

▶ Speaker Systems

Hsu Research HB-1 Horn Speaker and VTF-3 MK3 Subwoofer

Fred Manteghian, March, 2007

I've been reviewing speakers for a long time. I'm not saying my ears are any better than yours, but they're trained. Give me that much credit. I can wax rhapsodic paragraphs ad nauseam on why the latest multi-thousand dollar speaker can bring you closer to your music and movies. If you can afford them, great! But if you can't, it's not the end of the line. A more than decent system can be built around five mid-priced speakers, like the Polk LSI-9 (\$500/ea), plus a good sub. But *really* inexpensive speakers? Well, that's always been a big challenge – until now that is.



Do They Make You Horny Baby?

You won't find Hsu products at your local big box store or even a good high-end dealer. Hsu Research can provide you better value only if it sells its products direct on the web, just like Outlaw Audio. Both companies have been tremendously successful relying on word of mouth. Hsu's 30-day "complete satisfaction" return policy means that you'll eat only the shipping costs if the speakers aren't to your taste.

The system under review here is based on the Hsu HB-1, a hybrid horn design that retails for just \$125 each. At only 15" high and barely 12 lbs. soaking wet—Hsu refers to it as a bookshelf speaker—it's nevertheless substantial enough in every other way. It uses a 6.5" woofer and horn tweeter described as a "very high efficiency controlled directivity horn with neodymium magnet and ferro-fluid cooled voice coil." Magnetic shielding for a speaker in this day and age of flat panels and microdisplay rear projection sets is, for the most part, pointless, (only CRTs are susceptible to magnetic fields) so Hsu dispenses with it for the HB-1.

Another Hsu speaker, the HC-1 center channel, is essentially an HB-1 lying on its side with a double helping of woofer in a slightly larger (i.e., wider) cabinet. An HC-1 was sent to me well before I even began the review but, due to miscommunication, I didn't know I had it (you should see a reviewer's closet sometime!). Unfortunately, when it turned up, late in the review process, it was damaged. Due to its relatively small size, the HB-1 may work as a center channel in many situations, providing the listener an *exact* timbre match across the front channels. As a result, all mention of the Hsu speakers in my review reference the system as I used it: five HB-1s, including one for the center speaker, and the VTF-3 MK3 subwoofer. (Hsu did send us an HC-1 for measurement, so you'll find those results in our "Measurement" section.—Ed.)

The VTF-3 MK3 features a 12" woofer and a 350-watt (RMS, not peak). It costs just \$699. That puts the total cost of this system at \$1,324. While that's not home-theater-in-a-box cheap, it's not hard to spend a lot more and get a lot less in performance.

(It should also be noted that Hsu makes even more modestly priced subwoofers that will bring down the price even further if you're willing to sacrifice the extreme bottom-end extension available from the VTF-3 MK3. And for "high rollers" there is a new VTF-3 HO version of the VTF-3 Mk3 that offers a higher-powered, 500W amp.—Ed.)

System Specifics

A port on the back of the HB-1 helps give the speaker a specified 60Hz lower limit, though I'd recommend you cross it over to the subwoofer at 80Hz for home theater use. There is only a single pair of speaker terminals on the rear, slightly inset and angled upwards. The five-way binding posts will accommodate bare wire, bananas and spades (see my [blog](#) if you're curious about the other two ways). Unfortunately, the posts lack hexagonal fittings that would have allowed me to use a speaker post tool (or ratchet set for that matter) to secure my spade terminated speaker cables. Instead, I resorted to klutzy pliers for securing my Audioquest Mont Blancs to the HB-1's gold plated, knurled knobs. With a lighter pair of speaker cables terminated in spades, however, you might be able to get a decent grip with your finger strength alone.

The speaker's grill cloth is framed and secured to the baffle but can easily be pried off. I was perfectly happy with the sound of the speakers with their grills on, so that's how I used them. A combination of stands helped me get the five speakers in proper position vertically. I used a pair of tall Sanus foundation stands for the rears to raise them high enough to clear the back of the seating area. Mid-height Dynaudio stands for the main left and right HB-1s put their tweeters at ear level. Finally, a single Stand Design, the lowest I had available, kept the HB-1 in the center position from blocking my view of the plasma display (with an inch to spare!).

Like a vestigial organ, the VTF-3 MK3 subwoofer provides left and right channel "speaker level" inputs and outputs which you might use in a dedicated two-channel plus sub setup. But for home theater use you'll most likely want to run a single interconnect between your AV receiver or pre/pro's subwoofer output and the VTF-3 MK3's line level input.

The sub includes a level control, an analog low pass filter continuously variable between 30Hz and 90Hz, and a two-position phase switch (zero and 180 degrees).

The VTF-3 MK3 has two ports on the rear, one of which arrives with a foam plug installed. You can configure the sub for maximum low frequency extension by keeping that port plugged and setting the rear panel's extension switch to 16Hz. If you prefer maximum output, flip the same switch to its 22Hz setting and remove the foam plug from the port. I used the sub in the recommended corner placement location, configured for maximum extension. When level matched to the rest of the system, it provided more than sufficient output in my large room. If you're a glutton for punishment, Hsu sells a turbo charger that gloms onto the sub's ports and is said to double the available output all the way down to 16Hz.



I find the VTF-3 MK3's shape a pleasant departure from the norm. More blocky than the near perfect cubes everyone else seems to make, it perhaps reflects Dr. Hsu's preference for performance over cosmetics. The sub is available in both non-veneer black and maple veneer versions, at the same \$699 price. The HB-1, however, is available only in non-veneer, black. While the speakers and the black sub I received will never be confused with fine furniture, they are still quite handsome in their own utilitarian way. That said, the fit and finish of the sub and satellites, overall, was very high.

A Two-channel Driven Life

The mid-life Genesis CD, *Selling England by the Pound* (CD, Definitive Edition Remaster, Atlantic, 82675-2) is one of my favorites from that group, besting *Nursery Crime* and *Lamb Lies Down* in my pecking order, but certainly not *FoxTrot*. Finding it in the \$11 bin at Borders was just good luck. I remembered this album as having a lot of bass, and with the Hsu sub, it all came out, like a visceral body massage. I've been at demonstrations in small hotel rooms where Dr. Hsu would hide a sub in a closet behind your seat and the ensuing rush of air would cause your pant legs to flap. While my placement of the sub about 15-feet away put me out of pant-flap range, the powerful bass was nothing less than I expected. And how well the VTF-3 MK3 integrated with the HB-1 satellites, without calling attention to itself, was just the icing on the cake.

On "The Battle of Epping Forest," Genesis fades in with a Bolero-like build up until synth, organ, drums and bass, glorious, glorious bass, carpet the musical landscape with a song of true epic proportions. The Hsu HB-1 speaker jolly well likes to be pushed, and it did an outstanding job, revealing a fine level of detail, conveying a hauntingly smooth tonality free of the nasal or cupped hand coloration we often associate with horn speakers.

The Hsu system throws an imposingly large soundstage, quite unexpected considering the HB-1's diminutive size. Listening to the Genesis CD from the sweet spot, I felt I could just as easily have been listening to a much larger pair of speakers from a high-end manufacturer.

▶ Speaker Systems

These little guys never quit trying to impress you when the source material is at its best. Cymbals, often a ruthless challenge for affordable speakers, sounded convincing. The Hsu's horn tweeter proved itself of high caliber, projecting cymbals with both force *and* nuance. No, not quite as good as the tweeters in Thiel's 1.6, which still sticks in my mind as the best speaker that not a lot of money can buy (that is, at \$1195 each, not a lot of money as high-end, audiophile speakers go), but not terribly far behind either. Nevertheless, the harmonic overtones of wood smacking brass are conveyed by the Hsu's in a manner that few speakers get correct, regardless of price. And these unassuming speakers get high marks in the all-important midrange as well. Peter Gabriel and Phil Collins sounded like themselves.

Moving on to a band that throws an even bigger party than Genesis, I put on Pink Floyd's little appreciated and unjustly panned *Division Bell* CD (1993, Columbia, CK 64200). If it was anyone else, *Division Bell* would have been cited as one of top albums of the year, but coming as it did, a couple of decades after *Wish You Were Here* and *Dark Side of the Moon*, the critics just yawned. The closing track, "High Hopes," has the signature Floyd eeribilia, like bells ringing in the distance and flies buzzing about your head. The electrified Spanish guitar on the track had a bite that cut through the mix and the HB-1 gave the soundstage an appropriate amount of depth, while all the sound effects were resolved convincingly.

Bass seems naturally extended when the Hsu subwoofer plays a supporting role. But it is important to calibrate the levels fairly closely, though not necessarily exactly. For instance, a good compromise for both music and movies turned out to be a subwoofer setting that averaged 4 db higher in level than the other speakers. And unlike a lightweight HTiB system, there was no noticeable hole or trough in the all important upper/mid bass crossover to the sub.

I did turn off the subwoofer for a while, which let me hear the all important midrange and highs in as unvarnished a manner as possible. With the sub out of the mix, however, the HB-1's 60Hz lower limit is exposed. The speaker was clearly not designed to stand alone, and should be viewed as part of a system. Unlike most floor-standing speakers I've reviewed, I did not prefer listening to stereo with the subwoofer silent. Too much information remains missing. The VTF-3 MK3 played a welcome, and I would say necessary, role in the system's overall sound.

One final pull from my collection, a well known classic for jazz fans and lovers of all things Brazil (I'm a "Paulista" myself), is the 1963 recording of American tenor sax player Stan Getz and two of Brazil's most important composers and performers, Antonio Carlos Jobim (piano) and Joao Gilberto (guitar), appropriately titled *Getz / Gilberto* (LP, Verve V-8545). The Hsu system (with sub now) wove an intensely warm performance directly into my room. The recording is very intimate, and the HB-1 pulled it off admirably. Not surprisingly I've heard bigger soundstages from bigger speakers. But the sense of warmth and "rightness" of the small Hsu system was addicting. If ever a speaker could be said to have a propensity for a tubey vinyl sound, the HB-1/VTF-3 Mk3 combo is it. Fans of those low wattage SET tube amplifiers, therefore, should find the 92dB/2.83V/m sensitivity of the Hsu something they must explore. (But see "Measurements."—Ed.)

If there were any observation I would make regarding the HB-1 in relation to some highly regarded audiophile speakers, it is that they are ever so slightly more forward in their soundstage presentation. This should not be construed as a criticism, as the Hsu is not an "in your face" speaker in any way. The HB-1 is not just another horn speaker, subject to all of its genre's failings. It sounds less like a horn speaker than any other horn speaker I've ever heard. In fact, I've heard plenty of conventional speakers sound more like horns than the Hsu!

What the HB-1 *does* have in common with horns, however, is that it is not shy in the least in its presentation. This has benefits. Some speakers I've reviewed, most recently the Focal Profile 918, failed to come to life at low levels. This cannot be said of the Hsu, particularly when the VTF-3 MK3 subwoofer is engaged. Even at low levels, approaching mere background music, there is more than sufficient low level resolution to enjoy the event. An owner can relax knowing that very little is being masked by the Hsu.

That said, these small, unobtrusive, and extraordinarily competent speakers cannot be proclaimed as being as revealing or resolving as my reference Martin Logan Prodigy. The sales tax alone on a pair of Prodigies would pay for the quintet of HB-1s. The Magnepan 3.6R and the Thiel 1.6 would also kick sand in the HB-1's \$125 eyes. But compared to some other well pedigreed dynamic speakers, the HB-1s held their own. Hey, if you afford Revels, then by all means, buy Revels. But if you can't, brother, buy Hsu.

Mi Casa, Hsu Casa

When it comes to home theater, the Hsu system continued to show off its good qualities, just with more channels. The intriguing soundtrack that runs throughout *The Recruit* was extremely enveloping. If I had to pick a single word to describe the audio experience, it would be 'rich.' While the HB-1's top end is reasonably well extended, it is not glaring in the lower treble region, a characteristic that earns many a speaker the "bright" designation. The Hsu is simply even-handed.

The speakers handle big dynamic swings with ease. In chapter seven, when James Clayton (Colin Farrell) is kidnapped and the soundtrack consists mainly of music and dialog, I measured the sound level at an already frothy 80dB in my listening seat. That measurement climbed to the low 90dB range when he was being hauled into the van and peaked at just over 100dB while Clayton was being stuffed into a helicopter for what turns out to be a flight around the block. At no time did the speakers sound as if they were under any stress or compressing the signal. In fact, there was very much the feeling that you were at the movies. How's that for a big, aircraft carrier "Mission Accomplished!"

The VTF-3 MK3 subwoofer blended very well with the HB-1, and it would no doubt work wonderfully in many systems. But when I first hooked it up and somewhat randomly set the level before formally level matching it with the HB-1s, I did hear some port turbulence. Distinctly unpleasant, but once the system was properly set up, the "chuffing" was banished for good. If you really need more output, you should consider the "turbo charger" which adds only \$200 to the price.

I watched a lot of high-def television programming with the system, powered first by the Pioneer VSX-84TXi receiver and later the Denon AVR-4806. Many of the shows I like, such as *Prison Break*, *24* and *Lost*, sounded great in Dolby Digital 5.1-channel surround. I guess that's to be expected. High-definition broadcasts on HBO HD also made the system sing. But the everyday stuff, the poor old S-Video junk that came off my low def, okay, sorry, "standard definition" TiVo also sounded pretty good. The Hsu's are very adept at building an immersive soundstage even with lightly populated soundtracks like those on USA network's Friday night line up of *Monk* and *Psych*.

The HB-1, as a center channel, was very capable of projecting clear, intelligible dialog. That is the crux for good video, in my opinion, and all the garnish and tea in the world won't make a home theater effective without a decent center channel. You won't find yourself having to turn up the volume to "hear what they said" very often. You'll just get lost in the show.

Go Ahead - Hsu Me!

The Hsu HB-1/VTF-3 MK3 system is tremendously enjoyable. But it's not saccharin sweet. The grating nature of poorly mixed mid-1980's vinyl or poorly mastered CDs will still have you diving for the volume control, but face it, that's as it should be. The better the recording, the better the Hsu system will sound. And at its best, the Hsu system performs so much above its pay grade that you'll want to recommend it to your friends. I know I will. After all, a flat TV does not a home theater make.

Five HB-1 bookshelf speakers: \$125 apiece.

VTF-3 MK3 subwoofer: \$699.

Beer and chips when your friend comes over to hear the Hsu system: \$14.

The look on his face when you tell him how much it costs: Priceless.

HB-1 Highs

Not just good for movies, good for music too
Detailed with above average resolution, but not clinical
Rich sounding timbre, but upper frequencies are still extended
You gotta love the price

HB-1 Lows

Requires a subwoofer. By themselves, the bass very lean.
Don't forget stands when calculating the final price
Not for all decors.

VTF-3 MK3 Highs

Lots of really good bass, even for a big room
The sub goes very low, a rated (and believable) 18 Hz, which surprisingly few subs can match

VTF-3 MK3 Lows

No fancy notch filters, only two phase angles, fairly minimalist
If you're thinking big, black and beautiful, think again.

SYSTEM Highs

Intense theatrical experience available at high SPLs without noticeable compression
Sound can be majestic and completely unexpected given the system's size.

SYSTEM Lows

No bragging rights when it comes to price, or looks for that matter.

▶ Company Info

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▶ Article TOC

Page 1

> Page 2

Specifications
Review System
Measurements