



Welcome to *Sound Innovation*™, the quarterly newsletter created by Akustica to keep you abreast of technology advancements that can help you deliver the voice improvements demanded by your customers for your products. Each quarter, we explore the timeliest topics affecting voice communications and provide you with access to leading-edge information that will help you understand emerging trends and evaluate new offerings.

The four issues of *Sound Innovation* that were published in 2005 discussed the various ways to improve voice quality in consumer electronic devices, from using higher quality microphones to using multi-microphones with audio processing algorithms. There was a strong focus on microphone array applications in all types of consumer electronic devices, with two issues dedicated exclusively to the benefits of embedded digital microphone arrays in PC and laptop platforms, both from a system designer and an end-user perspective.

AKUSTICA ANNOUNCES WORLD'S FIRST SINGLE-CHIP MICROPHONE

For our first issue of 2006, *Sound Innovation* is proud to focus on Akustica's first commercially available product and the world's first single-chip microphone, the AKU2000 Digital Output Microphone. The AKU2000 provides high quality voice input for all consumer electronic devices and in particular, enables high quality embedded microphone arrays for laptop PCs.

The AKU2000 Digital-Output Microphone



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AKUSTICA NEWS and ARTICLES

- Akustica Launches World's First Single-Chip Microphone
- *Audio Designline*: Silicon MEMS Simplify Audio Design
- *Intel*: High Definition Audio for the Digital Home
- Akustica Works to Solve PC VoIP Voice-Quality
- Akustica Joins Development Alliance to Help Create New Digital Interface Standards for Mobile Devices
- *Sound Innovation* No.4 - End User Benefits of Embedded Digital Microphone Arrays

NEWS COVERAGE

- *EE Times* (cover): Digital MEMS mic put on a single chip
- *EE Times*: How one-chip Akustica mic does it
- *CNET*: The microphone shrinks to a single chip
- *The Register*: Boffins tout world's first single-chip digital microphone
- *MobileMag.com*: Single-chip, digital microphone improves sound quality all around

INDUSTRY EVENTS

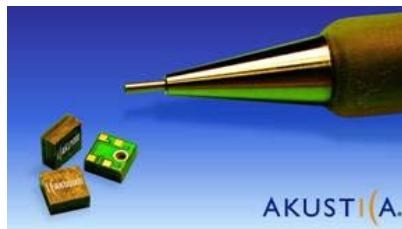
- **Intel Developers Forum - Japan**
April 6-7
- **Intel Developers Forum - Taiwan**
April 10-11
- **Microsoft WinHEC**
May 23-25
- **Computex**
June 6-10

➔ [Click here to meet with Akustica at any of these events](#)



AKUSTICA ANNOUNCES WORLD'S FIRST SINGLE CHIP MICROPHONE

The AKU2000 digital-output microphone integrates an acoustic transducer, output amplifier, and a 4th order sigma-delta modulator on a single chip. As compared with other microphone solutions, the AKU2000 provides the greatest amount of **Flexibility and Manufacturability** to the audio system designer because:



- The AKU2000 is surface mountable and automated pick & place compatible.
- The AKU2000 provides a robust digital-output which is immune to RF and EM interference enabling increased audio design flexibility and signal integrity.
- Unlike analog microphones, shielded cabling not required for signal routing of the AKU2000.
- The small form factor of the AKU2000 enables placement in thin profile and small footprint areas.

The AKU2000 revolutionizes the way the current microphone industry views MEMS, because it leverages the standard CMOS processes that are already in use around the world. Most MEMS applications today use captive and custom manufacturing processes. However Akustica's CMOS MEMS microphones can be produced at any CMOS foundry anywhere in the world, allowing the AKU2000 to be manufactured in extremely high volumes with the accompanying high yields and repeatability of standard CMOS semiconductor manufacturing,

The ability to produce the AKU2000 in high volumes will soon become necessary. The versatility, size, and noise immunity of the AKU2000 means that it is ideal for use in just about any of today's major consumer electronics – including laptops, cell phones, and Bluetooth headsets. Yole Développement, industry analysts that closely follow the microphone market, predicts that the overall silicon microphone market will grow to a TAM of 800 million units by 2010. The large majority of these silicon microphones will be used in consumer electronic devices, the market growth of which is being driven by the recent popularity of Voice-over Internet Protocol (VoIP) communication.

While voice input has always been a critical feature in a mobile handset, high quality voice input has never been as important to the mobile computing industry as it is now for several reasons:

- The **Microsoft Windows Vista™** upcoming operating system is designed for voice-enabled applications and microphone array support
- The **Intel® High Definition Audio** chipset enables enhanced voice capture through array microphones, giving users more accurate speech input.
- **eBay's Skype, Yahoo! Messenger, Google Talk, MSN Messenger**, and other VoIP applications require better acoustic performance

As more of the world goes wireless, thinner and lighter portable electronics will be required for communication at home and on the go. Akustica is positioned to provide these unique solutions now, and to continue to be the leader in MEMS innovation for the future.

[Click here](#) for more information and technical specifications for the AKU2000: