

Classy Contenders: We Rate 8 All-In-One Desktop Systems

THE WORLD'S #1 A/V MAGAZINE

StereoReview®

HOME THEATER ■ AUDIO ■ VIDEO ■ SURROUND SOUND ■ MUSIC

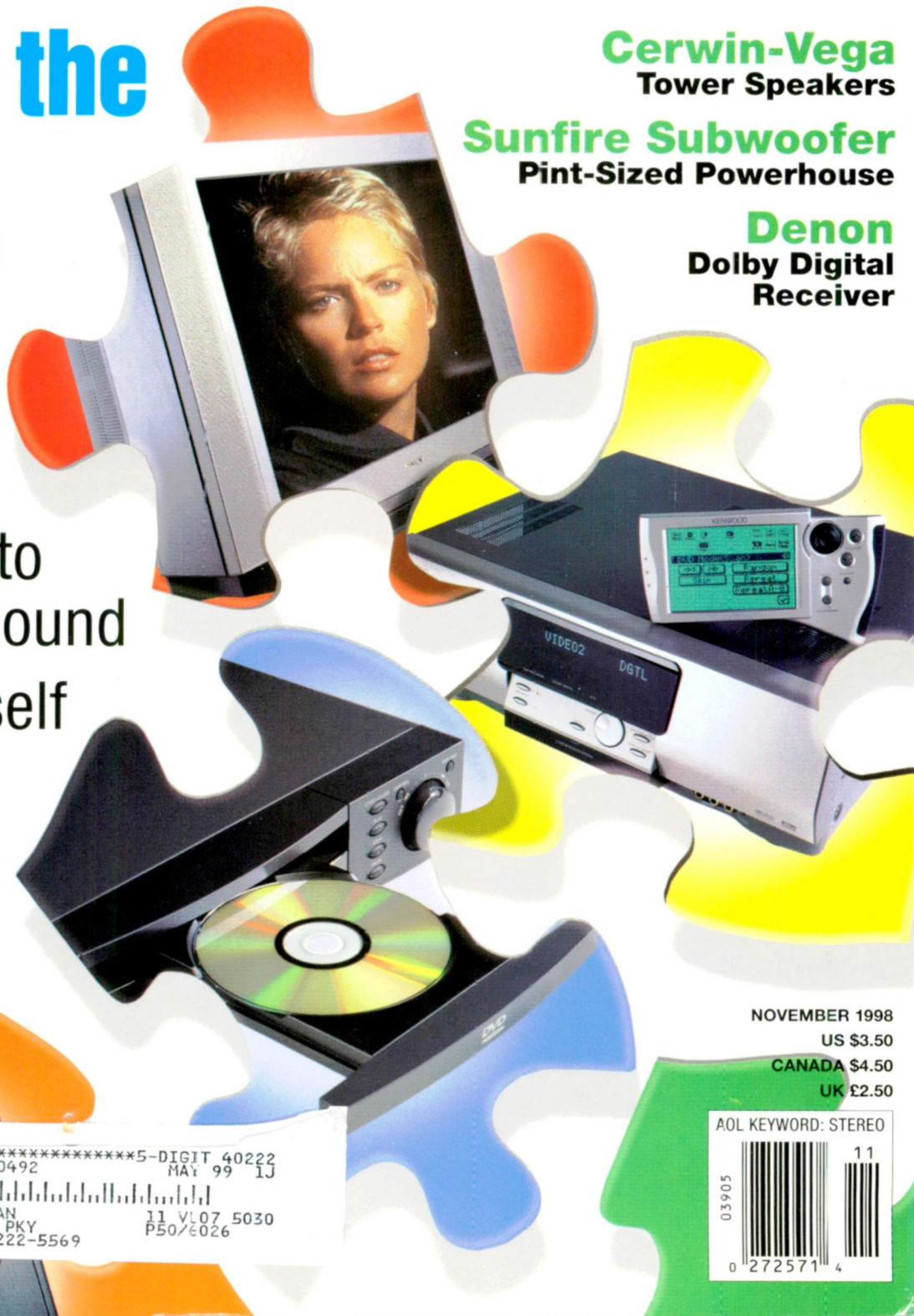
Solving the Home Theater Puzzle

- ▶ The Basics
- ▶ Upgrading to Surround Sound
- ▶ Do-It-Yourself Installation
- ▶ Leaving It To the Pros

Cerwin-Vega
Tower Speakers

Sunfire Subwoofer
Pint-Sized Powerhouse

Denon
Dolby Digital Receiver



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AOL KEYWORD: STEREO

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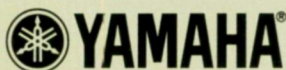
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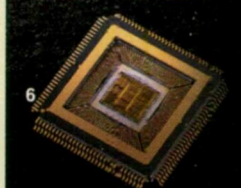
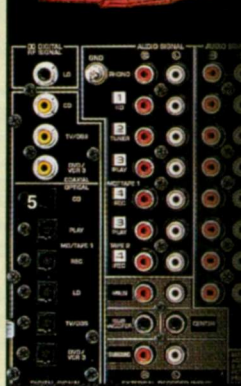
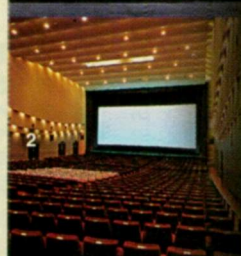
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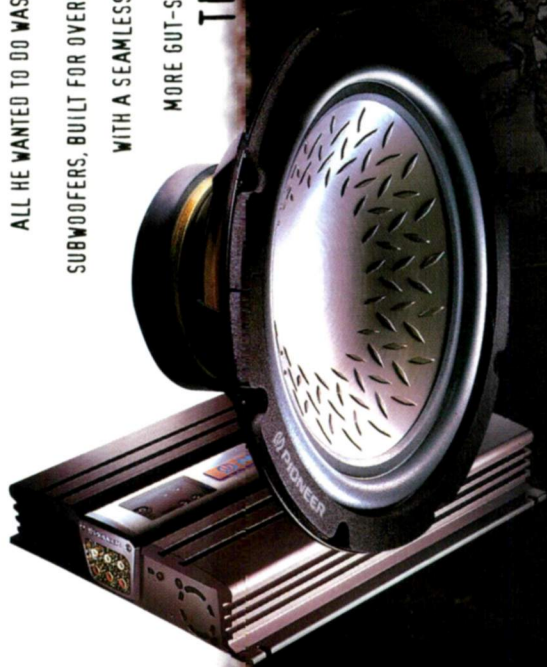
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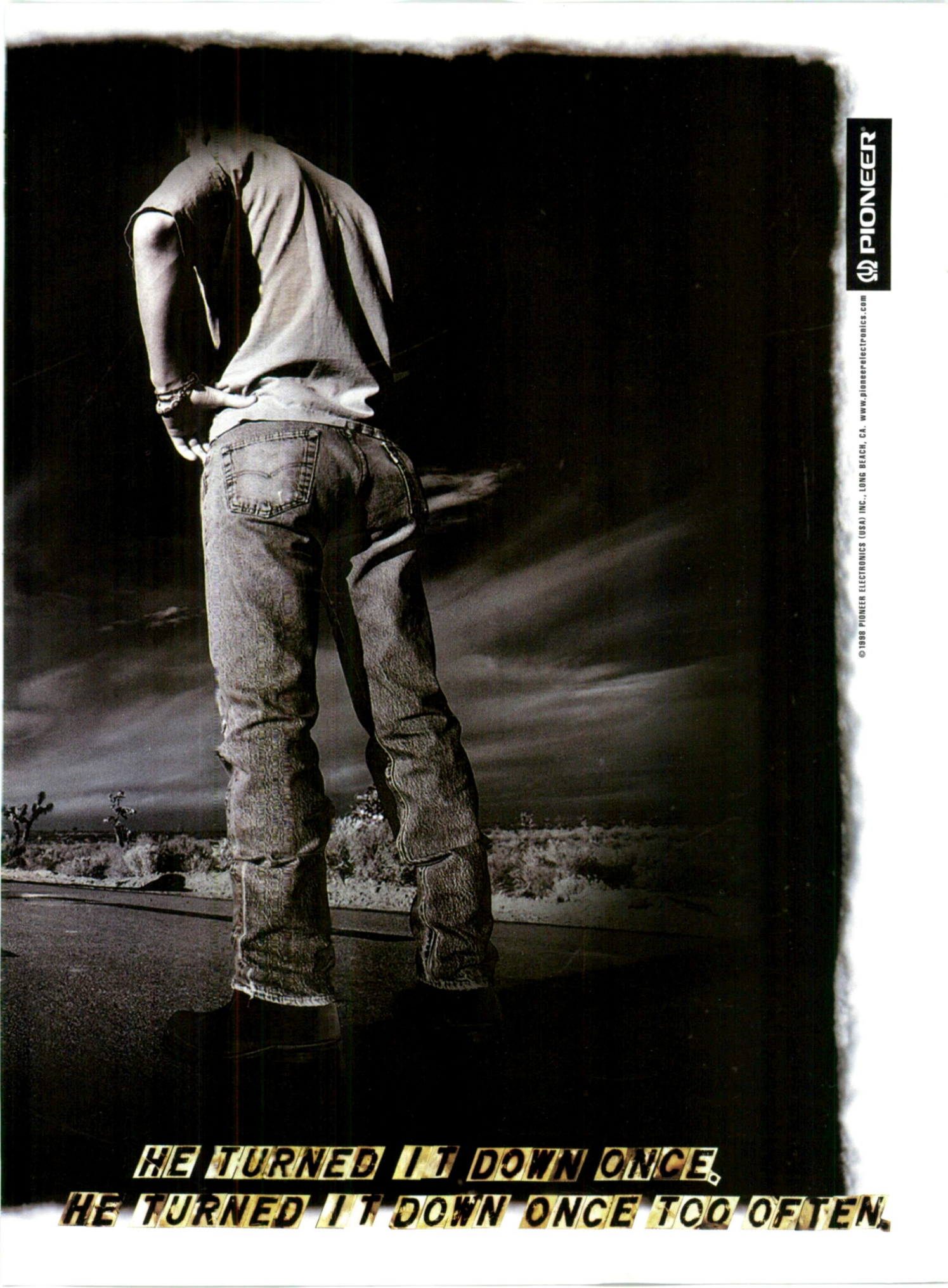


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ON THE COVER

Sony KV-32XBR200 32-inch TV, RCA RC5510P DVD player, Kenwood VR-2080 Dolby Digital receiver, Cerwin-Vega speaker. See page 75 for some ideas on the ins and outs of assembling a home theater. (Screen image from *Sphere*; Warner Home Video)

Digital imaging by Chris Gould

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38 Technology Update

The copy-protection wars heat up online — and they could end home recording as we know it

BY GORDON BROCKHOUSE



75 Solving the Home Theater Puzzle

▶ Starting from Scratch

BY FRANK DORIS, page 76

▶ From Stereo to Multichannel

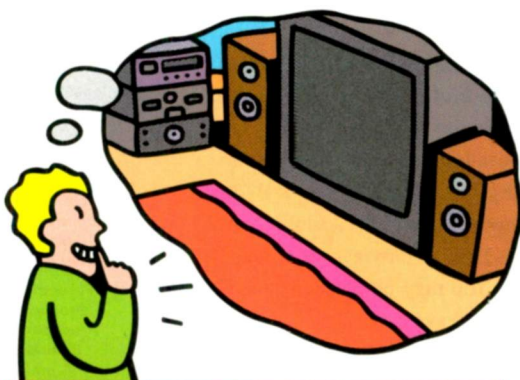
BY GORDON BROCKHOUSE, page 81

▶ Installation: Doing It Yourself

BY DAN SWEENEY, page 85

▶ Installation: Leaving It to the Pros

BY REBECCA DAY, page 90



DEPARTMENTS AND COLUMNS

TRACK ONE	8
RANDOM PLAY	10
LETTERS	12
NEW PRODUCTS	21
HOT DVDs	30
TECH TALK	32
AUDIO Q&A	33
DIGITAL HORIZONS	36
POP MUSIC	108
CLASSICAL MUSIC	120
THE HIGH END	136

92 Executive Decision

Eight executive desktop systems compared: which ones have the power and style to make it at the top?

BY RICH WARREN



103 Test Your A/V I.Q.

Our second official quiz to separate the newbies from the tweaks

BY IAN G. MASTERS

106 Systems

Confessions of an A/V junkie who haunts yard sales and outlet stores in search of great gear

BY REBECCA DAY

EQUIPMENT REPORTS

FIRST TEST! B&K AVR202 Dolby Digital/DTS receiver	47
Cerwin-Vega CVT-12 speaker	54
Denon AVR-2700 Dolby Digital receiver	58
FIRST TEST! Mirage FRx home-theater speaker system	64
Sunfire True Subwoofer-Signature	68





TRACK ONE

BOB ANKOSKO

Bring the Theater Home

SIT BACK ON THE couch and relax. I'd like to ask you a few questions. Don't worry, it'll only take a minute, and I won't ask anything tricky or lull you into a hypnotic trance. I promise.

Do you enjoy watching movies at home on videotape or via pay-per-view cable or satellite TV? Is your TV screen on the small side? (Do you find yourself squinting every now and then?) When you watch a movie, do you use the speakers built into your TV? (I bet they don't sound nearly as good as your regular stereo speakers, do they?) Have you ever thought about connecting your TV or VCR to a separate sound system with dedicated speakers?

If you answered yes to these questions, then you owe it to yourself at least to consider how home theater might fit into your life. Many people automatically assume that home theater is a megabuck pursuit, perhaps in part because it is glamorized as such in many magazines. And there's no question that it's easy to drop tens of thousands of dollars on a professionally designed and installed system with high-end components, custom cabinetry, and lots of special features.

But for most of us, that's not the real world.

I can assure you that it *is* possible to recreate the movie theater experience in your home without emptying out your bank account. In fact, there's a good chance that some of the audio/video gear you already own can be put to good use in a home theater setup. And as we head into the holiday season, the price of admission continues to drop as manufacturers and retailers trim the prices of DVD players, surround-sound receivers, speaker systems, and big-screen TVs.

Whether you're in the early stages of kicking around some ideas or knee-deep in the process of planning a system, you'll find lots of useful advice in our special section, "Solving the Home Theater Puzzle," which begins on page 75. For an overview of what it takes to assemble a system — from big-screen TV options to what kind of audio gear you'll need — turn to "Starting from Scratch" on page 76. If you're looking for ideas on how to convert your stereo system into a multichannel setup that can handle Dolby Surround and Dolby Digital movie soundtracks, don't miss "From Stereo to Multichannel" on page 81. You may be pleasantly surprised at how easy it can be to upgrade to a surround-sound system.

On page 85, we walk you through the basics of do-it-yourself installation to help you decide what you might want to tackle if you're handy — like running speaker wire or mounting speakers on a wall. Finally, if you're all thumbs or have a really ambitious plan in mind, we'll tell you how to find a qualified custom designer/installer on page 90.

Even if your main interest is in listening to music and you have little or no desire to bring home the movie-theater experience, I still encourage you to browse our special section. Multichannel music is the wave of the future, and a good surround-sound system that reproduces movie soundtracks well will also do a first-rate job with music encoded in Dolby Surround, Dolby Digital, or DTS — or in one of the newer 5.1-channel audio formats slated to hit stores next year.

Bob Ankosko, Editor in Chief

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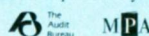
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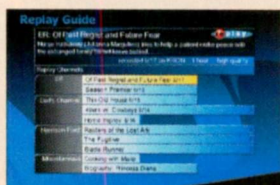
RANDOMplay

EDITED BY BRIAN FENTON

Disk-based VCR

The VCR might be second only to the TV as Americans' most loved electronic product. But with the introduction of a new product called ReplayTV, the VCR is looking more like an analog dinosaur. ReplayTV — from Replay Networks (www.replaytv.com), based in Palo Alto, CA, the heart of Silicon Valley — records on a high-capacity computer disk drive. Among

the decidedly non-VCR-like functions its random-access drive makes possible is simultaneous recording and playback. For example, you can



view the beginning of a show while it is still being broadcast and recorded. ReplayTV also offers a customizable electronic program guide.

ReplayTV's disk has about 7 hours of storage and is said to have a resolution better than VHS tape. Up to 40 hours of additional storage is available. The first model is priced at \$995. In 1999, the company expects to have other models available starting as low as \$500.

— B.F.

A/V Digest

- The DVD Forum has unveiled the DVD-Audio Version 1.0 audio specifications. Meridian Lossless Packing has been chosen as the data-compression scheme of choice. Copy-protection and digital-watermarking issues remain to be settled. See "The High End" on page 136 for details.

- Blockbuster has begun the national rollout of its DVD rental program and expects to have it in 500 stores by year's end. Each store will also rent DVD players. Could this mean even more troubles for Divx?

- Hitachi has demonstrated prototype DVD-RAM recorders in Japan and expects to introduce a home deck next year at a list price under \$1,100.

- The Advanced Television Technology Center has demonstrated

the feasibility of using on-channel repeaters for extending the coverage area of digital TV stations.

Digital Radio

We've had digital radios for years, right? Well, not really. Yes, they've had such digital features as frequency synthesis, numeric displays, and memory presets, but the radios are otherwise analog from the antenna input to the speaker output.

Now comes the DigiCeiver from Blaupunkt, which converts analog radio-frequency (RF) signals into digital data. Only the antenna input, RF amplifier, mixer, and first IF (intermediate-frequency) filter are analog. The amplifiers, demodulators, stereo detector, multiplex filters, and the rest of the circuitry are digital. The benefits, according to Blaupunkt, are reduced interference and distortion and a high level of digital control over the analog electronics.

Digital Radio Redux

Yet another kind of digital radio is being developed by ParkerVision, a design firm based in Jacksonville, FL. Dubbed a "software radio," it would replace almost all RF decoding and demodulation components — including tuning capacitors, inductors, oscillators, and the like — with an integrated front

end and a high-speed digital signal processor and microcontroller. Parker's Direct2Data (or D2D) process, which works only with digital transmissions, is said to extract the digital data from the carrier in a single step. So far, ParkerVision has set its sights not on entertainment products but wireless communications devices. If the U.S. ever begins digital radio broadcasting, there's no reason the technique couldn't be applied to new receivers.

Geek Pride

When the first annual Geek Pride Day was held in Albany, NY, last spring, it touched a national nerve, and similar events were staged as far away as San Francisco. Geek Pride Day was an outgrowth of a radio show devoted to computers and the Internet, *Geek Nation*, hosted by Susan Arbetter and Tim McEachern on NPR station WAMC and the Northeast Public Radio network in upstate New York. The monthly call-in program discusses in a hip but humorous way such hot topics as the Y2K problem, Internet 2, multislacking, the First Amendment, and Microsoft's legal battles.

Divx Update: Rumors of Divx's Demise...

No sooner did we herald the arrival of Divx ("Divx is here!") last month, than the first reports appeared that Circuit City would consider pulling the plug on the fledgling pay-per-view video format. The company's inability to land an investor to help carry the burden of the promotion costs (Circuit City reportedly threw millions of dollars at Hollywood studios to get them to back the format) raised the ire of stockholders, who've been seeing Divx eat into their Circuit City dividends. When a stock analyst asked CEO Richard Sharp if he'd be willing to write Divx's obituary late next year should the project falter, he responded, "If the performance of the business reached a point where we believed that it was not an attractive business for our shareholders, we would have to make the right decision."

Is Divx dead? Hardly. An outside investor could still step in to save the day. In the meantime, Circuit City has added \$75 million to its initial \$100 million investment to help Divx through the holiday season. Keep in mind, too, that Divx has just become available nationally, more stores will be signing on, and more players and software will become available as the holidays approach. Still, while the rumors of Divx's death have been greatly exaggerated, that hasn't stopped the vultures from beginning to gather.

— Michael Gaughn

Meteor Storm

Few things in nature beat the beauty of a meteor shower. But the operators of communications satellites are fearful that this year's Leonid shower, due November 17, could end up being more like a meteor monsoon.

The Leonid showers are caused each year when the earth passes through the track of the comet Tempel-Tuttle, which orbits the sun once every 33 1/3 years, leaving a fresh "track" each time. The last time the comet was close by, researchers calculated that it produced incoming meteors at a rate of 150,000 per hour. Unlike the meteors



in *Armageddon*, the Leonids are little more than grains of sand. However, because they're moving more than 100,000 miles per hour, they can damage satellites. Worse, the resulting "sandblasting" can build up electrical charges that could bollix on-board electronics.

No satellites were reported damaged the last time Tempel-Tuttle came calling — but relatively few were in orbit then. Satellites are far more common today, and a failure would be much more noticeable. When the Galaxy IV satellite died this past spring, it was front-page news because pagers failed across the country and radio-program distribution was disrupted.

— B.F.

According to Arbetter, WAMC's news director, "In previous decades young people expressed themselves through music, but as the century comes to an end, they now express themselves through digital technology."

Negotiations are in progress

to increase the frequency of the show and syndicate it nationally. Do you want *Geek Nation* on a station near you? Write to Tim McEachern, Geek Nation, P.O. Box 158, Spencertown, NY 12165; e-mail tim@owi.com; www.geeknation.com on the Web. — William Livingstone

THX Select

A lot of companies claim that their equipment brings the movie-theater experience into your home, but Lucasfilm's THX certification program has been about the only serious attempt to insure that that goal is met. THX-certified systems don't come cheap, however, and a lot of movie fans who would love to have a top-shelf home-theater setup have found themselves economically shut out.

That's about to change. Lucasfilm is introducing a new certification program, called THX Select, designed especially for people with smaller spaces and limited budgets. The old program, now called THX Ultra, will continue as before, anointing equipment based solely on performance without regard to price. The new program takes both price and performance into consideration.

Let's say you're in the market for a \$699 Dolby Digital receiver. Venturing into your local megastore, you find yourself confronted with 15 models to choose from. But of those 15, only two or three carry the THX Select seal of approval. If your space fits the THX Select criterion (2,000 cubic feet or less) and you like the THX approach, then your buying decision should be much easier.

The first certified products are scheduled to be announced at the Consumer Electronics Show (CES) in January 1999. The products, however, won't hit stores until next fall. Speakers and receivers will be the first up for certification. No date has been announced yet for other home-theater gear.

— Michael Gaughn



Unique CD Copies

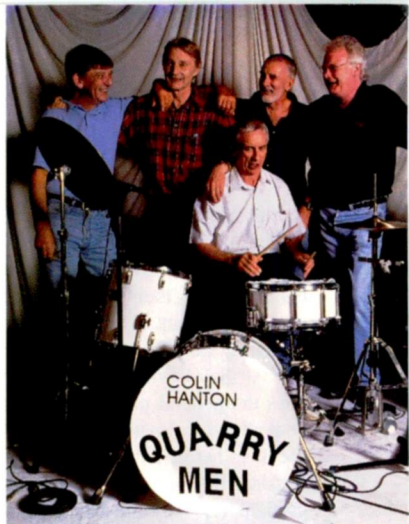
A Canadian Web site that made compilation CDs tried to put a new spin on copyright law. Now it has shut down after receiving a cease-and-desist letter from the Canadian Recording Industry Association. Unlike other sites that make compilation CDs, Purple Dot offered new, major-label hits — but it had no agreements with record labels and did not pay royalties. It sounds a bit like piracy, right? Not according to Purple Dot, which said that it was duplicating only those songs its customers already owned.

Compilation Kiosks

Don't worry, you'll still be able to make compilation CDs of the latest hits — not on the Web, but at special CD kiosks. New York-based CD World has formed a joint venture with Sprint to create interactive kiosks called Music Point. The company plans to have Music Point in about 400 locations — mostly music stores — in New York City and Los Angeles this winter. The music list will start out at about 50,000 songs and, yes, royalties will be paid to the music copyright owners.

The music is not stored in the kiosks that "burn" the blank CDs but in a music database in New York. Sprint's high-speed fiber-optic network will be used to ship the data to the kiosks. The time to make a CD is said to be about 4 minutes.

ILLUSTRATION: MIKE LEE



Get Back

Why would 150,000 people pack clubs and concert halls to hear five guys who, for the most part, hadn't picked up instruments in 40 years? It helps to know that back in 1957 the five played gigs in Liverpool with a chum named John Lennon.

The Quarrymen were formed by Lennon and some of his school-mates during the skiffle craze then sweeping Britain. During their first year, another local lad, Paul McCartney, joined the group, followed by George Harrison in 1958. By 1960, the core of the Beatles was on the way to immortality, and the remaining Quarrymen settled down to careers as restaurateurs, upholsterers, church-tour guides, and so on.

All that changed last year when the band reunited at a show in England commemorating the anniversary of Lennon and McCartney's first meeting. That led to the recording of a CD, *Get Back* — *Together* (Quarrymen Records), an appearance on NBC's *Today Show*, and a ten-date U.S. tour this past summer. Guitarist Rod Davis (fourth from left) was joined by the rest of the surviving original Quarrymen: from left, Eric Griffiths (guitar), Len Garry (lead vocals, guitar), Colin Hanton (drums), and Pete Shotten (bass, washboard).

Both in concert and on the CD, the group stuck to covering skiffle classics and '50s rock standards. No Beatles songs, and no pretensions. "We're basically five old guys who know someone who became someone famous," said Davis.

Now back in England, the band is mulling offers to play Las Vegas and record in Nashville. "They'll be back here in January or February," said their manager, Thom Wolke.

So much for "Let It Be."

— Daniel Manu

PHOTO: STAN GODLEWSKI

Little Big

In September's "Small Speakers with Big Potential," Daniel Kumin and Ken Pohlmann said, "We asked a dozen manufacturers to send us their best \$300-a-pair speakers . . . for comparison." Why wouldn't you randomly purchase test speakers at a store so that they would be representative of the ones the general public buys? The way you do it allows the manufacturers to "tweak" the speakers before submitting them to you.

Also, if "four manufacturers declined to participate," why not buy their speakers on the open market and see what they are trying to hide?

Gary Klingaman
York, PA

The speakers Messrs. Kumin and Pohlmann evaluated were shipped right from the manufacturers' warehouses and were received factory-sealed. We don't know of any practical way for a manufacturer to "tweak" a speaker for review. In any case, our reviewers' judgments were offered only as a guide for readers in deciding which budget-price speakers might be worth auditioning. Buying decisions on speakers are very personal and should be based on your own listening, not a reviewer's say-so.

We asked the leading manufacturers, but some declined to participate for various reasons. Some have policies against subjective head-to-head comparisons, for example, and others were readying new speaker lineups and didn't want to submit a model that was being discontinued.

In the article on \$300-a-pair speakers, you tested the NHT SuperZero Xu, which didn't fare all that well. But the Zero was *never* intended to be used without a subwoofer! I have four Zeros plus an NHT center speaker and an NHT sub. They sound great with the subwoofer switched in but weak and thin when it's out. A much better competitor in this group would have been the NHT SuperOne, but it's \$375 a pair. **Tom Kennedy**
San Ramon, CA

Thank you for including the JBL HLS610 speaker in "Small Speakers with Big Potential." After going through that article, and then reading Corey Greenberg's personal assessment of these JBLs in September's "High End" column, I ordered a pair. They look and sound great. I got exactly what I wanted — plenty of full, clean sound at high to moderate listening levels — at a price I couldn't believe. **Steve Drexler**
Two Rivers, WI

Addicted to Music

I was listening to records at 5, got a 4-inch reel-to-reel tape recorder and microphone at

8, and have been a regular subscriber to *Stereo Review* since I was 12 years old. I'm 44 now. I have broadcast experience with FM and DSS, am a seasoned music and electronics journalist, and am also an educator and therapist. I mention these things to give context for my response to Ken Pohlmann's September "Digital Horizons" column, titled "Hazardous to Your Health."

Many might be tempted to view his column, which searingly illuminates the addictive hazards of music, as comedy, or perhaps as just ludicrous. However, I strongly agree with him. The fact of the matter is that we live in a society where addiction is the norm. We are addicted to performance vehicles, upscale corporate jobs, recreational drugs, loud special effects in films, power, speed, graphics-rich imagery, computer technology, sex, violence, extreme sports, and, ultimately, delusion. We don't want to know the truth because it's shattering.

The original function of music was to liberate the senses so that the profound spiritual dimension of life would reveal itself through awe. Today, music that facilitates revelation still exists, but we must seek it out as if it were a remote enclave in a national park. Unwittingly, the consumer electronics and music industries have created the tools for a monstrous system of denial that fuels addiction and generates suffering.

Addiction is a cruel phenomenon. Its resolution comes when an individual can stand up to the fear that generates denial. The rewards are perspective and liberation. Like Ken Pohlmann, I recommend that we get some. And also like Mr. Pohlmann, I would say that gazing out a window is a wonderful place to start. **Mike Fallarino**
Stuyvesant Falls, NY

"Digital Horizons" in the September issue was a waste of my time. Ken Pohlmann's political/social views are of no interest to me. It is irritating enough to have to endure sophomoric tobacco advertisements such as the one inside the front cover of the issue. Including poorly written pro-tobacco-industry social satire in the editorial pages is doubly annoying.

Please keep the magazine focused on audio/video technology. **Dave Kempker**
El Dorado Hills, CA

Ken Pohlmann replies: My tongue was firmly in cheek when I wrote the column, but as with many topics discussed with humor (feeble as it may be), there is an underlying issue that may be more serious. In today's hyped-up, fast-lane world, in which every possible means is used to infiltrate our consciousness, is the power of music being abused, and is its beauty being cheapened? Can too much music

really be a bad thing? I don't know. But surely sometimes the best sound is silence. [Ken's original ending was "Just kidding!"] but we thought it was too obvious to need spelling out. Apparently we were wrong. — Ed.]

Blind Testing

David L. Clark states in "Everything You Always Wanted to Know About Speakers" (September) that "most listeners, myself included, are impressed with the sound of most expensive speakers . . . so they must have something." I can't help but wonder if anybody ever tests speakers in the *blind* fashion, meaning you just listen to the sounds without knowing or seeing from which speakers they come. Psychologically we know that if we hear music from a very expensive setup, we tend to believe that it must be good. **Robert Nguyen**
Fresno, CA

Vernacular

In a review of the PSB Alpha speaker system in September, Ken C. Pohlmann used the phrase "piss off" to describe his irritation about a shipping mistake. While the phrase is a frequently used component of my own vocabulary, it is mildly offensive. I believe it is out of place in a magazine of *Stereo Review's* caliber, and putting it in print certainly detracts from your dignity.

I sincerely hope that this lowering of standards represents only a temporary lapse in judgment. **Lee W. Meister**
Houston, TX

Dignity is for funerals. We'd rather loosen up and have a little fun.

Divx . . . the Beating Goes On

Just finished Corey Greenberg's review of the Zenith/Inteq DVX2100 Divx/DVD player in the September issue. Corey is da man! Finally someone from *Stereo Review* who doesn't pull punches or make us read between the lines! **Craig Brewster**
Lee's Summit, MO

How could you? A Divx evaluation by Corey Greenberg? Unbiased? Truthful? Give the readers of your magazine a break from this trashing of Divx. "I hate the concept of Divx down to the very marrow of my bones." This comes from the writer somebody assigned to evaluate the first test of Divx by *Stereo Review*. Corey Greenberg is the last person fit to evaluate this format.

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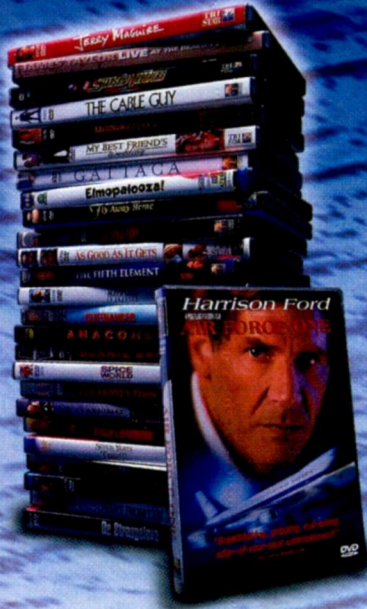
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LETTERS

tape vs. analog cassette tape. The winner every single time was the price/convenience champ. Let's compare Divx and DVD honestly. Which player can play both formats? Divx. Which movies are cheaper? Divx. There you have it: price and convenience are overwhelmingly in the corner of Divx. Mark my words, Divx will win the format war regardless of the trashing it receives from *Stereo Review*. **Greg Forgette Franklin, TN**

Did you bother to read the second opinion by Ken Pohlmann? Also, Divx discs cost \$4.49 for a 48-hour viewing period, but Blockbuster rents DVDs at the same rate as for VHS tapes, typically \$2.99 for a four-day rental, or about 75¢ a day. And many DVD titles sell for only \$10, with letterboxing and supplements, while the same price buys you only a pan-and-scan Divx version of the movie.

Ken Pohlman's review of Divx has me questioning who signs his paycheck. Circuit City or its lawyer partners in L.A. He says that Divx is a "harbinger of the way music and video will be delivered in the future." Who is he kidding? Audiophiles and consumers will never adopt a "pay as you play" system.

According to him, we will register every CD player we have so that we can be billed and pay a royalty every time we play our favorite CDs. *Wrong!!!* What would be next, paying a fee every time we tune in our favorite radio or TV stations?

Mr. Pohlman has lost all credibility and should no longer be allowed to write for your magazine. **Robert Goldman Mansfield, MA**

In "Divx Is Here!" in October, Michael Gaughn claims that "unless you pay extra to upgrade your disc, you can't play it on someone else's Divx player without the other person being charged." The DVD Web sites claim that even if a Divx disc is upgraded to Silver, it can only be played at no charge on the Divx player under that owner's account. Therefore, someone else's Divx player will still be charged when playing a Silver Divx disc.

Who is correct? Who is confused? This was a system designed by lawyers, and it will probably sell well to lawyers. The rest of us can buy open DVD. **Marc Mueller Murfreesboro, TN**

Playback of Divx Silver discs without extra charges is indeed limited to your own player, but the more expensive Divx Gold discs, which are priced about the same as "open" DVD titles, can be played without charge on any Divx-compatible player.

There is one aspect of Divx I have not seen addressed in any forum, that it is a *disposable* format. With all other formats — CDs, LPs, prerecorded video and audio tapes, even books — used items can be sold to secondhand stores, donated to charity, or given to friends. Divx does not allow that option, filling our waste sites with hazardous materials to further contaminate an already polluted world.

Until Divx allows ownership for the original limited viewing window to be transferred without fees of \$20-plus, I hope people think carefully about which Divx discs they "rent" and select only those they plan to keep permanently. **Bruce Kofod Buhl, ID**

Actually, Corey Greenberg did raise the recycling issue in his initial "High End" column about Divx in the January 1998 issue. Divx says that its discs are made of recyclable polycarbonate plastic and that retailers will have recycling bins, which rather undercuts the selling point that you don't have to bring the discs back. But it may not be much of an issue anyway the way things are going — see "The Rumors of Divx's Demise" on page 10.

Hearing and Believing

July's "Tech Talk" by David Ranada was a blunt reminder of why this was the first issue of *Stereo Review* I've read in ten years. The breed of "expertise" he demonstrated borders on contempt.

Why is a column titled "Tech Talk" dressed in a class-warfare fairy tale? For the "cute" factor? Mr. Ranada offered no more proof that 96-kHz audio can't sound better than the characters in his fairy tale who said it does. This suggests that he wishes to impose his own value system on your readers, as if he feels guilty that those who have the gold get better sound. I can afford only a \$500 CD player, but that doesn't keep me from hearing huge differences between it and a \$3,000 or \$10,000 player. I even know that a BMW is in every way a better car than my Honda. But it doesn't keep me from enjoying music or driving.

I heard a big difference between the same recording sampled at 44.1 and 96 kHz at the 1998 HiFi Show in Los Angeles. I was excited to learn that I may be able to get improvements of that magnitude from future audio DVDs without having to buy a \$14,000 player. Hiring staff who don't care about performance does your readers a great disservice. **Duane Randleman Bettendorf, IA**

David Ranada replies: The burden of proof lies with those hearing "big differences"

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from an "improvement" that contradicts decades of psychoacoustical research on the audibility and perceptual significance of ultrasonics. Simply "hearing" something at a demonstration does not constitute a scientific listening test, which must be conducted with the utmost care. My big beef, however, is that record producers, in self-serving displays of supposed superior listening ability, are driving the industry to squander a precious resource — the large but still finite data capacity of an audio-only DVD — on dubious "improvements" instead of moving toward a more-than-5.1-channel audio system, the superiority of which would be clearly audible.

Multichannel Opera

In his review of operas on DVD in September, David Ranada seems unhappy that the soundtracks are in "straight PCM stereo, not multichannel Dolby Digital." There may still be a few of us diehards who prefer 16-bit linear PCM digital audio instead of data-reduced multichannel for serious music, but, more to the point, having discrete surround sound for opera only makes it more painfully obvious that in video all solo voices are recorded dead center mono. Deriving ambience from two channels is all I would ever want.

David Hadaway
Rindge, NH

David Ranada replies: a well-executed multichannel video of an opera — one where the voices are indeed not dead-center mono — will provide a more vivid theatrical and dramatic experience even with data-reduced audio. It's like the difference between listening to the Texaco Metropolitan Opera broadcasts and hearing a performance from inside the Metropolitan Opera House itself.

What Color Is Your CD-R?

You did readers a favor by pointing out in the "Buyer's Guide to DVD Players" (August) that many of the players have a problem reading CD-Rs. But I am fairly confident that the problem isn't with the players but with certain CD-R discs. On most of them the recordable layer is a bluish or greenish color that is very close to the color of a DVD player's laser pickup. Hence the light gets absorbed, and the disc can't be read. The fix is to buy CD-Rs with different colors. I have a Panasonic DVD player, and gold-bottomed CD-Rs work fine. I suspect the white-bottomed ones will work as well.

Adam Sherman
Dayton, OH

It's true that the playability of a CD-R in a DVD player depends on the reflectivity of

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the disc at the wavelength of the player's laser (actually a shade of red), but you can't predict the interaction simply by noting the color of the disc. If you've found a combination that works, however, stick with it.

Just Spell My Name Right

Thanks so much for Eric Salzman's very positive review in September of my recent *Walking Tune* CD (Starkland). To help those interested in finding the CD, however, please note that my name was misspelled. It's "Amirkhanian," not "Amirkhanian."

Charles Amirkhanian
El Cerrito, CA

DIY FM Antenna

As an economical and rewarding project for *Stereo Review* readers, I would like to recommend a build-it-yourself indoor FM antenna that I recently constructed in one evening for less than \$10. Although 7½ feet tall, it takes up only a square foot of floor area!

This very easy-to-construct antenna is called a J-Pole ("End-Fed Half-Wave Antenna"), and its parts and construction are fully described in the book *Enhanced Sound for the Audiophile* by Richard Kaufman (Tab Books, 1988), which I found in my local public library. I have tried nearly all the amplified and unamplified indoor FM antennas now available, and this one easily surpasses them all.

Ken Massey
Indianapolis, IN

Surround-Sound Level Setting

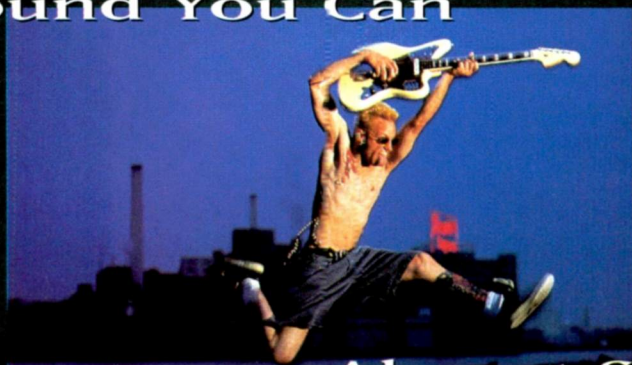
I have some questions about setting the speaker levels in a home theater. I read David Ranada's June article, "How To Set Surround System Levels" and purchased the sound meter from Radio Shack and the Dolby Surround test discs from Delos as he recommended. Mr. Ranada said that the sound meter should be held at arm's length vertically at the position of my head while sitting down. In what direction do I hold the sound meter? Do I point it at the speaker sound is coming out of? Do I point it directly in front of me? Where?

Also, in Mr. Ranada's August "Home Theater" column ("Get with the Program"), he says that in setting the levels for hearing a movie, I should do it separately for Dolby Digital and Pro Logic. My Sony receiver will decode Dolby Digital if a digital source is found and Dolby Pro Logic if one is not found. So how do I match the levels for each separately?

Alfredo Garcia, Jr.
Lubbock, TX

David Ranada replies: The object is to point the meter at a 90-degree angle to the direc-

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tion of the sound. For the front speakers that means straight up or down. For the surrounds, the meter angle will depend on how you've mounted them, but in many installations a vertical orientation will work for them as well.

Your receiver probably performs both Dolby Digital and Pro Logic decoding with the same integrated circuit. If you're feeding it only digital input signals, the calibrated levels for both modes should be the same — and you couldn't do anything about any disparities if you found any. I recommend separate calibration for Dolby Digital and Pro Logic only for systems where the Pro Logic program source is analog (like VHS tapes) and the Pro Logic decoding is done by an analog processor.

Blank Media Prices

I've been transferring my open-reel "garage band" tapes to CD using the CD-R drive on my computer. Getting a consumer CD recorder would be much more convenient, but I am put off by the \$5 difference in price between computer CD-R blanks and the consumer versions. Certainly the tax on the consumer version can't be \$5. How much is the tax, and what are the probabilities of the prices coming down?

Robert A. Ward
Southfield, MI

I recently bought a Sony MiniDisc recorder, and I can't believe how good it sounds — just as good as CDs in my opinion. But I am concerned about the price of blank MDs. I bought a five-pack of 74-minute MDs for \$20, but I've seen blank CD-Rs for as little as 99¢ each in lots of a hundred or more, and single discs for \$2.49 each. Will blank MDs come down that low anytime soon?

John Bednarek
Eynon, PA

The royalty on CD-R blanks designated "for music use only" is 3 percent of the wholesale price. The rest of the price differential with the much cheaper blank discs intended for use in computers will probably narrow as demand for the music discs increases and as production (and competition) ramps up. As for MiniDisc, if the format really catches on this time around — remember, it was introduced in 1992 — there's no question that the price of blanks will drop further. Again, how much and how fast depends largely on supply and demand.

We welcome your letters. Please write to Editor, Stereo Review, 1633 Broadway, New York, NY 10019; or e-mail to StereoEdit@aol.com. You should include your street address and telephone number for verification. Letters may be edited for clarity and length.

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NEW PRODUCTS

Pioneer Pioneer's DV-606D DVD player has a built-in Dolby Digital decoder with a six-channel analog output. For movie buffs not willing to invest in extra speakers, it also features Dolby Virtual Surround sound based on an SRS Labs TruSurround chip, which simulates multichannel playback with only two speakers. In addition, it contains a 10-bit video digital-to-analog (D/A) converter and a 96-kHz/20-bit PCM audio D/A converter. Playback settings for up to 30 DVDs can be stored in the player's memory. The DV-606D has one component-video, two S-video, and two composite-video outputs, along with one optical and two coaxial digital audio outputs. Price: \$599. Pioneer, Dept. SR, 2265 E. 220th St., Long Beach, CA 90810; phone, 800-746-6337; Web, www.pioneerelectronics.com



Definitive Technology Center of power: The C/L/R3000 from Definitive Technology is one of the few center-channel speakers to feature a built-in powered subwoofer. It houses two 6½-inch bass/midrange drivers and a 1-inch aluminum-dome tweeter in a D'Appolito array, and the amplifier for its 10-inch subwoofer is rated to deliver 150 watts. Bandwidth is given as 19 Hz to 30 kHz. Auto on/off, magnetic shielding, and a low-frequency level control are featured. Dimensions: 8¾ x 25 x 16 inches. Price: \$999. Definitive Technology, Dept. SR, 11105 Valley Heights Dr., Owings Mills, MD 21117; phone, 410-363-7148; Web, www.definitivetech.com



Velodyne Just a snap of the Velodyne FSR-18's Subwoofer Direct switch lets you bypass its internal crossover so that the sub can be connected directly to the subwoofer output of a 5.1-channel receiver. It is powered by a Class D amplifier rated to deliver 1,250 watts continuously, has an 18-inch driver, and claims a frequency response of 15 to 120 Hz ±3 dB. The FSR-18 weighs 105 pounds, measures 23½ x 21¼ x 18½ inches, and is available finished in black woodgrain vinyl (\$2,399) or high-gloss black or rosewood (\$2,499). Velodyne, Dept. SR, 1070 Commercial St., Suite 101, San Jose, CA 95112; phone, 408-436-7270; Web, www.velodyne.com

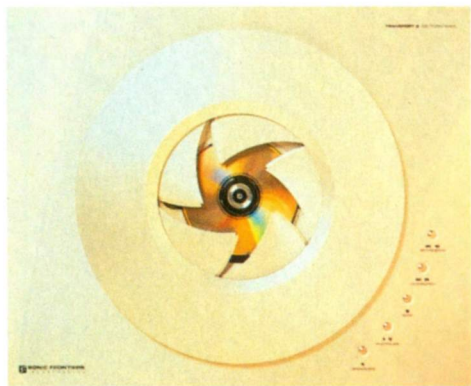


Philips But can it open garage doors? The Pronto universal remote control from Philips has "hard" keys for basic functions, such as volume control and channel selection, and a 3 x 2¾-inch LCD touchscreen for "soft" keys with common A/V commands. Pronto is preprogrammed with codes for many home-theater components and can learn additional codes. On-screen macro buttons can be created for storing customized whole-system commands in Pronto's 1-megabyte memory. Price: \$399. Philips Electronics, Dept. SR, 64 Perimeter Center E., Atlanta, GA 30346; phone, 888-483-6272; Web, www.philips.com

NEW PRODUCTS



Sony Billed as a second-generation "reference standard" DVD player, Sony's DTS-compatible DVP-S7700 can play DVDs with 96-kHz/24-bit audio. In addition, its Audio Priority 5.1 track selector can be set to automatically find and play the 5.1-channel sound track on any DVD. A DSP Servo control system is said to provide increased speed for disc, track, and chapter access. The player has 10-bit video and Current Pulse audio digital-to-analog (D/A) converters. A variable low-pass filter is said to reduce high-frequency noise from sources operating at different sampling rates. The DVP-S7700 has a component-video output, coaxial and optical digital outputs, and two sets of composite- and S-video jacks. Sony's DVD Navigator remote control is included. Price: \$1,199. Sony, Dept. SR, 1 Sony Dr., Park Ridge, NJ 07656; phone, 800-222-7669; Web, www.sel.sony.com



Sonic Frontiers If Buck Rogers was equipped with a CD transport, it might look like Sonic Frontiers' Transport 3. The unique design features a five-blade "iris" access-hatch closure for top-loading. Beneath it are a Philips CDM-12 Pro VAU1252 cast-aluminum drive mechanism and custom electronics, such as servo software for error correction and a three-rail laser assembly. The five digital outputs include XLR, AES/EBU, ST-glass, RCA, and BNC terminals. One of the outputs can be used for UltraAnalog's jitter-reducing I²S digital interface. It measures 19 x 5 x 14 inches. Price: \$6,999. Sonic Frontiers, Dept. SR, 2790 Brighton Rd., Oakville, Ontario L6H 5T4; phone, 905-829-3838; Web, www.sonicfrontiers.com

Infinity

The Model 202a car amplifier from Infinity is rated to deliver 200 watts per channel into 4 ohms, or 300 watts into 2 ohms, and can be bridged into a mono channel delivering 600 watts into 4 ohms. It features a Dynamic Bass Optimizer (DBO) control, which lets you vary the characteristic of the bass by adjusting the frequency and Q of a 12-dB-per-octave infra-sonic filter. Thermal and overload protection circuitry are provided. The 202a measures 2¼ x 14½ x 8½ inches. Price: \$620. Infinity, Dept. SR, 250 Crossways Park Dr., Woodbury, NY 11797; phone, 800-553-3332



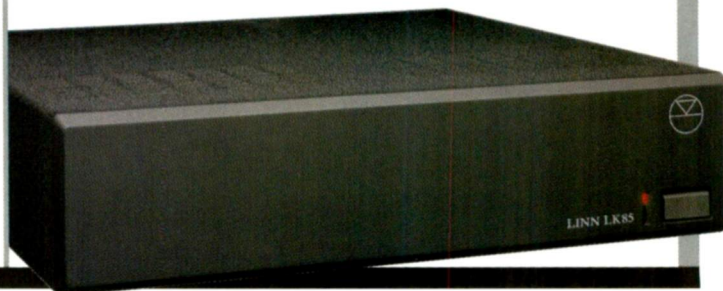
Technics

Heads up! The RP-F800 pro-style headphones from Technics are designed for use with home audio components. An XBS (Extra Bass System) port boosts low frequencies, and a 1½-inch drive unit with neodymium magnets is said to reproduce detailed treble. The 6-ounce headphones have a rated bandwidth of 5 Hz to 32 kHz. A gold-plated miniplug and phone-plug adapter are provided as well as a 10-foot cord that enters the phones on a single side. Price: \$80.

Technics, Dept. SR, One Panasonic Way, Secaucus, NJ 07094; phone, 800-211-7262; Web, www.panasonic.com



Linn The LK85 is an entry-level stereo power amplifier from Scotland's Linn, more commonly known for its high-end gear. The LK85 is rated to deliver 62 watts per channel into 8 ohms, or 85 watts per channel into 4 ohms, and can be used alone or as part of a Linn multiroom audio distribution system. The amplifier was designed with high-density surface-mount electronics, which are said to minimize signal path lengths and maximize reproduction accuracy. The case's ventilation is designed to allow the amplifier to be stacked with other system components. Frequency response is given as 10 Hz to 70 kHz -3 dB. Price: \$795. Linn, Dept. SR, 4540 Southside Blvd., Suite 402, Jacksonville, FL 32216; phone, 888-671-5466; Web, www.linninc.com



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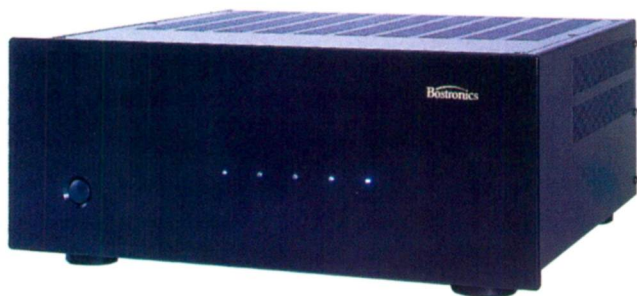
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NEW PRODUCTS



Bostronics Give the Model 5/1500 five-channel home-theater amplifier from Bostronics a high five. It's rated to deliver 200 watts per channel into 8 ohms, or 300 watts into 4 ohms, with all channels driven. Channels 1 and 2 or 4 and 5 can each be bridged to a single-channel configuration. A bridged pair is said to be capable of delivering 600 watts into 4 ohms. The amplifier contains five individual power supplies and five toroidal transformers. In addition, five individual heat sinks provide over 2,500 square inches of cooling area to eliminate the need for potentially noisy cooling fans. A wide-range AC/DC low-voltage trigger switch is included for remote-control integration. The 5/1500 weighs 65 pounds and has gold-plated inputs and speaker terminals. Price: \$1,750. **Bostronics**, Dept. SR, 15A St., Burlington, MA 01803; phone, 781-270-6536



Entech Adding a DVD player, digital satellite system, or WebTV box to your home theater doesn't have to mean buying a new receiver or preamp with more S-video inputs. The Director AV4.1 input-source selector from Monster Cable's Entech division can take care of things for you. The A/V switcher allows for simultaneous switching of S-video, composite-video, and stereo audio, and its high-speed audio and video buffers are said to insure consistent video signal quality. As a bonus, its composite-video inputs can be used instead for switching multiple coaxial digital audio sources to a single audio processor or digital-to-analog converter. Price: \$350. **Monster Cable**, Dept. SR, 455 Valley Dr., Brisbane, CA 94080; phone, 415-840-2000; Web, www.monstercable.com

MB Quart

The QM 1269 KX, the latest car speaker in MB Quart's Autobahn Series, proves that size does matter. It is the company's first 6 x 9-inch model, a shape and size said to allow easier installation in many factory cutouts. It contains a coaxially mounted 1-inch titanium tweeter and a long-throw fiber-cone woofer with a butyl-rubber surround. The QM 1269 KX's built-in tweeter-overdrive protection circuit is said to virtually eliminate the possibility of tweeter failure. Price: \$199 a pair.

MB Quart, Dept. SR 25 Walpole Park S., Walpole, MA 02081; phone, 800-962-7757; Web, www.mbquart.com

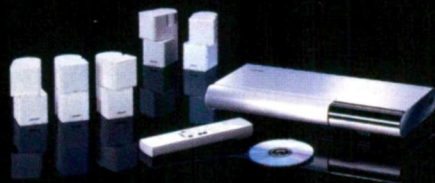


Niles You'll hate to cover the Niles AT8500 in-wall speaker with a grille. It features a unique, low-diffraction midrange/tweeter array on a rotating and pivoting turntable that allows you or your installer to tailor its dispersion pattern for any room placement. The two 1½-inch midrange domes, 1-inch tweeter, and 8-inch woofer are made of a new aluminum-urethane composite developed by Niles. Price: \$1,499 a pair. **Niles**, Dept. SR, 12331 SW 130th St., Miami, FL 33186; phone, 305-238-4373; Web, www.nilesaudio.com

Ruark You don't have to be royalty to own the Sceptre two-way bookshelf monitor from British-based Ruark. The magnetically shielded speaker has a 6½-inch woofer and a 1½-inch fabric-dome tweeter. Its frequency response is given as 50 Hz to 20 kHz ±3 dB, sensitivity as 88 dB, and nominal impedance as 3 ohms. A split crossover makes it biampable via gold-plated binding posts. The Sceptre measures 15¼ x 8½ x 10⅞ inches and is finished in rosewood veneer. Price: \$1,300 a pair. **Ruark**, distributed by Audio Influx, Dept. SR, P.O. Box 381, Highland Lakes, NJ 07422; phone, 973-764-8900



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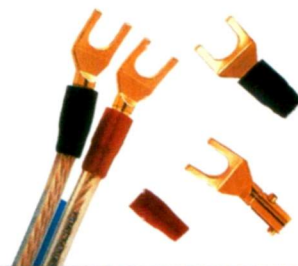
DEI Car and drivers: DEI's component car speakers utilize stacks of three neodymium magnets inside their voice coils for reduced distortion and increased power handling. The line includes (from left) the 6 $\frac{1}{2}$ -inch Model 3065 (\$300), the 5 $\frac{1}{4}$ -inch Model 3055 (\$260), and the 4-inch Model 3045 (\$235). All have injection-molded graphite woofers with butyl-rubber surrounds and come with the 1-inch silk-dome tweeter shown. Break-away frames are supplied for drop-in installation in any U.S. or foreign vehicle. Directed Electronics, Inc. (DEI), Dept. SR, 2560 Progress St., Vista, CA 92083; phone, 800-288-4474; Web, www.directed.com



VAC Totally tubular: VAC's Renaissance Thirty/Thirty tube stereo power amplifier features a Class A, push-pull, triode circuit design for lower distortion (less than 2 percent at clipping). It uses 30JB output tubes and 6SN7 input and driver tubes, and it's rated to deliver 32 watts per channel into 8 ohms. Finish is black and gold. Price: \$6,490. VAC, Dept. SR, 807 Bacon St., Durham, NC 27703; phone, 919-596-1107; Web, www.vac-amps.com

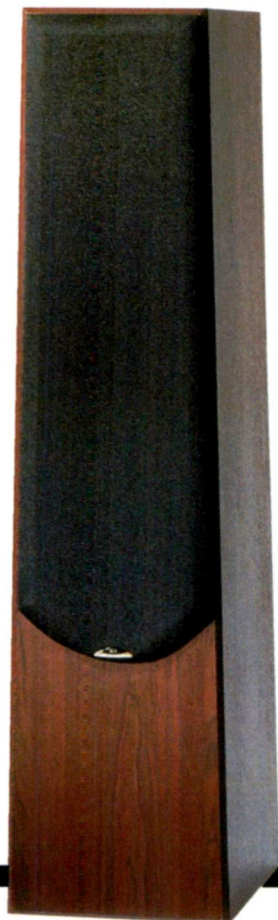
Tributaries

The Big Lug (Model SL-8) comprises two $\frac{1}{2}$ -inch gold-plated spade lugs with $\frac{3}{8}$ -inch openings for connection to five-way binding posts. Designed for 10- to 16-gauge speaker wire, the Big Lug has two opposing screw sets on its base for secure attachment and color-coded soft insulator covers that slide over the wire and the base. Price: \$12.50 a pair. Tributaries, Dept. SR, 1307 E. Landstreet Rd., Orlando, FL 32824; phone, 800-521-1596; Web, www.tributariescable.com



Sound Dynamics

The RTS-P100 three-way speaker from Sound Dynamics has a built-in powered subwoofer with a 100-watt amplifier, two 6 $\frac{1}{2}$ -inch drivers, and gold-plated biampable terminals. The upper section of the cabinet holds a 1-inch tweeter and a 6 $\frac{1}{2}$ -inch midrange. The RTS-P100's frequency response is given as 25 Hz to 25 kHz \pm 3 dB and its nominal impedance as 8 ohms. The speaker measures 42 x 10 $\frac{1}{8}$ x 14 $\frac{3}{4}$ inches and is finished in black ash or light birch. Price: \$600. Sound Dynamics, Dept. SR, 3641 McNicoll Ave., Scarborough, Ontario M1X 1G5; phone, 416-321-1800; Web, www.sound-dynamics.com





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I hope that KWN doesn't mind my quoting from one of his reviews, because in just about every case the sonic character of the Legacy Classic mirrors his description of the sound of the Legacy FOCUS. It was back in Issue 54 that he reviewed the FOCUS which ended up becoming his new reference. OK, I've never heard the FOCUS, and I may never have the chance unless I visit Legacy's Springfield, Illinois factory, or an audiophile who lives near me orders a pair of these factory-direct-only speakers. Yet, by the way Karl describes them, they sure sound like the Classics, because in just about every case the sonic character of the Legacy Classic mirrors his description of the sound of the Legacy FOCUS.

Yes, the Classics are smaller than the Foci, and have a different driver complement, but my listening room is not as big as KWN's. At 18' x 14' x 8' my listening room would by most standards be considered only a small to medium room. It is reasonable to think that the 55" high FOCUS would be too big - and three 12" woofers would be overkill. The 44" x 12" x 12" Classics are the perfect size for my room. The dual 10" woofers, 7.5" KEVLAR lower midrange driver, and the three tweeters (a 1.25" lower treble linen dome, 4" ribbon upper treble, and a rear-firing titanium dome) provide plenty of air moving and power handling capacity. Combined with a sensitivity of 92 dB, it pretty much guarantees there will be plenty of dynamic headroom regardless of almost any power amp used.

For more than two years my reference speakers have been the Snell C/Vs. I chose these \$2,600 six-driver speakers over dozens of contenders. Their subtractive faults dwell mostly in the frequency extremes. Nevertheless, their missing deep bass and highest upper treble are more than made up for by their extremely transparent midrange. Plus, if you put as great an importance on being able to handle many different types of music as I do, including rock and electronica, they were unbeatable in their price class. Don't get me wrong, I think it's very important that a speaker be able to render a lifelike sonic picture of a full orchestra or jazz combo, but if they can't pump out the multi-tracked close-miked rock, they need not apply for a position in my system.

So, enter the Legacy Classics. I already stated that they were the perfect size for my room, and had a driver complement that promised to move a generous amount of air. What I didn't mention is that they do this in a very handsome package. My review pair were finished in a cherry walnut veneer. There are at least seven other finishes available, including mahogany, rosewood, and four shades of oak including the requisite black. Even with the grills off (I've never had the grills on since they were set up in my listening room) they look good because the front of the cabinet is in the same finish. And, as KWN stated in his FOCUS review, their fit and finish gave the appearance that they were carefully crafted by a fine furniture maker.

On the front of the cabinet are mounted all the drivers except two. One of the two 10" woofers and the titanium domed tweeter are located on the rear panel, along with two pairs of heavy duty five-way binding posts. On the same plate as the binding posts are a set of five (count 'em, five) switches to tailor the sound of the speakers. Four of these switches, says Legacy, are to correct for acoustic irregularities in one's listening room, the fifth turns off the rear-firing tweeter for listeners who wish to do so. However, Legacy says that the rear-firing tweeter offsets the illusion that louder high frequency sounds are placed further to the front of the soundstage. By some quick testing, I determined the same, so I left that tweeter switched on.

Because my listening position is relatively close to the speakers, about eight feet or so, and the speakers themselves were about three feet from the rear wall, none of the switches brought about an improvement in sound. The Legacy Classics in other listening rooms may behave differently, so these switches may come in handy. One switch shelves information above 400 Hz by 2 dB, another gently notches the 60-85 Hz when room boundaries are a problem. Another lessens the edginess of bright program material by reducing frequencies in the lower treble, and the last is a low-frequency impedance contour when using amplifiers with high current capability. This reduces distortion in the octave above system resonance when using these amplifiers.

Legacy designer Bill Dudgeon realizes that many potential owners of the Classics may have rooms or personal tastes that might require tailoring of the speaker's sound greater than what the rear panel switches can accomplish. The owner's manual has a section on how Legacy is willing to work with their customers to reach a satisfactory solution to their particular problems entitled "For the Tweakers." It states that rather than take the close-minded position that this customer is wrong, they would prefer to offer their



Legacy Classic

Manufacturer: Legacy Audio, 3023 E. Sangamon Ave., Springfield, IL 62702

1-800-283-4644

Price: \$2,650/pair in standard finish

\$2,900/pair in premium finish

Source: Manufacturer Loan

Reviewer: Tom Lyle

assistance. They say at the customer's request Legacy will exchange or modify the drivers, or employ passive resonance trap circuits that can attenuate certain frequencies. They also offer their Steradian Environmental Processor, which connects to either the tape monitor of the preamp, or can be inserted between the amp and preamp. This component further tames aberrant frequencies due to room interaction. Again, I don't think there would be any benefit to using this device in my room, although KWN has stated in his review that it made an improvement in his system, with no detectable loss of transparency with the Steradian engaged.

The explanations of the effects of the toggle switches on the sound of the speakers were part of an extremely complete owner's manual (or the Listener's Guide, as Legacy titles it). Sections on Legacy design philosophy, specifications, speaker placement, a lengthy discussion on speaker cables, amplifiers, and even a more lengthy section on bi-amplification and bi-wiring. An entire page is dedicated to power, titled "How Much PEAK Power Do We Really Need?," and "The Ear Itself." Whew!

Listening: This is where I'm really tempted to plagiarize KWN's article. As I said in my introduction to this review, the sonic character of the Legacy Classics seemed to match almost word for word his review of the Legacy Focus. However, the sound of these speakers caught me by surprise. I wasn't expecting them to be this good! They were superior not only to my Snells, but ANY speaker I've heard ANYWHERE near their price range.

KWN said he was expecting to be bowled over by the bass of the Legacies because the Focus has three 12" woofers per speaker. This was to be expected, and it was nice that instead he became pleasantly surprised that he was instead enticed by their transparent midrange. But in regards to the Classics, it didn't seem like the difference in my system would be that great - the two 10" woofers in the Classics versus the two 8" woofers in my Snells. So, I wasn't expecting that the Classics would have that much better bass than the Snells. Boy, was I wrong.

I have never, I repeat never, experienced this class of bass in my listening room. I have had bass this low in my listening room before (Legacy claims the Classic's bass response goes down to 22 Hz), but never combined with this quality. It was extremely pitch stable, tight, full, and natural. It was also appropriately balanced - it didn't distract from the other frequencies contained in the music program.

It wasn't only because of this bass superiority, but because they were better than the Snells in every other area I think it is unfair to continue comparing them to the Legacies. As good as the Snells are (and I still think they are fine speakers), they are just not in the same league.

The ease with which the Classics reproduced any bass information that I threw at them was very, very impressive. During one listening session I would pump some ridiculously deep and inflated electronic bass from the Excursions in Ambiance 4 sampler on Astrelwerks Records that was so deep and powerful that it could loosen the fillings in one's teeth. Then I would switch to the classic version of L'Orchestra de la Suisse Romande playing Stravinsky's Rite of Spring led by Ernest Ansermet, an orchestral disc with a generous sprinkling of bass drum whacks that rattled the window frames in my listening room. And in both cases cited above, no matter how prominent the bass, it would never overpower the other frequencies contained in the recorded material. But don't let these examples lead you to think that the Legacies can only reproduce bass at high volumes. If I put on an album featuring the talent of an acoustic bassist such as Ron Carter or Paul Chambers, the bass was so natural as to have a "woody" tone not only added to the mids and highs but I could sense it in the low frequencies as well. No subtleties in the playing were lost.

The Legacies have midrange qualities I previously thought impossible via dynamic speakers, not only because of their transparency, but because this transparency led to a naturalness that was extraordinary. I expect at this price range to be occasionally drawn to a piece of music because an instrument or two will jump out of the mix and sound more authentic than the others. Yet, the Classics sounded realistic throughout all the instruments in an ensemble.

The soundstage, too, was extremely convincing. This further added to the separation of instruments that was able to sort out the instruments in the most complex of recordings. They were laid out before me - and whether it be a jazz combo, rock band, or an orchestra or chamber group, I was drawn into the music. I would put on CD after CD, LP after LP, and whether the material was familiar or new, because of the midrange transparency and palpable soundstage I was able to hear every nuance of the music. The sound was never etched, but focused and natural. I started to compare these speakers not to my Snells, but to speakers in some of my audiophile friends' systems that cost thousands more than the Classics.

On the fantastic album by Cassandra Wilson, Blue Moon Daughter, her voice was centered between the two speakers with smooth, uncolored effortlessness. I could close my eyes and picture her there in my listening room, accompanied by the unusual instrumentation that makes up her backing band.

The treble from the Classics was also equal or superior to that from any speaker I have not only reviewed, but ever heard in or anywhere near their price range. It was a natural treble that rather than calling attention to itself, called attention to the music. I keep wanting to use the terms "appropriate" and "natural," and for fear of

over-using these terms have resorted to other phrases, but in reality that's what I got with the Legacies. These frequencies judged on their own were admirable, but what was even more impressive was how the speakers managed to integrate them all into a seamless whole.

As I write this I'm at a loss for words to further describe the Classics' sound. Yes, they are tonally correct, they sound like the real thing, and they can handle every genre of music I played through them. But for fear of repeating myself - "the (insert frequency range or tonal quality here) was natural and didn't call attention to itself" - I think I should stop here. It's almost as if I were trying to describe the sound of an instrument or of a human voice to someone who's never heard one before. How does one describe the sound of a symphony orchestra? How does one describe the sound of a rock band bashing it out at full tilt? Although some have described the sound of John Coltrane on his album Giant Steps as "sheets of sound," does that REALLY describe the sound of his sax, not to mention the rest of his band? I don't think so.

The only way I can truly and accurately describe the Classics is with live music as a reference. Have you ever heard the sound of an orchestra, chamber ensemble, or recital from the 10th row? Or have heard the sound of a live, unmiked jazz combo? Or heard your friend's rock band in rehearsal, or gone to the studio to hear their master tape on the deck it was recorded on? If the answer is yes to any of these, then you will be able to imagine the sound of the Legacy Classics.

I'm not saying that their sound is indistinguishable from the real thing. It's not. But these speakers render so many important elements of the sound of the actual performance that I previously thought only possible with speakers costing thousands of dollars more.

I have yet to hear the "perfect" speaker. But with the Legacy Classics, I feel as if they coax every bit from the recording and the source components possible, and then transform the signal into a realistic representation of the recorded event. As I switched from one record to another, one CD to another, and swapped components upstream, I never felt I was missing anything that either the recordings or components had to offer.

Unconditionally, unhesitatingly, and with my utmost confidence and sincerity - recommended.

- TL

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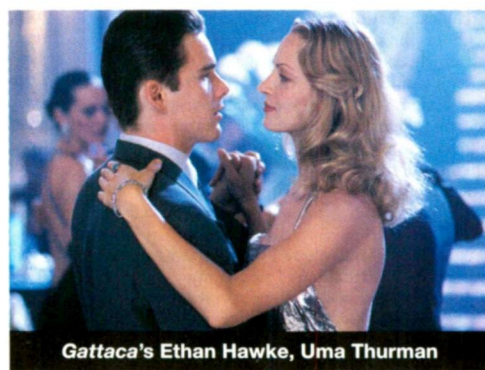
One-sided dual-layer; English and French, Dolby Digital 5.1; English, French, and Spanish subtitles; closed-captioned; letterbox (1.85:1); 155 min (feature). Warner Home Video, \$24.98.

scale, close-ups aren't just clear; they have an intimacy that transcends the screen, allowing each character to seem quite real. Most astonishing, however, is an artifact-free DVD picture that never blinks or shimmers at a tree, railing, or cobblestone, allowing you to enter the London of Charles Dickens without distraction. The clean, effective soundtrack may not have as much surround sound as we experience in movies today, but when it's there, it adds a great deal. Overture, Intermission, and Exit Music are provided so that you can build an evening's entertainment around the program, and the disc is formatted to this end, with the two parts on separate sides. Extras include a 1968 featurette, a photo gallery, and a trailer. Who will buy *Oliver!* on DVD? Just about everyone who wants a first-class family-oriented release restored to its original glory.

Two-sided; English, Dolby Digital 5.1; French, Dolby Digital two-channel mono; English and French subtitles; closed-captioned; letterbox (2.35:1); 153 min (feature). Columbia TriStar Home Video, \$29.98.

GATTACA

Gattaca is set in "the not-too-distant future," a time when genetic engineering has made it possible to determine all the characteristics of an unborn child. Those who are born without the aid of science are classified as "In-Valid" and relegated to menial work positions. Ethan Hawke plays an In-Valid who assumes another man's identity, fools the system, and lands a job at the Gattaca Aerospace Corporation. All is well until a workplace murder attracts the attention of the police, who discover, through DNA evidence, that there is an In-Valid inside Gattaca. This 1997 movie is intelligent, thought-provoking, and suspenseful science fiction that depicts a society in which even the beautiful Uma Thurman suffers guilt for having a slight heart problem. The DVD looks gorgeous, and the sound makes full use of Dolby Digital 5.1-channel surround. A trailer and a promotional short are provided, as well as deleted scenes and outtakes. Two deletions seem to have been



Gattaca's Ethan Hawke, Uma Thurman

great losses, one a poignant expansion of Alan Arkin's character as a "Detective, Second Class" and the other a coda identifying several famous personalities who would have been denied existence in the world of *Gattaca*.

Two-sided; English, Dolby Digital 5.1; English, French, and Spanish, Dolby Digital two-channel matrix surround; English, French, and Spanish subtitles; closed-captioned; letterbox (2.35:1) and pan-and-scan; 106 min (feature). Columbia TriStar Home Video, \$29.98.

DO THE RIGHT THING

Spike Lee's powerful 1989 movie paints a vivid portrait of racial tensions in a Bedford-Stuyvesant neighborhood that escalate as the mercury and tempers soar on a searing summer day. As if constant dialogue references to the heat weren't enough, Lee uses gels and filters to create a sizzling orange glow to most outdoor scenes, an effect that comes across on this fine DVD with no streaking or breakup. The all-important white-on-black scrolls at the end of the movie, reproducing texts by Martin Luther King and Malcolm X, are steady and easily read. And the audio? Lee employs complex sound designs in most of his films, and *Do the Right Thing* is no exception, as the excellent Dolby Digital two-channel matrix surround clearly reveals, albeit with slightly less bass than on laserdisc. Bonuses include production notes, cast/filmmaker bios, and a trailer.

One-sided; English and French, Dolby Digital two-channel matrix surround; Spanish subtitles; closed-captioned; letterbox (1.66:1); 120 min (feature). Universal Home Video, \$24.98.



Midnight's Kevin Spacey, John Cusack

OLIVER!

Columbia TriStar has honored the Best Picture of 1968 by fully restoring and digitally remastering it for this 30th Anniversary Tribute Edition. The result, even by second-generation DVD standards, is absolutely outstanding. Color is rich and detail exemplary in such big production numbers as "Consider Yourself" and "Who Will Buy?" — complex extravaganzas so eye-popping that Onna White won a special Oscar for her choreography. At the other end of the

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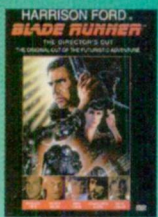
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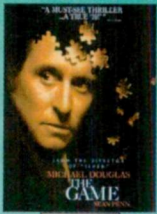
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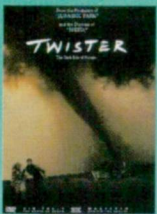
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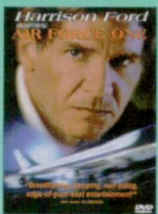
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In Search of Titanic Bass

I WAS ORIGINALLY going to call this column "Exploring Celine Dion's Bottom End," but I thought that title might attract too much of the wrong kind of attention. Nonetheless, I am going to discuss how one of her recordings can be used as a source of test signals for exercising your system's bottom end. Unlike most pop recordings, her multi-Platinum megahit "My Heart Will Go On," the "love theme" from *Titanic*, includes true deep bass.

Now, it's one thing to find deep bass on a pop recording, but it's another to claim that what's there can be used to test a system's bass capabilities. My discovery was somewhat accidental: The song (Track 14 on the film's soundtrack CD on Sony) was used a few months ago in a speaker demonstration put on by B&W that I attended. Never having heard it over a good system before, I was surprised and delighted to clearly hear sustained synthesized pitches at what I estimated to be well below 40 Hz.

Transforming any CD track from "program material" to "test signal" requires ascertaining its true contents. In this case, since the music is being used to test bass extension, it is the precise frequencies of the low pitches that must be determined. There are several ways to do this, ranging from the purely musical to the purely technical.

The musical analysis started with a copy of the sheet music (the piano/vocal/guitar version, which is in the same keys as the CD track, not the "simplified" version, which has been transposed). The sheet music revealed that in the first half of the song (before the rapid modulation at 3:17), the passages that caught my ear were all basically the same. They consist of a chord progression with a bass line descending stepwise from C-sharp to B-natural to A-natural. This is a common and powerful harmonic gesture that has been in use since the Baroque era.

What makes this track valuable as a test tool is that composer/producer James Horner chose to put these pitches in the bottom audible octave. Using the equal-temperament tuning common for most keyboard synthesizers, that gives frequencies of 34.65, 30.87, and 27.5 Hz, respectively, for C-sharp, B-natural, and A-natural. You can find these frequencies

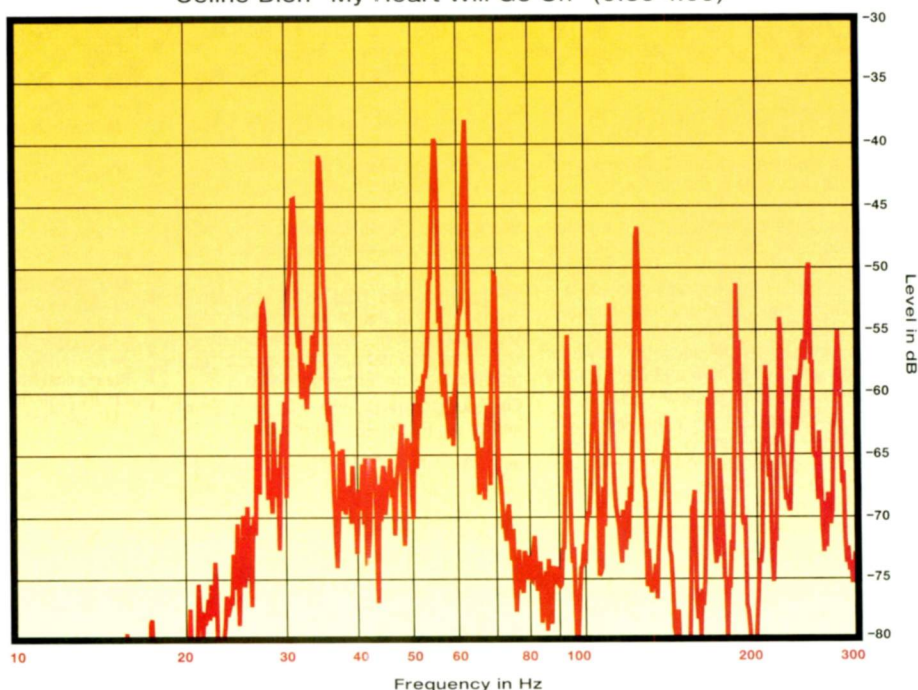
prominently featured as early as the fifth measure of the CD version (0:10-0:17). They return with test-disc regularity, most obviously in the harmonically identical passages at 0:59-1:06, 1:08-1:16, 2:19-2:26, and 2:38-2:45. They also show up in a detailed spectrum analysis of the digital data (the three leftmost large spikes in the graph, which shows the frequency content of the passage starting at 0:59).

Once the song has modulated from C-sharp Minor to F Minor, the bass pitches also change, transposing to F-natural, E-flat, and D-flat. As played on the soundtrack, these pitches rise in frequency accordingly, to 43.65, 38.89 and 34.65 Hz respectively (the D-flat is the same frequency as the earlier C-sharp). You can find this progression first at 3:17-3:24 and thereafter in passages that are musically similar to the earlier chord progression. Combine the two progressions, and you get a range of test tones from 43.65 to 27.5 Hz to test whether your system can really deliver the bottom octave. If your system is reproducing these frequencies, you should feel, rather than any specific "pitch," a room-filling pressure-on-the-eardrums sonic presence.

The repeated chord progression isn't the only place in Dion's song to find very low frequencies, as you'll notice if you listen to it on a system that can reproduce the whole audio range. There are isolated very low notes, such as the 30.87-Hz B-natural at 1:37 (on Celine's "and") and the sustained 34.65-Hz D-flat during the instrumental "coda" (4:25-4:32). All these frequencies descend below the lower limits of what many "subwoofers" are capable of delivering, much less smaller full-range or home-theater satellite speakers. The bass of satellite speakers often gives out as early as two octaves higher up.

Why use frequencies that most listeners not blessed with a wide-range audio system will never hear? A clue comes at the close of the song. The final harmonic gesture is a "plagal" cadence in A-flat Major (D-flat/A-flat, 4:47-5:09). This is the same type of cadence used during the "Amen" of a church hymn. And what better way to subtly emphasize the benedictory nature of the song than to use throughout very low-frequency tones that in an earlier, nonelectronic era — the era of the *R.M.S. Titanic* herself — could only have been supplied by a pipe organ. Without a sound system whose bass sinks into the deepest frequency region, the full emotional impact of the music is blunted. It is for these and other *musical* reasons that a high-quality audio system is desirable. □

Celine Dion "My Heart Will Go On" (0:59-1:06)



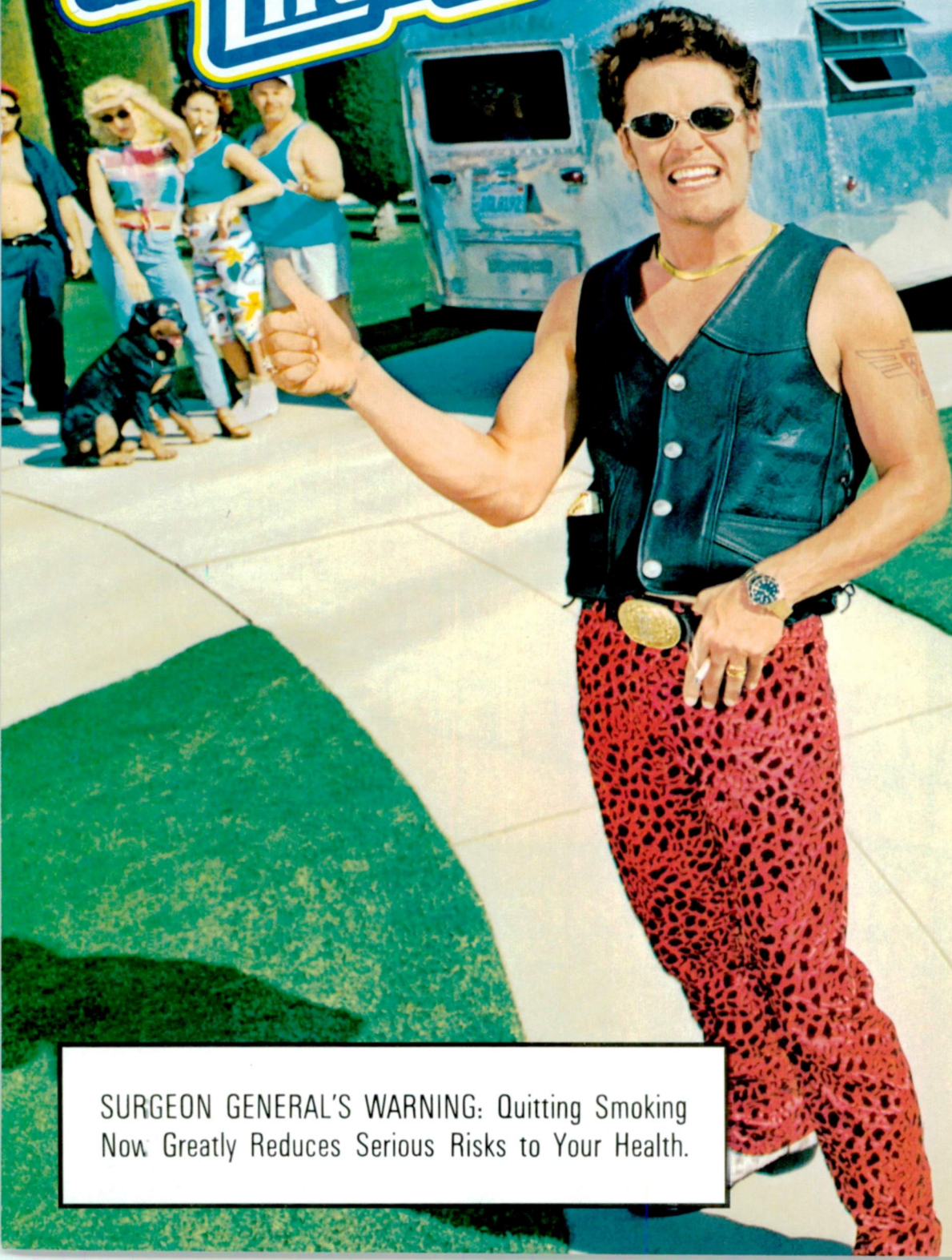
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* ARV-Approximate Retail Value

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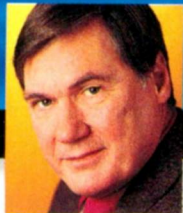
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AUDIO Q&A

IAN G. MASTERS

Jury-Rigged Center Channel

Q. I purchased an older receiver from a friend, and while it has Dolby Surround capability, it doesn't include Pro Logic. Since there is no center output, could I feed the signal from the second set of main-channel outputs to a single speaker placed over the television to create a sort-of center channel?

Patrick Leigh
Baton Rouge, LA

A. There are lots of excellent reasons not to do that. First, you should never blithely connect the outputs of two amplifiers (or two channels of the same amplifier) together, as that can easily cause damage. Even if that were not so, joining them together at the B speaker terminals would make not only those channels mono but the main channels as well.

If you do decide to go ahead, and if the receiver is happy with the lower impedance caused by connecting speakers in parallel — many would not be — use two small speakers, one connected to each channel, and place them side by side on top of your TV. That would avoid the electrical problems, but it wouldn't give you a real center channel and may even result in a narrower soundstage. A receiver upgrade is the best solution.

MD/CD Compatibility

Q. I like what I have read about the MiniDisc, and I'm considering buying a recorder, but I don't understand how it will relate to my other equipment. If I make a copy of a favorite LP on a MiniDisc, for example, will I be able to play it back on my CD player?

Vijay Kumar
Lenexa, KS

A. No. Although MD and CD share some technology, the two are physically, optically, and digitally incompatible. The MiniDisc uses sophisticated data reduction techniques and computer-based file management; the CD handles digital audio signals comparatively "straight."

Taming Magnetic Fields

Q. In my home-entertainment unit, the main speakers sit on either side of the TV, about 10 inches from it. Occasionally a small area of color change appears in one corner of the TV screen. A friend said he thinks it has something to do with the magnetic field of the speakers interfering

with the TV. Someone suggested I put a thin sheet of lead between the speaker and the screen. Would that work?

Richard Evans
Aliso Viejo, CA

A. It's undoubtedly the magnets in your speakers that are causing the problem. Since the effect is small and occasional, you might be able to diminish it by moving the speakers a few inches farther away from the TV set. If your shelf unit won't allow that, you may find it necessary to add some shielding. It sounds like you'll only need it in a small area. Use iron or steel, though; lead would not be any better.

Where Are the Bits?

Q. When a CD is inserted in a player, which side is actually being read, the labeled or unlabeled?

Osmanu Ibrahim
Dayton, NJ

A. Both, sort of. The laser that reads the data is on the clear side, away from the label, but it is focused through the transparent disc onto "pits" that are actually molded into the other side, under the label. That, incidentally, is why you are far more apt to wreck a CD by scratching the label side than the "playing" side.

Widescreen Squeeze

Q. When I play letterboxed DVD movies on my 27-inch TV, the image height is equivalent to that of a 13-inch screen. What is the purpose of such shrinking?

Holger N. Carlson
Munster, IN

A. There is a body of opinion that letterboxing is the only way a video-transferred movie should be watched. It lets you see all of the filmed image as the filmmaker intended in the theatrical release. There are also degrees of letterboxing, depending on the aspect ratio (height to width) the film originally used, but the most severe forms reduce the vertical height to about half that of a typical TV screen. On a small set this can be unpleasantly squeezed, but it may look fine on a projection TV. Fortunately, most movies available in letterbox format can also be had in a "pan-and-scan" version in which the image is cropped to fit a TV screen's aspect ratio, preferably supervised by the filmmaker during the conversion. Some DVDs have both versions on the same disc.

Monitors for Home Theater

Q. Would there be any advantage in using small studio monitors with a subwoofer, as opposed to compact full-range speakers, in a small-to-medium home-theater system?

Don Miller
Rockledge, FL

A. It comes down to a matter of size, that of your room and that of the speakers that can fit in it. Small speakers used with a subwoofer give you some extra flexibility to tame low-frequency acoustic problems (by moving the subwoofer and adjusting its controls). If you don't have such problems, full-range speakers would work fine as long as you can accommodate them. That the satellites were designed for studio use (if that's not just an invention of the marketing department) is probably irrelevant as long as they sound good — many studio monitors actually do not. They may be a bit more rugged than other speakers, but that's probably not important in your situation.

Linear Videotape Soundtracks

Q. While looking at some old videocassettes, I noticed that the linear soundtracks are Dolby-encoded. What exactly are linear tracks?

Louis Burkhardt
Middletown, NY

A. In the original VHS standard (Beta, too, for that matter), the video signal was recorded in diagonal tracks across the tape, and the audio was contained in a linear track along the edge, just as sound is recorded on audio cassettes. Trouble was, the linear speed of the tape was so slow that the sound tended to be terrible. It got worse when stereo was tried: the tracks were half as wide, so the noise level jumped. To compensate for that, a few VCRs were equipped with Dolby B noise reduction (which predates Dolby Surround and is not related to it), but it didn't help a great deal.

Ultimately, a method was found for recording the audio across the tape the same as the video. It's called AFM (audio frequency modulation), or VHS Hi-Fi, and the signals are stereo of very high quality. Virtually all commercial videotapes now have hi-fi sound, but they also still have linear soundtracks (mono, and without Dolby noise reduction) so that they can be played on old or inexpensive machines. Linear soundtracks are still pretty much standard in mono VHS camcorders; the only formats

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Pop Goes the DVD

Q. Every time I start or stop a DVD, I get a very quiet pop in my main speakers and a rather more audible one in my powered subwoofer. It also occurs when I access the DVD menu and play CDs. It doesn't matter whether I use the coaxial or optical connection. What's causing this, and how do I remedy it?

Steven Go

Overland Park, KS

A. The tech-support people at your DVD player's manufacturer have encountered the problem with the decoders in a couple brands of receivers, and they have been able to duplicate it in their labs. It's apparently a muting problem in the receiver as it decides whether the incoming bit-stream from the player is carrying Dolby Digital data. It is easily fixed with a few circuit components that will allow the player to accommodate such decoding anomalies. You'll have to take the player in for service, however, and you may have to suggest that the service people call the manufacturer if they aren't already aware of the problem, as it seems to be quite rare. If the pops are indeed very soft, I would let it alone. I've heard far worse.

Cleaning Up Cassettes

Q. I have a number of good live concert recordings on cassette that I plan to copy to CD-R for posterity. Is there anything I can do to clean up the hiss before the transfer? Would one of the Pioneer "almost digital" cassette decks help?

Tom Carter

Birmingham, AL

A. As long as the noise is fairly subtle, that would be an excellent choice. Pioneer's Digital Processing System works well for moderate noise, and the decks have an excellent tape-matching system for making recordings. Go for the top model, the CT-W616R (it's only 15 bucks more), because it has an effective automatic equalization system for old recordings that may have lost a bit of their high-frequency sparkle. The next step would be to use the digital audio processing often provided as part of a CD-R drive's software package.

If you have a question about audio, write to Q&A, Stereo Review, 1633 Broadway, New York, NY 10019; e-mail, StereoEdit@aol.com. Be sure to include your name, mailing address, and phone number for verification; only your name, city, and state/country will be printed. Sorry, but only questions chosen for publication can be answered.

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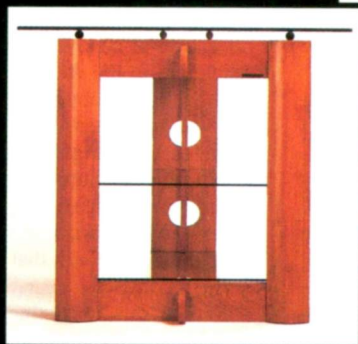
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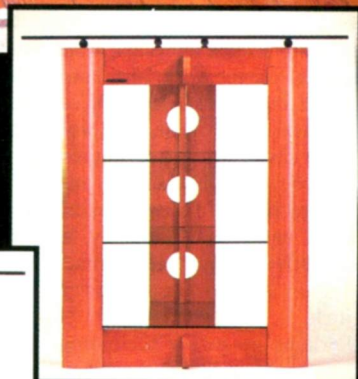
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The Moonlight Sonata

AN OLD FRIEND CAME to see me yesterday evening, and we reminisced about times long gone, gradually becoming reacquainted, possibly to establish a new future. We strolled through familiar places, remembering past events. We came upon a quiet and secluded setting graced by a beautiful grand piano, its polished black finish gleaming in the pale moonlight that streamed in from cathedral windows. My friend slowly raised the piano's lid, sat down on the bench, and from memory played Beethoven's "Moonlight" Sonata. She seemed so happy to play those immortal notes again, and I was so drawn by her beauty — the moonlight streamed through her long blonde hair — and the beauty of the music as it permeated the night air like some ethereal perfume. I sat down beside her, hearing the familiar music as if for the first time.

Sometimes, in our rush to proclaim, describe, and critique each new piece of audio technology, we forget what it's all about. We become so concerned about bits and bytes and ohms and watts that we can overlook the very thing that drew us to audio in the first place. Of course, we take pride in our gear, and we are concerned about its performance, as we should be. But in the end, our components are simply pieces of metal, plastic, silicon, and glass. Someday, no matter how much we may prize them now, they'll end up in a dumpster and be carted away as junk.

Perhaps magazine technologists like me are guilty of loving the technology too much. We forget that love for an inanimate object can never be returned and ultimately means nothing. Nevertheless, technology fills us with passion, and we fret over it like a mother frets over a child. We carefully interconnect each component, making certain that each connection is logical and tight. We place our front speakers exactly, meticulously toeing them in by 60-degree angles. The center-channel speaker and the surrounds are painstakingly angled to aim exactly where they should. We endlessly shift the subwoofer from place to place, seeking the best possible bass response.

We are even fussier about the sound. We constantly adjust the tone controls and can't keep our hands off the volume

control. Whether it's on the front panels or the many remotes, we cannot resist the urge to press just one more button, then another, as if impatiently searching for some configuration nirvana.

More than anything, we are anxious about the recording. Is the vocalist flat in that passage? Are the violins a little shrill, the percussion too loud? Is the room ambience appropriate? Does it seem as if we are realistically placed in a good seat in a concert hall, with the orchestra evenly panned before us and hall ambience emanating from the rear? What? Are the channels reversed? How on earth did that happen?

In the end, perhaps more than we care to admit, we technophiles are inevitably depressed because our systems fall short of perfection. We conclude that our systems are incapable of delivering a satis-

We technophiles are never satisfied with our systems because we tend to forget that it isn't the *technology* that matters but the *music* it conveys.

factory experience. The CD player rolls off 1.2 dB at 20 kHz, surely five 100-watt amplifiers in the receiver are inadequate, and the tuner is abysmal. Our front speakers are too cheap, the surrounds not mounted at the right height. Clearly, it is impossible to enjoy any sound reproduced by such inferior equipment. We are never satisfied because we forget that it isn't the *technology* that matters but the *music* it conveys.

Maybe this magazine's music critics are closer to the truth of the matter. Their job is to listen to the music, never mind the circuitry. Through education and experience, they can come to understand the art, and perhaps even lose themselves in the art, as the artist intended. But that is not necessarily the case, because a music critic has to be a coldly analytical thinker and decide if a performance is genuine or artificial, whether the notes are soulful or simply commercial. The critic must in the

end always set aside passion and give a practical buying recommendation.

But where technical writers and music critics fail, can a magazine's editors succeed? Perhaps they could stay above the fray, able to perceive something more rarefied. But maybe not. There is a world of details and deadlines, putting one issue to bed and then starting on the next. If they have time to listen to music passionately, it is certainly not on the job. The writers and critics who appear in this magazine, and the editors who shape it, all ultimately fall short in their appreciation of music. We are all cursed by professional duties that draw us to music, then hold us back from its essence.

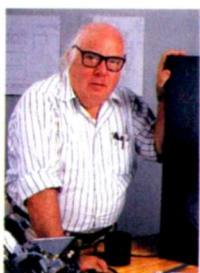
Our secret is this: we all envy the *readers*. We wish we could simply put down the magazine and freely *listen*. Readers know that music isn't about technology, not at all. Music is the most primeval of languages and thus the most abstract. It is the most universal kind of communication, one that needs no translation. Music awakens something deep within us. It in-

spires us and makes us better. Music is the happy memory of your favorite children's song, your first kiss. Music is the sad memory of a time of longing, or grief in a time of sorrow. Music speaks to the most human things in us. Beasts have no souls and can't understand music. Men and women open their souls to the most human voice of music. It was never about technology, not at all.

It is twilight as I finish this, and the sky has grown stormy. The moon is concealed tonight, and that makes my house even more solitary. At the far end of the room, the lights of my components glow softly in the looming darkness. I put on a disc and close my eyes as the "Moonlight" Sonata begins to play. I am again sitting in a great room with cathedral windows on either side. Pale moonlight streams through the night air, and beside me a young woman sits at the keyboard, her slender fingers again creating beauty. □

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Under Wraps

New encryption systems could spell the end for many types of home recording. by GORDON BROCKHOUSE

I JUST STOLE A SONG. Before writing this article, I downloaded the theme song from *Titanic*, "My Heart Will Go On" with Celine Dion, off the Internet. I erased the song from my computer's hard drive, and I don't plan to repeat my act of larceny. But I wanted to see if the music industry's concerns about Internet piracy are warranted, so I went looking for a commercial hit.

The music industry is shutting down pirate Web sites through threats of litigation. At the same time, music and movie companies are lobbying for tough new copyright legislation and developing new forms of digital encryption to keep their content under wraps. These could make it impossible to record movies from pay-TV or to make compilations of your favorite songs on future digital recording systems. Even more seriously, the first generation of digital televisions may not work with forthcoming digital cable boxes (see "Not Cable-Ready," page 42).

The recorded-music and movie industries have damaged their credibility over the years by their constant whining about home recording and litigation against technologies, like VCRs, that ultimately made them a ton of money. Before you dismiss their arguments about Internet piracy, though, consider how easy it was for me to pirate the *Titanic* theme song. The tune was encoded using a scheme called MP3 (the audio layer of the MPEG-2 video encoding system). To play MP3 files, you need MP3 player software for your computer. I downloaded a shareware program from a popular MP3 site, then went looking for music to download.

After browsing through a few newsgroups (Internet discussion groups) dedicated to MP3, I located a site called MP3 Warehouse. MP3 Warehouse has links to other MP3 sites, some with pirated songs, some with bootleg concert recordings by established artists, some with recordings by independent bands.

I found links to several sites with the Dion tune. The first two I tried had apparently been shut down. On the third try, I hit pay dirt; 39 minutes later, an MP3 file of "My Heart Will Go On" sat on my desktop. I opened the file with the player software, and the song began playing through my computer speakers. I can't conclusively judge whether MP3 delivers near-CD-quality sound, but the *Titanic* file certainly sounded very good despite MP3's 10:1 data reduction.

There's a very active MP3 community on the Net. While piracy of commercial hits certainly occurs, most of the action centers around bootleg concert recordings, out-of-print and otherwise hard-to-find music, and obscure bands. Many indie bands let you listen to short monaural clips of their songs, then download the full MP3 stereo version for a fee (typically a buck or less). You can transfer tunes to portable MP3 players, such as MP Man from the Ko-

rean company Saehan. Or you can convert them to CD format, make a CD-R, and play them on any CD player.

Speed Matters

Over a dial-up connection, it would take several hours to download an album's worth of music. To locate a specific song, you may have to search several sites, then click on several dead links (or links that take you to gambling or porn sites) before you find what you're looking for. It's much easier (and almost as illegal!) to copy a friend's CD onto cassette, MiniDisc, or CD-R.

Cable-TV, telephone, and satellite companies are now introducing ultrafast Internet services with speeds ranging from a few hundred kilobits per second (kbps) to several megabits per second. By comparison, the fastest speed currently available over dial-up connections is 53.6 kbps. I know an MP3 enthusiast who typically gets faster-than-real-time downloads over his cable-modem service. Eliminate download time as a barrier, and Internet piracy of commercial music becomes very attractive for unscrupulous surfers.

That prospect is one reason music companies are scrambling to find ways to protect their content. Another is that digital audio recorders can make per-



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fect copies with perfect ease. Compared with making cassette recordings, making digital MiniDisc copies is dead simple. Put the recorder in standby, start the CD player, and walk away. Duplicating CDs using a CD-R drive is only a little more complex.

Equally important, record companies would like to market their wares on the Net. "Right now there is a huge pirate marketplace out there," notes Frank Creighton, senior vice-president and director of investigations for the Recording Industry Association of America (RIAA). "Until that can be cleaned up, consumers are probably not going to want to spend a nickel for the same download that they can get for free."

Movie studios will soon have to face the same opportunities and the same threats, in the form of digital video recorders, recordable-DVD computer drives, and Internet access speeds fast enough to support video delivery — and video piracy.

To thwart piracy, new audio/video formats will incorporate sophisticated copy-protection systems. Encryption will be applied at two points: 1) in the program material itself, and 2) on the digital bus connecting the various components in tomorrow's all-digital entertainment systems.

Copy Rights and Wrongs

With home recording, it's hard to define where fair use ends and infringement begins. Seth Greenstein, a Washington lawyer who works with the Home Recording Rights Coalition, believes that making compilations from recordings you own, recording off-air, making copies of friends' recordings, and making copies for friends of recordings you own are all permitted under current legislation. The Audio Home Recording Act (AHRA) of 1992, which mandates the use of the Serial Copy Management System (SCMS) and imposes a royalty fee on audio recorders and blank media, implicitly allows all of those activities, Greenstein maintains. (SCMS permits first-generation copies of digital originals to be made on MiniDisc and other digital recorders but prevents digital copies of the first-generation copies.) Greenstein believes that the AHRA requires music companies to allow one generation of copying on digital audio recorders and that encrypting releases so that single-generation copying is not possible contravenes the law.

But he doesn't have a lot of compa-

ny. Congressman Rick Boucher (D-VA), whose proposed amendments to the new Copyright Act attempt to protect home recording, says "[making copies of friends' music] is not fair use, and that would not be permitted under our amendment."

The AHRA applies only to devices intended specifically for audio recording, not general-purpose media such as computer storage devices. SCMS is not implemented on computer CD-R drives — you can make copies of CD-R copies made on computers. As the long-heralded digital convergence proceeds, audio will increasingly be recorded on formats designed for a wide variety of information-retrieval devices. With these devices, the record industry will not enjoy the protection of the AHRA.

Even with current audio recorders, the RIAA insists that home copying is governed solely by the license granted to the owner of the CD by the copyright holder. If the copyright holder says "no unauthorized copying," that means even making a recording of a CD you own for your personal use is infringement. "With CD, there is nothing there to prohibit copying," Creighton says. "Starting with DVD-Audio, we're going to take a strong stance that we want no copies."

Copying DVD-Audio Discs

Currently there are two DVD audio formats: the official DVD-Audio format developed by the DVD Consortium's Working Group 4 (WG-4), and the Super Audio CD developed by Sony and Philips. According to Jordan Rost, senior vice-president, new technology, for Warner Music Group and a member of the WG-4 committee, DVD-Audio will likely incorporate a copy-protection system that combines digital encryption with embedded signaling that tells recorders what they can do with the data on the disc.

On Super Audio CD, the high-resolution layer (there is also a CD layer that can be read by standard CD players) will be encrypted. The data will be copyable, but only in encrypted form. A decryption key, physically etched into the disc, will be required to read the high-resolution audio data. Super Audio CD will also use embedded signals as well as "watermarking" the disc digitally to identify the copyrighted source.

DVD-Audio and Super Audio CD players will both output two-channel analog audio. There is, of course, nothing that can be done to prevent recording this output on current analog re-

corders or via the analog inputs of current digital recording systems such as MD. But the embedded signals will persist in the recorded copy. The recording industry wants future digital recording systems to respond to these embedded signals, whether in analog copies or the digital or analog outputs of DVD-Audio players, so that if the copyright holder does not wish copies to be made, they won't be.

It will be up to DVD-Audio player manufacturers whether to include a digital output for two-channel audio. This would allow connection with digital preamp/processors or outboard digital-to-analog converters, but the same connection could be used for making two-channel copies with current digital recorders. However, the embedded signal would survive so that copies could not be made on future recorders, and SCMS would prevent copies of the copy on either current or future recorders.

In the very near future, digital A/V components will be connected by a high-speed digital bus, probably using the IEEE-1394 standard, also known as Firewire. DVD-Audio players will almost certainly have Firewire outputs to route high-resolution multichannel audio to digital preamp/processors, which will also have Firewire connectors.

The Copy Protection Technical Working Group (CPTWG) is looking at ways to make the Firewire bus secure (see "Not Cable-Ready"). If the copyright holder wishes, playback devices will encrypt program material before it's sent out onto the bus. Other devices, such as recorders and preamp/processors, will have decryption chips, but they'll be able to decrypt material only if the copyright holder allows. A processor/preamp might be allowed to decrypt and play an audio file freely, but permission to decrypt and record the same information could be withheld from a digital recorder.

The RIAA wants to do more than deter copying of music on disc. It's looking for a system secure enough to support sales of recorded music over the Internet. To that end, permission on which devices can perform which functions with which material could go beyond the simple "yes-you-can, no-you-can't" variety, notes David Stebbings, senior vice-president, technology, at the RIAA. For example, a song downloaded from a music retailer's Web site on a try-before-you-buy basis might contain instructions to allow only a certain number of playbacks.

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The Video Recording Picture

In its Betamax decision in 1984, the Supreme Court ruled that personal recording of over-the-air broadcasts is fair use. Copying of packaged media (videocassettes, laserdiscs, and DVDs), pay-per-view television, and video-on-demand is prohibited. Cable services like HBO and Cinemax are in a gray area. Seth Greenstein says that one-generation recording of pay services is allowed (you can make a copy, but not a copy of the copy). Chris Cookson, executive vice-president of Warner Bros. and co-chair of the CPTWG, says that the electronics and computer industries have not yet found a secure way to limit video recording to one generation and that some studios do not want their movies recorded from pay TV.

In principle, this means that studios could require pay-per-view and pay-TV services to apply copy protection to their signals. In the analog world, this means Macrovision, the system that prevents taped copies from being made of DVD and VHS movies. This has not been done, and consumers have been able to record pay-TV and pay-per-view movies after they have been unscrambled by cable boxes.

Things will change as TV goes digital. Digital cable boxes will likely connect to digital TVs over a Firewire bus. Studios will be able to instruct the cable box to encrypt pay-per-view signals before sending them onto the bus. Appropriately equipped digital televisions would be able to decrypt and display the program, but without the appropriate permission, a digital video recorder would not be able to record it. Digital cable boxes with analog video outputs could apply Macrovision processing to the analog outputs when instructed to do so by the program material, thereby preventing analog VCRs from recording the material.

I don't think the movie and music industries have been nearly as badly hurt by home taping as they claim. Indeed, one could argue that by providing a risk-free way for people to discover new artists, a little home copying actually helps these industries. Digital recording systems and the Internet hugely magnify the exposure of entertainment industries to piracy, but they also provide new ways for them to expand their audience. "There's great opportunity, and there's great potential for abuse," Warner's Rost comments. "Hopefully, we can come up with a solution that balances everyone's interests." □

Not Cable-Ready

New DTVs may not work with digital cable boxes

BESIDES encrypting digital content in discs and transmissions, movie and music companies want to make sure that digital content is encrypted as it travels from one component to another in future home-entertainment systems. The main candidate for hooking together components in tomorrow's all-digital entertainment systems is IEEE-1394, a.k.a. Firewire.

The Copy Protection Technical Working Group (CPTWG), a cross-industry body that evaluates copy-protection systems, is examining ways of adding copy protection to digital connection systems such as IEEE-1394. It's looking at three proposals, the leader being the 5-C system developed by Hitachi, Intel, Panasonic, Sony, and Toshiba.

If the copyright owner requires it, source devices such as digital cable boxes, high-definition digital satellite receivers, and high-definition DVD players will be able to encrypt digital program material before sending it to other devices such as digital displays and recorders. Pay-per-view movies will probably be protected by digital cable boxes. Broadcast TV stations carried by cable almost certainly will not.

When a digital television or recorder "asks" a cable box to send content over the Firewire bus, the box would make sure that the receiving device understands what it can and cannot do with the signal. Information about this will be present in the source material.

In the case of a pay-per-view movie, the cable box would ask the receiving device to confirm that it can display, but not copy, the movie. It would send out the movie only if the receiving device agreed to play by those rules and would encrypt the movie so that it could not be copied.

To display the movie, the digital television will need the appropriate digital (probably IEEE-1394) input and decryption circuitry. That circuitry will very likely be lacking on first-generation digital TVs, acknowledges David Foote, technology marketing manager at Intel.

By early September, none of the proposed systems has been completely defined, so the CPTWG was not in a

position to recommend an encryption technology for IEEE-1394. CableLabs, a research consortium funded by North American cable companies that is charged with creating a standard for digital cable boxes, had not settled on a copy-protection system. The first digital televisions are due to reach U.S. dealers before November, when digital terrestrial broadcasts are scheduled to begin in the ten largest urban centers. For them to be able to work with future digital cable boxes (and other digital devices, such as DVD players with digital outputs), a standard has to be set, the appropriate decryption chips have to be designed and manufactured, and those chips have to be integrated into the DTVs.

Once the movie, consumer-electronics, computer, and cable-TV industries agree how to handle copy protection, digital TVs with the appropriate circuitry could be built "within months," says Jim Bonam, VP, new business development, for Sony's consumer A/V division. He concedes that DTVs with circuitry for decrypting protected signals probably won't appear before mid-1999, and it won't be possible to retrofit decryption into first-generation DTVs.

Bonam says digital cable boxes with high-definition analog component-video outputs could enable early adopters to watch pay-per-view and other protected video content on their first-generation digital TVs. However, these boxes would be more expensive than digital-only cable boxes.

Chris Cookson, executive vice-president of Warner Bros. and co-chair of the CPTWG, says that the movie industry is very leery about cable boxes with a high-definition analog output. "While we understand the concerns of the cable and electronics industries, it causes great concern that no one has proposed any way of preventing copying [from a high-definition analog output of a cable box]."

The bottom line: It looks as if the first digital TVs won't be ready for digital cable, digital high-definition satellite, or other high-definition digital video systems.

— G.B.

"Clearly One Of The Best."

-Stereo Review



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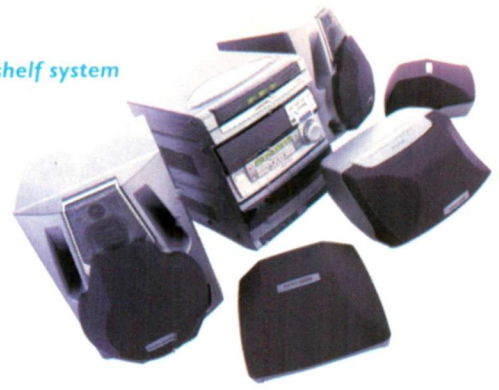


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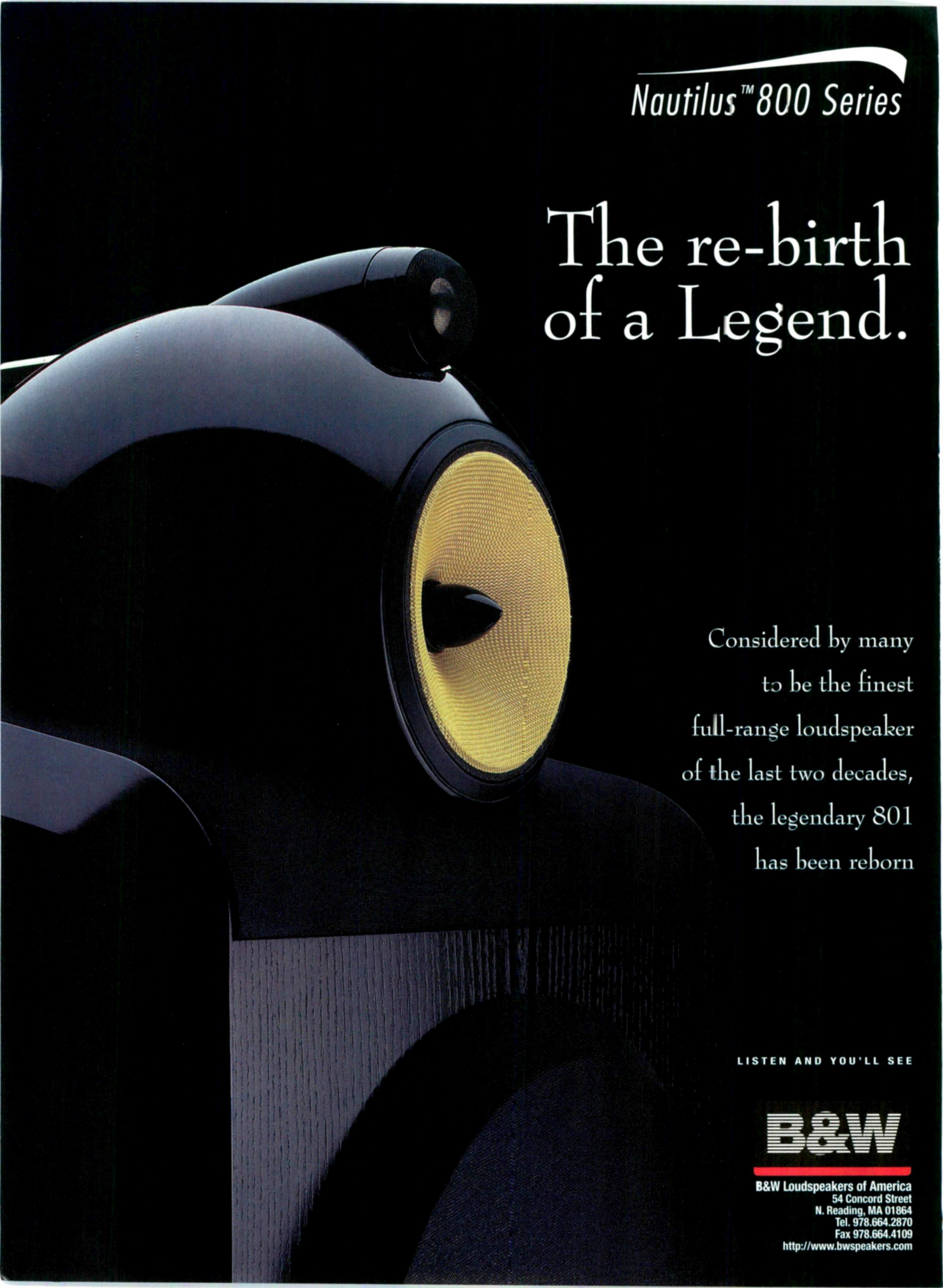
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B&K AVR202 Dolby Digital/DTS Receiver

DAVID RANADA

“Simplify, simplify,” said Thoreau. Buffalo, NY-based B&K Components has taken his advice and produced in the AVR202 a component that transcends typical receiver designs. Its simplified front panel declares not a little independence from the confusing and complicated multiknob, multiswitch front panels you get with receivers from Asia. And this in a device featuring both Dolby Digital and DTS decoding.

It has just one large multipurpose knob, a power switch, nine control buttons, a headphone jack, and an alphanumeric display panel. B&K can afford to offer so few controls by making several of the buttons perform multiple duties that in a typical receiver would be distributed among different controls. For example, each push on the Mode button selects another surround processing mode, of which there are eight. Each push on the Level button selects which channel (Master/All, Center, Rear, Subwoofer) will change volume when you twist the neighboring knob.

The most important aspect of the button array is that four of them plus

the knob are used to navigate through the receiver's extensive on-screen menu system. But unlike most fully featured A/V receivers, the AVR202 doesn't make you turn on your TV to use the menus. With just the front-panel controls, or the remote handset, the front-panel readout, and (at least in the beginning) the full-page map of the on-

FAST FACTS

RATED POWER 105 W x 5 into 8 ohms from 5 Hz to 45 kHz with no more than 0.09% THD+N

KEY FEATURES

- Two-zone operation
- Universal remote control
- Automatic surround-mode selection
- Preset memories store operational status

DIMENSIONS 17 x 17 x 6¼ inches

WEIGHT 55 pounds

PRICE \$2,800

MANUFACTURER B&K Components, Dept. SR, 2100 Old Union Rd., Buffalo, NY 14227-2725; phone, 716-656-0023; Web, www.bkcomp.com

screen menu system thoughtfully provided in the manual, you can activate every one of the many features of the AVR202. Of course, if you do have a TV connected and turned on, using the menu system is even simpler. But I, for one, detest having to turn on the tube just to get music playing or to make a subtle audio adjustment. The B&K approach also makes the receiver at home in an audio-only system for playing stereo and surround-encoded music.

Just a glimpse of that menu map reveals the wealth of features contained in the AVR202. There are, of course, the necessary screens devoted to surround-sound setup, with speaker balancing achieved in very desirable, and rather rare, half-decibel steps. But other screens control some useful features that are extremely uncommon. You can match the levels of all your program sources so that there are no large changes in volume as you change from one source to another. Other menu screens let you rename items in the front-panel and on-screen displays. You can change what they show on power-up and even the name of each input source — you could call your DVD player Ralph, or Waldo!

The ability of the AVR202 to rename things finds no better use than in its ability to store what B&K calls presets: settings for signal source, volume, surround mode, tuner station, and any temporary speaker-balance adjustments, all stored together in one of 20 available preset memories. Each of these presets

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"Thunder Towers"
—Stereo Review

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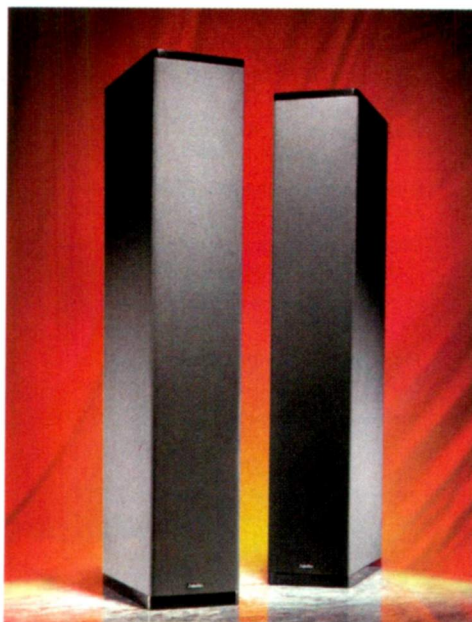
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Cerwin-Vega CVT-12 Speaker

DANIEL KUMIN

Cerwin-Vega is a name that long-term audio fans may well associate with very large, very high-sensitivity speakers engineered as much to punch out kick-drum and Fender bass at triple-digit sound-pressure levels as for tonal accuracy. But despite the company's rock-&-roll pro-audio heritage, this conception is only half right. In fact, over the years, Cerwin-Vega — or Cerwin-Vega! as its literature currently proclaims — has also regularly produced speakers that delivered the audiophile full-monty. The new CVT-12 is indisputably one of those.

This big tower speaker seems clearly

intended for use in a big room, as it stands nearly 44 inches tall and is some 20 inches deep, though its relatively narrow width of just 10½ inches considerably reduces the sense of bulk. And at 80 pounds apiece, it's not a lightweight by any measure.

With the help of a hand-truck, I unpacked and positioned the CVT-12s, which have relatively conventional four-driver, three-way passive layouts. In each speaker a 1-inch silk-dome tweeter is supported by dual 7-inch "midwoofers," and a single 12-inch woofer is mounted low on the inner side panel. This type of arrangement (which I believe originated with the Acoustic Research AR-9 some 20 years ago) permits a really big woofer to inhabit a speaker with a narrow front baffle. The narrow front aids detail and stereo imaging by reducing reflective surface area for the higher-frequency drivers.

The CVT-12 features magnetic shielding, an internal sub-enclosure that isolates the midrange and treble section from low-frequency back waves, and a rigid cast-aluminum basket on the 12-inch woofer. A pair of large (3⅓-inch-diameter) vents are on the rear panel, each the mildly flared plastic mouth of a simple fiberboard tube with an effective length of just about 4 inches. These have no flaring at their intake ends and are simply held by friction in the cut-outs on the rear panel.

Also on the back panel is a biwireable terminal cup with two sets of large, gold-plated multiway posts joined by gold-plated bus bars. On the speaker's bottom panel are four threaded inserts to accept the screw-in spikes supplied for use on pile carpeting.

The Cerwin-Vega CVT-12's exterior is covered in fairly unremarkable black, woodgrain vinyl over all six surfaces. Small, plastic-framed black-knit grilles chastely cover the drivers, both the midrange/tweeter trio up top and the side-firing woofer. The cabinet's front and back edges are all gently curved, which reduces diffraction for clearer high treble and also eases the total visual impact a bit.

I connected the CVT-12s in a simple two-channel system with the left and right output channels of a high-end CD player connected directly to the corresponding channels of an excellent, 150-watt-per-channel power amplifier, and then to the speakers. The CD player's remote volume control provided the only necessary (and possible) adjustment.

Up and running, the Cerwin-Vegas

FAST FACTS

DRIVER COMPLEMENT one 12-inch woofer, two 7-inch cone "midwoofers," one 1-inch treated silk-dome tweeter

ENCLOSURE vented

DIMENSIONS 43½ inches high, 10½ inches wide, 20 inches deep

WEIGHT 80 pounds each

FINISH black woodgrain vinyl

PRICE \$1,200 a pair

MANUFACTURER Cerwin-Vega, Dept. SR, 555 E. Easy St., Simi Valley, CA 93065-1805; phone, 805-584-9332; Web, www.cerwin-vega.com

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—Jeff Cherun, *Home Theater Magazine*

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HIGH POINTS

Neutral, well-balanced sound on vocals.
Impressive bass power and extension.

LOW POINTS

Slightly "warm" midbass response.
Average-quality finish.

sounded quite neutral. Vocal tones were open and balanced, if just a tad "drier" or "narrower" than with my normal stereo/main speakers, three-way B&W Model 803 Series 2s, but by a very small margin. On James Taylor's latest, *Hourglass* (Columbia), his rich baritone was close to a dead match with the B&Ws: smooth, even, and with the touch of "honk" that his voice naturally carries — nothing added, nothing deleted. I found the same to be true with a wide array of male voices. Reproduction of female vocals, like Clair Marlo's on *Let It Go* (Sheffield Labs), was nearly as close to parity with my everyday system's. Perhaps I heard a simple change from what I'm accustomed to.

Through the top octave the CVT-12s sounded different from my everyday speakers, but again to a fairly mild degree. The Cerwin-Vega towers clearly produced an overall balance with somewhat less air and sparkle up top, but they did not cut off any high-treble content. On "You're Still Standing There" from *I Feel Alright* by Steve Earle (Warner Bros.), I heard this effect as a reduction in the forwardness of the song's deliberately harsh and scratchy harmonica-and-Telecaster assault. With more refined recorded material, like Phil Woods's *Here's to My Lady* (Chesky), this slightly recessed top octave came across as a decided but not necessarily "bad" shift away from prominence of the many subtle shadings of drummer Kenny Washington's cymbal color. The Cerwin-Vegas sounded consistently a shade darker, less forward and crisply detailed, and less shimmery than my regular speakers. Hi-hat rides tended to carry less "tick," too, and massed strings — such as the cello choir from a favorite test track of mine, the Villa-Lobos *Bachiana Brasileira* No. 5 (EMI 47433) — produced a bit less "bite" on strongly dug-in bowings.

Down at the opposite end of the audible spectrum, the CVT-12s produced prodigious amounts of bass, much as I'd expected given the size of the woofers and C-V's reputation. I rated their output through the midbass region as

about one full measure to the generous side by my admittedly Calvinist tastes — many listeners would disagree, I'll bet. This gave a rich, somewhat warm, attractively punchy sound to electric bass on the James Taylor recording and many other pop CDs, an effect that more or less persisted in several different placements. Since this sort of effect is notoriously room-dependent, a different result might well have been obtained in a space other than my 21 x 16-foot studio.

Through the bottom octave the Cerwin-Vegas delivered very solid output, falling off just audibly below 35 Hz or so. The big, loose orchestral bass drum in Jennifer Warnes's "Bird on a Wire" from *Famous Blue Raincoat* (Cypress) had just a touch less meat on its very low-frequency decay following each mallet stroke than when heard on my usual system — which, in all fairness, has a separate, powered 12-inch subwoofer, carefully placed and balanced to yield output below 20 Hz. And some organ-pedal passages I often refer to, from a Messiaen selection on John Earle's *Engineer's Choice* CD (Delos DE 3512), were less solid relative to my fully sub-reinforced system. All in all, the CVT-12's low-bass extension was respectable for such a very reasonably priced big speaker.

In terms of imaging, the speakers tended to produce a well-defined but moderately shallow soundstage. However, voices and instruments arrayed themselves very precisely from left to right, producing an image that was stable and solid to a fault. But the illusion of "depth" produced by the best live recordings was not as profound as I

sometimes hear, at least as displayed by the *Carmen Ballet* snippet from the Delos collection noted above. This track's prominent castanets (and other hand-percussion) sounded clean and tightly defined, but they did not carry as much ambience as on my everyday set-up. String tone was smooth yet defined, though a smidgen dry or "woody."

The CVT-12 proved to be a few decibels more sensitive than most similar-size tower speakers I've recently encountered — it's rated at 94 dB sound-pressure level (SPL) with 1 watt input measured at 1 meter. At the same time, it willingly absorbed as much power as I had on hand to throw its way — without tripping the electronic tweeter protection. In keeping with its maker's tradition, it effortlessly reached awesome overall levels. At peak SPLs of 100 dB and beyond, I could not discern any obvious signs of distress, nor did I detect any compression in the bass region, a common telltale of dynamic limiting. The speaker did sound a bit harsher through the vocal range, and again way up top, but only at very high (pre-clipping) levels.

What we have here is an impressive balance of quantity and quality with penny-pinching value. The Cerwin-Vega CVT-12 sounded accurate and refined, with plenty of dynamic punch and deep-bass power. And let's not forget its high sensitivity, which means it needs only half as much power as some similar speakers to reach very loud volume levels. So while the CVT-12 benefits visually from a big room and can easily fill one with sound, it does not necessarily demand an equally big amplifier. □

IN THE LAB

Our standard "listening window" frequency-response measurement of the CVT-12 (averaged quasi-anechoic responses up to ±15 degrees off-axis vertically and ±30 degrees off-axis horizontally) showed a respectable ±3.7 dB deviation from flat response between 1 and 15.3 kHz. But the most sonically significant deviation — a wide and rather prominent dip — occurred between 2 and 4.7 kHz, a region spanning 1.25 octaves and encompassing the midrange-to-tweeter crossover region. This kind of dip, common among speakers in all price ranges, can color the sound of much wide-range material, but not necessarily pop music, whose dominating drums and cymbals produce signals that skirt this region.

Our measurement was made with the microphone 2 meters away and 1 meter off

the floor in order to mimic as closely as possible a reasonable relative location of a seated listener's ears. The on-axis response was flatter, with the dip filled in for the most part, when the microphone was only 32 inches off the floor, an unusually low listening position. While the CVT-12's measured low-end cutoff can be characterized as 33 Hz (the -3-dB point of the rear-panel ports), we obtained usable output down to around 25 Hz. The speaker could not be overloaded at a drive level equivalent to 90 dB SPL. — David Ranada

SENSITIVITY (SPL at 1 meter, 2.83 volts input, 1 kHz).....90.5 dB

IMPEDANCE (min/nominal).....2.6/4 ohms

BASS OVERLOAD FREQUENCY (at 90/100 dB SPL).....none/62 Hz

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Denon AVR-2700 Dolby Digital Receiver

DANIEL KUMIN

With consumer electronics, if you wait long enough all but the most exotic technology usually becomes affordable. A year ago, \$800 was the least you could expect to pay for a no-frills Dolby Digital receiver, and it cost \$1,200 and up for one with anything more than the basics. Today, \$800 can buy you Denon's AVR-2700, which includes features previously found only in higher-end gear. A six-channel input lets you hook up an outboard 5.1-channel surround decoder — for DTS, say — an unusual expansion option in an A/V receiver with Dolby Digital already on board. Cinema-EQ, a subtle treble rolloff meant to tone down harsh soundtracks, can be selected separately for each surround mode. Moreover, all of the speaker terminals are U.S.-standard (3/4-inch) multiway, dual-banana-jack binding posts (the ones for the front left-center-right trio are doubled up for biwiring, if you care about such things).

FAST FACTS

RATED POWER

80 W/ch, two or five channels driven, into 8 ohms from 20 Hz to 20 kHz with less than 0.05% THD

KEY FEATURES

- Dolby Digital and Pro Logic decoding; six additional DSP modes
- Six-channel input for an outboard 5.1-channel surround decoder
- Preprogrammed and "learning"-type multicomponent remote control
- One optical, two coaxial digital inputs
- Four A/V inputs with two record loops
- CD and phono inputs; one tape loop

DIMENSIONS 17 1/8 inches wide, 6 3/4 inches high, 16 3/8 inches deep

WEIGHT 29 pounds

PRICE \$799

MANUFACTURER Denon America, Dept. SR, 222 New Rd., Parsippany, NJ 07054; phone, 973-575-7810; Web, www.denon.com

In appearance, the AVR-2700 is an unremarkable black box with simple front-panel controls. (The labeling, however, is the usual tough-to-read, gold-on-black small type.) Except for the volume, bass, and treble knobs, the controls are all pushbuttons arranged in two sparse rows. Left/right balance, which is strictly a setup-mode option, can be accessed only through the on-screen menus.

Around back, the AVR-2700 is well furnished with inputs and outputs. The three audio-only options include phono (no longer universal among A/V receivers) and a single tape loop. Audio/video options include DVD/laserdisc, TV/satellite, and two record loops. The AVR-2700 lacks a convenience set of camcorder inputs on the front panel — a bit surprising at this price point — but all of the back-panel A/V inputs and outputs are equipped with both composite and S-video connectors. Preamp outputs are limited to the front channels.

There are two coaxial digital inputs and one Toslink optical input, instead of the more common array of two optical inputs and one coaxial, and three is barely sufficient in any case. What with DVD players, MiniDisc or CD-R/RW recorders, Dolby Digital-equipped DSS receivers, the forthcoming digital TV set-top boxes, and the inevitable recordable-DVD decks and Nintendo-128 consoles, we're all going to want more

No Brainer!

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Their remarkable value for
this price class makes the
Take5 an AVS No-Brainer.”**

**Anthony Chiarella
Audio Video Shopper,
May 1997**

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delivers the absolute best home-theater
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\$1,000, you owe it to yourself to hunt down
the Energy Take5 system at your local
specialty audio dealer.”**

**Corey Greenberg,
Stereo Review, September 1997**

You’ve never heard **sound this big** from a home theater surround system **so small**. It’s the “Take5™” home theater system. Designed to be fashionable, and engineered to deliver sound quality unheard of in speakers twice their size.

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digital inputs sooner or later — probably sooner.

The large remote control combines a basic set of preprogrammed codes for popular-brand laserdisc players, VCRs, and TVs with the capability of learning codes for other components, allowing for full-system control. The handset's master volume and transport keys glow pale green in low light, making them easy to find and use in real-life conditions. You'll need external light, though, to change the source selection or perform other functions. A flip-out plastic door conceals the secondary controls. (You can safely snap this off and store it in a drawer somewhere, which is a good thing — it wouldn't last a week at my house.)

Setup was simple and quick. Input assignment and level calibration were eased by the on-screen displays and menus, with succinct, understandable prompts and option labels that proved familiar from earlier Denon components I've used. Programming system options (such as for bass management) was occasionally confusing, though; the on-screen navigational logic is not always as intuitive as it could be.

The AVR-2700 aced all my basic tests. It maintained channel balance accurately over the full range of the master volume control except the last two steps, where center and surround levels marched a bit ahead. (But that is a *much* higher volume than any sane person would ever want to dial up.) In all modes, whether two-channel or surround, noise was exceptionally low; audible surround-channel hiss in Pro Logic playback was as low as I've encountered from an A/V receiver. Surround sonics were excellent, with stable imaging and smooth pans. There was some mild Pro Logic "pumping," but Dolby Digital and stereo reproduction were clean, natural, and dead quiet. In stereo, the 80-watt-per-channel AVR-2700 had enough power to drive my B&W 803 Series 2s to volumes respectably close to what I'm used to with my everyday 150-watt-per-channel power amps.

The Denon AVR-2700 sounded outstanding in almost every situation, rivaling a multichannel amplifier/processor setup I'd been using that costs more than three times as much (and without a tuner). It has many fewer modes and options, and considerably less power,

HIGH POINTS
Excellent surround-sound performance.
Useful, user-adjustable DSP modes.

LOW POINTS
Only three digital inputs.
No front-panel camcorder input.

than the more expensive components, but it delivered satisfying levels driving my average-sensitivity five-speaker grouping. It could not, however, produce quite enough clean volume to match the best movie theaters.

When I set the receiver to drive all five speakers full-range ("large") at tenth-row concert-hall levels (loud!), its surround-channel amps stumbled on the biggest tympani whacks in the Copland segment of the *Delos Surround Spectacular* CD (DE 3179). But with the speakers all set to "small" and the receiver's bass output sent to my B&W 800ASW powered subwoofer, the system had almost enough headroom even for this stern test, which is pretty impressive. I'd wager, however, that hardly anyone runs a home theater this loud except for the occasional wow-the-buddies *T2* demo.

The bass-management worked properly, something we cannot say for all Dolby Digital receivers, though you can only select "large" center and surround speakers if you set the main L/R pair for "large" as well. That makes sense for most systems but not necessarily all. As the test-bench results show, the subwoofer output clipped when fed full-scale low bass from all the other channels — a result that is very common among Dolby Digital receivers and processors at all price levels. Real soundtracks rarely have full bass in all channels, however, and even then it is by no means certain that the clipping will be audible.

Besides Dolby Digital and Pro Logic, the AVR-2700 offers six additional DSP (digital signal processing) surround modes. Of these, Matrix and Mono Movie were the most useful. Matrix, a mild, general-purpose ambience-extraction program, can "dress up" natural-acoustic stereo recordings with believable spaciousness — it's an excellent feature. Mono Movie gave a satisfying sense of spread to monaural soundtracks, though with some sacrifice of vocal-timbre naturalness and spatial anchoring. It's worlds better (and subtler) than most "stereo synthe-

IN THE LAB

DOLBY DIGITAL (AC-3) PERFORMANCE

All data obtained from Dolby Labs AC-3 test DVD using dithered test signals, which set limits on measured distortion and noise. All channel-level controls and LFE attenuation set to 0. All speakers set to "large." Reference input level is -20 dBFS*; reference output level is 2.83 volts. All are worst-case figures.

Output at clipping (1 kHz into 8/4 ohms)
one channel driven (front)105/157 W
one channel driven (surround).....106/156 W
five channels driven (8 ohms)71 W

Distortion at 1 watt (THD+N, 1 kHz)
8 and 4 ohms.....0.03%

Noise (A-wtd)
left front-72.7 dB

Excess noise (with signal)
16-bit (EN16)+2.75 dB

Frequency response (worst case)
surround20 Hz to 20 kHz +0, -0.4 dB

Channel imbalance (individual channels set at 0-dB gain).....0.4 dB spread or less

Subwoofer output frequency response
18 dB/octave rolloff above 81 Hz

High-pass-filter frequency response
12 dB/octave rolloff below 80 Hz

Maximum unclipped subwoofer output
7 volts

Subwoofer distortion (master volume at -6, subwoofer trim at 0 dB**).....3.5%

STEREO PERFORMANCE, DIGITAL INPUTS

Reference volume setting for noise is the same as for Dolby Digital; subwoofer off.

Linearity error (at -90 dBFS).....+0.4 dB

Noise (A-wtd)-73.75 dB

Excess noise (with/without signal)
16-bit (EN16)+1.8/+3.1 dB

Tone-control range
100 Hz.....±9.5 dB
10 kHz.....±9 dB

Frequency response
(tone controls at detents)
20 Hz to 20 kHz +0, -0.5 dB

TUNER SECTION

All figures for FM only.

Sensitivity (50-dB quieting)
mono21.8 dBf
stereo43.4 dBf

Capture ratio (at 65 dBf).....0.9 dB

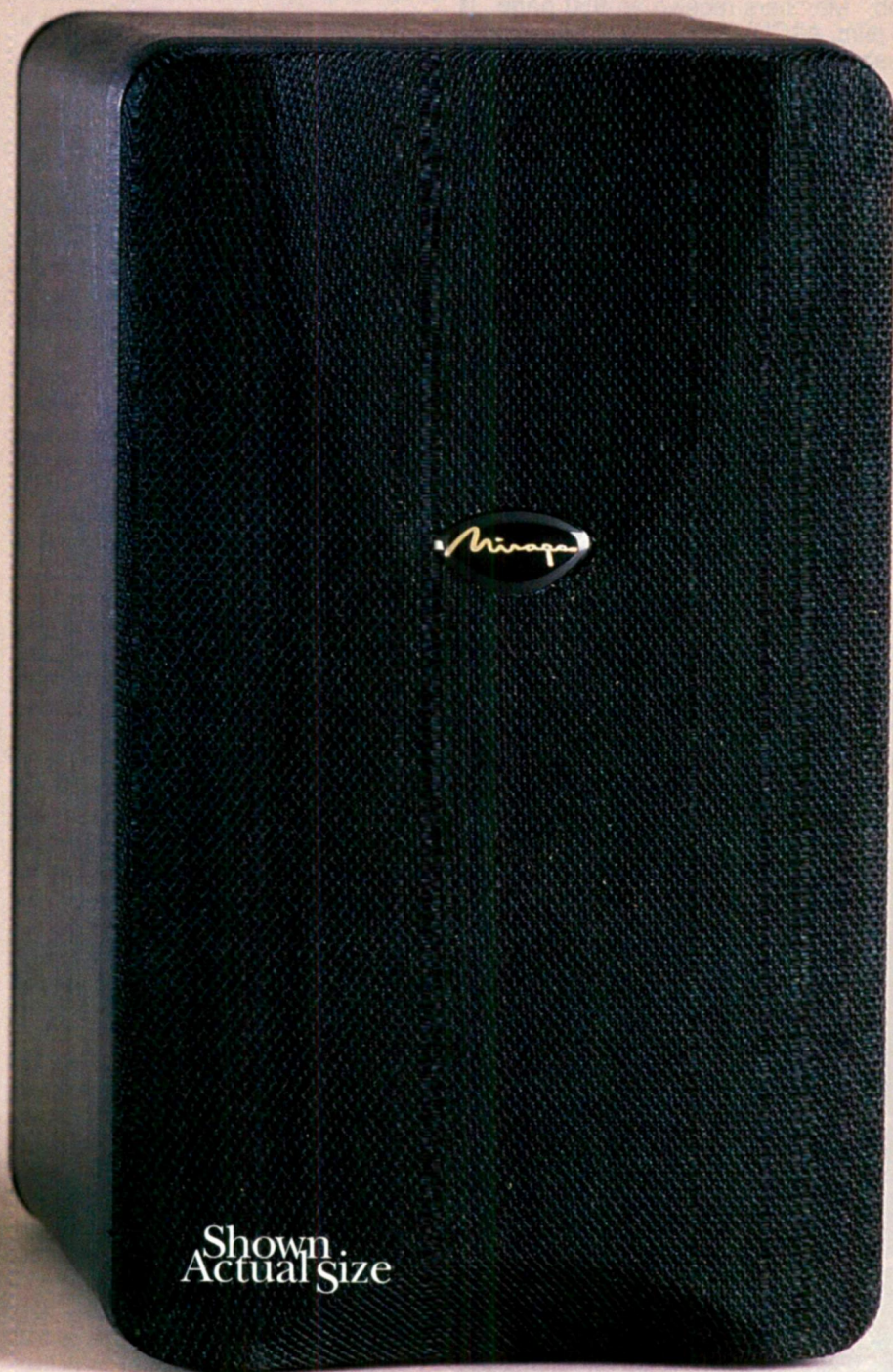
AM rejection.....56.6 dB

Selectivity
alternate-channel.....55.5 dB
adjacent-channel.....5.2 dB

* decibels referred to digital full-scale

** measured at 30 Hz, all six channels driven to 0 dBFS

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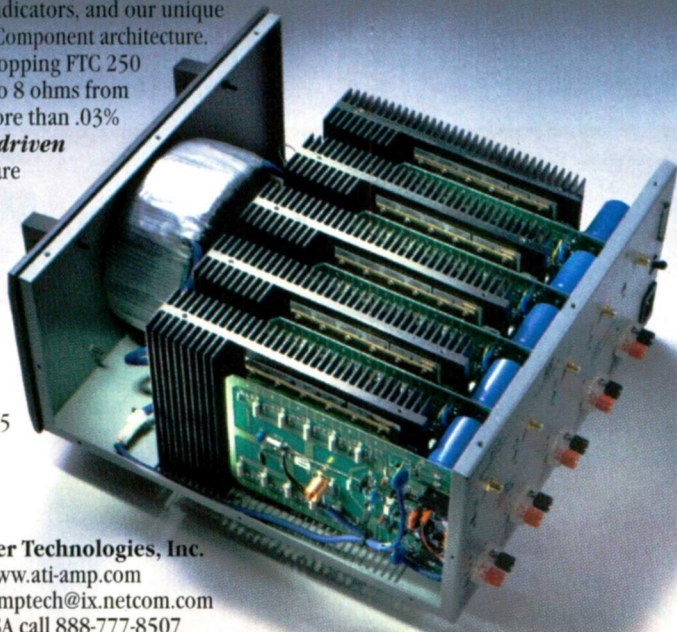
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sis" modes. The other modes are Video Game, 5-Channel, which distributes two-channel sound among all five speakers for maximum coverage or loudness (at a party, for instance), Jazz Club, and Rock Arena. Each surround mode has a decent array of user-adjustable parameters that the AVR-2700 remembers from session to session — even better, the relative channel levels for each mode are stored individually. You can, for instance, set Matrix for a lower surround-channel level semi-permanently, making the effect more subtle and thus more widely useful.

Tuner performance was average for receivers today — alas. The AVR-2700 showed no very useful aptitude with weak or distant FM stations, but it did have good to excellent performance, in terms of both tonal balance and noise level, on strong or local broadcasts. It also handled closely spaced strong stations well. AM reception was about the same grade, or maybe worse. A directional roof-mounted antenna would cure much or all of what ails the Denon receiver's FM section (and those of many other receivers as well).

The AVR-2700's remote functions are easy to learn, but the organization of the controls can be confusing. The surround modes cannot be selected directly using the remote. Instead, you have to step through the modes or use the cursor keys to select a mode from an on-screen menu — I hate not having direct access to the surround modes. And you have to position two tiny slide switches to select which source component is remote controlled by the transport and channel keys at any moment. However, I discovered that the remote volume control was just about ideal in speed — roughly twice as brisk as that of the AVR-3200, the last Denon A/V receiver I fooled with (and complained about). Could somebody out there actually be listening?

All nitpicking aside, the AVR-2700 flat-out excelled in just about every important area. If you need top-quality sound for serious music listening in either two-channel or simple surround modes, plus excellent Dolby Digital and Pro Logic home-theater audio, this receiver delivers in spades. It also offers a way to add other flavors of 5.1-channel processing if desired. The AVR-2700 has the finesse, the no-bull functionality, and the power to deliver true home-theater quality in most systems and rooms, all at an attractively low price. □

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Mirage FRx Home Theater Speaker System

TOM NOUSAIN

Mirage is one of a number of Canadian speaker makers that seem to enjoy terrorizing American speaker manufacturers by combining high performance with ultra-competitive pricing. After examining speakers from Mirage's new FRx series, I concluded that the competitive pricing is only partly due to the current high value of the American dollar relative to the Canadian dollar. Small size and a clever use of less expensive materials are also factors.

Specifically, the "mix-and-match" system I tested was built around a pair of FRx-Seven towers for the front left and right channels, joined by an FRx-C center speaker, a pair of FRx-R surrounds, and an FRx-S10 10-inch powered subwoofer. The system's list price is \$1,300 without the sub and \$1,750 with it. The FRx series also includes both smaller and larger towers, two smaller bookshelf models, and 8- and 12-inch subwoofers.

The construction of the speakers is interesting, with each FRx-Seven having a pair of molded composite-plastic baffles. One baffle contains a 5¼-inch woofer and a ¾-inch tweeter. The second has an identical woofer but a port in place of the tweeter. (The same woofer/tweeter baffle, incidentally, is used for main speakers throughout the FRx line.)

Similarly, the FRx-C center speaker has front and back panels made of composites; the rest of the cabinet is all medium-density fiberboard. It's not surprising that plastic composites are becoming common in speaker cabinets because they can be contoured to help improve sound quality by reducing edge diffraction and surface reflections.

Plastic is also used for the special thin-frame grilles with fabric wrap that are supplied for all the FRx speakers. The



ter speaker seems on the small side.

All speakers in the series use the same hybrid aluminum-dome tweeters and injection-molded polypropylene woofers, technology that trickled down from Mirage's high-performance lines. Operating features include multi-way binding posts that accept banana plugs on all of the speakers except the subwoofer, which uses spring clips. (Unfortunately, the center speaker's jacks aren't spaced for dual banana plugs.) The FRx-Seven has a pair of strapped input jacks that allows bi-amplification or bi-wiring. The tower is recommended for use with amplifiers rated between 15 and 200 watts per channel, and the center and surround speakers are recommended for use with amplifiers rated from 15 to 100 watts.

Only the subwoofer has any user-adjustable operating controls, a continuously variable electronic crossover (from 50 to 100 Hz) and a level control. The sub also has a speaker-level input, auto-power on/off, and an amplifier rated at 100 watts. There's also a dual-mode line-level input, which allows for a direct input from an external crossover that bypasses the crossover in the FRx-S10 (a nifty feature usually only found in more expensive subs) as well as a standard line-level input. The speaker-level inputs accommodate stereo signals, but the line-level input requires mono.

grilles have an attractive contoured exterior surface that adds visual interest. Even the woofers use composite-plastic baskets. While I think the speakers generally look fine, their major characteristic is small size. The FRx-Seven towers are very slender and have minimal visual impact. The FRx-R surrounds are trim, and their sliced edges make them seem even smaller. The FRx-S10 subwoofer has a tiny footprint (about 1½ square feet). Even the horizontally arrayed FRx-C cen-

FAST FACTS

	FRx-SEVEN (main)	FRx-C (center)	FRx-R (surround)	FRx-S10 (subwoofer)
TWEETER	¾-inch dome	¾-inch dome	two ¾-inch domes	—
WOOFER	two 5¼-inch cones	two 4¼-inch cones	5¼-inch cone	10-inch cone
ENCLOSURE	ported	ported	sealed	ported
SIZE (HxWxD, inches)	36 x 9¾ x 13	57½ x 17 x 11½	67½ x 12½ x 57½	16¼ x 15½ x 15
WEIGHT	35 pounds	12½ pounds	7½ pounds	37½ pounds
FINISH	black ash, cherry	black ash, cherry	black ash, cherry	black ash, cherry
PRICE (\$1,750 total)	\$700 a pair	\$250	\$350 a pair	\$450

MANUFACTURER Mirage, Dept. SR, 3641 McNicoll Ave., Scarborough, Ontario M1X 1G5; phone, 416-321-1800; Web, www.miragespeakers.com

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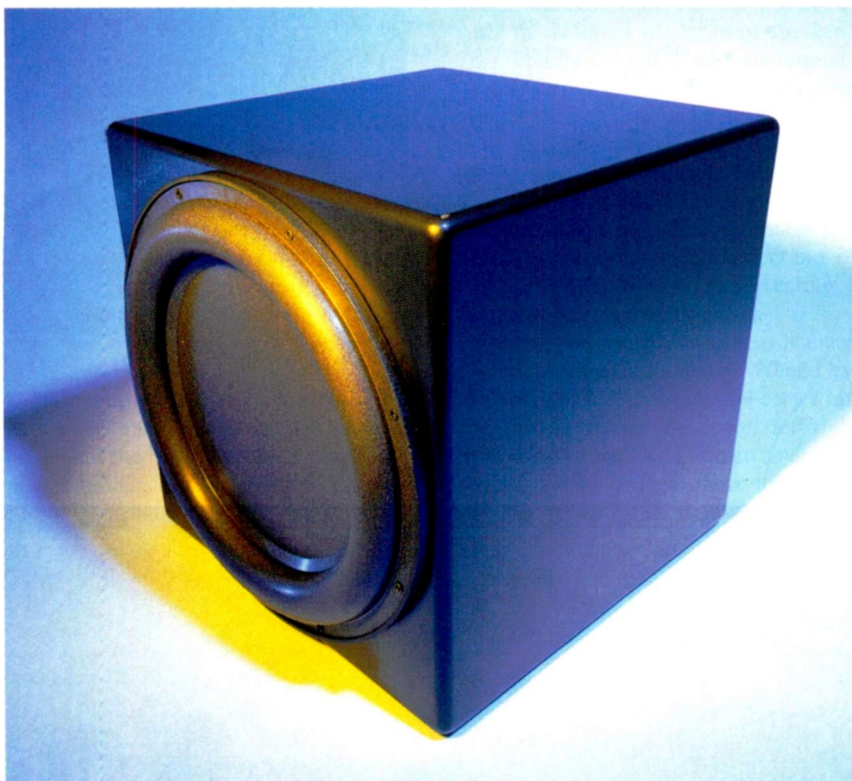
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Sunfire True Subwoofer-Signature

KEN C. POHLMANN

The first thing I noticed about the Sunfire True Subwoofer-Signature was its cardboard box. On the outside, it says, "Bob Carver's Sunfire, from his mind & soul." That says a lot, reminding any audio enthusiast that Carver is certainly a maverick and perhaps a genius. He started Phase Linear and Carver Corporation, which he left in 1994 to start Sunfire. At Sunfire he created the Sunfire amplifier, the original True Subwoofer, and now the True Subwoofer-Signature. I'll comment on Bob's soul in a minute, but clearly his mind is quite prolific.

The second thing I noticed about the True Subwoofer-Signature also involved the box. It is a great box. Some companies use crummy boxes that scarcely protect their products against damage. The True Subwoofer-Signature comes in a box inside a box, with 16 pads spacing everything apart. The

subwoofer itself is carefully sealed in not one but two plastic bags, and these are heavy bags. Any company that packages its product with this much loving care must really be proud of it.

FAST FACTS

DRIVER COMPLEMENT 8-inch flat-diaphragm driver and passive radiator

ENCLOSURE sealed

AMPLIFIER rated for 2,700 watts

CROSSOVER continuously adjustable from 30 to 100 Hz

DIMENSIONS 13 inches high, 15 inches wide, 13 inches deep

PRICE \$1,895

WEIGHT 53 pounds

FINISH textured semi-gloss black

MANUFACTURER Sunfire Corporation, Dept. SR, P.O. Box 1589, Snohomish, WA 98290; phone, 425-335-4748; Web, www.sunfire.com

Now, at last, we come to the True Subwoofer-Signature. It's a beautifully engineered subwoofer, massively heavy at 53 pounds and wearing a black textured coat and four rubber feet. It is also small, a cube measuring a lucky 13 inches on a side, with protruding speaker surrounds on two opposite sides. From the outside, the speakers look essentially identical, but one is active and the other passive; energy from the active speaker moves the passive one, augmenting bass response. More specifically, the passive radiator will produce useful acoustic output near its resonant frequency (about 18 Hz).

The powered speaker maxes out at about 33 Hz, so its output is diminished at 18 Hz, but the passive radiator takes over to deliver usable low-frequency output. This is one of the tricks to getting strong deep bass from a small cabinet. Both speakers measure about 10 inches in outside diameter, with usable diameters of about 8 inches, and present a very stiff, flat rubber surface to the world. The passive radiator is said to be essentially indestructible — Carver enjoys demonstrating its robustness by slamming his fist into it. Don't try that with your speakers at home.

Like other powered subwoofers, this one sports a metal panel holding its controls and connection points. Three knobs do the honors for volume, crossover frequency, and phase. The volume level is very loosely calibrated from "minimum" to +15 dB; the former is effectively off, and the latter is *very* loud. The crossover frequency can be adjusted from 100 to 30 Hz. Its slope varies as the cutoff frequency changes, from about 36 dB per octave at 100 Hz to progressively gentler slopes at lower frequencies (for example, about 22 dB per octave at 40 Hz).

Most subs have a phase switch that selects either zero phase shift or a full 180-degree inversion. The phase control on this sub provides a continuous adjustment over that range. A single toggle switch selects either a "flat" or "video contour" frequency-response setting. The former extends response down to 18 Hz, and the latter commences rolloff at about 30 Hz.

The input/output connections are pretty much standard issue, though quite beefy. You'll find a pair of RCA jacks for line-level input and banana jacks for speaker-level input. Another pair of RCAs provide a high-pass line-level output (70-Hz cutoff with a 6-dB-per-octave slope). Like most subwoof-

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Imagine. Compact, perfectly matched home theater speakers with a powered subwoofer that sound truly spectacular. How spectacular? When *Stereo Review* compared it to other satellite/subwoofer systems they've heard (and they've heard nearly all of them), they said the System9000 beat the field—get this—“by a wide and clearly audible margin.” Hear for yourself at a Boston dealer.

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Grover Washington, Jr.

The Grammy award winning saxophonist and "king of contemporary jazz" has also created pop and R&B recordings. Washington is also artist in residence at the University of the Arts in Philadelphia.

harman: how to listen cities
Philadelphia



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ers, the Signature automatically powers up when it senses an audio signal at its input and powers down after the signal goes away; an LED glows dimly when the sub is asleep and brightens when it is awake. Finally, an industrial-strength, 7-foot AC cord provides power to the 2,700-watt amplifier inside.

You heard right. That's 2,700 watts rms into a 3.3-ohm resistive load (the voice-coil impedance of the True Subwoofer-Signature). I'll give you a moment to run over and check your own power amplifier. Is it 2,700 watts? I didn't think so. Not surprisingly, everything else inside the cabinet is also built on a grand scale. For example, the voice coil is 3/4 inches in diameter, and its maximum excursion (the distance the cone can move back and forth) is an astounding 2 1/3 inches (perhaps five times that of other drivers). The driver's magnet is massive, measuring 7 1/2 inches in diameter and weighing over 14 pounds (perhaps ten times greater than the magnet in a conventional driver).

A huge amplifier is needed to move this mechanism, but the large back electromotive force (EMF) generated by the driver (caused by its large motion and huge magnet) means that the actual power delivered to the load is only about 270 watts. However, that same large back EMF lets the driver operate much more efficiently, perhaps ten times as efficiently as an ordinary woofer of this size, generating more usable acoustic energy. One thing is for sure: the forces at work inside this cabinet are considerable — specifically, at full output, some 75 pounds of force. Is that a lot? Read on.

After a good deal of experimentation, I've found the best spot for a subwoofer in my listening room (the front left corner). I placed the True Subwoofer-Signature in the designated spot at a 45-degree angle, with the driver and the passive radiator each facing a wall at the same angle. Thinking I would start modestly, I turned the volume knob halfway up and set the crossover to 100 Hz. I begged and borrowed three more B&W DM302 speakers to complement my own pair. I loaded the German rock band Eloy's *Floating* CD (EMI Electrola, 1974 import) and turned up the volume on my receiver. The disc's crashing opening chords almost caused a panic attack here in sedate Coral Gables. The Signature pumped out such incredible bass sound that the cabinet was hopping on the floor, the sound shaking the room's air like a rag doll.

I never thought I would say this, but you *can* have too much of a good thing. Most subs sound terrible when you push them hard. This one just keeps on pumping until there is way too much bass. With the room shaking around me, I lowered the bass to about a quarter-volume level and dialed in an ap-



proximately 80-Hz cutoff (none of the controls have useful calibration marks to let you know what setting you've chosen). The sub soon meshed nicely with my satellites, delivering excellent bass support. The music's lowest half-octave filled the room. I've listened to this Eloy CD lots of times, with many subs, but I've never heard bass like this. Frankly, I bet the performing musicians never heard bass like this. Wow.

I also played with the phase control, slowly varying the phase from 0 to 180 degrees. Although the difference between 0 and 180 degrees was audible, smaller variations were not especially distinct. I think a simple two-position toggle switch would work here.

Emboldened by the impressive bass response with the Eloy disc, I pulled out some pipe-organ CDs, including Jean Guillou's first volume of Bach's organ works on the Dorian label. The pipe organ is the ultimate test for bass response, and most speaker systems never come close to shaking a listening room the way that organ pedal tones can shake a church. The True Subwoofer-Signature delivered an incredible organ sound. Even when there were no pedal tones, the sub quietly vibrated my listening room, correctly reproducing the low rumbling of the organ's blowers. When the pedal tones hit, the sub sprang to life with clarity and force, probably moving almost as much air as the pipes in the church. Subjectively, the bass response

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David Ranada *Stereo Review* April 1998

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in my room seemed to be rock solid down to 20 Hz (see David Ranada's objective test results below). A lot of subwoofers like to claim that response, but few actually achieve it. This one did. More important, the response was very clean, with a musical realism few other subs can match.

With most of my equipment already on the edge of the shelves from the vibrational strain, I decided to try to dump everything by playing a few movie scenes. I loaded in a series of DVDs — including *Eraser*, *Terminator*, and *Terminator 2* (Arnold loves bass) — and watched while the bass pressure in the room practically rearranged the furniture. If you really like low-frequency effects, if you want to *feel* the bass, then this subwoofer will deliver all of that and more. I'm lucky I don't have any pets in my household. The ASPCA would have been on my case.

There is a lot to admire about the True Subwoofer-Signature. For a 2,700-watt amplifier to be placed inside a small wooden cube (and operate efficiently enough that the cube doesn't burst into flames) is itself impressive. The combined acoustical output of the driver and passive radiator is even more

HIGH POINT
More than enough bass to break your lease.

LOW POINT
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impressive. Until I heard it, I would not have believed that such a small speaker could deliver deep bass at a sound-pressure level (SPL) easily surpassing 100 to 110 dB in my listening room. Finally, from a utilitarian standpoint, this sub's very small size allows flexibility in placement, and sub placement is crucial in any home theater. The combination of a powerful amplifier, speakers designed to handle that power, and small size make this a very, very impressive product. The word "break-through" comes to mind.

It is true that the True Subwoofer-Signature is the most expensive subwoofer I've auditioned in a while, but it is also the best. Now that I have it hooked up, I am going to have to listen through my entire CD and DVD collection from scratch, truly hearing the bottom octave for the first time. □

IN THE LAB

As shown in the graph, our close-miked frequency-response measurement of the Sunfire True Subwoofer-Signature produced an unusually flat result for a subwoofer. The green trace, showing the response with the sub set for "flat" operation, deviated by only ± 1 dB from 61 Hz all the way down to 25 Hz. The slight rise around 22 Hz will probably not be audible as such in most listening rooms. Besides, there is precious little program material with signals that low. Nonetheless, the Sunfire's bottom-end -3-dB point was an incredible 18.5 Hz, remarkable performance for any subwoofer, let alone a 13-inch cube.

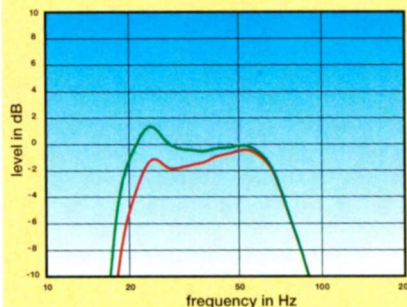
In most listening rooms, the manufacturer's recommended corner placement will produce a substantial low-

end response rise that would be hard to correct for if the subwoofer didn't have its own switchable gentle low-end rolloff. Switch the unit into its "video contour" mode, and you'll get the anechoic response shown in the red trace. With corner placement, this setting will produce a flatter response than the "flat" setting.

Even with the crossover frequency dialed full up to its 100-Hz setting, the graph shows that the upper end of the subwoofer's range rolled off starting at 60 Hz, with a -3-dB point of 70 Hz. I recommend using satellites with this speaker that play comfortably down to 100 Hz to avoid gaps in the frequency coverage. Larger satellites, such as THX-certified speakers, should do just fine, as should "full-range" floor-standing models.

Our standard-shaped tone-burst tests did not produce any signs of overload over the unit's frequency range at an equivalent 100-dB SPL drive level, much less a 90-dB drive level. Actual peak-level measurements with these tone bursts (close-miked measurements corrected to 1-meter anechoic figures), produced readings of at least 111 dB SPL at 50 Hz, 109 dB at 40 Hz, 104 dB at 30 Hz, and 92 dB at 20 Hz. In a typical listening room these already very loud SPL figures would increase substantially. This small, incredible box can move lots of air.

— David Ranada



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Matt Polk, Speaker Specialist

Maybe you don't need new speakers. Maybe you do. Here are some tips on how to know whether or not it's time for a change.

Do they work right?

The first thing to check is the woofer surround – the rolled edge of the driver. If it's made of compressed foam and more than 5 years old, it may be shot. Are there any holes or tears? Gently touch the surround, if it feels brittle, stiff and ready to crumble, you need new woofers. If the surrounds are rubber they're probably perfect.

The next thing to check is whether all the drivers are making sound. Play the speakers with the grilles off. Lightly touch all the drivers to feel if they're moving. Cup your hand over the tweeter, remove it. Does the sound change? If not, the tweeter is dead. Play a solo piano recording at a moderate loud level. If you hear scratchy sound or a buzz, the midrange or tweeter may be damaged.

If you have any doubts, bring the speakers in to a local audio store and ask them to check them out. Most dealers will be happy to help.

Are you happy with the sound?

Do they sound great with all the kinds of music you're listening to today? Some speaker companies voice their speakers to sound good with certain types of music (a bad policy in our opinion). If your musical tastes have changed since you bought your current speakers, it might be time for something better. But if you're really happy with the sound – stick with what you've got.

Do they look good? Do you care?

Do your current speakers look appropriate and fit comfortably in your room? Has your significant other banished them to behind the couch? Don't laugh, I know a household where that happened. Today's speakers are generally smaller and better looking, with better performance than speakers of ten years ago.

What will you do with the money you save?

If looks and size are not an issue, if everything's working OK and you like the sound, save your dough. Buy some new CDs or a DVD player or some flowers for your partner.



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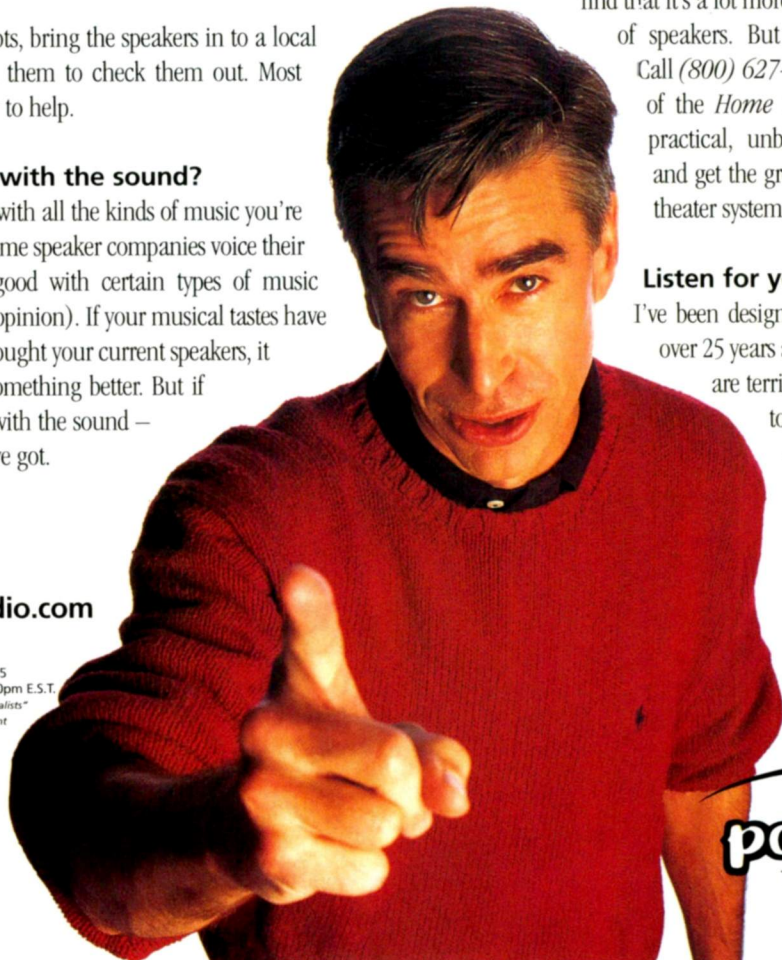
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SOLVING THE HOME THEATER PUZZLE

Starting from Scratch p. 76

Everything you need to know to get your first home theater up and running

From Stereo to Multichannel p. 81

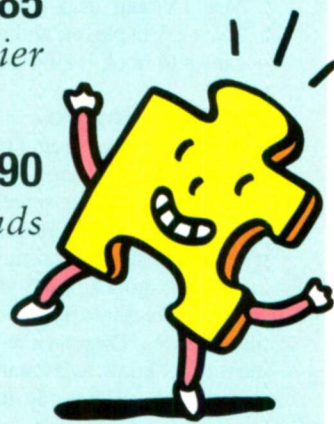
You might already have the basics for a top-flight surround-sound setup

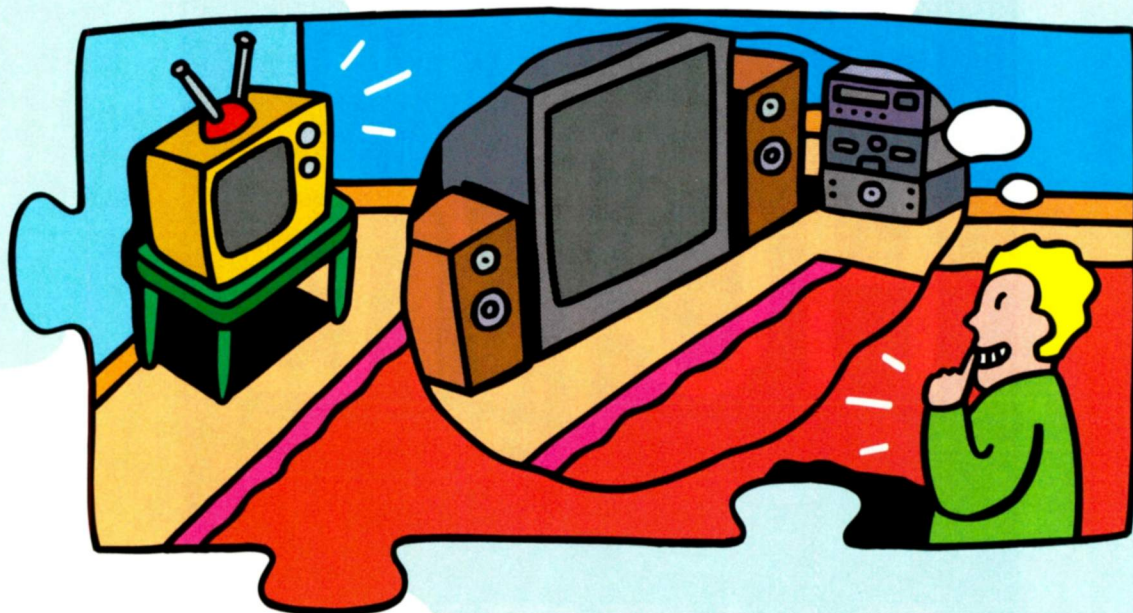
Installation: Doing It Yourself p. 85

Installing a home theater system may be easier than you think

Installation: Leaving It to the Pros p. 90

How to find a custom installer who understands your needs — and budget





STARTING FROM SCRATCH

OKAY, YOU'VE BEEN hearing and reading about home theater for some time and you've decided that it's something you'd really like to have. After all, who *wouldn't* want the excitement of watching favorite movies, TV shows, and sporting events on a big screen, accompanied by dynamic, room-filling surround sound? The fact is, setting up a great home-theater system is easier than you might think — and it doesn't have to cost a king's ransom.

You will need the following:

- ▶ a big-screen TV or video monitor
- ▶ an A/V receiver
- ▶ a surround-sound speaker setup
- ▶ A/V program sources, including not only conventional over-the-air broadcast TV, but also cable or satellite TV, a DVD player, and a hi-fi VCR
- ▶ cables to hook it all together

The Big Picture

To bring the moviegoing experience into the home, you need the impact of a large screen. A big screen draws you into the middle of the action, whether it's blockbuster action-movie mayhem or first-and-goal at the 5-yard line.

There are three types of video display devices. Direct-view TVs — what most of us know as a "standard" TV — use a glass cathode-ray tube (CRT) to

produce an image. For a home theater, go with a screen size of at least 27 inches, preferably larger.

Rear-projection TVs use three internal CRTs (one for each primary color) that are focused on a mirror inside the TV. The combined image is projected onto the viewing screen, which can be over 70 inches in size. Unlike yesterday's rear-projection sets, which were plagued by poor focus, lack of screen brightness, and limited viewing area, today's models provide superb image quality over a wide viewing area. Some rear-projection TVs are available with an aspect ratio that allows widescreen movies to be viewed as they were meant to be seen in a theater, without the pan-and-scan cropping or letterboxing necessary to fit them into the aspect ratio

of a conventional TV. Many rear-projection TVs also use image-enhancement technologies, such as progressive scan and line doubling, that can create a smoother, more filmlike image.

A front projector, the third type of video display device, is externally mounted and projects an image on a separate screen. Front projectors can provide the largest possible image — over 15 feet wide — in large-scale custom installations.

Choose a screen size based on your viewing distance. You should sit at least twice the distance away from the set as the screen size. For example, if you're thinking of buying a 50-inch TV, make sure you'll be seated at least 100 inches (8½ feet) from the screen.

You can buy a good 32-inch TV for less than \$1,000; top-of-the-line 36-inch direct-view sets sell for around \$2,500. Rear-projection sets range from \$1,500 for a 46-inch model to almost \$10,000 for an 80-inch set; most cost around \$2,000. A basic front-projector-and-screen combo will cost you \$6,000, and the sky's the limit from there.

Surrounded by Sound

A big picture is only half of the total home-theater experience — the other half is surround sound that fills the

by FRANK DORIS

SOLVING THE HOME THEATER PUZZLE

room with dialogue, music, and sound effects from every direction. While many big-screen TVs include excellent built-in sound systems, the true potential of home-theater sound can be realized only with a surround-sound setup using an A/V receiver (or separates) and six speakers: left, center, and right front, left and right surround, and a powered subwoofer.

An A/V receiver provides four to six channels of amplification, volume control and source selection, and surround-sound decoding electronics. Look for one with Dolby Digital decoding, which provides a discrete, full-range audio channel to each of the five main speakers along with a separate low-frequency-effects (LFE) channel sent to the subwoofer. Virtually all DVDs and many laserdiscs have Dolby Digital soundtracks, although DVDs of older movies use only the two conventional stereo channels.

A/V receivers also offer Dolby Pro Logic decoding for stereo or Dolby Surround-encoded two-channel source material. Pro Logic feeds a full-range audio channel to the left, center, and right front speakers, a bandwidth-limited mono signal to the rear surround speakers, and a summed-bass signal to the subwoofer. In addition, there will be a variety of "enhanced stereo" modes for music, an AM/FM tuner, and additional features depending on price and complexity. Some receivers also include decoding for DTS (Digital Theater Systems) surround sound — DTS is a different discrete 5.1-channel digital encoding system used on some CDs and laserdiscs.

A/V receivers can be quite powerful; many are rated at about 100 watts into each of the five main channels. Some receivers, as well as some home-theater speakers and other A/V components, are THX-certified, meaning that they

meet certain standards set down by Lucasfilm/THX to insure high-quality audio and video performance.

A basic Dolby Digital receiver costs \$400 to \$500. A high-powered receiver with both Dolby Digital and DTS will cost around \$1,000. THX-certified receivers begin at \$800 and can run upwards of \$3,000.

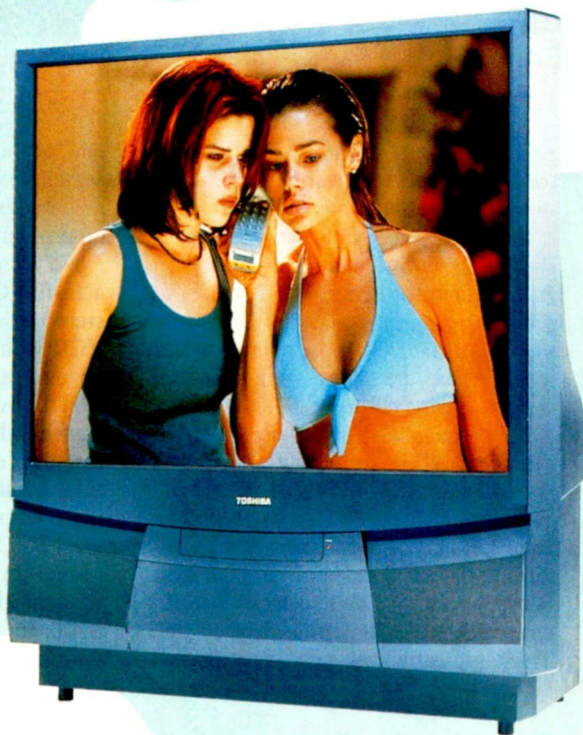
For those ultimate-performance home-theater installations, high-end separate components are available, rather than an all-in-one A/V receiver. These include preamp/processors (typically \$600 to \$5,000), "monoblock" and multi-channel power amplifiers (\$600 to \$2,500 and beyond), and even separate preamps and surround-sound processors (\$300 to \$3,000).

A good set of speakers is crucial to recreating the sound of a movie theater at home. Home-theater speakers are usually shielded to prevent their internal magnets from distorting a TV picture when they're placed close to the set.

The center-channel speaker is of prime importance, as it reproduces most of the dialogue. Center speakers specifically designed for this task use a horizontal driver configuration that makes it easy to put them on top of or under a TV. Such placement helps the dialogue coincide with the on-screen image, especially for off-center viewing positions. The left and right front speakers should closely match the center speaker in timbre, or sonic character, or sounds panned across the front will seem inconsistent. Manufacturers often offer matched systems.

Surround speakers can be smaller, less expensive, and even wall mountable. Full-range surround speakers that closely match the three front speakers are best for Dolby

Digital and DTS soundtracks, some of which contain full-range surround-channel information. Because the surround channels on movie soundtracks



Bigger is better: rear-projection TV screens can be up to 80 inches. Toshiba's TP43H60 (\$1,999) is 43 inches.

often contain mostly ambience information, many surround speakers are dipole designs, radiating sound both front and rear to create an enhanced sense of spaciousness.

Virtually all home-theater subwoofers are powered, with an amplifier built in, and can take the line-level subwoofer output from an A/V receiver. The augmented low-frequency response a subwoofer provides greatly increases the sonic realism of a movie soundtrack, especially action flicks with their explosions, car crashes, and stomping dinosaurs.

The speakers should be set up to create a seamless sonic blend. Symmetry is important: the left and right front and surround speakers should be at equal distances from one another and, if possible, from the side walls, and they should not be placed right up against the walls behind them or imaging will suffer. Surround speakers should be placed on either side of the listening



Dolby Digital receivers like JVC's RX-1024VBK (\$900) economically combine flexible processing with multichannel power.

SOLVING THE HOME THEATER PUZZLE



DVD-Video players like the Marantz DVD-810 (\$699) provide unsurpassed image and sound quality — and play CDs well enough that you don't need a separate machine.

position for best results, facing forward (or forward and backward in the case of dipoles) and *not* directly at the listener.

You can buy complete home-theater speaker systems (some even include an A/V receiver or surround processor) at prices ranging from \$600 for a one-box system to \$30,000 for a cherry-picked setup. There are many good-sounding options in the \$800 to \$2,000 range. Bought separately, center speakers are typically \$150 to \$1,000, surround speakers are \$200 to \$1,200 a pair, and subwoofers are \$300 to \$3,000. The front left and right speakers can be traditional stereo speakers, but your best bet is to use matched speakers specifically designed for home-theater use. These typically cost between \$300 and \$2,000 a pair.

Consider the Source

There are numerous options for video source components. For ultimate picture quality, DVD is the way to go. A DVD player can provide a spectacular image with up to 540 lines of horizontal resolution — twice as good as VHS — and superb color, clarity, and definition. (This assumes that your monitor allows for the maximum number of scan lines.) In addition, DVD offers a widescreen aspect ratio, Dolby Digital sound, a choice of language for soundtracks and subtitles, instant chapter access, and much more. Even the least expensive DVD players have excellent audio and video. Players start at \$350 today, and \$300 players are on their way for Christmas; a top-of-the-line one can be had for \$800 to \$1,000.

Satellite receivers also offer excellent picture and sound quality because the signals are transmitted digitally. Satellite TV offers a vast range of programming choices from a number of providers, including DSS, USSB, EchoStar, PrimeStar, and "big dish" C-Band systems. Dual-LNB receivers let you receive multiple programs in more than

one location in the house. Most satellite systems cost around \$500, and many manufacturers offer significant rebates on programming packages.

No home theater is complete without a hi-fi VCR, which is mandatory for stereo and surround sound (a mono VCR won't record or play back multi-channel audio). While the number of DVD movie releases is growing rapidly, we still have many years to go before they equal the tens of thousands of titles available on VHS. Besides, DVD isn't recordable (yet), so you'll still need a VCR to tape your favorite shows. Many are available, from basic models that cost around \$200 to high-end VCRs with performance and convenience features such as digital noise reduction and VCR+ programming (about \$500).

Standard off-the-air broadcast TV and cable TV provide a wide variety of standard and premium programming, much of it in stereo and Dolby Surround. The signal, though variable, can be excellent in quality.

Though rapidly fading in popularity, laserdisc players offer extremely good picture quality along with Dolby Digital or DTS surround sound for about \$500. Most companies are phasing out laserdisc hardware and software, but, as with VHS, it will be years before DVD can catch up with today's extensive laserdisc catalog.

All this equipment needs to be connected with the proper cables and interconnects. Many good audio, video, and speaker cables are available, including

flat cables designed to go under moldings or carpets for a clean installation. The advice of a good retailer can be invaluable here, and the same for purchasing the rest of the components in the system. And don't forget equipment cabinets and stands to house your home theater equipment neatly and elegantly.

What kind of video connection you use could have a big impact on how good your picture looks. There are three types of connections, in increasing order of quality: composite-video, S-video, and component-video. Standard composite video is what you get from the common F-type connector used for cable TV, or the RCA connectors used for the video output of a VCR. S-video connections, available on many TVs and A/V components, can provide a vastly sharper and clearer picture with far fewer video artifacts such as "dot crawl." Make sure, however, that *both* components have S-video connections. With component-video, found on many

DVD players and more and more TVs, the signal is fed from the source to the monitor through three cables. This transfers the signal exactly as it was mas-

Complete home-theater speaker systems like Polk Audio's RM 6500 (available in February 1999 for \$1,099) can simplify setup as well as shopping.



tered, thus avoiding the encoding/ decoding stages that are necessary for the other types of video connections and providing a noticeably better image.

Many factors will ultimately determine your home-theater equipment choices, including your room size, your preferred volume for listening, the types of programming you want to watch, and your budget. But the effort will be well worth it — home theater is, above all, *fun!* The only potential drawback: you and your family could enjoy your new home theater so much you'll never want to leave home! □

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FROM STEREO TO MULTICHANNEL

UPGRADING A TWO-CHANNEL stereo to a surround-sound system suitable for both movies and music should be simple. Just add a center speaker and a pair of surround speakers, three channels of amplification, a surround-sound processor, and a powered subwoofer to your existing setup, and you've transformed your tried-and-true stereo into an up-to-date home-theater powerhouse.

In practice, however, integrating the old with the new can be tricky. If you don't plan your upgrade carefully, you can end up with a system where a Harley becomes a scooter as it moves from speaker to speaker, or with one that's just plain awkward to use. Upgrading isn't necessarily difficult, but you do need to consider the options carefully in order to move gracefully from stereo to multichannel surround sound.

Reliable Sources

If you already own or plan to buy a DVD player, you'll also want a Dolby Digital (DD) surround-sound receiver or processor. Almost all movies on DVD have Dolby Digital soundtracks, many with 5.1 channels. Adding a DD receiver will give you the impact you expect from movie-theater sound.

Many VHS movies and TV programs use the older Dolby Surround format. To enjoy surround sound from these sources, you need a component that performs Dolby Pro Logic (DPL) processing, a hardware feature that enhances reproduction of Dolby Sur-

round-encoded software. (There is no such thing as a Pro Logic recording.) DPL is standard on virtually all A/V receivers. If you prefer separates, there are also DPL processor/preamps.

You can still get surround sound from Dolby Digital DVDs even if you have only a DPL receiver or processor. DVD players mix a 5.1-channel DD soundtrack down to a Dolby Surround-encoded two-channel signal and send that to the stereo analog outputs.

After decoding, a Dolby Surround recording provides a single surround channel with limited bandwidth (100 Hz to 7 kHz), but this is almost always played back through two speakers, usually placed to the sides of the listening position. Dolby Digital provides two discrete full-range surround channels as well as a dedicated low-frequency-effects (LFE) channel for use with a subwoofer (the ".1" in "5.1-channel" refers to this bass-only channel). The additional channel and wider bandwidth of the surround channels make listening to Dolby Digital much more like being in a digital-equipped movie theater than listening to Pro Logic. Pro Logic's single surround channel might get you to duck as a rocket flies overhead, but that additional DD channel will have you running for cover as missiles come at you from all directions.

Many laserdiscs have Dolby Digital soundtracks, and the DirecTV satellite service transmits some pay-per-view movies with DD audio. To hear DD sound from these sources, you'll need not only a DD processor or receiver but a laserdisc player or DSS receiver with a digital output. Dolby Digital is also the audio standard for the new digital television (DTV) system slated to go on the air in November.

Next year will bring two new audio formats, DVD-Audio and Super Audio CD, capable of multichannel surround playback with much higher encoded resolution than the two-channel CD. If these formats interest you, you might want to wait a year or two until players that can handle the next generation of audio discs reach a reasonable price.

If you don't want Dolby Digital processing right now, at least plan ahead by making sure that whatever home-theater receiver or preamp you buy can accommodate an add-on DD processor. DD-equipped components have become

by **GORDON BROCKHOUSE**

SOLVING THE HOME THEATER PUZZLE



The center speaker, usually placed on top of the TV, is most important for movies. Shown: Boston Acoustics' CR2 (\$200).

so inexpensive in the past year, though, that there aren't many reasons left not to buy one.

Dolby Surround and Dolby Digital are the dominant surround-sound formats, but there's also upstart DTS (Digital Theater Sound) to consider. This 5.1-channel scheme competes directly with Dolby Digital in both the home- and movie-theater markets. Since DTS uses less compression than DD, some people feel it can provide better sound. DTS currently has about 70 laserdiscs and 50 CDs in its catalog, but with DVD it has proven to be not just a Johnny-come-lately but a Johnny-come-slowly. By early fall it hadn't even announced its first DVD releases. No first-generation DVD players, and only some second-generation models, can play DTS soundtracks. For compatibility, DTS-encoded DVDs may also contain two-channel Dolby Digital soundtracks.

Surround Speakers

Because Dolby Surround has a single, bandwidth-limited surround channel, in a Pro Logic system you can get away with mediocre surround speakers. But the livelier and more complex DD soundtracks require surrounds with a flat, uncolored response and an extended high end. They don't need to be able to reproduce deep bass because DD processors and receivers have a bass-management feature that redirects low frequencies from the surround and center speakers to the subwoofer (or the

main front left/right pair if there is no subwoofer).

Surround speakers come in four varieties: dipoles, bipoles, dipole/bipole hybrids, and ordinary front-radiators (monopoles). To create a diffuse surround effect, dipole, bipole, and hybrid surrounds are typically installed on either side of the listening position, with the drivers facing the front and rear of the room, rather than aimed directly at the listener. Monopole surround speakers, which are typically aimed toward the front of the room, create a less diffuse effect but make it easier to locate discrete sounds.

With a dipole, the drivers on each side of the speaker operate out of phase, and the listener is in a "null" where the output from the front and back cancels out. Dipoles can create a very spacious effect. With a bipole, the two sides operate in phase, and the effect isn't nearly as spacious. Hybrids can be switched between dipole and bipole radiation, depending on the effect you're going after. You should audition the different types to decide which you prefer.

Living with Multichannel

There are several day-to-day usage issues to consider with multichannel

sound. If you use a limited number of video sources, your TV may be able to handle the video switching. If you use several sources, however, you'll want an A/V processor or receiver that can switch both audio and video signals.

An improved picture can make all the difference with a widescreen film, taking the image from muddy to marvelous. I strongly recommend buying equipment with S-video inputs and outputs. DVDs and satellite TV broadcasts both look much better with S-video than with standard (RCA-jack) composite-video. Component-video connections can yield an even better picture, but these are currently available in only a few TVs and A/V components.

Ease of use is also important. Put yourself in the place of the least techno-savvy member of your household, then look for a system that person could use comfortably, even if it means buying a new A/V receiver. A system where you have to switch audio signals on an old receiver, switch video signals on the TV, and control volume for video sources on an external surround processor but use the receiver for music sources isn't going to promote domestic harmony.

Making It All Work

Once you have an idea what you're after, you have to decide if your current equipment will fit in. Assess your speakers first. If they're getting long in the tooth, don't sound that great, or have limited bass or power handling, it might be time to look for a matched set of new home-theater speakers. If your existing stereo speakers are up to snuff, though, you'll likely want to use them as the main front pair. But if you're looking for better sound quality and prefer monopoles over dipoles, you can still use them as surrounds.

If your current speakers sound neutral and uncolored, they should mate well with other speakers that are neutral and uncolored. No speaker is perfectly flat, however. Two different speakers that are said to be neutral can still sound different, if not objectionably so. New speakers of the same brand as your current pair are less likely to have inconsistent sound, but there's no guarantee of this. Many manufacturers use



To hear the deep bass in many movie soundtracks you need a subwoofer, like Velodyne's CT120 (\$599).

SOLVING THE HOME THEATER PUZZLE



Many surround speakers, like the Phase Tech Model PC (\$700 a pair), are designed to be mounted on the wall.

similar components and the same design approach throughout their lines, so their products have a consistent character. You should ask the manufacturer of your existing speakers for suggestions on what newer models will be a good match.

The sonic differences caused by the varying room conditions around each speaker can be greater than the differences between similar speakers. Because it's sitting on top of the TV instead of standing out in the room, even a "matched" center-channel speaker is going to sound different from the main front pair. (Many manufacturers take this into account when designing their center speakers, however.)

You should also assess your room. Where are you going to put the speakers and other components? Does the room impose constraints on speaker choice? In my L-shape family room, for instance, one of the surround speakers has to go into a corner. Although I like the spacious character of dipole, bipole, and dipole/bipole surrounds, my room forces me to use direct-radiating surround speakers.

Next, decide if you can integrate your existing amplifier or receiver into the system. It is simpler to upgrade from a separate preamp and power amp than from a receiver. Just buy amplifiers for the additional channels to use with your existing one. Several manufacturers offer three-channel amplifiers

to supplement the two channels you already own. If your stereo receiver has pre-out/main-in jacks, however, you can use its preamp section to switch audio sources and to control volume and some other settings and use the power-amp section to drive the two surround channels.

If your receiver lacks a pre-out/main-in loop, you can use a tape loop to send two-channel audio to the input of a surround-sound processor and return surround-channel audio from the processor to the receiver. You won't be able to adjust the volume of audio sources with your receiver, however, so make sure the surround processor will let you adjust it for sources connected to its analog inputs. And make sure no one fiddles with the receiver's volume setting once you've adjusted levels for each surround channel! (Put tape over the controls.)

Because of all the Dolby Surround software and programming still around, you're probably going to want both DD and DPL processing. A processor/preamp will give you both surround-sound modes plus audio and video switching. A less expensive alternative is to buy a DPL-only processor with a six-channel input for an external surround-sound source and a DVD player with onboard DD processing. But that leaves the DD processor unavailable for other DD sources, such as digital or satellite tele-

and Yamaha have inputs for an external processor.

Many Dolby Digital processors also do Dolby Pro Logic processing, but they can only work on digital signals. Quite a few DVDs have two-channel DD soundtracks encoded for Dolby Surround, so this capability is useful. While DD processors usually have analog inputs (for two channels with some products and six channels with others), not all have analog-to-digital converters. Those that don't simply route an analog input signal to the line-level analog outputs. That means the processor can't do DPL decoding on analog program sources such as videotapes, so you'll also need a DPL processor.

Make sure the Dolby Digital processor you buy has the appropriate type of input (coaxial or optical) for the output from your DVD player. It will also need an RF/AC-3 input if you want to play DD-encoded laserdiscs. And make sure it has enough digital inputs for source components you'll want to add in the future. A surround-sound processor or receiver with a six-channel analog input should accommodate future signal sources such as DVD-Audio.

Movin' On Up

If you have a good two-channel music system, you should be able to use many of your components in a home-theater surround system. If you decide, after



An outboard surround processor like Yamaha's DDP-2 (\$399) lets you upgrade to 5.1-channel Dolby Digital surround sound without having to replace your existing receiver or preamplifier.

vision, and DVD players with DD processing are usually less flexible than DD receivers and processors in areas like bass management.

Unfortunately, your choices for a one-piece DPL upgrade component are limited to Adcom, AudioSource, and Yamaha, all of which offer units combining a DPL processor with a two- or three-channel amp for the center and surround speakers. None of these include DD processing, but the Adcom

considering all of the options, that it's not worth the trouble to integrate your current equipment into a new system and it's better to start from scratch (see page 76), don't worry. With the prices of DVD players and Dolby Digital gear dropping rapidly, that alternative isn't as daunting as it once was. Either way, it will take only a few hundred dollars to put you in the crowd at the World Series, on the deck of the Titanic, or in a rocket to the moon. □



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INSTALLATION: DOING IT YOURSELF



THERE'S NO SUCH THING AS A plug-and-play home-theater system. Any setup worth its salt involves wiring together a considerable number of components, mounting and positioning six speakers, and setting sound levels and adjusting the TV image. This can all seem intimidating if you haven't done it before, but there's not much to basic home-theater installation that you can't do yourself given a little bit of planning and some sage advice.

What You Can and Can't Do

A custom home-entertainment system today can be anything from a modest home-theater setup in a family room to a six-figure, multiroom extravaganza containing scores of components. The range of options between the two extremes represents an ascending order of installation difficulty and complexity — from slightly challenging to extremely demanding.

"Extremely demanding" is any installation involving diverse subsystems, like lights and security, with in-wall

control panels placed throughout the residence. It can also mean a system that integrates computers with home-entertainment equipment. Both require a solid knowledge of electronics as well as mastery of construction skills (carpentry, wiring, and spackling). The expertise needed can't be acquired by watching the crazy antics of Tim the Tool Man.

Even a neophyte do-it-yourselfer can install a single-room home-theater system without too much trouble, though. You'll even find it relatively easy to create a simple multiroom setup by adding some stereo extension speakers around the house or out on the patio. Such uncomplicated systems are the kind we'll focus on.

Space Matters

Careful planning before you buy a single component will save you lots of unnecessary work later on. Start by con-

sidering the space you and the system will share.

Ideally, you should use a room that allows a generous amount of unoccupied floor space between the speakers, the TV, and the viewer. While it's obvious that you don't want furniture blocking the screen, it's almost as important to leave the space between the speakers and your ears unobstructed. Any objects in between will reflect or absorb the sound, changing the time relations between channels and preventing the sound from matching the action on the screen.

It's also best to use a room that can be darkened completely, just like a movie theater. This is especially important if you opt for a projection TV since the picture will not be as bright as that of smaller direct-view sets.

You won't always want to watch in the dark, of course, and if you're fanatical about picture quality, the color of the walls and furnishings also matters. Subdued colors give the best results, with grayish tones the least likely to in-

by **DAN SWEENEY**

SOLVING THE HOME THEATER PUZZLE



A surge protector/line conditioner designed especially for home-theater systems, like the Panamax MAX 1500 (\$449), is preferable to a generic power strip. This one can power up your equipment in sequence.

terfere with a screen image's color balance. That's why gray is so prevalent in theaters and TV studios, but it's not the first choice of most home decorators.

Less important, but still desirable, is to use a symmetrical room that is closed on all sides. Rooms with large openings on one side will cause imbalances in the soundstage created by the speakers. Large openings also make it difficult to block out the card game in the next room when you're trying to watch your favorite movie. It's also best to pick a room with solidly constructed interior walls that do not readily pass sound.

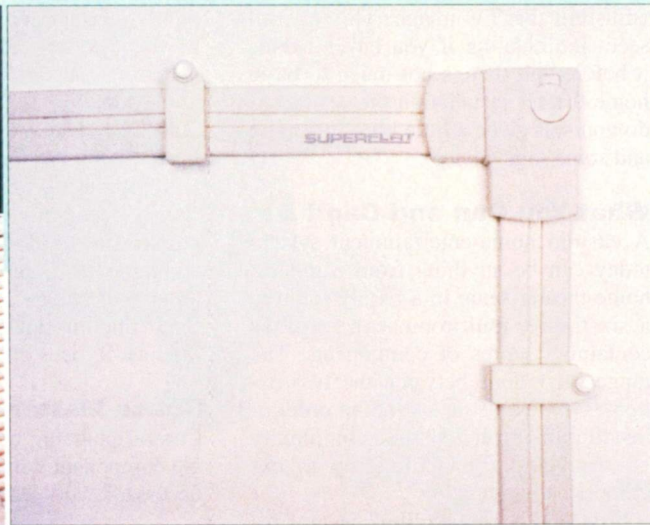
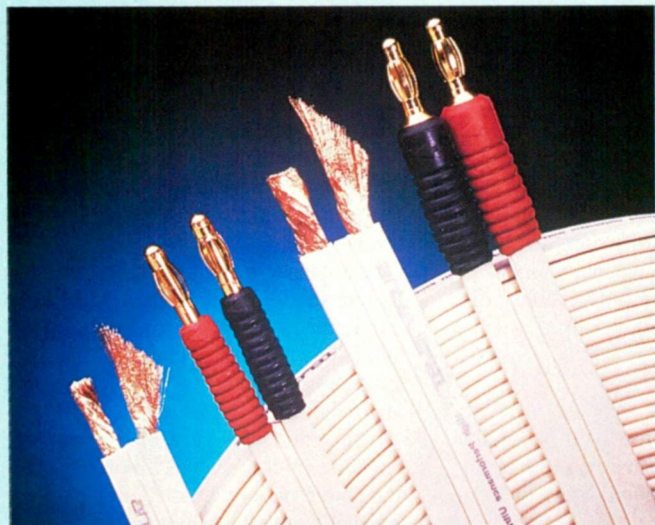
Excellent home-theater systems can be constructed in rooms of almost any size, though large rooms are best for bass reproduction and can suggest the space of a real theater. Bigger rooms also, however, require higher-output speakers or more powerful amplifiers to achieve clean, theaterlike volume at the listening position. And if you plan on using a very large projection screen, you'll need an expensive high-output video projector to get satisfactory brightness. A large basement is often an excellent choice for an entertainment room. Basements are dark, quiet, usual-

ly rectangular, and tend to have solid walls with nothing but dirt on the other side. Just be sure yours doesn't leak!

Rectangular rooms tend to provide the best acoustic balance, particularly in the bass. The worst-sounding room is a cube. But don't despair if you don't have the perfect room. Many speaker manufacturers provide detailed setup information for placing their speakers in less-than-ideal environments.

A good room should have a mix of hard and soft surfaces. Carpeted floors are definitely recommended, and you can also enhance sonic imaging with thick hangings on the side walls to absorb the strongest reflections from the speakers. Complex, hard surfaces, such as figurines and bric-a-brac, in the back of the room reduce mirrorlike reflections by scattering the sound. Professional acoustical treatments provide the highest level of performance, but many people object to the appearance of dedicated sound-absorbing or sound-reflecting materials, even when they're covered with designer fabrics.

If you think your room needs extensive acoustical modifications, consult an installer with demonstrated competence in this area. The Custom Electronic Design & Installation Association, or CEDIA (800-669-5329; Web, www.cedia.org), can provide a list of dealers in your area who have met its criteria for certification. A home theater can also be effectively soundproofed to keep sound from leaking out or coming



Flat speaker cables, such as these SuperFlat cables from Monster Cable (\$1.50 a foot), offer greater installation flexibility than conventional round cables by running under rugs, carpets, or moldings. The company even sells joints to let them go around corners.

SOLVING THE HOME THEATER PUZZLE

in, but this requires elaborate structural work that is best left to the pros.

Getting Wired

Components like large TVs and high-power amps can each draw several hundred watts from the wall outlet at full sonic tilt, so it's not a good idea to run a whole system from a power strip plugged into a single socket. Ideally, every high-power component would have a separate socket and a separate circuit, but that can get expensive. At a minimum, your home-theater system should have its own dedicated power circuit, one that's not shared with kitchen appliances, a washing machine, or even a computer. Computers in particular are potent sources of electrical noise, and they can interfere with audio and video equipment if they're on the same circuit or even set up adjacent to the entertainment system.

Many people do their own wiring, but I don't recommend it unless you're willing to learn the applicable building codes. Poorly installed AC power circuits not only compromise equipment performance but can become fire and shock hazards. If you do decide to do your own rewiring, make sure that correctly terminated safety grounds are installed on all wall sockets.

Most problems with power-line hum are caused by poorly installed house wiring. If you're getting electrical work done prior to installing your system, use an electrician with some experience in how A/V equipment interfaces with the power line.

Speaker Tips and Cautions

Once you've chosen a space and prepared it for installation, you need to decide whether you want free-standing or in-wall speakers. The decision will have a big impact on how much work lies ahead before you can kick back and enjoy your home theater.

The good things about in-wall speakers are that they tend to be visually unobtrusive and they don't eat up precious living space. Chances are, though, that you'll get a better-sounding system using free-standing speakers that cost the same as good in-walls.

For the do-it-yourselfer, the biggest problem with in-walls is that they don't make it easy to experiment with alternate placements. If you're not thrilled

with the sonic results once you've mounted a speaker in your wall, you'll have to pull it out, respack, and start over again somewhere else. Also, you can't audition in-wall speakers at home, so you're buying them on faith.

Free-standing speakers also require careful placement to sound their best, and they do intrude on living spaces, but it's fairly easy to get satisfactory results in most rooms with a little patience. And if you still don't like the sound after several trials, many dealers will let you return them in exchange for another model. In general, they're the safer bet.

In-wall speakers are not terribly difficult to install, however, provided you're reasonably handy. Carefully study the manufacturer's recommendations for mounting, positioning, and spacing *before* you begin cutting holes in your walls! Most in-walls come with a mounting template to help you position and cut the hole. Once the hole is cut, you typically screw the mounting plate onto the wooden studs rather than the unsupported wallboard. Use an electric or magnetic stud finder — available at building-supply stores — to locate the studs.

You will have to snake the speaker wire through the walls, and that can be tricky. Walls made of masonry or glass bricks are out of the question for most do-it-yourselfers. If your walls are heavily insulated, you might have to remove a lot of fiberglass to free paths for the wiring.

If at all possible, get a blueprint of your house showing the AC wiring and phone conduits before you cut any holes. If you're not *sure* what's behind a wall, put the saw down! If your house has old-fashioned lathe-and-plaster walls, you should hire a professional plasterer to do the work.

Be very careful to keep speaker cables away from power lines because AC current can induce hum in speaker wire. Also, hook up the speakers to the rest of the system, make sure the cable connections are secure, and test the speakers before tightening the mount-

ing plates. You don't want to open up the wall because of a faulty connection.

The basics of how to position free-standing speakers are covered in "Starting from Scratch" (page 76), so I won't go into that here. But wall and stand mounting, as distinct from in-wall installation, is another matter.

Most left and right front speakers are intended to be placed away from walls, out into the room, and most center speakers are intended to sit on top of or below a TV set. Many surround speakers, however, are designed to be placed *on* — not *in* — side walls, and that usu-



Some wall-mounted surround speakers use brackets that allow them to be aimed appropriately. Others, like the B&W DS 6 dipole (\$300 a pair), need to be mounted flush to the wall.

ally involves affixing wall-mounting brackets. These are usually supplied by the manufacturer with the speakers, or offered separately, though brackets are also available from accessories manufacturers.

As with in-wall speakers, wall-mounting hardware should be fastened directly to the building studs. Follow the manufacturer's recommendations for the best positioning of its speakers. Most surround speakers sound best if mounted high up and directly across from, or slightly behind, the central lis-

SOLVING THE HOME THEATER PUZZLE

tening position, rather than directly behind it.

A home-theater system requires a separate cable run to each of the three front speakers and the two surrounds. If the subwoofer is powered, as is usually the case, it requires only a line-level connection — but that still means a wire. If you leave speaker cables ex-

posed on the floor, someone will probably trip over them, perhaps damaging a speaker — or the person! — in the process.



The grilles on in-wall/ceiling speakers often come in a variety of colors or have paintable frames so they can blend in. Shown: the Parasond CS/T-255A (\$265 a pair).

posed on the floor, someone will probably trip over them, perhaps damaging a speaker — or the person! — in the process.

If you have large rugs or wall-to-wall carpeting, the easiest solution is to run flat speaker cables under the floor coverings. Failing that, you can snake cables through walls, along the molding or baseboard, under the floor, or through the attic. A basement run is probably easiest, if your home theater sits right above it, because you don't have to run the cables up or through the walls but can simply string them bare along the basement ceiling.

Up to a point, thick cables are better than thin ones because they provide lower electrical resistance and better power delivery, but there's no hard evidence that cable thicker than 14-gauge "zip cord" is better for runs of less than 100 feet. Zip cord works fine as long as it's not too thin (avoid 18-gauge or higher), and it's cheap and convenient — just roll it out and cut off what you

need. But dedicated speaker cables look better, may be sturdier and more resistant to interference, and will provide a strong connection with practically all standard binding posts.

Speaker-cable and amplifier terminations are important because that's where loose connections commonly occur. Most high-quality amps and speakers



use binding posts that will accept banana plugs, spade lugs, or bare wire. Spring-loaded, professionally dressed, gold-plated banana lugs that are soldered to the cable are best, but these cables cost considerably more than plain old zip cord with bare-wire ends.

Rack It Up

For a do-it-yourself installation, open equipment racks are better than custom cabinetry secured to the walls. Electronic components generate heat that must be dissipated, and the only safe way to do it with an enclosed installation is to include ventilating fans, which are a pain to install properly. With open racks, there's no problem. Also, with the rear-panel connections easily accessible, open racks make setup easier than cabinets with doors and backs.

Use racks rated for loads of at least several hundred pounds. Your current equipment may not weigh that much, but what if you upgrade later? Steel-plate, heavy acrylic, or high-density

fiberboard shelves are far superior to particleboard, which tends to warp and flake apart. To avoid transmitting vibrations from one component to the next as well as heat buildup, give each piece a separate shelf. Don't stack electronic components on top of one another.

The standard RCA interconnect cables that come with most equipment are serviceable but certainly not perfect. Some high-end gear accepts the same balanced three-pin (XLR) connector cables used in professional audio equipment. Such cables and connectors are robust and provide secure connections that minimize noise, but they are considerably more expensive and relatively rare in home audio.

A brief note on front-projection video systems: Projectors can be placed either on a tabletop or suspended from the ceiling. Most manufacturers offer ceiling-mount kits at extra cost. As with speaker wall/ceiling mounts, be sure to secure the hardware directly to studs in the ceiling.

In Control

Basic single-system controls, which can operate curtains and lights as well as A/V equipment, are easy enough to install if you take the time to think through what you want the controller to do. Multiroom systems using shared signal sources should be left to the professional installers. With multiroom installation, amateurs shouldn't attempt anything more elaborate than installing stereo extension speakers. And don't run more than two speakers from one amplifier channel unless the amp is designed to drive multiple speakers.

Showtime

Allow plenty of time to install a system. Setting things up quickly because you want to have your buddies over to watch the game of the week on a big screen may result in damaged equipment. Finally, keep in mind that it's easier to build a new system using matched speakers and matched audio electronics than to get a bunch of old and new components of various brands to work together smoothly.

If you take your time, think carefully about what you want your system to do, and follow the manufacturers' recommendations, you'll do fine. So relax — you really *can* do it yourself. □

See Bob Rock.

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It's a small eleven inch square bass cube, and it shakes the walls and rattles the rafters. It has its own built-in two thousand, seven hundred watt amp!

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SUB REVIEWS



"The True Subwoofer is an achievement on par with the space shuttle and the twinkie."

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Home Theatre, Feb. 97



"Talk about floor shaking bass...turned up to maximum level, I don't think there was anything in the house that wasn't shaking, including the concrete foundation!"

"Don't, I repeat, don't even think about purchasing another subwoofer without giving the Astonishing True subwoofer a listen"

—Joseph M. Cierniak

The Sensible Sound, Issue # 60



"The lowest, flattest, deepest bass I have EVER heard or measured."

—Julian Hirst

Stereo Review, Dec. 96



<http://www.sunfirelabs.com>

Bob Carver's
Sunfire
from his mind ... and soul

*Strictly speaking: for 20 years or until patent expires.



INSTALLATION: LEAVING IT TO THE PROS

CUSTOM INSTALLATION MADE its reputation with elaborate systems for the ultra-rich that rival the movie palaces of the past. That reputation has caused a lot of people to rule out hiring an installer because they assume it will cost too much. A custom home theater *can* be expensive, but careful consideration of what you need will often show that having an installer do it is better all around than doing it yourself.

Your skill level and how serious you are about home theater determine where do-it-yourselfing leaves off and custom installation begins. If you're good at running wires behind walls and cutting holes in ceilings or walls to mount speakers, you could have the electrical and mechanical smarts to install a basic home-theater system. If you prefer free-

standing speakers and aren't too concerned with how your system looks, you probably don't need to consider custom installation at all.

On a basic level, custom installation is for people who want to hide their electronic equipment and prefer to get their speakers off the floor and mount them on or in the walls or ceiling. At the luxury level, it can mean the design and installation of special drapes, seating, and lighting. But there's more to custom installation than aesthetics. A professional home-theater designer is an expert in construction and wiring, interior design, room acoustics, screen and speaker placement, audio and vid-

eo hardware, video calibration, and control systems — to name a few relevant areas. A good custom installer makes an audio/video system perform to its full potential in an attractive way.

"There's a huge body of knowledge required to do a home theater right," says Jeff Kussard, managing partner with Clarity Residential Systems in Minneapolis. An installer first considers whether the room is suitable for both audio and video. For optimal viewing, the screen size should be proportional to the viewing position. Kussard's rule of thumb is that the viewer should be at a distance 1.3 to 1.8 times the diagonal width of the screen. For best audio reproduction, he recommends that the width of a room be 1.6 times the height and the length 2.6 times the height. So for a 10-foot ceiling, a room should measure 16 x 26 feet.

Room acoustics is one of the most overlooked aspects of home theater, according to Kussard. An installer should be concerned both with sound in the room and with sound leaking in and out. "Most people don't realize how big a role the room plays in the overall performance of a sound system," he says. A good custom installer uses framing techniques, insulation, special air ducts, sound-absorption materials, and even elaborate construction tricks to keep the sound of passing airplanes and noisy air conditioners out of the space. And, of course, it's just as important to prevent the explosions in *Independence Day* from rattling the rest of the house. Some high-end home-theater installations even use a "floating" concrete floor to isolate the transfer of sound.

You don't have to add a room to the house or spend \$100,000 on design and construction to get a good home theater. "No matter what the budget is, anyone can benefit from custom installation," says Steve Hayes, owner of Custom Electronics in Falmouth, ME. "A good custom installer understands the dynamics of audio, has access to the right equipment, and knows how to install and calibrate it in the right way."

How do you find a good custom installer? The best place to start is the Custom Electronic Design & Installation Association, or CEDIA (800-669-5329; www.cedia.org). The 9-year-old trade group was formed to make people aware of custom installation and to ele-

by **REBECCA DAY**

SOLVING THE HOME THEATER PUZZLE

vate the business sense, education level, and installation skills of its members. Before they can become CEDIA members, installers have to provide manufacturer and customer referrals, show proven business experience, and have whatever licenses and insurance are required for their states.

Hayes says that CEDIA accreditation is a good starting point, but you should also make sure that an installer has what you need. "Look for installers who have access to a breadth of equipment," he says. The installer should offer you at least two or three options for each component.

Most reputable installers have a showroom where they can demonstrate home-theater options in a lifelike setting. Installers who have showrooms are different from so-called "trunk slammers," who work from their cars and so have no place to demonstrate their services. While most showrooms are in retail spaces, some A/V installers display their work in affiliation with an interior-design center.

When you visit the showroom, consider the neatness of the installation. How well are the wires concealed? Is the picture bright and crisp? Is the sound well balanced and free of resonances? Test-drive the system to get a feel for its ease of operation. Are the remote controls easy and intuitive to use?

After you've seen the showroom, ask to visit a home that has one of the company's installations. At the very least, ask the installer for references and call them. "Ask if they were treated fairly, if they were given a number of options, and whether the installers were clean, neat, and professional," Hayes recommends. Also ask if the work was done on time and if the client received the services needed. "We are contractors, and the customer should expect a certain level of professionalism," he says. "If your system goes down, it's going to be on Super Bowl Sunday or an equally big day. We're closed that day, but you can get hold of us. All of our installers have pagers."

At Clarity Residential Systems, custom installations range in cost from \$8,000 for a basic system with A/V components and a rear-projection TV to more than \$400,000 for a system with high-end gear in a dedicated room. Most of the home theaters installed by

Custom Electronics fall in the \$50,000 to \$250,000 range, which includes design, cabinetry, equipment, installation, and calibration. "But you can also spend a lot less," says Hayes.

Custom Electronics runs an informal "self-installation school" for clients who want their systems to have the advantages of a custom installation but can't afford an installer. The company sells do-it-yourselfers wiring diagrams, sample layouts, and cabinet designs based on installations it's done. "If you can work with a screwdriver, then I can help you, but I warn people what typically

happens," Hayes says. "Nine times out of ten, once they get into it and realize what's involved, they end up hiring us to finish the job. And then the time and materials cost more than if they'd engaged us at the beginning."

You can benefit from a custom installer's knowledge and experience even if you're on a tight budget, according to Hayes. "No matter what scale of home theater you're looking at — whether it's \$1,000 or \$1 million — you'll get a better return on your investment if you have a custom installer do it than if you don't." □

PHOTOS BY D.R. GOFF/QUICKSILVER PHOTOGRAPHY; STAR TREK—FIRST CONTACT IMAGE COURTESY PARAMOUNT



A custom installation like the one shown above may involve numerous refinements that are beyond the abilities of most do-it-yourselfers, including slide-out component shelves inside built-to-fit cabinets (left) or ceiling-mounted surround speakers (right).

EXECUTIVE



Foreground: Marantz MR2020. Back, left to right: Denon D-M7, Pioneer LifePlus NS-7, Kenwood Avino, and Technics SC-HF55. The Onkyo EX-1850, JVC FS-7000, and Bang & Olufsen BeoSound 2300 are shown and reviewed in the following pages.

DECISION

DESKTOP SYSTEMS: Do they have the power and style to make it at the top?

You're the Head Honcho, the Big Cheese, the Top Banana, the Boss, the Man — and you got where you are by making the tough decisions timid souls fear. Then one day, in pursuit of music to take the edge off your dog-eat-dog world, you find yourself faced with a unique dilemma. You have to choose between eight ambitious office-size music systems that all claim they're right for the job. What to do? Do you go for style, size, price, or sound? Or is there one system that has it all?

The past few years have seen the so-called executive desktop system emerge as a major player in the minisystem world. Bang & Olufsen, a company known for stylish, big-ticket audio gear, really defined the category with small, good-sounding all-in-one systems that sport a serious "gee whiz" factor. The success a couple years ago of JVC's \$380 FS-2000 helped bring executive systems within the reach of the masses. Others followed, and now there's a healthy variety of affordable desktop systems to choose from.

Don't let the "executive" tag fool you. Most of these systems are suitable for cottages, dorm rooms, apartments, bedrooms, kitchen counters — even the cluttered desktop of the lowliest office cubicle dweller. They're for anyone who's short on space but still wants decent sound.

Executive systems are defined primarily by a small footprint and a sense of style. All of the systems reviewed here include an amplifier, a tuner, a CD player, and a remote control. Two have a separate bass module, three have a cassette deck, two have a three-disc CD changer, and two even offer

BY RICH WARREN

NOVEMBER 1998 STEREO REVIEW 93



PHOTOS BY DAN WAGNER; MODEL, VIC MOROSCO

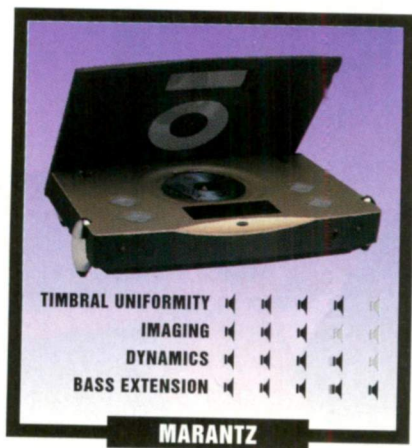
profile systems in this group, but you need a foot of space above it to allow the lid to open, so it doesn't save any vertical space. It's about as wide as the four-component systems when they are stacked two by two.

The system is best operated through the small, logically laid out, 14-button remote control. Clearly marked buttons of varying sizes control most of the functions. Since the unit's display faces up, you cannot see it when using the remote from across the room or if you place the system even slightly above eye level.

The MR2020 has four fixed digital equalization settings in lieu of tone controls, but to my ears they detracted rather than added to their nominal musical genres; "Pops," Rock, "Classic," and Jazz. There is a Dynamic Bass Boost circuit as well as a Space-Phonic mode that added a pleasant airiness to some music.

The tuner delivered the expected number of FM stations with good fidelity. AM reception was very good but sounded no better than a table radio.

Marantz supplied a massive sub-



woofer (not just a typical minisystem bass module) with our review sample of the MR2020. I made all my sonic evaluations of the system using the subwoofer, with its level control turned barely a quarter of the way up. Past that point it literally shook my walls.

The sound was smooth and natural overall, with ample bass. The vocals were particularly natural. The system

maintained anyone from the mainroom will be able to set it up. Pioneer tins the speaker leads for the spring-clip connectors, but a dedicated plug/jack system would be better. The back of the woofer enclosure leaves the driver unprotected.

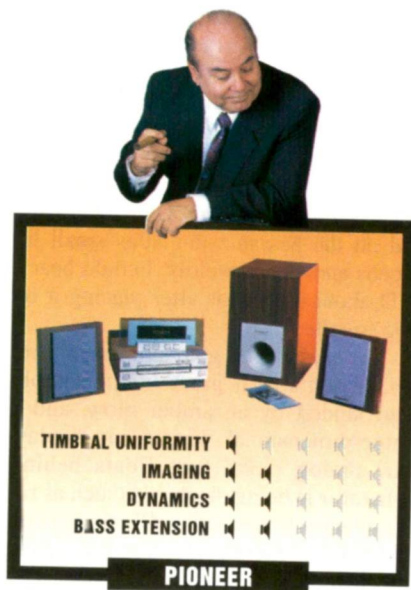
Marantz should consider providing a manual as elegant as the system itself — one that is free of tangled Japanese syntax. The manual makes no mention of the subwoofer. Also, since the components only work with each other, installing plugs on the speaker wires and jacks on the main unit and speakers would simplify hookup.

PIONEER LIFEPLUS NS-7

The engineers and designers at Pioneer sat back, thought through the concept of a small, elegant audio system from scratch, and came up with the LifePlus NS-7 (\$800). This brilliantly executed minisystem combines a power amp, preamp, tuner, and CD player in one chassis about as big as a ream of legal-size paper. The brushed-aluminum system unit can be hidden away, as long as you can get at it when necessary to change a CD.

A 4½-foot cable connects the system unit to an attractive display/control panel that contains an infrared sensor for the remote. You can choose four brightness levels for the blue dot-matrix display, and I was able to read it from across the room. Keyholes let you hang the display panel on the wall. An aluminum block in front of the Lucite panel that frames the display has four large buttons for the main controls. Six keys on top of the display control less often used functions. All of the controls are duplicated on a clearly labeled 18-key credit-card-size remote, which has a plastic stand so you can prop it up on your desk.

The shallow, plastic French-made speakers are about the size of a paperback novel and have rosewood frames around tasteful gray grilles. Even the separate bass module (it's too small to be a true subwoofer) carries forward the design statement with an attractively machined aluminum port mounted in rosewood.



The quiet CD player, which loaded smoothly and quickly in 5 seconds, resists shock admirably. Good FM reception compensated for so-so AM reception, which was easily susceptible to interference. You can program radio-station call letters to appear on the display instead of the frequencies or station preset numbers. You could take a power nap lulled to sleep by the CD player and wake up to stock prices on the radio, or vice versa.

Pioneer trades a degree of aural satisfaction for visual beauty. An uneven response resulted in a thin midrange with an edgy vocal quality. Setting the three-position woofer level (accessed via a menu) to "high" helped to improve the overall balance somewhat. Because the crossover between the satellites and woofer is in the upper-bass region, I was at times able to pinpoint the location of the bass module, so it should be placed fairly close to, or between, the satellite speakers. The limited power of the LifePlus amp and the limited dynamic range of the small speakers make this an intimate system. While the high

NOVEMBER 1998 STEREO REVIEW 93



with the MiniDisc option, you receive two similar remote controls: the system remote, with 37 keys, and the MD remote, with 38 keys. The system remote will operate only the basic MD functions. Clear white lettering on a black background compensates somewhat for the keys' lack of differentiation — they're all the same shape, size, and color. The instruction manual is poorly translated from Japanese, but it's fairly complete and easy enough to understand for the most part.

Pressing the "Pure A" key on the front panel of the receiver switches the amplifier to Class A mode, which is said to lower distortion at modest listening levels. While the manual recommends switching out of Pure A for "higher volume" listening, it never fully explains what Class A is. I detected a slight difference between Pure A and standard operation. In general, the sound seemed to have greater "warmth" in the Pure A mode. When the receiver is turned off, the same key cycles the Auto-Power-Save feature, which turns the whole system off 30 minutes after the conclusion of a tape, CD, or MD.

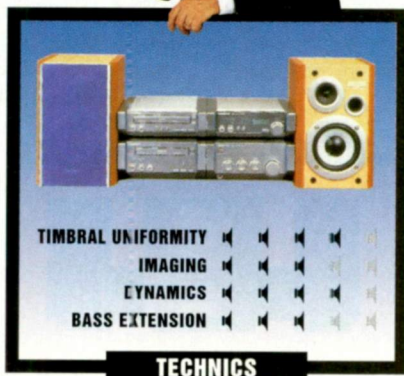
The level control, a large motorized knob, exhibited the strange anomaly of a sudden jump in volume when the control passed the 12 o'clock position. The two-setting Natural Bass (NB) key invokes a bass and treble boost that can either be independent of the volume setting or relative to it; the latter is similar to a loudness contour.

You can view CD Text on the MD display. The CD player demonstrated excellent shock resistance and took only 5 seconds to load a disc and begin playing. The cassette deck, with both Dolby B and C, made very good-sounding recordings. There's no manual level setting or metering, but the recorder will sample the source and set the level accordingly. AM reception was poor, but unless you live in a fringe area or the center of a major city, you should get satisfying FM reception.

The response was a bit peaky, creating a strident sound, although the NB settings tamed this somewhat. Vocals generally sounded good, but female voices were a little nasal and constricted. The imaging was also somewhat fuzzy. The system's inability to play loud without distortion was a surprise considering the amp's low distortion ratings and the relatively large speakers.

TECHNICS SC-HF55

The Technics SC-HF55 (\$700) is an extremely well-balanced minicomponent system with back-to-the-future styling. The integrated amp, tuner, CD player, and cassette deck can be stacked or placed two by two. The burnished-aluminum front panels use old-fashioned toggle switches, rocker switches, and knobs as well as a few contemporary control keys. Light panels extending from the left and right of each component bathe the face plates in a cool blue, giving the system a rather ethereal



appearance. You can turn the lights off if you wish. The tuner's large, blue fluorescent display, easily readable from across the room, functions for the entire system and disappears when the power button is turned off unless you select the clock feature. The courteous display says "Hello" on powering up and "Good-bye" when shutting down.

The tune/jog dial simplifies many operations and makes tuning more convenient than with any of the other systems I evaluated. One key even triggers a demonstration of the various tone-control settings. Technics claims that the amplifier operates in Class A but with the efficiency of a Class AB amp. As icing on the cake, the system comes with a very good, clearly written and illustrated instruction manual.

The modest-size remote control's 34 widely spaced, clearly marked keys make the handset easy to operate. A

cursor pad for tuning/tape motion provides easy direct track access to CDs as well as radio presets.

The SC-HF55 is an integrated system, with the main power supply in the amplifier, so there's only one AC power cord. The components are interconnected with computer-style ribbon cable, which makes for logical, fairly easy assembly. Even the speaker wires are color-coded in black and bright red to simplify keeping them in phase.

The CD took only 5 seconds to load and play, but its shock resistance was rather poor and the laser lost its place on the disc when trying to recover from a slap on the side. The system displays CD Text, and you can program CD titles into memory for display.

The AM radio reception was good but lacked high-frequency response. The FM performance was very good. The similarly excellent cassette deck all but hands you the tape on ejection. Even though it only incorporates Dolby B and uses a fixed recording level, the sound was crisp, clean, and noise-free, a surprise for a recorder in such a moderately priced system.

The speakers' natural-sounding tonal balance treated vocals especially well. The Technics system produced room-filling sound. The BLFS ("brisk low-frequency sound") setting only detracted from the otherwise satisfying bass response. The system should sound at home in both large and small rooms and could play fairly loud without noticeable distortion. While you won't confuse them with B&W 801s, the 11-inch-high speakers produced a solid image that seemed pretty real for a \$700 minisystem. They have bird's-eye maple inlays on top and blue grilles to match the system lighting.

DENON D-M7

The Denon D-M7 (\$1,000) finds its destiny on the CEO's desktop. Of all of the systems reviewed here, this one came closest to matching the performance of full-size components. Denon made few compromises in shrinking a receiver, three-disc CD changer, cassette deck, and optional MD deck to desktop dimensions. Because I had to cope with power cords, audio interconnects, system interconnects, and an optical digital link between the CD player



and MD deck, wiring the system together was only marginally easier than with the Kenwood Avino.

The front panels, which are finished in silver with gunmetal gray edges, contain most of the controls. The system's understated appearance would make it fit in any top executive's office, or any well-furnished home. Besides the standard large, motorized volume knob, the receiver actually has knobs for bass, treble, and balance. The large remote control is as attractive and well thought out as the components. Its 15

large control keys are of different shapes, sizes, and colors and they perform all basic system operations. Sliding the front cover down reveals 39 secondary control keys, also differentiated by size, color, and shape. Denon supplies a second, more mundane remote control for the optional MD deck, although the main remote will also operate its basic functions.

The CD changer uses three separate drawers, so you have instant access to any loaded CD. It operated smoothly but rather slowly, taking about 10 sec-



BANG & OLUFSEN BeoSound 2300/BeoLab 2500

Bang & Olufsen (B&O) was making executive desktop systems when the silicon in today's systems was still sand on the beach. The company has produced ever smaller, ever more elegant designs that serve as conversation pieces as much as audio systems. But B&O systems can be expensive. The one I checked out cost more than twice as much as any other system reviewed here.

The BeoSound 2300 tuner/CD player (\$1,700) stands upright with the CD transport in full view. Wave your hand near it, and glass doors slide silently aside, providing access to the CD player and to 40 identical tiny, rectangular control keys with clear white legends printed on their rubbery black surfaces. A pair of narrow, elongated green dot-matrix displays show the current function and other information, such as track numbers. B&O has created some arcane key combinations to control various functions. For example, to switch from FM to AM (or vice versa) on the front panel, you have to press "Go To" and then "Turn."

Once you press play and remove your hand, the doors slide shut, lights illuminate the transport from both sides, and music pours from the speakers. The powered BeoLab 2500 speakers (\$1,000 a pair) must be plugged into AC outlets. B&O uses multipin DIN connectors to wire the center unit to the speakers. The drivers occupy one side of each baffle, and since a switch on each speaker selects the right or left channel, you can swap the speakers for wider or narrower stereo separation without changing the cables.

The long, heavy, 25-key remote control (made of metal, not plastic)

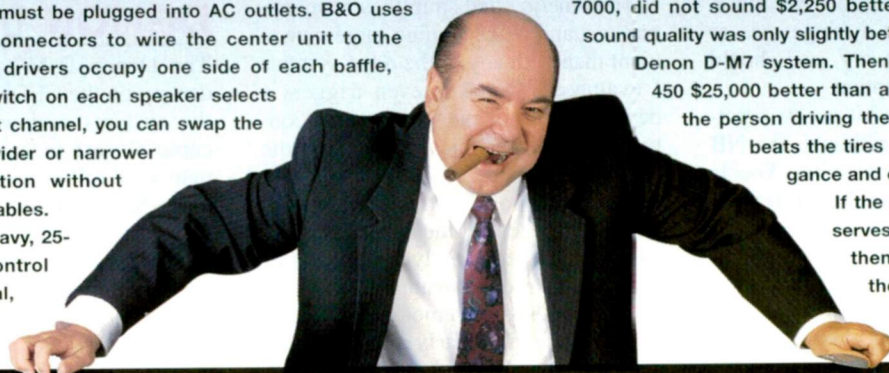
has a multicolor cursor pad at the center and a rocker volume key between the stop and off keys toward the bottom. The large LCD that fills the top of the handset shows the selected function and confirms certain commands. You can program track or disc titles from 100 CDs into memory. The display flashes "Illegal" when you exceed the limit. You can also label radio presets by station name or format.

B&O supplies two well-written, attractively designed instruction manuals. One advises on setting up the system, the hardest part of which is installing the sliding glass doors, and the other discusses operation.

Fortunately, the BeoSound 2300 is more than just a pretty face. The tuner, both AM and FM, combined good reception with pleasing sound quality. The clip-on rabbit-ears FM antenna, while basically a simple dipole, worked far better than the limp wire supplied with most gear. CDs sounded superb.

The BeoSound 2300 may be all curves and elegance, but it flexes its muscle with soaring dynamics. The curved speakers with their diffraction ridges created a sonic image that matched B&O's aesthetic profile. They also produced natural, rich bass. But this \$2,700 system, while better than the little JVC FS-7000, did not sound \$2,250 better, and the overall sound quality was only slightly better than the \$1,000 Denon D-M7 system. Then again, is a Lexus 450 \$25,000 better than a Toyota Camry? To the person driving the Lexus, it certainly beats the tires off a Camry in elegance and class.

If the CEO's desktop deserves the Denon system, then the B&O goes to the Chairman of the Board. — R.W.



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Stereophile Guide to Home Theater, Fall 1997.

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onds from loading until I heard music. Shock resistance was good.

The cassette deck, which records with Dolby B or C noise reduction, automatically adjusts levels. Tapes recorded with Dolby B sounded excellent, and when I played tapes recorded on other decks they sounded superb.

The tuner includes RDS (Radio Data System) circuitry and displays all mes-

sages broadcast by RDS-equipped radio stations. Not only did it deliver good AM reception, but the AM fidelity was better than that of any other tuner in this group. FM reception and sound were also very good.

The D-M7 is the only minisystem I know of that comes with branded speakers. The pair of Mission MS-731i speakers contributed mightily to the

outstanding sound of this system. Their smooth response gave superb quality to vocals and full, natural bass. Dynamically, this system did justice to pianissimo and fortissimo and everything in between. The Mission speakers produced a rivetingly realistic image. If you choose a desktop system strictly by sound, this is the one, even if it does hog a bit of real estate. □

SYSTEM HIGHLIGHTS

	Price ¹	CD player	Cassette recorder	MiniDisc recorder	Speakers (enclosure, drivers)	Bass module	Rated power output	Dimensions ²	Weight ³ (H x W x D)	Highlights
BANG & OLUFSEN BEOSOUND 2300/ BEOLAB 2500 1200 Business Ctr. Dr., Suite 100 Mt. Prospect, IL 60056 800-323-0378 www.bang-olufsen.com	\$2,700	1-disc player	no	no	ported; 1" tweeter, 4" woofer; powered (65 watts)	no	n/a	14 ¹ / ₄ x 12 ⁵ / ₈ x 6 ³ / ₈ inches	44 pounds	sliding glass doors; multipin connectors for easy hookup
DENON D-M7 222 New Rd. Parsippany, NJ 07054 973-575-7810 www.denon.com	\$1,000	3-drawer, 3-disc changer	yes; with Dolby B/C, HX Pro	optional DMD-M7 (\$599)	ported; 1 ¹ / ₈ " tweeter 5 ¹ / ₄ " woofer	no	30 W/ch	15 x 8 ¹ / ₃ x 13 ¹ / ₂ inches	26 pounds	RDS tuner; optical digital CD/MD interconnects
JVC FS-7000 1700 Valley Rd. Wayne, NJ 07470 800-526-5308 www.jvc-america.com	\$450	top-loading 1-disc player	no	no	ported; 3 ¹ / ₄ " cones	no	13 W/ch	8 x 5 ¹ / ₂ x 11 ³ / ₄ inches	9 ⁵ / ₈ pounds	subwoofer output; double-layer fluorescent display
KENWOOD Avino P.O. Box 22745 Long Beach, CA 90801 800-536-9663 www.kenwoodusa.com	\$500	1-disc player	optional X-SE7 (\$200) with Dolby B/C, HX Pro	optional DM-SE7 (\$400)	ported; 1" tweeter, 5" woofer	no	Class A, 7.5 W/ch; Class AB, 20 W/ch	12 x 7 ³ / ₄ x 9 ⁷ / ₈ inches	19 pounds	Class A/AB amplifier; CD Text
MARANTZ MR2020 440 Medinah Rd. Roselle, IL 60172 630-307-3100 www.marantzamerica.com	\$1,000	1-disc player	no	no	sealed; 1/2" tweeter, 3 ¹ / ₂ " woofer	powered subwoofer (80 watts); 6 ¹ / ₂ " driver	25 W/ch (satellites only)	4 x 18 x 12 ¹ / ₂ inches	20 pounds	digital tone control; Dynamic Bass Boost; choice of grilles
ONKYO EX-1850 200 Williams Dr. Ramsey, NJ 07446 201-825-7950 www.onkyo.co.jp/	\$550	1-drawer, 3-disc changer	no	no	ported; 1" tweeter, 4" woofer	no	20 W/ch	5 x 7 ¹ / ₄ x 15 inches	11 pounds	Super Bass circuit
PIONEER LifePlus NS-7 2265 E. 220th St. Long Beach, CA 90810 800-746-6337; www.pioneerelectronics.com	\$800	1-disc player	no	no	ported; 2 ⁷ / ₈ " cones	yes; 6 ¹ / ₄ " driver	20 W/ch, satellites; 30 W, bass unit	3 ³ / ₈ x 8 ³ / ₄ x 12 ¹ / ₄ inches	9 pounds	separate, dimmmable fluorescent display
TECHNICS SC-HF55 One Panasonic Way Secaucus, NJ 07094 800-222-4213 www.panasonic.com	\$700	1-disc player	yes; Dolby B	no	ported; 2 ³ / ₈ " tweeter, 4 ³ / ₄ " woofer	no	70 W/ch	14 x 8 x 11 ⁷ / ₈ inches	24 ¹ / ₂ pounds	CD Text; Class A mode; bass-boost circuit

¹ manufacturer's suggested list price ² for stacked electronic components or system unit, not speakers ³ total for electronic components, not including speakers



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John Atkinson, Stereophile, Vol.20 No.10



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IT'S BACK! *Stereo Review's* second official A/V I.Q. quiz poses a baker's dozen questions to test your knowledge of audio and home theater. Remember: you're looking for the *best* answer to each multiple-choice question; occasionally there will be another answer that is correct but incomplete. See the next page for the answers — but try to get through the test first!

1 A compact disc is recorded

- A. on the playing side.
- B. on the label side.
- C. on both sides.
- D. in the middle.

2 A laserdisc has

- A. digital video and digital audio.
- B. analog video and digital audio.
- C. analog video and both digital and analog audio.
- D. not much future.

3 Reproducing a musical peak 20 dB above the average level requires

- A. an extra octave of treble.
- B. twice the amplifier power.
- C. 20 times the amplifier power.
- D. 100 times the amplifier power.

4 An absolute minimum for a home-theater setup is

- A. a large-screen television.
- B. a popcorn machine.
- C. a Dolby Digital decoder.
- D. a video source component with a stereo output.

5 The ideal frequency response for an FM tuner is

- A. 15 Hz to 30 kHz ± 3 dB.
- B. 30 Hz to 15 kHz ± 0 dB.
- C. 20 Hz to 20 kHz ± 3 dB.
- D. 20 Hz to 20 kHz ± 0 dB.

6 Satellite speakers are

- A. small speakers designed for use with a subwoofer.
- B. ideal for music videos from your dish.
- C. full-range bookshelf speakers.
- D. for use in a second room.

7 A MiniDisc is read

- A. center to edge.
- B. edge to center.
- C. as dictated by its Table of Contents.
- D. hardly at all.

8 Dolby Digital is

- A. a discrete 5.1-channel surround-sound system.
- B. an advanced tape noise-reduction system.
- C. a method for removing fingerprints from CDs.
- D. the encoded two-channel audio on most laserdiscs.

9 When a speaker enclosure has a hole in it, it could be

- A. inefficient.
- B. drafty.
- C. a bass-reflex design.
- D. an infinite-baffle design.

10 Virtual surround sound

- A. simulates the acoustics of a real movie theater.

- B. simulates multichannel sound using only a pair of speakers.
- C. is a new and incompatible surround-sound standard.
- D. will only play family movies.

11 A DVD purchased abroad will

- A. have dialogue and subtitles in a foreign language.
- B. play anywhere in the world.
- C. play only for an additional fee.
- D. not play in North America.

12 Headphones that rest on the ears are called

- A. supra-aural.
- B. circumaural.
- C. binaural.
- D. monorail.

13 In a home-theater system, the surround speakers

- A. reproduce dialogue intended to come from the rear of the room.
- B. "fill in" missing elements of the frequency spectrum.
- C. provide ambience and the occasional localized sound effect.
- D. anchor the soundstage by reproducing low-bass frequencies.

SCORE HOW YOU RATE

- | | |
|-------|--|
| 0-2 | Don't go into a discount electronics store alone. |
| 3-5 | Time to extend your <i>Stereo Review</i> subscription. |
| 6-9 | I bet your friends ask you to help set up their systems. |
| 10-11 | The nickname "Tweak" is starting to grow on you. |
| 12-13 | Hey, you buckin' for my job? |

A/V I.Q.

answers

1 B. The laser that reads the information on a CD is shone through the clear disc from the "playing side," but the actual indentations that contain the data are on the far side, underneath the label.

2 C. The original laserdisc was totally analog, both video and audio. The video remains analog, but digital stereo soundtracks were later added to most laserdiscs, and still later Dolby Digital soundtracks. To accommodate the extra Dolby Digital information along with the stereo digital audio, the analog soundtracks have been reduced to mono.

3 D. The decibel scale is logarithmic, so there's no direct correlation between a 20-dB peak and a 20-fold increase in power. A 3-dB increase in level requires twice the power, and a 10 dB increase requires, coincidentally, about 10 times the power, but a rather louder 20-dB peak needs 100 times the power, which is why you should always buy as much wattage as you can afford.

4 D. A big TV is nice, and Dolby Digital is impressive. But you can watch on a modest set, and Pro Logic works just fine on surround-encoded stereo videotapes and laserdiscs — as long as you play them on stereo equipment. It won't work on mono signals.

5 B. For most equipment, "D" would be ideal, and "C" would be pretty good, but "B" is all that's really necessary for a tuner because 30 Hz and 15 kHz are the limits of what FM stations are allowed to broadcast.

6 A. Delegating the lower frequencies to a subwoofer instead of trying to reproduce the full audio range lets satellite speakers be small and relatively unobtrusive, which are especially advantageous for home-theater applications. Bookshelf speakers might benefit from a sub, but they are usually designed to produce enough bass to be used on their own. Speakers used in another room are called "remote" speakers.

7 C. CDs are read from center to edge, LPs

from edge to center, but MiniDiscs operate on a whole different principle. A brand-new MD is recorded from center to edge, but as soon as tracks are deleted or re-ordered, subsequent recording will produce tracks that, like computer files, may be scattered all over the disc. They are reassembled during the playing process under direction of the disc's Table of Contents, a kind of audio-oriented disc operating system (DOS).

8 A. Although Dolby is renowned for developing several generations of noise-reduction systems, Dolby Digital isn't one of them. "D" is a matrix-coded system called Dolby Surround, recorded in noncompressed pulse-code modulation (PCM) digital form, like a CD, and decoded by a Dolby Pro Logic decoder.

9 C. Also called "ported" or "vented." While a ported speaker today may or may not be inefficient, early models tended to be more efficient (sensitive) than other sorts, like "D," which is a sealed-box design. The

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Harry Pearson, HP's Workshop, *The Absolute Sound*, July/August, 1998

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best-known type of sealed-box speaker is called acoustic-suspension.

10 B. It's a new and somewhat spooky technology for messing with your brain through applied psychoacoustics. It's only "A" in the sense that all home-theater systems try to sound like the real thing. It's not "C," because virtual surround systems work with any kind of surround-encoded software, some even with plain old stereo.

11 D. Movie companies release their products at different times in different parts of the world, and they want to prevent "gray-market" movie DVDs from showing up in countries where they haven't yet been officially issued. Therefore, "B" is usually ruled out because studios have the option to include a "regional code" on their DVDs that tells players what parts of the world they can be played in legally. Only if the player's built-in code matches that of a regionally coded DVD can the disc be played. While "A" is likely also to be true, because a DVD can contain a number of different dialogue and subtitle languages at the same time, it is almost certain to include English versions as well. "C" is true only of Divx DVDs.

12 A. Circumaural phones surround the ears, with pads resting on the head. "Binaural" refers either to the way we hear (with two ears) or to a special recording technique that simulates a natural perspective by positioning a pair of microphones about the same distance apart as human ears, sometimes mounted in ear canals in a dummy head. As for answer "D," you probably wouldn't want a monorail either on or around your ears.

13 C. When you play a four-channel Dolby Surround recording through a Dolby Pro Logic decoder, the single surround channel — played through two speakers in the rear or sides of the room — mainly provides ambience. Because Dolby Surround derives from the encoding for optical film soundtracks, its surround channel is sharply limited at both the bass and treble ends of the spectrum. In Dolby Pro Logic playback, effects such as a plane roaring overhead from the front to the back may not be as realistic as in 5.1-channel Dolby Digital playback, which can produce two discrete, full-range surround channels. In most systems, including those in the best movie theaters, low bass is reproduced by a subwoofer, so "D"

is false. Surround channels can carry the same kinds of information as the front channels, if necessary, so "A" is partly true, but dialogue coming from a surround channel is extremely rare even among Dolby

Digital soundtracks. "B" is implausible, since at least the main front speakers in a home-theater system (or the main fronts in combination with a subwoofer) are usually full-range. □

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Confessions of an A/V Junkie

SOME PEOPLE MIGHT LOOK AT Charles Cowen's audio/video system and dismiss it as a pile of junk. In fact, a lot of people have. But that doesn't stop the Charlottesville, VA, recording engineer from his pursuit of used audio and video gear. A yard-sale scavenger and an outlet-store bargain hunter, Cowen is constantly on the lookout for other people's high-quality rejects. His system's "not pretty," he concedes, "but it sounds good and it was a relatively inexpensive way to start."

Cowen figures that over the years he's spent \$10,000 on his revolving sound system, but it could have easily totaled more than twice that if he had paid full price. And then there's the profit angle, which Cowen hasn't figured into the equation. "I've made a certain amount on resale, too," he adds.

Collecting A/V equipment via *Penny-saver* postings isn't for everybody, Cowen says. You need a lot of patience to find the gems among the rubble. "I run across a lot of crappy old stuff," he admits, "but maybe twice a year I come across a great find."

Among great finds are the record players, "because nobody's listening to records anymore," he notes. His most prized catch was an "almost-new" Yamaha PF-50 turntable, which he snatched up for a mere \$25 but estimates could be worth as much as \$400. When working a sale, Cowen is careful not to let on that he's a stereo collector, and he low-balls bids using a bit of a dumb act. Timing is key, too. "The guy was moving, and it was raining so nobody showed up, and he gladly took the 25 bucks," he recalls. "It was good for me because I have 500 LPs and the turntable is in great shape."

Cowen doesn't audition the equipment he scavenges but relies on detailed visual inspections instead. He's not fooled by polish and wax jobs, and he goes under the hood by pulling off speaker grilles and tape-deck windows. "You can always clean up the outside, but you can't really clean up the inside," he says. "I take

the grilles off and examine the [driver's] foam surround — to see whether it's cracked and if I can push it in and it comes back out with no problem. And I look for cracks and rips in the cones, too, which tell you that someone has been playing the speaker too loud."

Yard sales are a great place to find speakers, Cowen says. He picked up a pair of Polk Audio speakers with stands for \$35. "That's crazy," he says. "They were probably three or four years old and in mint condition." Polk speakers are particularly good finds because of their resale value, he reports. In fact, he sold them two weeks later at a \$30 profit.

The other impressive yard-sale pickup in his current system is a JVC TD-V621 three-head cassette deck. He pulled the cover off the tape mechanism and examined the heads for "gunk" before clinching the deal. Then he interviewed the owner as though he were buying a car.

"I ask how long they've owned it, what problems they've had, and whether it's ever been fixed," he says. Sometimes, he notes, you have to use street smarts. "If the owner is 50 years old and is selling what he says is a three-year-old model you've never heard of, then it's probably a lot older than that."

Cowen also makes sure he gets an owner's manual. "A lot of people don't ever look at manuals, or they throw them away," he says. "But," he adds pragmatically, "if you keep the manual it's an easier sell."

Cowen has learned the hard way. "You're going to buy a few lemons at the beginning, but as you become more experienced you know what to look for." In Cowen's case, he once paid \$25 for a tape deck that he discovered didn't work. "I had it fixed for \$70," he says. "With a tape deck there are so many little parts that can go wrong."

As a buyer and seller of used A/V gear, and as a recording professional working at PMD Recording (www.pmdrecording.com — see inset photo), Cowen knows

the importance of protecting his investment for both financial and listening reasons. Several times a year he cleans all the rear-panel RCA jacks with a cotton swab and denatured alcohol to keep the connections clean. He uses an antistatic spray made for electronics products to minimize dust buildup. And he cleans the tape heads on his JVC, Nakamichi DR-2, and Sony DTC-690 (DAT) tape decks at least once a week. He also uses a rubber cleaner called Regrip to clean the pinch-rollers that guide the tape. "If you use the same cleaning solution as for the heads, it cracks the rubber," he warns. Regrip keeps the rubber soft and clean — to reduce chances that tapes will be devoured by dirty equipment.

Cowen's best bargains have come from yard sales, but the ratio of exceptional

PHOTOS BY ELIZABETH LARSON DUNHAM. SPHERE IMAGE COURTESY WARNER HOME VIDEO





discoveries to time invested works heavily against him. His best source of value buys these days is a local Crutchfield outlet store, where he scours the seconds bins for products others have returned. "If it weren't for this outlet store, I wouldn't have the stereo system I have now," he says. "People buy products and then return them right away for whatever reason. The store can't put them back on the shelf as new so they have to discount them, but they still come with a warranty. It's a great thing."

Among his discount-bin buys are a Sony S-3000 DVD player, SLV-920HF VCR, MZ-R30 portable MiniDisc recorder, and the DAT deck, an Infinity RS-Video center-channel speaker and SM115 main speakers, and a Cerwin-Vega HT-10PWR subwoofer. He bought his Sony

28-inch TV at Circuit City and landed a pair of Cerwin-Vega AT-8 surround speakers for \$20 at an auction for the ASPCA. The Bose 121 Mobile Monitors, which he uses as front-channel effects speakers, were the best deal of all — a donation to the system from a friend.

But there are three components in his system that Cowen wanted so much he plunked down full price. He shelled out more than \$2,000 for his Yamaha DSP-A3090 integrated amplifier and figures he could still score \$1,500 for it today on the street, but this piece isn't for sale. "It's a fabulous amplifier," he says, citing its "clear, crisp sound," eight speaker outputs, and generous power allocation of 80 watts each for five channels plus another 25 watts a side for front effects. He bought a Yamaha CDC-901 CD player

new as well, because it fit nicely with the rest of the system — and he couldn't find it in the seconds bin at the outlet store.

He also bought the Nakamichi DR-2 at top dollar and was well rewarded for the decision. "I made a demo tape on both the DAT machine and the Nakamichi," he says. "To this day, the Nak sounds better."

Now Cowen is on the prowl for some NHT speakers. "We use them at the studio to audition CDs because they deliver so much clarity and detail," he says. If his regular sources don't come through, he might explore buying and selling in cyberspace. "The World Wide Web bites at me, because you can find anything you want on the Net. But I'm still leery because I can't touch and feel the gear, and some of those deals are just too good to be true."
— Rebecca Day



MARIA MOCHNAOZ/ISLAND

all manner of the blues on 1995's album of the year, *To Bring You My Love*. In 1996 she benched her band persona to collaborate with guitarist John Parish on the duo record *Dance Hall at Louse Point* (she wrote the lyrics, he wrote the music), but today it's P J all over again — by which I mean she brings us love, but on *Is This Desire?* (Island, 42 min) it's even more harrowing. And it's... gone!

Lilith fare, it ain't. Scanning the song titles, however, you might think it's merely PG Harvey. Many of them refer to women: "Angelene," "My Beautiful Leah," "A Perfect Day Elise," "Catherine," "Joy," and "No Girl So Sweet" (and, by association, the title track). Others refer to nature: "The Sky Lit Up," "The Wind," "The Garden," and "The River" (and, by extension, "Electric Light"). But these women are often torn and frayed: Angelene is the "prettiest mess you ever seen," Leah "only had nightmares," and Joy "wanted to go blind." And nature is often no more than a refuge: "The Wind" is your only companion high up in the hills, "The River" is where you throw your pain.

Women and nature are inextricably linked on *Is This Desire?* as characters (Dawn, Catherine) and elements (especially the wind) reappear in several songs. So is there an overall storyline here, possibly summed up by the closing title track? I can't say for certain. Provided with no ex-

planatory press release, no interview transcript, no printed lyrics, and no advance videos, I am left with my imagination. And you with yours. And that's just the way it should be with an album as powerfully suggestive as this one, a work that tells of sadness, sin, murder, and hell but a work that can also be most telling in a simple line like "there was trouble taking place."

Just as the song titles may initially mislead, the pretty sound of the opening "Angelene" may have you worried that Harvey has wimped out. But it's just a cover for the character's ache — and from there, Harvey leaps into "The Sky Lit Up," an abrasive, nearly industrial rocker that ends in a burst of wailing and drumming. It's the start of a sonic roller-coaster ride, deftly played by Harvey, Parish, and original drummer Rob Ellis, among others, and imaginatively produced by Harvey and avant-recordist Flood.

One minute, "The Wind" is ethereal; the next minute, a monster bass forces "My Beautiful Leah" from her lover. One minute, a sinister synth carries "Electric Light"; the next minute, a lingering piano blossoms in "The Garden." There are disturbing sound effects and stealthy underground riffs. Often, Harvey and crew are masters at integrating hip-hop rhythm tracks into her British rock balladry. Throughout, she continues to stake her claim as the heir to Peter Gabriel's early vocal gymnastics: she coos, shrieks, distorts herself, declaims in a drawl, and, in "No Girl So Sweet," masquerades as a guitar. All this and more in 12 songs, all but four of which are under four minutes (and one of which is under two minutes). No padded CD here: Harvey gets into a song, says what she has to say, and gets out. And I, for one, am left wanting for nothing in the wake of *Is This Desire?*

Is this 1998's album of the year? The race isn't over yet, but this is a grand slam by an artist whose career is already measured in superlatives. *Ken Richardson*

BEST OF THE MONTH P J Harvey/*Is This Desire?*

Eager for another home-run derby? By my count, Polly Jean Harvey is batting a thousand, having now driven four albums out of the studio in her four solo trips to the platter. In only six short years, she has led the biz in grunge guitar on 1992's *Dry*, Steve Albini gorge guitar on 1993's *Rid of Me* (as well as its work-in-progress, *4-Track Demos*), and

HOLE *Celebrity Skin*

(DGC, 51 min)

★★★

The most honest thing about Hole's *Celebrity Skin* may well be its title. Glossy and glamour-obsessed, the CD has nothing to do with the seamy underworld of Hole's debut record, *Pretty on the Inside*, or the alternative nirvana (pun intended) that spawned *Live Through This*. In fact, it would be difficult to name a band that has changed more radically over the course of three albums. From the title track's opening guitar lick — which recalls Pat Benatar's

GUZMAN/DGC



Hole: Courtney Love, Eric Erlandson, Patty Schemel, Melissa Auf der Maur

"Hit Me with Your Best Shot" — *Celebrity Skin* is a great-sounding album that revels in Hollywood artifice. It's also a live-sounding set that lists five programmers in the credits, dispensing big pop hooks with the vaguest hint of punk danger. If nothing else, it's the album that Concrete Blonde always dreamed of making.

What's certain is that Courtney Love got her money's worth from whatever voice lessons she took. Her vocals display a depth and a range that were unthinkable in the past; in the acoustic "Northern Star" she does a subtle, clenched-teeth delivery that's as dramatic as any of her old screamfests. The band gets a similar sonic facelift, featuring plenty of layered guitar work from Eric Erlandson and whoever else is playing. (There are no band credits, but Billy Corgan has claimed in interviews that he did more than just co-write five songs.) Ultimately, there's no denying that *Celebrity Skin* includes some brilliantly crafted songs, with "Hit So Hard" and especially "Boys on the Radio" possessing the grand melodic sweep of the best L.A. pop.

But something rings hollow. The glimpses into Love's personal life sound carefully orchestrated. And one moment here is so tasteless that it casts a pall: in "Reasons to Be Beautiful," the band drops away as Love sings, "It's better to rise than fade away," paraphrasing the Neil Young line that her late husband, Kurt Cobain, quoted in his suicide note. The elegy that follows sounds theatrically self-serving. There's no telling what Cobain would have thought of this, but those who loved his music may well be disgusted.

Brett Milano

SON VOLT *Wide Swing Tremolo*

(Warner Bros., 46 min)

★★★★

Jay Farrar, Son Volt's moody leader, usually writes songs in an overcast state of mind. On the band's new album, however, conditions are upgraded to partly cloudy with occasional gusty winds. The hardest-rocking of Son Volt's three albums, *Wide Swing Tremolo* has a tempestuous edge. And Farrar's grainy-voiced baritone creaks with the rustic familiarity of an old barn door, swinging between determination ("Still in the flow and I'm low to the ground," he sings in "Flow") and resignation ("Strung out, just living between the lines" in "Hanging Blue Side").

At times, the band comes across like a rootsier Pearl Jam or a back-porch, *Reckoning*-era R.E.M., most notably in "Driving the View," with its fog-shrouded folk/country aura. As usual, multi-instrumentalists Jim and Dave Boquist put musical flesh on the bones of Farrar's material. A bristling slide guitar brightens "Medicine Hat," and a funeral fiddle moans through the "red tide" of blood and despair in "Dead Man's

Clothes." Mainly, though, *Wide Swing Tremolo* sticks to guitars and drums, served up as real as the stones we unavoidably trip over on life's pathway. Parke Puterbaugh

LAURYN HILL

The Miseducation of Lauryn Hill

(Ruffhouse/Columbia, 78 min)

★★★★

After the Fugees released *The Score* in 1996, people started suggesting a solo move for Lauryn Hill, whose delicious voice helped sell 17 million copies of that album. Whatever the future may hold for the group, *The Miseducation of Lauryn Hill* proves that the singer has a talent far beyond her status as a Fugee.

Hill draws inspiration from reggae in "Lost Ones," a stern rebuke to the shallow

values that permeate hip-hop these days, and in "Forgive Them Father," which rides a neo-dub bass line. But *Miseducation* isn't only about the Jamaican trip, and when Hill delves into soul, the results are spectacular. Her duet with Mary J. Blige, "I Used to Love Him," is an old-fashioned my-man-is-gone rant that finds Blige more focused than ever. And "Doo Wop (That Thing)" gets back to one of Hill's favorite topics: taking responsibility. Dry as that may seem, the tune mines a '70s groove while sounding utterly contemporary.

In fact, most of the cuts have some message about moral choices. The spoken "classroom" interludes may be missteps, but *Miseducation* is hardly preachy, and Hill's convictions shine through. And when the closing title track is over, don't miss the

Get Framed

HE MODESTLY calls himself "a rock journalist with an obsession for historical detail," and you've probably seen samples of his work in CD booklets, tour programs, and magazines. But if you haven't climbed into one of Pete Frame's full-size, foldout creations, you owe it to yourself to get *More Rock Family Trees* (Omnibus Press, \$21.95; Music Sales Corp., P.O. Box 572, Chester, NY 10918; 800-431-7187; www.music-sales.co.uk). Each tree is a meticulously hand-drawn chart of band genealogies and vital information, the result of Frame's weeks of "research, interviews, transcriptions, digging, checking, plotting, drafting, and drawing." His first two volumes, from 1980 and 1983, are still available in an Omnibus anthology, *The Complete Rock Family Trees*. After taking a break, Frame returned to work in 1990, but he spent much of his time researching and writing BBC Radio documentaries on the likes of Elvis Presley, Buddy Holly, Leonard Cohen,

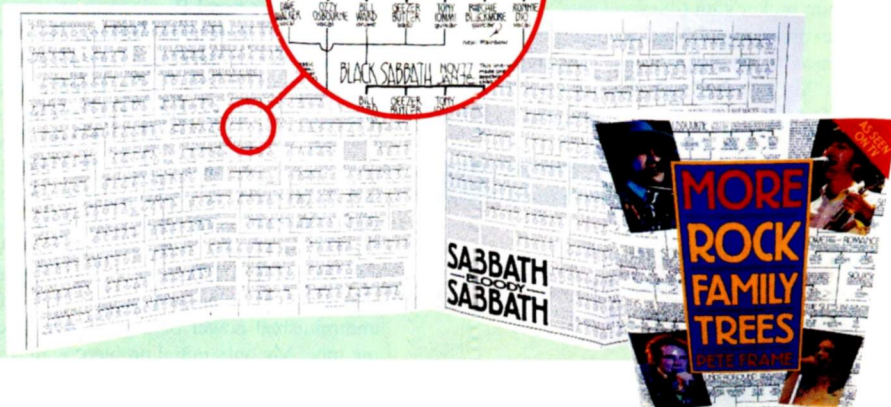
Paul Simon, and Frank Zappa. He then developed two multipart *Rock Family Trees* series for BBC TV, the first shown in 1995 and the second just under way this September. Fourteen years after promising a third volume of trees, he finally delivered *The Beatles and Some Other Guys: Rock Family Trees of the Early Sixties* to Omnibus last year. And the just-published *More* includes his very first tree ("Al Kooper," 1971), his most complicated tree ("The Folk Music Revolution in Greenwich Village"), and his largest tree: "Sabbath Bloody Sabbath," which, before being reduced for the book (as shown, with the left two panels meant to be read "above" the right two panels), was created on a sheet measuring 6 x 4 feet ("You try filling 24 square feet of blank paper with a pen!," says Pete). Will he ever run out of bands to frame?

"No," he once responded.

"Every time I read about a group splitting or shuffling personnel, I rub my hands in glee."

Ken Richardson

TREE COURTESY OF PETE FRAME/OMNIBUS PRESS



pair of hidden cuts, one a dazzling version of "Can't Take My Eyes Off You."

Claudia Perry

RANCID *Life Won't Wait*

(Epitaph, 64 min)

★★★★

As fun-loving as Green Day, as political as Bad Religion, and as catchy as Offspring, Rancid delivers an unusually wide-ranging punk album that — unlike the last efforts by those other bands — doesn't collapse under its ambitions. With its array of guest stars and stylistic swings, *Life Won't Wait* begs to be compared with *London Calling*-era Clash, and, by that standard, it doesn't do badly. Rancid may not change lives like the Clash did, but at least these guys can play faster, and "Hoover Street" sounds like a dead-on parody of Joe Strummer's dabblings in Beat poetry. And the collaboration with the Specials, "Hooligans," echoes that band's glory days more than anything on its own reunion album.

The 22-track disc trips up only in terms of programming, with some of the more ambitious material (like the reggae title cut) placed up front and the more rocking tunes saved for later. And it's time to put a moratorium on the cliché of prefacing albums with weighty spoken intros, like the one here. Rancid's music carries more than enough muscle on its own. *Brett Milano*

CRACKER *Gentleman's Blues*

(Virgin, 66 min)

★★★

Instead of the loopy surrealism and jet-propelled alt.rock of previous Cracker albums, *Gentleman's Blues* is a little more deliberate and decidedly more personal. As the almost oxymoronic title implies, it's a set of quasi-blues by guys who aren't exactly grizzled veterans on the chitlin circuit. Because they're smart and interesting people, so are the songs, but they won't grab, shake, or startle you like earlier efforts did.

Still, *Gentleman's Blues* isn't completely lacking in Crackeresque whiz-bang. It opens with one of the band's strongest songs, an offbeat minor-key rocker called "The Good Life," which sets the skeptical tone for all that follows. Comical glimpses at an itinerant rocker's lot ("Seven Days") mingle with expressions of hand-wringing meaninglessness in the wake of a relationship's ending ("My Life Is Totally Boring Without You"). Overall, this is a more subtle and subdued



Stay Tooned



IT DOESN'T MATTER if you're 4, 14, or 40: sometimes the best way to deal with the real world is to watch a cartoon.

Or just listen to one, courtesy of today's bumper crop of CD spinoffs. Young'uns can sing along with PBS's top-rated

aardvark via *Arthur and Friends: The First Almost Real Not Live CD (or Tape)* on Rounder's Kids label. Older young'uns as well as their hip parents can graduate to Arnold and friends — namely, Nickelodeon cablemates Ren & Stimpy, Real Monsters, Angry Beavers, Rocko, Catdog, and, of course, Rugrats (soon to appear in their own movie) — on

The Best of Nicktoons (Kid Rhino). Then there's the Cartoon Network lineup featured on three more Kid Rhino titles. *Scooby-Doo's Snack Tracks: The Ultimate Collection* serves up blast-from-the-past music and dialogue before closing with the new "Scooby Club Mix." The ever inventive *Dexter's Laboratory:*

The Musical Time Machine includes the genre-spanning title track and the operatic "Lab-retto." And *Space Ghost's Surf & Turf* has bits and skits from the titular phantom as well as Zorak and, especially, the lovably confused Brak. Rhino, ABC, *Schoolhouse Rock*, and Rock the Vote get responsible on the benefit CD *Schoolhouse Rocks the Vote*, where Joan Osborne, John Popper, and others aim to sing elder teenagers into the voting booths on November 3. Conversely, American/Columbia and Comedy Central get irresponsible on the first *South Park* soundtrack,

which is due in stores by the time you read this. It was unavailable for preview at press time, but executive producer Rick Rubin said it will be

END OF ARTICLE
Oh my God, they killed...

Kenny Richardson



Rugrats (above); Brak, Scooby with Shaggy (top); Kenny (bottom)



CARTOON NETWORK (BRAK AND SCOOBY-DOO); NICKELODEON (RUGRATS); COMEDY CENTRAL (KENNY)

side of Cracker, and while it probably won't elevate the band's star profile, the songs' sturdy construction and emotional honesty reward patient listening. *Parke Puterbaugh*

SLOAN *Navy Blues*

(Murderecords, 47 min)

★★★★

After watching a trio of deserving prior releases go belly-up in the U.S. owing to major-label myopia, the four Canadians of Sloan are taking care of business themselves, issuing *Navy Blues* here on their own label. It is an instant classic filled with smart, muscular power pop that will get the blood flowing in anyone who's ever been turned on by the likes of early Who, Nazz, Badfinger, Raspberries, and maybe even Moby Grape's first LP.

"She Says What She Means," the opening track, recalls the Grape's manic rave-up "Omaha," driven along by a snappy guitar/bass tandem, a thumping bass drum, and crazy-quilt vocals. Without pause, Sloan plunges into "C'mon C'mon (We're Gonna Get It Started)," a fetching piece of Todd Rundgren pop with some pumping piano. Then it's off to the races with "Iggy & Angus," a nominal tribute to rockers Pop and Young that, in a larger sense, celebrates the undiminished power of a good, hard-rocking tune. My only initial problem with *Navy*

Blues was getting past those first three tracks, which mandate replaying beyond all reason, to uncover such scorchers as "Money City Maniacs" (a solid 4/4 rocker), "Ches-ter the Molester" (more great piano), and "On the Horizon" (relentless, with a nod to Keith Moon). *Parke Puterbaugh*

JACK DRAG *Dope Box*

(A&M, 42 min)

★★★

What would happen if the cut-and-paste approach to production favored by Beck and the Beastie Boys were adopted by an otherwise straight-ahead pop/rock band? You'd get a weird and nifty album like *Dope Box*, the major-label debut from the group Jack Drag, which has been a Boston indie-rock fixture for the past few years. The first few tracks get deep into trip-hop production — processed vocals, rhythm loops, metallic guitar stabs, and all. Then comes a surprising shift into power-pop mode, toning down the mischief and jacking up the melody. The disc's final third swings into left field, ending with a lengthy groove-and-noise workout whose fadeout pulls one more pop hook for the road.

Of course, none of this would mean much if there weren't real songs behind the studio tricks. Thankfully, leader John Drag-onetti is a pop traditionalist at heart, wheth-

STAR SYSTEM	
Stellar	★★★★★
Excellent	★★★★
Good	★★★
Fair	★★
Poor	★

er he's giving the hooks a sonic twist or serving them straight up. The album does leave you hungry for a couple more emotional pop moments, but *Dope Box* is a good sign that the indie-rock world is getting less insular.

Brett Milano

THE REES SHAD BAND

The Riggley Road Stories

(Sweetfish, 54 min; enhanced CD and novella; comic book, mail-order only; phone, 888-347-4237; www.sweetfish.com)

★★★★

The writer, musician, label exec, and all-around Renaissance man behind the acclaimed *Anderson, Ohio* returns with another concept album, this one about a hunting accident in small-town America and its lasting effects on the people involved, as told from the perspective of a bank's repo man. *The Riggley Road Stories* play out in styles ranging from light pop with clarinet to stinging blues-rock. Rees Shad sometimes gets caught up in the seduction of his own language ("For all we leave are footprints on the landscapes of our lives"), and he pads the album with songs that don't advance the tale. But he has an eye for detail and a gift for absorbing narrative. And this is an ambitious project, encompassing a way-cool enhanced CD, a novella that comes packaged with the album, and a beautifully

drawn "comic book" available by mail. *Riggley Road* ends up falling short in its dramatic resolution, but it leaves you thinking about fate and chance occurrence — and about the meaning of your own life. Stack that up against your average Candlebox record, dude.

Alanna Nash

JAZZ

THE LOUNGE LIZARDS

Queen of All Ears

(Strange & Beautiful Music, 60 min; Prince Street Station, P.O. Box 220, New York, NY 10012; www.strangeandbeautiful.com)

★★★★

SEX MOB Din of Inequity

(Columbia/Knitting Factory, 55 min)

★★★★

THE JAZZ PASSENGERS FEATURING DEBORAH HARRY "Live" in Spain

(32 Jazz, 52 min)

★★★

JOHN LURIE Fishing with John

(Strange & Beautiful Music, 43 min)

★★★

There's a certain sort of absurdist jazz, formerly imported from Eastern or Central Europe, that now flourishes State-side in several homegrown versions, thanks largely to the pioneering effort of saxo-

phonist/composer John Lurie and his group, the Lounge Lizards. *Queen of All Ears*, the Lizards' most solid effort since 1989's *Voice of Chunk*, is a collection of Lurie originals (two co-written by bassist Erik Sanko) mixing deadpan wit with a decidedly grown-up wistfulness. Lurie's usual strategy is to set up a lyrical phrase for repetition and slight variations, the extension of a sax style that's more probing than virtuosic. Longer pieces are divided into sections and generally have a feature for brother Evan Lurie's eloquent piano or Steven Bernstein's raunchy trumpet. At times the repetitious aspect becomes a mite, well, repetitious, but the sheer doggedness of the music will usually draw you into its obliquely humorous world. Usually,



Bernstein has his own project going, a rude quartet called Sex Mob, whose *Din of Inequity* shares the Lizards' tongue-in-cheek overview while relying more on good

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AudioSource AMP Three
•Power Amp, 150 watts/channel, switchable to 400 watts mono, left/right level controls **359⁹⁹**

AudioSource Pre One/A
•Line Level Preamplifier, DVD, CD, LD, tuner, tape & aux. inputs **199⁹⁹**

Harman Kardon PT2500
•A/V Tuner-Controller, 30-AM/FM presets, Dolby 3 stereo Mfr. Sug. Retail \$479 **249⁹⁹**

Cassette Decks

TEAC



TEAC AD-500
CD Player/Cassette Deck Combo
•Auto-reverse cassette record & play •Dolby B •Cassette pitch control •CD player features shuffle play •Headphone jack with volume control •Remote
\$279⁹⁹ (TEA AD500)

TEAC V-377
•Dolby B, 1-touch recording, center-mounted transport, peak level meters **69⁹⁹**

JVC TDR462
•Auto-reverse, Dolby B & C, Dolby Hi-Pro, fine bias control, cassette stabilizer **179⁹⁹**

Sony TC-KE500S
•3 heads, Dolby B/C/S, Dolby Hi-Pro, 2-motors, sorbothane cassette stabilizer **CALL**

TEAC V-1050
•3 heads, Dolby B/C/Hi-Pro, fine bias adjustment, cassette stabilizer **279⁹⁹**

TEAC V-8030S
•3 heads/3 motors, Dolby B/C/S/Hi-Pro, quartz dual capstan drive, remote, 110/220 **699⁹⁹**

Dual Cassette Decks

TEAC



TEAC W-518R
Dual Cassette Deck
•Deck #1 features auto-reverse playback •Dolby B •Normal & high-speed dubbing •Continuous playback •Peak-level meters
\$79⁹⁹ (TEA W518R)

Sony TC-WE625
•Dual Auto Reverse, dual 2 motor transports, Dolby B & C, Dolby Hi-Pro **CALL**

TEAC W-850R
•Dual auto-reverse record & play, Dolby B/C/Hi-Pro **179⁹⁹**

Technics RS-TR575
•Dual auto-reverse record/play on both transports, Dolby B/C/Hi-Pro, full-log controls **219⁹⁹**

JVC TD-W718BK
•Dual auto-reverse record & play, Dolby B/C/Hi-Pro, pitch control **219⁹⁹**

Sony TC-WE825S
•Dual auto-reverse record & play, Dolby B/C/Hi-Pro, pitch control **CALL**

Aiwa Mini Audio Systems

aiwa



Aiwa NSX-A707
Mini Audio System
•80 watts/channel •3-disc CD changer •32-AM/FM presets •Dual auto-reverse cassettes •Karaoke mic. mixing •3-way shielded speakers •Remote
\$269⁹⁹ (AIW NSXA707)

Aiwa LCX-350
•Ultra-mini, top-loading CD player, auto-rev. cassette, AM/FM, remote **139⁹⁹**

Aiwa NSX-A202
•15 watts/ch., 3-disc CD, EQ, dual cassette, 32-AM/FM presets, remote **169⁹⁹**

Aiwa NSX-A303
•30 watts/ch., 3-disc CD, EQ, dual cassette, 32-AM/FM presets, remote **199⁹⁹**

Aiwa NSX-A909
•30w/ch. + 80w/ch. for built-in subwoofer, 3-CD changer, AM/FM, dual A/R cass., remote **359⁹⁹**

Aiwa NSX-MT960
•Mini Theater Audio System, 145w x 2 + 33w x 3, 5-disc CD, dual auto-rev. cass., AM/FM **529⁹⁹**

Mini Audio Systems

JVC



JVC F3000
Mini Audio System
•35 watt/ch. integrated amp •32-track programmable CD player •40 AM/FM presets •Dual auto-rev. cassette •2-way speakers •Remote
\$499⁹⁹ (JVC F3000)

Panasonic SC-AK25
•50 watts/ch., 5-disc CD, dual auto-rev. cassette, AM/FM, remote **249⁹⁹**

Yamaha GX-50
•45 watts/ch., 3-disc CD, dual auto-rev. cassette, AM/FM, active servo speakers, remote **399⁹⁹**

Sony PMC-M2
•25 watts/ch., CD, MiniDisc, AM/FM, remote Mfr. Sug. Retail \$1299.95 **449⁹⁹**

Sony MHC-F250AV
•100w x 2 + 20w x 2, 50+1 disc CD changer, dual auto-rev. cassette, 5 speakers, remote **CALL**

Technics SC-HD55
•CD Player, AM/FM, auto-rev. cassette, remote, futuristic brushed aluminum **599⁹⁹**

Mini Audio Systems

JBL Harmony™



JBL Harmony™
Compact Audio System
•Elegant system combines a CD player, AM/FM tuner, 2-way speakers with powered woofer •Dual alarm •Remote
CALL (JBL HARMONY)

Panasonic SC-PM01
•top-loading CD player, 24-AM/FM presets, clock/timer, 2-way speakers, remote **199⁹⁹**

Aiwa XR-M25
•Ultra-mini, 20 watts/ch., front-loading CD player, auto-rev. cassette, AM/FM, remote **199⁹⁹**

Sony CMT-ED1
•Qbnc Desktop System, 15 watts/ch. CD player, auto-rev. cassette, AM/FM, remote **CALL**

JVC FS-5000
•Ultra Micro, 13 watts/ch., top-loading CD player, 30 AM/FM presets **CALL**

JVC FS-7000
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Technics SA-AX920
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•Direct/Reflecting®, 6" woofer, 120 watts, black or rosewood color... **\$198⁰⁰**

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•Environmental Speakers, rugged, weather-resistant, 4.5" full-range driver, black or white... **\$238⁰⁰**

Advent AV570-BK
•Powered Partners, 2-way amplified speakers, 35 watts each, 5" woofer, black... **\$249⁹⁹**

Floorstanding Speakers



JBL

JBL CF150
Floorstanding Speakers
•3-way •15" cast-frame woofer •6.25" cast-frame midrange •1" mylar tweeter •325 watts power handling •8 ohms •Black woodgrain finish

\$399⁹⁹/pr. (JBL CF150)

Technics SB-LX90
•3-way, 15" woofer, 200 watts maximum, black cabinet... **\$199⁹⁹**

Cerwin-Vega E-312B
•Floorstanding, 3-way 12" woofer, 300 watts maximum, black cabinet... **\$399⁹⁹**

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•Direct/Reflecting®, 5.25" woofer, 2 tweeters, shielded, 10-200 watts, black... **\$518⁰⁰**

Cerwin-Vega E-315B
•3-way, 15" woofer, 400 watts maximum, black cabinet... **\$599⁹⁹**

JBL L7 50% Off Mfr. Sug. Retail
•Tower, 4-way, 12" woofer, titanium tweeter 10-450 watts, black ash cabinet... **\$999⁹⁹**

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JBL

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Powered Subwoofer
•120 watt amp built-in •12" woofer •Variable crossover •Adjustable gain •Line & speaker level inputs •Black woodgrain finish

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•Powered, 60 watts, 8" speaker, shielded, 60/90/120Hz crossover settings... **\$129⁹⁹**

Yamaha YST-SW80
•Powered, built-in 80 watt amp, 8" woofer, line/speaker level inputs... **CALL**

Cerwin-Vega HT-S12
•Powered, 150 watts, 12" woofer, variable crossover -50Hz to 150Hz, black... **\$329⁹⁹**

Cerwin-Vega HT-S15
•Powered, 200 watts, 15" woofer, variable crossover -50Hz to 150Hz, black... **\$499⁹⁹**

Velodyne CT-150
•Powered, 250 watts, 15" woofer, line/speaker level input/output, black... **\$699⁰⁰**

Center/Surround Speakers



Cerwin-Vega

Cerwin-Vega HT-CTR25
Center Channel Speaker
•Captains two 5.25" mid-woofers & 1" tweeter •80-22,000 Hz response •150 watts maximum •8 ohms •Shielded •Black

\$149⁹⁹ (CRV HTCTR25)

Technics SB-C80A
•Center Channel Speaker, 2-way, 3-speaker design dual woofers, shielded... **\$44⁹⁹**

JBL SC305
•Center Channel, 2-way, dual 5" woofers, dome tweeter, 100 watts max., shielded, black... **\$99⁹⁹**

Technics SB-CSS80
•Center Ch./Surround Speaker System, shielded center ch. speaker & 2 surround speakers... **\$124⁹⁹**

Yamaha NSA-C142
•Center Channel, two 5.25" woofers & 1" tweeter, shielded, black... **\$129⁹⁹**

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•Center Ch., 2 drivers in wide dispersion array + 2 drivers in 2-chamber enclosure, shielded... **\$199⁹⁹**

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3 SPEEDS

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3-Speed Belt Drive Turntable
•33, 45, 78 r.p.m. •Automatic shut-off & auto-retract •Synchronous motor •External power supply •Includes Stanton cartridge

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Gemini XL-100
•Semi-automatic, belt-drive, pitch control, includes phono cartridge... **\$99⁹⁹**

JBL PX-E855
•Fully-automatic, includes cartridge & built-in phono preamp... **\$119⁹⁹**

Technics SL-BD22K
•Semi-automatic, belt-drive, P-mount style arm, pitch control, black... **\$154⁹⁹**

Gemini XL-500
•Manual, direct-drive, pitch control, pop-up target light... **\$228⁹⁹**

Technics SL-1200II
•Professional Manual, direct-drive, quartz lock, pitch control, silver or black... **\$479⁹⁹**

Mini Audio Systems



Panasonic

Panasonic SC-PM15
Micro Audio System
•Bi-amplified design •CD player •Auto-reverse cassette •24-AM/FM presets •3-way speakers •Remote

\$279⁹⁹ (PAN SCPM15)

RCA RP9155
•Micro bookshelf size, 15 watts/ch. + 15 watt subwoofer, CD player, AM/FM, remote... **\$249⁹⁹**

Aiwa Z-R775
•100 watts/ch. 5-disc CD changer, turntable 32-AM/FM presets, dual cassette, remote... **\$359⁹⁹**

JVC EXTDS
•20w x 2 + 60w for subwoofer (built-in), 3-CD changer, auto-rev. cassette, AM/FM... **\$399⁹⁹**

Yamaha GX-70
•Home Theater, 65w x 2 + 20w + 3, 3-disc CD, dual auto-rev. cass., AM/FM, 5 speakers... **\$499⁹⁹**

Bose® Lifestyle® 3-II
•AM/FM, CD player, 2 cube speakers + Acoustimass® bass module, bi-amplified... **\$749⁹⁹**

DJ Equipment



gemini

Gemini CD-9500 Pro II
Double CD Player
•7-band equalizer •2 phono, 5 line, and 2 microphone inputs •Echo •6 sound effects •110/220 voltage

\$498⁹⁹ (GMI CD9500II)

Gemini ST-35
•Mini Stereo, 35 watt variable speed, 1-10 flash/speed... **\$19⁹⁹**

Numark DM2002X
•Pro Master DJ Mixer, 5-line/3-phono/1-mic inputs, rotatable input toggles... **\$198⁹⁹**

Gemini XG-3000
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Pioneer S-700ES Mobile DJ
•System with 2 CDJ/FM CD Players, DJM-500 Mixer, DJ Case & SEDJ5000 Pro headphone... **CALL**

Portable Stereo Systems



Panasonic

Panasonic RX-DS16
CD/Radio/Cassette Portable Stereo
•Front-loading CD player with 24-track programming •10-AM/10-FM presets •Cassette with cue & review •XBS® Extra Bass System •3-D Sound

\$79⁹⁹ (PAN RXDS16)

JVC PC-X102
•CD/Radio/Cassette, 20-track programming, 30-AM/FM presets, remote... **\$99⁹⁹**

Aiwa CA-DW530
•CD/Radio/Dual Cassette, 30-AM/FM presets, equalizer, remote... **\$129⁹⁹**

Sony CFD-370
•CD/Radio/Cassette, 20-AM/FM presets, Mega Bass, remote... **\$149⁹⁹**

JVC PC-PC11
•3-CD Triple-Tray Changer/Radio/Dual Cassette, 30-AM/FM presets, remote... **\$179⁹⁹**

Panasonic RX-ED77
•CD/Radio/Dual Auto-Rev. Cassette, 36-track programming, 20-AM/FM presets, remote... **\$199⁹⁹**

Sports CD Portables



SONY

Sony D-E555
Street Style Rechargeable Discman®
•Water-resistant & rugged •ESP2 20-sec. shock protection •Rechargeable battery, headphones & AC adaptor •Black

\$199⁹⁹ (SON DESSBLACK)

Aiwa XP-SP800
•E.A.S.S. Plus: 10-sec. electronic anti-shock memory, water/heat resistant, headphones... **\$79⁹⁹**

Panasonic SL-SW405
•SHOCKWAVE concept, 10-sec. anti-shock memory, 24-track prog., headphones, yellow... **\$99⁹⁹**

Aiwa XP-SP1200
•Cross Trainer Series, E.A.S.S. Plus: 40-sec. electronic anti-shock memory, water resistant... **\$129⁹⁹**

Panasonic SL-SW505
•SHOCKWAVE concept, 40-sec. anti-shock Memory II, 24-track prog., headphones, yellow... **\$149⁹⁹**

Sony D-E552CK
•Sports Rechargeable Portable/Car Discman®, 20-sec. shock protection, car kit... **\$179⁹⁹**

MiniDisc Technology



SONY

Sony MZ-R50
Portable MiniDisc Player/Recorder
•40 sec. shock-resistant memory •Vertical jog dial •Stereo (74 min./108 min.) recording •Remote controller headphones •Rechargeable battery

\$349⁹⁹ (SON MZR50)

Sony MZ-EP11
•Portable MiniDisc Player, 10-sec. shock-resistant memory, headphones with remote on cord... **\$179⁹⁹**

Sharp MD-MS702
•Portable MiniDisc Recorder, shock-resistant memory, rechargeable battery, headphones, remote... **\$279⁹⁹**

Sony MZ-R30
•Portable MiniDisc Player/Recorder, vertical jog dial, remote controller headphones... **\$299⁹⁹**

Aiwa CSD-MD5
•CD Player/Radio/MiniDisc Recorder Portable Stereo, 30-AM/FM presets, remote... **\$349⁹⁹**

Sony MZ-B3
•MiniDisc Stereo Recorder, stereo or mono recording, built-in mono mic & speaker... **\$799⁹⁹**

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•Auto clock set & daylight saving time •TV/cable/DSS universal remote
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Samsung VR8608
•4 heads, high-speed fast forward/rewind, universal remote with shuttle
\$149.99

Sharp VCH-982U
•4 heads, Sharp Super Picture Circuit, 19-micron exact-track heads, EZ set-up remote
\$149.99

JVC HR-A54
•4 heads, Pro-precision 19-micron heads, VCR Plus+ Auto SP-EP timer recording, remote
\$169.99

Sony SLV-678HF
•4 heads, digital auto tracking, Adaptive Picture Control II, multi-brand remote
\$179.99

Panasonic PV-8662
•4 heads, VCR Plus+, auto clock set, commercial advance, remote
\$249.99

S-VHS Hi-Fi Stereo VCRs



JVC HR-S4500U
S-VHS Hi-Fi Stereo VCR
•4 heads •Pro-precision 19-micron heads •VCR Plus+ with Cable Eye cable box controller
•TimeScan with Dynamic Drum •Pro-style editing •Remote
\$399.99 (JVC HRS4500)

Panasonic PV-S7670
•4 heads, Spatializer™ Audio Processing, VCR Plus+ with cable/DSS box control, remote
\$299.99

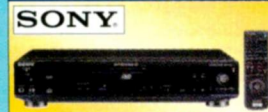
JVC HR-S3500U
•4 heads, VCR Plus+ with Cable Eye cable box controller, pro-style editing, remote
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Panasonic DVD-A110
•Coaxial/optical digital audio out, virtual surround sound, remote
CALL

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CALL

JVC XV-D2000BK
•Dolby Digital (AC-3) decoder built-in, on-screen graphical user interface, remote
\$499.99

Sony DVP-S7000
•Smooth Scan™ Picture Search, component video output, remote
CALL

Stereo Color TVs



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27" + 1" Ultra-Flat Screen Stereo Color TV
•New aspect ratio-view additional 1 3/8" of signal •2-tuner picture-in-picture •Up to 800 lines horizontal res. •Remote
\$699.99 (SAM TXF2899)

Panasonic CT-20G12
•20" Stereo Color TV, PanBlack™ picture tube, up to 500 lines of horizontal resolution, remote
CALL

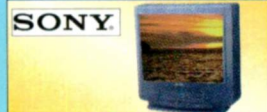
Samsung TXG2548
•25", flat, dark-tint picture tube, contrast enhancement circuitry, remote
\$299.99

Sony KV-20540
•20" Trinitron™ Stereo Color TV, vertically flat screen, remote
CALL

Sony KV-27V65
•27" Trinitron™ Stereo Color TV/Monitor, 2-tuner picture-in-picture, remote
CALL

Panasonic CT-32SF35
•32" Stereo Color TV/Monitor, PanBlack™ picture tube, color picture-in-picture, remote
CALL

TV/VCR Combo



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20" Color TV/VHS Recorder
•Trinitron™ picture tube with virtually flat-dark tint-screen
•4-head VHS VCR •VCR Plus+ timer programming •Auto Clock™ Set •Remote
\$399.99 (SON KV20VM30)

Samsung CXD1342
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\$249.99

Samsung CXD1942
•19" Color TV/VHS Recorder with high speed mechanism, remote control
\$299.99

Magnavox CC2092AT
•9" Color TV/VCR Combo, VCR recorder with digital auto tracking, AC/DC operation
\$299.99

Panasonic PV-M2058
•20" Stereo TV/Mono VCR, PanBlack™ picture tube, 4 head mono VCR, FM radio, VCR Plus+
\$399.99

Panasonic PV-M2768
•27" Stereo Color TV/Hi-Fi Stereo VHS Recorder/FM Radio, VCR Plus+, remote
\$599.99

Hi-Fi Stereo VCRs



Sony SLV-998HF
VHS Hi-Fi Stereo VCR
•VCR Plus+ Gold channel mapping •Sony Smart Setup •Expert Picture control •4 heads •Remote
CALL (SON SLV998HF)

Panasonic PV-8451
•4 heads, VCR Plus+, auto clock set, TV/cable/DSS universal remote
\$179.99

JVC HR-VP650
•4 heads, VCR Plus+, 19-micron heads, view S-VHS format (regular VHS res.), remote
\$189.99

Samsung VR8808
•4 heads, VCR Plus+, auto clock set universal TV/cable box remote
\$189.99

Panasonic PV-8664
•4 heads, VCR Plus+ Gold, Cable/DSS box control, Spatializer™, Light Tower™ remote
\$299.99

Sony SLV-798HF
•4 heads, VCR Plus+ Gold channel mapping, Smart Setup, remote
CALL

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CALL (JVC GRDVM5)

Sony DCR-TRV9
•680K CCD, 3.5" SwivelScreen™ color LCD, color viewfinder, 180x-digital/15x-optical zoom
CALL

JVC GR-DVL9000
•4" color LCD monitor, color viewfinder, 10x-optical/40x-digital/200x-Super digital zoom
CALL

Panasonic AG-EZ30
•Pro Mini DV, 3CCD, 12x-optical/120x-digital zoom, digital still mode, 2.5" color LCD
\$279.99

Sony DCR-VX1000
•20x digital zoom, Super SteadyShot™ picture stabilization, digital hi-fi stereo recording
CALL

Canon XL1 Kit
•3CCD, 16x-optical/32x-digital zoom, interchangeable lens system, digital photo mode
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old-fashioned chops for expressive flavoring. Alto saxophonist Briggan Krauss's post-Albert Ayler style is especially compelling, and the cover of Prince's "Sign o' the Times" is a hoot, but I can recommend the disc solely on the basis of it having the hippest version of "Macarena" you're likely to hear.

The Jazz Passengers, founded by Lizard grads Curtis Fowlkes and Roy Nathanson, appear to prefer a less nuanced take on the whole surreal jazz thing. On "Live" in Spain

(where Fowlkes is M.I.A.), the humor is very broad, and the more serious bits are a little sluggish. But Debbie Harry, the centerpiece of seven of the nine cuts, sings with appealing brio if not finesse. She's no Ella, but then who is?

Finally, if the Lizards aren't enough for you, you might try *Fishing with John*, 23 musical snippets from the postmodern fishing show Lurie has devised for the Independent Film Channel. The music on its own is

QUICK FIXES

MAXWELL Embrya

(Columbia, 63 min) ★★★★★

Skirting both the patterns of R&B and the harsh edges of hip-hop while retaining an urban flavor, Maxwell follows up his *Urban Hang Suite* with *Embrya*, floating his smooth tenor above keyboards, strings, horns, and percussion. Yet this is hardly music to snooze by. The pulse invites and titillates as he embraces Latin rhythms and textures, swinging full-out in "Arroz Con Pollo." *Phyl Garland*

BILLY BREMNER

A Good Week's Work

(Gadfly, 45 min; P.O. Box 5231, Burlington, VT 05402) ★★★★★

Bremner is more sensitive now than he was in his Rockpile days, but he remains a gutsy singer and a master of twang, and he's more faithful to the Rockpile sound than Nick Lowe and Dave Edmunds are today. The disc suffers a little from laid-back arrangements and midtempo songs, but it proves that Bremner could still flourish with a great band in tow. Any chance he's got his old mates' phone numbers? *B.M.*

DADA

(MCA, 54 min) ★★★★★

Dada's fourth album may lack the inventiveness of *Puzzle* or clear standout tracks like those that redeemed *American Highway Flower* and *El Sublimino*, but overall it's the trio's strongest disc. For one thing, the lyrics are more candid. For another, these guys are harmonically spot-on. And the assured playing matches a plangent late-Sixties vibe to a modernist Police approach, although Dada's context is Nineties L.A.: speedy, surreal, technology-driven, and lonely. *P.P.*

POUNDBOUND Massive Grooves from the Electric Church of Psychofunkadelic Grungelism Rock Music (Metal Blade, 44 min) ★★★★★

Poundhound is the *nom de disque* of King's X bassist Doug Pinnick, and the title of his solo bow is an accurate review of the album, the key word being "massive." So massive, in fact, that it's a bit monotonous, lacking the pop sensibility of Ty Tabor's solo turn, *Moonflower Lane*. But pound Pinnick does — and the boys are back in band for a new King's X record due soon. Meet you here next month. *K.R.*



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popmusic

intriguing if sketchy, but fans of the show will particularly want this as it's bound to bring back fond memories of sitting on a couch staring at a guy sitting in a boat staring at the water. *Richard C. Walls*

COLLECTION

THE ATLANTIC NEW ORLEANS JAZZ SESSIONS

(Mosaic, four CDs, 4 hours, 13 min; mail-order only; phone, 203-327-7111; e-mail, mosrec@ix.netcom.com)

★★★★

Nesuhi Ertegun's passion for traditional New Orleans jazz dated back to the early 1940s, a time when the music saw a slight renaissance. The founder of Crescent, a Los Angeles-based label whose main artist was Kid Ory, Ertegun would later join his brother, Ahmet, in a more successful venture called Atlantic Records. Nesuhi's eclectic taste helped give Atlantic a broad scope, and when drummer Paul Barbarin's band visited New York in 1955, he recorded it. Three years later he was capturing the Young Tuxedo Brass Band playing funeral and parade music in the streets of New Orleans, and he returned there in 1962.

Now Mosaic has assembled all of these recordings in *The Atlantic New Orleans Jazz Sessions*, a four-CD boxed set that includes previously unissued material. The set isn't chronological; it begins with the 1958 outdoor performances of the Young Tuxedo Brass Band, whose music has many rough edges, but that's part of the charm. The interesting thing is how much it has in common with the so-called avant-garde. The 1962 recordings of the Eureka Brass Band, which follow, are more polished. Led by trumpeter Percy Humphrey, the group is most memorable in "Joe Avery's Blues," to which brother Willie Humphrey contributes a fine clarinet solo. Willie is also present on Barbarin's 1955 New York session, along with bassist Milt Hinton and a front line headed by Barbarin's nephew, trumpeter John Brunious.

Billie and Joseph "De De" Pierce are represented here by six selections. Billie's pounding piano is strictly of the honky-tonk variety, and her vocals have a compelling urgency; De De's trumpet is nice and fat, and he delivers the goods in a crackling traditional style. They're joined by, among others, the most celebrated clarinetist of the postwar New Orleans renaissance, George Lewis, whose bands are featured next in the Mosaic set. Lewis is heard to greatest advantage in Jelly Roll Morton's "Winin' Boy Blues" and Lewis's now-classic "Burgundy Street Blues," and he even manages to get something out of "Listen to the Mockingbird," a horrid tune. Eight selections by Lewis and Punch Miller's Bunch follow;

here, again, the sound is surprisingly one-dimensional, but the band cooks. Rounding out the set is trombonist Jim Robinson, represented as a leader in five tracks recorded on the Fourth of July, 1962.

In the Mosaic tradition, *The Atlantic New Orleans Jazz Sessions* comes with a full-size booklet containing scholarly notes and interesting photographs. Nesuhi Ertegun would have approved. *Chris Albertson*

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classicalmusic



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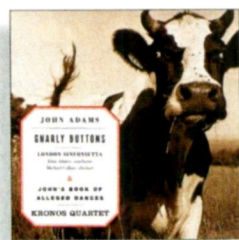
Here's a *Lucia* that even the most devoted fans of Callas and Sutherland owe it to themselves to hear. *Jamie James*

ADAMS Gnarly Buttons; John's Book of Alleged Dances

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★★★★

Featuring such items as "Toot Nipple," "Dogjam," "Pavane: She's So Fine," "Rag the Bone," "Stubble Crochet," and "Alligator Escalator," *John's Book of Alleged Dances* is one of my favorite pieces



BEST OF THE MONTH

Andrea Rost in Donizetti's Lucia

Record labels bandy about the term "historic" with abandon, but the new recording of Donizetti's opera *Lucia di Lammermoor* starring the Hungarian soprano Andrea Rost (Sony 63174) truly deserves the epithet. Conductor Charles Mackerras, who is an eminent musicologist as well as a fine, sensitive musician, closely follows the composer's autograph score in a first recording on period instruments. Banish any thought of scraping fiddles and belching horns: the Hanover Band's playing is as polished as that on any modern recording.

The real revelation, though, is how Mackerras has freshened up the score, strip-

ping away the fussy ornamentation added by later interpreters and restoring all the original keys, like a do-it-yourselfer fixing up a fine old house fallen into disrepair. The result is a leaner and much more sophisticated piece than we have become accustomed to hearing. Many performing versions blithely cut out all the scenes that don't include Lucia, playing havoc with the story and resulting in a score that seems to be all in one key (G Major) — making the opera, in Mackerras's words, "nothing more than an evening for canary-fanciers."

Yet even the most ardent canary-fancier will have no complaint about this new set. It not only restores the cuts but contains

of Adamsiana. The humor of the title extends deeply into the music, which is profoundly high-spirited; this version by the Kronos Quartet upholds both the letter and the spirit of the thing.

Despite its equally fanciful section titles — "The Perilous Shore," "Hoe-down (Mad

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Cow);” and “Put Your Loving Arms Around Me” — *Gnarly Buttons* is a much more serious piece. It is for twelve players (a duodectet), including clarinet, winds, string quintet, and keyboards, led by a conductor. The music is redolent of Stravinskian Neoclassicism via Bernstein, minimalism, and jazz/ragtime/blues. Somehow in this *mélange* of manners, Adams manages to speak in his own voice, and a very appealing voice it is, too.

Eric Salzman

ARGENTO Choral Music

Plymouth Ensemble Singers, Philip Brunelle cond. (Collins/Allegro 15232, 60 min)

★★★★

All four works on this CD, titled *An American Romantic* and issued to celebrate Domenick Argento’s 70th birthday, appear to be first recordings. The masterpiece is the 1979 setting of the famous Wallace Stevens poem “Peter Quince at the Clavier,” which speaks first of music as “feeling, then, not sound” and subsequently evokes the Biblical tale of Susanna and the Elders as a powerful metaphor. Argento calls his four-part work a “Sonatina for Mixed Chorus and Piano Concertante.” The choral singing is gorgeously subtle and sensuous, and the pianist, Christopher O’Riley,

“plays” the role of protagonist with surpassing elegance.

The other works are all sung *a cappella*, and magnificently so. The seven-part *A Nation of Cowslips* (1967), which draws from letters and informal poems of Keats, offers wonderful word painting and vocal “orchestration.” The Three Motets are in a more serious vein, reaching a peak of expressive simplicity in the third. The Spirituals and Swedish Chorales (1987) contrast the austerity of 17th-century Swedish worship with the exuberance of the American spirituals tradition. The flawless singing is enhanced by superb recording — warm and full-bodied sound contained within an ideal acoustic envelope.

David Hall

CHOPIN Piano Concerto No. 2; Grand Fantasia on Polish Airs; Grande Polonaise Brillante

Emanuel Ax, piano; Orchestra of the Age of Enlightenment, Charles Mackerras cond. (Sony 63371, 60 min)

★★★★

Chopin’s Second Concerto was the first concerto Emanuel Ax recorded, about twenty years ago, a lovely performance with Eugene Ormandy and the Philadelphia Orchestra on RCA. This remake marks Ax’s first

recording with a period instrument: an Erard built in 1851, just two years after Chopin’s death. Charles Mackerras and his orchestra are first-rank specialists in this sort of thing, and, remarkably, the performance feels even fresher than the earlier one.

To a degree this might be chalked up to the recording, which is both brighter and richer than the earlier analog one, but there



is also greater clarity in the playing itself, with an all-round sense of enlightenment and happy discovery. The integration between soloist and orchestra is solid, and there is not a hint of self-consciousness or quaintness in the sound of the piano, which is as rich and fluid as anyone could want, drawing attention to itself perhaps only in respect to power. Its dynamic range is narrower than a modern grand’s but perfectly adequate for Chopin’s music. In respect to crispness and vitality, piano and orchestra alike are outstandingly persuasive. The two shorter pieces, no mere fillers, are revelatory in the spontaneity and affection Ax and Mackerras bring to them.

Richard Freed

HAYDN Cello Concertos; Overture to “Lo speciale”

Han-Na Chang; Saxon State Orchestra, Dresden, Giuseppe Sinopoli cond. (EMI 56535, 58 min)

★★★★

Unnumberable violin prodigies flood the music world, but cello prodigies, thanks to the unwieldy bulk of the instrument, are rare. Yet here comes Han-Na Chang, who won first prize in the Mstislav Rostropovich Cello Competition at age 10 and now has “Slava” himself as her mentor. Now 14, her new recording of the two Haydn cello concertos makes a far better case for these modest, understated works than do those of many senior, and more jaded, colleagues. Not yet sullied by cynicism, she plays them with the exuberance and wonder of youth, her lithe fingers dancing through the passagework, her seamless bowstroke caressing the melodies. Nothing is treated routinely or thoughtlessly; everything is personalized, yet never mannered. In her hands these works sound absolutely top-drawer.

K. Robert Schwarz

SAINT-SAËNS Violin Concerto No. 3; Violin Sonatas Nos. 1 and 2

Stefan Tönz, violin; Oliver Triendl, piano;

A Florentine Tragedy

James Conlon has become one of the foremost missionaries for the music of Alexander von Zemlinsky (1871-1942), but his latest three Zemlinsky CDs on EMI strike me as a very mixed bag. By

far the most compelling of these discs is the one devoted to the composer’s second Oscar Wilde opera, *A Florentine Tragedy* (1915-16) — a vengeful and sadistic one-acter that winds up with the antagonistic husband and wife in a state of lustful reconciliation following his murder of her young would-be lover. The music takes up in brilliant fashion where Strauss’s *Salome* leaves off and is every bit as effective in its own right.

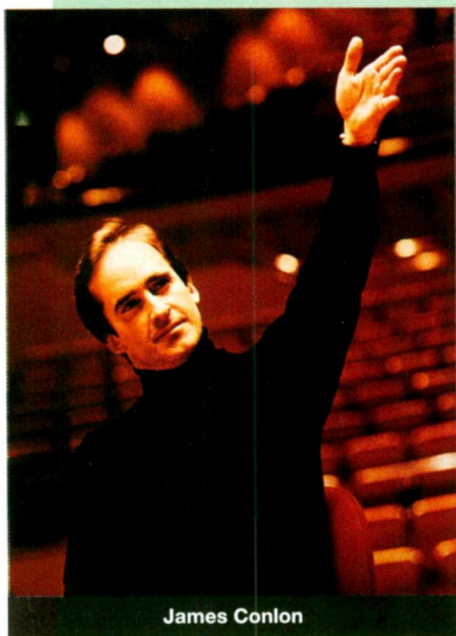
Conlon is extremely fortunate in the team of singers throughout his Zemlinsky project. Deborah Voigt’s soprano is clear and bright. Tenor David Kuebler projects a fine lyric line and shows ample power as needed. Donnie Ray Albert is a baritone of formidable dramatic gifts, as exemplified by his spine-chilling Simone in this opera. Conlon elicits a warm and vital response from his Cologne orchestra. The recording as such is good, if a trifle shy on orchestral presence.

David Hall

ZEMLINSKY A Florentine Tragedy

Soloists; Gürzenich Philharmonic, Cologne, James Conlon cond. (EMI 56472, 56 min)

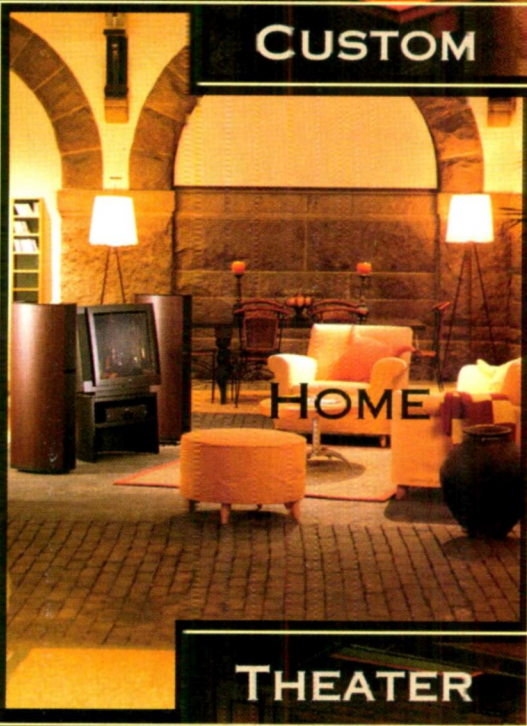
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The curious blurb on the 26-year-old Stefan Tönz in the CD booklet does not make clear whether he is Austrian or Swiss, but the aural evidence suggests that he must come from the Land of Fabulous Fiddlers. There could hardly be a happier celebration of the specifically Gallic blend of warmheartedness and exultation that Saint-Saëns achieved in his finest concerto. Tönz has it all: rich tone, a natural instinct for phrasing, security down to the ground, the sort of affectionate spirit that goes way beyond mere energy. He must adore this work, and Neville Marriner's stylish support is in the same vein.

If Oliver Triendl seems a less effective companion to Tönz in the two sonatas, it may well be simply because they are less agreeably recorded. In place of the near-ideal perspective given the concerto, there is an uncomfortably close focus on the piano that upsets the balance and tends to get in the way of what is again exceptionally communicative playing. *Richard Freed*

VAUGHAN WILLIAMS Symphonies

Nos. 3 and 4

London Philharmonic, Bernard Haitink cond.
(EMI 56564, 72 min)

★★★★

Bernard Haitink continues his leisurely traversal of the nine Ralph Vaughan Williams symphonies with the London Philharmonic, this time offering No. 3 — properly titled *A Pastoral Symphony* — and the great No. 4, in F Minor. Like the ecstatically redemptive No. 5, the *Pastoral Symphony* (1921) grew out of wartime, in this case World War I, in which the composer served as an ambulance driver. The opening movement, however, evokes not battle but memories of "a wonderful Corot-like landscape in the sunset" (the composer's words). There follows what might be described as an elegy, its climactic pages ushered in by an E-flat natural trumpet that recalls RVW's memory of a bugler practicing his craft — an eerie *Last Post*. The only loud music is in the third movement, which he called "a dance of oafs and fairies" (the English folk-song element is strong here). The finale begins and ends with an ethereal distant soprano solo, beautifully done here by Amanda Roocroft, and in between we have some of the composer's most poetically poignant music in his most gorgeously modal tone-language.

The Fourth Symphony (1935) is music of terrifying Miltonic indignation and fury, framed in relentless polyphony. It remains Vaughan Williams's most powerful and uncompromising work. "I don't know whether I like it, but this is what I meant," was his

definitive comment. Haitink and his Londoners communicate down to the last detail all the poetry and power of both these masterpieces. The sonics pack power and richness. Don't pass this one by. *David Hall*

WAGNER Music from the Operas

Berlin Philharmonic, Lorin Maazel cond. (*RCA Victor 63143, 75 min*)

★★★★

Lorin Maazel has the Berlin Philharmonic playing at the top of its form here, giving us an all-out supervirtuoso Wagner program with a brilliance and an intensity all too rarely combined these days. The pacing of the slower pieces is unusually broad — the preludes to *Lohengrin* and *Tristan*

Bæbes

Take the repertory of groups like Anonymous 4 and Sequentia, add the look of the Spice Girls, throw in one ex-stripper, a few exotic dancers, a systems analyst, and some former members of Miranda Sex Garden, and you've got the Medieval Bæbes, a twelve-woman troupe from England. Their U.K. chart-topping CD *Salva Nos* arrived on these shores in September on the Virgin label (I'm not making this up). Getting puritanical Americans to warm to the mix of balladry and bawdiness that Brits go bonkers for may prove challenging. But who knows, "talk dirty to me" in Latin may provide much-needed aural stimulation and a language barrier to special prosecution.

Robert Ripps



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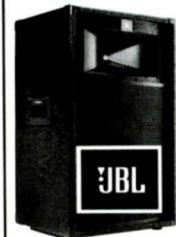
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Nos. 2, 3, and 5

Vadim Repin, violin; Vienna Chamber Orchestra, Yehudi Menuhin cond. (Erato 21660, 76 min) ★★★★★

Menuhin, who has himself recorded these concertos as both soloist and conductor, provides inspiring partnership here, and Repin's playing is elegant, winning — in a word, superb. The leaflet offers not a word on the music, but it is heartening to read that Repin has no wish to complete the Mozart cycle till he feels he has something personal to say about the remaining works. That, too, is elegant and winning, and so is the sound. *R.F.*

PROKOFIEV Piano Sonatas

Nos. 2, 7, and 8

Mikhail Pletnev (Deutsche Grammophon 457 588, 69 min) ★★★★★

Pletnev is in his element here; the way he balances power and subtlety in the Sonata No. 8 is what virtuosity on the very highest level is all about, and the recording is first-rate. For No. 2, though, Yefim Bronfman's performance on Sony is brighter and more vivid, and for No. 7 Maurizio Pollini's landmark version on an earlier DG disc is still the most striking. *R.F.*

ANONYMOUS 4

A Lammas Ladymass

(Harmonia Mundi 907222, 64 min)

★★★★★

The same conviction, vocal purity, beauty, and sweetness heard on earlier Anonymous 4 discs also characterize this votive Mass for the Virgin Mary suitable for lammas (late summer) in medieval England. Drawn from 13th- and 14th-century English chant and polyphony, it is actually (to me) a bit more moving than this unique quartet's other sacred recordings.

William Livingstone

YOLANDA KONDONASSIS

Pictures of the Floating World

(Telarc 80488, 54 min) ★★★★★

A program of compositions related to water allows this prominent young harpist to display her range and virtuosity. Besides works by French Impressionists, there are compositions from China, Japan, and the U.S. The disc takes its title from George Rochberg's *Ukiyo-E* (Pictures of the Floating World), the most substantial piece in the well-recorded recital. *W.L.*

und Isolde run more than 11 and 13 minutes, respectively, both well beyond the norm — but the conviction that illumines these readings, and the beauty of the playing, sustain a momentum that never sags, and the Venusberg Music from *Tannhäuser* is actually taken at quite a clip. Maazel does not use the chorus in that piece, but he does have the mezzo Waltraud Meier singing the "Liebestod" from *Tristan*. As the sonic focus is unaltered from the rest of the program — which also includes the Funeral March from *Götterdämmerung* and the overtures to *Tannhäuser* and *The Flying Dutchman* — her contribution becomes part of the overall orchestral fabric without losing its distinctive identity. The sound tends to be a little grainy here and there, but for the most part it amply conveys both the power and the sumptuousness of the performances.

Richard Freed

WEILL Berlin Lit Up

Rosemary Hardy, soprano; Ensemble Modern, H K Gruber, singer and cond. (Largo/EMD 56638, 57 min)

★★★★★

Here is Kurt Weill not only as a theater man, but as a pop and art-song composer, and great at both. In addition to the pop-style songs, the CD includes lieder and pure instrumental music, much of it composed for the theater. There is a freshness to this material from the 1920s and 1930s not only because much of it is still relatively unfamiliar but also from the context of programming, instrumentation, and performance. These songs are "originals," and the readings have originality as well, giving us an insight into a unique musical mind.

The Viennese composer, conductor, and cabaret-style singer H K Gruber is a unique figure in European music today, and a perfect match for the wonderfully eclectic Ensemble Modern out of Frankfurt. The whole range of Weill's style — theater to concert, pop to modern — is here. You'll either love or hate Gruber's gruff, rough singing style. I love it, possibly because it is ultimately so musical and so "real." It works perfectly for the anti-oil-company "Mussel from Margate" or the silly/scary "Meatball Song" in Berlin dialect. Gruber's cowboy singing, like Weill's, is more in the spirit of Karl May (a German cowboy writer known to every German child) than of Gene Autry.

In spite of its rather antiseptic name, the Ensemble Modern — under Gruber's urging, at least — can really cook. The title song, a fabulous arrangement of *Berlin im Licht* from the period, and the finale of the *Suite panaméenne*, Weill's own version of the "Hard Nut Song" from *Happy End*, are as perfect an evocation of the European Kurt Weill, known or unknown, as you will find. A super recording in every respect.

Eric Salzman

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DMITRI HVOROSTOVSKY**

Arias/Duets

English Chamber Orchestra, Patrick Summers
cond. (Philips 454 439, 66 min)

★★★★

Joint opera recitals for a mezzo and baritone are not common, but Philips is lucky to have two gifted Russian artists under contract, and they make an exciting combination. Both reach their zenith in the three scenes from Rimsky-Korsakov's *The Tsar's Bride* (an extended duet and two arias); it is hard to imagine a better rendition. They are also quite convincing in the long second-act scene of Saint-Saëns's *Samson et Dalila*, with Borodina's lush mezzo in willing complicity with Hvorostovsky's vindictive and obsessive High Priest, whom he portrays with imposing force and authority.

The rarely heard excerpts from Donizetti's *La Favorita* are certainly welcome. Both artists shine in their duet, revealing their *bel canto* affinities. In their arias, the baritone's dark sonority endows his singing with the required regal aura, while the mezzo (whose French is better than her Italian) easily surmounts the wide-ranging challenges of her music. Less successful are the three scenes from Rossini's *Barber of Seville*, where these two highly gifted singers

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seem unable to lighten up: an aggressive and almost menacing Figaro is paired with a too mature-sounding Rosina. The orchestra is excellent throughout. *George Jellinek*

NATALIE DESSAY

Vocalises

Berlin Symphony, Michael Schonwandt cond. (EMI 56565, 64 min)

★★★★

If you enjoy coloratura fireworks, the bravura display offered here by Natalie Dessay is as good as it gets. Let us be assured, however, that this petite soprano is no mere warbler but a distinct dramatic presence. Her technique is fabulous, she can produce solid musical tones even in the stratosphere

(F above C and beyond), and her accurate singing is enriched by sensitively graded dynamics and a fluid legato.

The collective title *Vocalises* is apt but requires some clarification. Entries by Rachmaninoff, Ravel, and Saint-Saëns are just that: etudes performed on sustained vowels, calling for seamless legato and boundless breath support. Glière's two-movement Concerto for Coloratura Soprano and Orchestra falls into the same category — it is longer but without any pretensions of profundity. In the pieces by Proch, Alabiev, and Johann Strauss II, the words are of the dispensable kind. Where words do matter — in the aria from Granados's *Goyescas*, in Delibes's *Les filles de Cadix*, and in Dell'Acqua's *Villa-*

nelle — they are rendered with charm and lilting warmth. *George Jellinek*

STEPHEN HOUGH

New York Variations

Stephen Hough, piano (*Hyperion/Harmonia Mundi CDA67005, 69 min*)

★★★★

By far the best known piece here is Copland's *Piano Variations* of 1930, a landmark work in proto-serial style often said to evoke the skyscrapers and modernistic style of the city. It's interpreted by Stephen Hough in an almost lyrical manner that sacrifices none of the music's power.

Ben Weber, now largely forgotten, was one of the first Americans to write twelve-

OPERA VERITÉ

Ever since the Puritans, America has had a strong moralistic streak, and it's provided some of our greatest artists with explosive subject matter. Two new American operas, both based on true-life events but using very different musical and narrative methods, explore the tragic stories of individuals pitted against grimly moralizing society.

Tobias Picker's *Emmeline*, his first opera, with a libretto by the poet J. D. McClatchy, is a retelling of the Oedipus story set in 19th-century New England. The 13-year-old Emmeline is seduced by the mill owner's son-in-law and becomes pregnant. The baby is taken from her at birth, and she retires into guilt-ridden seclusion. Twenty years later, when a virile young stranger comes to town, they fall in love and marry, only to discover in a devastating recognition scene that the groom is her own son.

Picker's score has a tough, jagged elegance, rooted in the modernist vocabulary yet graced by melody. He possesses a distinctively American voice, at some moments recalling Copland's moody, folkish sentimentality and at others Bernstein's bittersweet drollery. Yet his style is original, and his musical quotations have dramatic points to make: a hoe-down fiddle establishes time and place; a Lutheran hymn sets the moral tone of the chorus of townspeople. The live recording on Albany has dramatic urgency.

Soprano Patricia Racette powerfully creates the title role; by the end she begins to sound a bit frayed, which only intensifies the oppressive sense of tragedy. Tenor Curt Peterson, as the husband-son, has a rich tenor voice, but the very high tenor tessitura overmasters him in the recognition scene — though, again, a guy who has just found out that he married his mother is entitled to

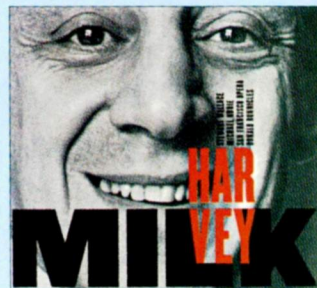
sound stressed out. George Manahan confidently leads the Santa Fe Opera Orchestra through the sometimes thorny thicket of Picker's score, while fully capturing the beauty of its elegiac moments.

In Stewart Wallace's *Harvey Milk*, the life of the country's first openly gay elected official, a grassroots politician who became a San Francisco city supervisor, is turned into an epic drama. Michael Korie's libretto skillfully weaves together many disparate narrative threads, portraying Milk as an outsider not only on account of his sexual orientation but also because he is a Jew. The opera has no plot in the conventional

assassination by Dan White, a troubled former policeman who served with him on the city's Board of Supervisors.

Wallace, a versatile, accomplished composer, moves easily from postmodernist pastiche to a tuneful, brass-heavy idiom closer to Broadway than traditional opera. He has a lot of fun with quotations in the scene at the Met, wittily looping together allusions to Puccini and Wagner. A scene at a Gay Pride parade has the raucous high-stepping swing of a half-time show at the Rose Bowl. The score even includes bits from the tape of then-Supervisor Dianne Feinstein's announcement of Milk's death and a poignant message of farewell he recorded himself, realizing that he might one day be killed for his convictions. The best music in the score is an epilogue in the form of a Kaddish, the Jewish lament for the dead, which is somberly, delicately scored and sung with haunting purity by countertenor Randall Wong.

Parts of *Harvey Milk* are over the top, and those who are easily offended will find plenty to be offended by. Nonetheless, this vivid recording of a polished, committed performance by the San Francisco Opera introduces a formidably talented composer-librettist team. *Jamie James*



sense but is rather a series of surrealistic tableaux, often savagely satirical, that constitute a mini-history of gay identity in contemporary America.

It begins in the Forties, when the teenage Harvey attends a performance of *Tosca* at the Metropolitan Opera and, looking around the standing-room section, asks himself, "Who are these men without wives? They know the plots of librettos, the names of dead Polish mezzos." From there it moves forward through the closeted early Sixties to the Stonewall riots in 1969 and the era of gay liberation that ensued. The final act is a gripping enactment of Milk's

PICKER Emmeline

Racette, Owens, Curton, Ledbetter, others; Santa Fe Opera Chorus and Orchestra, George Manahan cond. (*Albany 284-85, two CDs, 113 min*)

★★★★

WALLACE Harvey Milk

Orth, Very, Gondek, others; San Francisco Opera Chorus and Orchestra, Donald Runnicles cond. (*Teldec 15856, two CDs, 125 min*)

★★★★

tone music. His expressive and romantic 1946 *Fantasia (Variations)* certainly owes something to the Copland. So does the 1976 *Etude Fantasy* by John Corigliano, which moves from a big, building-block sound to a more fluid ornamental and melodic sound. These important pieces gain enormously in stature from these first-rate performances.

The oddity is the most recent work, a big postmodern set of *Ghost Variations* by George Tsontakis that packs a lot of things into its 32 minutes: an expansive modernism, references to the virtuoso Romantic piano tradition, even an actual Mozart theme that is then itself varied in a sort of deconstructed Beethovenian manner — variations within variations, and that's only the first movement! It is promptly followed by two frenetic scherzos, themselves multisectional variations, that range on out to the edge of possibility and listenability.

Hough is a pianist with a big vision and the physical endowments to match. The piano sound is as powerful as the music and the performances. *Eric Salzman*

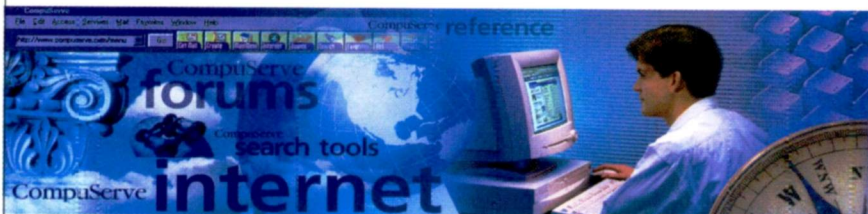
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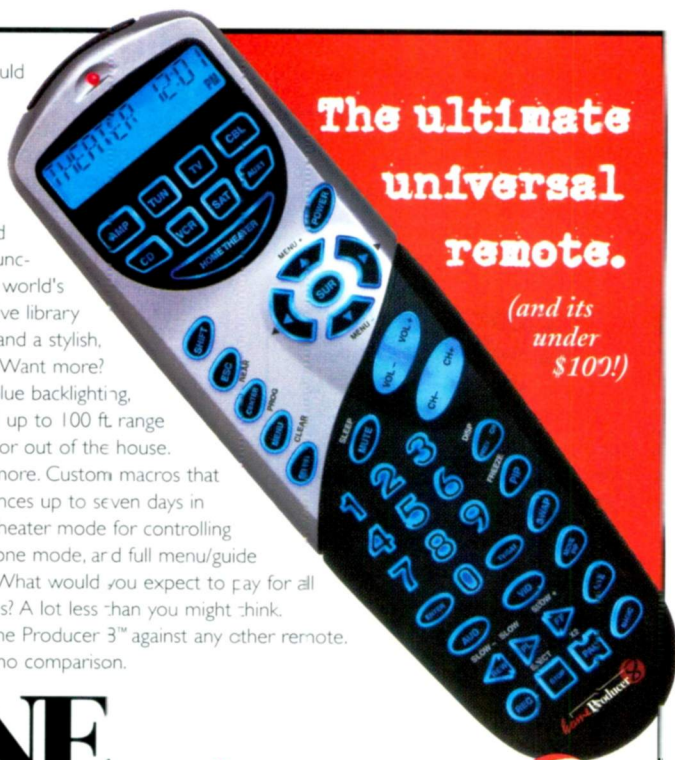
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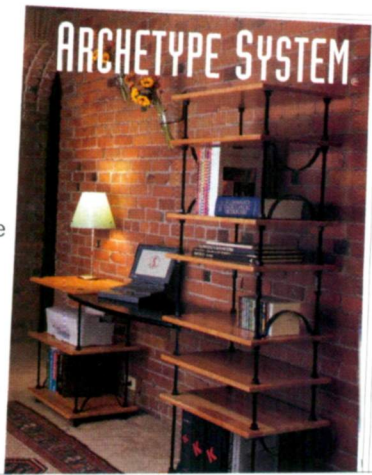
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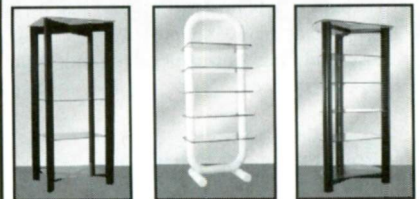


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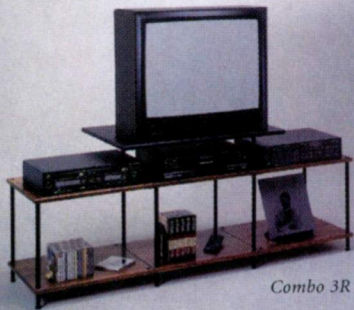
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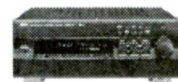




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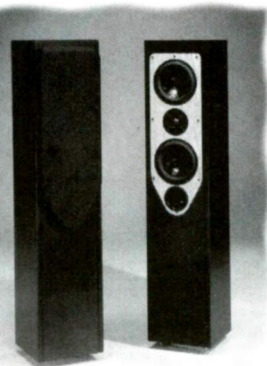
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THE HIGH END

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DVD Audio V1.0

THE VOTES ARE IN: the audio format specification for DVD-Audio has been chosen, signed, sealed, and delivered. Its official title, DVD-Audio Version 1.0, reflects the computer age in which we live but merely hints at the teeth-gnashing and political in-fighting that raged across the globe as the official standards committee, known by its New World Orderish title as the Working Group 4, or WG-4, hashed out the details for the successor to the CD. Maybe "hashed out" isn't strong enough — this is a calf whose birthing lasted all through the night and jellied the knuckles of anyone foolish enough to reach in and grab a jerking hoof.

If the development of the DVD-Audio format specification had been a kindergarten debate on whether the Teletubbies are better than My Li'l Pony, then the road leading to Version 1.0 would have gone something like this:

Version 0.5 would be the teacher asking for raised hands.

Version 0.6 would be the teacher asking the class nicely to please raise their hands before shouting.

Version 0.7 has the teacher asking one more time to see some hands "before you little @%#\$ scream your @%#\$ heads off one more time."

Version 0.8 sees the whole class laughing out loud for a full minute as the abrasive fat kid in back draws a time-out for arguing that the Saturday morning cartoon version of Louie Anderson could beat up the Teletubbies and My Li'l Pony put together.

Version 0.9 features an all-out scuffle between the above-mentioned fat kid and two other boys on the Teletubbies side, with several girls representing the My Li'l Pony side circling the fray and kicking randomly at ankles.

Over a year and a half ago, I first wrote in this space about Meridian Audio's Bob Stuart and his wide-ranging proposal for DVD-Audio ("Sound Without Vision," March 1997). I felt that of all the proposals floated before the WG-4, Stuart's (in conjunction with Britain's Acoustic Renaissance for Audio's) was the most forward-thinking and made by far the most sense. In particular, the innovative digital data-compression algorithm in Stuart's proposal, Meridian Lossless Packing

(MLP), seemed tailor-made for high-quality DVD-Audio.

By packing the same data in a smarter and more efficient manner than linear PCM digital audio formats like CD, MLP delivers the same bandwidth-saving benefits as such "lossy" data-compression schemes as Dolby AC-3 and DTS, but without *any* data loss whatsoever. It's like WinZipping a computer file — it shrinks to a fraction of its original size, but when you unzip it, you get the full file back intact.

MLP promised greater playing times, with more audio channels, and at higher sampling and bit rates than any of the other proposals being floated by the WG-4. But I have to admit that even as I endorsed it in print, I had little hope that the powers that be who decide these things would seriously consider the recommen-

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dations of someone like Stuart, whose state-of-the-art high-end digital preamps and speakers are as far outside the audio mainstream as they are unrivaled in sound quality. Stuart may be one of the world's leading digital thinkers, but compared with the Sonys and Panasonics of the world, Meridian's a small fry — and small fries don't usually get to make the rules, much less choose a replacement for the audio CD.

Other camps tried pushing their own coding schemes to the WG-4 as it made its way toward DVD-Audio Version 0.9. After losing the battles over laserdisc, DSS, and then DVD-Video to Dolby Digital, Digital Theater Systems (DTS) waged a bumbling campaign — as if anyone really expected a three-time loser to come from behind — to get DTS lossy compression adopted for DVD-Audio. But this is one mutt nobody seems to want to take home. Sony tried to push its single-bit, high-sampling-rate system, then decided to go it alone and develop it

into a rival superdisc format called the Super Audio CD, now slated for introduction in the fall of 1999. Even lowly Pacific Microsonics tried wooing the WG-4 with its HDCD encoding process, but that, too, was summarily rejected by the august body.

No, when it came time for the smoke to clear, WG-4 chairman Bike Suzuki of JVC announced that Meridian Lossless Packing would be adopted as the official coding format for DVD-Audio. The big winner, obviously, is Bob Stuart, who will now be able to lay claim to being the only high-end-audio manufacturer of DVD players who played any kind of role at all in designing the discs you feed them. But behind him, champagne corks are also popping at — where else since DTS has been foiled once again? — Dolby Labs. Rather than take the low road like its competitor and push a lossy data-compression scheme that's got no business anywhere near the next-generation music format, Dolby instead made the smart move of backing Meridian's MLP and

acting as its licensor. Dolby used its track record and its bigger size to promote the technology to the WG-4.

In a year most notable for a glaring absence of any significant action in the high end, Bob Stuart and Meridian have much to be proud of. As WG-4 chairman Suzuki told me, "Meridian Lossless Packing was selected because it showed the best performance in terms of lossless compression efficiency. With MLP, DVD-Audio now allows for much longer than 74 minutes of playing time at all modes of playback, with perfect transparency."

Licensing Meridian's algorithm was a brilliant move by Dolby. Without MLP, Dolby would undoubtedly have been left out of the DVD-Audio equation entirely. But without Dolby, Meridian probably wouldn't have had a chance in hell of getting onto the spec. The WG-4's decision is to be commended. Now DVD-Audio will sound better and play longer because of Meridian and Dolby. They both win, and so do we. □

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