



WELCOME!

As I mentioned last month, because of our combining *Widescreen Review's* July/August print magazine into one, this month's Newsletter features additional content for our online readers to enjoy. Besides the usual archived article—a classic Perry Sun article from Issue 37 about Data Compression For Film, New Equipment: Coming Soon To A Retailer Near You, Recent News, and Stacey Pendry's Studio Scoop, we are including a feature on an event that Disney held in regards to their BD Live features, and five pages of DVD/Blu-ray Disc™ reviews. Even with a little extra time between magazines, our staff is still busy working hard to bring you, our loyal readers, the information you need to make your home experience “the best that it can be.”

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

NOW AVAILABLE ON NEWSSTANDS

Issue 133, July/August 2008 of *Widescreen Review*:

- “Samsung PN50A550 50-inch 1080p Flat Panel Display” By Doug Blackburn
- “Westinghouse TX-52F480S 52-inch 1080p LCD HDTV” By Mike Marks
- “Six HDMI Switchers” By Bill Cruce
- “An Interview With The Sages Of Wisdom Audio” By Danny Richelieu
- “Deep Impact Part II: 3-D Home Video” By Alen Koebel
- Plus “The Observer,” “New Equipment,” “Your Letters,” “One Installer's Opinion”, Blu-ray Disc and DVD picture and sound quality reviews, and more...

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Recent News

Here are some of the recent headlines that have made it to the News section of WidescreenReview.com, which is now updated daily as our Web staff finds worthy home theatre-related stories and press releases. Visit WidescreenReview.com throughout the day to find out what's going on in the world of Home Theatre.

Blockbuster Withdraws Bid For Circuit City (Dallas Morning News)

"Blockbuster Inc. said Tuesday it has withdrawn its proposal to acquire Circuit City, Inc. as market conditions have worsened since the idea was first hatched in April..."

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Pioneer To Sell Plasma Panel Factory To Sony Spin-Off (JCN Network)

"Pioneer Corp. has started negotiations to sell its plasma display panel factory to a flat panel developer funded by Sony Corp., it was learned Wednesday.

The factory in Kagoshima Prefecture, southern Japan, is scheduled to stop PDP production in January next year..."

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Senators Argue Against XM-Sirius Merger (PC Magazine)

"Though the merger of XM and Sirius appears to be on track, several senators last week made one last push for stricter guidelines, calling on the Federal Communications Commission (FCC) to require that the two satellite companies turn over up to 50 percent of their holdings to independent companies and integrate HD radio into all satellite radio receivers..."

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TV Web Sites Grow More Popular, But Viewers Still Prefer Their TV Sets, According To Nielsen And CTAM

"Despite the growing popularity of viewing television content online, most adults (94%) who subscribe to cable or satellite television services prefer to watch television on traditional TV sets, according to new research conducted by The Nielsen Company for the Cable & Telecommunications Association for Marketing (CTAM)..."

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Onkyo To Ship Blu-ray Disc Player In Late 2008

"Onkyo Corporation has announced that it will release its first Blu-ray Disc Player for the international market in late 2008. This player is designed to partner with Onkyo's high-definition A/V receivers equipped with full HDMI processing of 1080p video and decoding of Dolby® TrueHD and DTS-HD™ Master Audio surround sound formats..."

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DIRECTV On Demand Now Available Nationwide

"DIRECTV, Inc., the nation's leading satellite television service provider, today launched its highly anticipated DIRECTV on Demand service to customers across the country. The platform is available at no additional charge to customers with a DIRECTV Plus® HD DVR or R22 DVR receiver, and offers more than 4,000 standard-definition and HD titles, 24 hours a day, seven days a week..."

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Coming Soon... To A Retailer Near You

Danny Richelieu

Elite Screens announced its **Kestrel** electric, floor-rising projection screen. Available in 84 or 100 inches diagonal (16:9), the "plug and play" solution incorporates a cross-rising apparatus driven by a tubular motor to raise the screen from the floor up. It includes a built-in 5- to 12-volt trigger for drop/rise synchronization with the projector's power cycle and also includes both an RF remote and a ZR800D IR universal remote, which has the functionality to control up to eight additional media devices. The Kestrel is available now for \$2,200.



Elite Screens Kestrel

Elite Screens

877 511 1211

www.elitescreens.com

Orb Audio has introduced its **Mod1** satellite loudspeaker. The 4-3/16-inch diameter, round loudspeaker is just bigger than a baseball and is made from high-carbon steel. Using rare-earth magnets, santoprene and nomex cones, and CCAD voice coils, the Mod1 is handmade and hand-assembled in the United States. The loudspeakers are available in metallic black gloss, pearl white gloss, and three handmade metallic finishes: hand-polished steel, hand-antiqued copper, and hand-antiqued bronze. The loudspeakers are tonally matched to Orb Audio's other models (Mod2 and Mod4), and a Mod1 Plus Home Theater System, with five Mod1 loudspeakers and a Super Eight subwoofer, with cables and loudspeaker stands, sells for \$1,000.



Orb Audio Mod1

Orb Audio

877 ORB AUDIO

www.orbaudio.com



dnp denmark Supernova Flex Screen

dnp Denmark introduced the latest version of its **Supernova™ Flex Screen**, a retractable, motorized screen that uses a three-speed motor, with a noise level congruous to the speed. The ISF-certified Supernova screen incorporates a proprietary higher contrast filter system with a half gain of 85 degrees, and is available in sizes from 72 (\$6,610) to 100 inches (\$7,740). The wall-mounted enclosure's cover is available in black, white, silver-grey aluminum, blond maple, and cherry wood, or can be finished in a stainable surface that can be custom painted.

contrast filter system with a half gain of 85 degrees, and is available in sizes from 72 (\$6,610) to 100 inches (\$7,740). The wall-mounted enclosure's cover is available in black, white, silver-grey aluminum, blond maple, and cherry wood, or can be finished in a stainable surface that can be custom painted.

dnp denmark

+45 46 16 51 00

www.dnp.dk



Canton Movie 120 MX

Canton has added two new systems to its Movie family of small home-theatre-in-a-box offerings. The **Movie 80 CX** and **Movie 120 MX** combine four satellite loudspeakers with a horizontal center channel, with the Movie 80 CX hosting a 100-watt powered subwoofer using a 6-inch driver and the Movie 120 CX using an 8-inch driver. Using the same computer-aided modeling

and testing facilities used for its other loudspeaker designs, Canton has incorporated their diaphragm motion-control circuits and SC (Subwoofer Control) Technology to reduce harmonic distortion across the frequency range. The satellites can be placed on bookshelves, hung on walls (with the optional wall mount brackets), or freely placed on the optional stands, and are available in high-gloss black or silver. The Movie 80 CX has a retail price of \$700 and the Movie 120 MX sells for \$900.

Canton

+49 (0) 60 83 28 70

www.cantonusa.com

Mitsubishi has replaced its entry-level HC4900 home theatre projector with the **HC5500**. With a 1200 ANSI lumen light output, the 1080p, 3LCD projector has an improved auto iris function that quickens the speed at which the iris operates, for smoother transitions between bright and dark scenes. Mitsubishi promises a 10,000:1 dynamic contrast ratio with the new iris and also includes Mode 1 and Mode 2 anamorphic lens support with its Silicon Optix Reon-VX HQV processor.



Mitsubishi HC5500

Mitsubishi

888 307 0349

www.mitsubishi-presentations.com

Leon Speakers introduced its **Horizon 414- LCR-X-A** loudspeaker, which combines the left, center, and right channels in a single cabinet, to be matched



Leon Speakers Horizon 414-LCR-X-A

with a flat panel television hung on a wall. The loudspeaker has a depth of 3-1/4 inches, and each channel features dual 4-inch Peerless HDS woofers and a Morel MDT29 1-inch cloth-dome tweeter. The loudspeaker has a frequency response of 60 Hz to 22 kHz, with a peak power handling of 300 watts, and it is available now for \$2,500.

Leon Speakers

888 213 5015

www.leonspeakers.com

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.

Gary Reber... (GR)
Editor-in-Chief & Publisher

Danny Richelieu... (DR)
Managing Editor & Picture/Sound Quality Reviews

Tricia Spears... (TS)
Staff Writer

Stacey Pendry... (SP)
Staff Writer, Research & Production Editor

Review Staff

EXCELLENT/Reference Quality...5
GOOD/Sure To Please...4
FAIR/Mediocre...3
POOR/Disappointing...2
UNACCEPTABLE/Not Recommended...1

Other things to look for: We include the official logo for all audio codecs used (Dolby® Digital, DTS® Digital Surround™, etc.) if a logo is available; The disc information box that is included with each review is colored, based on the disc's genre, which is indicated in words above the disc's artwork.

The Rating Values

The rating values apply to presentation (picture quality and sound quality) and to sourced critics' reviews as a composite score (see Discography). Due to recent changes, some studios are no longer providing us with advance copies of their new releases. Please check our Web site at www.WidescreenReview.com for up-to-date reviews that may not be in the magazine.

DVD Picture/Sound Quality Score ▶ P4.0/S4.5

Blu-ray Disc Picture/Sound Quality Score ▶ P4.0/S4.5

Critics' Composite Score From WSR® Ographies ▶ CRITICS' COMPOSITE 2.5

Ratings for DVD titles are relative to other standard-definition releases (on DVD and LaserDisc). Ratings for Blu-ray Disc and HD DVD titles are relative to other high-definition releases (on BD, HD DVD, and D-Video).

This logo provides a graphical method of quickly determining how active each loudspeaker is in a soundtrack. Red is for aggressive, Green is for moderate, Yellow is for weak, and White means the channel is not used. From top left, clockwise, the boxes represent the Left, Center, Right, Right Surround, Center Surround, and Left Surround channels, and the small box in the center represents the LFE channel.

COMEDY DRAMA



The Bucket List

P4.0/S3.5

P4.0/S3.0

CRITICS' COMPOSITE 3.0



When billionaire Edward Cole (Nicholson) and mechanic Carter Chambers (Freeman) end up side by side in a hospital room, both with terminal cancer, they decide to compile a **Bucket List**—all the things they want to accomplish before they kick the bucket. Although they are polar opposites, they set off together on a globe-trotting journey to check off each of the “to do” boxes on their list. What they discover is respect, shared interests, and a friendship that will transcend

mortality. Special features on the DVD include a five-minute featurette *Writing The Bucket List*, a four-minute John Mayer “Say” music video, DVD-ROM-enhanced features, and previews. The Blu-ray Disc™ includes all of the same features as the DVD (minus DVD-ROM enhancements) as well as interviews with the films’ stars *Rob & Jack* (22 minutes) and *Rob & Morgan* (17 minutes).^{SP}

The anamorphically enhanced 1.78:1 DVD shows good resolution, with fine textures believably displayed. Fleshtones appear accurate, with good differentiation between various hues. Contrast is well balanced, but there are times when the picture is washed out. The color scheme is fairly bland, although colors are well saturated. Black levels are consistently elevated, and the near-black shadows are crushed. Compression artifacts and edge enhancement can be noticed at times. The VC-1-encoded Blu-ray Disc shows slightly desaturated colors, but black levels are deep and the shadow detail

provides a great sense of depth to the picture. Resolution is pristine and contrast is balanced well. Edge enhancement, though, can be noticed, although it is subtle.^{DR}

The Dolby® Digital 5.1-channel soundtrack features a very basic mix, but fidelity is pristine, and phantom imaging across the front stage is nicely mixed. The LFE channel is not incorporated with much vigor, as deep bass is rarely a part of the sound design. The front stage provides an adequate sense of depth, but the poor surround integration can remove from the believability of the soundtrack. Still, there are moments when the space is fully energized using each channel. Dynamic range is solid, with subtle and loud effects delivered effectively. There are occasions, though, when shuffling distortion can distract. The Blu-ray Disc’s Dolby Digital 5.1-channel encoding sounds almost exactly like the DVD’s encoding, although there it has a subtly cleaner sound.^{DR} **WSR**

Warner Home Video • Catalog Number 1000024013 (DVD); 1000026368 (Blu-ray Disc) • PG-13/2007/97 Minutes • Rob Reiner (Director) • Stars Jack Nicholson, Morgan Freeman, Sean Hayes, Beverly Todd & Rob Morrow

DRAMA



Natural Born Killers

P4.0/S3.5

CRITICS' COMPOSITE 4.5



Mickey and Mallory (Harrelson and Lewis) are **Natural Born Killers**—and are rapidly becoming media darlings. As they make their way across the Southwest committing abominable acts of mayhem and murder, they begin—with the help of bloodthirsty media—to attract a cult following, partic-

ularly among our impressionable youth...all delivered in hyperkinetic style. Make certain the kids are out of the room! Special features include commentary by Director Oliver Stone, six deleted scenes with introduction by Stone, a Charlie Rose interview with Stone (12 minutes), the original theatrical trailer, and an alternate ending.^{GRSP}

The VC-1-encoded 1.78:1 Blu-ray Disc™ has a somewhat soft appearance, but the heavily stylized image generally looks impressive. Black levels are deep and shadow delineation is nicely rendered. Contrast is balanced well in the more naturally lit shots and colors are bold and vibrant. The image can be overly noisy at times, but it is obviously a con-

scious choice by the filmmakers. The scenes that are supposed to look clean and free from artifacts are. Edge enhancement is noticeable, unfortunately.^{DR}

The lossless Dolby® TrueHD 5.1-channel soundtrack features an enjoyable mix, with a fully engaging surround channel use that can really energize the entire room. There are times, however, when the soundtrack collapses to the front stage, sounding flat and dimensionless. The LFE channel is incorporated well at times, with deep bass also delivered through the full-range channels. There is a palpable sense of depth in the front stage, and dynamic range is broad. There are moments when effects sound distorted, but fidelity is generally pure.^{DR} **WSR**

Warner Home Video • Catalog Number 1000023712 • Not Rated/1994/119 Minutes • Oliver Stone (Director) • Stars Woody Harrelson, Juliette Lewis, Robert Downey, Jr., Tom Sizemore, Rodney Dangerfield, Russell Means & Tommy Lee Jones

SPECIAL INTEREST



Step Into Liquid

P4.0/S4.0

CRITICS' COMPOSITE 3.5



If you like to spend your days with your toes on the nose hanging ten, but you can't make it to the beach today, **Step Into Liquid** with this DVD. From the makers of *The Endless Summer*, the film boasts no special effects, no stunts, and no stereotypes. It is all about the wave, and the men and

women who dare to conquer it. Special features include commentary by Director Dana Brown; the following featurettes: *Let's Go Surfing* (13 minutes), *Capturing The Wave* (13 minutes), *Making A Surfboard* (nine minutes), and *Passion For Liquid* (15 minutes); four deleted/alternate scenes; eight interview segments with cast and crew; two musical montage segments; and a separate eight-minute interview with Dale Webster.^{GRSP}

The H.264 AVC-encoded 1.85:1 Blu-ray Disc™ shows many of the same problems other documentaries face, notably inconsistent resolution and varying color fidelity. There are moments when the images are very sharp, with finer details in sand and water easily recognized, while there are others where the

picture is distractingly soft. Similarly, there are times when colors are impressively well saturated, while other times the colors can look drab and unrealistic. Fleshtones seem accurate, though, and black levels are fairly solid. Edge enhancement is minor, but there.^{DR}

The lossless DTS-HD Master Audio™ 5.1-channel encoding features a basic mix, with a broad front stage and subtle use of the surrounds. Fidelity is fairly good, although some of the wave crashes sound dynamically compressed. Phantom imaging is adequate, and narration is separated well from other voices by sounding more forward and in your face. The LFE channel is incorporated well to represent the deep bass from crashing waves, dropping down below 40 Hz with some authority.^{DR} **WSR**

Artisan Home Entertainment • Catalog Number 19158 • PG/2003/88 Minutes • Dana Brown (Director) • Stars Professional Surfers

ROMANTIC COMEDY



Fool's Gold

P3.5/S3.5

P3.5/S3.0

CRITICS' COMPOSITE 2.0

Poor Tess (Hudson) has grown tired of her treasure-hunting husband Finn (McConaughey) and has decided to leave him, for good. While always sure the sunken treasure of his dreams, known as the Queen's Dowry, is well within reach—after eight years of searching, Finn has literally nothing left to show for his efforts. Now flat broke with no assets to his name and his marriage over, Finn believes he has found the final resting place for the Queen's Dowry. Finn must

now convince Tess' new boss, globe-trotting billionaire Nigel Honeycutt (Sutherland), that he has found the fabled treasure, not **Fool's Gold**, in order to obtain the financing he desperately needs. Special features on both the DVD and Blu-ray Disc™ include a five-minute featurette *Fool's Gold: Flirting With Adventure*, a three-minute gag reel, and previews.^{SP}

The anamorphically enhanced 2.38:1 DVD shows nicely delineated shadows with solid black levels, to help create a dimensional-looking image. Details are fairly well defined and colors are saturated nicely. Fleshtones have an orange tint at times, and contrast can appear too low often. Some pixel breakup and random softness can be noticed at times, as can excessive noise, but edge enhancement is minor and not a big distraction. The VC-1-encoded Blu-ray Disc looks somewhat soft compared to other high-definition releases, and black levels are not quite pitch black. Shadow delineation is solid, though. The image still looks slightly washed out and fleshtones

have an orange hue.^{DR}

The Dolby® Digital 5.1-channel soundtrack rarely uses the LFE channel, but when it is used it bombards the room with hard-hitting, deep bass. Unfortunately, though, that bass sounds flabby and out of control, which can be distracting. Dialogue intelligibility is pristine, and fidelity in general is adequate. There is a subtle sense of dimension to the front stage, and while the surrounds are used frequently throughout, their effectiveness is limited. There is very little phantom imaging anywhere in the mix, but the noise floor is low, which helps with the dynamic range. The Blu-ray Disc's Dolby Digital 5.1-channel soundtrack is almost identical to the DVD's, although dynamic range and fidelity seem to have been improved slightly. Bass is somewhat better defined, but still not great. It is disappointing that they did not include a lossless encoding.^{DR} **WSR**

Warner Home Video • Catalog Number 1000024049 (DVD); 1000024026 (Blu-ray Disc) • PG-13/2008/112 Minutes • Andy Tennant (Director) • Stars Matthew McConaughey, Kate Hudson, Donald Sutherland, Ewen Bremner, Alexis Dziena, Kevin Hart & Ray Winstone

DRAMA



There Will Be Blood

P4.5/S4.0

CRITICS' COMPOSITE 4.5

In the late 19th century, Daniel Plainview (Day-Lewis), a miner, discovers oil in his tapped-out silver mine. An explosion occurs at the oil rig, killing one of Daniel's workers, a single father. Daniel adopts the orphaned baby boy named H.W. (Frazier). When a young evangelical preacher named Paul Sunday (Dano) approaches Daniel about his family's ranch in California that reportedly has an ocean of oil under-

neath it, Daniel moves his small family to California. Once there, Daniel negotiates the mining rights for Sunday's ranch and hits a huge reserve of petroleum. But drilling for oil is a competitive and dangerous business, and **There Will Be Blood** on Daniel's hands before he is able to pump the ranch dry. Based on Upton Sinclair's novel *Oil!*, *There Will Be Blood* won an Academy Award® for Best Actor In A Leading Role and Best Cinematography. The only special features on Disc One of this two-disc set are up-front previews. Disc Two includes a 26-minute silent featurette *The Story Of Petroleum*; 15 Minutes, which is a slide show of vintage photos; three deleted scenes; a theatrical teaser; and the theatrical trailer.^{SP}

The VC-1-encoded 2.36:1 Blu-ray Disc™ exhibits a pleasing picture, with fine details that are resolved well and a good sense of dimensionality to the image.

Black levels are somewhat elevated, though, but contrast is balanced well. Warm, earthy tones dominate the color scheme, but brighter colors, when used, are saturated well. Fleshtones appear accurate. Edge enhancement is not noticeable, but film grain is heavy and can distract.^{DR}

The lossless Dolby® TrueHD 5.1-channel soundtrack favors the front three screen channels, with a good use of the LFE channel when needed. Bass drops down into the lowest octaves at times and is controlled well with good definition. Phantom imaging is solid across the front stage but is limited elsewhere in the room. The noise floor is low and dynamic range is wide, and fidelity is pure.^{DR} **WSR**

Paramount Home Entertainment • Catalog Number 13742 • R/2007/158 Minutes • Paul Thomas Anderson (Director) • Stars Daniel Day-Lewis, Paul Dano, Kevin J. O'Connor, Ciaran Hinds & Dillon Frazier

COMEDY



Be Kind Rewind

P3.5/S3.0

P4.5/S3.5

CRITICS' COMPOSITE 3.0

Mike (Def) is a loyal employee to Mr. Fletcher (Glover), who owns **Be Kind Rewind**, a local video-rental and thrift store in Passaic, New Jersey. When Mr. Fletcher goes on vacation for a week, he leaves his trusted help in charge of his shop, hoping nothing will go wrong in his absence. A freak accident leaves Mike's best friend Jerry (Black) magnetized, which sets off a course of events that may make a tired, old video store the hippest new media sensation in New Jersey.

Special features on both the DVD and Blu-ray Disc™ include a ten-minute featurette *Passaic Mosaic*, the original theatrical trailer, and additional previews. In addition, the Blu-ray™ includes the seven-minute *Booker T & The Michel Gondry* featurette, five-minute *Jack & Mos Improvise Songs* featurette, an interview segment *A Conversation With Jack Black & Michel Gondry* (six minutes), an 11-minute tribute to Fats Waller featurette *Fats Was Born Here*, and previews.^{SP}

The anamorphically enhanced 2.32:1 DVD exhibits relatively poor resolution, with fine details that are overly soft. Compression artifacts can be noticed at times throughout, and moiré patterns can occasionally distract. Black levels are slightly elevated, but not distractingly so, and shadows are delineated well. Source element artifacts are not noticeable, and fleshtones and contrast are both rendered well. Edge enhancement can be noticed, though, especially on high-contrast transitions. The VC-1-encoded Blu-ray Disc shows solid resolution and nicely delineated

shadows. Black levels are deep and contrast is balanced, all of which gives this a dimensional appearance. Colors are saturated well. This is a good picture.^{DR}

The Dolby® Digital 5.1-channel soundtrack rarely uses the surround channels and only subtly incorporates even the front corner full-range channels, but when used they help create an effectively engaging soundfield. The LFE channel is used well with music and occasional effects, dropping down below 40 Hz at times, and bass definition is commendable. Phantom imaging, though, is weak around the room, and there isn't any real sense of dimensionality in the soundfield. Dynamic range is adequate and dialogue generally sounds natural, but there is distortion audible at times. The Blu-ray Disc's DTS-HD Master Audio™ 5.1-channel soundtrack improves upon the dynamic range and overall fidelity of the DVD's encoding, although it is still limited by the mix.^{DR} **WSR**

New Line Home Entertainment • Catalog Number 1000038873 (DVD) 10000140435 (Blu-ray Disc) • PG-13/2008/102 Minutes • Michel Gondry (Director) • Stars Jack Black, Mos Def, Danny Glover, Mia Farrow & Melonie Diaz

DRAMA



The Sand Pebbles

Blu-ray Disc
P4.0/S4.0
WSR SCORE 4.0



Based on the novel by Richard McKenna, **The Sand Pebbles** stars a "cast of thousands" and tells the tale of Jake Holman (McQueen), a sailor stationed aboard the USS San Pablo (nicknamed the Sand Pebble) that floats atop China's Yangtze River at a time when the country is on the brink of revolution. Also coping with the intensifying political climate are missionary teacher Shirley (a fresh-faced Bergen), who falls for the strong yet sen-

sitive American soldier, and Frenchy (Attenborough), another crewman who finds the love of his life on a Shanghai auction block. Watch for Love Boat captain Gavin MacLeod as one of the crewmen, Crosley. Special features include a feature commentary track by cast and crew; an isolated score track with commentary by film music historians and music producers; a trivia track; Road Show version scenes; the following featurettes: *Steve McQueen Remembered* (11 minutes), *Bob Wise In Command* (11 minutes), *China 1926* (13 minutes), *A Ship Called San Pablo—Narrated By Richard Crena* (15 minutes), and *The Secret Of San Pablo* (nine minutes); two radio documentaries narrated by Richard Attenborough; three radio spots; and the original theatrical trailer.^{GR,SP}

The MPEG2-encoded 2.30:1 Blu-ray Disc™ shows fairly impressive resolution that is especially good for the film's age. Still, fine details appear soft. Details in

the shadows, however, are always apparent, and black levels are still deep. Fleshtones appear natural, as does color saturation. Edge enhancement is very minor, but noticeable at times, and there are scenes that are inconsistently noisy. Source element artifacts are rare, though.^{DR}

The lossless DTS-HD Master Audio™ 5.1-channel soundtrack delivers good fidelity in general, but there are times when dialogue and effects are distorted. The LFE channel is used well when needed, especially with music, but the surround channels aren't used as effectively as more modern soundtracks. Still, they do create an enjoyably engaging experience. Deep bass rarely drops low, but it is tight and controlled. Dynamic range is adequate, but it can be damaged by the relatively high noise floor.^{DR} **WSR**

20th Century Fox Home Entertainment • Catalog Number 2245209 • PG13/1966/182 Minutes • Robert Wise (Director) • Stars Steve McQueen, Richard Attenborough, Richard Crena, Candice Bergen, Marayat Andriane & Mako

DRAMA



A Bridge Too Far

Blu-ray Disc
P2.5/S3.5
CRITICS' COMPOSITE 3.0



Based on the book by Cornelius Ryan, **A Bridge Too Far** is an all-star epic of one of the most disastrous battles of World War II. Using actual battlefield locations, the movie gives a faithful reenact-

ment of the Allied effort, known as Operation Market Garden, to put an early end to the fighting by invading Germany and destroying the Reich's war plants. Special features are limited to the original theatrical trailer and additional previews.^{GR,SP}

The MPEG2-encoded Blu-ray Disc™ shows a soft image with relatively poor definition. Black levels are elevated and the color scheme is aged and dated. Colors are generally desaturated and near-black information appears crushed. Fleshtones have a slightly pink hue. Contrast is too low, making the image appear washed-out and dim, and dirt from the source element can be noticed (although it isn't a

huge distraction).^{DR}

The lossless DTS-HD Master Audio™ 5.1-channel soundtrack is very basic, with little use of the surrounds or the LFE. Fidelity sounds somewhat dated, although it seems to be cleaned up fairly well, and bass rarely drops below 50 Hz. There is a good sense of dimensionality, however, in the front stage, and although the soundtrack can seem slightly constrained, there is adequately wide dynamic range. Phantom imaging is weak, but dialogue is generally delivered well. The noise floor is notably low and there are few distortions.^{DR} **WSR**

MGM Home Entertainment • Catalog Number M107702 • PG/1977/176 Minutes • Richard Attenborough (Director) • Stars Dirk Bogarde, James Caan, Michael Caine, Sean Connery, Edward Fox, Elliot Gould, Gene Hackman, Anthony Hopkins, Hardy Kruger, Laurence Olivier, Ryan O'Neal, Robert Redford, Maximilian Schell, Liv Ullmann

DRAMA



The Longest Day

Blu-ray Disc
P3.5/S3.5
WSR SCORE 4.0



The Longest Day features a massive all-star cast in its recreation of the Allied invasion at Normandy Beach during World War II. Actual locations were used whenever possible during the war epic. The picture won Academy Awards® for its visual and

sound effects as well as Best Black & White Cinematography. Includes theatrical trailers for *Patton* and *Tora! Tora! Tora!* Based on the book by Cornelius Ryan. Special features are limited to two commentary tracks—one by Historian Mary Coey and the other by Director Ken Annakin, and up-front previews.^{GR,SP}

The H.264 AVC-encoded Blu-ray Disc™ shows well-delivered detail in the shadows with adequately deep black levels and nicely balanced contrast, to create a noticeable sense of depth in the image. Resolution is quite good, but it tends to be soft at times. The black-and-white imagery has a somewhat cool appearance, and would probably look better

with a display calibrated to something closer to a 5400 Kelvin gray scale, but this was not tested. Edge enhancement is noticeable, especially in scenes that were obviously filmed using a blue screen.^{DR}

The lossless DTS-HD Master Audio™ 5.1-channel soundtrack heavily favors the front three screen channels, but fidelity is adequate and dynamic range is generally good. Unfortunately, though, there are scenes that have a high noise floor. The LFE is used constantly throughout the presentation, but its definition and impact are limited. Phantom imaging can be heard across the front stage, but generally it is not used.^{DR} **WSR**

20th Century Fox Home Entertainment • Catalog Number 2251976 • G/1962/178 Minutes • Ken Annakin, Andrew Marton & Bernhard Wicki (Director) • Stars Robert Mitchum, Henry Fonda, Robert Ryan, Richard Todd, Hans Christian Blech, Richard Burton, Red Buttons, Sean Connery, Fabian, Mel Ferrer, Henry Fonda, Peter Lawford, Roddy McDowall, Sal Mineo, Robert Mitchum, Edmond O'Brien, Leslie Phillips, Wolfgang Preiss, Ron Randell, Robert Ryan, Tommy Sands, George Segal, Rod Steiger, Stuart Whitman & John Wayne

DRAMA



The Battle Of Britain

Blu-ray Disc
P4.0/S3.5
CRITICS' COMPOSITE 4.0



Called the "greatest aerial spectacle," **The Battle Of Britain** tells the historic true story of the outnumbered British Royal Air Force, who successfully fought off the overwhelmingly powerful German Luftwaffe at the beginning of World War II, saving

England from invasion. With truly amazing aerial photography and victorious performances, this film tells a love story between men and their country and is a tribute to the courageous allied pilots who took part in the Battle of Britain. Based on *The Narrow Margin* by Derek Wood and Derek Dampster. There are no special features included on this disc.^{GR,SP}

The MPEG2-encoded Blu-ray Disc™ shows good resolution, with fine details defined well. Black levels are deep and consistent, and shadows deliver a recognizable sense of depth. Fleshtones look accurate, but whites can bloom. Edge enhancement is noticeable and can be a distraction, and some scenes are

overly noisy. Source element artifacts are recognizable as well.^{DR}

The lossless DTS-HD Master Audio™ 5.1-channel soundtrack rarely incorporates the surround channels, and when combined with its age-limited fidelity, the audio distracts from the experience. But dialogue fidelity is commendable, and the front stage can create a sense of depth. Phantom imaging is limited and deep bass is not a major contributor to the sound design. The noise floor is good and dynamic range is acceptable, but there are scenes that sound dynamically compressed.^{DR} **WSR**

MGM Home Entertainment • Catalog Number M107700 • G/1969/132 Minutes • Guy Hamilton (Director) • Stars Harry Andrews, Michael Caine, Trevor Howard, Curt Jurgens, Ian McShane, Kenneth More, Laurence Olivier, Nigel Patrick, Christopher Plummer, Michael Redgrave, Ralph Richardson, Robert Shaw, Patrick Wymark & Susannah York

ANIMATION



Bee Movie



P5.0/S4.0

CRITICS' COMPOSITE 3.0

In this **Movie**, new college graduate Barry B. Benson (Seinfeld) finds himself disillusioned at the prospect of selecting a career for the rest of his life. With only one company to work for, Honnex, Barry has limited career choices—honey—and nothing else. But this **Bee** has other ideas...ideas of the world outside the hive, among humans. When Barry breaks a cardinal bee law to never speak to humans,

in order to thank Vanessa Bloome (Zellweger) for saving his life, the decision changes the lives of the bees and humans forever. Special features include a feature commentary track by cast and crew; an option to watch the film with *Barry's Trivia Track*; three lost-scene storyboards; six alternate ending storyboards; an interactive Q&A session "Meet Barry B. Benson"; a two-minute music video "We Got The Bee"; an interactive music video jukebox; TV Juniors, which consists of 16 spoof featurettes; an option to customize the menu; a picture-in-picture option *Animator's Corner*; get the inside scoop on all your favorite characters in *The World Of Bees*; two live-action trailers for the film; the following featurettes: *Tech Of Bee Movie* (eight minutes), *Inside The Hive: The Cast Of The Bee Movie* (15 minutes); and *Jerry's Flight Over Cannes* (three minutes); and trailers.^{SP}

The H.264 AVC-encoded Blu-ray Disc™ shows impressive resolution, deep black levels, and very nice shadow delineation, helping create a beautiful looking image. Colors are bold, bright, and vibrant, which should keep small children's attention, and contrast is nicely balanced. Source artifacts are nowhere to be found and edge enhancement is not used. This is a superb image.^{DR}

The lossless Dolby® TrueHD 5.1-channel soundtrack shows a slight improvement over the original DVD's soundtrack in fidelity and dynamic range, helping it sound much more realistic than the lossy encoding. The mix is the same, which can be entertaining at times, but generally sounds flat with little depth beyond the front plane. Dialogue sounds natural and the soundtrack is generally entertaining.^{DR} **WSR**

DreamWorks Home Entertainment • Catalog Number 13744 • PG/2007/90 Minutes • Steve Hickner & Simon J. Smith (Director) • Stars *The Voice Talents Of Jerry Seinfeld, Renee Zellweger, Matthew Broderick, John Goodman, Patrick Warburton, Chris Rock, Kathy Bates, Larry King, Ray Liotta, Sting, Barry Levinson, Oprah Winfrey and Larry Miller*

DRAMA



Gangs Of New York



P4.0/S3.5

CRITICS' COMPOSITE 4.0

In **Gangs Of New York**, Director Martin Scorsese brings to life the graphic story of the deluge of Irish immigrants into turn-of-the-century New York City and their clash with American-born immigrant descendants. Leonardo DiCaprio stars as Amsterdam Vallon, an immigrant who seeks revenge for the death of his father at the hands of Bill The Butcher (Day-Lewis). Cameron Diaz stars as the vivacious woman who comes between them. Special features include commentary by Director Scorsese; the

following featurettes: *History Of The Five Points* (14 minutes), *Set Design* (nine minutes), *Exploring The Sets Of Gangs Of New York* (23 minutes), and *Costume Design* (eight minutes); the full 36-minute Discovery Channel special *Uncovering The Real Gangs Of New York*; a U2 music video for the song "The Hands That Built America" (five minutes); the original theatrical trailer and teaser; and additional up-front previews.^{SP}

The VC-1-encoded 2.35:1 Blu-ray Disc™ has a gritty, harsh stylization that is ported nicely to high-definition. Fine details are re-created wonderfully with very good resolution, and shadow delineation is rendered well. Black levels are deep and colors really pop from the screen. The color scheme is limited to grimy, earthy tones and contrast is balanced well. Fleshtones look plugged up, though, with little differentiation between various hues. Heavy edge enhancement is also recognized, especially on high-

contrast transitions. It is a shame, because this could have been a wonderful picture.^{DR}

The uncompressed linear PCM 5.1-channel soundtrack is generally limited to the front screen channels, with dialogue spread across each of the three channels. This can throw off imaging and timing if your system is not properly calibrated. Fidelity is generally good, but it can sound overly digitized and harsh at times. Bass definition is strong, but deep bass is not a huge part of the design. Still, the LFE channel is incorporated well when needed. There is an adequate sense of depth and breadth to the front stage, and dynamic range is wide. Dialogue occasionally sounds forward and often sounds thin, and a high-pitched ringing can be heard in many scenes. The noise floor is low, though, which helps create a sense of realism.^{DR} **WSR**

Miramax Home Entertainment • Catalog Number 57033 • R/2002/166 Minutes • Martin Scorsese (Director) • Stars *Leonardo DiCaprio, Daniel Day-Lewis, Cameron Diaz, Jim Broadbent, John C. Reilly, Henry Thomas & Brendan Gleeson*

ACTION ADVENTURE



National Treasure



P3.5/S4.0

CRITICS' COMPOSITE 2.5

Benjamin Franklin Gates (Cage) is a third-generation treasure hunter who has spent a lifetime searching for a treasure no one believed existed. Hidden by the Founding Fathers of the United States, clues had been left leading to the location of the **National Treasure**. Gates' lifelong journey leads him to the last place anyone thought to look: a map hidden on the back of the Declaration Of Independence. But what he thought was the final clue is only the beginning. As word of the invisible map spreads among the enemies of freedom, Gates realizes in order to protect the world's greatest treasure, he must now do the

unthinkable: steal the most revered, best-guarded document in American history before it falls into the wrong hands. In a race against time, Gates teams up with a beautiful government official (Kruger) as he tries to elude his ruthless adversary (Bean) as well as the FBI and Agent Sadusky (Keitel). With even his ex-treasure hunter father (Voight) skeptical of him, Gates must decipher the remaining clues and unlock the 2000-year-old mystery behind our greatest national treasure. Special features include an audio commentary track by Director Jon Turteltaub and Actor Justin Bartha; an interactive guide to the Declaration Of Independence; seven deleted scenes available with optional commentary by Turteltaub; an opening scene storyboard; an alternate ending; the following featurettes: *Ciphers, Codes And Codebreakers* (12 minutes), *Exploding Charlotte* (seven minutes), *To Steal A National Treasure* (six minutes), *On The Set Of American History* (six minutes), *National Treasure On Location* (11 minutes), *Treasure Hunters Revealed* (nine minutes), and *The Templar Knights*

(five minutes); a trivia track; and up-front previews.^{GRSP}

The H.264 AVC-encoded 2.40:1 Blu-ray Disc™ features deep black levels and well-balanced contrast, but near black detail is crushed and resolution is not as pristine as in the best high-definition releases. Fleshtones are nicely rendered, though, and colors are balanced well. Edge enhancement is not noticeable, but noise can be recognized in many scenes.^{DR}

The uncompressed linear PCM 5.1-channel soundtrack can be very engaging, but there are many instances when the surround channels are unnaturally ignored. Fidelity is pristine, with articulate dialogue, although there are times when voices can sound harsh and too forward. Phantom imaging is excellent across the front stage, and is also adequate in the surround field. Dynamic range is very solid, and deep bass is delivered with speed and control using both the LFE channel and the full-range channels. It can be painfully obvious when they used a looping stage for replacing dialogue though.^{DR} **WSR**

Walt Disney Home Entertainment • Catalog Number 56195 • PG/2004/131 Minutes • Jon Turteltaub (Director) • Stars *Nicolas Cage, Jon Voight, Harvey Keitel, Diane Kruger, Sean Bean, Justin Bartha, Mark Pellegrino & Christopher Plummer*

WESTERN



Butch Cassidy And The Sundance Kid

Blu-ray Disc P.2.5/S3.5

WSR SCORE 4.0



The 1969 Academy Award® winner for Original Screenplay, Cinematography, Score, and Original Song ("Raindrops Keep Falling On My Head"), **Butch Cassidy And The Sundance Kid** stars Robert Redford and Paul Newman as likeable outlaws who have grown tired of outrunning the law in the Old West. So, accompanied by Sundance's girl-

friend (Ross), they travel to Bolivia, learn the language of bank robbing, and take another shot at success as "Bandidos Yanquis." Special features include a commentary track by Director George Roy Hill, Lyricist Hal David, Documentary Director Robert Crawford, and Cinematographer Conrad Hall; an additional commentary track by Screenwriter William Goldman; a documentary *All Of What Follows Is True: The Making Of Butch Cassidy And The Sundance Kid* (35 minutes); a featurette *The Wild Bunch: The True Tale Of Butch & Sundance* (25 minutes); one deleted scene with optional commentary by Hill; and three original theatrical trailers.^{GRSP}

The MPEG2-encoded Blu-ray Disc™ shows poor contrast and bad resolution, which makes the image look very dated and decidedly not high-definition. The color palette is similarly dated, looking almost

sepia toned. Colors are desaturated in general and all of the fleshtones are drab and unnatural. There are occasional source element artifacts that can distract. Black levels are adequately deep, though, and shadow delineation is acceptable.^{DR}

The lossless DTS-HD Master Audio™ 5.1-channel soundtrack rarely incorporates the surround channels, but the front stage is mixed well with good imaging and a believable sense of depth. Fidelity is impressive for the age of the original recordings, but the soundtrack has a high noise floor. Dynamic range generally sounds constrained. The LFE channel is used frequently throughout, and while bass is well defined, it is often delivered at far too high of levels to be natural.^{DR} **WSR**

20th Century Fox Home Entertainment • Catalog Number 2246813 • PG/1969/110 Minutes • George Roy Hill (Director) • Stars Paul Newman, Robert Redford, Katharine Ross, Strother Martin, Henry Jones, Jeff Corey, George Furth & Cloris Leachman

THRILLER



Cloverfield

Blu-ray Disc P.3.5/S3.5

CRITICS' COMPOSITE 3.0



Rob Hawkins (Stahl-David) has been offered the job of a lifetime in Japan, and his brother Jason (Vogel) is planning to send him off in style with a fantastic going-away party. During the party, when Rob is surrounded by friends and well-wishers, an alien lands in New York's Central Park, destroying buildings and devouring everyone it comes in contact with. Now Rob and a group of loyal friends must make their way across the

city to rescue their friend Beth (Caplan), who is trapped in her apartment. The group winds their way through the subway tunnels and across Central Park, now renamed **Cloverfield**, in order to get to their friend, before the alien has a chance to. Special features include commentary by Director Matt Reeves; the following featurettes: *Document 01.18.08: The Making Of Cloverfield* (28 minutes), *Cloverfield Visual Effects* (22 minutes), and *I Saw It! It's Alive! It's Huge!* (six minutes); a four-minute blooper reel *Clover Fun*; five deleted scenes available with or without director's commentary; two alternate endings; and previews.^{SP}

The VC-1-encoded 1.78:1 Blu-ray Disc™ shows solid, consistent black levels throughout the presentation, but near-black shadows appear flat and crushed. The HDCAM-shot movie has a personal handheld camera feel, and colors are often too

vibrant and saturated to seem natural for a handheld device. And while there are times when the picture looks un-high-definition, there are scenes that are very well resolved, with nicely defined fine details. Fleshtones are somewhat washed out and the picture can be harsh and noisy at times.^{DR}

The lossless Dolby® TrueHD 5.1-channel soundtrack heavily favors the front stage, but the surrounds are used well for canned effects that are meant to originate behind the camera's view. Fidelity is somewhat lacking, though, and popping, clipping distortion can be heard at times throughout. Dynamic range sounds slightly compressed and bass definition is somewhat flabby. Phantom imaging is nicely mixed into the front stage. The LFE channel is used often with good effect and deep bass is a large part of the sound design.^{DR} **WSR**

Paramount Home Entertainment • Catalog Number 13285 • PG-13/2007/84 Minutes • Matt Reeves (Director) • Stars Lizzy Caplan, Jessica Lucas, T.J. Miller, Michael Stahl-David, Mike Vogel & Odette Yustman

ACTION ADVENTURE



Master And Commander: The Far Side Of The World

Blu-ray Disc P.4.0/S5.0+

CRITICS' COMPOSITE 4.0



Based upon the novels by Patrick O'Brian, **Master And Commander: The Far Side Of The World** tells the story of Captain Jack Aubrey (Crowe) and the crew of his ship, the H.M.S. Surprise, who, during the 1800s, set off to defend themselves and England from Napoleon's fleet. This is a surpris-

ingly quiet action film by Director Peter Weir (*Witness*, *The Truman Show*). Special features include six deleted scenes, a historical and geographic trivia track, the ability to search content of the movie by keyword and also to watch your personal scene selections, a pop-up map that discloses the ship's location throughout the film, the original trailer, and additional previews.^{GRSP}

The H.264 AVC-encoded Blu-ray Disc™ is not as pristine as the best high-definition releases, but resolution is adequate, and source element artifacts are cleaned up fairly well. The picture has a muted, aged appearance with colors that are slightly desaturated. Shadow delineation is good, but black levels are elevated. Fleshtones have a pasty appearance, but contrast is balanced well. The picture is still very enjoyable.^{DR}

The lossless DTS-HD Master Audio™ 5.1-channel soundtrack is incredibly exciting, with a very engaging mix that will keep viewers on the edge of their seats. Even the quiescent scenes are mixed well, creating an expansive soundscape that defies the physical boundaries of the room. The LFE channel is used very effectively, delivering extremely deep, tight bass that is controlled well. There is an impressive sense of spatial dimensionality, and phantom imaging is superb. Dialogue occasionally sounds tinny, but it only distracts because the rest of the soundtrack is so enjoyable. The noise floor is low and dynamic range is huge, but there are moments when high-pitched ringing is audible.^{DR} **WSR**

20th Century Fox Home Entertainment • Catalog Number 2243552 • PG13/2003/138 Minutes • Peter Weir (Director) • Stars Russell Crowe & Paul Bettany

DRAMA



Patton

Blu-ray Disc P.4.0/S4.0

CRITICS' COMPOSITE 4



Based upon factual material from *Patton: Ordeal And Triumph* by Ladislav Farago and *A Soldier's Story* by Omar N. Bradley, **Patton** is the critically acclaimed, seven-time Academy Award®-win-

ning American war film about the eccentric, brilliant General George S. Patton (Scott, in his Best Actor-winning role). Special features are limited to an introduction and feature commentary track, both by Writer Francis Ford Coppola.^{GRSP}

The H.264 AVC-encoded 2.35:1 Blu-ray Disc™ exhibits pleasing sharpness, with a very clean look. The finest details are still somewhat soft, but the picture looks good for its age. Impressive shadow detail creates a palpable sense of dimension, and contrast is balanced well. Colors are saturated well, again defying the age of the original film. Occasional flecks of dirt can be noticed, and edge enhancement is rec-

ognizable over high-contrast transitions, but neither are huge distractions.^{DR}

The lossless DTS-HD Master Audio™ 5.1-channel soundtrack favors the front channels, but the surrounds are incorporated fairly well at times. Fidelity is relatively pristine, but occasional effects are distorted, sounding out of place. Deep bass is missing from the soundtrack, giving it a noticeably thin delivery. There is a fair sense of depth in the front stage, which is aided by the well-mixed music with localizable phantom images across it. An underlying noise can be audible throughout, though.^{DR} **WSR**

20th Century Fox Home Entertainment • Catalog Number 2251978 • PG/1969/171 Minutes • Franklin J. Schaffner (Director) • Stars George C. Scott, Karl Malden, Michael Bates, Edward Binns, Lawrence Dobkin, John Doucette, James Edwards, Frank Latimore



Disney Classic Awoken By BD Live

Jack Kelley

One of the best things about working for *Widescreen Review* is my commute to “the office”: literally ten feet, and devoid of traffic. And the dress code is very, very casual. But there is the occasional call to cover a press event, usually in the Los Angeles area, that reminds me of how much I hate traffic, which was the case on Monday, June 9, 2008.

Giving myself a three-hour window to travel from San Diego to the evening event at the Ebell Club of Los Angeles, I made it just in the nick of time. Traffic. But not to worry as I had convinced my friend Kaila to attend with me, knowing her presence would allow me to use the HOV lanes, but not knowing she would serve as a useful guinea pig.

The event was off to a good start when waiters and waitresses serving red and white wines greeted us—me partaking in the former, and Kaila in the latter. There were about 50 to 75 of us, with a smattering of *Sleeping Beauty*'s target audience, milling about in a high-ceilinged room, complete with video displays, informational banners, and pennants, and a huge illuminated wall.

Bob Chapek, President of Walt Disney Studios Home Entertainment, took the podium at a stroke after 7:00 p.m., welcoming us to the inaugural unveiling of the Platinum Classic *Sleeping Beauty*, featuring Disney's BD Live Network. With snippets of this Disney classic playing, he promised that it had been meticulously restored to pristine detail to its original theatrical presentation of 2:55:1, and that it would feature 7.1-channel high-definition sound sourced from the original recording tapes. But, as good as this sounds, it would be the features of BD Live that would “make the family room relevant once again.” And with this, the illuminated wall opened, and we were ushered down a long waiter/waitress-filled hallway, with blue martini-type drinks in hand, to a grand ballroom featuring three demonstration areas of Disney's BD Live Network: Movie Chat, Movie Mail, and Movie Challenge.

Movie Chat—Now you can watch your favorite Disney film (well, *Sleeping Beauty* on October 7th) and Instant Message with friends in real time. The message pops up on-screen (you choose its position), while the movie is playing. I guess this would be ideal if you really wanted to share a particular movie experience with, let's say, your best friend who was 600 miles away—this feature melts away the miles. I can definitely see my 11-year-old niece “watching” this way with her friends.

Movie Mail—This feature seems to be perfectly geared for that tech-savvy parent who travels more than he or she would like. This allows them to prerecord a message to their child and have it be played at a scene-specific moment. For example, when the evil sorceress Maleficent makes an appearance, you could remind your son or daughter to brush their teeth before bed...or else.

Movie Challenge—Always up for a challenge, my friend Kaila was eager for this demonstration. Played in real time, she



tested her knowledge of *Sleeping Beauty* trivia with other online gamers, only to find she was totally lacking. Lacking so much, in fact, the game hostess felt obliged to say, “Wow, you did really bad.” Luckily there were more of those blue drinks to ease her pain.



And there's more. You can earn points through Disney Movie Rewards Live by participating in the above activities. And these points can be redeemed for downloadable extras and “many more exciting possibilities.” To get the adults more interested in BD Live, I suggest the chance to win some gas cards.

Now, you ask, when will all this be available? According to Disney's press release, downloadable in BD will be available on October 7, 2008, for a suggested retail price of \$35.99. **WSR**

The Studio Scoop

Rumors, Reports, & Ramblings

Stacey Pendry

DVD Contests

The dog days of summer have arrived, and you may be wondering what to do with the kids now that school is a distant memory and the boredom that comes with the long summer vacation has set in. You should enter to win 20th Century Fox's fun family film, *Nim's Island*, starring Jodie Foster and Abigail Breslin, which is our featured DVD giveaway title for July. We will be drawing names on August 11th, so be sure to enter by midnight Pacific Standard Time (PST) on August 10th. This imaginative adventure will be sure to keep the kids entertained, which should please everyone, including mom and dad.

Harold and Kumar haven't escaped from Guantanamo Bay just yet. You only have a few weeks left to enter to win this DVD about a couple of funny slackers who meet the National Security Council. All entries for *Harold And Kumar Escape From Guantanamo Bay* must be received no later than midnight PST on July 30, 2008.

This is the last month to enter to win our multi-title Spectacular Summer DVD Giveaway Contest. All entries to win such fantastic titles as *Semi-Pro*, *The Bucket List*, *Fool's Gold*, *Vince Vaughn's Wild West Comedy Show*, *10,000 BC*, *Be Kind Rewind*, and *Lost Boys: The Tribe* must be received no later than midnight PST July 31, 2008.

Congratulations to the winners of *Weeds: Season Three* Blu-ray Discs™. We've posted the winners names on the home page of our Web site (www.WidescreenReview.com).

Warner Bros.

Fans of the sword-and-sandal bloodbath, *300* are in for a treat. Legendary Pictures has confirmed that they are developing a follow-up to the über-popular epic-adventure that is to be released by Warner Bros.

Frank Miller (*Sin City*) is writing the graphic novel that the project will be based upon. Zack Snyder is intended to reprise his directorial role with the new project but will not commit on paper to the project until he sees Miller's work.

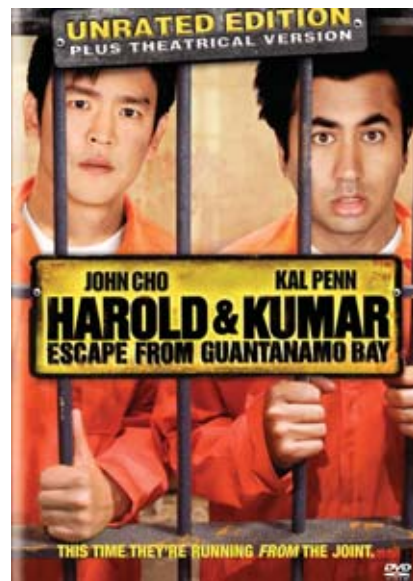


It is not clear whether the plot will be a prequel or a sequel to the original film. But with most of the characters having been killed off by the end of *300*, it may prove problematic to write the storyline as a spin-off.

Another *300* had been rumored from the start, but Snyder and the original producers started a frenzy when they alluded to the project during the Saturn Awards in June. While the fanboys are in a tizzy at the thought of a Snyder/Miller re-team, it may be a challenge for the duo to repeat their success, given the demise of most of the lead characters, including King Leonidas, at the conclusion of the first film.

Warner Bros. has snapped up the rights to the comic book miniseries *Hiding In Time*, signing writer Beau Thorne (*Max Payne*) to adapt the storyline for the big screen and Dan Lin producing via his company Lin Pictures.

The story is set in a not-too-distant future where the Witness Protection Program uses time travel to safely stash high-profile witnesses in the past. But when the program is compromised, a government scientist must travel through history to help a master thief



rescue his old crew from the assassins that have been sent back in time by their former employer.

The original comic series was created by Christopher Long and illustrated by Ryan Winn.

Warner has announced Christmas in July, or so the marketing powers-that-be at the studio would like you to believe. Buoyed the tremendous success of last holiday season's *Harry Potter Years 1-5 Limited Edition* set and *Blade Runner: Ultimate Collector's Edition*, the studio has announced some 25 different collectable gift sets, ranging from \$40 - \$200, will be released in the fourth quarter of 2008, targeting gift shoppers willing to spend a little extra cash for special packaging and memorabilia.

Collectable gift sets have seen a rise of 26 percent in sales this past year, demonstrating demand for the upmarket rereleases with their rich content and many limited edition doodads. It is no surprise that the studio stepped up its gift-release offerings: when the studio released *Dirty Harry Ultimate Collector's Edition* in June, featuring all five films, exclusive content, Harry Callahan's wallet and badge, and additional enticements, Warner reported shipping over 100,000 units of the standard DVD and Blu-ray™ sets in the first 30 days.

Included in the fourth-quarter offerings are Ultimate Collector's Editions for *Casablanca*, *I Am Legend*, *JFK*, and *A Christmas Story*. Even though it was

released in the third quarter, on July 8th, the Limited Edition Blu-ray and standard DVD set *Batman Begins* will surely be on the wish list of many a movie fan.

Sony/Columbia Pictures

Sacha Baron Cohen, best known for his role as *Borat*, will star along with Will Ferrell in a yet-to-be-titled comedy based on the much-beloved tales of Sherlock Holmes. Ferrell will play the crime-solving Dr. Watson to Baron Cohen's pipe-smoking Holmes.

Judd Apatow and Jimmy Miller, who worked with the duo on *Talladega Nights*, are set to produce the project. Etan Cohen, who recently helped Ben Stiller write the script on his upcoming flick, *Tropic Thunder*, has been slated to screenwrite.

Columbia Pictures Co-President Matt Tolmach told *Variety*, "Just the idea of Sacha and Will as Sherlock Holmes and Watson makes us laugh. They are two of the funniest and most talented guys on the planet, and having them take on these two iconic characters is frankly hilarious."

Baron Cohen is currently making a film about his newest character, Bruno, which is due in U.S. theatres in May 2009. Will Ferrell is working alongside British star Anna Friel (*Pushing Daisies*) in the comic adventure remake of *Land Of The Lost*, which is lined up for theatrical release in July 2009.

Phillip Noyce (*Clear And Present Danger*) is negotiating to direct the Kurt Wimmer scripted drama, *Edwin A. Salt* that Columbia Pictures is developing, with Tom Cruise in mind as the star.

Recently Cruise had been in talks with Warner Bros. for another project, *28th Amendment*, but Cruise has pulled out in favor of going forward with *Salt*, prompting Warner to look for another star to replace him. It is reported Warner is in negotiations with Christian Bale as the replacement headliner for the project. Cruise remains unsigned for *Edwin A. Salt*, but has shown keen interest in the project for some time now.

Cruise will be seen in the cinemas later this summer in a small role in Ben Stiller's *Tropic Thunder* and again in early 2009 starring as Col. Claus von Stauffenberg in the epic historical drama, *Valkyrie*.

20th Century Fox

Christopher Guest (*This Is Spinal Tap*, *Waiting For Guffman*) is the latest star to sign on to Fox's sequel of *Night At The Museum*, as the character Ivan The Terrible.

In the Shawn Levy-directed sequel, Ben Stiller reprises his role as night watchman Larry Daley and rejoins previous cast

members Robin Williams, Ricky Gervais, and Owen Wilson. Robert Ben Garant and Thomas Lennon, who penned both *Museum* scripts, will make a cameo appearance in the sequel as the Wright brothers.

The original film was a success for Fox, netting a handsome \$547 in worldwide box office takings. With the Smithsonian as the centerpiece, Levy kicked up the production a notch by getting a rare chance to shoot portions of the film on location, inside the Smithsonian Institute, located in Washington D.C.

If, by chance, you miss seeing the doddering antics of everybody's favorite prince of darkness, and the shrill voice of his anointed queen, don't fret, they're back! Fox's television arm has signed a six-episode order for a variety show starring Ozzie and Sharon Osbourne, along with their two adorable sprogs, Kelly and Jack.

It seems the studio has been talking about how to renew the variety show concept to make it feel fresh and hip again for years. This incarnation of the once-cool variety-show format will see musical performances by the Osbournes and other bands, comedy sketches, game show segments with studio-audience participation and out-of-studio taped elements. Sounds pretty much like *The Sonny And Cher Comedy Hour* or *The Osmonds* to the uninitiated, but anyone who's seen *The Osbourne's* on MTV will tell you Ozzy and Shazza make even the most mundane event refreshing and wacky.

The series is set to kick off during the holiday season, with a Christmas special that will be shot in Los Angeles.

Paramount/DreamWorks

Thirty years after winning the Academy Award® for Best Picture, Director Francis Ford Coppola has personally overseen the remastering and restoration of the classic *Godfather* series. *The Godfather* and *The Godfather Part II* were subject to frame-by-frame examination and extensive restoration, utilizing state-of-the-art digital processes, which required more than a year to complete. *The Godfather Part III* also underwent meticulous remastering, also overseen by Coppola.

The Godfather: The Coppola Restoration Collection is due to be released as both a standard DVD set and a Blu-ray Disc™ set on September 23rd. Both sets will include all three *Godfather* movies, along with special features too numerous to list. The four-disc Blu-ray set will retail at a suggested price of \$119.99, with the five-disc standard DVD set priced at \$72.99. All three of

the newly remastered films will be available individually on standard DVD for \$19.99 each. The individual films have not yet been announced for release on Blu-ray.

With *The Love Guru* netting a paltry \$14 million on its opening weekend, you'd think Paramount would be the most upset about the Mike Myers comedy, which has now been branded a flop by the industry. But it seems the movie has made some unlikely enemies, by the way of Hindu's—who as a whole, are a very difficult group to upset and is now being boycotted by the Papists as well.

Initially, *The Love Guru* got the Hindu's robes in knots because of the way the faith of the main character, Guru Pitka (Myers) is portrayed in the film. It is feared by some Hindus that so little is known about the Hindu religion in the west, that even a parody like this film could be misinterpreted by non-Hindus, giving them a skewed view of the religion. Now the Catholics have joined ranks with the saffron-robed non-Christians, vowing to boycott the film because they feel the film is morally offensive.

Myers maintains the movie is pure slapstick and the religion portrayed is a mythical creation—"like the force in Star Wars." Hindus point to the sacred saffron robe and prayer beads adorning the fictional movie character as traditional Hindu garb. I'm not sure what all the fuss is about...it seems that so few people will actually see this movie that the religious groups needn't worry about any undue influence on the masses.

Briefly

The Special Effects Pioneer Stan Winston, 62, died on June 15th at his home in California after a long fight with multiple myeloma, a plasma cell cancer.

During his 40-year career Mr. Winston created creatures in such films as *Alien* and *Jurassic Park*—both projects brought him an Oscar, as did *Terminator 2: Judgment Day*. He also received Oscar nominations for his work on *Batman Returns*, *Edward Scissorhands*, *The Lost World: Jurassic Park*, *AI*, *Predator*, and *Heartbeeps*.

Alien director James Cameron said of the Hollywood icon, "He was the kid that never grew up, whose dreams were writ large on the screen of the world. I am proud to have been his friend, and I will miss him very deeply." Cameron recently reunited with Winston on an upcoming project titled *Avatar*.

He will be missed by his wife Karen, a son, a daughter, and four grandchildren, along with movie lovers everywhere. **WSR**

Packing In The Bits Data Compression Makes Multichannel Sound A Reality

PERRY SUN

Data Compression For Film: Digital Audio Basics, The Rationale For Data Compression In Film, And DTS® — Part 1

If you know a thing or two about movie sound, then surely you're well aware of the three formats for digital film sound currently in use: Dolby® Digital, Digital Theater Systems® (DTS®), and Sony Dynamic Digital Sound® (SDDS®). Since the early 1990s, you've come to realize the benefits this revolutionary technology has brought in terms of improved sound quality. And since the mid-90s, you've been able to appreciate this technology in the home with Dolby Digital, DTS Digital Surround™, and MPEG audio.

Have you ever considered what makes one digital sound format distinct from the other? For film, you might point out the fact that each format stores its audio data differently, whether on the film print or on a CD-ROM. Others will claim that one format is more robust than another, with better durability and resistance to wear and tear. Yet others claim that a format is superior over the others, because it "sounds better."

But what do they attribute this better sounding quality to? Usually, it's the particular digital sound system's technology behind transforming the original six (or eight) channels of sound into a format that can be conveniently stored and subsequently retrieved for playback. Because of physical space limitations, digital audio can't be stored for film presentation with conventional methods that are used for audio CD. Therefore, a means to somehow "pack" digital audio data into a limited space is needed, while at the same time preserving the fidelity of the sound.

All of the digital sound systems employ some form of *data compression*, or *data reduction*, in which specific algorithms are applied such that less data and therefore less storage space is required to convey the sound. The approach and degree to which data compression is applied varies for each

format.

Many who are in the business of film sound, or whom otherwise are avid enthusiasts, tend to favor one format over another, because of the degree of data compression used, and claim to be able to audibly differentiate between formats on this basis. However, concluding that Dolby Digital, for example, is inferior to DTS and SDDS because it uses only 5-8 percent of the original data, is premature, and should not be a criterion in selecting which theatre to see a movie.

Professional audio experts tend to agree that sonic differences between these formats are very small, to the point of being virtually imperceptible to the ears of the typical moviegoer. They also are likely to agree that the sound quality, though carried in a data stream with much less bandwidth than uncompressed digital audio, is excellent, with exemplary fidelity and dynamic range. If this is so, then one may surmise that a system that requires the least data to produce quality audio is the one that is the most sophisticated.

But before any assessments about a digital sound format's performance ability can be made, an understanding of how it works is essential. This and the subsequent article will give you an introduction to the methods for data compression that are used by each digital film sound format. Part 1 will be devoted to a review of basic digital audio concepts, an explanation of why data compression is necessary for film applications, and the principles behind the data reduction algorithm used for DTS. Part 2 will cover the techniques used for SDDS and Dolby Digital. From these articles, you will discover that the rates of data transfer, and therefore the degree of compression, vary substantially between them. At the same time, you will realize that measures to preserve audio quality at reduced data rates vary in complexity. Perhaps most importantly, these articles aim to dispel the widespread belief that sonic quality is simply commensurate with the amount of digital audio data used by a particular format, and to discourage enthusiasts from judging

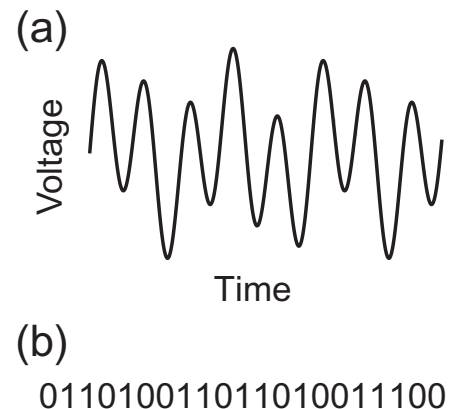


Figure 1 – Audio signal in the (a) analog and (b) digital domains

between the performance of digital sound formats solely on this basis.

Digital Audio Basics

To have some appreciation of the processes in data compression, an understanding of digital audio concepts is essential. An in-depth tutorial is obviously beyond the scope of this publication, but for the purposes of this article a cursory knowledge of the basics is really all you'll need. The following is a brief review that should help bring everyone up to speed.

Sound can be recorded (and played back) by two means. A microphone detects fluctuations in air pressure that make up sound waves, and transduces them into a time-varying voltage waveform (see Figure 1A). The amplitude of this waveform changes in direct analogy to the variations in air pressure sensed by the microphone. This is known as the *analog* process of recording audio—subsequently, the voltage-time signals are said to be in the analog domain.

Sound can also be recorded in the *digital* domain, in which audio is conveyed as a stream of numbers (Figure 1B). At specific intervals of time, the analog voltage waveform is *sampled*—that is, the value of the voltage is "captured." This is then mapped

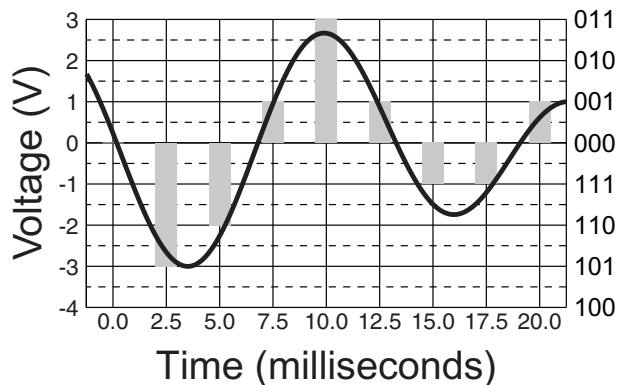


Figure 2 – Analog audio signal (curve), and the sampled voltages converted to digital (3 bit resolution; bars)

to one of a discrete series of voltages, where each is expressed as a *binary* number. A binary number comprises a series of digits, each with a value of 0 or 1. (Contrast this with the numerical system we use, in which each digit has a value between 0 and 9. Therefore, the numbers 1, 3, and 5 are 1, 11, and 101, respectively, in binary representation.) The process of converting a sampled voltage of an analog waveform to a binary code is known as *quantization*.

Figure 2 shows an analog signal (curve), and the quantized voltages (bars). The horizontal spaces on the grid denote sampling intervals, and the vertical spacing the resolution of the discrete voltages. The vertical intervals are also known as the quantizing voltage *step-size*. The dotted lines are the thresholds for quantizing sampled voltages, so that any voltage sampled within two adjacent thresholds is quantized to the discrete voltage level in between them.

Each digit in a binary number is known as a *bit*, the elementary unit of storage and transmission of digital data. To adequately convey an audio signal without perceived loss of fidelity, the size of the binary number needs to be at least 16 bits long, or equivalently, have a binary *word length* of at least 16 bits. This means that 216, or 65536 words (and therefore discrete voltages) are possible. (Professional digital audio recording also dictates the use of 18-bit to 24-bit word lengths). The word length of digital audio samples determines the dynamic range—for 16 bits it is about 96dB, whereas 20-bit digital audio yields a dynamic range of approximately 120dB. In Figure 2, 3-bit word lengths are used for quantization, resulting in 8 possible discrete voltages. This method of converting analog audio samples to digital words is known as *linear pulse code modulation (PCM)*.

The frequency at which the analog signal is sampled is known as the *sampling rate*. In Figure 2, the sampling rate is 400Hz, or

400 samples per second (equal to the inverse of the sampling time interval, 2.5 milliseconds or 0.0025 seconds). According to the Nyquist sampling theorem, to fully resolve the spectral characteristics of the analog waveform, the sampling rate must be at least twice the highest frequency component present in the signal. In the professional audio industry, the sampling rate is 48kHz (48,000Hz), more

than adequate to account for the upper limit of human hearing sensitivity (about 22kHz). (The professional audio industry is now moving towards sampling rate standards of 96kHz and even 192kHz.)

Figure 2 shows that the sampled voltages of the analog waveform deviate from the discrete binary voltage levels assigned to them. This is known as *quantization error*, an artifact that can be audible if substantial. To minimize quantization error, the binary codes for the sampled voltages should have the highest *bit resolution* possible, e.g., have the longest possible word length. The maximum amplitude for quantization error is equal to half the voltage step-size. A signal with an amplitude comparable to the quantization error is particularly susceptible to problems. To deal with this, a small amount of random noise, called *dither*, is added to the analog signal, which stochastically raises the low amplitude signal so that it can be more accurately quantized. In addition to minimizing quantization error through optimizing the number of bits per audio sample, the voltage range of the *quantizer* must be wide enough to span the voltages encompassed by the analog signal. (The quantizer is also known as the analog-to-digital converter or ADC—the *inverse quantizer*, or the DAC is the opposite.)

Too Many Bits, Too Little Space!

Six channels of film sound, at a sampling rate of 48kHz and a typical 20-bit resolution per audio sample means that the digital data need to be transferred at a rate of 5.76 megabits (million bits) per second. Since the speed of film projection is 24 frames per second, this means that there has to be a way to accommodate 240,000 bits per frame. If the data were to fit into, for example, the space on the outer edge of the print adjacent to the sprocket holes, each bit would

have to be a tiny optical square element measuring only 10 thousandths of a millimeter! This would not be practical, given the limitations of the optical technology to reliably detect these small squares, the well-known susceptibility to wear and dirt on the film, and quality control limitations in copying and developing film prints. If the data were to be retrieved from CD-ROMs (as is the case for DTS), a 2-hour film would require 9 CDs, which would be a rather cumbersome medium to carry digital data.

This space limitation is the very reason why data compression measures are employed, so that digital audio for film can be accommodated, while at the same time preserving the nuances and fidelity of the sound. A straightforward approach to data compression might be to simply truncate the bits for each digital sample. However, as explained earlier, this would just increase the quantization error (which is doubled every time a bit is discarded). For playback reliability, the minimum optical element representing a single bit needs to be at least 3 times as large as the small square previously considered (Reference 8). This would mean a 3 to 1 (3:1) compression ratio, and could be achieved by discarding 14 out of the 20 bits per sample. However, this would also result in about a 16,000-fold increase in quantization error!

Another alternative to reducing the data rate could be to reduce the sampling rate by three-fold to 16kHz. However, this is not acceptable, since the upper limit of the audio's spectral range would be reduced from 24kHz to 8kHz! Even a combination of these two measures would result in a substantial degradation in dynamic and frequency range.

Therefore, more sophisticated measures to compress digital audio data are necessary. Having acquired some basic knowledge of digital audio, we will now explore the novel approaches employed with DTS to achieve data compression while preserving sonic fidelity.

DTS: Predicting The Audio Signal

We will start with DTS, since the processes in data compression are relatively simple, compared to SDDS and Dolby Digital. The digital data for DTS is stored on and played back from a CD-ROM (typically 2 CD-ROMs are required for a full-length movie feature). A digital SMPTE 24-bit time-code, located on the film adjacent to the optical analog soundtrack, is used to synchronize the CD player on the DTS cinema processor with the projector. Although digital cinema sound predominantly utilizes 5.1 channels—5 full frequency range plus the “.1” LFE (Low

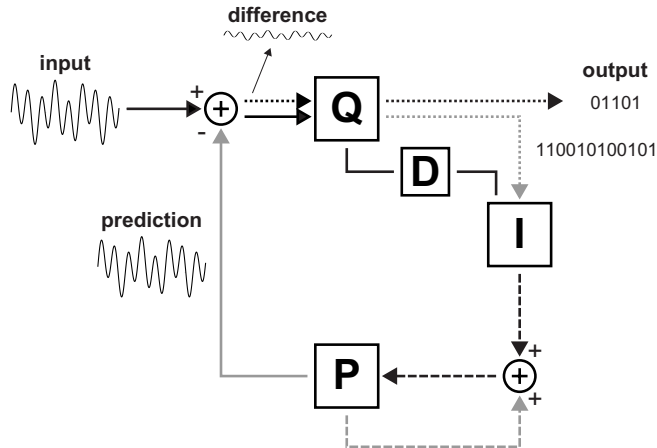


Figure 3 – ADPCM (Adaptive Differential PCM) block diagram

Differential PCM.

A block diagram for ADPCM is shown in Figure 3. The original audio signal, in the analog domain (black arrows), is first converted to a digital signal through the quantizer **Q** (dotted gray arrow). Then, the digitized audio samples are converted back to analog through the inverse quantizer **I** (dashed black arrows). The voltage range of both the quantizer and inverse quantizer is adjusted through a voltage step-size adapter **D** according to the signal range of the previous audio sample. Using the present and previous audio samples (dashed gray arrow), the predictor outputs the anticipated signal (solid gray arrow). The difference between the predicted and the actual signal (dotted black arrow) is then quantized at a lower bit resolution and output from the encoder.

Figure 4 shows the same series of sampled voltages as in Figure 2, first in the digital domain (bars), and then converted back to analog (bars), and the predicted sample voltage (gray line). The difference between these two series of voltages is shown as the black line, and is subsequently quantized with a reduced voltage range/step-size, and bit resolution. For example, in Figure 4, the quantizing voltage range could be reduced to -0.5 to 0.5V, the step-size reduced by two-thirds from 1V to 0.33V, and so the word length for the digital samples would be reduced from 3 to 2 bits, resulting in a 1.33:1 data compression ratio.

In addition to predictive coding, the apt-X algorithm utilizes another method of compressing digital audio signals known as *sub-band coding*. The rationale is that recorded sounds generally do not have uniform energy over their frequency range. PCM digital audio, however, does not take into account

Frequency Effects)—DTS encodes only 5 discrete channels, unlike SDDS and Dolby Digital. Prior to data compression, the LFE track is rolled-off above 80Hz, split into two, and combined with each of the two surround channels. After decoding during playback, frequencies below 80Hz are filtered from the surround channels, and then summed before



output to the subwoofer(s).

DTS uses the apt-X™ *codec* (code-decode algorithm), from Audio Processing Technology (APT) Ltd., originally envisioned for transmission of high fidelity digital audio with ISDN (Integrated Service Digital Networks), broadcast, and DBS (Digital Broadcasting Satellite) distribution. Besides digital film sound, the algorithm is being used in a variety of professional audio applications, including post-production, telecommunications, and multimedia. It should be noted that apt-X is used only for the theatrical version of DTS; the consumer version, DTS Digital Surround, utilizes the distinctly different and more sophisticated Coherent Acoustic Coding (CAC) algorithm (which will be described in a future issue).

apt-X achieves data compression through a combination of two strategies. The first, *predictive coding*, analyzes the amplitude of the audio signal with time, using present and past audio samples, and predicts the

amplitude of the next sample. Instead of storing and transmitting the sampled voltage, as would be the case for linear PCM, the difference between the predicted and the actual signal level is used. The anticipated voltage will not always be exact, but the difference signal will invariably have an amplitude much lower than that of the actual waveform. In essence, predictive coding acts to remove redundant binary information which is not directly relevant to changes in the waveform with time. Therefore, a significant reduction in data transfer can be realized, by quantizing with smaller word lengths, since the dynamic range of the difference signal is substantially reduced. Furthermore, by adapting the voltage range of the quantizer according to the variance of this signal, quantization error can be minimized to levels potentially lower than the error yielded through linear PCM. These measures to reduce the digital audio data are known as *ADPCM*, or *Adaptive*

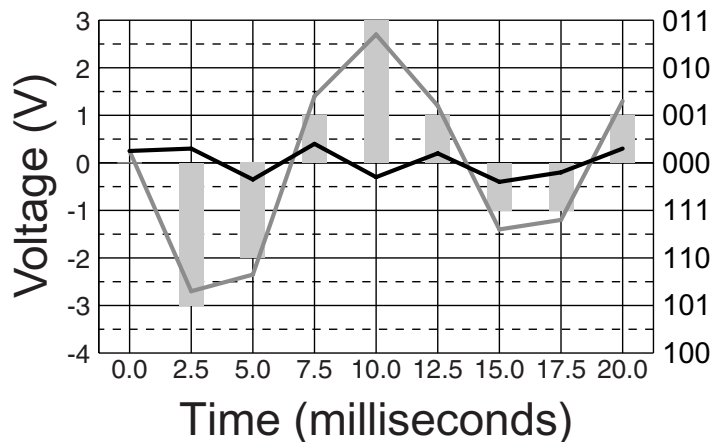


Figure 4 – Predictive coding: sampled voltages quantized and then converted back to analog (bars), predicted voltages (gray line), and the difference between sampled and predicted voltages (black line)

the various dynamic range of spectral components, and therefore in many cases, bits are being utilized that are likely to be redundant. With sub-band coding, frequency components which predominate the audio signal are coded more accurately than those which are less significant. The general approach is to divide the audio signal into a number of frequency regions or bands. Those regions which have small energy contribute little to the sound, and are thus coded with a lower bit resolution than those which have the highest amplitudes. The end result is that the sum of the word lengths from each of the bands is less than that of PCM.

With apt-X, the PCM digital audio signal is divided into 4 frequency bands: (1) 0-5.5kHz, (2) 5.5-11kHz, (3) 11-16.5kHz, and (4) 16.5-22kHz. The band division process is accomplished by what are known as *QMFs* (*Quadrature Mirror Filters*) which split the original PCM audio into the 4 spectral regions, each at one-fourth the original sampling rate (so that the output and input data rates from and to the QMFs are the same). Then each of the frequency bands undergo predictive coding at various bit resolutions—(1) at 8 bits, (2) at 4 bits, and (3) and (4) at 2 bits. It should be clear that region (1) was determined to generally predominate the audio signal and thus is coded with the highest priority.

The apt-X codec for DTS accepts as input PCM audio at 16-bit resolution and 44.1kHz sampling rate for each channel. The encoding is performed on each channel separately, and the encoded signal per channel has an overall bit resolution which is equal to the sum of the word lengths from each of the four frequency bands (8+4+2+2=16 bits). Since the sampling rate is only 11kHz, one-fourth that of PCM (due to the QMFs), apt-X achieves a 4:1 data compression ratio. Recall the earlier discussion that at least a 3:1 compression ratio was required for printing on and reading digital data from film—apt-X more than adequately meets this criteria. In order to decode the data and recover the original sonic waveform, the processes of QMF filtering, quantization, and predictive coding are simply reversed.

Summary

Digital audio compression (or reduction) is necessary in order to accommodate 6 channels of digital audio within the limited space on film, or on CD-ROMs. It is widely believed that the audio performance of a digital sound format is linked to the degree of data compression, or reduction. However, it is premature to make judgements on this basis, without prior knowledge of the

processes involved with data compression for each format. An essential prerequisite for the understanding and appreciation of these processes is some knowledge of digital audio concepts, namely quantization, PCM, binary word length, sampling rate, and quantization error. It has been determined that at least a 3:1 compression of PCM audio is needed to allow for reliable storage and playback of multichannel digital audio on film, but simply reducing the audio sample word length and/or the sampling rate is not acceptable. Therefore, specialized measures to code digital audio at lower data rates have been used. DTS utilizes the apt-X algorithm for theatrical film release distribution, with achieves a 4:1 data compression ratio through two methods: perceptual coding and sub-band coding.

In the second part of this series, we will explore the rationale and processes involved with the data compression techniques used for SDDS and Dolby Digital, both of which have similarities to each other in they rely on human perception of sound. In subsequent installments, we will explore multichannel data compression approaches for consumer applications, such as Meridian Lossless Packing (MLP) and Sony/Phillips Direct Stream Digital (DSD). ■

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