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Akustica Introduces World’s First Acoustic System-on-Chip Technology Set to Revolutionize Sound Capture, Processing and Reproduction

Pittsburgh, April 21, 2003 – In a significant technology breakthrough that will revolutionize the performance, design and manufacturing of communications and electronics products, Akustica, Inc., a fabless semiconductor company, has introduced the industry’s first successful implementation of an acoustic System-on-Chip (SoC).

Akustica’s acoustic SoCs (called “Microphone Chips” and “Speaker Chips”) are based on patented MicroElectroMechanical Systems (MEMS) technology that integrates the functionality of multiple microphones or speakers with microelectronics and software onto a single, standard CMOS semiconductor chip. The result is a new class of acoustic solutions that deliver unprecedented capabilities for capturing, processing and reproducing sound.

Akustica’s first acoustic SoC is an Analog Microphone Chip. The chip is comprised of an array of 64 membranes combined with an on-chip analog amplifier. It measures 3mm x 3.65mm x .5mm and its performance is on par with standard electret condenser microphones. Akustica is currently sampling its Analog Microphone Chip with key customers in North America, Europe and Asia.

“The introduction of Akustica’s first Analog Microphone Chip represents the dawn of a new era in sound innovation,” said James H. Rock, Akustica’s president and chief executive officer. “We look forward to introducing a wide-range of chips in the coming months that will help manufacturers develop exciting new products with distinct performance advantages.”

Akustica’s chips offer a number of unique advantages as compared to conventional microphones and speakers:

	Conventional Components	Akustica Chips	Advantage
Integrated Electronics	No	YES	Combine signal processing circuitry, software and the functionality of microphones or speakers onto a single, standard CMOS semiconductor chip
Performance Innovation	No	YES	Deliver a range of advanced acoustic solutions such as directionality, noise cancellation and digital integration
Design Innovation	No	YES	Can be rapidly and cost-effectively designed and configured to meet the specific requirements of different device and system architectures
Manufacturing Efficiencies	No	YES	Enable component reduction and subsystem integration and can be assembled using automated Surface Mount Technology processes
Standard CMOS Fabrication	No	YES	Fabricated using standard and widely available CMOS processes and foundries, ensuring they are produced with the best available technologies, consistent quality and scalable capacity

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In addition to its superiority over conventional acoustic components, Akustica's Analog Microphone Chip also offers distinct advantages over other MEMS microphones, including:

- **Standard CMOS fabrication** – Akustica is producing its Microphone Chip in standard CMOS. Other MEMS microphones require more expensive and less flexible custom and captive fabrication processes.
- **Multiple Membranes** – Akustica is producing its Microphone Chip with multiple membranes on each chip, enabling a number of advanced capabilities for capturing and processing sound. Other MEMS microphones on the market today offer only one membrane per chip, limiting the ability to provide new acoustic capabilities.
- **System-on-Chip** – Akustica's Microphone Chip is a monolithic solution that integrates microphone functionality and signal processing onto a single CMOS chip. Other MEMS microphones require at least two chips – a MEMS chip coupled to a separate ASIC chip – to perform even the most basic functions necessary to capture and process sound.

“The capabilities of conventional microphones have not kept pace with the evolution of communications and electronics products,” said Dr. Kaigham (Ken) J. Gabriel, Akustica's chairman and chief technology officer. “Other MEMS microphones are hampered by custom fabrication and costly silicon approaches that limit their real-world potential. Akustica's Analog Microphone Chip represents both a significant technological breakthrough and the death of the microphone as we know it today.”

EDITORS NOTE: PHOTOGRAPHS OF AKUSTICA'S ANALOG MICROPHONE CHIP ARE AVAILABLE FOR PUBLICATION.

About Akustica

Akustica, a fabless semiconductor company, is the leading provider of acoustic System-on-Chip (SoC) solutions. The company's acoustic SoC solutions are based on patented CMOS MEMS technology and deliver significant performance, design and manufacturing advantages for communications and electronics products. Akustica's Microphone and Speaker Chips provide unprecedented capabilities for capturing, processing and reproducing sound by combining the functionality of microphones or speakers with microelectronics and software onto a single, standard CMOS semiconductor chip. For more information, please visit www.akustica.com.