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About QSurround®

The **QSurround** family of algorithms renders high-quality, multi-channel virtual surround audio with maximum spatial impact over stereo headphones, stereo speakers and multi-speaker surround systems, creating a powerfully immersive listening experience.

QSurround has been implemented in a wide range of consumer entertainment products including PC sound cards, laptop computers, DVD players, TVs, portable stereos and home theater systems from manufacturers such as AIWA, Philips, RCA, Sharp, Sanyo and Toshiba.

Product Family

The QSurround family of 3D audio virtualizers consists of:

QSurround HD™, a multi-channel virtualizer specifically designed for playback over stereo speaker systems.

QSurround 5.1™, a multi-channel virtualizer that works with any multi-speaker configuration, whether arranged traditionally or front oriented.

QSound Headphones™, a multi-channel virtualizer that employs unique HRTF algorithms for headphones in conjunction with ambient environment simulation (a virtual room) that provides context for the content.

All of these virtualizers can be complemented with the addition of optional bass and high frequency enhancement algorithms, QSizzle and QRumble, as well as our speech enhancement algorithm, QDialog.

QSizzle™   An adaptive mid to high-frequency spectral enhancement that restores a natural-sounding sonic punch to highly compressed audio formats like MP3 by selectively adding upper spectrum energy according to the real-time characteristics of the input signal.

QRumble™   The low-frequency counterpart to QSizzle, QRumble also adds energy in a selective fashion, bringing substance and warmth to the low end spectrum without overloading on loud passages.

QDialog™   Enhances speech and vocals for music and movie sound-tracks, providing improved clarity and intelligibility.
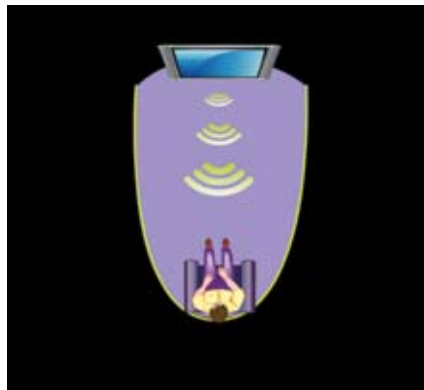
The QSurround Competitive Edge

- *Unparalleled high-quality, multi-channel surround virtualization*
- *Patented sound imaging technology*
- *Industry proven solution*
- *Applicable for traditional 5.1 speaker systems, soundbars, stereo speakers and headphones*
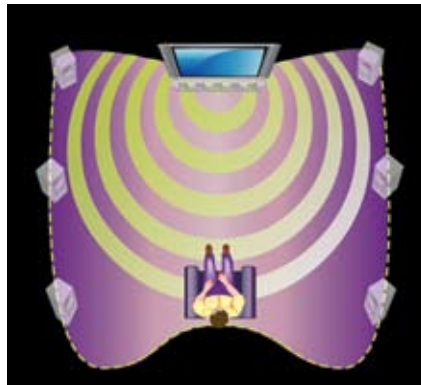
QSurround Product	Surround Virtualization for 2.0 Output Channels	Surround Virtualization for 3.0 to 6.1 Output Channels	Applicable for Front Oriented Speakers	Low Resource Needs	Patented Sound Imaging Technology	Industry Proven Solution	Complemented by Additional Algorithms:		
							QDialog	QSizzle	QRumble
QSurround HD	✓			✓	✓	✓	✓	✓	✓
QSurround 5.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
QSurround Headphones	✓			✓	✓	✓	✓	✓	✓

QSurround HD Transforms Ordinary Listening into an Audio Experience

Conceptual illustration of QSurround HD surround sound virtualization over stereo speakers. Audio is experienced as coming from a central virtual soundbar and virtual speakers surrounding the listener.

OFF

**Ordinary Music Listening
with Normal Stereo Sound Stage**

ON

**QSurround HD Audio Experience
with Expanded Sound Stage**

Hardware Partners

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QSURROUND HD™

QSURROUND 5.1™

QSurround®

QSoundLabs

QSurround Technology Overview v1.0_QS712