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HTOB*

* HOME THEATER ON A BUDGET

Speaker systems from Energy, Hsu Research, and JBL show that surround sound doesn't have to be expensive to be good

BY DANIEL KUMIN

JBL SCS300.7



No, these aren't HTiB systems — home theaters in a box. You'll need to add more than just a TV to them before you can kick back and enjoy a movie theaterlike experience at home. But this trio of home theater speaker systems — Energy's act6 (\$800), Hsu Research's Ventriloquist VT-12

(\$498 factory-direct with the Hsu STF-1 subwoofer), and JBL's SCS300.7 (\$699) — shows that compact subwoofer/satellite speaker packages have come a long way. Each brand carries a legacy of speaker innovation and excellence, and each system here is a far cry from the cheesy stuff you'll find at the local discount warehouse.

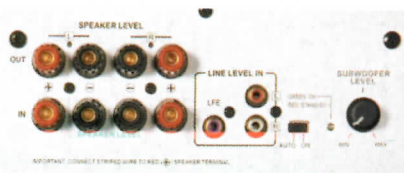
Hsu Research, the youngest brand, made its name with unconventional subwoofers of impressive performance and remarkable value sold factory-direct, and it's now applying the same approach to complete speaker systems. Energy, a brand of Canada's Audio Products International, has well-established street cred for value and performance. And JBL is familiar to aficionados of both music and cinema sound as well as audio professionals around the world.

No lightweights, then, but what do they bring to the HTOB party? To find out, I set up each system in turn in my home theater. The systems Energy, Hsu, and JBL sent us have five, six, and seven satellites, respectively, but all use essentially identical speakers for the front left/right and the surround positions; JBL and Energy use the same speaker for the center as well.

Front speakers went on adjustable stands flanking a 42-inch Gateway plasma HDTV, while each center speaker sat just below the screen. Left/right surrounds went on my usual high, side-wall shelves, while the single and dual back surrounds in the Hsu and JBL systems were placed high on the back wall. Although I explored the Hsu and JBL systems' 6.1/7.1-channel performance, in the interest of a level playing field I did most of my listening in 5.1-channel mode.

All three makers recommend connecting the satellites directly to your A/V receiver (or amplifier), with the subwoofers wired to your receiver or preamp/processor's subwoofer output, so that's what I did.

PHOTOS BY TONY CORDOZA



ambience while preserving enough direct sound for instruments and voices.

JBL supplies a hefty subwoofer with the SCS300.7 system, largely explaining the king-sized master carton. And as expected, the SCS300 sub pounded out thunderous bass to below 35 Hz, with more than enough volume to match the satellites even when I tried the 7.1-channel setup, in which two back surround speakers were directly behind my listening position.

WITH SEVEN SATELLITES AND A VERY CAPABLE subwoofer, this is an awful lot of system for the bucks. On a sheer sounds/pounds-per-dollar basis, JBL's SCS300.7 speaker system is tough to beat.

Hsu Ventriloquist VT-12/STF-1

Hsu Research's value-packed HTbB entry comes in two cartons, but both could almost fit in the JBL's master pack. More important, the seven-piece, 6.1-channel suite

JBL SCS300.7

PRICE \$699

PLUS

- Includes seven satellites at a great price
- 10-inch subwoofer gives deep, strong bass
- Includes flexible mounting hardware

MINUS

- May sound too bright in reflective rooms
- Need an adjustable crossover and careful satellite placement for best sub/sat blend

applies some clever engineering to a problem that has dogged minispeaker systems from Day 1: tiny satellites simply can't produce enough bass to blend seamlessly with subwoofers. Hsu's fix is the Ventriloquist VT641 center speaker, which has inputs and outputs for the left and right front speakers. Front L/R signals from your receiver are routed through the center speaker, where special crossover and mixing circuitry let its dual woofers fill in the warmth and weight for the left and right channels that would otherwise be missing or heard mostly as boom from the subwoofer.

It's a practical solution because the L/R satellites can be very small while still maintaining good stereo separation — it's difficult to hear where frequencies below about 200 Hz are coming from, especially with a centered source like the VT641. The Hsu

VT254 left/right satellite is a simple "one-way" speaker with just a single 2½-inch "full-range" driver. However, I discovered a surprisingly elaborate "crossover" circuit inside — really a response-shaping network, since there's no tweeter to cross over to!

SETUP I arranged the Hsu system like the others, with the center speaker just below the screen and the L/R fronts on stands to either side. Hsu supplies no brackets or stands beyond a simple tilt base for the center speaker, but the VT254/251 satellites include both keyholes and threaded inserts for mounting hardware. Though equipped with serious multiway terminals, the VT254s are so light that my heavy speaker cables tended to pull them out of position.

Hsu includes a switch on the back of the VT641 to defeat the "ventriloquist" action, allowing you to judge its contribution to the overall sound. With it switched off, the system sounded thin and weak — with it on, the sound was rich and full. But there can be too much of a good thing, and the midbass was a little goeey. The solution was simple: I put the VT641 on a shelf above the TV, and the heaviness nearly disappeared.

I heard smooth, extended treble when I sat between the L/R front satellites, which I toed in and adjusted for my seated ear height. But when I moved out of the sweet spot, either by standing up or by moving much to the right or left, treble "air" di-

FAST FACTS

	L/R FRONT AND SURROUND	CENTER	SUBWOOFER
ENERGY act6 system (six pieces, \$800) www.energy-speakers.com , 416-321-1800	act1: ¾-inch aluminum-dome tweeter, 3½-inch cone midrange; sealed <ul style="list-style-type: none"> • spring-clip terminals • 6½ x 6¾ x 4 inches (WxHxD), without stand or wall bracket • 3 pounds • silver finish with gray grille • \$120 each separately 	act1: same as left/right channels	act sub: 8-inch cone; ported <ul style="list-style-type: none"> • 80-watt amplifier • single RCA line-level input; speaker-level inputs • level control • 10 x 16½ x 13¼ inches (WxHxD) • 35 pounds • shadow silver finish • not available separately
Hsu Research Ventriloquist VT-12/STF-1 system (seven pieces, \$498 factory-direct; \$744 in stores) www.hsuresearch.com , 800-554-0150	VT254/VT251: 2½-inch cone midrange/tweeter; sealed <ul style="list-style-type: none"> • multiway binding posts; VT251 back surround has dual mixing inputs for use in 5.1-channel systems • 4 x 6½ x 3½ inches (WxHxD) • 2 pounds • black matte or silver • \$199 factory-direct for all six satellites (including VT641) when bought with a Hsu subwoofer; otherwise \$299 factory-direct, \$369 in stores 	VT641: 2½-inch cone midrange/tweeter; two 4 x 6-inch cone woofers; sealed <ul style="list-style-type: none"> • multiway binding posts; input for center channel, inputs and outputs for front left/right channels • 17 x 6¼ x 8½ inches (WxHxD) • 13 pounds • black matte or silver • not available separately 	STF-1: 8-inch cone; ported <ul style="list-style-type: none"> • 150-watt amplifier • single RCA line-level input; speaker-level inputs/outputs • volume, crossover frequency controls; crossover-defeat, phase-invert switches • 10 x 19 x 16 inches (WxHxD) • 36 pounds • black matte • \$299 factory-direct, or \$375 in stores
JBL SCS300.7 system (eight pieces, \$699) www.jbl.com , 516-255-4525	SCS300 Satellite: ½-inch titanium-laminate dome tweeter, two 3-inch midranges; sealed <ul style="list-style-type: none"> • spring-clip terminals • 4 x 11½ x 3½ inches (WxHxD), without supplied shelf stand or wall bracket (optional FS1000 floor stands, \$250 a pair) • 3 pounds • silver with black trim • not available separately 	SCS300 Center: same as SCS300 Satellite except horizontally oriented <ul style="list-style-type: none"> • 11½ x 4 x 3½ inches (WxHxD), without supplied shelf stand or wall bracket 	SCS300 Subwoofer: 10-inch cone, ported <ul style="list-style-type: none"> • 150-watt amplifier • dual RCA line-level inputs; LFE input; RCA speaker-level inputs/outputs • level control • 13¾ x 20 x 15¾ inches (WxHxD) • 35 pounds • silver with gray grille • not available separately



minished. The sweet spot was plenty wide enough for three-across seating, however.

The Ventriloquist VT-12 is a 6.1-channel system, with a single back surround (the VT251) that's identical to the VT254 but has dual inputs. If you have a 6.1-channel receiver or amplifier, you bridge these inputs and feed in the back surround signal. But if your system is only 5.1-channel-capable, you can connect the left/right surround outputs instead (in parallel with those speakers), and the VT251 will generate a back surround channel by summing the L/R signals. I also tried placing the side surrounds on their backs, bouncing sound off the ceiling at about 45°, and this dramatically improved the ambience for movies.

MUSIC/MOVIE PERFORMANCE There was no question that the Ventriloquist worked as advertised. The Hsu system sounded warm and rich, lending authority to male vocals like James Taylor's (one of my reference voices). The VT641 center speaker matched its mates exceptionally well, but I heard some falloff in the treble when I listened from off-center.

The VT254 worked reasonably well in the L/R surround positions, but the speakers tended to "point" their locations a bit. For example, during *The Italian Job*'s climactic chase (Chapter 14), as the cars and bikes zoomed across the rear channels they occasionally "pulled" into one or the other too distinctly. Adding the VT251 into the mix, fed from my receiver's back-surround channel, made it harder to localize the L/R surrounds.

I was surprised by the VT-12's ability to play loud, with full, clean dynamics — plenty loud enough for material like live jazz combo recordings at real-world club levels. Only at extreme volumes did the system begin to sound a bit "congested."

Hsu's STF-1 is one impressive little subwoofer. It went plenty low for true home theater action, with meaningful volume all the way down to 25 Hz — a lot more than I expected. It wasn't boomy yet had me

HSU VENTRILOQUIST VT-12/STF-1

PRICE \$498 factory-direct; \$744 list in stores

PLUS

- Center speaker fills out sound from tiny L/R satellites, eases sub/sat blend
- Deep, powerful, compact subwoofer
- Includes back surround speaker usable with either 5.1- or 6.1-channel receiver
- Superb value

MINUS

- Satellite position is critical for accurate treble balance
- No mounting hardware supplied

running for cover during the scene in *The Italian Job* when the armored truck blows through the pavement.

BY COMING UP WITH A NOVEL SOLUTION TO A long-standing challenge, and by refusing to be bound by hard-and-fast speaker-design "rules," Hsu Research has produced an astonishing little system. Its performance is far more impressive than its modest looks suggest, and its value even more so.

Energy act6

Energy is no stranger to HToB systems. Its Take5 and Encore series have won nearly universal praise for their astute balancing of performance, cost, and style. Energy's newer, smaller act6 array follows the same winning formula: five identical small, class-looking satellites with adaptable mounting hardware and a small-footprint subwoofer specifically designed to support them. Unlike the JBL and Hsu satellites, which have plastic enclosures, the Energy act1 is made of machined aluminum, which gives it a heftier, more luxurious "feel."

SETUP I set up the act6 identically to the other systems. Like JBL's SCS300 satellite, Energy's act1 requires you to remove the supplied wall-mounting hardware to connect the speaker wires to the spring-clip terminals inset in its bottom.

MUSIC PERFORMANCE Up and running, the act6 system was the closest match to my "big" everyday rig, with very even, uncolored vocal tones and smooth, steady highs. Treble was a shade airier than the Hsu Research, but less bright than the JBL. The overall presentation on music was first-rate, with precise, solid imaging and well-balanced sound from everything I tried.

And this was equally true for multichannel music. The Canadian system pounded

out stuff like the blues-rocker "One Dance with You" from the Vince Gill DVD-Audio disc with real authority, remaining crisp and clean up to surprisingly lifelike volumes. Among the three systems reviewed here, I'd guess that the Energy wins the loud/clean sweepstakes by a nose over the JBL.

MOVIE PERFORMANCE Soundtracks sounded excellent as well. The act6 beamed up a seamless front soundstage, presenting a cohesive image from the three front speakers and keeping *The Italian Job*'s zillions of pans and shifts impressively together, never drawing attention from the action to an individual speaker. And the little Energy satellites worked well as surrounds when they were aimed about 30° rearward to bounce some sound off the back wall.

Although Energy's subwoofer was the smallest of the lot, it had no problem keeping pace. And while it didn't quite match the Hsu or JBL subs in lowest-octave oomph, it came very close.

Even the ultra-small satellites delivered a surprisingly robust midbass punch. To ease setup and get the best possible blend between the sats and sub, you'll want to use a receiver (or processor) with an adjustable crossover frequency — indeed, the same could be said of all three systems. I used a 110-Hz crossover frequency instead of the "standard" 80 Hz, but this is likely to vary from room to room.

FOR MY TASTE, ENERGY'S ACT6 IS THE MOST sophisticated-looking of these three systems. It also scored high with unusually re-

ENERGY ACT6

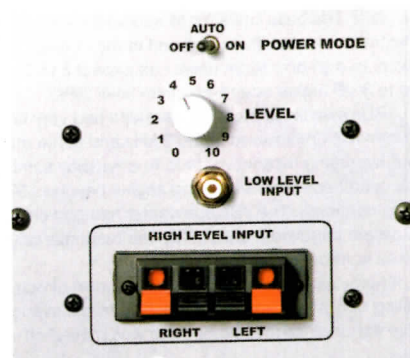
PRICE \$800

PLUS

- Refined sonics with music and movies
- Classy machined-aluminum satellites
- Highly capable compact subwoofer

MINUS

- Need an adjustable crossover and careful satellite placement for best sub/sat blend





The continuous action in the 2003 remake of *The Italian Job* was a perfect DVD test for these budget-price speaker systems.

financed sonics for stereo music and solid, dynamic surround performance — qualities that may well be worth the extra money to some listeners.

The Bottom Line

Are these mini marvels ready to kill off high-end home theater speakers once and for all? Of course not. But it would be hard to exaggerate how much better they are than the speakers that come with typical mass-market microsystems, and the more I lis-

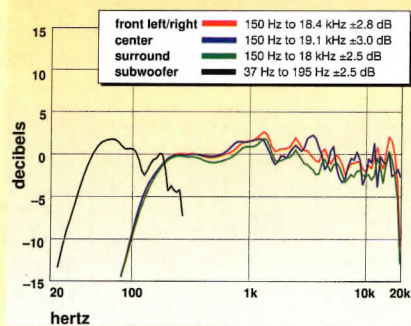
tened, the more impressed I was with their remarkable value.

Do you demand a real eight-piece, 7.1-channel suite for not much more than five bills? JBL's got yours. Insisting on tiny satellites but reluctant to settle for lumpy low-end sound? Go see Hsu. Ready to upgrade to a home theater system with style and well-balanced sound but still need to save space? Take an Energy break. Whichever one you audition or select, you won't be disappointed. **S&V**

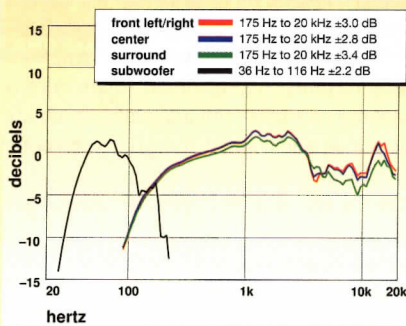
IN THE LAB

	JBL SCS300.7	ENERGY ACT6	HSU VENTRILOQUIST VT-12/STF-1
Sensitivity (SPL at 1 meter with 2.8-volt pink-noise input) front left/right/center, surround	82 dB	83 dB	86 dB
Impedance (minimum/nominal) front left/right	5.7/12 ohms	5.0/8 ohms	4.9/6 ohms
center	same	same	4.6/6 ohms
surround	same	same	4.2/9 ohms
Bass limits (lowest frequency and maximum SPL with limit of 10% distortion at 2 meters in a large room) front left/right	125 Hz at 78 dB	100 Hz at 72 dB	125 Hz at 78 dB
center	same as above	same as above	80 Hz at 75 dB
surround/back surround (Hsu only)	same as above	same as above	125 Hz at 75 dB
subwoofer	25 Hz at 92 dB	25 Hz at 82 dB	20 Hz at 75 dB
average SPL from 25 to 62 Hz	102 dB	97 dB	101 dB
maximum SPL	107 dB at 62 Hz	106 dB at 62 Hz	104 dB at 32 Hz
bandwidth uniformity (25 to 62 Hz)	96%	91%	98%

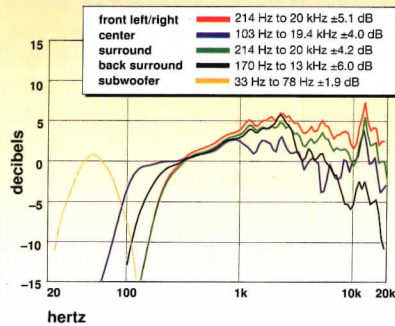
JBL



ENERGY



HSU RESEARCH



All of the response curves in the graph are weighted to reflect how sound arrives at a listener's ears with normal speaker placement. When identical speakers are used for left/right and surround channels, our graphs simply represent the weightings and axial measurements used at each channel position. The bass limits for all subwoofers were measured with them set to maximum bandwidth and placed in the optimal corner of a 7,500-cubic-foot room. In a smaller room users can expect 2 to 3 Hz deeper extension and up to 3 dB higher sound-pressure level (SPL).

JBL's satellite and center speakers had very uniform directivity, with a mild elevation between 1 and 3 kHz and some roughness in the top octave. Our averaging techniques tend to downplay some fairly radical lobing of the center speaker at listening angles beyond $\pm 30^\circ$. Both had quickly falling bass capability. The JBL subwoofer had powerful output capability and excellent bandwidth uniformity. The response graph shows elements of port noise at frequencies above 200 Hz.

Energy's act1 satellite had very uniform directivity, with extreme highs falling only at the widest angles. The mild elevation between 1 and 3 kHz also flattened as the microphone was moved off-axis, but the peakiness

above 10 kHz was evident in all traces. The Energy sub had upper extension to 116 Hz, but there was some port noise above 200 Hz. The sub had solid output between 40 and 62 Hz, but dynamic capability fell at 18 dB per octave at lower frequencies.

The Hsu Research left/right (front and surround) and back surround satellites had similar response shapes, with rapidly falling low-frequency response, a mild mid-band elevation, and a 13-kHz treble peak. The center speaker had roughly the same shape except with stronger low-frequency output, and there was no significant lobing. The Hsu subwoofer had exceptional output for this class of speaker, and its bandwidth uniformity (consistency of response throughout its range) was second to none. It produced 20 Hz at 75 dB and delivered a minimum of 101 dB at any frequency above 25 Hz. With the crossover bypassed, the subwoofer had flat output to 115 Hz. The acoustical turnover frequencies matched crossover dial markings much more closely than usual, but there was a significant amount (10 dB) of interaction between the crossover and level controls over the full rotation of the dial. In other words, as I turned down the frequency control, both the crossover point and output level fell.

— Tom Nousaine