For further information, circle Reader Service 119.
COPY EDITING
Video editing is a process of coping, in which quality flaws will be directly transferred to the master tape. And additional analog copies of the master will worsen it further.

Yes, with some types of editing, such as for news clips, signal adjustment is unnecessary. With news editing, it is often not possible since the material has to be cut as in change with off-line editing, signal adjustment is entirely done in the subsequent online session. Again, if the camera original was film, quality control is left to the lab.

But in all other cases, the editor will be directly responsible for the image quality of the final product. Maladjusted chroma, video signal or setup will not only diminish image quality but could also result in a change of the overall mood of a particular scene.

Yet more parameters influence the signal. Out of sync values for horizontal timing result in a horizontal image shift, which looks only too unpleasant in superimpositions. Burst phase shift will have an effect on the overall saturation in a PAL recorder. In the visual judgement of an image, these flaws often go unrecognized. But this only enhances their dangers, especially with professional video, since any problems not directly linked to the creative process.

An editor who is too concerned with technical issues puts his creative reputation at risk. One that cares too little will have problems during approval of the final cut.

The combination of Ensemble time base correctors with the CMX systems diminishes these problems considerably. The time base correction of the VTRs is simply connected to the appropriate port on the Ensemble via serial remote cable.

STRONG COMMUNICATION
The Ensemble communicates with the CMX edit controller and is initialized via the setup menus for each VTR individually. This allows the signal of each VTR to be adjusted by means of the Ensemble.

The Ensemble can either be integrated into the editing console deck or can be remote controlled. Either way, the video signal snatchs away valuable time, which is lost for creative video editing. Very often, directors do not have an understanding of problems not directly linked to the creative process.

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In consequence, the invisible cut of the next day, meaning continuing an edit on a VTR that has been recalibrated in the meantime, has lost all of its horrors.

Another great time-saver is the fact that, working with a huge number of tapes requiring different levels of adjustment, the CMX units memorize each tape adjustment individually. All one has to do is recall the last edit done from the particular tape, and all time base corrections are made by the VTR as previously set.

The Ensemble editor can keep thorough control over the video signal without losing his reputation as a creative person.

An editor's note: Arnold Mueller has worked at ZDF since 1963. His 1992 book "Der Elektronische Schmied" is a best seller in the German electronics field.

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 53.

Htronic Inc. has available the AF75 TBC/frame synchronizer that is compatible with S-VHS, VHS, U-Matic and U-Matic SP.

This product performs with Y/C inputs and offers output time base correction for heterodyne VTRs and full-frame memory synchronization.

Other features include constant-H phase for matched frame edits, 4x subcarrier sampling with 8-bit resolution, adjustable horizontal and vertical blanking, and 3dB chroma noise reduction.

For further information, circle Reader Service 20.

The Nova 620 TBC from Nova Systems Inc. offers full frame memory to instantly freeze a field or frame for special effects.

The unit provides preset for front control panels, full color dropout compensation and 20Hz forward and reverse shuttle operation.

Also available is a black burst output from a built-in sync generator, as well as 8-Bits, 4x subcarrier sampling and a test mode for applying color bars to the video signal.

For further information, circle Reader Service 135.

NVISION Inc’s NVS5000 series universal sync generator provides a timing reference for locking NTSC and PAL video, as well as AES/EBU and SDI/2 digital audio to a common reference.

The audio word clock outputs are available in 48 kHz, 44.1 kHz and 44.056 kHz sampling rates simultaneously, and alignment tones for each frequency are selectable from the front panel.

The unit can act as a free-running master sync generator and timing reference with an accuracy of +/-25 parts per million. It can also be locked to a 5 MHz rubidium timing reference or external video source.

Video color bars or black burst bars are available simultaneously at the video outputs.

For further information, circle Reader Service 42.
New Features at Prime Image

by Thomas Brunst
Technical Coordinator
Suburban Community Television
DOYLESTOWN, Pennsylvania
Suburban Community Television (SCT Productions) is a cable programming facility serving 80,000 subscribers in a tri-county region north of Philadelphia. In addition to providing local programming, SCT also serves as an industrial/corporate production house, offering such features as A/B roll editing, multicamera van remotes and complete studio facilities. Like many community stations, our programming is acquired and cablecast using 3/4-inch, Hi8 and even consumer VHS. The trick is to successfully integrate these varied low-end tape formats into our on-line and master control systems. For more than three years, I have found great results with a Prime Image Model 50 TBC.

BACKBONE SUPPORT
In our small facility, the Model 50 is situated as the backbone of our master control system. I have found the Model 50 to be very forgiving with these varied tape formats and qualities (even for the client who brings us a dub of a home camcorder, VHS recorded at SLP). Our facility, despite its size, is versatile in configuration. We have, in essence, three separate areas for production: our on-line edit suite with its A/B roll and Toaster system, our studio control with camera switching and master control with playback and recorders. All three systems can work together simultaneously in a large production, or separate for individual use. The Model 50 TBC works well in this environment as a standalone TBC for cablecast and duplication use, or referenced to our house system for use as a TBC or frame sync for our studio or on-line edit suite.

I like the Model 50 for its rock-stable performance. The Model 50 was built as an economical "utility" TBC/frame sync with basic features (field freeze, 4.2 MHz bandwidth, 3 percent K factor, etc). After three-and-a-half years of continuous service, I have absolutely no problems to report.

The operation of the unit is simple: it is literally video in and video out (and of course, ref vid in/ploy). The video processing controls (level, set-up, hue and chroma) can be preset for unity gain, which is what we usually use at our facility.

ECONOMICAL CHOICE
With such outstanding results from our first Prime Image purchase, it should be no surprise that our next TBC purchase was also a Prime Image, this time the new Model 50I. The opinions expressed above are the author's alone. For further information, contact Bill Hendershot at Prime Image (Telephone: +1-408-867-6519; FAX: +1-408-926-7294), or circle Reader Service 7L.

Reader Service 55.

TV TECHNOLOGY
JUNE 1994

USER REPORT

Snell Sets a Standard

by David Richardson
Operations Manager
Breene Kerr Productions

MOUNTAIN VIEW, California
Breene Kerr Productions opened in 1982 in an effort to provide production, post production and duplication needs. We offer a complete range of services from satellite broadcasting, production and post production to duplication and standards conversion.

Our equipment includes Ikegami and Sony broadcast cameras, an Ampex ACE computerized edit system and an Ampex AVC 33 production switcher with 3 ME5, 10 keyers and 162 wipes. We also have a on-line Abeck DVE, on-line still store and graphics and computer control for two one-inch, two Betacam SP, two 3/4-inch and one D-2 VTR for roll-ins. In addition, we own the Snell & Wilcox TBS24 TBC/frame synchronizer. The TBS24 was primarily purchased for time base correcting and synchronizing 3/4-inch, Hi8, S-VHS and VHS from our corporate clients. This enables us to provide stable output pictures for duplication or transfer to Betacam for on-line editing. We have, and find flexibility of the TBS24 means we can use it for a wide variety of tasks.

The opinions expressed above are the author's alone. For further information, contact Snell & Wilcox in the U.K. (Telephone: +44-730-821188; FAX: +44-730-821199), or circle Reader Service 55.

TV TECHNOLOGY

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'We've just started a television and radio network from first principles which will transmit over 200,000 hours a year in English, French and Arabic to 23 Middle Eastern and North African countries. We'll be providing world-class entertainment and information.

'And we'll be using digital techniques all the way from the tape deck to the home.

'Starting this sort of operation meant a lot of difficult decisions. But some were easy ... like our choice of VTR format.

'Our range of channels is very diverse and uses material from all over the world. Since so much of it comes on Betacam or Betacam SP tapes, we'd be crazy to choose VTRs that couldn't play them. Yet we were also clear that component digital technology was the way forward.

'So we needed a format which would give us superb pictures — and would also be compatible with existing Betacam.

'We found that there's only one: Digital BETACAM.

'So you see why it was an easy decision. And now we've got 120 Digital Betacam VTRs!'
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You’re planning a broadcast system where multiple components from many suppliers must be precisely integrated.

Where proper system design will be as critical to long-term performance, reliability, and functionality as the quality of the components themselves.

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You will find we will provide any level of assistance you desire, from initial concept and design through final installation, testing and commissioning.

If we can be of service, please contact us:

RF Systems:
Telephone: 217-222-8290
FAX: 217-224-2764

Video and Audio Systems:
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FAX: 606-283-2818