

Sound Surrounds Us

Recorded sound occupies the physical space of the audience.

By using different speaker setups, you can achieve different spatial effects. This makes sound a powerful, 'virtual reality' factor in your work.

MONO

Mono is a single channel of audio. The sound seems to come from right in front of the listener, or from a single point in space. If two speakers are used (stereo), the sound will seem to come from the center between the speakers.

Two speakers can't really reproduce 'true' mono. If you pan a sound into the center ('mono') of two speakers, it seems to sound wider than if you use only one speaker. An example of 'true' mono is the front mono speaker in a 5.1 home theater system, or at any modern cinema. A single speaker in front guarantees that, no matter where you're located in the room, the sound will seem only to come from one place. With two speakers, you must be reasonably close to the 'sweet spot', or the illusion of mono is ruined.

STEREO

Stereo uses 2 **discrete** (separate) channels of audio, requiring 2 speakers. The left and right channels may sound slightly different or radically different. The end result is a sense of horizontal 'width'. You can position sounds anywhere in the L-R stereo field.

Panning (short for 'panorama') is used to animate the stereo field. A sound can be fixed somewhere between far left and far right (fixed panning), or it can move around within the stereo field (dynamic panning).

Stereo imaging is used to create a sense of a stereo space around a monophonic sound, or to simulate the effect of hearing a

live room sound from the 'inside', where the 2 channels correspond to our two ears.

QUAD

An outdated format, using 4 speakers, which was popular for a while in the 70's. This was the first attempt at 'surround' sound, and was used in several recordings, and more often, in live concerts. Pink Floyd was famous for using 'quad' in their massive concerts.

5.1 SURROUND

Sometimes referred to as Dolby 5.1, this format is common in cinemas, and home theatres. It is slowly developing as a method for mixing recorded music with more spatial interest than stereo. 5.1 uses 5 main speakers and one subwoofer for low frequency vibrations:

- **Five** full-range audio channels (100 Hz-22 kHz)

Three speakers at the front (left and right, plus a mono center). These three speakers create the "front-of-house" audio environment. The left and right speakers often carry music, sound effects and ambience. The mono center carries dialog.

Two more speakers at the side or rear (left and right). This is where the surround effect is created. Complex 'pan' controls allow movement of sounds from the back to the front, and from left to right. These speakers often carry sound effects and ambience.

- **One** low-frequency effects channel (LFE)

For the subwoofer to carry the deep bass sounds. This channel has a range of 10 Hz to 120 Hz. These low frequency sounds are not heard so much as felt.

The LFE channel is the ".1" in 5.1