

**ADI Press Contacts:**

Jessen Wehrwein

Analog Devices

Tel: 781-461-3337

[jessen.wehrwein@analog.com](mailto:jessen.wehrwein@analog.com)

Phil LeClare

Porter Novelli

Tel: 617-897-8200

Fax: 617-897-8203

[phil.leclare@porternovelli.com](mailto:phil.leclare@porternovelli.com)

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**ANALOG DEVICES, ANAGRAM TECHNOLOGIES AND CAMBRIDGE AUDIO DELIVER RICHLY DETAILED SOUND FROM STANDARD CDs**

*Power and performance of Blackfin processor drive Q5 Upsampling technology to produce High-quality, low distortion sound for new audio CD player*

**Norwood, MA** —Analog Devices, Inc. (NYSE: ADI), a global leader in high-performance semiconductors for signal processing applications, today announced that Cambridge Audio is leveraging ANAGRAM's proprietary Q5™ Upsampling technology running on the Blackfin to deliver superior, richly detailed sound from ordinary CDs. ANAGRAM selected Blackfin based on the processor's ability to handle multiple control and audio signal processing tasks on a single chip. The new player from Cambridge Audio, an international hi-fi leader, is geared to the mid-to high-end audio market and provides consumers with superior sound quality with staggeringly low distortion, low noise floor and a superior form of sound reproduction.

The Blackfin processor's digital signal processing functionality was critical to the project. Its high-performance memory and processing architecture enabled ANAGRAM to optimize the Q5 technology to deliver 384 kHz upsampling with better than 144 THD+N (total harmonic distortion plus noise) for 24-bit, 192 kHz digital audio input streams, a level of distortion unmatched by other audio algorithms. In effect, this allows existing standard CDs to play back with the enhanced audio clarity, richness and dynamic range normally associated with SACD or DVD-A disks.

“Analog Devices has earned its reputation for providing high-quality audio processing and mixed-signal products that deliver exceptional performance and value,” said Thierry Heeb, CEO

at ANAGRAM Technologies SA. “The Blackfin processor’s digital signal processing and microcontroller functionality enabled us to deliver an integrated solution with a level of performance at the right cost.”

Q5 Upsampling from ANAGRAM uses the ADSP-BF532 Blackfin processor to interpolate and resynchronize CD data to a level of audio quality that even matches the original master recordings. For the 840C, Cambridge Audio then fed the interpolated data through two AD1955 24-bit digital-to-analog converters (DACs) also from Analog Devices. The DACs, each an integrated, single chip stereo digital audio playback system provide dual-channel, 24-bit, 384 kHz audio, enabling the 840C to play back standard CDs with breakthrough crispness.

The integrated microcontroller functionality of the ADSP-BF532 enabled control of all the audio sub-systems in the 840C, including the digital audio receiver, digital audio transmitter, twin D/A converters and audio mutes – effectively removing the need and cost of including a separate host processor.

“The unique capabilities of Blackfin enable our customers to innovate and deliver differentiated products to the high-fidelity audio market,” said John Croteau, general manager, Convergent Platforms and Services Group, Analog Devices. “Blackfin provides an integrated, flexible, low-cost solution that is ideal for audio applications that require a processor that can handle multiple control and signal processing instruction sets.”

### **A Convergent Future Demands Blackfin-Class Processing**

Analog Devices’ Blackfin® embodies a new breed of 16/32-bit embedded processor with the industry’s highest performance and power efficiency for applications where a convergence of capabilities – multi-format audio, video, voice and image processing; multi-mode baseband and packet processing; and real-time security and control processing – are critical. It is this powerful combination of software flexibility and scalability that has gained Blackfin widespread adoption in convergent applications such as digital home entertainment; networked and streaming media; automotive telematics and infotainment; and digital radio and mobile TV.

### **About ANAGRAM Technologies**

ANAGRAM Technologies allows silicon providers and branded consumer electronic OEMs to create and integrate spacious, richly detailed sound into innovative product designs by leveraging advanced audio DSP algorithms. ANAGRAM develops and licenses innovative digital audio intellectual property (IP) including sample rate converters, software based digital to analog converters, clock synchronizers and digital power amplifiers. ANAGRAM's family of products allows its customers to differentiate their products by integrating complete digital audio subsystems with superior high definition audio quality while using industry standard platforms and processes. Key to its success are technologies that simplify system architectures, reduce system cost, and that are compatible all the latest audio formats where its flagship Q5 technology has already achieved significant breakthroughs in terms of cost and performance.

[www.anagramtech.com](http://www.anagramtech.com)

### **About Cambridge Audio**

Cambridge Audio has been at the forefront of British hi-fi for more almost forty years. Since its inception in 1968, Cambridge Audio has brought some of the most innovative and technologically advanced equipment to consumers. These products have always offered truly high performance at affordable prices.

During the '70s, the P40, P50 and P110 amplifiers established the international reputation of the Cambridge Audio brand. The '80s saw Cambridge Audio launch the world's first two-box CD player, while in the '90s, DacMagic was the first product in the company's history to win an esteemed What Hi-Fi? Sound and Vision Best Buy award.

The new Millennium has seen Cambridge Audio continue to innovate with its award-winning DAB digital tuners and reassert its class-leading position with the introduction in 2003 of the critically acclaimed Azur range, which has picked up a raft of awards and recommendations from the world's leading hi-fi and home cinema titles.

Cambridge Audio employs more than 70 people at its London headquarters, including over 20 engineers in its dedicated research and development facility. The company distributes its products to over 45 countries.

Cambridge Audio has a philosophy of using components exactly suited to its products' needs and all models are developed using state-of-the-art test and measurement equipment. This

commitment to engineering excellence, combined with cutting edge manufacturing facilities, means every Cambridge Audio product offers the best possible performance for the price. Prior to launch, all designs undergo rigorous evaluation involving meticulous listening and fine tuning. [www.cambridge-audio.com](http://www.cambridge-audio.com)

### **About Analog Devices**

Innovation, performance, and excellence are the cultural pillars on which Analog Devices has built one of the longest standing, highest growth companies within the technology sector. Acknowledged industry-wide as the world leader in data conversion and signal conditioning technology, Analog Devices serves over 60,000 customers, representing virtually all types of electronic equipment. Celebrating more than 40 years as a leading global manufacturer of high-performance integrated circuits used in analog and digital signal processing applications, Analog Devices is headquartered in Norwood, Massachusetts, with design and manufacturing facilities throughout the world. Analog Devices' common stock is listed on the New York Stock Exchange under the ticker "ADI" and is included in the S&P 500 Index. [www.analog.com](http://www.analog.com)

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