



## Notebook PC Audio Solutions



EMO™ speaker systems for notebook computers add value by filling an important unmet consumer need. By using patented *Edge Motion™* technology, they provide superior audio performance and significantly more design freedom than traditional embedded speaker systems.

### Overview

EMO™ brand Audio Solutions for Notebook PCs enable manufacturers to integrate an invisible, “zero footprint” speaker system that delivers excellent audio quality from the ideal speaker location. This represents tremendous added value since notebooks have emerged as the computing platform of choice – in the office, in the home and at school. At the same time, the expanded availability of high quality multimedia and audio content has dramatically increased the demand for improved performance from built-in notebook PC speaker systems.

Historically, it has been a challenge to design an attractive portable computer that can provide a satisfying multimedia experience. Acoustic performance is seriously diminished when miniature dynamic drivers are squeezed into a small space and are not oriented towards the listener. Due to mediocre sound quality and poor imaging, many notebook PC owners avoid using the built-in speakers, opting instead for headphones or not-so-portable outboard speakers.

### Audio with a Clear Difference

Emo Labs invisible high fidelity speaker systems for notebook computers offer an attractive solution to this problem. Our revolutionary *Edge Motion™* audio technology now makes it possible to create attractive, streamlined products with superior acoustic performance. The EMO™ speaker system delivers full-fidelity stereo sound directly from the display, providing a more natural and enjoyable multimedia experience.

### Features

*Edge Motion™* audio solutions create value by delivering excellent audio performance in an attractive form factor that provides tremendous design freedom:

- ◆ The invisible speaker system wraps tightly around the display panel, taking up minimal space while preserving a clean, streamlined look
- ◆ A single, optically transparent membrane is two separate speakers (left and right), and provides full-range, natural sounding stereo reproduction
- ◆ Audio is directed at the listener from the front of the display, unifying the sources of audio and video content for a more pleasing and realistic multimedia experience



*The EMO™ speaker system incorporates separate left and right speakers that blend in seamlessly with the display. Full-range stereo sound is directed at the user from the front of the display, “unifying” the sources of both audio and video content.*

### Consumer Benefits

- ✓ Significantly better acoustic quality
- ✓ More realistic multimedia playback
- ✓ Freedom from headphones
- ✓ No speakers or wires to deal with



*EMO™ notebook PC speaker systems amaze and delight users, whether they are sharing a video, playing games, having a video conference, or just listening to their favorite music.*

### OEM Benefits

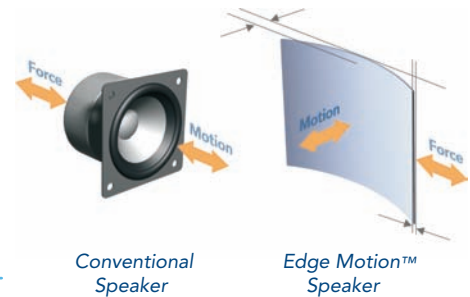
- ✓ Addresses critical market need
- ✓ Distinctive competitive advantage
- ✓ Improved audio performance
- ✓ Smaller, more streamlined products
- ✓ Better overall value

### Applications

- ✓ Multimedia notebook computers
- ✓ High performance notebooks
- ✓ Notebooks optimized for gaming
- ✓ PCs with built-in videoconferencing

## Edge Motion™ Audio Technology

Edge Motion™ technology fundamentally changes the way that sound is generated. The resulting speaker systems are capable of amazing audio quality and make it possible to design a better class of multimedia CE products.



### A Breakthrough in Speaker Technology

The speaker systems developed by Emo Labs use a revolutionary new technology that fundamentally changes how loudspeakers work. Our patented Edge Motion™ speaker systems generate sound based on a unique mechanical principle. Instead of a motor that pushes from behind, like a traditional cone speaker, Edge Motion™ speakers actuate a thin membrane along the side in a manner that creates an efficient, piston-like motion in front. The resultant speaker system is thin and lightweight, yet it produces full, natural sound across the audio range.

### Ideal for Integration with Displays

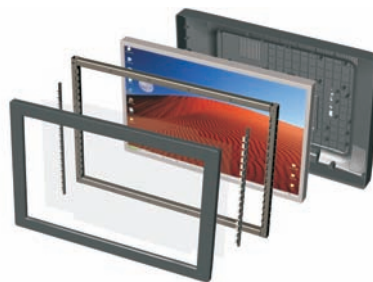
Edge Motion™ audio systems do more than simply produce exceptional sound in a completely new way. They also enable manufacturers to transform the screen of a flat panel display product into a fully-integrated, high-fidelity stereo loudspeaker. Using optically transparent materials for the membrane (the radiating part of the speaker), the entire speaker system can be made invisible by building it around a display panel.



With Edge Motion™ technology, highly controlled pressure is applied along the side of a transparent membrane. This force generates sound waves that radiate perpendicular to the plane of that surface.

### Small Footprint, Big Sound

Although these thin and lightweight EMO™ loudspeaker systems produce rich, full-range audio, the sound-producing motion of the "micro-flexing" membrane is not visible. This unique ability to effectively integrate a zero-footprint, high-quality audio solution with flat panel displays also unifies the source of both the video content and the stereo audio content. This "unification" of sound and image dramatically enhances the multimedia user experience; this is a significant benefit since consumers of all ages have access to more high-quality audio and video content than ever before.



Each EMO™ stereo speaker assembly consists of a membrane, a frame and arrays of miniature motors. As a single unit, this assembly is designed to fit tightly around the display panel, enabling it to virtually disappear into the enclosure.

### Advantages

The unique benefits of Edge Motion™ audio technology include:

- ☑ True "zero footprint" form factor means smaller, more streamlined products
- ☑ Speakers oriented towards the listener produce a more natural, full-range, high-fidelity sound and stereo imaging
- ☑ "Unifying" the sound and images provides the optimal integration of audio and video for multimedia
- ☑ Products are simpler and easier to use, with no set-up required and no additional boxes or wires

Emo Labs is a leader in the development of innovative audio technologies designed to change the way people look at speakers.

For more information on Emo Labs embedded audio solutions for display-based products, please visit our website:

[www.emolabs.com](http://www.emolabs.com)

Product inquiries may be directed to:

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