

by ann
zimmerman

At
Home
With

Jim Fosgate

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Home Lab

To Create

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Surround

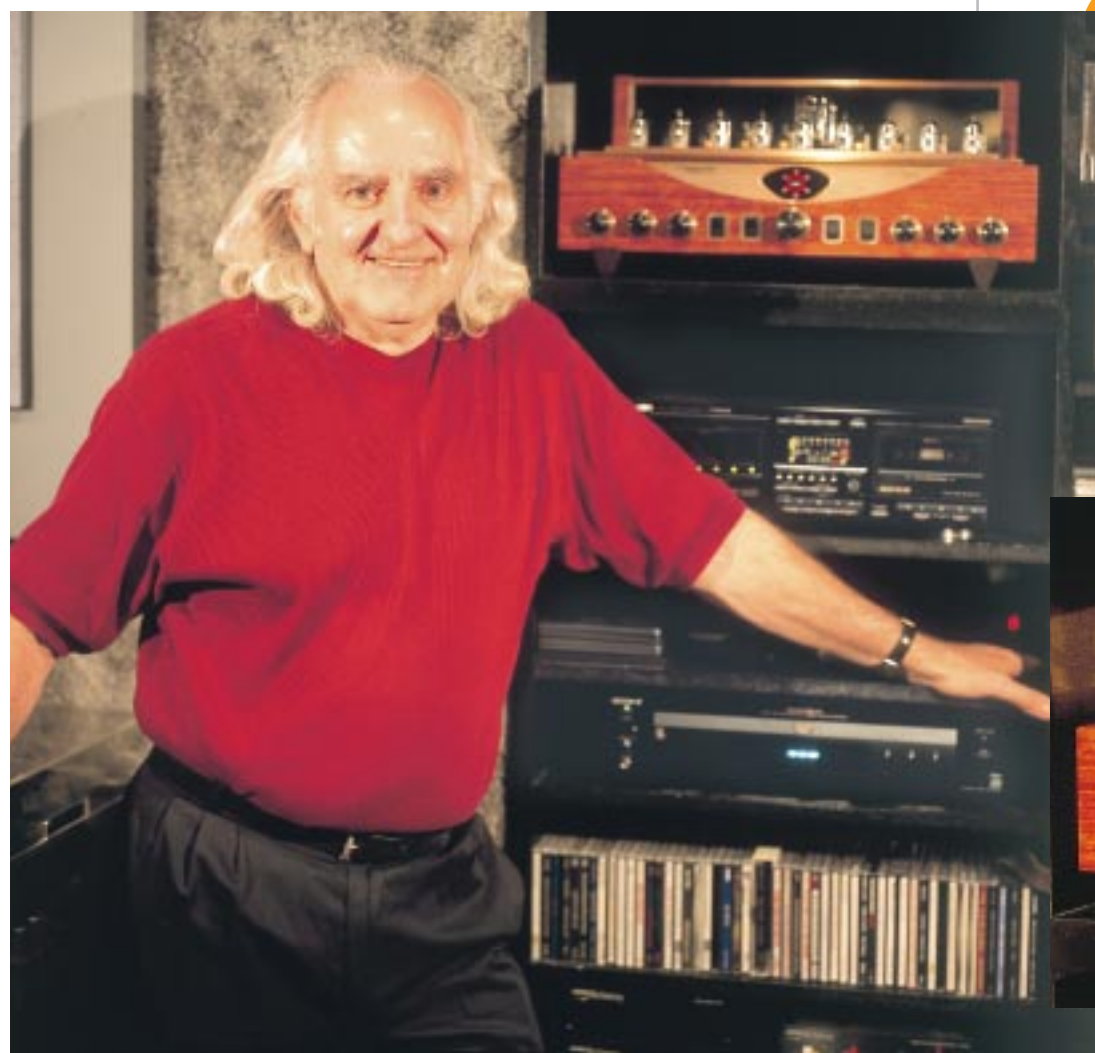
Technology

Jim Fosgate, known as Foz to friends in the industry, is an inventor and sound technology pioneer. He holds 25 patents, and his history of achievements parallels the history of advances in sound technology.

"I had a concept for surround sound in the 1970s. I have steadily worked toward it, making advances. Now, I have developed the technology that matches my vision. You could say that I have completed my life's work," Jim remarked somewhat off-handedly as he walked from his workshop.

The domain for Jim Fosgate's lab and research, like the man himself, is quietly unassuming. The setting is a peaceful valley on the east side of the Wasatch Mountains in Utah that contrasts with the busy pace of Salt Lake City to the west. The grounds of the traditional home are crisscrossed with deer trails and dotted by acres of well-trimmed Gambles Oak. Against the mountains to the west, the course for 2002 Olympics cross-country skiing events can be seen.

It was in the basement of this home that Fosgate developed the Dolby Pro Logic II decoder. He designed the home around his workshop and listening room. Friend and surround sound collaborator Charles Wood says of the listening room, "While there may be as sophisticated a space elsewhere in the world, I have never heard



In the basement of his home near Salt Lake City, Utah, Jim Fosgate (below) developed the Dolby Pro Logic II decoder. The original theater and auto decoder prototypes for Pro Logic II were constructed with tubes, and then for months Fosgate

worked with engineers at Dolby labs to reproduce the results in solid state. Rockford Corp.'s Fosgate Audionics Division is selling a limited edition of several hundred vacuum tube Signature Series FAP-V1s, with Fosgate's signature (inset).

a better room."

Fosgate designed the listening room when he built the home. "I planned for the sound studio to be built under the concrete driveway, away from neighbors, and in a place where it wouldn't bother my wife. I like to work at night if an idea comes to me that I want to test," he explained. "I can listen in the middle of the night at full throttle without bothering anyone."

The room is large enough for about 45 people if some are willing to lay up front on the floor, 24x34 feet with 10-foot high ceilings. The corners of the room are all 45 degrees to control diffraction and resonance. The suspended ceiling and acoustical material create a bass trap, and the walls are heavily carpeted to absorb sound.

"I have a ceiling-mounted video projector and a

10-foot diagonal screen describes the equipment,"

Fosgate said. "The speakers are flush mounted in the walls with oversize infinite baffling for the woofers. There are four 10-inch woofers on each front channel and two on each back channel for a total of 16 woofers. The mids are five and a quarter inch in diameter. The tweeters are one-inch horn-loaded silk domes. The system is tri-amplified with all tube amplifiers and passive crossovers."

Fosgate's sound room is his reference system, and it is critical to how he works. "I have always gone by my own likes and dislikes," he said. "I test my circuits first by listening with headphones and watching on the oscilloscope, and then I take it into the sound room for testing on a variety of music types. Then, back to the workshop to make adjustments and to re-

peat the process. Working at home has a great advantage to me since I am always working."

The original theater and auto decoder prototypes for Pro Logic II were constructed with tubes, and then for months Fosgate worked with engineers at Dolby labs to reproduce the results in solid state. "When I finally got my analog prototype to where I wanted it, I worked with the engineers at Dolby to develop a system in solid state that quantitatively yielded the same results as the analog system," Fosgate said.

The legendary Fosgate refers to himself as a "total tube freak." For years he has been collecting analog electronics to the point where his collection resembles a small museum. As he walked through his collection, he commented,



Fosgate Audionics Offers Limited Edition Pro Logic II Vacuum Tube Models

Tubes glowing, Jim Fosgate put the analog version of Pro Logic II through its paces in his home laboratory's sophisticated sound lab. The sound was everywhere—pure, then floating, shifting, sneaking up on you from behind, and then booming out in front. The whole experience was remarkable. Fosgate began with vinyl recordings of Nat Cole and the Weavers, moved up to a CD, and rolled through a DVD action film scene, ran some music videos ranging from the Three Tenors to the Eagles, and concluded in a space launch.

"The system can take you anywhere you want to go. It is designed to play all stereo material and works equally well with music or movies," Fosgate commented to his spellbound audience.

The development of the new matrix universal decoder marks the end of a quest for Fosgate that began in the late 1970s. "It is 20 times more accurate than its predecessors," the audio pioneer and inventor explained. "It sounds better and it is more stable and friendly to the ear. The new matrix surround sound decoder is as much a leap from the past as the differences between mono and stereo."

For audiophiles who want to experience Fosgate's original analog system, there is good news. A full equipment line is available that meets Fosgate's exacting standards. David Munzlinger, national sales manager for Rockford Corporation's Fosgate Audionics Division noted, "A limited edition of several hundred vacuum tube Signature Series FAP-V1s will be issued with Jim Fosgate's signature. In addition, we have a full line of products to complete the experience. Fosgate Audionics's surround sound processors, amplifiers, monitors, and powered subwoofers allow lovers of both music and home theater to go back into their archives and experience them all over again with a renewed appreciation for the artists' intentions. Our products create an enveloping, completely stable soundstage that redefines the listening experience by bringing out nuances and details not before experienced."

In addition to the signature FAP-V1, Fosgate Audionics is offering a second pre-amp processor, the FAP200. David Munzlinger thinks home theater enthusiasts looking for value as well as performance will find the FAP200 appealing. "It incorporates the Dolby Pro Logic II surround sound decoding as well as Dolby Digital, and DTS. It is has eight audio and video inputs, and will switch component video sources and HD signals."

David Munzlinger noted that the line will include home theater amplifiers. "Fosgate Audionics is also introducing the FA1000.5 amplifier based on a modular chassis design that allows the amplifier to be configured as three-channel or two-channel system," he said.

Munzlinger calls the Fosgate Audionics' line of monitors and powered subwoofers a "must see and hear for the discerning home audio enthusiast." The line includes four types of monitor speakers. All incorporate a silk dome high frequency driver and a high frequency wave-guide that is proprietary to Fosgate Audionics. The powered subwoofer line now includes 10-, 12-, and 15-inch models.

The Fosgate Audionics venture marks the return of Jim Fosgate to Rockford Corp. Fosgate turned his attention away from high-performance car audio in 1980 when he sold Fosgate Electronics to Rockford Corp., to concentrate on developing surround sound technology. While Fosgate refined his version for the home theater, he concurrently developed a surround sound prototype processor for the automobile. His own car became a sound laboratory for testing the system. "It was a favorite thing for my grandchildren to come with me to test it out. They loved steady acceleration accompanied by the sounds of a space launch," Fosgate chuckled.

It seems natural that the reunion should bring listening advancement for the automobile. Rockford Fosgate has long been recognized as a manufacturer of high-performance car audio. The RFQ5000 brings the five-channel surround sound of home theater to the automobile. Munzlinger is excited about it. "The RFQ5000 incorporates Dolby Pro Logic II, yet it is small and easy to install and operate," he said.

Fosgate says it's great to be back working at Rockford in his role as senior executive consultant. "It's exciting to be taking my best circuit designs back to Rockford, especially my 'Tube' surround processor."

Since the 1970s, Fosgate has been working toward a concept for better listening. With the new Dolby Pro Logic II Decoder, he says he's found the solution. The only way to measure this claim is to have a listen.

by ann zimmerman

Jim Fosgate



"A lot of the secrets of good audio are buried in these old radios. They really knew what they were doing."

It is not surprising that tubes are where Fosgate's heart is. He grew up in Indianapolis working in his father's radio and TV repair business in the '50s. "I built my own audio circuits back then with used parts," he recalled. "Like most people, later I switched to listening to solid-state systems, but wondered why my collection of records didn't sound as good as I once thought they did. A tube listener recommended I listen to tube equipment again, so I built a system from garage sale components, and was surprised and

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—Jim Fosgate

pleased when my old records sounded the way I remembered. I began collecting used units for their parts. There is a supply of new tubes now being shipped from Russia, but for a long time used was the only available supply."

Fosgate's first business venture was not into audio, but remote controls for planes. "Flying planes was one of my hobbies. I developed radio transmitters and receivers for remote-controlled airplanes, and sold them through my own business, Pro Line, based in Phoenix," he said. While

(Bottom, center) Fosgate put the analog version of Pro Logic II through its paces in his home laboratory's sophisticated sound lab. (Below, left) Fosgate designed the home around his workshop and listening room. Friend and surround sound collaborator Charles

Wood says of the listening room, "While there may be as sophisticated a space elsewhere in the world, I have never heard a better room." (Below, right) For years Fosgate has been collecting analog electronics to the point where his collection resembles a small museum.

doing this he continued to build audio circuits. One circuit he called Frequency Energizer, which could compensate for loss in the high- and low-end frequencies. He incorporated this into a 30-watt car amplifier, the Fosgate PR-7000, which debuted in 1973. In 1979 he produced the first surround demonstration car, and his Gavotte was the first manufactured surround processor for the car. In 1980 Fosgate sold his car stereo business to Rockford Corp. to turn his attention solely to surround sound (a term coined by Fosgate).

Fosgate Research produced the TATE processors, which in 1982 won the CES design and engineering award. Then Fosgate worked with Peter Schreiber to develop the Space Matrix 3600 decoder, a five-channel circuit, followed by Model 3601 Dolby Surround Sound Processor. In 1986 Fosgate Research joined forces with Charles Wood of Audionics to form Fosgate Audionics. In 1990, Fosgate Audionics delivered its first serious home theater, Model Three. Harmon International acquired Fosgate Audionics that year. While with Harmon, the Fosgate Audionics' Home THX system was revamped with the addition of Six Axis, a development by Jim Fosgate, and marketed as Citation 7.0. Jim Fosgate left Harman in 1997 and began work on a new surround decoder technology concept called "feed-back logic" that ultimately became

the Dolby Pro Logic II Decoder.

"Actually, I had the initial idea more than 10 years ago," Fosgate remembered. "When you have other things going on, it's easy to put the beginnings of an idea aside. But I kept coming back to it and about four years ago I seriously started to work through the concept. For the first six months I thought through the project. I would come to an obstacle, and work through it mentally until I was satisfied not only that it could be done, but how it would be done. It was only then that I put it down on paper and started building the board. I have worked through thousands of components."

He pulls out two boards for comparison. "I was confident that I had a much better solution when it proved to be simpler." The comparison between the board for past designs and his new concept clearly demonstrated simpler circuitry, even to an untrained eye.

Speaking about the Dolby Surround Pro Logic II Decoder, "The system works equally well for all music and for movies. It exposes the hidden information in standard two-channel stereo recordings, and enhances it spatially and directionally. It's as good as you can get. I can't take it any further."

While Fosgate prepared to travel to his vacation home in Sedona, Arizona, and spoke



about returning to his hobbies, one couldn't help but wonder what he will come up with next.

Ann Zimmerman is a freelance writer based in Heber City, Utah.

