FIRST SINGLE-CHIP BLUETOOTH PLATFORM CAPABLE OF CD-QUALITY SOUND ANNOUNCED BY ZEEVO

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Zeevo, Inc., a leading provider of single-chip Bluetooth communications solutions, announced today its third-generation, high performance Bluetooth microcontroller solution that is the first in the world to permit the transmission of CD-quality sound over wireless Bluetooth links. The company's ARM7-based Bluetooth controller and accompanying software form a complete, low-cost embedded design solution for quality audio over Bluetooth, as well as for other performance-sensitive Bluetooth applications.

Today's announcement means that Bluetooth – the increasingly available wireless standard for connecting personal use devices with their peripherals – can finally be applied to portable MP3 layers, MP3-capable cell phones or PDAs, and even consumer stereo systems, to provide wireless connections to stereo headphones, headsets, or speakers without any sacrifice in audio quality. Previous implementations of Bluetooth – used primarily for wireless keyboards, mice, or mono cell phone headsets – have not been able to attain CD-quality level that consumers have come to expect with their wired audio appliances, due to technical limitations.

Those limitations have now been overcome, said Zeevo co-founder and marketing vice president
Anil Aggarwal. "We recognized several years ago that notwithstanding the rapidly expanding use of

Bluetooth for the elimination of wires between cell phones and mono headsets, or between keyboards, mice, or PDAs and a PC, one of the most exciting applications for Bluetooth was going to be personal audio and consumer electronic devices - including enhanced cell phones - that provide stereo audio without wires. But the challenge this brings is to provide quality audio – CD-quality audio, in fact – and that is not easy to do over Bluetooth."

According to Aggarwal, Zeevo embarked upon a multi-year research and development program to
achieve an audio-quality benchmark that it today calls "Sound Design for Bluetooth." "We focused
extensive resources on the issues of quality, robustness in mixed wireless environments, and user
friendliness, and that led us to the unique architecture of our new transceiver/microcontroller chip, and the third-generation of software that makes CD-quality audio over Bluetooth possible. Together, they represent the first available embedded Bluetooth design platform for original device manufacturers [ODMs] that addresses this exciting market."

Joyce Putscher, director, converging markets & technologies of market analyst Instat/MDR agrees with Aggarwal's assessment of the potential for this market, and Zeevo's contribution: "Thanks to the
marketing of Apple's extremely popular iPod, the image of a jammin' consumer – with headphones conspicuously tethered to an MP3 player in her hand – has become a status symbol. But when consumers catch wind that they can listen to all their tunes, only without the wires, a new "wireless freedom" wave in personal audio – and a compelling application for Bluetooth, will quickly take shape.

The fact that Zeevo has overcome the significant technical challenges with a designer-friendly solution makes it, in essence, an enabling

technology for this new, emerging market segment."
The ZV4301 Single-chip Bluetooth Platform and ZSound™ Software
Zeevo's new Bluetooth audio design solution, targeted at original device manufacturers, is made up of the new ZV4301 Bluetooth processor, Zeevo's ZSound™ software, as well as reference designs for a range of representative audio projects, and a development environment that enables designers to achieve a very fast time to market.

The new ZV4301 processor consists of a high-performance, 48 megahertz (MHz) ARM7 microcontroller combined with RF (radio frequency) processing, digital signal processing, communications processing, and algorithmic and control processing, on a single, low-cost transceiver (transmitter-receiver) chip. Included in the solution is Zeevo's unique ZSound software that implements the technicallychallenging, highly-optimized audio processing and Quality of Service (QoS) algorithms. Together, they represent a complete "sound design solution" for embedding quality audio over Bluetooth capability into cost- and performance-competitive consumer products. In addition to its unique capability to support CD-quality sound, the ZV4301 is the only Bluetooth embedded microcontroller available today that uses an industry-standard RISC processor architecture – the
popular 32-BIT ARM7TDMI 32-bit "core" – in an open platform configuration. This means that not only can ODMs customize a ZV4301-based solution to their specific needs, using a widely-understood programming environment, but also they can take advantage of available and emerging software written for the ARM7 that can extend or augment the performance of their products. Code written for Zeevo's ZV4301 is binarycompatible with other members of the ARM7 family, and forward compatible with the ARM9, ARM9E, and ARM10 families.

High Performance, Low Cost, Low Power, Broad Range of Applications

Zeevo's new Bluetooth audio design solution supports CD-quality sound, with the standard CD sampling rate of 44.1 KHz (kilohertz). Signal-to-noise ratio (SNR) is better than 82 dB. Audio output power is 30 mW (milliwatts) RMS. Power consumption is extremely low, enabling a minimum of 14 hours of play time with two AAA batteries. RF sensitivity is better than -85 dBm, which aids in prolonging battery life, and improves audio quality. The total bill of materials (BOM) for both ends of a wireless stereo headphone solution – including two Zeevo chips – is expected to be less than $25 in high-volume production. Typical audio applications for the ZV4301 include wireless stereo headphones, stereo cell phone headsets, MP3-enabled feature phones, audio-visual (A/V) equipment such as MP3 players, personal stereos, or televisions, smart phones, and personal digital assistants. The ZV4301 platform, and the accompanying ZSound™ software, are extremely design friendly, and offer a number of user-oriented features such as seamless mode switching – for example, between mono cell calls and MP3 stereo on a converged MP3 cell phone – or fail-soft roll-off of audio levels as users wander outside the range of their Bluetooth-enabled players.

The ZV4301 is also ideal for non-audio, Bluetooth 1.2-compliant applications, such as printers,
cellular peripherals, access points, or industrial controls. The ZV4301 platform supports all required and optional Bluetooth 1.2 features.

Source: Zeevo Inc.