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
Why risk your valuable footage with distribution format video? The high-performance AJ-HDX900 2/3” camcorder offers 4:2:2 sampling and intra-frame recording at 100 Mbps in 11 high definition formats that hold up through layers of special effects, graphic overlays and constant editing and processing. Collaboration and content exchange are essential in sports production, cable shows and reality TV - and nothing maintains the original image integrity and sound quality like DVCPRO HD.

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when full HD production quality counts.

Why risk your valuable footage with distribution format video? The high-performance AJ-HDX900 2/3” camcorder offers 4:2:2 sampling and intra-frame recording at 100 Mbps in 11 high definition formats that hold up through layers of special effects, graphic overlays and constant editing and processing. Collaboration and content exchange are essential in sports production, cable shows and reality TV - and nothing maintains the original image integrity and sound quality like DVCPRO HD.

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Reality check: With 1080i, 720p, 24p and 25p capabilities, the HDX900 is perfect for long-form HD programming such as reality shows, documentaries, music videos, concerts, cable network shows and many more.

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For more information visit www.panasonic.com/broadcast or call 1.800.528.8601

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Fujinon’s new XA88x8.8BESM HD telescope lens features 88x magnification and a widest focal length of 8mm to 77mm telephoto — making it one of the longest lens available today. It is also available with Field Flattener (FF) and Precision Focus Assist (PFA) Precision Focus Assist is Fujinon’s built-in feature that enhances precision focusing for HDV production stemming from the company’s history of developing telephoto lenses and the lack of size and resolution in camera viewfinders. At 25.8 (H) x 270 (W) x 426mm (L), with PFA, the XA88B8 is also extremely compact.

MOBILE STUDIOS SELECTS HVS-500HD HANABI SWITCHER Mobile Studios, developers of fly-pack systems, have selected FOR-A’s HVS-500HD as the heart of the company’s newest mobile production console. The HVS-500HD is a portable, live production system capable of multi-camera shooting, targeting 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, Gannett Corporation, and the U.S. Navy. The HVS-500HD 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-Channel HD full core processor system running Windows® XP Professional. The OCTOFLEX2™ is based on the latest generation of advanced independent frame compression codecs, AVE-ICA. As the first shoulder-mount camcorder in Panasonic’s P2 HD series, the multi-format 1/2-inch P2-AH1000 features a native HD progressive 2/3"-CCD system that offers super-high recording in 1080, 720p, 480i, 376i and in a total of 17 different resolutions, standard and progressive.

CAREER TOOLS AT NEXT TV The Academy of Television Arts and Sciences in Los Angeles held its annual daylong conference entitled Next TV. The event brought keynote sessions, special guest speakers and new product demos to those in attendance. Conrad Dunkel, publisher and CEO of Highdef News Magazine described a panel entitled “Highdef and HDV Revolution 2006 Update.” Panelists included: Mike DelBrisio, 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 Production Systems, Sony Electronics; and Craig Yanagi, National Marketing Manager, Panasonic; Mel Medina, Senior Product Manager, Broadcast & Production Systems, Sony Electronics; Chris J. Mellor, Digital Image Production Systems, Sony Electronics; and Craig Yanagi, National Marketing Manager, Panasonic.

DIAGIDOPTERS™ FOR HD LENSES Band Pro Film & Digital introduced the Carl Zeiss Diagidopters. 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 lens. Ideal for extreme close ups or wide angle shots with a shallow depth of field, Carl Zeiss Diagidopters attach easily to the front of the lens to provide increased close-focus range and magnification capability. Diagidopters 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-refractive coating - the same coating applied to their Digipower 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 Diagidopters can be attached to the camera lens — or to each other - via a single thumblobe.

PANASONIC P2 MOBILE RECORDER Panasonic announced the availability of the AJ-HP1500, 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 control, including a built-in 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 workflow leading video formats, including up/over/under cross conversion between 1080P and 720P within both high definition and standard definition.
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.
“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.

“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 Nitrís, as well as Chyron software for titling.

They shot Sinner in 17 days in the three-perf Super 35 film format, which trimmed...
The Dukes
formats. They originally planned to time the
dailies initially in HDCAM and then in DVD
tape with colorist David Perkins providing
in DI.”
was confident we could put those touches on
time of day in the right weather conditions. I
fine tune lighting or shoot at exactly the right
shoot each day, it was not always possible to
constraints and speed with which we had to
ing film,” he says. “Due to the financial
negative and front-end lab costs by 25 per-
cent 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 manipulat-
ing the negative for the envisioned looks.
"Sinner is a dark and visually intrigu-
ing 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
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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 proj-
ec. 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 cinematogra-
phers," 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
davored 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 feel
that reinforces the emotions of the story," Goi
says. "I had recently shot Red Water, a
television movie in Super 16, so I felt confi-
dent 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 record-
ing 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 know-
ing 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 Elane cameras.”

Goi continues, "The inDI process cali-
brates 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.”

Three Networks, Three Versions,
by Karen Lynn Berg

All Mobile Video has long been a pro-
vider 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 pro-
duction unit requirements.

AMV’s Director of Rental Services, Tom
D’Angelo says, "we knew accepting the posi-
tion 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) boats 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, "serv-
ing 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 consider-
ing the result I think we all have reason to be
thankful.”

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.
By B. Sean Fairburn, SOC

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.
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 transcoded 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 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-
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.

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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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 misconception 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 Angelus Rosedale Cemetery near downtown Los Angeles (note the dual monitors, for each camera on the 3D rig).
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! Camera Speed...Capture Speed!"
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. 

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

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

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- Waterproof to 10’
- Operates in extremes of environment & temp.
- Compensates for rapid turns & acceleration
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- Weighs less than 45 lbs & is less than 12” high
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**Samsung LED Light by 2008**

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 SynChromatic X20 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).

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

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 over-crowded 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.

In the meantime, the company is building LED BLU 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.

Bob Poole

**Capturing Wildlife with Versatile HD Lens**

Since January 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 Wyoming. 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.

Bob Poole is an Idaho-based directory of photography who shoots wildlife, science, sports and adventure television around the world. For more information, visit www.poolefilms.com
Paris Hilton is everywhere these days – whether it's 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 def, 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."

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.

Paris Hilton and Producer/Director Terry Moloney on set.

Terry Moloney can be reached at: TerryMoloney@yahoo.com or at (818) 907-7111.

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When the world of electronic media embarks on a quest for updated knowledge, networking and solutions, there's only one ultimate destination: NAB2007. From engineering to broadcast management, from post-production to church production, from Web and mobile TV to high-definition digital cinema — NAB2007 will deliver the essential solutions you've come to expect from the World's Largest Electronic Media Show.

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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 (an encoder/decoder or CO/Deco) compressor). 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)

<table>
<thead>
<tr>
<th>Format</th>
<th>Data Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DV 25</td>
<td>3.6MBps</td>
</tr>
<tr>
<td>DVCPro HD 720p 23.98</td>
<td>5.75MBps</td>
</tr>
<tr>
<td>DVCPro HD 1080 29.97</td>
<td>14.4MBps</td>
</tr>
<tr>
<td>10 Bit NTSC SD</td>
<td>27.97MBps</td>
</tr>
<tr>
<td>10 Bit HD 1920x1080 23.98</td>
<td>132.58MBps</td>
</tr>
<tr>
<td>10 Bit HD 1920x1080 29.97</td>
<td>165.72MBps</td>
</tr>
<tr>
<td>4:4:4 RGB HD 1920x1080 29.97</td>
<td>248.58MBps</td>
</tr>
</tbody>
</table>

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: 3.6x3600x14x6=1.089TB 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 (version 2) located at http://www.aja.com/html/support_kona3_swd.htm. 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/. It is 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 converters for viewing on the web.

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

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.

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.
Rush HD's Focused smooth HD footage for hang-gliding set-up gets Shot in the foliage by Rob Faris.

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 Waas. 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.”

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.

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, consumer electronics, broadband, 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. That 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 and recorded for football too! "HDTV for all of America and which has now spread around the world. 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 earthy 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!
Battleground: The Art of War

by Jennie Taylor

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 Theeranutantawat 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.
“Wonderful. Amazing. Congratulations, JVC.”
– Rodney Charters, ASC, CSC
  Cinematographer for “24”
  DP for “Roswell”, “Sounder”, “Blind Faith” and “Sleepwalkers”

JVC’s GY-HD110U ProHD Camcorder

A Cinematic Experience Unlike Any Other.

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”

For information on our award-winning ProHD lineup and to empower your creative vision, call 1-800-582-5825 or visit www.jvc.com/pro.