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
CONSIDERING THE YEARS WE'VE PUT INTO IT
IT'S NOT SURPRISING
HOW MANY YOU'LL GET OUT OF IT.
It can resurrect *Jurassic Park*. Rescue *Apollo 13*. Ever raise *Titanic*. Not to mention what it can do for the Eagles, Jeff Beck and Boyz II Men.

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Introducing the DSP-A1. A home theater processor/amplifier crafted with custom microchips designed and manufactured exclusively by Yamaha. And equipped with the proprietary Digital Sound Field Processing we’ve been refining for more than a dozen years. Technology shaped by countless live concerts and studio sessions using Yamaha products. Right back to our first unplugged performance in 1887.

A century may seem like a lot to put into one home theater component. But after experiencing the DSP-A1, enduring anything less will seem like an eternity.

1. **42 DSP modes** recreate the ambiance of new venues like New York’s The Bottom Line jazz club using the most advanced measurement techniques yet, while also transporting you to favorite locations like the Village Gate and The Roxy Theatre.

2. **New Cinema DSP modes**, including a special Sci-Fi mode, are optimized for specific types of films as well as DTS, Dolby Digital® and Pro Logic processing to recreate the spacious sensation of a first-run theater.

3. **DTS Digital Surround** lets you experience exact replicas of the soundtrack masters that have helped spectacles ranging from *Jurassic Park* to *Titanic* thrill audiences on over 12,000 screens worldwide.

4. **Yamaha digital technology** applies our years of experience in proprietary Digital Sound Field Processing techniques to deliver the greatest possible sonic depth and detail.

5. **3 coaxial digital, 5 optical digital and 1 Dolby Digital RF input** give you nearly twice the options of other systems. And the DSP-A1’s extensive control capabilities let you optimize sound for speaker size, subwoofer performance, room acoustics and other listening conditions.

6. **Yamaha Application Specific Integrated Circuits (ASICs)**, custom-engineered to one-half-micron precision, ensure extremely faithful decoding of encoded soundtracks.

7. **5.1 channels for today and tomorrow.** With DTS and Dolby Digital complemented by inputs for yet-to-be-defined standards, the DSP-A1 may not be able to predict the future—but it’s fully equipped to take you there.

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9. **Available in unique Amber Gold** with polished wood-style side panels or traditional Black Satin metal finish.
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Our new Optimus indoor/outdoor speaker is at home anywhere. On the patio or in the living room, experience clear, detailed highs from a fluid-cooled polycarbonate tweeter and impressive lows from a rugged polypropylene woofer and powerful magnet design. The versatile PRO-LS3 sound routinely outperforms that of high-priced competitors—for under $200 a pair!

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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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at our site on America Online and link up with thousands of other people who are interested in the same good stuff you read about here. Browse our message boards or ask about equipment or a special CD. Search our archives and find a test report from last year. Somebody swiped the July issue? You can find lots of the information you missed on Stereo Review Online.

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NOVEMBER 1998

Technology Update
The copy-protection wars heat up online — and they could end home recording as we know it
BY GORDON BROCKHOUSE

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

Executive Decision
Eight executive desktop systems compared: which ones have the power and style to make it at the top?
BY RICH WARREN

Test Your A/V I.Q.
Our second official quiz to separate the newbies from the tweaks
BY IAN G. MASTERS

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

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

PRINTED IN THE U.S.A.
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 that reproduces movie soundtracks well will also do a first-rate job with music encoded in Dolby Surround, Dolby Digital, or DTS - or in a surround 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.
When Carl Weathersby plays he's reaching deep into his heart and letting his emotions pour out through the music. When it reaches your ears, it will touch your soul. And even if you're not right there when Carl plays, we think you should still hear him as if you were.

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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.

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 DigitalCeiver 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 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 33½ 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 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 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.

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.

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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 schoolmates 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 pretentions. “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 Wokie.

So much for “Let It Be.”

— Daniel Manu
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 so elegantly 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 the 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 trash 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.

In the war of formats, price and convenience lead us to the victor. Look at Apple vs. IBM, Beta vs. VHS, or digital audio
3 CDs for $4.95 ea. No risk! No obligation!

Here's a great chance to try Play, a new hassle-free music club from Columbia House. Play is like no other music club out there! There are no reply cards to return. No automatic shipments. And now's the best time to try us out with a special 6 month trial membership. Start off by choosing 3 CDs for $4.95 each, plus shipping and handling, and the benefits begin! We'll send our FREE Music Magazine featuring thousands of selections at special low prices. You'll also enjoy exciting CD samplers of new and upcoming artists, toll-free ordering, friendly customer service, and easy Web site access to over 14,000 selections! See for yourself how much you'll enjoy hassle-free trial membership in Play! Choose your 3 CDs now with no further obligation. Call us toll-free or send in the coupon today!

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Write the selections you want in the boxes below. 

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2 What's your favorite music? Check only. (Me)

3 What's your favorite music? Check only. (your son)
taped vs. analog cassette tape. The winner
every single time was the price/convenience
champ. Let’s compare Divx and DVD honest-
ly. 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 trash 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 letterbox-
ing 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 ques-
tioning 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 con-
sumers 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 oth-
er person being charged.” The DVD Web
sites claim that even if a Divx disc is up-
graded to Silver, it can only be played at no
charge on the Divx player under that owner-
ner’s account. Therefore, someone else’s
Divx player will still be charged when play-
ing 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 play-
er, 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.

14 STEREO REVIEW NOVEMBER 1998

There is one aspect of Divx I have not seen
addressed in any forum, that it is a dispos-
able 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 hazard-
ous materials to further contaminate an al-
ready polluted world.

Until Divx allows ownership for the orig-
inal limited viewing window to be trans-
ferred without fees of $20-plus, I hope peo-
ple think carefully about which Divx discs
they “rent” and select only those they plan
to keep permanently.

Bruce Kofoed
Buhl, ID

Actually, Corey Greenberg did raise the re-
cycling issue in his initial “High End” col-
umn about Divx in the January 1998 issue.
Divx says that its discs are made of recy-
clicable polycarbonate plastic and that retail-
er 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 De-
mise” on page 10.

Hearing and Believing

July’s “Tech Talk” by David Ranada was a
blunt reminder of why this was the first is-
ssue 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
“cutie” 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 im-
pose 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 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 fu-
ture 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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The new Sony DVP-C600D lets you enjoy Sony "reference standard" performance for movies and music.

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LETTERS

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 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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- Cory Greenberg, Audio, on the Paradigm Mini Monitor

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Almost See

LETTES

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 7 1/2 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-
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 cali-
brated levels for both modes should be the same — and you couldn't do anything about
any disparities if you found any. I recom-

mended separate calibration for Dolby Di-
gital 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 re-
corder 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 any-
time soon?

John Bednarek
Eynon, PA

The royalty on CD-R blanks designated “for
music use only” is 3 percent of the whole-
sale 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 ques-
tion that the price of blanks will drop fur-
ther. Again, how much and how fast de-
pends largely on supply and demand.

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Free starter kit. Buy a Sony DiscJockey CD changer and we'll get you half way there with 5 free compilation CDs, with a selection of artists such as: SOUL ASYLUM, DIANA KING, DIXIE CHICKS, COLOR ME BADD, DES'REE, CAM'RON, JOHN FORTÉ, SLAYER, and that's just for starters.

See the Shift Gears display at participating Sony retailers.
**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/UR3000 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

NOVEMBER 1998 STEREO REVIEW 21
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 IFS digital interface. It measures 19 x 5 x 14 inches. Price: $6,999. Sonic Frontiers, Dept. SR, 2790 Brighton Rd., Oakville, Ontario L6H ST4; 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 of ms, 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 infrasonic filter. Thermal and overload protection circuitry are provided. The 202a measures 2 ¼ 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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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-avoid 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, 800-962-7752; 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 1⅛-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 10¾ 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
Creativity comes from a willingness to be different and the technology to make it work. Lifestyle systems represent a fundamentally different approach to audio, engineered to be the best sounding, easiest to use home theater systems ever. One listen and you'll understand why Stereo Review said we had "A decidedly different world view."**
Yamaha  For instant home theater, just add Yamaha’s AV-S7 CinemaStation to almost any TV and VCR and crank up the volume. The AV-S7 features a center speaker with a built-in surround processor that provides Dolby Pro Logic decoding, a Cinema DSP mode, and three ambience modes for stereo music. The bass module, measuring 16¾ x 9¾ x 16½ inches, contains a 165-watt system power amp. Two front left/right satellite speakers and two “effects” (surround) satellites, each 4¾ x 3¼ x 4¼ inches, complete the package. Price: $599.

Yamaha, Dept. SR, 6660 Orangethrop Ave., Buena Park, CA 90620; phone, 800-492-6242; Web, www.yamaha.com

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 6½-inch Model 3065 ($300), the 5¼-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 30B 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

Sound Dynamics  The RTS-P100 three-way speaker from Sound Dynamics has a built-in powered subwoofer with a 100-watt amplifier, two 6½-inch drivers, and gold-plated biampable terminals. The upper section of the cabinet holds a 1-inch tweeter and a 6½-inch midrange. The RTS-P100’s frequency response is given as 25 Hz to 25 kHz ±3 dB and its nominal impedance as 8 ohms. The speaker measures 42 x 10⅛ x 14¾ inches and is finished in black ash or light birch. Price: $600.


Tributaries  The Big Lug (Model SL-8) comprises two ½-inch gold-plated spade lugs with ¾-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
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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 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 transparency and dynamics. If you put as great an importance on being able to handle many different types of music as I do, including rock and electronic, 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 Dudleston realizes that many potential owners of the Classics may have rooms or personal tastes that might require a 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
They are just not in the same league. Snells are (and I still think they are fine speakers), every other area I think it is unfair to continue but because they were better than the Snells in from the other frequencies contained in the music was also appropriately balanced - extremely pitch stable, tight, full, and natural. It claims the Classic's bass response goes down to 22 class of bass in my listening room. I have had bass would have that much better bass than the Snells. So, I wasn't expecting that the Classics sounded realistic throughout all these speakers, not only because of their transparency, but also 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, Legacy's pristine voice was centered between the two speakers with smooth, uncolored colorlessness. 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 totally 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.

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(ISSN 0199-4645)
MIDNIGHT IN THE GARDEN OF GOOD AND EVIL

Lest you think the characters are exaggerated in this deliciously decadent, fact-based murder mystery, the Special Edition DVD has a bonus interactive tour of Savannah that offers interviews with the actual people portrayed in the movie, showing they are just as colorful and intriguing as their film representations. In the Georgia of Clint Eastwood’s 1997 adaptation of Midnight in the Garden of Good and Evil, art imitates life, and, as if to prove the point, scenes from the movie are cleverly woven into the DVD’s interviews for direct comparison. Among additional features, you get biographies, production notes, and a trailer. What’s more, this is one of the best-looking DVD’s interviews for direct comparison. Among additional features, you get biographies, production notes, and a trailer. What’s more, this is one of the best-looking DVD's so far, with Savannah’s bricked walkways reproduced in sharply defined visuals, accompanied by a Dolby Digital 5.1-channel soundtrack that’s about as good as it gets. An elegant, eccentric jewel.

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 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.

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-Valids” 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 out-takes. Two deletions seem to have been 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.

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.
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R-NDN98-SR
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” cordings, her multi-Platinum megahit system’s bottom end. Unlike most pop resource of test signals for exercising your system’s bottom end. Unlike most pop recordings, her multi-Platinum megahit

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 synthesizer 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 the repeated music is blunted. It is for these and other musical reasons that a high-quality audio system is desirable.

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 reasons that a high-quality audio system is desirable.
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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?

A. There are lots of excellent reasons not to do that. First, you should never blindly 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.

Patrick Leigh
Baton Rouge, LA

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?

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.”

Vijay Kumar
Lenexa, KS

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?

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.

Richard Evans
Aliso Viejo, CA

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?

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 on the theatrical release. There are also degrees of letterboxing, depending on the aspect ratio (height to width) of 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.

Holger N. Carlson
Munster, IN

Where Are the Bits?

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

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.

Osmanu Ibrahim
Dayton, NJ

Linear Videotape Soundtracks

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

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
The disc is mini.
So what's the big noise about?

Sony calls it MD — MiniDisc. Maybe you’ve seen the ads for it. They’re gorgeous. But frankly, they don’t tell you much. For example, you can record an entire album onto MiniDisc or make a “hits” mix of your favorite songs, and then add, delete or move songs around without having to start all over.

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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 hate 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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The Moonlight Sonata

AN OLD FRIEND CAME to see me yesterday evening, and we reminiscenced 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 concerned about its performance, as we begin to audio in the first place. Of course, we cannot overlook the very thing that drew us to audio 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 stirs us and makes us better. Music is the happy memory of your favorite children’s song, your first kiss. Music speaks to the human voice of music. It was never about artificial, whether the notes are soulful 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 rarified. But maybe not. Theirs 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. We technophiles are inevitably depressed because our systems fall short of perfection. We conclude that our systems are incapable of delivering a satisfactory bass response. 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.

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.

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 satisfactory bass response. 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
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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 Titan 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.
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- High Performance Review
TECHNOLOGY UPDATE

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, at 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 copyright 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 recorders 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 AV 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.
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Considered by many to be the finest full-range loudspeaker of the last two decades, the legendary 801 has been reborn.
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-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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See our dealer list on page 52
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 10 1/2 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 (3 1/2-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 cutouts on the rear panel.

Also on the back panel is a biwirable 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
"Definitive's PF15TL is Absolutely, Unequivocally the Way to Go!"

— Jeff Cherun, Home Theater Magazine

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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 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 Ear- gle'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.

---

**HIGH POINTS**

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

**LOW POINTS**

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

---

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/82 Hz
StereoReview Presents

STereo

Buyer’s Guide 1999

Thousands of HOME THEATER And Audio Components Shopping Tips! Features! Specs! Prices!

DVD Players A/V Receivers Speakers Surround Sound Processors Hi-Fi VCRs CD Players Amplifiers And Much More!

AVAILABLE At Your Newsstand OCTOBER 13 1998
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).

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...
"For the bucks, you simply can't do better." "...if you want a system that delivers the absolute best home-theater and music performance for less than $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.

The basics are five high performance shielded speakers; a "Take1" center channel, and four "Take2" satellites. Add an "Energy®" ES Series powered subwoofer, and treat yourself to the ultimate in full range surround performance. The "Take5™" system is compact and fully integrated, with a sound so big, your eyes won't believe your ears.

"Five high tech speakers for $500? Believe it! Their remarkable value for this price class makes the Take5 an AVS No-Brainer."

Anthony Chiarella
Audio Video Shopper.
May 1997
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 respectfully 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, 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 ambiance-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-
It's here and it's hot. From the minds at Mirage comes "home theater in a box", delivering high performance and high flexibility without the high price.

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AMP WITH AN ATTITUDE!
Introducing the AT2505

At 1,250 watts RMS and 110 pounds, the new AT2505 is not your grandma's amp! The AT2505 is the latest in the series of award winning high-power, high-current amps from Amplifier Technologies. This amplifier, at an astonishingly low $2,695, has all the features and value you have come to expect from ATI: massive heat sinks (this is the most powerful amplifier for home theater use that doesn't require noisy/dust collecting fans), a custom-built toroidal transformer, double-sided glass-epoxy circuit boards, fuse-fault indicators, and our unique DMC Detachable Modular Component architecture.

The AT2505 delivers a whopping FTC 250 watts RMS per channel into 8 ohms from 20Hz to 20kHz with no more than .03% THD—with all channels driven simultaneously! If you are looking to build a home theater system with an edge, the AT2505 has just the right attitude.

All ATI products are made in the USA and are protected by a 7 year warranty. For more information on the AT2505 or our other power amplifiers, or to order, call us today.

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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INTRODUCING

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Mirage FRx Home Theater Speaker System

TOM NOUSAINE

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 5 1/4-inch woofer and a 3/4-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 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 1 1/2 square feet). Even the horizontally arrayed FRx-C center 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 biamplification 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.

**FAST FACTS**

<table>
<thead>
<tr>
<th><strong>FRX-SEVEN</strong> (main)</th>
<th><strong>FRX-C</strong> (center)</th>
<th><strong>FRX-R</strong> (surround)</th>
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PHOTO BY BRYN GLADDING

64 STEREO REVIEW NOVEMBER 1998
FOR NEARLY A DECADE, THE WORLD'S MOST RESPECTED HOME THEATRE COMPONENTS HAVE EACH HAD ONE THING IN COMMON...

In 1982, George Lucas challenged a group of engineers to permanently raise the quality of theatrical presentation. After 16 years, and nearly 2000 THX certified theatres, only the size of the audience has changed.

Today, more people applaud the THX experience in more venues than ever. From multi-plex theatres to the world's most discerning homes, the THX brand still stands for the same thing - the best investment in entertainment that money can buy. Which is why, today, THX Home Theatre products are more than a standard of technical excellence. They are a guarantee of the ultimate Home Theatre experience.

ASK FOR IT.
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.

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 subwoofer...
The **System 9000** home theater won't dominate your living room. Unless, of course, it's on.

**Imagine. Omit Kiri.** Perfectly matched home theater speakers with a powered subwoofer that sound truly spectacular. How spectacular? *Stereo Review* compared it to other satellite/subwoofer systems they've heard (and they've heard nearly all of them), they said the System 9000 beat the field—get this—"by a wide and clearly audible margin." Hear for yourself at a Boston dealer.

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An interactive, participatory music appreciation program for students in schools where funding for the arts has been reduced or even eliminated. harman: how to listen is designed to encourage improvisation coupled with self discipline and cooperation through music. This year’s program is taught by esteemed musicians Betty Carter, Grover Washington, Jr. and Alison Krauss & Union Station.

Betty Carter
The first lady of jazz. She’s known as one of the most inventive vocalists in jazz history as well as a relentless curator of young talent.

Alison Krauss & Union Station
Led by acclaimed fiddler, vocalist and youngest member of the Grand Ole Opry, Alison Krauss & Union Station are nine-time Grammy Award winners and Rolling Stone’s 1995 Country Artist of the Year.

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.

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 approximately 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.

The True Subwoofer-Signature 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 like a rag doll.
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JBL is one of the great brands of Harman International H E A R U S E V E R Y W H E R E.
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 dig realistic explosions, 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 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 “breakthrough” 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.

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Kenwood. We'll Change The Way You See Music.
“Do you really need new speakers?”

Matt Polk, Speaker Specialist

“M"aybe 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.

Free stuff!
If you’re shopping for a home theater system, you’re going to find that it’s a lot more complicated than buying a pair of speakers. But the rewards are greater, too. Call (800) 627-7655 ext. 101 for your free copy of the Home Theater Handbook. It’s full of practical, unbiased advice on how to select and get the greatest performance from a home theater system.

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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
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 (8 1/2 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
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 preampprocessors (typically $600 to $5,000), "monoblock" and multichannel 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...
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 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 mastered, 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 Har- ley 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
The center speaker, usually placed on top of the TV, is most important for movies. Shown: Boston Acoustics’ CR2 ($200).
Many 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 television 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 considering all 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.
If you’re not inclined to spend several thousand dollars on a set of high-end speakers, don’t worry. You don’t have to.

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SOLVING THE HOME THEATER PUZZLE

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 multroom 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 considering 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-
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-
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, respackle, 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 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 mounting 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-
SOLVING THE HOME THEATER PUZZLE

Tenine 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 exposed 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 can simply string them bare along 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.

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 Parasound CS/T-255A ($265 a pair).

In Control

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.

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.
The new Sunfire True Subwoofer by Bob Carver has received reviews that are redefining the subwoofer industry.

There has never been a subwoofer like it!

There will never be a subwoofer like it!*

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!

Trust Bob. It Rocks!

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

-Al Griffin
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 Hirsle
Stereo Review, Dec 96

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

http://www.sunfirelabs.com
SOLVING THE HOME THEATER PUZZLE

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 video 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.

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-
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.”
EXECUTIVE

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 any ears they detracted rather than added to their nominal musical genres; “Pops,” Rock, “Classic,” rather than added to their nominal

The tuner delivered the expected performance and wake up to stock prices on the radio. The CD player, which loaded the disc in about 5 seconds, smoothly and quickly, was able to set it up in just 5 seconds.

The CD player, which loaded the disc in about 5 seconds, smoothly and quickly, was able to set it up in just 5 seconds.

PIONEER LIFEPLUS NS-7

The Pioneer LifePlus NS-7 is a compact system that has all the features of a small, elegant audio system from Pioneer. The system trades a degree of aural satisfaction for visual beauty. An audio sound is displayed on the display when you press the station call letters to appear on the display instead of the frequencies or station preset numbers. You could take a power nap lullled 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 audio sound is displayed on the display when you press the station call letters to appear on the display instead of the frequencies or station preset numbers. You could take a power nap lullled to sleep by the CD player and wake up to stock prices on the radio, or vice versa.

The quiet CD player, which loaded the disc in about 5 seconds, smoothly and quickly, was able to set it up in just 5 seconds.

The CD player, which loaded the disc in about 5 seconds, smoothly and quickly, was able to set it up in just 5 seconds.
A MiniDisc (MD) recorder as an option. Some are made of individual components that can be stacked any way you want, while others put everything in one package.

They all have clocks that double as timers, so you can set them to turn on automatically. Most of the systems with a cassette deck or MD deck let you use the timer to make unattended recordings on the MD or record cassettes while you're out.

The system combines an integrated CD player, cassette deck or MD deck — or both — and a receiver. You can connect speakers finished in high-gloss cherry, which are also available in maple or walnut. The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job?

The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job? The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job?

Executive Decision

The champagne-gold front panel contains a giant volume knob, which is really up to the job? The champagne-gold front panel contains a giant volume knob, which is really up to the job?

Executive Decision

The champagne-gold aluminum front panel contains a giant volume knob, surrounded by an amber glow, and a three-dimensional, fluorescent display. An analog clock face floats behind whatever is being displayed (such as radio station or CD frequency on the front of the display), giving the brightness to suit your taste. The top contains all the operational controls, including push buttons for each operation simple and convenient. Some controls, such as supplied speaker terminals, can only be operated on the remote. The main terminal, such as the line input, is also suitable as well as an optical digital output for MD. A similar model, the Pioneer LitePlus, is available as a single chassis.

The CD player rested side close to each other but was slightly sensitive to slaps on top.

The CD player rested side close to each other but was slightly sensitive to slaps on top.

Kenwood Audio

The handsome Kenwood AVINO ($500) looks more like a minicomputer system than an entertainment system. You can stack the four independent components on top of each other, a CD player, cassette deck, and MD deck — or place them two by two. The recorders are options not included in the $500 basic price. But I evaluated the system with both of them. When all four pieces are stacked, their controls form a foot-high, 2-foot-wide affair. One unit, a pair of 44 key keys for the vast number of functions.

Kenwood Audio

Executive Decision

The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job? The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job?

Executive Decision

The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job? The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job?

Executive Decision

The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job? The champagne-gold aluminum front panel contains a giant volume knob, which is really up to the job?
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 nasally 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.

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 form 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 “Goodbye” 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.

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.
"When Velodyne announces a new subwoofer, the earth trembles—literally."

"The Velodyne subwoofer is one of those rare components I can recommend to almost anyone... I rank the quality, if not the magnitude, of this small California company's achievement up there with Dolby noise reduction and the compact disc."
Audio, November 1987

Low Bass. High Regard.

In subwoofers, only a single company has been recognized as producing the best subwoofers in the world. Consistently. Year after year. That company is Velodyne. Now, with the introduction of our new Classic Theater series subwoofers, we've brought our legendary performance to an even more accessible price point. Hear them. Feel them. At a dealer near you.
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 messages 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 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

<table>
<thead>
<tr>
<th>Price</th>
<th>CD player</th>
<th>Cassette recorder</th>
<th>MiniDisc recorder</th>
<th>Speakers (enclosure, drivers)</th>
<th>Bass module</th>
<th>Rated power output</th>
<th>Dimensions</th>
<th>Weight</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2,700</td>
<td>1-disc player</td>
<td>no</td>
<td>no</td>
<td>powered; 1&quot; tweeter, 4&quot; woofer; powered (65 watts)</td>
<td>no</td>
<td>n/a</td>
<td>14³/₄ x 12½ x 6½ inches</td>
<td>44 pounds</td>
<td>sliding glass doors; multipin connectors for easy hookup</td>
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<td>$1,000</td>
<td>3-drawer, 3-disc changer</td>
<td>yes; with Dolby B/C, XH Pro</td>
<td>optional DMD-M7 ($599)</td>
<td>powered; 1½&quot; tweeter, 5¼&quot; woofer</td>
<td>no</td>
<td>30 W/ch</td>
<td>15 x 8½ x 13½ inches</td>
<td>26 pounds</td>
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<td>13 W/ch</td>
<td>8 x 5½ x 11¼ inches</td>
<td>9½ pounds</td>
<td>subwoofer output; double-layer fluorescent display</td>
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<tr>
<td>$500</td>
<td>1-disc player</td>
<td>optional X-SE7 ($200) with Dolby B/C, XH Pro</td>
<td>optional DM-SE7 ($400)</td>
<td>powered subwoofer (80 watts); 6½&quot; driver</td>
<td>Class A, 7.5 W/ch; Class AB, 20 W/ch</td>
<td>25 W/ch (satellites only)</td>
<td>4 x 18 x 12½ inches</td>
<td>20 pounds</td>
<td>Class A/AB amplifier; CD Text</td>
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<tr>
<td>$1,000</td>
<td>1-disc player</td>
<td>no</td>
<td>no</td>
<td>sealed; 1½&quot; tweeter, 3½&quot; woofer</td>
<td>powered subwoofer (80 watts); 6½&quot; driver</td>
<td>20 W/ch (satellites only)</td>
<td>5 x 7½ x 15 inches</td>
<td>11 pounds</td>
<td>digital tone control; Dynamic Bass Boost; choice of grilles</td>
</tr>
<tr>
<td>$550</td>
<td>1-drawer; 3-disc changer</td>
<td>no</td>
<td>no</td>
<td>powered; 1½&quot; tweeter, 4&quot; woofer</td>
<td>no</td>
<td>20 W/ch</td>
<td>5 x 7½ x 15 inches</td>
<td>11 pounds</td>
<td>Super Bass circuit</td>
</tr>
<tr>
<td>$800</td>
<td>1-disc player</td>
<td>no</td>
<td>no</td>
<td>powered; 2½&quot; cones</td>
<td>yes; 6½&quot; driver</td>
<td>20 W/ch, satellites: 30 W, bass unit</td>
<td>3½ x 8½ x 12½ inches</td>
<td>9 pounds</td>
<td>separate, dimmable fluorescent display</td>
</tr>
<tr>
<td>$700</td>
<td>1-disc player</td>
<td>yes; Dolby B</td>
<td>no</td>
<td>powered; 2½&quot; tweeter, 4½&quot; woofer</td>
<td>no</td>
<td>70 W/ch</td>
<td>14 x 8 x 11½ inches</td>
<td>24½ pounds</td>
<td>CD Text; Class A mode; bass-boost circuit</td>
</tr>
</tbody>
</table>

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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Ian G. Masters Challenges Your

A/V I.Q.

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 ±6 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. monaural.

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 Stereo Review 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.** 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.

**B.** 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.

**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).

**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.

**E.** 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.

**F.** 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.

**G.** 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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— Jon Valin, *Fi* magazine, July, 1998

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— Myles Astor, Editor, *Ultimate Audio*, Jan./Feb., 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.

Funny, with all the synthetic effects and gimmicks available on today's A/V receivers - no one is talking about what really counts - delivering the best sound for the dollar. The NAD T770 surround sound receiver's unique design provides everything you need to enjoy a great movie or music. And, as with all NAD products, it maintains a reputation for true value, performance and simplicity.

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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, 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
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-Vid eo 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 cy berspace. “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

NOVEMBER 1998 STEREO REVIEW 107
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’s 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)

* * *

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 was 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 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 explanatory 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, shrinks, distorts herself, declaims in a drawl, and, in “No Girl So Sweet,” masquerades as a guitarist. 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
"Hit Me with Your Best Shot" — *Celebrity Skin* is a great-sounding album that reveals 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 vocals display a depth that were unthinkable in the past. The closing title track is over, don't miss the 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's-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, it times 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

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**LAURYN HILL**

The Miseducation of Lauryn Hill

(Ruffhouse/Columbia, 78 min)

A **fter 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 state of mind. On the band's new album, however, conditions are upgraded to partly cloudy with occasional gusty winds. The melodic sweep of the best L.A. pop. The Miseducation of Lauryn Hill is hardly preachy, and Hill's convictions shine through. And when the closing title track is over, don't miss the 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's-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

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**SON VOLT**

Wide Swing Tremolo

(Warner Bros., 46 min)

J**ay 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 funereal 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. 

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**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* series for BBC TV, the first shown in 1996 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."
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 — 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 "Hoofer Street" sounds like a dead-on parody of Joe Strummer's dabblings in Beat poetry. And the band's strongest songs, an offbeat minor-key rocker called "The Good Life," echoes that band's glory days more than anything on its own reunion album. Nevertheless, Rancid delivers an unusually wide-ranging punk album — 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 "Hoofer Street" sounds like a dead-on parody of Joe Strummer's dabblings in Beat poetry. And the band's strongest songs, an offbeat minor-key rocker called "The Good Life," echoes that band's glory days more than anything on its own reunion album.

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 Cracker-esque whiz-bang. It opens with one of the band's strongest songs, an offbeat minor-key rocker called "The Good Life," which sets the skeletal tone for all that follows. Comical glimpses at an itinerant rocker's lot ("Seven Days") mingle with expressions of hand-wringing meaningfulness in the wake of a relationship's ending ("My Life Is Totally Boring Without You"). Overall, this is a more subtle and subdued 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.

SLOAN Navy Blues
(Murder, 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 "Ohama," 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 scrunchers as "Mon-ey City Maniacs" (a solid 4/4 rocker), "Ches-ter the Molestere" (more great piano), and "On the Horizon" (relentless, with a nod to Keith Moon).

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, whether...
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 Stateside in several homegrown versions, thanks largely to the pioneering effort of saxophonist/composer John Lurie and his group, the Lounge Lizards. Queen of All Ears, the Lizards’ most solid effort since 1989’s Voice of Clunk, 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 mile, 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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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, 2.3 musical snippets from the postmodern fishing show Lurie has devised for the Independent Film Channel. The music on its own is

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**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 Subliminoso, 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.

**POUNDHOUND** 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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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

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**URIAH HEEP**

Classic Heep: An Anthology (Mercury, two CDs) Some would have you believe this is the Worst Band Ever, but Bill Levenson has concocted a sympathetic distillation. Liner notes by Ken Hensley.

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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, stripping 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 some of the most glorious singing of Lucia's music since Maria Callas's thrilling performances in the mid-1950s and the young Joan Sutherland's spectacular overnight success with the opera at the decade's end. Andrea Rost has a voice ideally suited to the role, pure and richly colorful in tone, and her technique is flawless: every note is focused and spot-on, and the roulades unreeled in liquid legatos, like spun silk. She is formidably partnered by her Edgardo, Bruce Ford, one of the most accomplished tenors of our day. He brings deeply moving emotional intensity to his performance of the final scene, in which he uses the vocal ornaments devised by Gilbert Duprez, the French tenor who created the role in 1835. Baritone Anthony Michaels-Moore, as Enrico, and bass Alistair Miles, the Raimondo, are also fine singers well cast.

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
Kronos Quartet; London Sinfonietta, John Adams cond. (Nonesuch 79465, 61 min)

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 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 STAR SYSTEM

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“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.

****

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

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.

******

Innumerable 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 passegowork, 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

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T he 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 56364, 72 min)

B ernard 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 folksong 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)

L orin Maazel has the Berlin Philharmonic playing at the top of its form here, giving us an all-out virtuosic 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

Classical Music

The Academy of St. Martin in the Fields, Neville Marriner cond. (Novialis/Qualiton 150 147, 73 min)

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MOZART Violin Concertos
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 partnerships 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.

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.

and Isolde run more than 11 and 13 minutes, respectively, both well beyond the norm — but the conviction that illuminates 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 Gotterdammerung 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
COLLECTIONS

OLGA BORODINA AND
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-Saens'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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WAGNER Lohengrin
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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 DESAY

Vocalises
Berlin Symphony, Michael Schönwandt cond. (EMI 56505, 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 
say is as good as it gets. Let us be assured. Vocalises a too mature-sounding Rosina. The orchestra is excellent throughout. George Jellinek

WINTERVERITÉ

E ver 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 sense but is rather a series of surrealist 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 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.

STEPHEN HOUGH

New York Variations
Stephen Hough, piano (Hyperion/Harmonia Mundi CD467005, 69 min) ****

By far the best known piece here is Copland's Piano Variations of 1930, a landmark work in proto-symphonic style often said to evoke the skyscrapers and modernist 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-
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 movements! It is promptly followed by two frenetic scherzos, themselves multisectional variations, that range on out to the edge of frenzy.

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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.

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<td><a href="http://www.CESweb.org">www.CESweb.org</a></td>
<td>888-CES-SHOW</td>
</tr>
<tr>
<td>13</td>
<td>Columbia House CD Club</td>
<td><a href="http://www.columbiahouse.com">www.columbiahouse.com</a></td>
<td>800-457-0500</td>
</tr>
<tr>
<td>31</td>
<td>Columbia House DVD Club</td>
<td><a href="http://www.columbiahouse.com">www.columbiahouse.com</a></td>
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</tr>
<tr>
<td>129</td>
<td>CompuServe</td>
<td><a href="http://www.compuserve.com">www.compuserve.com</a></td>
<td>800-848-8199</td>
</tr>
<tr>
<td>34</td>
<td>Crutchfield</td>
<td><a href="http://www.crutchfield.com">www.crutchfield.com</a></td>
<td>800-955-9009</td>
</tr>
<tr>
<td>52, 53, 55</td>
<td>DVD Express</td>
<td><a href="http://www.dvdexpress.com">www.dvdexpress.com</a></td>
<td>888-DVD-9700</td>
</tr>
<tr>
<td>27</td>
<td>Edge Pro Gel</td>
<td><a href="http://www.insideedge.com">www.insideedge.com</a></td>
<td>800-558-5252</td>
</tr>
<tr>
<td>59, 61</td>
<td>Energy Loudspeakers</td>
<td><a href="http://www.energy-speakers.com">www.energy-speakers.com</a></td>
<td>800-368-2344</td>
</tr>
<tr>
<td>62</td>
<td>Every CD</td>
<td><a href="http://www.everycd.com">www.everycd.com</a></td>
<td>800-EVERY-CD</td>
</tr>
<tr>
<td>70</td>
<td>Harman International</td>
<td><a href="http://www.harman.com">www.harman.com</a></td>
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</tr>
<tr>
<td>71</td>
<td>JBL</td>
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<td>800-336-4JBL</td>
</tr>
<tr>
<td>73</td>
<td>Kenwood</td>
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<td>800-536-9663</td>
</tr>
<tr>
<td>28-29</td>
<td>Legacy Audio</td>
<td><a href="http://www.legacy-audio.com">www.legacy-audio.com</a></td>
<td>800-283-4644</td>
</tr>
<tr>
<td>65</td>
<td>Lucasfilm THX</td>
<td><a href="http://www.thx.com">www.thx.com</a></td>
<td>415-492-3900</td>
</tr>
<tr>
<td>C3</td>
<td>M&amp;K Sound</td>
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<td>310-204-2854</td>
</tr>
<tr>
<td>104</td>
<td>Magnepan</td>
<td><a href="http://www.magnepan.com">www.magnepan.com</a></td>
<td>800-474-1946</td>
</tr>
<tr>
<td>127</td>
<td>MCM Electronics</td>
<td><a href="http://www.mcmelectronics.com">www.mcmelectronics.com</a></td>
<td>800-543-4330</td>
</tr>
<tr>
<td>C4</td>
<td>Mitsubishi</td>
<td><a href="http://www.mitsubishi-tv.com">www.mitsubishi-tv.com</a></td>
<td>800-332-2119</td>
</tr>
<tr>
<td>105</td>
<td>NAD</td>
<td><a href="http://www.nadelectronics.com">www.nadelectronics.com</a></td>
<td>800-763-4641</td>
</tr>
<tr>
<td>63</td>
<td>NCT/Gekko Speakers</td>
<td><a href="http://www.gekkoaudio.com">www.gekkoaudio.com</a></td>
<td>800-379-3526</td>
</tr>
<tr>
<td>121</td>
<td>One Call</td>
<td><a href="http://www.onecall.com">www.onecall.com</a></td>
<td>800-540-0900</td>
</tr>
<tr>
<td>129</td>
<td>One For All</td>
<td><a href="http://www.oneforall.com">www.oneforall.com</a></td>
<td>330-405-8000</td>
</tr>
<tr>
<td>124</td>
<td>PARA (Professional Audio/Video Retailers Association)</td>
<td><a href="http://www.para.com">www.para.com</a></td>
<td>800-4-PARA-94</td>
</tr>
<tr>
<td>16, 17, 19, 84</td>
<td>Paradigm</td>
<td><a href="http://www.paradigm.com">www.paradigm.com</a></td>
<td>905-632-0180</td>
</tr>
<tr>
<td>18</td>
<td>Phase Technology</td>
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<td>888-PHASE-TK</td>
</tr>
<tr>
<td>44-45</td>
<td>Philips</td>
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<td>800-211-7262</td>
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<tr>
<td>2-3</td>
<td>Pioneer-Car</td>
<td><a href="http://www.pioneer-electronics.com">www.pioneer-electronics.com</a></td>
<td>800-992-6242</td>
</tr>
<tr>
<td>74</td>
<td>Polk Audio</td>
<td><a href="http://www.polkaudio.com">www.polkaudio.com</a></td>
<td>800-769-2520</td>
</tr>
<tr>
<td>126</td>
<td>Pro Sound Stage &amp; Lighting</td>
<td><a href="http://www.pssl.com">www.pssl.com</a></td>
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</tr>
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<td>PSB Speakers</td>
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</tr>
<tr>
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<td>Radio Shack</td>
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<td>800-543-4000</td>
</tr>
<tr>
<td>14, 15</td>
<td>Sony</td>
<td><a href="http://www.sel.sony.com">www.sel.sony.com</a></td>
<td>800-222-7669</td>
</tr>
<tr>
<td>127</td>
<td>The Sound Approach</td>
<td><a href="http://www.soundcity.com">www.soundcity.com</a></td>
<td>800-368-2344</td>
</tr>
<tr>
<td>123, 125</td>
<td>Sound City</td>
<td><a href="http://www.soundcity.com">www.soundcity.com</a></td>
<td>800-542-7283</td>
</tr>
<tr>
<td>89</td>
<td>Sunfire</td>
<td><a href="http://www.sunfire.com">www.sunfire.com</a></td>
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</tr>
<tr>
<td>9</td>
<td>Technics</td>
<td><a href="http://www.panasonic.com">www.panasonic.com</a></td>
<td>800-211-7262</td>
</tr>
<tr>
<td>116</td>
<td>Uncle's Stereo</td>
<td><a href="http://www.unclestereo.com">www.unclestereo.com</a></td>
<td>800-978-6253</td>
</tr>
<tr>
<td>99</td>
<td>Velodyne Acoustics</td>
<td><a href="http://www.velodyne.com">www.velodyne.com</a></td>
<td>408-436-7270</td>
</tr>
<tr>
<td>C2, 1</td>
<td>Yamaha</td>
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</tr>
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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-grasping 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 recommendations 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 unreviewed in sound quality. Stuart may be one of the world's leading digital thinkers, but compared with the Sony's 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 MDTS, 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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