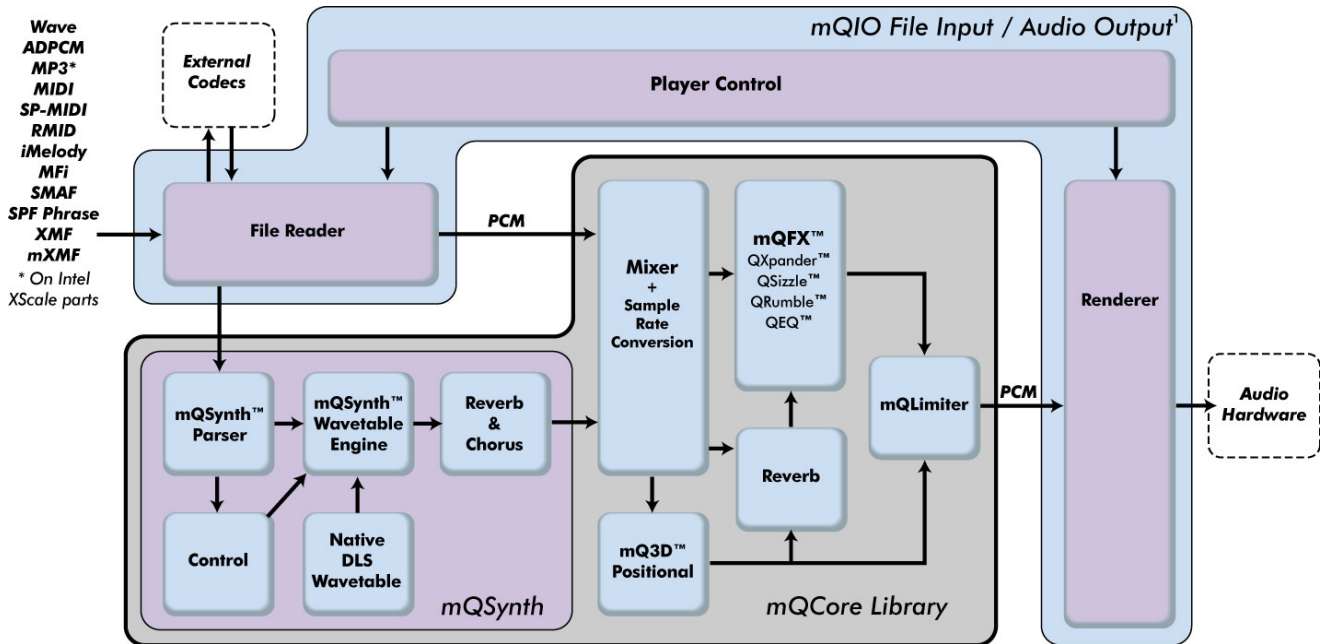




### Introducing microQ

microQ™ is a compact, modular and highly efficient software digital audio engine enabling polyphonic ringtones, 3D game sound, and enhanced music playback with multiple effects for mobile devices.

microQ represents the culmination of over thirteen years of PC host and DSP audio software development and product deployment by QSound Labs, Inc., a world leader in sonic innovation.



<sup>1</sup> mQIO is an optional component and is not available for all operating systems

### Incomparable Feature Set

Unmatched by any single vendor, microQ's modular audio suite consists of three major components:

#### mQSynth™ Polyphonic Wavetable Synthesizer

For ringtones and background music in interactive applications such as games, mQSynth plays musical scores contained in performance files (MIDI and similar formats) using digital sample-based instruments.

#### Q3D® Positional 3D Audio Engine

Q3D Positional places multiple sounds independently in 3D space for interactive gaming. Applicable to arbitrary streams or mQSynth synthesizer channels using native or custom instruments and sound effects. Optional: QEM™ environmental modeling (reverberation).

#### mQLimiter™

A high-efficiency, virtually "bullet-proof" anti-saturation dynamic range controller, mQLimiter handles any combination of signals and extreme effects settings the user can throw at it, eliminating output distortion with surprisingly little CPU bandwidth.

The flexibility of microQ extends into each major component. Consider mQSynth for example: Numerous options include three standard feature packages, support for various API's & formats, chorus & reverberation effects, all configurable at compile time. Put this together with native DLS sample sets in six standard footprints ranging from 50KB to 1MB, and it's very likely that we can address your needs with an off-the-shelf solution. If not, further customization of both synth and DLS is available.

#### mQFX™ Digital Effects Engine

Enhancing and customizing the music listening experience, the mQFX suite includes:

- QXpander™ 3D stereo sound stage expansion
- QSizzle™ dynamic high-freq. enhancement
- QRumble™ dynamic low-freq. enhancement
- QEQ™ equalization

## Support for Standard Formats & API's

**microQ** renders polyphonic sequenced content (MIDI, SP-MIDI, XMF, iMelody, MFi v4.0, SMAF-MA2/MA3/MA5 with LED, Vibration and .SPF Phrases) with its native wavetable synthesizer sample set or using custom downloadable instruments (DLS, DLS 2.0, Mobile DLS).



**microQ** plays multiple digital audio formats, both linear (WAV, PCM) and compressed (Microsoft, IMA and Yamaha ADPCM, MP3\*).

\*On Intel parts

**microQ** API support:

- Vodafone® VFX
- JSR-135
- JSR-234

BenQ P51  
**microQ** +  
Microsoft Windows  
Mobile 5.0



Lenovo P930  
**microQ** +  
Symbian OS

## microQ's Competitive Edge

- Proven track record and brand recognition
- Eliminates cost & real estate of dedicated synthesis hardware
- Single-vendor audio package simplifies integration & saves platform resources
- Modular: choose only the functions you need
- Easily scales across product lines
- Small memory footprint and high efficiency
- Supports earphones and speakers
- Tunable 3D for narrow geometry front, rear and side-firing speaker configurations



Panasonic 705P  
**microQ** +  
Proprietary OS



ZTE e3 **microQ** + Linux

## Platforms and Implementations

Inherently portable, **microQ** is written in highly-optimized C++ using fixed-point math, featuring the combination of small footprint and high efficiency that is the hallmark of QSound audio platforms. For those who prefer it, an optional C interface is available.

Modular, scalable components make **microQ** readily adaptable to any target environment, with the requirement for platform-specific code reduced to input and output interfaces.

**microQ** is currently available for DSP, RISC, and split DSP/RISC architectures running Linux, Symbian OS® 7.0s and above, Nokia® Series 60, and Microsoft® Mobile.

- ARM 7, 9
- ARM 9E, 11 (Optimized by ARM)
- ATI Imageon™
- CEVA-Teak & CEVA-TeakLite DSP cores
- Infineon APOXI® Application Framework
- Qualcomm® MSM 6xxx
- Tensilica® Xtensa®
- TI® OMAP™

**microQ** can be provided in the form of object code, or custom ported by QSound Labs to suit your specifications.

**microQ** can be implemented at various system levels, e.g. within a driver, as a plug-in, or as a user application.

## For Further Information

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