



WELCOME!

Well, here it is, 2007. Where has all the time gone? I trust that all of you made it through the holidays safe and happy and that you're ready to welcome in an exciting New Year. I'm sure there will be a lot of new Home Theatre products and announcements coming our way, starting with the Consumer Electronics Show this week in Las Vegas. CES promises to be an eventful and busy time, and in next month's newsletter we'll share some of the highlights of the show with you. This month's archive article looks back at the decision made by the Digital HDTV Grand Alliance, the developers of the high-definition television system in the United States, to deliver multichannel digital surround sound along with the new system's high-resolution picture. I hope that you enjoy this month's newsletter, and remember, if there are any special requests or suggestions, or if there are any contributions you would like us to consider, please email nate@widescreenreview.com.

Gary Reber
Editor-In-Chief, *Widescreen Review*

COMING SOON TO NEWSSTANDS

Here's a sneak peek into what's coming in Issue 117, February, 2007 of *Widescreen Review*:

- Danny Richelieu watches the Olevia 747i 1080p LCD Display
- John Kotches uses the Pioneer Elite VSX-84TXSi Receiver
- Bill Cruce looks at the Sony BRAVIA KDL-46XBR3 1080p LCD Panel
- Gary Altunian listens to the Meridian G61, A350i, And G41
- Peter Moncrieff tests the new Arcam AVR350 Receiver
- Design your theatre for scope! Scope Format Cinema For The Home Part III
- The Wife Assistance Forum continues giving good advice
- Over 50 Blu-ray Disc, HD DVD, and DVD picture and sound quality reviews
- And more...



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Home Theatre necessities

Tricia Spears



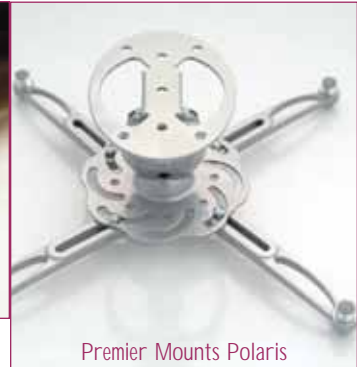
CinemaTech Azzurro Incliners



Da-Lite UPM-1



Phoenix Gold HDMx900



Premier Mounts Polaris

Accessories, necessities, whatever you want to call them—they're that extra special something that everyone has to have in their home theatre. Issue 117 of the print magazine features several pages of items we refer to as "Necessities," and here are some more cool products that we know you'll be interested in reading about.

CinemaTech™ has launched the new **Avalon Home Theater Incliner** in their **Act II** line of theatre seating. The Avalon features a classic European design made of the finest European leathers, with multiple custom configurations and options, and space-saving Zero-Wall technology. Once activated, the space-saving, all-steel Zero-Wall mechanism slides forward to a lying position, while the chair itself can rest virtually against the wall. The Avalon Incliner is available now for prices of up to \$3,400 per seat with CinemaTech's highest grade of leather and under \$2,000 for seats covered with customer-owned material or leather.

CinemaTech has also added three new incliners—**Espada**, **Vantage**, and **Azzurro**—to their **Act I** theatre seating line. The incliners, made from a German-engineered steel chassis, are said to provide an extraordinarily comfortable viewing experience, and promise a lifetime of responsive support and durability. They also include CinemaTech's Articulating Headrest. When upholstered in high-grade leather, the incliners are available for prices up to \$5,900, and when covered with customer-owned material or leather, they sell for under \$4,000. Visit CinemaTech at www.mycinematech.com or phone them at 800 688 6680 for more information.

Da-Lite® Screen Company is pleased to announce the addition of the **UPM-1** Universal Projector Mount to its Advance line of mount products. The Universal Projector Mount allows for roll adjustment of ± 20 degrees, pitch adjustment of ± 15 degrees, and a 360 degree swivel. The UPM-1 mount will hold projectors up to 50 pounds and features adjustable feet for micro adjustments. Compatible with Da-Lite's full line of ceiling mount accessories, the UPM-1 has a black powder-coated finish and includes mounting hardware. For more information, visit www.da-lite.com or phone 574 267 810.

Phoenix Gold® has their new **HDMX.900** CL3-rated HDMI cables to brag about. The 900 series three- and five-meter options are approved for 1080p standards, with a 7.5-meter 1080p option planned for early 2007. These next-generation HDMI cables offer up to 45-meter runs (utilizing a new repeater). Phoenix Gold will also be

introducing a new **HDMI interconnect** featuring an HDMI 1.3 C-type mini connector to a standard A-type HDMI connector, which will be available in one-, two-, and three-meter lengths in early 2007, in time for the release of the new high-definition camcorders utilizing HDMI version 1.3. Phone Phoenix Gold at 800 950 1449 or visit them at www.phoenixgold.com to learn more.

The **Polaris™** universal projector mount from **Premier Mounts** is designed to fit most projectors that weigh less than ten pounds and features Premier Mounts' exclusive MagnaGuide™ technology, which allows for quick-and-easy, one-person installation. Featuring the Lock-It™ Security System, ± 6 degree tilt and roll, 360 degree rotation, and a lifetime guarantee, the three different models (**Low-Profile**, **Height-Adjustable**, and **Professional**) are available from \$129 to \$149. Premier Mounts' first "scissor-style" universal swingout arm, the **AM250**, is designed to pull displays up to 18 inches from the wall and retract to less than five inches. The mount also allows the display to tilt down ten degrees and pivot to the left or right 45 degrees. With an open design to allow for easy cable management, the AM250 is designed to fit most 37- to 50-inch plasma or LCD displays up to 125 pounds. The mount is available for \$299.99. For more information on Premier Mounts, go to their Web site at www.mounts.com or phone 800 368 9700. They also have a Web site available to aid consumers in mounting and installing their flat panel displays, www.mountingtips.com—check it out!

Sanus Systems has added two new ceiling mounts, for small to medium flat panel televisions, to their VisionMount™ line. Ideal for corner locations, the "universal" mounts are made of sturdy extruded aluminum to provide incredible strength and rigidity. The **VisionMount Model SC1A** flat panel ceiling mount is designed to fit virtually all LCD televisions up to 27 inches with a total weight capacity of 50 pounds. The **Model MC1A** is designed to fit 23- to 40-inch LCD and plasma TVs with a total weight capacity of 70 pounds. The SC1A is currently available for \$109.99 and the MC1A will be available in late January for \$129.99. Phone Sanus Systems at 800 359 5520 or visit them at www.sanus.com.

Universal Electronics® Inc. (UEI) has announced a development relationship with SIRIUS Satellite Radio. Utilizing the Z-Wave™ wireless protocol, a wireless radio frequency-based communications



Sanus Systems
Visionmount



Universal Electronics
SIRIUS Conductor



Universal Electronics
UR7-G2 Universal GAMER



Vantage Point EVO System

technology designed for residential control, UEI was able to develop a truly unique and cost-effective solution for SIRIUS subscribers. UEI worked with SIRIUS on a customized solution that includes integrated hardware, software, and patented control technologies to provide a custom solution, allowing SIRIUS subscribers to access comprehensive information directly from the handheld media controller, while also providing seamless universal control of other traditional home entertainment devices, wirelessly, up to 150 feet away. The **SIRIUS Conductor** is available for \$149.99. Visit Universal Electronics at www.uei.com or phone 714 820 1000 to learn more.

Universal Remote Control, Inc. (URC) has introduced the **UR7-G2 Universal GAMER** remote control. The new remote allows users to play video games or enjoy audio/video entertainment as they choose. Dedicated game-system buttons and customizable features make it easy to meet the specific needs of individual users and lets them better integrate their game consoles into a home entertainment environment. URC has also introduced the **Total Control FX1** remote

control, which includes all the essentials needed to easily operate a home entertainment system. Able to control up to five AV components, with quick-and-easy set up and usability, the FX1 comes packed with a database of thousands of pre-programmed codes, and is available for \$19.95. Contact Universal Remote Control at www.universalremote.com or phone them at 914 835 4484.

Vantage Point introduces the **evo system™**, a modular, furniture-quality installation solution for audio, video, gaming, and home office electronics. A complete solution for mounting flat panel televisions, rear-projection televisions, and all electronic components onto the wall, the evo system consists of an aluminum frame and track system that expands to support unlimited equipment configurations. Great for home entertainment and office equipment, the evo system makes custom installation a possibility for everyone. Visit www.theevosystem.com for more information and to watch a video on the product and its installation. Go to www.vanptc.com or phone 562 946 1718 to learn more about Vantage Point and their products. **WSR**

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Your Home Theatre

Dolby Digital Technology The HDTV Audio Standard?

By Gary Reber

Dolby Digital Technology Selected As HDTV Audio Standard

In a decision likely to impact all future consumer audio and video formats, the Digital HDTV Grand Alliance which is developing the U.S. high definition television system has selected technology invented by Dolby Laboratories to deliver multi-channel digital surround sound along with the new system's high resolution picture. Dolby's AC-3 coding and decoding data compression technology was one of only three multi-channel coding systems to be considered and tested by the coalition. The actual decision was based on the endorsement by the Technical Subgroup for Sound of the FCC's Advisory Committee on Advanced Television Service for incorporation in the Grand Alliance's HDTV system to be tested by the Committee next year.

Dolby AC-3 coding is the data compression algorithm that is the basis for Dolby Stereo Digital[®] film sound, and has been used for more than 40 movies since its introduction in June 1992 (*Batman Returns*). These same films plus any other films or programs produced in a discrete six-channel format (left/center/right/surround left/surround right) with the addition of a special bass-only effects channel could be broadcast in digital surround sound the moment HDTV becomes a reality, which may be as soon as 1996.

The HDTV standard was essentially derived from the previously introduced motion picture application. Similar to the theatrical digital system, the HDTV application comprises six-channels or what is termed the "5.1" format—five channels are full bandwidth and the ".1" is a limited bandwidth supplemental low frequency channel for special bass-only effects. Optimal Dolby Surround Digital[®] playback in the home will require the same five loudspeakers as today's Dolby Pro Logic[®] systems (left/center/right/surround left/surround right) except for the requirement that each loudspeaker including the surrounds have full range capability (a subwoofer for reproducing the supplemental bass channel is considered optional as long as the other loudspeakers are capable of full bandwidth response). In

addition the new discrete channel capabilities of this quintaphonic format will no doubt allow greater loudspeaker placement options beyond placement of the pair of surround loudspeakers to the sides of the listening area. Another placement option will be a symmetrical arrangement with the surround loudspeakers placed to the left back and right back of the listening area at an equal distance relationship to the front left/center/right loudspeakers and to the optimized so-called "sweet spot" seating area.

The HDTV development continues to advance the Dolby Surround Digital system as the standard for digital surround sound, but it will be perhaps another year before a standard for laserdisc or VCR is likely to be settled upon for the consumer market. There are other viable high performance alternatives to Dolby AC-3 coding which may outperform the Dolby Surround Digital system. I say "may" because there has been no out-in-the-open comparative testing of the competing technologies in which respected audiophile journalist (consumer ombudsmen) have been invited to audition and report their findings. This begs the question of just how was the standards decision arrived at? Who were the members of the Technical Subgroup? What was the testing environment? What material was played in the comparative tests? What were the competing systems to be tested? What were the biases? What are the politics? What impact will all this have on the future?

This is a complex subject but here is my assessment based on what I have been able to piece together.

The Expert Group

When the Grand Alliance coalition was formed, the FCC Advisory Committee established five Technical Subgroups to work with the Grand Alliance which were called "expert groups." One group, the Audio Expert Group was responsible for the audio standards recommendation to the FCC Advisory Committee, based upon testing to be conducted in conjunction with the Grand Alliance. Each of the five expert groups had a chairman. The chairman for the audio group was Jim Gaspar, who is the Manager of Technical

Coordination at Panasonic Advanced TV—Video Laboratories, Inc. in Burlington, New Jersey. The official Audio Expert Group consisted of Mr. Gaspar; Birney Dayton, President of NVision; Ms. Bronwen Jones, a psychophysicist consultant, Tom Keller, a consultant who was previously an engineer with the National Association of Broadcasters (NAB); and Ken Davies, Vice President of Engineering for the Society of Motion Picture and Television Engineers (SMPTE). None of the members of the audio expert group were listeners. The actual expert listeners were Randy Hofner of NBC, Ed Fox of General Instruments; Garrett Smith, Director of Video Operations at Paramount Home Video; Tomlinson Holman of Lucasfilm; Gary Rydstrom, a sound designer with Lucasfilm; Ben Burt, a sound designer with Lucasfilm; Gary Summers, a re-recording mixer with Lucasfilm; and Paul Matwiy, a licensing technician with the Lucasfilm Home THX[®] Division. The FCC's Audio Expert Group and the Audio Specialist Group, a body made up of representatives from the various organizations of the Grand Alliance, selected the expert listeners on a non-formal selection criteria basis.

Three multi-channel coding systems (actually four codex rates, three manufacturers) were selected for testing. They were the Philips Musicam at 384 kilo-bits/second, MIT which is a discrete channel system at 580 kilo-bits/second, and two Dolby AC-3 coding systems, one operating at 384 kilo-bits/second and the other at 320 kilo-bits/second (Dolby SR•D) data rates.

The Test Materials

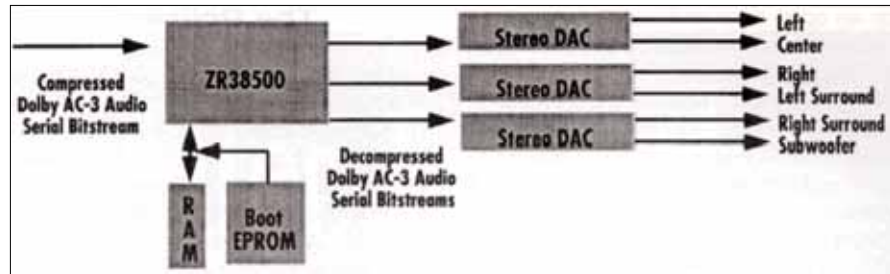
The test materials consisted of selected film excerpts supplied by Lucasfilm (specifically four excerpts from *Indiana Jones And The Last Crusade* called "drum," "oh rats!," "plane" and "wind") and four other specially recorded non-Lucasfilm supplied surround materials recorded in the 5.1 discrete format. These materials were pulled together by the FCC Advisory Committee for testing. Tom Keller and Bronwen Jones selected and produced the specially recorded non-Lucasfilm materials which included a selection from the Mormon Tabernacle Choir, a single male-speech story editorial, five voices talking at the same time, one in each chan-

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nel, plus a tympani drum and a glockenspiel (a percussion instrument with chromatically tuned, flat metal bars set in a frame that produces bell-like tones when struck with small hammers). Eight tests for quality were run. The tests were conducted at Lucasfilms' Skywalker Ranch.

The limited scope of the test materials are certain to be questioned as adequate for demonstrating the full reproductive capability of the 5.1 full bandwidth system format. A broader range of test materials than used is necessary to test for absolute phase coherency. There is no way to test for phase coherency unless you have phase coherent pre-recorded material in the first place. The film material was "manufactured" and re-mixed from a sound library of mono and stereo effects amassed by sound designers, further complicated by recorded music and ADR for dialog insertion in the master mix. This is the way film mixes are conceived and manufactured. They have not been designed, on the whole, to be full bandwidth balanced, integrated sound field 5.1 mixes, because there has never been a practical full bandwidth discrete theatrical (non-traditional special venues excepted) or consumer home delivery system to playback such mixes.

The additional material that was specially produced was recorded with an array of five or six microphones, one microphone inter-connected to each of the 5.1 channels. Point source phase coherent recordings of balanced, integrated real-life sound fields would have correctly demonstrated the capability of the coding system to reconstruct the sound field without phase distortion anomalies. Multiple microphones, in which matching capsules have not been verified, do not guarantee a phase coherent sound field. Abundant discrete full bandwidth recordings of real sound fields exist, for example, on the Colossus/MS-4™ system. Unlike the test material recordings, these are recorded using a single point array of four coincidental capsules to create four in-phase and matched hyper-cardioid pick-up patterns for a 360° symmetrical sound field that maintains perfect stereo images between each of the four quadrants. Brad Miller of Mobile Fidelity International (Colossus) suggests that "localization and imaging tests should have been performed based upon frequency sweeps, using a symmetrical 360° pan. Spotting specific frequencies anywhere within the sound field would have then revealed the mettle of each system, with regard to its localization performance characteristics." In phase recordings were offered by Mr. Miller to Mr. Keller for testing by the



The Dolby/Zoran ZR38500 Six-Channel Dolby AC-3 Digital Audio Decoder

Audio Expert Group and the offer was ignored. However, Dolby has received some of this material and they have implemented it in their AC-3 coding improvements during the past eighteen months.

Mr. Gaspar told me at the SMPTE Conference on November 1st that in addition to the discrete 5.1 channel mixes, stereo mixdowns were tested. Further, each of the bit stream paths were purposefully convoluted to find out what type of concealment there might be in the systems that could show concealment of problematic data. "We were going after differences in the codex compared to the original reference material," he said. The tests encompassed testing for imaging differences, but all the systems were said to have performed well in this regard. "We were all surprised" added Mr. Gaspar. "We expected to hear imaging problems but we didn't. That was one thing that did not show up in any of the systems. What we did find was little (sound) holes you might hear in which in one system it was not quite as clear as it was with another, but the sound was there (recognizable). So there was really no phasing problems in any of the systems. Some of the mixers who mixed down the *Indiana Jones* excerpts listened to their material and they thought that the systems did a really good job. They expected it to fall apart."

If the phase coherency was reportedly good in these limited tests, the weaknesses that were heard were mostly sound fidelity artifacts. According to Mr. Gaspar, "if you didn't hear the reference you would never know they were there. Some of the official testers like Tomlinson (Holman) who were really familiar with the film material could hear little things in the *Indiana Jones* selections; for instance where rats were making sounds in the background and they sounded a little bit different. The imaging was a little bit different. But if you were to only listen to the codex version on most of the test materials you would never know it, unless you listened to the reference first and then you would say 'oh yeah, there was

a little something.' But on one piece of test material all the systems showed a difference. And that is what ended up causing the Dolby system to be chosen. It was a recording of a tympani drum and a glockenspiel recorded with six microphones surrounding the instruments. It loaded up all the systems. The sound of the glockenspiel was changed. On two of the systems, MIT and Dolby, it changed on the attack of the glockenspiel but had no problem on the trail off sound. On two of the systems it messed up on the trail off also, and that was the Dolby operating at 320 kilobits/second and the Musicam system which rated very bad by the experts on that particular test material. At the time no one knew what system was which because it was a double-blind A/B test. I took down the results of the testing after the tests were done. The test material was recorded on an Alesis A-DAT multi-track machine."

The Test Environment

The testing environment was Tomlinson Holman's Home THX room at Skywalker Ranch. The sound system was a calibrated Home THX component system with each loudspeaker channel equalized. During the testing there were six or seven people in the room. A pilot test was conducted first to see if the testing procedure was going to work and that data, as well, was written up in the report to the Grand Alliance. The pilot group consisted of the people from the various companies setting up their systems. The tests were to be just an expert observation and commentary. The task was to see if differences could be heard and if so, what were they? Subjective observations per se were not part of the comparative testing.

The Test Data

The data derived from the tests was compiled by the Sarnoff Laboratories. Statistically the test materials were rated

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on an open scale and once condensed, one test material showed a great difference among all the systems. Even between the pilot group and the actual expert group the data points concurred. That report was put together with observations from the expert listeners by the Audio Technical Subgroup which was then passed onto the Technical Oversight Group (TOG) of the Grand Alliance. At that point the Technical Oversight Group was supposed to come to an agreement based on the test results. Initially they were unable to do so.

The actual selection process was a very political process. Philips claimed that they had a problem with their system during testing. In the end, the audio expert group of the FCC Advisory Committee felt that a decision should be made based on the tests. Mr. Gaspar issued a memorandum on September 7 to that effect. As Mr. Gaspar puts it, "What happened is the Grand Alliance (under political pressure) had decided to re-test (the systems) using exactly the same test and we, as the expert group, said no. You can imagine that the systems could be tweaked for these particular test materials and there was to be no new test materials. So we very strongly stated that we were against this re-test that they had suggested. They wanted to go ahead in any event and we, as the audio expert group, said that we chose the Dolby AC-3 system based on the test results. We had a meeting with the Grand Alliance to allow Philips to explain what was wrong with their system. They made a very good explanation and I think that they were right. They had a software problem. Nevertheless, on October 21 the Grand Alliance decided to choose the Dolby AC-3 system with Philips' Musicam as the backup and MIT as the backup to the backup. Now the Musicam system has to be tested again to make sure that it has fixed its problem and indeed could be a backup in case Dolby AC-3 fails in the Advanced Television Testing Center (ATTC) tests (with all the other HDTV system standards)."

Mr. Gaspar added, "It was brought out (during the discussions about Musicam) that it seems that Musicam can do as well as Dolby but probably not better. If we re-tested Musicam, as the Grand Alliance wants to do to make sure that Musicam is a good system, they would only be considered to be as good as Dolby in that test. Dolby has won it. Period."

The Politics

One might come to the conclusion that one aspect of the politics would be the matter of an American company versus Philips, but according to Mr. Gaspar, "In our decision as the Advisory Committee we didn't even consider that. Whichever one of those came out the best, whichever one had the best cost was what we based our decision on. (Dolby won on cost although the difference in cost between Musicam and Dolby was very small and MIT was very big.) The decision has been made and there is not very much of a likelihood that Dolby is going to fail in the ATTC test next October."

Steve Forshay, Vice President of Engineering at Dolby Laboratories told me that "we (Dolby) believe that the technical superiority of our digital coding was pivotal in the Grand Alliance's selection. The suitability of the decision, however, is reinforced by our ability to manufacture the professional encoding equipment that will be required, plus the fact that we have an ongoing licensing arrangement with all major consumer electronics manufacturers." Ed Schummer, Vice President, Licensing, added: "With Dolby Surround Digital, we anticipate even more consumer interest in the concept of home theatre, which already accounts for more than ten million playback systems with analog Dolby Surround sound." No doubt, Dolby is extremely well positioned to implement a successful business plan for the introduction of consumer Dolby Surround Digital products.

In the final analysis the technology standard that will be adopted for all other media is that technology which can be best organized politically. The technology that is perceived or demonstrated to be organized for implementation will be supported by the Japanese business "Keiretsus." Other technology, no matter even if it is shown to be superior in performance to Dolby's, will not be considered at this juncture I do not believe, unless another digital coding technology that is shown to be dramatically superior receives the overwhelming support of the audiophile community. Perhaps Digital Theatre Systems (DTS) which is aligned with Matsushita indirectly through its limited partner Universal Studios or Sony with its SDDS ATRAC (Pro MiniDisc) coding system, who claim their systems are superior in performance to Dolby, can still mount a successful challenge. I personally doubt it in this case.

In theatrical exhibition, however, Dolby now faces stiff competition that threatens

its prominence as the motion picture sound standard. DTS in particular, has been very successful in its challenge to Dolby Stereo Digital (which employs the AC-3 320 kilobits/second codex instead of the 384 kilobits/second data rate for HDTV AC-3). Not only has every Universal Picture been released in DTS since its debut with Steven Spielberg's *Jurassic Park*, but New Line, Paramount and Warner are preparing a slate of films to be released in DTS digital sound. Only Disney's Buena Vista remains exclusive to Dolby Stereo Digital as its feature film format. Sony's SDDS could prove ultimately to be Dolby Stereo Digital's death blow when it officially enters the theatrical competition in April with production units supported with an all Columbia/TriStar Pictures slate released in SDDS. In the end there could conceivably be a theatrical standard other than Dolby for the 1990s and beyond if Dolby cannot get filmmakers to release in its format. Dolby must anchor its digital coding technology in the lucrative consumer market to survive in the rapidly approaching all-digital age which will ultimately supplant analog.

While the sound wars rage at the movies, the electronics industry and the Grand Alliance in particular want to proceed with their business plan to standardize on the picture and digital sound technology and divide the profits amongst the various major players in what is certain to be a multi-billion dollar home theatre entertainment industry. Such plans put profitability ahead of absolute excellence and too often "that's good enough" technology development ahead of "we can do better."

There is no question that Dolby wants to further ensure the universality of their digital surround sound system. They are working closely with the Japanese and other consumer electronics manufacturers to develop a practical means to incorporate their technology into the various consumer equipment hardware that will become available within a year or two. Prototype applications of the AC-3 coding technology to tape and optical disc-based consumer formats have been developed and are expected to be shown at the January Consumer Electronics Show in Las Vegas. In addition, the effort already underway to apply Dolby AC-3 coding to new all-digital cable TV systems is expected to gain added impetus as a result of the Grand Alliance's decision. As to the cost factor, Zoran Corporation announced last September (see story in Issue 5, September/October) that in cooperation with Dolby it had developed, and was imme-

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diately making available, the first digital signal processor capable of implementing the AC-3 algorithm on a single chip. Subsequently Dolby has licensed both General Instruments, the largest cable set-top manufacturer in the United States, and Texas Instruments, and is negotiating with other semi-conductor companies, including Motorola, to manufacture AC-3 chip sets.

Other systems that would have liked to have been considered are now essentially shut out. AT&T wanted to be tested but did not submit their system in time for testing. A DTS or Sony SDDS entry, or for that matter any other system entry such as AT&T's, will now not be a consideration.

These developments, if unchallenged, are expected to foster the rapid availability of Dolby Surround Digital consumer products.

The Dolby AC-3 technology was originally designed to code five full bandwidth channels into a single composite data stream. One of the issues that will be of concern to audiophiles is whether or not improvements can be facilitated within the Dolby AC-3 architecture. According to Mr. Gaspar, "decoder technology won't change. It is locked down as the Grand Alliance standard." This leaves the encoder as the singular area for tweaking of the system in the future.

A New MPEG Standard

The impact of this decision on other delivery systems is significant. For example the decision puts MPEG up in the air. MPEG or the Moving Picture Expert Group under the direction of the International Standards Organization (ISO), began work in the late 1980s on a family of digital compression standards that would offer a strong platform for the widespread interoperability of different types of digital media to support the expansion of digital television around the world and to ensure that proliferating applications work together efficiently and effectively. The initial MPEG efforts—referred to as MPEG-1—centered on regulating the storage of video images on compact disc and other media. Today MPEG has far broader applications—ranging from direct broadcast satellite services to high definition television. Thus the new MPEG-2 standard was born to further refine the standards for digital television, and is expected to be finalized in early 1994. Musicam is MPEG, but the Dolby system and possibly the AT&T system will be tested next year for the MPEG-2 standard. Mr. Gaspar believes



The Zoran/Dolby ZR38000 IC

that Dolby AC-3 coding will be added to the new MPEG-2 standard. With the MPEG video compact disc having been developed by Philips, there will be a dual system if Dolby is accepted as a MPEG standard. Mr. Gaspar sees this as a problem but believes that in the end it will all get worked out.

Ron Slaymaker, manager of digital compression products for the Texas Instruments Semiconductor Group stated: "We believe that the Grand Alliance's selection (of Dolby) has given a lot of potential for AC-3 to cascade into a digital cable set-top box market." Texas Instruments' view is that adhering to the same audio compression standard adopted by the HDTV Grand Alliance will make "interfaces a lot cleaner" for a long-term architecture not only for cable set-top applications but for other media as well. Texas Instruments, who has previously committed to developing and making MPEG digital audio chips based on the Philips-developed Musicam system, realizes that they now have to be prepared to supply both demands. Scientific Atlanta, another major cable/satellite set-top supplier intends to produce whatever the market supports, MPEG and/or Dolby AC-3 devices. In the meantime the ISO/MPEG committee is imminently expected to announce whether Dolby's AC-3, a non-backward-compatible standard with MPEG-1, will be included in the MPEG-2 system standards.

Texas Instruments, who earlier this year developed an MPEG-1 digital audio decoder chip, predicts that MPEG will remain as the preferred system implementation of direct-broadcast satellite (DBS), including Hughes-Thomson's DirecTV and Video CD players, where compatibility between MPEG-1 and MPEG-2 will be important. In the meantime Texas Instruments is developing with C-Cube Microsystems MPEG-2 audio/video decoder technology.

All this is leading to a massive state of

consumer confusion with a proliferation of video compact disc-based products that are thus far all incompatible and, from what has been seen in picture and heard in sound, inferior to the laserdisc, which still has a tremendous potential for significant performance improvements.

The issues get very complex and the politics even more foreboding. If not resolved politically, the Grand Alliance could come apart at the seams. At this writing both Philips and Thomson have decided to stay with and support the Grand Alliance, and adhere to the decision to select Dolby AC-3 digital coding for the HDTV standard with the anticipation that Dolby's system also will be approved as a MPEG standard.

Does It Get Any Better?

A lot more testing should have been conducted before a decision having such a monumental impact on the future of audio delivery to the home was ever made. While there is no question that the Dolby digital technology represents the best audio-for-television that has ever been available before, the impact of this decision to make it the HDTV audio standard will probably lock out any potentially better performance system(s). And since the electronics industry interests, both represented by professional and consumer equipment manufacturers, want to have a universal standard, it is near inevitable that AC-3-based Dolby Surround Digital will become the multi-channel digital surround sound standard for all other media.

Current home theatre system components such as amplifiers and loudspeakers will work well with the emerging digital format(s) no matter what standards will be set forth. The high end enthusiast approach to multi-channel 5.1 quintaphonic full bandwidth digital sound will necessarily require a new laserdisc player designed for the format and a new decoder/processor. This represents the high end sector of the home theatre market and it is this enthusiast market that demands uncompromised performance.

At this juncture no one can know if there are better-than-Dolby digital coding systems out there, because out-in-the-open comparative testing has not been conducted. The majority of people who have heard the Dolby system in a premium B-chain sound system theatre environment think it sounds very good, but virtually no one on the outside has had an opportunity to hear reference masters versus AC-3 coded

Dolby Digital Technology

The HDTV Audio Standard?

clones in direct A/B testing played on a high resolution consumer quintaphonic sound system.

An additional stage of out-in-the-open comparative testing conducted in a variety of consumer listening environments and played on diverse high resolution sound systems would have been a smart course. As it is, the test material criteria is not of a broad enough range to satisfy audiophiles and enthusiasts. If there are fidelity and phase anomalies that later are pointed out by the audiophile community in high resolution sound system testing, then there will be a negative stigma associated with the FCC Advisory Committee standards decision.

The damage will have been done and both the Grand Alliance and the FCC can expect outspoken criticism from the audiophile press. The assertion will be that political factors outweighed the quality and performance factors and the world ends up with a system dictated by a close group with vested interests. Never mind the fact that the Grand Alliance is a "singular" commercial entity with the various manufacturers having a profit motivation interest in their system's marketing. As such, the coalition can be seen to have sought out digital coding technologies to complement its high resolution pictures (without outside consent).

What will be remembered, however, is that the coalition effectively imposed a no-choice, closed-door performance standard endorsed and accorded by the government on what otherwise would have been decided through market competition. Too often a "that's good enough" attitude becomes the credo of such big business interests. Establishing an international video performance delivery system is a monumental task but there are more than three manufacturers with acceptable digital coding technologies who deserve to be tested. If the audiophile community of consumers, journalists, and manufacturers do not demand that the competing digital coding technologies be fully exposed and tested in the open, then the de facto HDTV multi-channel digital audio standard could adversely affect the standards setting of high end consumer home theatre entertainment delivery systems now in the early stages of arriving at a standard. Certainly it is in the interest of the audiophile community to make certain that high end audio digital delivery systems will have the highest performance possible. Until such time that the various digital coding systems

can be listened to and evaluated by experienced and objective audiophiles in familiar reference system home environments, there will be doubt.

Should There Be System Limits?

The Home THX setup used for these tests, for example, did not use full-range loudspeakers but limited bandwidth loudspeakers and a subwoofer. The surround loudspeakers also were not full range, but THX dipoles placed to the sides of the listening area. The THX surround loudspeakers are designed to mechanically diffuse the sound field no matter what the intent of the program creator. That may be the preferred THX approach to listening to a Dolby Pro Logic[®] matrix surround sound movie presentation in order to prevent point source sound (effects) from "distracting" the audience, but it does not represent an optimal approach with full bandwidth discrete surrounds. There is no reason for the surround channels of any system format, be it Dolby Surround or the 5.1 format, to distract the audience at all. And for certain, the "test system" does not represent what the capability of the 5.1 format is all about. An optimal system should be able to reproduce accurately whatever the artist decides to create, and not have that vision mis-represented by limits placed there by sound system designers. Other approaches are better suited to realizing all the potential of the full bandwidth discrete digital system to recreate holographic three-dimensional sound fields. Program material will not, after all, be limited to "old" films mixed the "old fashioned way," but will embrace fresh mixing approaches that explore a new realm of surround sound possibility. Did the Grand Alliance/FCC Advisory Committee forget that the 5.1 systems are designed to be discrete full bandwidth systems when they chose to limit the listening tests to a sound system that was not full bandwidth in each channel? In addition to movies and television programs, listeners will want to hear their favorite recording artists produced in the new format whether it be Barbra Streisand, the Cincinnati Pops Orchestra, or U2.

Certainly other sound system approaches in addition to the Home THX system used deserved to be a reference playback system for the Grand Alliance tests. Some people in the audiophile community are certain to question whether any of the "expert" listeners are known to be an objective,

experienced audiophile listener. They will question whether the group was as consciousness and sensitive as it could have been to how it approached the listening tests. Why, for instance, was not a forum of respected audiophile "golden ear" reviewers from say *Stereophile*, *The Absolute Sound* or *Audio and Stereo Review* magazines and other journals not asked to participate in critical listening tests on their own reference sound systems to comparatively evaluate the test materials? If there had been a call to participate, was it heralded directly at the audiophile media or was it obscured from them in invitations to the various professional engineering societies that they are not members of or the various professional technical publications that they do not read? After all, in the final analysis it will be these same journalists who will critique the pluses and minuses of the system's performance and either tell consumers that it is the greatest thing since sliced bread or give it a thumbs down in the direction of audio hell. Another approach could have enlisted hundreds of experienced listeners as auditors in listening tests in controlled environments.

What's Next?

No one, including this author, is saying that Dolby AC-3 coding is not a wonderful system. Dolby has performed a superlative job at engineering their data rate reduction scheme. Dolby Surround Digital may well turn out to be the greatest, most faithful reproduction of sound since the introduction of stereo, but in the haste of meeting Grand Alliance deadlines, perhaps certain aspects of performance were not detected, not to mention the possibility that other competing systems may offer better performance than the four data reduction schemes tested, but because they were not in the running for these tests they are now locked out for further consideration. If there is one absolute that the FCC Advisory Committee and the Grand Alliance, and Dolby will have to face up to, once it is understood that the test criteria and environment was inadequate for the evaluation, is the pressure that will come from the audiophile community who will express great disappointment that they were, in effect, locked out of the process. More importantly, this community of audiophiles and home theatre enthusiasts will urgently seek to input. ■

Authored by Gary Reber, Editor and Publisher, *Widescreen Review*.

The Studio Scoop

Rumors, Reports, & Ramblings

Jack Kelley

Have you broken your New Year's Resolutions yet? Or were you smarter than most (including me), and just bypassed the whole ordeal of making and breaking them? I made 13 (no superstition here), and am going strong, but with CES (Consumer Electronics Show) just around the corner, and in Vegas...well, one just never knows.

Buena Vista

Last month I reported that *Pirates Of The Caribbean: Dead Man's Chest* sold nearly five-million DVD copies in its first day of release, tying the record with Warner Bros.' *Harry Potter And The Goblet Of Fire*. Well, pirates—not being ones to take tying lightly—set the all-important week-one DVD sales record with 10.5 million units purchased in the United States and Canada, which is 1.5 million more copies than the previous record holder—Buena Vista/Pixar's *Cars*.



DreamWorks

So, have you seen any good movies lately? And I'm not talking about ones on DVD, Blue-ray Disc, or HD DVD. I mean, theatrically. Actually going to the theatre, paying to park, forking out \$10-plus to get in, finding a seat that is unblocked by a big head, and sitting through commercials and previews before the start of the actual movie. When did commercials become part of the movie-going experience? Seriously. Anyhow, I regress. Over the holidays, I did go to the Pacific Theatre in San Diego's Gaslamp Quarter, and saw five-time Golden Globe®-nominated *Dreamgirls*. Pretty amazing. Beyonce, Jennifer Hudson, Eddie Murphy. And I do recommend listening to the soundtrack before seeing it, as it really does add to the experience.



Lionsgate

Keeping everything crossed, we are hoping to have two Lionsgate titles—*Crank* and *Employee Of The Month*—which street on January 9 and January 16, 2007, respectively, reviewed in both standard-definition and Blu-ray Disc formats. In an effort to save valuable real estate in the magazine, and get you the most reviews possible, we are attempting to bundle the various formats into a single review, when possible, regardless of street date. For example, if a title is scheduled to be released at the end of the month, and we have only received the standard-definition disc, we may elect to review the title the following month when we have both (or all three, in some cases) formats available. What are your thoughts? Do you prefer when all formats available are included in a single review? Or do you like them separate?



MGM

MGM had announced two Blu-ray Disc titles to be released in December 2006—*Bulletproof Monk* and *Rocky*. Both titles were to have streeted on the 5th, but due to undisclosed delays, we did not receive them until five days before Christmas...and two days too late to be included for review. This month, two titles have been announced so far—*Flyboys* and *Hart's War*, which have a January 30 street date. Here's to receiving them sooner rather than later.



Paramount

See DreamWorks.

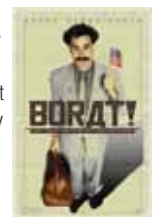
Sony Pictures

So, I was on *Entertainment Weekly's* Web site (www.ew.com) yesterday, um, doing research, and stumbled upon the "worst movie of 2006" poll. Being a poll lover, I read my five choices: *Little Man*, *RV*, *Art School Confidential*, *Firewall*, and *Fur*. The titles, of course, were familiar, as we have reviewed the first four...and of those four, three belonged to Sony Pictures. Snap. I personally watched *RV* and *Art School Confidential* in their entirety, and I can say, without hesitation that I saw worse movies than those two in 2006. You can access our reviews of these titles, sans the-yet-to-be-announced *Fur*, on our Web site (www.WidescreenReview.com). For the record, I, of course, did not vote.



20th Century Fox

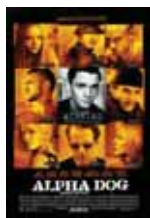
Score another one for *Borat*. As you have probably already read somewhere (or everywhere), two college frat boys were denied when they petitioned to have footage—in which they appear intoxicated and making racist remarks—of themselves cut from the film. They were, however, given the opportunity to petition to have this footage deleted from the DVD. But in December, they were again denied. Double snap. You can grab your own copy of *Borat: Cultural Learnings Of America For Make Benefit Glorious Nation Of Kazakhstan* on March 6, 2007. Man, just think, in less than two months you can own the movie that has been reported to be the cause of Kid Rock and Pamela Anderson's divorce. Such a tragedy.



Continued from page 9.

Universal Studios

Got any plans this Friday (01/12/07...to be precise...just in case this newsletter is late going out)? If you're a fan of real-life-brought-to-the-screen-type movies, the much anticipated, and controversial, *Alpha Dog* makes its premiere. It is based on the life of Jesse James Hollywood, a 5-foot 5-inch Los Angeles drug dealer, who allegedly abducted and then ordered the execution of Nicholas Markowitz, the teenage brother of a fellow drug dealer and debtor, in August 2000. Hollywood then fled to Brazil, where he taught English and was allegedly financially supported by his parents, all while the FBI searched for him. On March 9, 2005, after nearly five years, he was apprehended and extradited back to the states. *Alpha Dog* stars Ben Foster, Emile Hirsch, Sharon Stone, Justin Timberlake, and Bruce Willis.



Warner Home Video

Did you know Warner Bros. has a new unit? Neither did I, that is, until I read about it in *Video Business*. It seems that direct-to-video DVDs do quite well, financially. (But, as a reader of this column, you already knew that.) So, hoping to bank on that, we now have the Warner Premiere unit, which expects to generate 10 to 15 direct-to-DVD prequels per year. *The Dukes Of Hazzard: The Beginning*, starring April Scott, Jonathan Bennett, Randy Wayne, and, of course, Willie Nelson, will be the first, and will be available on March 20, 2007 for \$27.99. A \$1.01 saving from the original. **WSR**



Contrary to popular opinion, Research/Production Editor Jack Kelley is not responsible for any release date changes, price changes, or any other perceived errors contained within. He can be reached at jack@widescreenreview.com.

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