



The Essential Home Theatre Resource™
Widescreen Review
DEEP IMPACT
 THE TECHNOLOGY OF 3-D CINEMA

ISSUE 132
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May 2008 • Volume 3, Issue 24 • The Official FREE Newsletter Of Widescreen Review Magazine

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NEWSLETTER



www.triadspeakers.com

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WELCOME!

Happy May! Dads and grads are on everyone's minds at this time of year, and with all the latest offerings in Home Theatreland there is sure to be the perfect gift out there for the man, woman, or child in your life. And in case you need a few ideas, we have introduced several new products in the "Coming Soon To A Retailer Near You" column. Stacey Pendry has been very busy with our DVD Giveaways, which are proving to be extremely popular with our readers. In addition to the single-title DVD contests she has arranged, Stacey has also organized a Spectacular Summer DVD Giveaway that you can read all about in "The Studio Scoop." "They" say that nothing is free, but this is one instance where "they" are wrong. Be sure and enter, and you could be the lucky winner of any number of free DVDs. This month's archived IMAX® article is from the December 1997 Issue #26, a warm up for an updated article on 3D technologies in the cinema, which begins in Issue 132 June 2008 of *WSR*.



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

NOW AVAILABLE ON NEWSSTANDS

Issue 132, June 2008 of *Widescreen Review*:

- "Marantz VP-11S2 1080p DLP™ Projector" By Greg Rogers
- "Russound® Complement LCR7 & SUB105 On-Wall Loudspeakers & Powered Subwoofer" By Gary Altunian
- "Samsung BD-UP5000 Duo HD Player" By Mike Marks
- "An HD Optical Disc Timeline: Our Coverage Of The Competing Formats" By Danny Richelieu
- "The Digital Dilemma: Preserving Today's Films For Tomorrow's Audiences" By Bob Fisher
- "Deep Impact Part I: The Technology Of 3D Cinema" By Alen Koebel
- Plus the new department "Connecting Dots..." By Amir Majidimehr, "Your Letters," "One Installer's Opinion" and 38 Blu-ray Disc and DVD picture and sound quality reviews and more...



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By John Sunier

Sponsored By Triad:



Coming Soon... To A Retailer Near You

Tricia Spears



Stewart Filmscreen StarLift

Stewart Filmscreen has introduced **StarLift**, a motorized mechanism designed to raise and lower the company's innovative StarGlas rear-projection screen. StarGlas takes a thin image layer and sandwiches it between two pieces of glass. The StarLift is a convenient and efficient way to house this large piece of

glass, allowing a StarGlas screen to be placed virtually anywhere. The StarLift mechanism can be integrated into a piece of furniture, allowing the screen to be hidden from view until needed. Available in two models and pre-installed with a StarGlas screen, the **65H** can be fully extended to a height of 34 inches and 57 inches wide, and the **72H** is 37 inches high with a width of 63 inches. Available in tempered or non-tempered glass, the 65H starts at \$9,000.

Stewart Filmscreen 310 784 5300 www.stewartfilmscreen.com

Available from **K-2 Mounts** are three new universal mounting brackets for flat panel televisions, the **K2-A2-S** (\$150), **K3-A2-S** (\$450), and **K4-A1-S** (\$550). Each mount is made from solid steel construction with a powder coat finish. With a maximum tilt of 15 degrees and an articulating arm horizontal adjustment of 180 degrees, the included hardware and integrated bubble level on the mounts make installation straight and easy. The K2-A2-S is designed for 13-inch to 30-inch TVs, the K3-A2-S is designed for 32-inch to 45-inch sets, and the K4-A1-S is designed for TVs between 45 inches to 60 inches in size and weighing up to 198 pounds.



K-2 Mounts K4-A1-S

K2 Mounts 866 526 6868 www.k2mounts.com

Russound's RFR-E5 two-way RF remote control is a true multiroom remote control that includes local IR support for operating up to three local sources, while RF technology extends the product's reach to other rooms in the house. Featuring a user-friendly, clickwheel design and a high-resolution display, the RFR-E5 relies on IP and Zigbee RF technology to communicate with an ACA-E5 Multizone Controller from anywhere in the home. The remote communicates with a cradle base station, which features a 10-base T Ethernet port that connects to Russound's E-Series ACA-E5 Multizone Controller Amplifier through a network router or switch. The cradle also charges the remote when not in use. The RFR-E5 will begin shipping in the second quarter of 2008.



Russound RFR-E5

Russound 866 888 7466 www.russound.com

The **Infinity Classia Series** loudspeakers include a compact bookshelf monitor, the **C205**; a wall-mountable center channel, **CC225**; a floorstanding tower, **C336**; and a wall-mountable surround loudspeaker with selectable mono-pole/bipole/dipole/dual-loudspeaker operation, the **C255ES**. All the drivers in the Series incorporate CMMD driver technology and a CMMD tweeter with frequency response that extends to beyond 40 kHz. All the models utilize premium-grade parts and construction, with well-braced enclosures designed to minimize cabinet colorations and preserve subtle musical detail. The loudspeakers are available in high-gloss black and cherry-wood veneer and range in price from \$330 to \$900 each.



Infinity Classia Series

Infinity www.infinitysystems.com



Jamo R 907

Jamo's R 907 loudspeaker is a smaller, more affordable version of the company's flagship dipole R 909. Featuring 12-inch woofers, the R 907 is approximately 20 percent shorter and 15 percent slimmer than its predecessor but with operation identical in principle. By decoupling and fully suspending the loudspeaker's 25-mm silk-dome tweeters from the rest of the loudspeaker, vibrations transmitted from the front baffle to the tweeter are reduced by more than 20 dB. Available in a sleek red or black finish, the R 907s are available for \$9,000 a pair.

Jamo 877 456 JAMO www.jamo.com

Panasonic's latest Blu-ray Disc™ player, the **DMP-BD50**, includes BD-Live capability, which uses the Internet to further enhance the consumer's entertainment experience by giving users the ability to download such data as images and subtitles and to be able to join in multi-player interactive games that are linked to bonus movie content contained on Blu-ray Discs. The DMP-BD50 also features the PHL Reference Chroma processor and P4HD i/p conversion processor, which combine to create Uniphier®, a precise digital video processor that produces sharp, crisp, natural colors. The DMP-BD50 employs VIERA Link™, a technology that allows the consumer to operate VIERA Link-equipped home theatre components with a single remote. Also included in the DMP-BD50 is an SD Memory Card slot for easily transferring images from an HD camcorder or digital still camera via an SD Memory card.



Panasonic DMP-BD50

Panasonic 800 211 7262 www.panasonic.com

JVC is introducing a new line of super-slim Full HD televisions that weigh less (26.4 pounds) and consume less power (145 watts) than conventional LCD TVs. The slim design was made possible through the use of a new JVC-developed slim panel backlight unit and power supply substrate, or chassis,



JVC Super-Slim Full HD Televisions

and is 40 percent smaller in depth and bezel width compared to a conventional LCD backlight. The 42-inch **LT-42SL89** and 46-inch **LT-46SL89** both offer 1920 x 1080p resolution and feature a cabinet that measures a mere 1.5 inches deep across most of its width, with a maximum depth of only 2.9 inches at the panel's center. JVC developed the slimmer backlight unit by optimizing the light-diffusing plates and light-reflection sheets. They also included a slimmer yet efficient power-supply substrate and employed a direct-mount configuration for it on the LCD panel backlight unit with a fan-less heat dissipation system to further reduce power consumption. Both models will be VESA compliant for easy wall mounting, but JVC will also offer its own mounting solution—a wall mount designed to position the slim TV closer to the wall than a standard mount does. The LT-42SL89 and LT-46SL89 will be available in early summer 2008.

JVC 800 526 5308 www.jvc.com



Toshiba America Consumer Products has introduced a full line of DVD products designed to enhance the video entertainment experience for the consumer. The three portable DVD players—the **SD-P71S** (\$130), **SD-P91S** (\$180), and **SD-P101S** (\$300)—include larger screen sizes, sleek cosmetic designs, extended battery life, and convenient swivel screens. The LCD TV/DVD combination models—the **19LV505** (\$480), high-gloss white **19LV506** (\$480), and **22LV505** (\$600)—are LCD televisions with slot-loading DVD players included in the units. Available in 19-inch and 22-inch diagonal screen sizes, each set features a high-gloss bezel and slim cabinet design. The upconverting single-deck DVD players—**SD-4100** (\$40) and **SD-6100** (\$70)—feature digital cinema progressive scan, ColorStream Pro component video output, and JPEG and MP3 playback. The SD-6100 features REGZA® Link (HDMI CEC) for a simplified device control using only one remote and offers upconversion to 720p, 1080i, and 1080p resolution. And Toshiba's new line of DVD Recorders—**D-R410** (\$120), **D-R560** (\$180), **D-VR610** (\$180), and **D-VR660** (\$250)—all feature high-definition upconversion capabilities and convenient one-touch recording. The D-R410 and D-R560 are single-deck DVD recorders that offer 1080p unconversion and feature a high-gloss black cosmetic design, while the D-VR610 and D-VR660 are multi-format DVD recorders that offer 720p, 1080i, and 1080p unconversion.

Toshiba 800 631 3811 www.tacp.toshiba.com

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The Essential Home Theatre Resource™
Widescreen Review

The Studio Scoop

Rumors, Reports, & Ramblings

Stacey Pendry

Current/Future DVD Giveaway Contests

Be sure to check out our monthly DVD Giveaway contests located on the home page of our Web site. You have until May 29th to enter to win our current title: *P.S. I Love You*. Congratulations to our April *The 11th Hour* DVD contest winners.

Our Spectacular Summer DVD Giveaway will begin on May 14th with seven fantastic titles from Warner Home Video to choose from. The titles confirmed for this multi-title contest include: *The Bucket List* with Jack Nicholson and Morgan Freeman; the romantic comedy, *Fool's Gold*, starring Matthew McConaughey and Kate Hudson; 30 days and 30 nights of on-the-road behind-the-scenes side-splitting fun with Vince Vaughn's *Wild West Comedy Show*; the epic, prehistoric sci-fi spectacle *10,000 B.C.*; *Be Kind Rewind*, the hilarious comedy starring Jack Black and Mos Def; *Semi-Pro* featuring Will Ferrell with the greatest 'Fro on Earth; and finally the two Corey's reprise their roles from the iconic 80's flick *The Lost Boys* in *Lost Boys: The Tribe*.

Our very first Blu-ray™ giveaway contest is here: *Weeds: Season Three* is up for grabs! Enjoy the antics of drug-dealing soccer mom, Nancy, and the other quirky residents of Agresta, California in the popular Showtime series. The DVD/Blu-ray will be available for purchase on June 3rd.

You may enter any of the above contests either by clicking the images displayed in this newsletter or online via the homepage of our Web site (www.WidescreenReview.com).

The Spectacular Summer DVD Giveaway contest may also be entered by either faxing or mailing the entry form located on page 57 of the June issue of *Widescreen Review*. With titles to cater to every taste, and over 100+ winners, this is sure to be not only one of our biggest multi-title giveaways to date, but also one of our most popular. Good luck!

Warner Bros.

Alan Horn, COO of Warner Bros., has announced that both Picturehouse and Warner Independent Pictures will close.

In a statement, Horn said, "With New Line now a key part of Warner Bros., we're able to handle films across the entire spectrum of

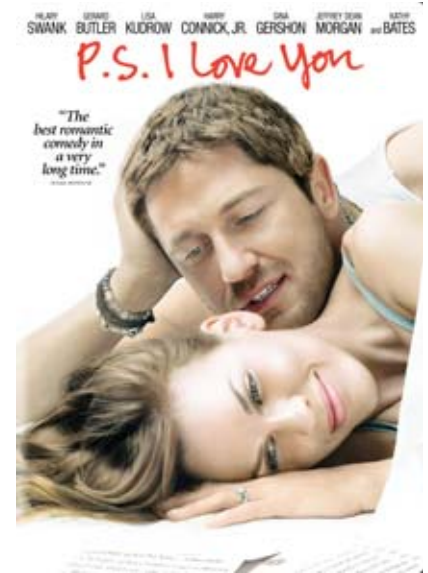


genres and budgets without overlapping production, marketing, and distribution infrastructures. After much painstaking analysis, this was a difficult decision to make, but it reflects the reality of a changing marketplace and our need to prudently run our business with increased efficiencies. We're confident that the spirit of independent filmmaking and the opportunity to find and give a voice to new talent will continue to have a presence at Warner Bros."

Executive Producers Peter Jackson and Fran Walsh announced late last month that Guillermo del Toro has been signed to direct the highly anticipated film *The Hobbit* and its sequel *The Hobbit 2*. This is seen as a major step forward for the production of the New Line/MGM project that is due in theatres in 2010 and 2011, respectively.

Del Toro will be moving to New Zealand for the next four years to work on the projects with Jackson and his Wingnut and WETA production crews. *The Hobbit* and its sequel will be filmed back to back, with the plot of the sequel revolving around the 60-year period between the end of *The Hobbit* and the beginning of *The Fellowship Of The Ring*.

New Line will oversee development and will manage the production of both projects, with both pictures co-produced and co-financed by New Line and MGM. Warner Bros. is set to distribute domestically and MGM internationally.



Ice Age Director Chris Wedge is due to adapt Brian Selznick's children's novel, *The Invention Of Hugo Cabret* for Warner Bros. John Logan, who wrote scripts for *The Aviator*, *Sweeney Todd: The Demon Barber Of Fleet Street*, and *Gladiator* has been signed to pen the project.

The story revolves around Hugo, an orphaned son of a clockmaker who is taken in by his uncle, who lives in the walls of a busy Paris train station. The uncle is in charge of maintaining the station's clocks, but one day he too disappears, leaving Hugo alone. Without adult supervision, Hugo must scavenge and steal to survive, all the time maintaining the clocks of the train station so his uncle's absence will not be discovered.

Paramount

Sumner Redstone, Chairman and CEO of Paramount's parent company Viacom, stated he would have no objection if Tom Cruise were to star in the next installment of the *Mission: Impossible* franchise.

It was Redstone that ended Paramount's 14-year relationship with Cruise and his business partner Paula Wagner in August of 2006, after publicly criticizing the actors' impetuous behavior. Redstone felt that Tom jumping on a couch on *The Oprah Winfrey Show* proclaiming his love for fiancée Katie Holmes, and having a verbal tussle with *Today* show host Matt Lauer over prescription anti-depressants was a liability for the studio.

However, Cruise is now in talks with Paramount about reprising his role in the fourth *Mission: Impossible* film. The two were spotted dining out together in Beverly Hills last March. Redstone is quoted as saying, "I consider Tom Cruise a great actor and good friend. And if Paramount decides to move ahead with him, I will not object," adding the final decision was "up to Brad Grey, who runs Paramount."

With the high-definition optical disc format war over, Paramount announced late last month they would again enter the Blu-ray™ arena when the studio releases the animated *Bee Movie* on May 20th. Other titles slated for release on the same day are *Face/Off* and *Next*.

Paramount originally supported both the HD DVD and Blu-ray formats, but switched to HD DVD exclusively last summer after Toshiba offered substantial monetary incentives for them to do so.

The studio has plans to reissue older titles on Blu-ray throughout the year with two more recent titles, *There Will Be Blood* and *Cloverfield*, slated for retailer's shelves on June 3rd. The first day-and-date release scheduled is the family fantasy film *The Spiderwick Chronicles*, which will be available for purchase in both standard DVD and Blu-ray formats on June 24th.

Iron Man looks to be the summer blockbuster to beat as the film netted over \$100 million during its opening weekend, according to domestic box office receipts. The hugely popular Marvel Studios-produced film represented the second-biggest opening weekend for a non-sequel feature, after the \$114 million record set by *Spider-Man* in May 2002.

Iron Man enjoyed almost uniformly positive reviews ahead of its opening weekend, drawing patrons who were willing to stand in line and cough up the ticket price, by the droves. *Iron Man*'s popularity may benefit others beside Paramount and Marvel by jump-starting the summer movie season and creating a buzz and sense of escapism that may drive more would-be cinema goers back to the air-conditioned comfort of the local cineplex.

With the opening of Warner Bros.' *Speed Racer* the weekend after *Iron Man* debuted, Paramount execs are hoping word-of-mouth will keep *Iron Man* at the top of the box office earners' list.

Universal

Universal has announced its initial slate of film and TV titles to be released on Blu-ray after switching from HD DVD earlier this year.

Starting July 22nd, such catalogue titles as *The Mummy*, *The Mummy Returns*, and *The Scorpion King* will be available on retailer's shelves. Later this summer the first theatrical release that will be available day-and-date with its DVD counterpart will be the action-adventure flick *Doomsday*. Also to be released day-and-date with the DVD is *Heroes: Season Two*, complimented by the first-time release of *Heroes: Season One* on Blu-ray.

By the holiday season, some of the most highly anticipated summer blockbusters will be available in high-definition along with the DVD. Major releases such as *The Incredible Hulk*, *Hellboy II: The Golden Army*, *Mama Mia*,

The Mummy: Tomb Of The Dragon Emperor, and *Wanted* have the potential to nudge the Blu-ray format into the consumer mainstream.

Others properties announced for Blu-ray release in 2008 are *American Gangster*, *The 40-Year-Old Virgin*, *Knocked Up*, *Miami Vice*, *U-571*, *End Of Days*, and *Land Of The Dead*, with more titles likely to be announced soon.

Taking Woodstock, Ang Lee's next project, is said to be eyeing comedian Demetri Martin to star in the James Schamus' script adapted from Elliot Tiber's memoir.

Martin is being courted to star as Tiber, a closeted gay man working at his parent's hotel in the Catskills, who inadvertently sets into motion the generation-defining cultural event that was Woodstock.

Focus Features, a subsidiary of Universal, is hoping to begin production on this project in late summer 2008.

Universal showed further faith in their Sci-Fi Channel drama *Battlestar Galactica* by signing up for a spin-off series *Caprica*, a prequel to *Battlestar* set 50 years earlier.

Esai Morales (*Jericho*) has been signed to play Joseph Adama, the deeply moral father of William Adama (played by Edward James Olmos in *Galactica*). Also cast is Paula Malcomson (*Deadwood*) as a surgeon who also is a double agent.

Production on *Caprica* is due to begin before summer, and the Sci-Fi Channel is eyeing a December 2008 premier date.

Sony

Columbia Pictures has acquired the rights to the David Caspe comic script, *I Hate You, Dad* with Happy Madison set to produce the project.

The comedy's plot revolves around a father who moves in with his son on the eve of his wedding, endangering the nuptials by promptly rowing with the bride-to-be.

Two other Happy Madison productions will be released by Columbia this summer: *You Don't Mess With The Zohan* starring Adam Sandler opens on June 6th and on August 22nd *The House Bunny* hits the cinemas, which is a film about a displaced Playboy Bunny that befriends a group of college sorority sisters.

Caspe is also currently penning another project, *Sensei* for Summit Entertainment.

Superbad, the Sony-released buddy-comedy, has garnered a total of five nominations for the 17th Annual MTV Movie Awards, it was announced on May 6th. The awards show will air live on MTV on June 1st, with Mike Myers hosting the event for the second time in its history.

With nominations in such top categories

as Breakthrough Performance, Best Comedic Performance, and Best Movie, the chances are good that the teen comedy will walk away with at least one of the coveted golden bucket of popcorn trophies.

Michael Cera received a nomination for Breakthrough Performance for *Superbad*, while also receiving the nomination for Best Male Performance for his role in the teen pregnancy comedy, *Juno*. Jonah Hill received a nod for Best Comedic Performance for his portrayal of Seth, the chubby, deadpan, horn-ball teenager on the hunt for alcohol in *Superbad*.

Can you feel the McLovin'?

Lionsgate

Lionsgate has acquired the North American distribution rights to Oliver Stone's upcoming political bio-pic *W*, which is about George W. Bush's life and formative years.

Josh Brolin is slated to star in the title role. Also cast is Elizabeth Banks (Laura Bush), James Cromwell (George H.W. Bush), Ellen Burstyn (Barbara Bush), Thandie Newton (Condoleezza Rice), Jeffrey Wright (Colin Powell), Scott Glenn (Donald Rumsfeld), and Ioan Gruffudd (Tony Blair). The only central character left not cast at the moment is for the role of Dick Cheney.

Stone sited that he was pleased Lionsgate had the independence necessary to bring his provocative film to the American audience. "We don't really know much about Mr. Bush beyond the controlled images we've been allowed to see on TV. This movie is a bold stab at looking behind the curtain."

The film will have a budget of under \$30 million and was due to start shooting May 12th in Louisiana. The premier date is slated for October 17th, a full three weeks prior to the November 4th presidential election.

Lionsgate is so confident that Frank Miller's adaptation of Will Eisner's comic book series *The Spirit* will be able to hold its own against holiday heavy hitters that they have moved the release date from January 16, 2009 forward to a Christmas 2008 premier, pitting it against Disney's *Bedtime Stories*, starring Adam Sandler, and 20th Century Fox's *Marley And Me*, starring Jennifer Aniston and Owen Wilson. Lionsgate made the decision after the project was presented to fans at New York Comic-Con.

The action-adventure romance revolves around a slain rookie cop that returns from the dead to fight crime and find a cold-blooded killer. Already cast are such A-List talents as Samuel L. Jackson, Scarlett Johansson, Eva Mendes, and Gabriel Macht.

This is Miller's (*Sin City*, *300*) directorial debut; he also adapted and penned the script for the project. **WR**

Spectacular Summer **DVD** Giveaway Contest

Just complete the contest form below and mail it or fax it to us. We will draw names at random the first week of August 2008.
7 TITLES—MORE THAN 100 WINNERS!



NAME _____

ADDRESS (NO P.O. BOXES) _____

CITY _____ STATE _____ ZIP CODE _____ COUNTRY _____

DAYTIME PHONE _____ EMAIL _____

DVD PREFERENCES

1) _____ 2) _____ 3) _____

Mail to: Widescreen Review, 27645 Commerce Center Drive,
Temecula, CA 92590. Fax to: 951-693-2960. Enter online at:
www.WidescreenReview.com. All DVDs are NTSC Region 1.

Entries must be received by July 31, 2008.

Titles preferred are not guaranteed to be won. One DVD winner per physical address.



As Wide And As Deep As It Gets

► THE NEW 3D IMAGE AND 3D BINAURAL IMAX®

JOHN SUNIER

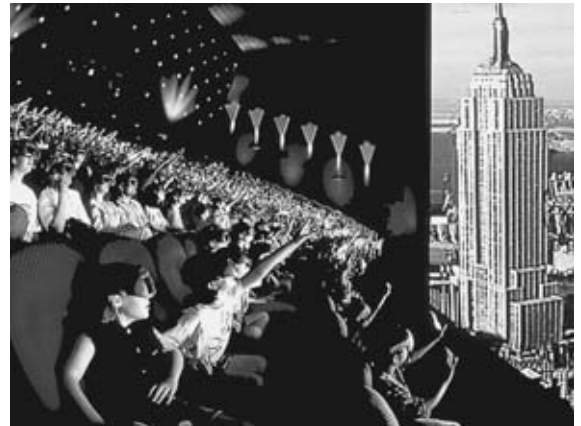


Left: Entrance of Sony Theatre, Broadway & 68th, NYC, showing some of escalator.

Downstairs area is a normal 35mm multiplex house.

(Photo: M. Lorenzetti)

Right: IMAX® 3D Theatre interior space, with eight-story-high screen.



The Experience

As Hollywood blockbuster features have become wider, longer and louder, with special effects never dreamed of just a decade ago, audiences may think they've seen and heard it all. The next dimension in filmic story telling, IMAX® 3D, serves proof that they haven't.

You enter the New York Sony-IMAX® Theatre at street level off Broadway and 68th. After ticket purchase you ascend a series of escalators that take you higher and higher. As you enter the 500-seat theatre proper an attendant hands you a cumbersome looking but actually lightweight 3D headset, the Personal Sound Environment®. The theatre seating is sharply raked and in front of you is a silvered 80 by 100 foot screen, equal to the height of an eight-story building.

When everyone is seated a host explains some of the points of IMAX 3D and helps you to properly set up your headset. There are no wires to worry about because both the signals to operate the liquid crystal 3D lenses and those bringing the binaural soundtrack to your ears are carried via banks of infra red transmitters on the sides of the theatre.

The show begins and you quickly appreciate how far ahead this is of any other 3D or widescreen film presentation you have ever experienced. First, the screen image is high resolution from edge to edge and top to bottom, without distortion toward the edges. Second, in spite of the dark liquid crystal filters over each of your eyes, the image is nearly as bright as a standard-screen 2D projected film. The depth of the 3D image is natural and completely rounded; no cut-out, cardboard type of images here as with many stereo vision processes. There is no need for the image equivalent of ping-pong stereo demos here—the spear in the eye type of thing. The simplest scene on the giant screen puts you right in the picture, without strain of eyes or brain. And when the camera peers over the edge of a skyscraper

rooftop, for example, Wow! Where did your stomach go?

The sound half of the experience seems to come from the multiple speakers behind the huge screen, and much of it does. But in addition, and this is the key to putting you in the sound environment as well as the image environment, there are two small ear speakers in the Personal Sound Environment (PSE® after this). These are nearly full range speakers but with a cutoff at about 100 Hz, at which point the subwoofers behind the giant screen take over. The signals fed to these ear speakers come primarily from true binaural dummy-head original recordings. They put you wherever the original sounds occurred, with a seamless spherical soundfield all around you. In conjunction with the screen speakers they tie you securely to the images on (in) the screen so that there is never a question of whether a particular specific sound is located behind you or in front.

The Latest IMAX 3D Feature

While several of the more recent IMAX/Omnimax features have been shot in 3D and will provide material for the 3D theaters that will be built or converted around the world, the one that opened in New York in November 1995, is the first to make extensive use of the 3D sound capabilities of the new format. It becomes a "You Are There" sound experience rather than a "They Are Here" one.

"Across the Sea of Time" is a 51-minute 3D feature with an involving story line. Tomas is a 12-year-old Russian stowaway on shipboard, coming to America for a very special purpose. Almost 100 years ago his ancestor emigrated to America to start a new life for himself. The ancestor became an early stereo photographer, creating the commercial black and white stereopticon cards for viewing in the small wooden hand viewers so popular at the time. He sent these back to his old world family—stereo views of his new home in New York City. Now Tomas has come to New York to try to find his long lost relatives, and touchingly shows many people his treasured few stereopticons while enquiring in sign language if they know where these old places are.

A number of these sites still stand, such as the statue in front of the stock market on Wall Street. The producers of the film scoured a collection of rare stereopticons of New York City to assemble those used in "Across the

The PSE® System

Sonics Associates' proprietary hardware system and specialized recording technology removes the constraints of two dimensional sound and can place sounds at any point in space around the audience.

They explain that in conventional theaters the sound may be localized on a point up on the flat screen or somewhere in the soundfield provided by the surround speakers, but these sounds are never at a specific identifiable point in space. For example a car door sound of closing on the normal screen will be connected by the mind as long as it comes from somewhere in the vicinity of the image of the door on the screen. However, in 3D this becomes a major problem when the car door appears to be located halfway between the viewer and the screen. With conventional speakers at the screen this could result in the visual image appearing to be separated from the sound by more than 50 feet, making it impossible for the mind to connect the two events. The mind will perceive something is wrong with the experience. The PSE moves the sound out from the screen and positions the apparent source of the sound as close as possible to the 3D visual image. The mind not only connects the two events but encourages suspension of disbelief in the observer that makes the action come alive.

With the PSEs there are no bad seats anywhere in the theater, as with conventional sound systems. The experience is the same for every seat, regardless of location. The wireless sound source gives the listener complete freedom of movement without the feeling of being tied to the seat. The PSE design permits all ambient sounds outside of the headset to be heard clearly. The headsets are powered by lightweight rechargeable batteries. Without the 3D glasses the PSEs can also perform in a sound-only experience, such as rides.

Sonics chose a modulated infra red carrier for the image sync and sound transmission. This reliable approach was selected to offer almost complete freedom from regulatory encumbrances in every country. Interfaces are provided to feed the signals from a variety of sound sources including digital audio or multi-track analog tape. When used with the Sonics 6 or 8 channel Digital Disc Player system, the ultimate experience is obtained.

FROM The Archives

Abbey Road London scoring session with John Barry on the podium. Note the headphones on all orchestra members.

(Photo: Brian E. Rybolt)



Sea of Time." They had to build the world's largest Wheatstone Viewer, patterned on those used around the turn of the last century. Each of the two images was precisely aligned and then filmed individually on a special copy stand with the massive IMAX camera. The special stand allowed for moving around on some of the images, and one of the most affecting is a vertical tilt down a large crowd of the expectant faces of new arrivals at Ellis Island. Another pans across grimy workmen eating their lunch in the dark tunnels of the under-construction New York subway. In spite of being monochrome, frozen, and the 3D effect lacking the convincing "rounded realism" of newly-filmed IMAX footage, one feels as though you could walk right over and chat with the workers looking at you across the sea of a century. The binaural realism of the sound environments, taped on the spot where both the black and white stills and the modern scenes were photographed, aids in making the older stereopticons come alive for the viewer. The plot of "Across the Sea of Time" allows for plenty of modern-day New York City touring, too. One of the highlights is the rollercoaster ride, which may bring back memories of the original Cinerama feature for those old enough. If the Cinerama scene made your stomach queasy, better cover your lenses for the IMAX 3D plunge!

3D Then And Now

Sir Charles Wheatstone first used the principle of stereopsis—the ability of our spaced-apart eyes and our brain to give images depth, width and height—to create his Wheatstone Viewer in 1838. His images were hand-drawn geometric shapes. Later the new invention of photography made more realistic 3D possible with a hand-held device using a pair of photos shot by a camera with two lenses about 2.5 inches apart—similar to the human eyes.

The popular ViewMaster, with its small square transparencies mounted on a revolving cardboard disk, will be familiar to most today. From the very beginning of the motion picture industry, experimental 3D films were put on the screen. The first 3D short showed views of New York in 1915, and the first 3D feature film was shown in 1922. One system used a pair of interlocked projectors showing alternating black &

white images. Every theater seat had a rotating shutter disk attached to it and synchronized with the projectors to block out alternate images so that the left camera images were seen only by the left eye and the right images only by the right eye.

In the 1950s there was a rebirth of 3D films due to the movie industry hoping to win back audiences from television. Hollywood turned out fifty-four 3D feature films, mostly with the polarized glasses originally developed before the Second World War by Edwin Land, founder of Polaroid. Some of the titles were *Bwana Devil*, *House Of Wax*, *Creature From The Black Lagoon* and *The Maze*. Many black & white features (such as the last two) used the simpler anaglyph process of red and blue/green lenses instead of more expensive polarized ones. The projectors had matching filters over the left and right projection lenses and the audience wore flimsy cardboard glasses with cellophane lenses that distorted the images on the screen. This process could produce a roaring migraine in the viewer very quickly; more so if the projectionist failed to have the two projectors exactly in sync or lined up properly on the screen. Just a couple frames out of sync and one eye's image 10 percent higher on the screen than the other eye was pure visual torture! (I recall purchasing a fancy pair of custom plastic-frame 3D polarized glasses to avoid the throwaway handouts at the theater, but just after buying them the 3D fad ended and I never used them once. They can't be used as sunglasses because the polarity angles are wrong.)

The IMAX 3D process is the most advanced filmic 3D technology today. It employs the



Closeup of audience members experiencing the film with PSE headsets on.

world's biggest motion picture camera, although at 250 pounds the new camera used for this production is a lightweight compared to the previous 2000-pound IMAX behemoth. The smaller camera allowed shooting only a few inches away from some of the actors— never before tried in a 3D film. The camera burns 20 times the film stock of a standard Hollywood model—2000 feet of 70mm every three minutes! And that is when running at the normal 24-frames-per-second speed; there is also a capability for 48-frames-per-second High Definition IMAX, but it has so far not been used due to the doubling again of the already immense film stock requirements.

The first IMAX color 3D film was made for Expo 1986 in Vancouver. (I'll never forget one shot with flying Canadian geese, where you felt you were one of the geese flying right along with them!) The IMAX film frame, ten times the size of standard 35mm film and the largest film for-



Left: John Barry (on left) and recording engineer discussing PSE headsets.

Top: John Barry and engineer at the console during Abbey Road recording session.

(Photos: Brian E. Rybolt)

second. You see first only with your left eye and then only with your right eye as the shutters on the PSE are perfectly synchronized with those on the projectors. There is absolutely no "ghosting" of images common with other 3D formats. Polarizing filters are not required, though they can be if wished. The process is based on the same stereopsis principle that created 3D images for viewers through Wheatstone's first stereoscope—it's just speeded up to today's faster tempo! So in "Across the Sea of Time" you are seeing both the oldest and the newest of 3D techniques.

Other IMAX 3D Current Presentations

At least two other 3D productions are being shown in rotation with "Sea of Time" at the New York Sony IMAX Theatre, and also at the Edwards Theatre in Irvine, CA. They will be seen later in other parts of the world as the 100 IMAX theaters around the globe are converted to 3D image and sound.

"Wings of Courage" is the first IMAX feature with leading stars and directed by a major motion picture director. Jean-Jacques Annaud combines a high adventure tale with a creative use of the 3D technology in this true story about the French airmail service operating out of Buenos Aires in 1930, flying mail over the perilous Andes Mountains. Val Kilmer, Tom Hulce, Craig Sheffer and Elizabeth McGovern have leading roles and the original musical score is by Gabriel Yared. In addition to putting the viewer right in the cockpit with the daredevil pilot soaring the jagged and threatening peaks, it also puts the pilot's own thoughts into the viewer's head through the use of the binaural technique. When his plane goes down and he forces himself to walk back to civilization you hear him in your own head repeating to himself the exhortation "I'm walking, I'm walking..."

The other IMAX 3D film has no story but is a journey through some of the amazing plant, animal and geological sights in the mostly unexplored

Special Sonic Speakers

The Sonics Proportional Point Source™ loudspeaker was specially designed for IMAX and Omnimax theatres. It employs a custom enclosure, proprietary horns and electronics to virtually eliminate variations in volume and sound quality over the seating area of the theatre.

Conventional speaker technology for large spaces has serious limitations. Such a speaker can do an excellent job of reconstructing a signal, but only over a relatively small area. This is due to two factors: the stacking of the drivers on top of one another causes the various spectrum bands to arrive at the listener at different times when the listener is seated above or below the center position; while subtle, this affects the timbre and confuses the brain's ability to localize the sound. Secondly, each of the components in conventional speakers radiate sound energy in a different pattern, none of which are well suited to the IMAX environment. High frequency components especially have a limited oval-shaped dispersion pattern; those seated outside of the pattern close to the particular speaker will hear a very loud but muffled sound, and those seated at a distance outside the pattern will have difficulty hearing the sound from the speaker at all. These variations detract from the sonic experience for all but those audience members lucky enough (or smart enough) to rush for the center seats in the theatre.

The Sonic Proportional Point Source solution places the components inside each other so that the signals from each component arrive at the listener with the same time relationship regardless of their position in the theatre. The high frequency reproducer is nested inside the mid-frequency element, which is in turn surrounded by the low frequency reproducers. The effect is sound emanating from a single point in space. The horns are matched to project the sound from each element in a pattern tailored to the shape of the particular IMAX theatre. Sound is projected more efficiently to the seats farthest from the speaker to counteract the volume drop caused by distance, thus assuring consistent sound for every member of the audience.

mat in the world, allows projection to immense screens which with smaller formats would result in an extremely dark and grainy image. The challenge is to put enough light energy behind each frame; more on that later. The normal projector setup for 2D IMAX presentation—already much larger and immensely more complex than any 35mm film projector—has to be in effect doubled to project the two huge 90-inch diameter individual film platters of 3D IMAX. The first platter of 70mm film stock holds the film recorded by the left lens of the original IMAX camera, while the second separate platter of film holds the images recorded by the right camera lens. The IMAX projector projects the left and right eye images onto the giant screen at 24 frames per second.

Simultaneously, the liquid crystal shutters in the battery-operated PSE headsets receive continuous signals from wall-mounted transmitters using a modulated infra red carrier and are opening and closing at the rate of 48 times per



Left: Mixing room scene in Toronto for *Across the Sea of Time*. Frame sync information at the top of the video projection and audio data displayed on the left and right video monitors on top of the mixing console.



Right: Recording binaural Foley. Sound person eats apple in front of Aachen artificial head and attempts to match distance from camera and room acoustics with shot in 3D film being projected on video in background.

under-ocean wilderness. “Into the Deep” was directed by Howard Hall, and with its wide field of 3D view immerses the viewer in the underwater experience more than any standard screen format possible could.

“Across the Sea of Time” is obviously intended as the ultimate New York Experience multimedia show, and it is. Although the story it tells is universal enough that it could be shown with interest almost anywhere, the plans are also to eventually produce similar features in some of the major cities where 3D IMAX theatres will be located.

The 3D Soundtrack For “Across The Sea Of Time”

Director Stephen Low has coupled creativity and a fascination with film technology for the production of six previous IMAX films, beginning with one of the format’s all-time most popular ones, “Beavers.” He has already begun shooting on another IMAX feature, “The Art and Science of the Racing Car,” and is developing “Mark Twain’s America.”

Low wanted to give “Across the Sea of Time” the sound texture of the past, and he wanted it to have a sense of depth in every element of the mix, so that he could take the audience “through the looking glass” into the world of New York’s colorful past as well as present. The three-dimensional sound experience had to match to amazing giant images, both historic and modern, up on the 3D screen. This meant the only basic process that can do that—binaural via headphones.

IMAX subsidiary Sonics Associates of Alabama is in charge of the technology of the IMAX presentations. They geared up for the 3D project with five years of tests and development at both their Birmingham offices and at Sound

Dome Audio Video in Toronto, Canada. Tests were made both with and without the accompanying 3D images.

Most of the original recordings began with an artificial recording head developed by Head Acoustics of Aachen Germany. The unit is designed to replicate the features and even the different consistencies of an average human head with two small omnidirectional mikes at the entrance of the ear canals. The recording channel for the left ear is kept entirely separate from the channel for the right ear, and thus when the listener wears a stereo headset for playback, he or she will experience all the sounds in the original environment as though they were really present there.

The Aachen Head is a rather awkward assembly weighing in at 50 pounds prior to mounting on a supporting tripod. This rig had to be transported on everything from subways to roller blades and to locations varying from skyscraper roofs to storm sewers. The sound team put the head in acoustic settings to match the depictions of both the past and present in the film.

Another sound person put binaural mikes on his own ears hooked to a portable recorder, and set out to capture the special vocal and audio characteristics of dialogue around the city. The purpose was to pick up background accents typifying the neighborhoods seen on the screen. Next, back in the studio a five-person Foley team discovered an entirely new approach was needed for creating their sound effects to match screen action. The actors on the screen moved in real time and space, and to sound believable both the dialog and Foley had to have similar room reflections and acoustics to match what was seen on screen. Special walls and other surfaces had to be constructed to achieve the desired ambience around the sounds. Both binaural and mono recordings were made simultaneously.

The painstaking effort to match all sound movements extended even to a Broadway tap dancing scene in the film.

The musical score for “Across the Sea of Time” was composed and conducted by Oscar-winning film music composer John Barry. He was identified with the scores for the James Bond spectacles, and his most recent credit was “Dances With Wolves.” The Aachen binaural head was placed behind Barry while he conducted the orchestra. This was intended to transport the audience into the heart of the music, making each of them the conductor aurally speaking. The instruments of the orchestra are thus given palpable locations across the soundstage with an accuracy impossible with even three or four-channel stereo.

The IMAX camera puts out a loud roar during operation, and two of them roar twice as much. So as with most Hollywood productions, the original soundtrack taped during filming can only be used as a reference for the creation of a new clean track in post production. Also, since the camera has a great deal of bulk, even if it were silent in operation the binaural recording head couldn’t possibly be placed where the lenses were—that is what would be required to have a reasonable match between the sound and image that the viewer will eventually experience. Thus dialogue replacement had to be done, and it wasn’t as automatic as with Hollywood films. The dialogue had to play to the proper screen depth. The narrator was especially recorded with the artificial head for the intimacy of playback on the PSE headset.

During editing of the film, all of these soundtracks were matched to the images and tested in the same environment of the PSE headset plus speakers at the screen that would be used when it was presented. The sound team spent many hours wearing the PSEs.

There were a few older recordings for the mix



Above Left: Complete Personal Sound Environment 3D Glasses with liquid crystal filters.

Above And Below: Personal Sound Environment headsets; version without the 3D glasses.

(Photos Courtesy Of The Sony IMAX Theatre)

that were available only in mono. These were “re-steered” into stereo versions using software applications from Crystal River Engineering which are often used in speaker-only applications for computer multimedia. Even some original binaural recordings were processed with the 3D software. For example, the sounds of sea gulls flying around the boat bringing the young Russian immigrant to New York. The perspective of the original recording didn’t match the 3D images and the gull sounds were moving in a different direction than the gull images at some points. So the binaural tracks were folded into mono and then processed with the software to give the correct panning of the sounds to fit the flying birds.

The preparation for the sound mix was probably the most complex ever done for any motion picture in history. The 450 raw tracks of sound material was nearly double that of a typical commercial motion picture. It took 14 weeks to complete the mix. The basic material consisted of 96 tracks of sound effects, 23 tracks of foley, 48 music tracks, six tracks of dialogue and three of narration. 3D video projection was used to avoid unnecessary wear and tear on the IMAX film stock. Real PSE binaural signals were sent via the infra red transmitters to headsets worn by the mixing crew. The playback control area was built to resemble closely that of the Sony IMAX Theatre. Twenty-eight pre-mixes were generated for the director’s final approval, all using eight channels plus the two going to the PSEs, for a total of ten.

In The Theatre: Much More Than Surround Sound

The sound experienced in the IMAX 3D Theatre is closer to actual reality than ever

before possible. It is played on an 18,000 watt, ten channel system, sourced from four separate CDs in caddys, synchronized by computer with one another and the film projector using a system roughly similar to that used by DTS for their image and sound connection.

Eight channels feed the speakers in the auditorium. There are three full range speakers in a row at the screen center and a fourth at the top of the screen. Two more discrete speakers are in the rear of the theatre and two subwoofers are also behind the screen. The remaining two channels are specifically for the PSE headsets. With an even more sophisticated configuration, the headsets are capable of receiving up to four different channels of transmissions, so that a film could be shown in four different languages simultaneously; perfect for theme park use around the world.

The combination of the screen speakers, the subwoofers, and the PSEs produce a very natural soundfield that soon makes one forget any special apparatus is being worn. The viewer is placed wherever the sounds occur. As you travel around New York City, you’re right in the middle of the action. Helicopters move in front, around and behind you. A train whistle moves across screen in perfect sync with the 3D image up there. When you’re riding the subway in one scene, the sounds provide an uncanny feeling of actually being aboard the subway car.

The most sophisticated multi-channel loud-speaker surround system could not duplicate the accuracy of sound location in every direction in a 360-degree sphere the way two-channel binaural can. The key to the “depth audio” provided for in the new IMAX format is the PSE headset.

This innovative advancement in sound imaging creates a fully-controllable 3D sound image which can accurately track any 3D image on the screen. Sound positioning can be used to create drama and suspense. It can take sounds and noises off the screen in the distance or behind and place them anywhere

New IMAX Film Developments

In addition to the three 3D films mentioned in this article, there are five more in the IMAX vaults, including one produced on 1985 in anaglyph format — meaning the viewer must wear red and blue glasses a la the old-fashioned regular format 3D movies (and usually get a roaring headache in the process). Most of the new IMAX film projectors are of course being produced in 3D and as filmmakers become more skilled with the immense possibilities, even more thrilling use of both the image and sonic capabilities should be in evidence in the future.

The next IMAX feature with PSE binaural sound will be released this spring, titled “Four Million Houseguests.” It explores the world within an enchanting summer home visit by an 11-year-old and her parents. Her eccentric grandfather who is away on a trip, has left a series of whimsical clues leading to three magical journeys into normally unseen worlds. The first is the observable world around us, the second thru the microscope lens and the third an infinite, richly detailed universe accessed thru her grandfathers invention, the illuminator. An eye-opening adventure.

The Luxor in Las Vegas is now showing the 3D feature “L5” plus two other 2D IMAX films. (I suggest visitors to this venue avoid the top two rows of seating in the extremely-angled raked theatre — the safety railing in front of you obscures the bottom 1/3 of the giant screen!) The former IMAX theatre at Ceasar’s palace in LV is now an IMAX “RideFilm” attraction rather than a theatre. The Sony IMAX 3D in Yerba Buena Center in San Francisco won’t be in operation until early 1998.

Sonics DDP Disk Playback System

the producers wish. A sound can be made to appear directly behind your seat, over your shoulder, or anywhere else in any direction and at any distance—from a sexy or threatening whisper in one ear to a rumble of thunder or a sonic boom miles away.

The additional pair of sound sources on the PSE expands the capabilities of the existing six-channel digital speaker sound system mounted in the theatre. This use of headsets to expand the theatre's existing sound system is another world first for IMAX. The Sonics Associates developers had to equip the PSE with sound transducers fitted in such a fashion that they did not interfere with the sounds coming from the main sound system speaker array. They also wanted to minimize possible end user discomfort and adjustment requirements with normal headphone drivers that rest directly on the pinna or outer ears. And if contact with the ears were avoided it would be more sanitary.

In personal research into commercial headphones for binaural listening, I discovered that those with their drivers positioned somewhat away from the pinna were the most successful in helping to locate the sounds outside of the head rather than inside as with ordinary stereo. (i.e.: the AKG K-1000 and the various Jecklin models). Sonics took this approach further in the PSE by locating the small headphone drivers on the temples of the headset, above and in front of the pinna. The frontal location helps to pull the sounds more securely to the screen to eliminate any possibility of sound image reversal. Allowing the pinna to be completely free also reduces any claustrophobic feeling that some users might have when donning the PSE headset, and it leaves the ears unblocked to receive the full below-100 Hz sound waves from the subwoofers in the theatre.

Though it may appear somewhat clumsy, the PSE is in fact quite comfortable to wear. A simple plastic strap at the back is easily adjusted so that the front section, with the electronic 3D filters, sits comfortably on the bridge of your nose. Very large filters are required so that the eyes have an unimpeded view of the entire screen area; this proves much less distracting than peering through the small lenses of other 3D glasses. The sound portion of the PSE works so well that Sonics also offers it without the 3D glasses section, for use in specialty attractions, exhibits and rides. It may even eventually be offered in this form as a consumer stereo headphone, which would probably be perfect for listening to binaural music and drama recordings.

Projection Of the 3D IMAX Films

In addition to the greater complexities and costs of shooting and producing both 2D and 3D IMAX films, the final projection situation is light years from the straightforward exhibition sit-

uation that allows for nearly-automated operation of 12 and 16-plexes in our major cities. The Sony IMAX Theatre projection room looks like a giant film processing laboratory crossed with the sort of plumbing labyrinth one runs across in the sub-basements of public buildings.

Tendrils of 70mm film are moving over rollers all around you and sailing across the room to and from various giant film platters. The rollers are really tension arms, and such a plethora of them are required due to the increased weight of the film vs. 35mm stock. More laps over the tension arms slows down jerky and possibly damaging movement of the film during start-ups and stops. The film is advanced through the projectors in a smooth wave-like motion known as the Rolling Loop. Due to the horizontal orientation of the frames (similar to the old VistaVision format), the IMAX film frame is triple the size of standard 70mm though employing 70mm original stock.

The twin-lens projector at the NYC theatre uses cutting edge technology. It is also possible to show the 3D films with a pair of separate standard IMAX projectors yoked together electronically. The two films and lenses each have 15,000 watts of brilliant high output light streaming through them to produce the bright images on the eight-story-high screen. This produces plenty of heat, as expected, but the sophistication of the effort that entails may be unexpected.

Two entirely separate enclosed circular circuits of water via large diameter pipes handle the cooling of each one of the two giant lamps. One circuit, filled with distilled water, goes directly to the lamp housing and the mirrors. The other closed circuit goes through refrigeration plates known as the Chiller and a Cooling Conditioning Unit; together they cool down the distilled water so it can be recirculated and doesn't have to be dumped down the drains. Much of this plumbing equipment is housed in a separate room. If the four circulating water systems stopped pumping for even a short while, the projector lamps would overheat and could explode.

And speaking of water, while each audience is sitting in the theater, a whole lotta scrubbin' is going on in an adjacent room. The PSEs get a bit grubby, especially those that have been in the hands of children with candy and soda awash. So there are over 2000 PSEs for the 500-seat Sony IMAX Theatre: One batch can be in use, a second all buffed up and awaiting the next theatre-full of wearers, the third batch undergoing cleaning and sanitization in special machines designed for the purpose, and the fourth batch on standby just in case. The lenses are carefully cleaned and light scratches erased so that nothing obstructs a clear view through both eyes. The earspeakers are waterproofed so that they can also be scrubbed.

IMAX 3D to the Max

Stephen Low, the director of "Across the Sea

The Sonics DDP Digital Playback System uses technology again developed by Sonics Associates specially for IMAX theatres. DDP is capable of reproducing up to eight channels of CD quality digital sound. Patented Sample-Lock® technology maintains synchronization between all channels with a tolerance of .00144 of a second. The result is perfect reproduction of the original soundtrack. Widest frequency response (ten octaves), widest dynamic range, and maintenance of time relationships are hallmarks of the system.

With SampleLock the DDP can take advantage of the compact disc media to provide soundtracks which never degrade no matter how many times they are played. (On this point it is similar to one of the selling points for conventional movie exhibitors of the DTS system.) Even when the projection equipment is kept in perfect adjustment, due to continued showing both magnetic and optical soundtracks on film suffer wear with each successive pass through the machine. In time the original high quality is literally worn off the film (Typical life of a magnetic track is only about 500 passes). With CD sources there is no physical contact and hence no wear. With the DDP every audience going through the IMAX theatre has the same premium quality sonic experience that was enjoyed on the opening night of the particular film.

of Time," got into IMAX production because his father was the director of the first 3D IMAX presentation. In making several IMAX productions the many technical challenges have become second nature to him. These include the camera size and weight, the difficulty in lighting due to the extremely wide angle lenses, and the fact that every three minutes of shooting the camera has to be reloaded and that process takes 20 minutes!

In spite of this, Low minimizes the difficulties and extols the virtues of the technology, feeling that it is the future of film. "IMAX 3D is very much like your own senses," explains Low. "Visually, it is like your eyesight. And the sound is as good as your ears. It offers a completely new way of experiencing a movie. And now that we are going beyond making demonstration pieces for the technology, we can offer people a good narrative too."

While he points out that due to film stock, lighting and setup costs being much higher than standard films it is possible for the budget on a fic-



Left: The Chiller (left) and the Cooling Conditioning Unit (right), whose function is to cool the two giant lamps in the IMAX 3d projection. *Photograph: Mike Satran*

Right: Interior Of Projection Room, Fish From "Into the Deep" Visible On The Screen Through Glass Front Of Room. Large Platters Holding The Film Horizontally Are In Immediate Foreground. *Photo: William Taufic*

tional-story IMAX film to go out of control, he still believes IMAX 3D is here to stay: "...Once audiences grow accustomed to images and sounds that are much more satisfying to their eyes and ears—much more like the real thing—it's impossible to go back. The basic 35mm technology standard is almost 100 years old. We are, however, at the very early stages of giant screen 3D. The technology, the story telling techniques and conventions will continue to grow and improve throughout the coming century."

As with anything new on the scene, there are a few negative comments in the press about the films and the process. The absence of fast camera movement and cutting in the first films has caused at least one writer to claim that these standard tricks are impossible in 3D because viewer's "can't handle the pressure," I've heard such objections before, having produced a 3D multi-image production myself. It was claimed that even simple cross-fading from one stereo image to another would disturb most viewers. Garbage. Still, it's reported that while the IMAX 3D experience is a thrill for most people, it is "nerve-shattering" for some. Well, so is a roller-coaster ride.

Additionally, some critics—while praising the technical side—have grouched about the wispy or corny plots of the 3D films. Part of the problem, besides the whole genre being so new, may be that the films run under one hour rather than the standard hour-and-a-half feature. I found the plot of "Across the Sea of Time" to be suited to the subject and process, but surely the dramatic elements will improve further. (Let's hope this doesn't replicate J. Gordon Holt's dictum about the early audiophile LP record labels—"The better the recording, the more awful the musical performance.")

IMAX 3D Growing Around The World

The IMAX 3D has made the Sony Theatre in New York city the most profitable movie house in the country, and other 3D theatres have been opening around the U.S.—"taking it to the IMAX" for enthralled capacity crowds. [The Sony IMAX Theatre's Internet address is <http://www.sony.com> (go to THEATRES)]

The Edwards 21 Cinema in Irvine opened in March to rave notices. This theatre chain is California's largest, and already plans to build more IMAX 3D theatres. Known as The Big One, the theatre is the largest movie megaplex in the world.

There are currently 129 IMAX theatres around the world, and many of these will be converted to 3D theatres. Some already under development are in Ft. Lauderdale, FL; Costa Mesa, CA; Los Angeles, CA; Seattle, WA; Munich, Germany; and Sydney, Australia. Other new theatres are underway for San Francisco (in the Yerba Buena complex, scheduled for 1998), Indianapolis; Omaha; San Juan, Puerto Rico; Minneapolis; Tokyo; Brossard; Quebec; Madrid; Sinsheim, Germany; Poitiers, France; Majorca, Spain; Kaohsiung, Taiwan; Leipzig and Berlin. All of these theatres will not necessarily use the expensive liquid-crystal projection system and PSE headsets of the first three theatres. Some will use a simpler method with polarized glasses which may or may not allow for the binaural sound portion of the experience.

In addition to the normal IMAX theatres (where the seats are securely fastened to the floor) IMAX has another growing sideline called "Ridefilm." This is a process for theme parks and

other attractions which uses the IMAX 3D PSE headsets for large-scale multi-sensory motion simulated rides. An 18 passenger module is moved up and down, side to side, and tilted forward and back by a giant powered assembly, yet in such a way as not to cause inner ear damage to the riders. The seats can be put as close as 18 inches away from the movie screen, which is hemispherical and covering all of the riders' fields of vision. Systems are already up in London and Japan, and the former Omnimax theatre at Ceasar's Palace in Las Vegas is being converted to Ridefilm. It will have an 82-foot-diameter silvered screen under the existing white dome, and a multi-sensory 3D film is being developed especially for the venue located on the grounds of Ceasar's Palace. The big plus for venues that build these rides is even shorter length of the presentations compared to the original IMAX theatres — they can charge \$5 for a four minute "ride" and then run another group of people through. The Ceasar's project must have more than a single 18-passenger module since they anticipate entertaining crowds of more than one thousand viewers per hour! It is scheduled for a mid-1997 opening. ■

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John Sunier hosts AUDIOPHILE AUDITION, a weekly program including Soundtracks and Surround Sound Specials — heard on 125 public radio stations nationally. He is a contributing editor to AUDIO, BOUND FOR SOUND, and SECRETS OF HOME THEATER AND HI FI (on line) [www.sdinfo.com/]. He is also an authority on binaural reproduction and operates THE BINAURAL SOURCE mail order service offering headphone-related CDs & cassettes: Box 1727, Ross, CA 94957, or [www.btown.com/binaural.html].