

SOUNDabout® Wideband Speech™ is a high-performance implementation of the Bluetooth® WB-Speech service.

SOUNDabout Wideband Speech is fully developed and ready for integration into any existing Bluetooth baseband. It is currently optimized for ARM7, but can be ported to other processors quickly.

The audio frequency response offered by SOUNDabout Wideband Speech is comparable to that of 3G audio coding standards such as G.722.2 (AMR-WB). It delivers monophonic audio sampled at 16 kHz over a Bluetooth eSCO link established by the application.

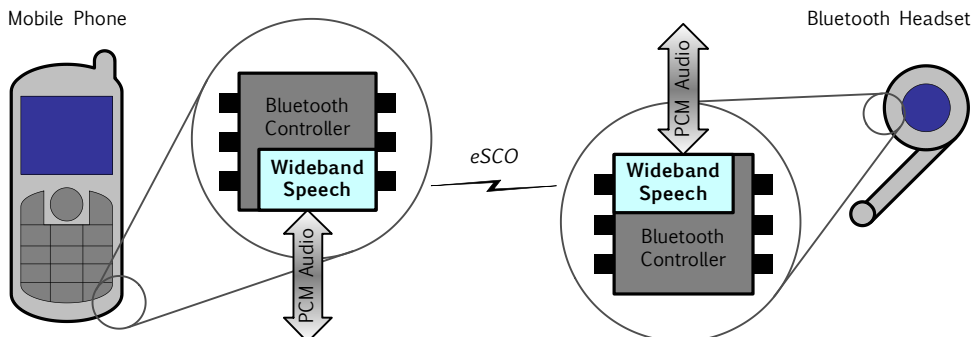
SOUNDabout Wideband Speech compresses audio using Open Interface North America's high-performance Bluetooth SBC codec.

## Minimum Requirements

- 9.5 KB of ROM for code and constants
- 2.3 KB of RAM for working memory
- eSCO S4 or S5 (EV3 packets)

## Capabilities

- 16 kHz sampling rate
- Up to 8 kHz frequency response
- 16-bit PCM audio data
- Monophonic audio
- 64 kilobits per second max data rate
- Support for Bluetooth EDR



## ARM7 Performance Evaluation

The SOUNDabout Wideband Speech codec operates most efficiently when executing completely out of fast 32-bit memory, but also operates efficiently in a mix of fast memory and slow 16-bit memory.

On an ARM7TDMI processor, the codec's working memory, code, and constants occupy between 10.5 and 11.8 kilobytes of memory.

When fully loaded into 32-bit 0-wait-state RAM, the codec can simultaneously encode and decode high-quality audio on the equivalent of a 6 MHz ARM7 processor. When loaded into 7 kilobytes of fast RAM with less-critical portions in 16-bit ROM, the codec requires the equivalent of a 10 MHz ARM7.†

The chart below shows ARM7-equivalent processor speeds required for live encoding and decoding when the codec is partially loaded into fast memory. The SOUNDabout Wideband Speech Evaluation Kit includes an ARMulator™ binary for additional profiling.

† All performance figures are from Open Interface North America simulations, and refer to codec operations only.

Type of Slow Memory	Allocated Fast Memory	Equivalent ARM7
Not used	10.5 KB	6 MHz
16-bit 1-wait	8.0 KB	7 MHz
16-bit 1-wait	6.0 KB	10 MHz
16-bit 2-wait	9.0 KB	6 MHz
16-bit 2-wait	7.0 KB	10 MHz

## Ordering Information

Contact Open Interface North America for prices, availability, and licensing.

**OPEN INTERFACE NORTH AMERICA**  
520 Pike Street, Suite 1770  
Seattle WA 98101 USA  
Phone +1-206-315-5570  
Fax +1-206-315-5580  
info@openinterface.com



SOUNDabout Wideband Speech implements the *Final Improvement Proposal Document for WB-Speech Service V10r00*.

That document is a proposed specification, and is subject to change.

Open Interface North America, BLUEmagic, SOUNDabout, and SOUNDabout Wideband Speech are trademarks or registered trademarks of Open Interface North America, Inc. The double circle device is a registered trademark of Open Interface, Inc. and is used under license. Bluetooth, the Bluetooth work mark, and associated icons are trademarks of Bluetooth SIG, Inc. and are used under license. All other product and company names are used for identification purposes only and may be trademarks or registered trademarks of their respective owners. Information furnished is believed to be accurate and reliable. However, Open Interface North America assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Open Interface North America. Specifications contained in this document are subject to change without notice. This publication supersedes and replaces all information previously supplied. Open Interface North America products are not authorized for use as critical components in life support devices or systems without express written approval of Open Interface North America.