mobilesynth™

Embedded MIDI Synthesis and Digital Signal Processing for Ringtones, Sound Effects and Game Audio

Handheld Devices Are Heard Before They're Seen

In coat pockets and shoulder bags around the globe, cell phones, PDA's and instant messaging devices all announce themselves to the world through sound. How they allow consumers to personalize their devices and entertain themselves with sound often determines whether products succeed or fail.

Tomorrow's devices will put even more demands on engineers and product designers–MobileSynth™ provides key features to make building customizable, high quality audio features like ringtones and sound effects fast and flexible.

Now in its second generation, MobileSynth provides a market-proven base for delivering essential audio features in an easily customizable package, either in source code or fully ported to popular processors and development platforms.

Flexible Technology

- Modular
- Scalable
- Processor Optimized
- Small Memory Footprint
- Market-proven
- Standards-based
- Enhanced with Wave Arts Digital Audio Processing

Customization

Because each portable product has unique requirements, MobileSynth's modular design provides a basic framework for customizing core features and implementing optional features as needed. Wave Arts treats each customer project as an opportunity to provide the specific components and integration needed for successful development.

Porting

MobileSynth is designed for digital signal processors and general purpose processors such as:

- Texas Instrument OMAP™
- ARM™ processors from Intel®, Motorola® and ARM Ltd.
- Intel x86 series chips

Optimized for low cost 16-bit DSP's, MobileSynth can be rapidly ported to semiconductors using 16-, 20- or 24-bit integer processing.

Flexible Licensing

- Original Design Manufacturers (ODM's)
- Original Equipment Manufacturers (OEM's)
- Semiconductor Designers and Manufacturers

Portable products are developed in a variety of technical and business environments–no two customers are the same. Where some projects require the predictability of a one-time fee structure, others require the freedom of a royalty-based license. Wave Arts can accommodate your business as well as your development requirements.

MobileSynth is Advanced Audio Synthesis for

Ringtones and Alerts
Interactive Game Audio
Sound-enabled User Interfaces
Multimedia Instant Messaging
Entertainment Audio and Music Playback
Custom Playback from Downloaded Ringtones and Sound Banks

wave arts

mobilesynth

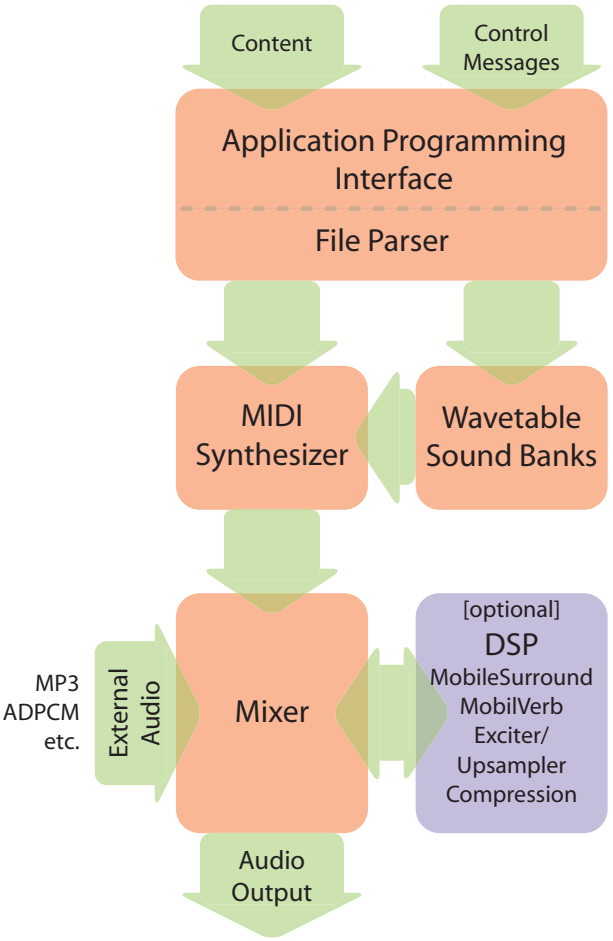
High-Quality Software Optimized for Low-Powered Portable Devices

Product Summary

MobileSynth is a software-based General MIDI playback engine with MIDI synthesizer, file parser, wavetable sound banks, audio mixer, and optional audio effects.

MobileSynth's capabilities make it easy to add consumer personalization features and audible product branding to handheld products. Optional audio processing can also enhance any audio the device delivers.

MobileSynth Architecture



Features and Benefits

Personalizes devices with ringtones and interactive sound effects
- Built-in content
- Downloadable content

Delivers highest quality audio experience in a lightweight footprint
Enhances all device audio with advanced signal processing
Designed for portable devices with DSP's and embedded processors
- Modular customizable architecture
- Extremely efficient–low power draw
- Compact memory footprint

Committed to compatibility with industry content & device standards:
- 3GPP (5-24 note device profiles)
- MMA (SP-MIDI, General MIDI Lite, Mobile XMF, Mobile DLS)

Licensed flexibly and affordably
Backed with Wave Arts' renowned customer service

Specifications

General MIDI (GM1), Standard MIDI File types 0 and 1 compatible
General MIDI Lite (GML) compatible
Scalable Polyphony MIDI (SP-MIDI) compatible
Mobile XMF, Mobile DLS compatible
Mono or stereo synthesis
4-256 voice polyphony (limited by available MIPs and memory)
16-bit/8-bit hybrid soundfile set (for higher quality in specific instruments)
22.05 kHz native sampling rate
128 GM melodic instruments and 47 GM percussion sounds
Variable wavetable sizes (sub-100k to 1 MB)
Multiple wavetable styles (optional)
- Traditional GM (standard playback in all styles)
- Techno GM (for an 80s or electronica style in any file)

Streaming MIDI capable
Downloadable RAM-based sound banks
Sound effects API for triggering wavetable-based sounds, e.g. interactive game audio (can be mixed with other MIDI playback)
Interactive Audio API for digital audio mixing across applications
Two LFOs per voice (for filter modulation or vibrato/tremolo effects)
Two 4-stage envelopes (amplitude and modulation)
Dynamic 2-pole filters
Noise generator
Pitch tuning and modulation
Processing requirements less than 1 voice per MIP on low cost DSP's
Memory requirements less than 128 bytes per voice
Audio processing effects (optional):
- MobileSurround™ 3D expansion
- Upsampler and Exciter processing for 44.1kHz output
- MobileVerb™ reverberation
- Dynamics
- EQ

For more information and access to a convenient Windows compatible demo, email *info@mobilesynth.com* or visit

www.mobilesynth.com

wave arts

99 Massachusetts Ave / Arlington, MA 02474
781-646-3794 phone / 781-646-7190 fax