

# **IntelliSonic**

## **Speech Enhancement and Acoustic Echo Cancellation**

**Software Drivers for Windows XP & Windows 2000**

**DataSheet Version 2.5**  
October 2006

## Introduction

The IntelliSonic Speech Enhancement solutions provide multiple configurations for real-time single or dual microphone noise suppression and acoustic echo cancellation technology. These solutions are customized to enhance the user experience on Windows XP based mobile devices like Tablet PCs and laptops. The product matrix below lists the available configurations.

IntelliSonic provides robust distortion free speech enhancement based on optimized non-linear noise reduction algorithms. Additionally, the IntelliSonic dual microphone beam forming technology is designed to enhance speech signals within a specified acceptance region, when the original signal is contaminated with background noise or specific interfering noise sources. The IntelliSonic acoustic echo canceller is designed to eliminate unwanted acoustic echo from PC speakers. In hands-free telephony applications, significant acoustic echo can be detrimental on the quality of your conversation. By reducing or eliminating the amount of acoustic echo present in the microphone signal IntelliSonic echo-canceller solutions allow for an enhanced user experience during hands-free telephone conversations on a computer.

### Product matrix

Product	Number of microphone	Noise Reduction	Beam Forming	Acoustic echo cancellation
DX.01	1	Yes	No	No
DXEC.01	1	Yes	No	Yes
DX.02	2	Yes	Yes	No
DXEC.02	2	Yes	Yes	Yes

### Features

- Stationary ambient noise suppression
- Non-stationary noise, reverberation and interference cancellation via beam-forming
- Full-duplex acoustic echo cancellation
- Fully featured control panel interface to software
- Real-time full speech bandwidth processing
- Adjustable acceptance and look angles.
- Fully adaptive system adapts to changing acoustic environment
- Upper filter driver adherent to Microsoft's windows driver model (WDM)
- Rich application programming interface (API) set for custom interface and value-add
- Evaluation version available on request.
- Multilingual support.

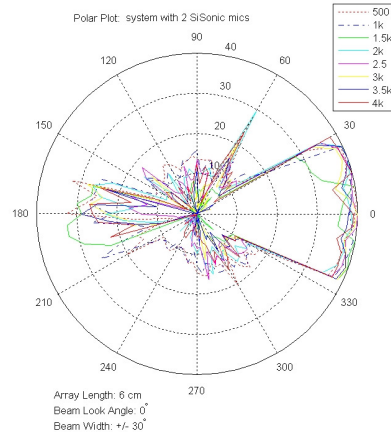
### Applications

- VoIP / Telephony
- Dictation
- Audio notes
- Speech command and control
- Voice annotation

## Specifications

### Algorithm Performance:

- Signal processing bandwidth 8 kHz
  - Flexible array aperture range 5 cm - 30 cm (for DX.02, DXEC.02)
  - Off-beam attenuation > 30 dB (for DX.02, DXEC.02)
- Typical IntelliSonic polar pattern for speech.  
 Array Aperture: 60 mm  
 Microphones: Omni-directional ECMs



- Full-duplex Acoustic Echo Canceller (for DXEC.01, DXEC.02)
- Maximum echo path delay 256 ms (for DXEC.01, DXEC.02)
- Echo return loss enhancement (ERLE) > 25 dB (for DXEC.01, DXEC.02)
- Noise reduction > 16 dB

### Filter Driver:

- WDM upper filter driver for Microsoft Windows XP operating system
- Microsoft hardware compatibility test (HCT) passed<sup>1</sup>
- Supports AC'97 and HDAudio codec standards<sup>2</sup>.

### General:

- Feature rich control panel, system tray icon and end-user help files.
- Fully controllable direction and width for beam pattern.
- Microsoft Windows XP and Windows 2000 SP4 are supported.
- Minimum platform requirements: Intel Pentium III / 800, 128 MB.
- Installation using MSI installer.
- Installation via GUI or 'silent' batch-mode on licensed version
- INI file to customize input source processing, beam-forming.
- API for OEM configuration and control.
- Multilingual support available for English, French, German, Spanish, Italian, Japanese, Korean, Traditional Chinese, Simplified Chinese and Portuguese.
- Installation Documentation for OEMs<sup>3</sup>.

## Contact

Knowles Acoustics

<sup>1</sup> WHQL certification not required by Microsoft

<sup>2</sup> Stereo input codecs required for beam-forming solutions (DX.02 & DXEC.02)

<sup>3</sup> Not for end-user distribution.

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