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DIGITAL INTERMEDIATES ON A BUDGET

PLUS

NIGHT OF THE LIVING DEAD 3D

by David L. Symmes

SOUND SPEED... CAMERA SPEED... CAPTURE SPEED!

an article by
Dan Coplan, OSC

SUPER 16 FOR HD BROADCAST

commentary by
David Heuring

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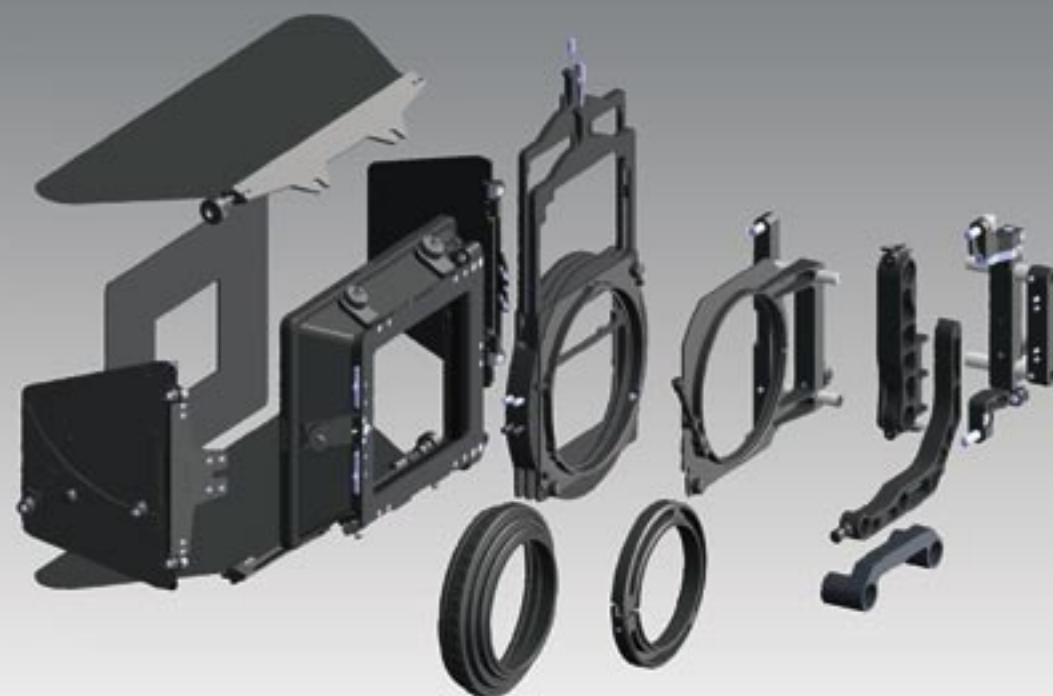
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Front Cover: Rush HD's *Focused* brings heli-ski to the vast alpine playground of Terrace, B.C., for a mountain high like no other. Photo courtesy VOOM HD Networks ©2006.

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NEWS & PRODUCTS



PANASONIC 24P ON P2 HD CAMCORDER

Panasonic announced that its AJ-HPX2000 P2 HD shoulder-mount camcorder, available in January 2007, will include 24p frame-rate capability in addition to optional support of the advanced independent frame compression codec, AVC-Intra. As the first shoulder-mount camcorder in Panasonic's P2 HD series, the multi-format AJ-HPX2000 features a native HD progressive 2/3" 3-CCD system that offers superb recording in 1080i, 720p, 480i, 576i and in a total of 17 high definition and standard definition formats.

CAREER TOOLS AT NEXT TV

The Academy of Television Arts and Sciences in Los Angeles held its annual day-long conference entitled Next TV. The event brought keynote sessions, special guest speakers and new product demos to those in attendance. Conrad Denke, publisher of Highdef Magazine moderated a panel entitled: "Highdef and HDV Revolution 2006 Update." Panelists included: Mike DesRoches, System Engineer, Sony Electronics; Doug Leighton, Los Angeles Sales Account Manager, Panasonic; Mel Medina, Senior Product Manager, Broadcast & Production Systems, Sony Electronics; Chris J. Mellor, Digital Image Technician, Matrix.TV; Tim Smith, Training Manager, Technical Marketing & Sales, Video Division, Canon U.S.A.; and Craig Yanagi, National Marketing Manager, Creation Products JVC.

'NEWSEUM' USES OPTICOMM

The Newseum, an interactive museum in Washington D.C., funded by the Freedom Forum foundation, will deliver content to various theaters, projectors and digital screens throughout the facility with high-definition video quality, up to HD progressive at 1920 x 1200p with Opticomm's single-fiber DVI-1000 system. The museum will feature six levels of displays and experiences. Visitors can view content

at the locations coming from strategically situated control rooms in the new 600,000-square-foot facility located at Pennsylvania Avenue and 6th Street, N.W. All locations will receive the feeds over optical fiber to ensure the retention of the high image quality is unaffected by external factors despite the extended distances.

TSN AND HARRIS VELOCITYNX

At TSN, a Canadian sports network, the Harris Corp.'s VelocityNX is used to edit native SD and HD files stored in a Harris Nexio shared storage environment. The new HD installation includes three VelocityNX workstations and is used for sports highlight editing. VelocityNX provides users with a toolset for both editing and creation of effects. It can provide real-time multicamera editing, color correction and accommodate multiple resolutions.



MOBILE STUDIOS SELECTS HVS-500HD HANABI SWITCHER

Mobile Studios, developers of fly pack systems, have selected FOR-A's HVS-500HS Hanabi 1 M/E HD switcher, as the heart of the company's newest mobile production console. The MS7HD is a portable, live production system capable of multi-camera shooting, targeted for use by corporations, houses of worship, universities, sporting event producers, government video producers, and independent production companies. It is the latest addition to Mobile Studios' line of portable production consoles used by organizations such as Boeing, Dow Chemical, NASA, Cendant Corporation, and the U.S. Navy. The HVS-500HS is an economical, compact and self-contained switcher that accepts analog and digital HD and SD formats—with no external conversion required.

1 BEYOND HD OCTOFLEX2

1 Beyond, Inc. announced the HD OctoFlex2™, the industry's first 8 full core processor system running Windows XP designed specifically for video professionals. Recent benchmark testing showed that rendering an Adobe After Effects project using one of the most expensive competitive systems took 16.7 minutes, compared to only 2.3 minutes using the 1 Beyond HD OctoFlex2 8 processor system with the Personal Render Farm software. Available immediately with prices starting at just \$6,595 (or \$7,995 including 1.75TB HD disk array), this powerful new system is totally scaleable.

DVDO® ISCAN™ VP50

Anchor Bay announced that its iScan™ VP50 — part of its DVDO® line of high-definition video processing systems — has been chosen by the North American HD DVD Promotional Group, Inc. to supply 1080p/24 signal processing technology for its traveling home theater demonstration. The HD DVD Mobile Experience Tour is traveling city to city throughout North America in an "HD DVD experience on wheels" to allow consumers a chance to experience the new HD DVD technology at its very best. On the tour the VP50 is being used in a home theater system to feed a 1080p/48fps signal from an HD DVD player to a Marantz VP11-S1 1080p DLP front projector.



FUJINON HD TELEPHOTO LENS

Fujinon's new XA88x8.8BESM HD telephoto lens features 88x magnification with the widest focal length of 8.8mm to 777mm telephoto — making it the widest long lens available today. It is also available with Fujinon's patented Precision Focus Assist (PFA). Precision Focus Assist is Fujinon's built-in feature that addresses precise focus issues in HDTV production stemming from the format's shallow depth of focus and the lack of size and resolution in camera viewfinders. At 258 (H) x 270 (W) x 625mm (L) — with PFA, the XA88x8.8 is also extremely compact.



CENTURY XTREME FISHEYE FOR HVX200

Now users of the Panasonic AG-HVX200, as well as the DVX100 and 100A/B camcorders can enjoy the ultra-wide field of view and pronounced barrel distortion of the broadest fisheye on the market. Schneider Optics introduces two new versions of the Century Xtreme Fisheye custom tailored to work with these cameras. Employing the highest grade optics, this HD quality optic locks neatly onto the bayonet mount at the front of the camcorder lens to provide an approximately 160° horizontal angle of view (180° when measured diagonally).

PANASONIC DEAL WITH PANAVISION AND DELUXE

Panasonic announced an agreement with Panavision and Deluxe Entertainment Services Group to supply the companies with more than \$2 million in high definition products over the next year. The pact means that Panasonic's leading high definition products — including cameras, recorders, production monitors and plasmas — will be widely available at Panavision's and Deluxe Entertainment's operations worldwide.

NEW SONY 1080P CINEALTA CAMERA

Sony rolled out a new 1080p high-end digital camera, targeting television and film production. As part of the company's CineAlta camera line, the F23 supports 4:4:4 1920x1080 RGB imaging, using three 2.2 megabit 2/3-inch progressive CCD imagers and a 14-bit A/D converter. The system supports 1080/23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i and 59.94i formats. The camera shares the same design features as Sony's 1920x1080 RGB 4:4:4 HDC-F950—also part of the CineAlta product line—along with several new features, including the ability to dock

the Sony SRW-1 digital 4:4:4 recorder directly to the top or to the tail of the new system, eliminating the need for cables between camera and recorder. To make the camera "film user-friendly," Sony has designed the F23 body to be compatible with a variety of film camera accessories, including bridge plates, matte boxes and follow focus units, which can be attached to the unit without modification. When used with the Sony SRW-1 VTR, the F23 can capture and record variable speed images from 1p to 60p (1p to 30fps at 4:4:4 and 1p to 60 fps at 4:2:2) at the full HD resolution of 1920x1080; this allows users to "undercrank" or "overcrank" to produce special motion effects commonly used in high-end production.



DIGIDIPTERS™ FOR HD LENSES

Band Pro Film & Digital introduced the Carl Zeiss DigiDiopters. This set of high quality diopters in +1 and +2 magnification is optimized to work in conjunction with Zeiss and will also work well with other high-quality 2/3" HD lenses. Ideal for extreme close ups or wide angle shots with a shallow depth of field, Carl Zeiss DigiDiopters attach easily to the front of the lens to provide increased close-focus range and magnification capability. DigiDiopters employ a unique, achromatic dual-lens assembly to minimize color fringing and spherical aberration — common problems with traditional single lens diopters. Carefully selected optical glass elements and the Zeiss proprietary T* anti-reflective coating — the same coating applied to their DigiPrime®, and DigiZoom™ lenses — reduce light loss and flare while improving transmission for crisp images with saturated colors and accurate blacks. Weighing about 10 ounces (285g) each, Zeiss DigiDiopters can be attached to the camera lens - or to each other - via a single thumbscrew.



PANASONIC P2 MOBILE RECORDER

Panasonic announced the availability of the AJ-HPM100, dubbed the P2 Mobile, the first portable P2 HD recorder/player. With its extensive functionality and the reliability of solid-state recording and playback, the P2 Mobile is the "bridge" that allows professionals to work in both the AV and IT worlds, or in high definition or standard definition, and links the P2 file format and base-band video. In its compact, magnesium die-cast body, the P2 Mobile features multi-format recording and playback with a six-slot P2 card reader, versatile inputs/outputs (including HD-SDI, IEEE 1394, USB 2.0), an SD memory card slot, broadcast-level editing controls including a job/shuttle dial and audio faders, and a 9-inch widescreen HD LCD monitor with stereo speakers. The P2 Mobile offers the benefits of solid-state performance with on-the-go recording, editing and playback in the world's leading video formats, including up/down/cross conversion between 1080i and 720p and between high definition and standard definition.

HD VIDEO TRANSPORT SYSTEM

Streambox Inc. has produced a new video transport system for high-definition and news gathering applications. The SBT3-9100 is designed for end-to-end HD transport and delivers 1080i and 720p broadcast video and audio over IP-based networks and satellite. The new encoder/decoder is based on the Streambox ACT-L3 codec and operates at data rates from 512 Kbps to 20 Mbps. It features dual Gigabit Ethernet ports, allowing multiplex/demultiplex configurations, and either port can be designated as a management port. **HD**

Digital Intermediates on a Budget

by Bob Fisher

Filmmakers are exploring a new path that enables them to take advantage of the flexibility offered by digital intermediate (DI) technology on lower budget, independent features. One of the promising breakthroughs is the addition of inDI™ to the menu of DI services offered by LaserPacific in Hollywood.

"The inDI system enables us to utilize the economies of a tape-based HD workflow for lower budget films," says Glenn Kennel, vice president and general manager of Motion Picture Services for LaserPacific. "The film is scanned with a Spirit DataCine and converted to HDSR format (1920 by 1080 RGB 4:4:4), which incorporates advanced data compression technology, resulting in cleaner signals with truer colors. The high definition D-5 and HDCAM formats (4:2:2)

use sub-sampled chrominance channels that are fine for broadcast, but don't offer the range of contrast and colors cinematographers use to create nuanced images for feature films."

The following are verbal snapshots of *The Nines* (working title), *The Dukes* and *Sinner* from the perspectives of the cinematographers who used inDI technology to time and put finishing touches on the looks of these independent features.

The Nines was scripted by John August, whose screenwriting credits include *Charlie's Angels*, *Big Fish*, *Charlie and the Chocolate Factory*, etc. It was his second turn at the helm. The story is divided into three parts with the same three actors portraying different characters whose names have the same initials.

Photo courtesy of Sinner Film Production, LLC. © 2006 Sinner Film Production, LLC.

A scene from *Sinner*.



Photo by Christel Golden

(L to R) 1st AC Josh Harrison and Michael Goi, ASC shooting a scene for *The Dukes*.

Nancy Schreiber, ASC

"John wanted distinctly different looks for each story segment," says cinematographer Nancy Schreiber, ASC. "The TV show has a video look with less nuanced colors and handheld, fluid camera movement that is not polished but documentary-like. The other sequences have more controlled filmic production values."

Schreiber shot the first part in Super 16 format, the TV show segment in 24P standard digital video, and the third sequence on three-perf 35 mm film. Schreiber recorded images on a variety of KODAK VISION2 stocks (5205 and 5218 in 35 mm format, and 7201, 7205, 7218 for the Super 16 sequences), depending on lighting and settings. She used a Panasonic AJ-SDX900 camera to shoot the TV show segment.

Schreiber conferred with dailies timer Greg Lang in advance, and they stayed in touch throughout the 23-day production schedule, so he was in sync with her intentions. The inDI was done in two steps. Schreiber initially timed *The Nines* on a CRT monitor in collaboration with colorist Pam Moore, whom she had worked with last year on a Showtime pilot. Schreiber put final touches on the look in a cinema-like environment with her usual DI colorist Mike Sowa at LaserPacific. The images were projected on a 33-foot-wide screen, which enabled her to see how the film would play for audiences. "Color correcting in a normal room had limited capabilities, so I pinpointed those areas



Photo by Douglas Kirkland 2004

I wished to focus on in advance, and Mike, John and I got it all done in just a half day.

"Most of the work in the DI room involved the 35 mm segment of the film, which was a very intense part of the story. We crushed the blacks and desaturated colors into a monochromatic and somewhat cool palette, while the Super 16 was shot and remained warm in post. The video portion stayed more neutral."

Schreiber concludes, "The inDI process is an affordable option for low-budget, independent films. My advice for directors is to bring the cinematographer onboard before you make decisions about shooting formats, and whether and where to do DIs. And definitely test beforehand."

After graduating from the national film and television school in London, David Kerr concentrated on shooting music videos and commercials. That's how he met director Marc Benardout. *Sinner* is their first co-venture on a long-form movie. The film was shot at practical locations in Los Angeles. The producers originally planned offline video editing coupled with negative cutting and traditional timing at an optical lab. They shifted gears after LaserPacific demonstrated the affordability and benefits of the inDI process, which included an ability to use (Autodesk) Flame and Avid Nitris, as well as Chyron software for titling.

They shot *Sinner* in 17 days in the three-perf Super 35 film format, which trimmed

ZEISS on *HOME OF THE BRAVE*

“Morocco. It was 127° F in the shade, dust flying everywhere. The kind of conditions an A.C. dreads. We slapped on the 6-24mm DigiZoom”, and went handheld. The small lightweight zoom let us get right into the combat action with astonishing results.

ZEISS

Washington State. When the character Tommy returns home from the war zone he can't sleep, so he drives the streets at night. We used the 14mm DigiPrime® lens handheld, panning from inside the car to the streets and back, shooting with only available light. Wide open at T1.9 the lens really came through for us. By consistently working wide open, we were able to control the depth-of-field to achieve a look similar to 35mm.

Inside a helicopter. For a pivotal sequence, we needed to show anguish in Vanessa's eyes so we ignored the waveform as the sun flooded the cockpit. We let the shot over-expose. The Viper and DigiPrimes brilliantly handled the over-exposure.

I tend to use the whole frame, painting edge to edge. The digital series suited my style. What's more, I was confident that when the shots were edited together, they would match seamlessly. And they did.

Thanks to the Zeiss DigiPrime and DigiZoom lenses my first HD widescreen feature was a creative and satisfying experience.”

Tony Pierce-Roberts, BSC



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Director of Photography
Tony Pierce-Roberts for
Home of the Brave,
a film by Irwin Winkler



Photo by Christel Golden

Director-actor Robert Davi in a scene from *The Dukes* shot by Michael Goi, ASC.

negative and front-end lab costs by 25 percent without compromising image quality. He covered the action with a Panaflex Millennium camera, and achieved as much as possible in camera in terms of exposing and manipulating the negative for the envisioned looks.

"*Sinner* is a dark and visually intriguing film," he says. "Due to the financial constraints and speed with which we had to shoot each day, it was not always possible to fine tune lighting or shoot at exactly the right time of day in the right weather conditions. I was confident we could put those touches on in DI."

The negative was transferred to HDSR tape with colorist David Perkins providing dailies initially in HDCAM and then in DVD formats. They originally planned to time the

DI on a CRT screen as a concession to the budget, but Benardout and the producers decided that it was important for Kerr to see the images in a cinema-like environment. "I really enjoyed working with Mike Sowa, the colorist, because he was in tune with the project. It was wonderful to see the images on a 33-by-13-foot high screen. The inDI process can be a very powerful tool for cinematographers," Kerr concludes.

Michael Goi, ASC, was introduced to Robert Davi when the actor was preparing to direct *The Dukes*. It was his first turn at the helm. The story is about a couple of 1960s doo-wop singers who have fallen upon hard times. It was produced on a sparse \$600,000 budget at locations in Los Angeles, which enabled Davi to draw upon a deep pool of acting talent, including Chazz Palminteri, Joseph Campanella, Bruce Weitz and Peter Bogdanovich.

"During our first conversations Robert made it clear that he wanted an organic feeling that reinforces the emotions of the story," Goi says. "I had recently shot *Red Water*, a television movie in Super 16, so I felt confident that we would be able to give him the look he wanted, while moving quickly and staying on budget. "I had some concerns about doing the DI in HD format and recording out to 35 mm film. My feeling is that you want the highest resolution master possible, but after I shot a test and we saw an inDI demonstration we decided to go ahead. The look of the process was very forgiving to more mature actors."

Goi emphasizes that knowing there would be a digital intermediate didn't change the way he approached shooting *The Dukes*. "I felt it was important to get the colors and contrast we wanted on the negative, but it did give me a bit of creative freedom knowing that I could put some finishing touches on the look in DI," he says. "We shot the film in 25 days in all kinds of light, usually covering scenes with two Panavision Elaine cameras."

Goi continues, "The inDI process calibrates the telecine like a scanner, transferring the full range of the negative film. A 'print film' lookup table is applied for the dailies display. I saw a few days of dailies projected in LaserPacific's large theater to get a sense of what the quality was like and how everything was holding up, but because of the pace of production, we mainly got them in HD and then DVD formats." **HD**



Three Networks, Three Versions, One Vendor

by Karen Lynn Berg

All Mobile Video has long been a provider of mobile production trucks for the Thanksgiving Day Parade. However for 2006 a first occurred. All three networks licensed to carry the parade (CBS, NBC and Telemundo) called upon All Mobile Video as primary vendor for their remote production unit requirements.

AMV's Director of Rental Services, Tom D'Angelo says, "we knew accepting the position of facilities provider for CBS, NBC and Telemundo would be challenging. Including various pre-tapes the three networks would require integration of forty-three cameras in seven production and support trucks.

To make this possible, All Mobile needed one of its largest mobile units on the road: Titan. With twenty-four cameras, twenty-four tape and four EVS capability, Titan is a production behemoth. Cameras are the new Sony HDC-1500 1080/60p capable systems. VTR's are the new Sony SRW-5500 HDCAM SR models and the 130' square ft audio room (the largest of any TV truck) boasts a 72 fader,

10 foot wide digital Studer Vista 8, with over 600 inputs/outputs.

One minor problem: Titan, was booked to supply the production facilities for CBS's *The Victoria's Secret Fashion Show* taping at Los Angeles' Kodak Theater scheduled to finish just 48 hours before Titan would need to park at Herald's Square in New York City. How do you get two 80,000 lbs tractor-trailers from LA to New York in 48 hours? D'Angelo responds, "... you double and triple team drivers. It's 2,800 miles. If you drive straight through without stopping for any reason you can just make it under the speed limit."

All three shows went off as planned without a hitch" comments D'Angelo, "serving three different clients at three different locations along the parade route, with seven AMV mobile units and the substantial amount of ancillary resources dedicated to this event was certainly a challenge, but when considering the result I think we all have reason to be thankful." **HD**



AMV's Titan parks in front of Macy's.

Santa's appearance marks the end of the Parade and the beginning of the Holiday season.

Tips hd

by B . S E A N F A I R B U R N S O C

Shooting in Louisiana



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Plantation home in
Luling, Louisiana
showing the video
village during shooting
of *The Staircase*.

Working in Louisiana on HD features is a lot easier with great support from your rental house. Getting the gear list in advance and doing a solid thorough prep make the jobs less problematic.

I just worked on a small feature supplied by Panavision in New Orleans where the relationship between Kelli Bingham in New Orleans and David Dodson in Woodland Hills was so good it seemed like they were in the same building.

Getting extra pieces to choose from in the first shipment also keeps the cost down to a minimum.

Plugging in and turning on every piece of gear and cable will also keep you from getting hosed in the field under pressure.

Working in humidity and cold can be hard on cameras. So here are a few tips:

1. Do not leave tapes in cameras overnight.
2. When turning cameras off for lunch or to move to next setup put them in SAVE mode to get them off the heads. Keeping them on and in Save will keep them warm but conserve power.
3. Have a good Backfocus Chart (by DSC Labs) with you at all times and

check regularly to look for drift.

4. Write down the hours on the camera heads and if over 500 hours you will be more vulnerable to RF Dropout. The heads need to be replaced or get a new body before taking the camera into harsh conditions.

5. Even if you suspect a problem, contact the rental house and give them a heads up so they can be proactive in helping you replace gear.

The Evertz 7700 or smaller HDSDI distribution amplifier (DA) is a very handy tool to be able to manage all the signals to scopes and multiple monitors that may be on set.

Have fun and God Bless. **HD**



Photo by B. Sean Fairburn

The Perfect FIT

for On-Location
& Studio Shoots



WM-3014



6" Waveform / Vector Scope
LCD Monitor

Both HD-SDI x 2 Channels, YPbPr and Composite are supported.

It supports all popular HDTV formats.

Ultra Lightweight and Compact in Size, 3U half-size.

Quad Display: Split Screen Display includes Waveform, Vector Scope, Sound Detail and Picture.

Waveform Mode: Parade identification; Overlay display; Line Select Function; GAIN (x1, x2, x4); MAG (x1, x2, x4).

Vector Scope Mode: Color Bar Scale (100%, 75%); IQ Axis Identification; Line Select Function; Enlargement Identification (x1 x2 x4).

New Fanless configuration for ultra quiet operation during sound sensitive shoots.

New preset buttons (x5) on the front panel allow for easy access to user's preferred settings.

Freeze frame feature allows for comparison between live shot and recorded frame (display and waveform) without the need for external equipment.

Marker identification (center, frame, 4:3, 13:9, 14:9, 2.35:1, 1.75:1, 1.66:1)

Adjustment function: Contrast, Brightness, Chroma level. Chroma ON/OFF

Audio status identification

DM-3106



6" LCD Display Monitor

Both HD-SDI x 2 Channels, YPbPr and Composite are supported.

It supports all popular HDTV formats.

Ultra Lightweight and Compact in Size, 3U half-size.

Marker Identification (center, frame, 4:3, 13:9, 14:9, 2.35:1, 1.75:1, 1.66:1)

Brightness and Chroma Adjustments are easily controlled with the front panel controls.

Supports Two-Channel Tally Inputs.

Automatic switching to field frequency rates of 60Hz or 60/1.00Hz

CRCC error detection of input channel (when HD-SDI is inputted)

Audio status identification



Photo © Sam Abell

Galápagos on National Geographic

by William Wheeler

Soar high above the islands, creep slowly along the coast, dive into the fiery mouth of an erupting volcano — visit the islands of the Galápagos, where animals struggle to survive the unforgiving climate and rugged landscape. For the producers of the National Geographic Channel special *Galápagos*, this unique archipelago presented a rare opportunity to film the bizarre island inhabitants in HD.

"The film focuses on the natural history of the islands," commented *Galápagos* producer Patrick Morris. "With HD, we were able to capture sequences at dawn and dusk — that we would have missed with traditional film. You can't anticipate these chance animal movements that captivate view-

ers and offer a new understanding into the savage environment of the islands."

Almost three years in the making, with more than 300 hours of high-definition footage, *Galápagos* is the first in-depth, full-access film made in over 20 years about these extraordinary islands. The three-hour special, which premieres on Sunday, March 18, 2007, on the National Geographic Channel, showcases rarely seen animals, many of which presented great technical challenges, such as deep-sea plankton illuminating the night sea with their underwater light show.

"We watched the nest of a Galápagos hawk on the island of Santa Fe for three weeks as the birds feasted on marine iguanas protecting their eggs below,"

added Morris. "We could catch up close the marine iguanas fleeing from the diving hawk as they descended to capture the baby hawks' meal. Viewers can actually see each grain of sand fall under the iguana's claws as it races across the rocky coast, and feel the fear as it fails to escape the flying predator."

"I have always dreamed of having an opportunity to spend time filming the exquisite and fascinating creatures of the Galápagos," added Morris. "I think the clean, crisp pictures that we shot in HD will allow viewers to appreciate the beauty of these islands as if they were visiting themselves." **HD**

Consumers can call 1-877-777-NGCHD to find out if they receive NGC HD or to request service from their operator.

Night of the Living Dead

3D

by Daniel L. Symmes

Hi, I'm Andrew Parke. I'm the Director of Photography on an independent feature that will be shot in 3D." So was the start of a phone call in January '05. Andy was researching 3D production for Director Jeff Broadstreet's new horror film *Night of the Living Dead 3D* and contacted the "usual suspects."

Several HD cameras were considered. I mentioned to Parke that I had designed a new rig based on the Sony HVR-Z1. Parke was immediately interested. One point of considerable discussion was this camera's HDV format. True HD has an image that is 1920x1080 pixels, and it is generally preferred to be 24 frame progressive (24p). The HDV format Sony chose is a virtual 1440x1080 (1.33 horizontal squeeze) interlaced, at either 25 fps (PAL) or 29.97 (NTSC) (50i, 60i respectively).

During post, the footage is eventually trans-coded to another format, namely unsqueezed 1920x1080 HD.

The anaglyph Natural Vision process was chosen from the start as being the only viable 3D method for mass DVD distribution as well as theatrical. The anaglyph principle has been understood since about 1858 and is not complex, though it is rather exacting. Stereo pairs (the left and right eye views) always need to be "encoded" for print as, for example, left image printed with cyan ink, and the right image printed with red ink. When viewed through glasses having a blue lens over the left eye and red over the right, the blue will only see the red ink — the right eye through the red lens, only blue ink. Thus the two views are "channeled" exclusively to your eyes, and the brain sees 3D. I prefer polarized projection over ana-

Barb (Brianna Brown) battles one of the undead (Marcia Ann Burrs) in *Night of the Living Dead 3D*.



Photo courtesy Lux Digital Pictures © 2006



Photo courtesy Lux Digital Pictures © 2006

Night of the Living Dead 3D stereographer Dan Symmes on location with his HD3Cam.

glyph, but there are few silver screens in theaters, leaving anaglyph as the only practical way to get real 3D in a theater near you.

In mid-March, Parke shot a test with an F-900 and a Z1 side-by-side for comparison. The resulting tapes were handed to CFI/Technicolor for output to film. The two versions were alternated and split-screened. Scenes were shot exterior night and low-key interior (that being the dominant setting of the film); challenging conditions for digital video. When the film was viewed over and over, all concerned were amazed. While the F-900 is a superior camera, the differences compared to the Z1 were such that non-technical observers simply wouldn't know the difference.

The decision was finalized and Midnight Movies Entertainment contracted Dimension 3 to provide a Z1 3D system.

3D requires two synchronized cameras. That specifically means they need to be genlocked, so the "shutters" open and close at the same time. Like all "prosumer" cameras, the Z1's lack genlock. Development on the synchronization led to a "black box" that could look at the video coming out of the two

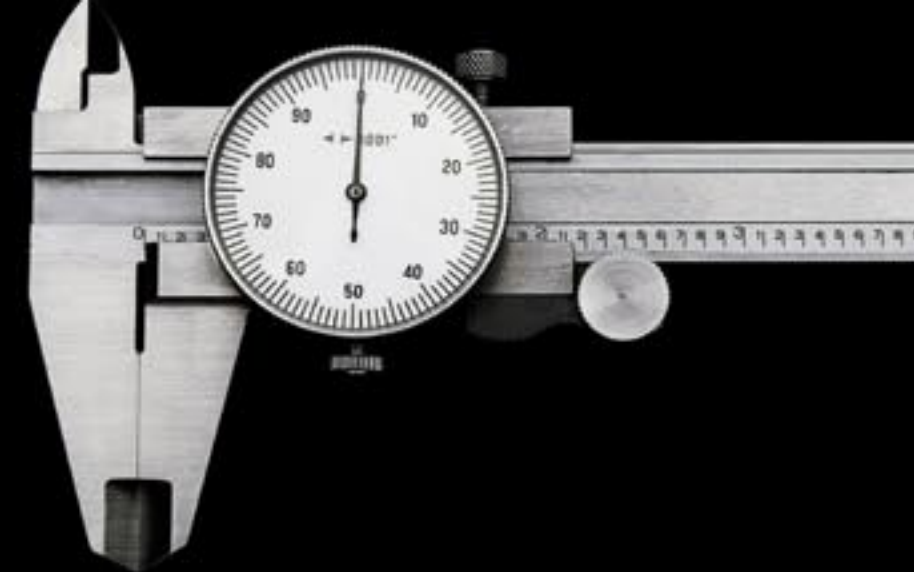
cameras, compare them and tell you if they were close enough in sync for acceptable 3D use. I discovered an existing unit that, with slight modifications, provided even better precision, typically to less than a millisecond sync difference.

Professional filming requires follow focus. When we got cameras in hand, we found the focus was perpetual (no stops) which ultimately presented the biggest speed bump. Gears were already on the market, as were follow focus attachments, but these wouldn't work for two cameras that also needed to move in relation to one another. Issues about weight precluded the use of conventional focus motors and the attendant electronics. We also found that the focus was not reliable, with regard to the physical rotation of the lens barrel and the distance readout. We continued exploring and finally used the LANC port on the camera to adjust focus, with mixed results.

The rig was completed for the most part about a week before shooting and a quick test was shot, encoded in Natural Vision, and output to film. The overall consensus was we were not only in the ball park, we were rounding third base. The system was christened the

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Photo courtesy Lux Digital Pictures © 2006

Sid Haig as "Gerald Tovar, Jr." in *Night of the Living Dead 3D*.

HD3Cam™, based on our previous standard definition camera, the D3Cam™.

On 16 June production commenced at the Angelus Rosedale Cemetery in Los Angeles. The entire day was exterior, at one location, and things went very well. We then were moved to a farm house northwest of Hollywood.

True stereo ("three dimension") requires photography from a minimum of two, horizontally separated viewpoints. The camera must imitate that our eyes are horizontally displaced. From the earliest days of stereo photography to this day, it is a common mis-

conception that the camera lenses should be separated a distance (interaxial) similar to our eyes (interocular). This is a leading cause of eyestrain in 3D films made since the 1960's. The HD3Cam has a continuously-variable interaxial range from 0" (no 3D at all) to nearly 6", depending on focal length.

From day one, it was Broadstreet and Parke's focus to achieve a "film look." To help this, Parke decided to shoot 50i, which allows a film-like shutter speed of a 50th of a second. By shooting at 50i, deinterlaced becomes 25 fps (PAL).

My partner on this project (as on many

others) was Steadicam great, Jerry Hill. We had both been looking into a *practical* Steadicam system for years. This appeared to be it. The HD3Cam was designed to be as compact and light as possible, but it still weighs over 30 lbs. Most significantly, because of its design, it's very top heavy. Using my partner Jerry Hill's own sled design (the Jerry Rig) was crucial in making all this possible. "I worked close with Dan and Andy to try and walk through the shot first", says Hill.

Another matter decided by Parke prior to production was his determination to shoot hand held. I added hand grips and a shoulder pad to the Steadicam unit. In spite of my reservations, Parke did hand held often and, while I don't recommend it, I have to say he got some really great shots that make us feel we are in the action.

On opening night of World 3D Film Expo II at the famous Egyptian Theatre in Hollywood, *Night of the Living Dead 3D* had its U.S. premiere and was seen in dual projector, polarized 3D. All humbleness aside, it looked fabulous. Noted 3D film historian Ray "3D" Zone, said: "The whole pic had great 3D with a tasteful use of the stereo window. Anaglyph also worked very well." He should know.

I cannot say enough about Andy Parke's dedication to high standards which led to something now greater than the sum of its parts. On the last day of production, Director Jeff Broadstreet came up to me and said "...and we never waited for 3D."

That was the finest thing he could say. **HD**



Photo courtesy Lux Digital Pictures © 2006



Photo courtesy Lux Digital Pictures © 2006

Top: Steadicam operator Jerry Hill backs away from a menacing zombie through a tight doorway in the 1897 farmhouse used in *Night of the Living Dead 3D*. The new horror film features extensive handheld and steadicam 3D photography, a first in 3D features.

Above: Director Jeff Broadstreet (with headphones, looking at monitor) directing *Night of the Living Dead 3D* on location at the Angelus Rosedale Cemetery near downtown Los Angeles (note the dual monitors, for each camera on the 3D rig).

The World is Opening Up to HDTV

by Clint Stinchcomb

There has been a lot of talk about HDTV reaching the "tipping point" in the U.S. lately. When the Consumer Electronics Association came out with a report that forecast 2006 would be the year that high-definition television sets would outsell analog TVs, it gave programmers and cable and satellite operators a lot to think about. With DTV set prices at about half of what they were a year ago, the average consumer no longer just has to admire the superior picture and sound quality in their local electronics store – they can bring it home.

To date, interest in HDTV has been rather slow to develop in Europe due to the quality of the PAL video format over NTSC and the preference for smaller TV sets in most markets. However, the move towards digital conversion in Europe combined with the increased availability of HD sets, and the upcoming sporting events such as the 2008 Olympics in Beijing, have converged to create the perfect market conditions to fuel consumer enthusiasm.

Cable and satellite operators around the world have taken notice and are launching more HD services every day. Pro7/Sat1 and Premiere in Germany and Austria have launched a number of HD services and BSkyB introduced its first HDTV services earlier this year. We've also seen HD transmissions from TPS and Canal Plus in France, Sky Italia in Italy and Canal Digital in

Scandinavia. European satellite broadcaster SES Astra launched over 40 HD channels this year. In fact, the number of HD channels in Europe is estimated to top 160 by 2010.

Discovery was the first global broadcaster to step-up and offer a 24/7 HD network when the industry was concerned about the lack of high-definition content. This was Discovery HD Theater, which launched in the U.S. in June 2002. John Hendricks, Discovery's founder and chairman, was an early believer in how HD technology could

enhance the viewing experience. Discovery HD, the company's international HD network, first launched in Japan and South Korea in 2005, and has also been rolled out in Canada, Germany, Austria, the UK, Ireland, Poland, the Netherlands and Scandinavia, making Discovery the leading international provider of HD networks in the world.

The HDTV revolution is here... and the world has tuned in. **HD**

Clint Stinchcomb is Executive Vice President, HDTV and New Media, Discovery Communications



Photo courtesy Discovery HD Theater

Beautifully dressed Brazilian samba dancer at Carnivale from Discovery Atlas HD.



Sound Speed...Camera Speed... Capture Speed!

by Dan Coplan, SOC

R.L. Stine is one of the world's best-selling children's authors. He specializes in scary stories. *R.L. Stine's Haunting Hours Volume 1: Don't Think About It* is a feature film that has recently completed principal photography. Produced by Universal Pictures and The Hatchery, this project was shot at several locations around Pittsburgh, PA.

Two Clairmont Camera modified Sony F900's worked side-by-side and as separate units. I operated the A-camera/Steadicam camera outfitted with a Canon 4.7-52mm T2.1 lens. Brian Osmond operated B-camera set up with a tighter and larger Fujinon 10-100mm T1.8 lens. DP Jacques Haitkin hand-picked the glass for maximum clarity.

The unique aspect of this production was the manner in which data were captured. Both cameras recorded to tape as backup (8-bit 3:1:1) including sync sound. Master data were captured concurrently to Apple's Final

Cut Pro via a tether which included AC power, HD-SDI, and the Master Control Unit. The HD signal fed into the DIT station, run by Jay Nefcy, SOC. From there, it was distributed to a video village as a downconverted NTSC signal and to Apple's Final Cut Pro for full resolution capture. This capture station included a separate workstation for each camera. The workstations operated independently from each other but were networked to allow file sharing.

Apple Macintosh 2.66 Ghz Dual-Core Intel Xeon workstations with 5GB of RAM served as the main processors. Kona 3 cards were utilized to ingest the 10-bit 4:2:2 1080/23.98 HD-SDI signal. Each workstation wrote to 700GB Firewire 800 hard drives as well as a third drive used to back up the work and travel between production and post production in Hollywood.

"Roll sound! Sound speeding! Roll cam-

A master of the school cafeteria is revealed.



Camera operator
Dan Coplan and
lead actors discover
the horror of the
monster's lair.

eras! A speed! B speed! Roll capture! Capture speed! Mark it!"

The additional step of waiting for capture speed was a bit of a hassle, but the compromise was well worth it. We had full resolution playback instantly. We could review takes from previous days instantly. And the full resolution material was sent to post production overnight so it could be edited while we were still in production.

There was a significant amount of Steadicam in this movie. Tethering is second only to wind on a Steadicam operator's list of things to avoid, however the advantage of HD-SDI is that video, audio, and timecode all travel down a single BNC cable. I used very thin BNC cable which ran from the back of the camera to my vest where it was velcroed with slack to minimize the effect on the rig.

Beyond my vest the thin BNC cable was connected to a more robust cable routed to the DIT station.

Production was typical with the exception of the cutting edge technology used to capture the material. There were a few bumps here and there, but the workflow and computer systems used to capture the full resolution material was overwhelmingly reliable. The pros of recording a higher quality signal and instant access for both production and post production outweighed the cons of running extra cable and the additional steps necessary when rolling takes. The workflow and technology used for this feature is predictable of the future in a very exciting way. **HD**

Dan Coplan is a Los Angeles based cinematographer, steadicam operator, and DIT. www.dancoplan.com

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Samsung LED Light by 2008



Steve Sechrist is an editor/analyst at Insight Media, a technology based media firm specializing in large format and micro display and related industries.

Recently I picked up a small mention of a story in the Korean language *Digital Times* on the heels of Samsung Electronics launch of Korea's first 20.1-inch LCD monitor using an LED-BLU (backlight unit), the company also announced it would switch to LED illumination for all LCD monitors by 2008.

While the major focus of the news story was on the speeds and feeds of the new LED backlit SyncMaster XL20 monitor (see table), it's the side story that caught our interest as it portends a big impact on the direction of display illumination not just for LCD monitors, but the whole range of LCD panel applications.

Samsung is aggressively using LED technology in other mainstream CE products. Last month, the company released a 40-inch LCD TV, which features a 146% color gamut and a 10,000:1 contrast ratio and in September showed a pair (46- and 55-inch) slim MDTVs. In our current issue of *Projection Monthly*, we reported Samsung rolling the LED illumination technology out across its line of MDTVs in 2007 (see *Projection Monthly* 11-06 p. 26).

Samsung SyncMaster XL20	
Contrast ratio	1,000:1
Brightness	250 cd/m2
Response time	8ms
Viewing angle	176-degrees
Color gamut	114% NTSC (CIE 1976)
Source: Company, compiled by Insight Media	

This is clearly a quality play for Samsung as the company sees LED as the future of display illumination. LED BLU's can be used to differentiate Samsung in the overcrowded flat panel monitor category—and beyond, but is starting with high-end monitors, using consistent color quality and the extended color gamut to capture the lucrative professional market. Case in point, the company includes X-rite's LED-exclusive 'Huey Calibrator' and Samsung Electronics' proprietary 'Natural Color Expert' to maintain the color quality through out the life of the monitor in its rather pricy \$1800 MSRP.

Samsung hopes to leverage LED benefits, first into niche markets that will pay the price premium over con-

ventional CCFL (cold cathode fluorescent lamp) illumination. The 2008 benchmark for total LED adoption in monitors is also a safe bet as the company moves toward the higher-end in monitor supply.

In the meantime, the company is building LED BLU expertise, supply chain system links, and solidifying business relationships in the new illumination space. From this and the resulting economies of scale Samsung can migrate the technology across its product spectrum, from small handhelds up through large TVs in both flat panel and MD based systems. By getting in relatively early they establish themselves (like NEC) as industry leaders gaining the marketing savvy and technology benefits that only early adoption can bring. **HD**

Capturing Wildlife with Versatile HD Lens

by Bob Poole

Since January of 2006, I traveled four times to West Africa from my home in Sun Valley, Idaho to shoot a National Geographic Special about the wildlife in the National Parks of Gabon. The film is a co-production with the BBC and NHK and has a working title of *Gabon: Eden on the Edge*. Additionally this year I worked with Moore & Moore Productions on a PBS Nature film called *Christmas in Yellowstone*. Between trips to Africa, I also shot a Discovery HD Theater piece entitled *Wild National Parks* produced by Bellevue Entertainment. I just returned home from a shoot with Pangolin Pictures

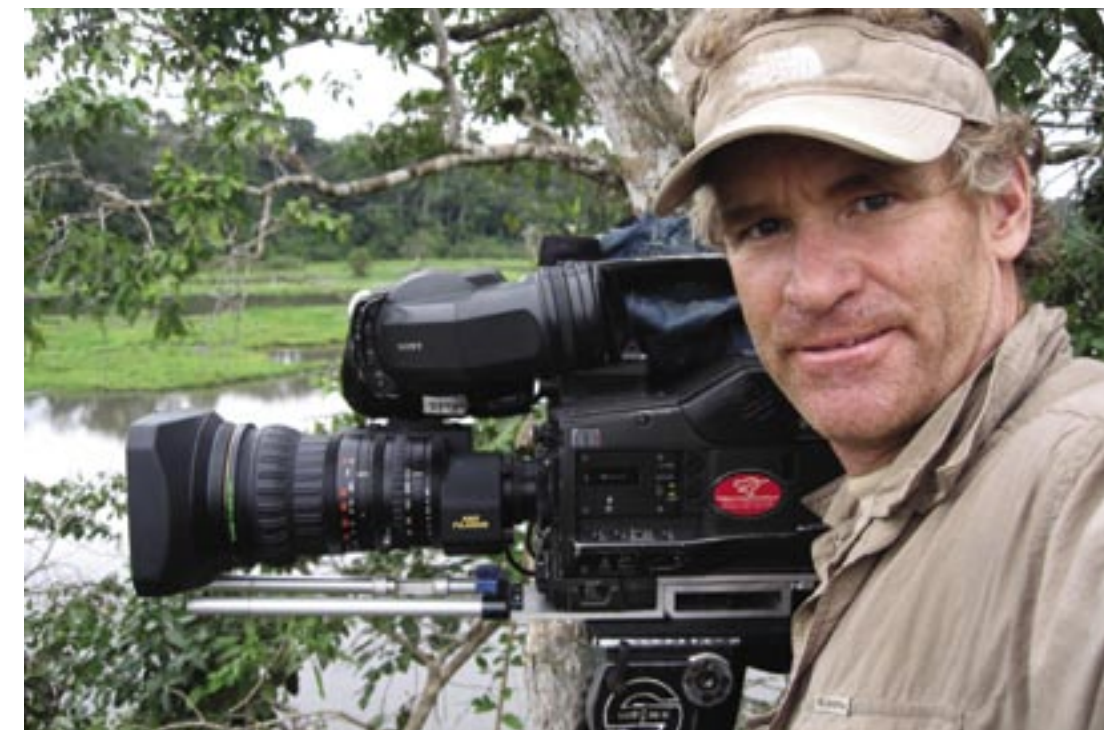
that took me once again to Africa, this time to elevations of 13,000 feet on the Semien Mountains of Ethiopia to film Gelada baboons. This film will also take me to locations in Asia, South America, Europe and the USA. It is being produced for a Thirteen WNET Nature series for PBS.

The work has been made easier with my new lightweight Fujinon HA25x16.5BERD HD telephoto zoom lens. At 6.5 pounds, the lens is half the weight of similar long zoom lenses and doesn't require a bulky support system when mounted on my Sony F900 HD camera. The lens has a zoom range from 16.5mm to 413mm with an F-stop of 2.8.

I shoot a combination of wildlife and people and often shoot hand-held with a wide-angle zoom lens. In many cases I will suddenly have to switch to a long lens and shoot from a tripod to capture wildlife behavior. In the past I have been burdened by heavy lenses and their support systems that could easily take five minutes to change. With the new Fujinon lens I can switch from a wide-angle to the long lens in a matter of seconds.

HD

Bob Poole is an Idaho-based director of photography who shoots wildlife, science, sports and adventure television around the world. For more information, visit www.poolefilms.com



Bob Poole shooting in Gabon, West Africa on a National Geographic Special with his Fujinon HA25x16.5BERD (413mm) HD telephoto zoom lens.



Paris Hilton Goes Mobile

by Harlin Hailey



Photo by Kevin Roberts

Paris Hilton and Producer/Director Terry Moloney on set.

Paris Hilton is everywhere these days – whether its movies, music, television or the Internet, the world famous heiress continues dancing on pop culture's cutting edge. Now she's determined to conquer the world's most ubiquitous consumer product – the mobile phone.

Under the direction of award-winning filmmaker Terry Moloney, Paris recently completed filming her own brand of mobile phone products, including world firsts: high definition Video Ring-Tones and Video Postcards.

Moloney says the decision to shoot in High Definition was a strategic one. "Given the size constraints of the best video-capable phones, quality is still the biggest factor. For images to hold up, it's either film or high definition, and thank god we went with high def," he says, because "we had over 100 different spots to shoot, and with Paris' lengthy hair, makeup and wardrobe changes, shooting on film would've killed us."

While most content for phones remains generic, original production for the multi-billion dollar mobile industry is ramping

up, especially with hot new products like the Mobile Video Postcard, which Moloney invented. Consumers simply peruse a library of Paris' clips, choose one, then forward it on to a friend's phone for a nominal fee. "In our Video Postcards, Paris talks about subjects of interest to young people – everything from cell phone etiquette to hot nightclubs," Moloney said.

Shooting for mobile presents specific issues, as quick pans or zooms tend to make the picture stutter or pixilate. "Framing is everything, especially with someone like Paris who is so luminous on camera. I framed her head and shoulders, using super slow zooms going in or out, and shot her against green screen with Sony's CineAlta camera," he said.

Moloney's next project is *Download This!* – a feature film developed exclusively to premier on mobile phones and wireless devices. "It's a wacky sketch comedy, sort of like a *Kentucky Fried Movie* for the digital generation, which I'll definitely shoot in HD," Moloney smiled. **HD**

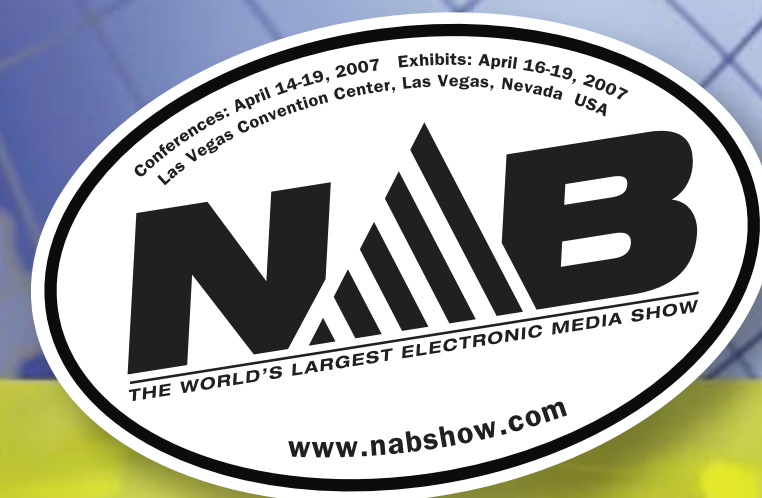
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Tech h d

by Lowell Kay

Budgeting Your Project's Disk Space

No matter what format you shoot, for economical editing you almost always have to compress your data. That is done with what is called a codec (en**CO**der/**DEC**oder or **CO**mpressor/**DEC**ompressor) - Software or hardware that compresses and decompresses audio and video data streams. Choosing a codec that fits within your budget is especially important when you have a lot of material or you're shooting in HD. HD is the biggest hog of disk space, which is why most editors choose to convert it to more manageable codecs. The DVCPRO HD codec is one that works very well. Avid promotes the DNxHD codec which also is very friendly to disc space. If you're in standard def, you might consider DV as an efficient offline Codec for DigiBeta.

Once you choose your compression, you need to know how many Megabytes per second it takes to sustain that particular compression. Here are some sample data rates. (Video Only).

DV 25	3.6MBps
DVCPRO HD 720p 23.98	5.75MBps
DVCPRO HD 1080 29.97	14.4MBps
10 Bit NTSC SD	27.97MBps
10 Bit HD 1920x1080 23.98	132.58MBps
10 Bit HD 1920x1080 29.97	165.72MBps
4:4:4 RGB HD 1920x1080 29.97	248.58MBps

To calculate storage, take the codec's MB per second rate and multiply by 3600 and the number of hours of material. This will give you an *approximate* baseline total of disk space you are going to consume for your project.

Here is an example of how this might work:

I am currently bidding a project that is a reality-based television show. They are going to create 13 episodes and each episode is going to have 14 hours of media per day,

which will shoot for six days each. From our discussions I know that they are considering using DV as their source and editing material, so we know that they are going to be at 3.6MBps data rate. The amount of storage is calculated like this: $3.6 \times 3600 \times 14 \times 6 = 1.089\text{TB}$ of storage. This is the base level for their raw storage needs. Every production uses more than the base storage because of several factors:

- There is the formatting process of the drives which accounts for about 6% of the raw disk space.
- Every time an editor renders anything, you are creating more media that has to be stored. Essentially, you are doubling the media that you altered and most editors do not dump their old render files.
- Drives do not like to be filled to their capacity. As you move closer to the inner tracks of each spindle, the data coming off of the drives slows down. Keep your drives at least 20% empty for best results.
- If you are using a Raid with redundancy, you need to account for the resulting loss of raw storage.

With these factors in mind, we double our original base needs and then rent or sell that amount to our clients. You now have your basic total for your episode disk space.

Another easy way to get the baseline total is to use the AJA Data Rate Calculator Application (Version 2) located at http://www.aja.com/html/support_kona3_sw_d.html. This will quickly show you how much data will be consumed per hour. Remember, this will *not* tell you the *complete storage requirement*, but it is a good quick reference tool that is easy to use.

A web-based storage calculator can also be found at <http://www.victorystudios.com/storage-calculator/>. **HD**

From HD to the Web

by Jama Green

In today's marketplace where MySpace and YouTube.com rule, advertisers are looking to get the most exposure out of their traditional advertising content.

hdstudios, a division of Grace and Wild, based in Farmington Hills, Michigan, has been receiving more requests to expand upon their HD services. It is not uncommon for a broadcast commercial to be shot, transferred and edited in high definition, then authored to DVD and converted to multiple web-friendly formats.

In the Fall of 2006, Pass Left Productions of Hillsborough, North Carolina, called upon hdstudios for assistance with a half hour original broadband program for Borders Group. The program, airing as a webcast on the Bordersmedia.com website, was created to coincide with the release of Mitch Albom's new novel *For One More Day*. This is the first webcast Borders has executed for a book release, and the subject matter of this book, mixed with Albom's popularity, made this an

appealing project for its pilot effort.

According to Dean Kuhnlein, producer/director and principal of Pass Left Productions, "The program was shot in high definition because we were trying to convey a certain warmth, with rich colors and a film like quality. Though this was going to be on the web, we realized we had a secondary audience that needs to see a high quality image on DVD."

The HD multi-cam shoot, directed by hdstudios' executive producer Robin Tracey, took place on location at a home in Ann Arbor, Michigan and featured Albom visiting with a local book club to discuss his novel. The footage was edited on an Avid HD DS into the half hour program, then authored on DVD and finally to various file format conversions for viewing on the web. **HD**

The completed program, as well as Flash snippets, podcast, wmf and quicktime formats, can be found online at <http://www.bordersmedia.com/albom>.



Photo courtesy of hdstudios

The Borders Book Club meets in Ann Arbor to discuss Mitch Albom's new novel.

Super 16 for HD Broadcast

by David Heuring



Photo courtesy of Hallmark Channel

Top: David Boyd, ASC
Above: DP Alan Caso, ASC
on location in Thailand
preparing to shoot a scene
for *Blackbeard*.
Right: Actor Taylor Kitsch
(on shoulders) in a scene
from *Friday Night Lights*,
shot by DP David Boyd.

Filmmakers who produce content for television work under relentless budget and schedule pressures. At the same time, a premium is placed on achieving distinctive looks that are right for the stories. David Boyd, ASC and Alan Caso, ASC agree that advances in film and postproduction technologies have made the Super 16 format an attractive option for producing dramatic series which air in HD. Boyd is shooting *Friday Night Lights* and Caso is rendering images for *Tell Me You Love Me*.

Boyd says the decision to shoot *Friday Night Lights* in Super 16 supports a documentary sensibility. "We let things happen, rather than make them happen."

He usually shoots with three handheld ARRI SR cameras, although in some situations he uses as many as six. Images are captured on KODAK VISION2 500T 7218 film. Boyd says the compact and lightweight cameras facilitate the handheld aesthetic. Episodes are usually produced in eight nine-hour days and the negative is transferred to HD with a Spirit DataCine at Universal Digital Services in LA.

"We let scenes run in real time from beginning to end with no rehearsals," Boyd says. "If we need something tighter or more specific, we capture that on the second or third run-through. The actors

get to perform in continuity, and we can cover a lot of ground quickly. The other day we shot six pages with a dozen speaking parts in three hours."

Boyd frames and focuses as the actors begin performing to augment the feeling of reality. "We keep our eyes and ears open, which gives us an idea of where the actors might go but the things they do and when they do them are a continual surprise to us," says Boyd. "We are trying to recreate the flavor of what the Maysles brothers,



NBC Photo by Van Redin. © NBC Universal, Inc.



NBC Photo by Dean Hendler. © NBC Universal, Inc.

D.A. Pennebaker, Rickey Leacock and Fred Wiseman did in *Gimme Shelter* and other documentaries."

The images are composed in 16x9. "If it's a close-up in profile, we can put the actor far enough off to the left or right to not see their ear," he says. "It's just an eye, a nose and a mouth. That stretches the frame, and you start to see so much more into the emotion of what's happening than you would otherwise."

In the HBO series *Tell Me You Love Me*, a marriage counselor tries to help neurotic yuppies come to grip with their relationship difficulties while maintaining her own love life. Caso, who has four Emmys and an ASC Award on his mantle, says the show's look is modeled after a John Cassavetes film. It's mostly handheld. "We try to make it look like the show is filmed in available light," he says. "The idea is to make it feel like there is no manipulation from the filmmakers whatsoever. Nobody has marks, and there's minimum instruction. Given that aesthetic, Super 16 made perfect sense. It's a light camera, so we could work handheld quickly without being bogged down with a lot of apparatus."

Caso shoots with ARRI SR 3 cameras loaded with Kodak VISION2 500T 7218 and Kodak VISION2 200T 7217. Each episode is created over seven days, mostly on sets at CBS Radford in Studio City, California. "We let things play dark, and keep the colors a little bit desaturated. We sometimes let things play partly in silhouette, and we let things be bright when they're bright. We try to have minimal impact."

Scenes are usually covered with two or three cameras interacting with the performers. "The instruction to the operators is to keep it as steady as possible because the human body naturally introduces some movement, which gives the frame a little bounce and life. We're not trying to make it look like a documentary by laying over a visual style. We're just shooting it that way. It's a concept for the performers as much as it is for the crew."

Caso uses the Super 16 format to help create a documentary feeling. "Even though the Super 16 stocks are terrific nowadays, we let it go a little bit more contrasty and grainy than it would be with 35 mm, which just adds to the look of the show," he says. **HD**

(L to R): Kyle Chandler
and Taylor Kitsch in
a scene from *Friday
Night Lights*, shot by
DP David Boyd.



30 to 24 on AJA KONA

by Karen Raz

A privately owned and restored DC-3 turns final approach onto the film's namesake runway 'One Six Right.'

Brian J. Terwilliger was determined to make a movie celebrating his love of flying and the illustrious history of Southern California's Van Nuys Airport. In order to lure investors, Terwilliger purchased an Apple G5 and Final Cut Pro and set out to capture, edit and finish a five-minute DVD trailer. He taught himself how to use the equipment and edit in Final Cut Pro; and soon after completing the trailer he had raised enough funding to shoot the full-length documentary feature, *One Six Right*.

Terwilliger shot the film with the Panavised Sony F900 24p camera in 1080p, with aerial photography shot on a gyro-mounted helicopter camera system in 30p format. In just over a year, he had accumulated 120 hours of HD footage.

When it came time to convert the native 30p aerial photography into 24p FCP sequences to match the bulk of the footage shot on the Sony F900, Terwilliger was afraid he had hit a roadblock.

"The most critical problem we encountered was when it came time to incorporate our 30p and 24p footage. We tested four dif-

ferent conversion solutions at high-end post houses, and finally devised a workflow made up of the AJA KONA card with Apple Cinema Tools and the image quality far exceeded other hardware and software solutions. The KONA card allowed us to digitize while conforming the footage at top 10-bit uncompressed quality," explained Terwilliger.

The footage quality is astounding and looks so good that Sony helped sponsor a 12-city HD theatrical tour where the film was projected to audiences with Sony's 4K projector. The documentary film features thrilling aerial photography and captures the timeless romance of flying.

Terwilliger is distributing the film independently and has sold over 35,000 DVDs to date. *One Six Right* will also be the first independent film to be available in the HD DVD format. For more information, visit www.onesixright.com. **HD**

Karen Raz is the founder of Raz Public Relations, www.razpr.com, a PR firm servicing creative companies and technology developers in digital video, visual effects, post production, design and advertising.

Vanderpool

Shoots AG-HVX200

by Brian Cali

When challenged by the U.S. Department of Defense (DOD) to create instructional DVDs to promote science and technology education across the country, distinguished filmmaking duo Charles and Marilyn Vanderpool chose the Panasonic AG-HVX200 DVCPRO HD P2 camcorder to capture this critical project in high definition.

As a part of the DOD's effort to increase the pool of talented American scientists and engineers to fill its research labs, workforce organization Building Engineering and Science Talent (BEST) was brought in to spearhead efforts to improve middle and high school science/technology education. BEST hired Vanderpool films to create a DVD series that would train teachers in Materials World Modules (MWM), an inquiry-based, hands-on learning system that uses materials (e.g. concrete, polymers, composites) to explore scientific principles.

"We wanted to shoot in HD for direct finish in DVD. Due to budget limitations, a

long shooting schedule and the sheer volume of material to be documented, film acquisition was out of the question," said Charles Vanderpool. "With the introduction of the HVX200, we saw a unique opportunity to apply this technology to the MWM project. It has proven to be both a tremendous asset and a wonderful production tool. I was able to create custom scene files for a wide variety of shooting situations."

"While I was initially skeptical about shooting video vs. film, I found that the HVX200, set up properly, produces breathtaking images," said Marilyn Vanderpool. "When I first saw the footage Charles had shot in a classroom, my reaction was that the acquired images actually looked better than the classroom itself!"

The four DVD modules, complete with a 10-minute marketing film, will be delivered this month giving U.S. science teachers the opportunity to incorporate the MWM learning system into the 2007-2008 school year. **HD**



Charles Vanderpool using an HVX200 to shoot a close up of a student using a microscope.

Photo courtesy of Vanderpool Films

Focused on Rush HD

by Rob Faris

Rush HD's *Focused* series enters its third season with an astonishing look at the closed-world of extreme sports. Part of the high def suite of 15 channels from VOOM HD Networks, Rush HD shows adventure sports from around the world. In seven episodes, *Focused* features skiers, kayakers and mountain bikers exploring epic and remote locations. But behind the HD cameras, the *Focused* production team equals the do-it-or-die daring of the athletes they are shooting.

Unlike the smooth, sleek paths of Olympic skiers, *Focused* is like watching the rock 'n roll stars of the slopes. The series follows sponsored skiers and mountain bikers, sent to formidable terrain for photo shoots to promote sports gear. They think nothing of skiing 3000 ft. straight down, propelling themselves off any cliffs and obstacles in between.

Viewers can live vicariously through *Focused*. As executive producer of Rush HD, our goal is to capture the culture, the action, and the characters themselves. These guys go where no one goes!

Focused is a co-production between Rush HD and Colorado-based Matchstick Productions. Nate Nash co-directs the series with Matchstick executive producer-partners

Steve Winter and Murray Wais. Nash says the HD cameras for *Focused* usually include three cameras, two on-slope cameras, and always, at least one aerial camera.

He explains, "We shoot most of our aerial shots handheld -- sitting on the outside of the helicopter holding the camera in our hand, sometimes there's two of us mid-air. Or one person's in the helicopter shooting and one's on a slope, whether on the same slope as the featured skier or a different mountain where they ski a different line."

To get a shot, he says, "We've rappelled down Victoria Falls in Zambia with HD cameras on our backs; strung cables between two trees in the woods and a hang gliding harness to shoot smoothly next to a mountain biker; and the most horrifying thing I've ever done with a camera on my back, was kayaking through hippo pods at 4:00 a.m. Those things can kill ya." **HD**

See *Focused* on VOOM's RUSH HD available on the DISH satellite network.

A specialist in sports programming, three-time Emmy winner Rob Faris is executive producer of Voom's Rush HD, World Sport HD and Gameplay HD.



Shot in the foliage of New Zealand, this hang-gliding set-up gets smooth HD footage for Rush HD's *Focused*.

Photos courtesy VOOM HD Networks © 2006

hdtv

THE CONSUMER FRONT

by DALE CRIPPS

Still a Mystery

A Frank N. Magid Associates' Report

confirmed that consumers are still "confused over what HDTV is and whether it costs extra to get programming". The study found that 47% of consumers buying an HD set now planned to watch TV programs in HD, versus 63% two years ago. Moreover, 30% of HDTV owners have yet to add HD service through their cable or satellite provider, and those that have, complain that HD stations tend to occupy the farthest reaches of the channel range (Channels 800 and up, etc.).

The success of DTV has always depended upon a voluntary cooperative between government, consumers, the consumer electronics, broadcast, cable, satellite, and the retailing industries with each faction pulling their own weight at just the right time. If the confusion that is cited in the Magid report is left unchecked there is a very real threat that this holy balance could crumble.

Of the many challenges facing broadcasting, the hard shut-off date (February 17, 2009) of analog signals is the most traumatic. All TV sets dependent upon over-the-air signals and without a digital capability will go dark the end of that day. Both government and industry tend to gloss over the idea of a block of uneducated consumers phoning on the 18th of February 2009 to ask why their TV no longer works. In reaction to this, an educational program is being constructed by a combine of the CEA and NAB.

For years I have postulated that for purposes of clarity, and in order to overcome confusion, a "unifier" is indispensable. For discussion purposes, let's consider that the stakeholders elect an independent "Czar of the Digital Transition" with a courtly mission given to help finish it with minimal pain to all sectors. That is exactly what occurred when the HDTV Grand Alliance (later called the ATSC standard) was formed under the guidance of Washington Attorney and former FCC

Chairman Dick Wiley. From that union came HDTV for all of America and which has now spread around the world.

Civilizations grow with every advance in communications, but only after being assimilated by its people. "History has shown," said the founder of the Society of Motion Picture (and later Television) Engineers, "that with every increase in communications facility there has been a corresponding increase in business volume (and to the general welfare)". Sadly, whatever contributes to consumer confusion retards this potential advancement and growth.

"HDTV has the potential to both inspire and display a new world vision." I wrote those words twenty years ago and find them truer today than ever. The kind of programming I thought would follow the vast improvement in HDTV images has more than happened. All the civilizations of the world are being transported into our homes and becoming, through the miracle of HDTV, familiar, understandable, even embraceable in their beauty. If there is anything more urgently needed than a widely understood and respected new world vision? The world is on the brink of becoming ashes because of the power still emanating from out-of-date world views.

Stephen Hawkins said that for humanity to survive we must colonize far distant planets. The more earthly alternative, of course, is to fully understand:

- 1) the planet we populate,
- 2) the nature of our humanity, and,
- 3) the influence of the universe upon us.

Nothing that I have seen in 67 years will more insure that we gain a deeper appreciation of these things than will the spreading of HDTV. And, don't forget, it's absolutely great for football too! **HD**



Dale Cripps is the publisher of HDTV Magazine, the first publication in the world dedicated to the consumer of High Definition programming and hardware, and the founder and president of the High Definition Television Association of America. hdtvmagazine@ilovehdtv.com



(c) 2005 MorningStar Entertainment

BattleGround: The Art of War

by Jennie Taylor

Napoleon's army
at Waterloo.

What do you get when you combine the excitement of feature film style dramatic scenes and special effects with the info and story telling of non-fiction? The answer is MorningStar Entertainment's new three-part series *BattleGround – The Art of War*. MorningStar co-founder Gary Tarpinian calls it "action adventure history."

Each episode was filmed in 24P on three Sony 900 series HDCams. MorningStar took full advantage of the ease in which CGI can be added to HD and created more than 120 visual effects shots from scratch, including swooping birds-eye views of the combat on a grand scale that were based on the terrain of the actual battlefields.

In order to achieve that goal, hundreds of Hollywood technicians, actors, stuntmen and even pyrotechnic – or explosive – experts were employed on all three programs in the series. Each battle was staged on location and required tremendous logistical planning and support.

MorningStar co-founder Paninee Theeranuntawat called *BattleGround* the most challenging project ever undertaken

by the Burbank, California-based production company.

"We shot 'Waterloo' in Romania in order to get the perfect look, as well as the proper uniforms and exact weapons of the Napoleonic era. The attention to detail helped viewers connect with each of these programs on a visceral level".

Tarpinian said that MorningStar challenged itself by making a key choice right from the beginning. "We decided not to use any stock footage or even one still photo in any of our shows. We wanted the program to look more like a feature film than a documentary. But this also meant we had to create every second of each show from scratch. In the case of Waterloo, we had to create scenes in which it appeared that hundreds of thousands of men were fighting."

John Pence, Discovery HD Theater's Manager of Programming and Acquisitions, said, "The sense of realism portrayed in the series delivers an effective, first person, high-energy translation of history."

All three *BattleGround* programs air exclusively on Discovery HD Theater. **HD**



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Cinematographer for "24"

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ProHD



JVC's GY-HD110U ProHD Camcorder

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A cinematographer must artistically capture the mood of each and every scene for the perfect cinematic experience. As the Cinematographer of the FOX hit show "24", Rodney Charters, ASC, CSC demands a lot from his cinematography tools, and recognizes a high quality professional cinematography tool when he sees one.

Rodney recommends the lightweight, shoulder style GY-HD110U because of its interchangeable manual lenses, perfectly positioned manual controls, and the ability to shoot 24p. The camera's compact size and HD focus assist makes shooting in confined spaces effortless, which is essential for shooting drama.

The GY-HD110U captures true native 24p to produce polished, high quality HD recordings that provide the ultimate cinematic experience.

"I spent 20 years as a documentary shooter, so features, glass and the physical build of the camera are extremely important. We tested many small HD cameras and chose JVC's GY-HD110U because it's a true 24p camera with interchangeable lenses. Right away JVC's camera shined for me. You put the GY-HD110U on your shoulder and the controls are in the right place. It has a real lens – it's absolutely amazing! It's astounding that you can get this kind of quality for under \$6,000."

— Rodney Charters, ASC, CSC
Cinematographer for "24"
DP for "Roswell", "Sounder",
"Blind Faith" and "Sleepwalkers"

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