



# FONIXTALK SDK

The multi-language TTS SDK featuring the industry's smallest memory footprint and highest vocal quality for embedded, handheld or mobile application

## FonixTalk 6.1

FonixTalk 6.1 is multi-language TTS software featuring the industry's smallest memory footprint, making it ideal for embedded applications. FonixTalk builds upon Fonix's legacy DECtalk® product, while making significant improvements in the technology's ability to produce more natural, less robotic-sounding synthetic speech.

FonixTalk 6.1 introduces a new articulatory vocal tract model that creates a more natural-sounding voice, plus developers and clinicians can create modified voices in minutes. FonixTalk's small memory footprint and extensive operating system (OS) support allows developers to add speech output to many devices with small CPU capability or minimal memory.

FonixTalk 6.1 also includes a simplified API that enables developers to integrate speech into their products or applications more quickly.

FonixTalk's nine TTS voices feature improved naturalness, inflections, intonations, pauses and changes in pitch, speed and emphasis that create a more normal speech pattern, which is easier to listen to and understand.

## Features and Benefits

- The most **highly intelligible, natural voices** in the synthesized TTS market
- Intelligible at **fast speaking rates**
- Improved male, **female and child** voices
- Improved sentence-level phrasing and intonation provide more **natural speech** that is easier to listen to and understand
- Sophisticated pre-processing rules provide greater pronunciation and prosodic accuracy
- **Multiple languages** – English, French, German, Italian and Spanish
- **Dialect support** for Castilian and Latin American Spanish, US and UK English
- **Asian language support** – Korean and Mandarin Chinese. Contact sales for Japanese.
- Developers and clinicians may create custom voices (less than 0.5 KB per voice)
- Expanded set of speech parameters: dynamic control over voice, pitch, speaking rate, stress and language (create custom voices and tune for specific acoustic environments)
- Change voices, languages, etc., **on demand**
- Correctly **pronounce non-native words** using the same voice
- Full-featured TTS with a **small memory footprint** (less than 500 KB for a single language with up to nine voices; less than 2.5 MB for all nine languages with nine voices per language)
- **NAND Flash** support
- Flexibility to operate on **many hardware and OS platforms**
- C/C++/C#/Java/Visual Basic (VB) Interfaces

## An efficient, scalable, low-cost solution

FonixTalk 6.1 software components and architecture are designed to operate directly on the main processor, eliminating the need for an additional CPU or DSP. The flexible, self-contained modules enable developers to design systems to operate within memory and MIPS constraints and to be highly portable across many processor and OS platforms. The TTS engine operates across a full array of hardware and software combinations and includes a new simpler API, making time-to-market faster and cheaper for developers.

## New FonixTalk 6.1 Features

- New vocal tract model for increased naturalness
- Greater control over speaker parameters, custom voices
- Improved Spanish, French, German and Italian
- Improved prosody
  - More accurate pronunciation
  - Sophisticated pre-processing includes new parser
- Better singing voice
- Additional, simplified API
- Asian language support
- Pronounce non-native words correctly
- Change language on word-by-word basis using the same voice

## FonixTalk TTS Product Features

- Highly intelligible TTS voices
- Natural-sounding voices
- Pauses, inflections and emphasis
- High quality proper name and location pronunciation
- Male and female voice support
- User-programmable pronunciation dictionaries
- Flexible voice parameter controls (custom voice capability)
- Universal phoneme set allows multi-language pronunciation without changing language modes
- Email/SMS abbreviation libraries
- Efficient use of MIPS and memory changing language modes
- NAND Flash support

## Available Languages

- US/UK English
- European French, German, Italian
- American Spanish, Castilian/Latin
- Mandarin Chinese, Korean, Japanese

## Voices (9)

- 4 male • 4 female • 1 child

## Deployment Environment & Memory Usage

- Base engine: 342 KB
- 128 KB – 2 MB ROM (depending on dictionary size)
- 64 KB – 256 KB RAM

Additional ROM usage (kb)

Supported Languages	Linguistic Components	Dictionary	
		Large	Small
English - UK	180	369	100
English - US	75	1900	120
French - European	106	44	44
German	117	42	42
Italian	42	167	167
Spanish - Castilian	41	11	11
Spanish - Latin	41	8	8
Mandarin Chinese	~100	58	58
Korean	~70	2	2
All languages total	667 KB	2.6 M	0.6 M

ROM calculation:

ROM = base engine + linguistic component + dictionary  
for each language

US and UK English small dictionary example:

$342 + (75 + 75) + (100 + 120) = 712$  KB RO

## Programming Language Interfaces

- C/C++
- C#
- VB
- .Net
- eVB

## CPU Requirements

- 10 - 30 MIPS (MIPS dependent on CPU architecture. These numbers are general cases estimates.)

## Audio Requirements

- 8 (8 bit plaw or 16 bit Linear) buffered or streamed
- 11 KHz (16 bit Linear) buffered or streamed

## Hardware supported

- Analog Devices - Blackfin 533/535/525/527
- ARM - Arm 7 / Arm 9
- Epson - S1C33 Family
- Freescale - PowerPC 5200
- Intel - XScale / x86
- MIPS - R4xxx
- Renasas (Hitachi) - SH3 / SH4
- Samsung - S3C ARM Family
- Texas Instruments - OMAP 710 / 720 / 5910
- Sun - Sparc

## Operating systems supported

- Win32
- WinCE
- Windows Mobile
- Linux
- Solaris
- MAC OSX
- QNX
- Symbian
- Nokia Series 60
- No OS