

Lousy TV Sound and the GoldenEar Cure

The GoldenEar **SuperCinema 3D Array** (SC3DA) Soundbar is a true high performance alternative in the soundbar category that's capable of real High Fidelity stereo music reproduction, in addition to home theater surround sound for movies. So what makes the GoldenEar SuperCinema 3D Array different (and better) than other sound bar solutions? First, some back story ...

Amazing Video is Finally With Us

Over the past several decades, renderings of large wall hanging televisions appeared countless times in magazines like Popular Mechanics™ and Popular Science™. And they predicted these TV's would be available in the near future. But, for the longest time their crystal ball was way off. Now however, high resolution flat screen TVs and affordable high resolution projectors are real. Today you can buy these sets at amazing prices from any number of manufacturers. Actually, there's never been a better time to get spectacular, engaging video performance at home, with HD and now Ultra HD digital displays. Yes, today's video technology can bring you a whole new level of involvement and enjoyment. Talk about getting lost in the experience; just set up good sized high performance video in a darkened room and you can be visually whisked away to wherever the action on screen is taking place.



Today's High Definition Flat Panel TV's Give Us Great Picture but Horrible Sound

Something's Not Right Hear

But wait! There's a fly in this ointment. Experts correctly advise that great audio reproduction is at least 50% of any truly immersive viewing experience. And the ubiquitous flat screen TV leaves a lot to be desired in its audio performance. Dialogue reproduction is often difficult to understand, music is a shadow of itself and there's essentially no real bass. The culprit turns out to be the flat screen form factor; its narrow depth combined with ever smaller bezels means there's little room for the speakers and enclosures needed for decent acoustic performance. So you end up with great video from a beautiful, slim wall mounted TV and essentially lousy audio.

So there you sit watching a spectacular picture on your new TV, cranking up the volume, trying to understand what's being said. If you're a normal, manly kind of guy you might say, "Let's get 5 honkin' big speakers and a giant subwoofer along with a surround sound receiver to really let that new flat screen TV shine." Unfortunately, the typical SOR (Significant Other Response) to such a suggestion is often less than enthusiastic. Well, fear not. We creative types in the audio industry have come to the rescue. We've developed an audio product that can dramatically improve the acoustic performance of a flat screen TV, and when well designed, can aesthetically match the TV to boot. This magic solution is called ... wait for it ...The Soundbar!

The Solution's at Hand (or mounted on the wall)

Soundbars have quickly become the device of choice for most people trying to enhance the mediocre sonic performance of their new flat screen, yet trying to avoid the size and space requirements of a full-blown surround system. Soundbars are available in a wide array of sizes, styles and performance capabilities. Unfortunately, at their lowest performance level they're little better than the speakers in the TV already. As you step up in price, size and performance they have the potential to be significantly better.

Some soundbars simulate a multi-channel surround field by adding extra drivers or using passive or active signal manipulation. With many of these types you must sit precisely in the correct location to experience an expanded soundstage and some modest perception of sounds off to the side, simulating the surround information. Unfortunately, in many cases, these attempts to artificially create a surround field are actually detrimental to the overall sound quality of the system. It turns out that it's just not that easy to create an immersive sound field that will give you a believable facsimile of a real surround sound system with a front located sound bar system and deliver high performance audio (not easy, but quite possible with the clever engineering design of the GoldenEar SuperCinema 3D Array. More about that later).

It's also pretty hard to generate any real bass pressure with the small drivers used in typical sound bars because they too are designed to be compact, visually blending with the TV they're paired with. Even units that claim to have built-in subwoofers are unlikely to offer the kind of bass performance a decent outboard powered sub provides.

Two Major Soundbar Types

Type 1 - Powered. Powered soundbars vary in complexity from simple "Plug and Play" units connected to the TV's audio output, all the way up to units that essentially have a surround sound receiver built in. The built-in electronics in most soundbars are very limited (how could you fit a full blown receiver inside a skinny little soundbar?), and on top of that, when the inevitable new surround

formats come to market, you'll have to either disregard them or replace the soundbar if you want to enjoy them. Not really a high fidelity choice, no matter how expensive or complex.

Type 2 - Passive. Passive means you have the advantage of being able to use real component quality electronics of your choice (just like your typical home audio speakers), like a surround sound receiver or processor/power amp. This means that the system will not be limited by what fits into the soundbar, and can be as good as your budget will allow (assuming the passive soundbar they are connecting to is capable of real audiophile performance).

The GoldenEar SuperCinema 3D Array (SC3DA) Soundbar is a very special passive type soundbar. But what makes the 3D Array different (and better) than other sound bar solutions? First and foremost, the SC3DA has been designed to deliver the same kind of spectacular audio performance every GoldenEar speaker creates. Before any other goal, our engineering team knew that any GoldenEar soundbar had to be acoustically excellent, utilizing the same high quality components (like our HVFR ribbon tweeter) that we use throughout the award winning GoldenEar line. Once that had been achieved, they incorporated a unique new image optimization technology to create a lifelike 3D sound field, without acoustic degradation.

This technology, pioneered by GoldenEar founder Sandy Gross, effectively addresses certain problems that have been brought up recently in an ongoing 3D audio research project conducted by Dr. Edgar Choueiri at Princeton University. Dr. Choueiri points out that the left channel sounds which "bleed" into our right ears and the right channel sounds which bleed into our left ears, limit the ability of our ear/brain system to discern accurate and consistent sound imaging and localization. The imaging that's already in the recording (be it music or a film soundtrack) is corrupted by this cross-contamination process and is lost during playback. *The effect is exacerbated when the left and right channel speakers are very close together, like they are in any soundbar!*



The GoldenEar SuperCinema 3D Array

The GoldenEar 3D Array Solution

The SuperCinema 3D Array incorporates left-, center- and right-channel speakers, plus a second set of drivers that utilize the GoldenEar 3D Array Technology. It effectively cancels out this left ear/right ear crosstalk resulting in a front soundstage that stretches from wall to wall and beyond, reproducing amazing height, width and depth to envelop you in a true 180-degree sound field, even though the soundbar is only 49" wide! It's important to note that the 3D Array technology isn't adding or changing anything in the original sound. It's simply canceling the inter-aural crosstalk which allows our brains to discern a much wider sound field, approximating a full surround sound system from a single soundbar. Amazingly, all this sonic and surround performance is contained within a sleek, attractive 2.7" thin enclosure that perfectly complements the latest super-thin flat panel TVs.

Surround Speakers Optional

Our unique 3D Array Technology delivers extraordinary surround sound performance without dedicated surround speakers. However, when the SC3DA is combined with a pair of rear surrounds (like our **SuperSat** on walls or **Invisa** In-Ceiling/In-Wall models), the result is a mind-boggling, true 360-degree surround-sound experience that rivals discrete 6 or 7 speaker surround systems. In fact, it actually surpasses all but the very best in its ability to dramatically recreate the realism of a live performance or a cinematic event.



The GoldenEar SuperCinema 3D Array

Real Electronics, Real Subwoofers

The hallmark of a great home theater audio system is the ability to reproduce the excitement of the movie experience. This means real dynamics, pounding bass, appropriate volume levels, low distortion, and dialog intelligibility. The 3D Array allows for the use of “real electronics”, all the way up to a big stack of separates, thanks to the use of our audiophile-quality components throughout. And of course the addition of a real powered subwoofer or two, like the GoldenEar **ForceField** subwoofers, gives the soundbar-based system all the fidelity and power of a BIG system, with the minimalist cosmetic appeal of the soundbar.

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