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Freescale Debuts Multi-Core Audio DSP to Support High Definition Audio Standards

Austin -

AUSTIN -- First in Symphony™ Family of Multi-Core DSPs Delivers High Performance, Large Memory in Single-Chip Audio Solution Supporting Blu-Ray, HD-DVD and More
Responding to the demand for increased memory and performance in advanced audio applications, Freescale Semiconductor has unveiled two digital signal processing (DSP) chips designed to support multiple high definition (HD) audio standards. The Symphony DSP56720 and DSP56721 dual-core DSPs represent the first offerings in a family of multi-core 24-bit audio processors from Freescale, further broadening the company's expansive audio portfolio.

The new DSPs are being introduced in anticipation of the 2007 International Consumer Electronics Show (CES), where Freescale's semiconductor platforms are driving many of the advanced audio, video and cellular products on the floor.

"With the introduction of our first multi-core audio DSPs, Freescale is expanding our award-winning Symphony DSP portfolio for home entertainment, automotive and professional audio applications," said Berardino Baratta, general manager, Multimedia Applications Division at Freescale. "The performance demands of audio have increased exponentially over the past five years, and we believe this new line of multi-core DSPs will drive next generation products that provide unprecedented user experiences, such as Blu-Ray and HD-DVD players, A/V receivers, guitar amplifiers and more."

"New, high-definition audio standards, which will be incorporated into consumer products in the near future, will require more processing power than a single DSP can reasonably provide," said Morry Marshall, vice president of strategic technologies, Semico Research Corp. "Freescale's multi-core DSP family provides the performance needed while simplifying design, lowering time-to-market and reducing costs for many systems that would otherwise require multiple DSPs."

Multi-cores meet higher data performance requirements
Freescale's Symphony audio DSP56720 and DSP56721 are processed in 90nm CMOS technology and include two DSP cores, on-chip memory and a rich set of peripherals to create a robust audio offering that yields tremendous performance, cost, board space and design improvements.

The Symphony audio DSP56720 and DSP56721 single-chip solutions were designed using dual DSP56300 24-bit cores, which handle both the latest decoding standards and advanced post processing on the same chip. Each core operates at 200 MIPs with a 200 MHz clock, enabling the chip to meet the high performance requirements of many audio applications including HD audio standards such as DTS-HD, Dolby® Digital+ and Dolby TrueHD. Currently, many of today's high performance audio products use multi-chip DSP implementations. The Symphony audio multi-core DSPs eliminate the need for a multi-chip solution, dramatically reducing board space and the cost of the design.

The Symphony audio multi-core DSP56720 and DSP56721 feature integrated memory, including on-chip 608K x 24-bit words ROM and 248K x 24-bit words RAM. With the large amount of built-in memory, the DSP56721 eliminates the need for external memory for most consumer applications and provides a single-chip offering that delivers a cost-effective, simple solution. The DSP56720 adds an external memory interface for audio applications that use external memory to

accommodate long delays (reverbs, lip sync). Both DSPs integrate a SPD/IF transceiver and a 10 channel asynchronous sample rate converter (ASRC) that reduces component cost. Additionally, the direct memory access (DMA) controller has been expanded to support up to eight DMA channels per core for higher bandwidth and more processing.

Code compatible with Freescale's existing 24-bit DSP solutions, the Symphony DSP56720 and DSP56721 enable customers to migrate quickly and easily to a higher performance solution. Both multi-core DSPs incorporate the same plug-and-play software architecture that exists in the Freescale DSP563xx family and support not just the standard audio decoders but also enable flexibility and customization of post processing algorithms.

Driving innovation audio applications
The Symphony audio DSP56720 and DSP56721, the first in a family of multi-core audio DSPs, are targeted at consumer, professional audio and automotive applications that require high performance for audio processing, such as Blu-Ray and HD-DVD players, home A/V receivers, car amplifiers and infotainment systems, professional audio recording equipment, and musical instruments and amplifiers. With two DSP56300 cores, a single Symphony audio DSP56720 or DSP56721 device can replace multi-DSP designs, saving cost while meeting today's high MIPS requirements.

Expanding Symphony tools
Along with the introduction of the multi-core DSP56720 and DSP56721, Freescale is developing a new software development tool suite to support the multi-core DSP567xx family as well as the single core DSP563xx family. The new tool suite will include an integrated development environment (IDE), provide a single debugger to target a hardware or software simulator and provide support for parallel port and USB command converters. The new software suite will be available in the second quarter of 2007.

Comprehensive audio portfolio
Freescale's Symphony family of 24-bit DSPs for digital audio applications has been a leader in the industry for two decades with an established pervasive market presence in automotive, consumer and professional digital audio processing. The product family currently includes the DSP5636x and DSP5637x products.

Availability
The Symphony audio DSP56720 and DSP56721 multi-core solutions are sampling in limited quantities. Volume production is expected in the third quarter of 2007. The suggested resale price is expected to be $11.89 USD for 10K quantity.

About Freescale Semiconductor
Freescale Semiconductor, Inc. is a global leader in the design and manufacture of embedded semiconductors for the automotive, consumer, industrial, networking and wireless markets. The privately held company is based in Austin, Texas, and has design, research and development, manufacturing or sales operations in more than 30 countries. Freescale is one of the world's largest semiconductor companies with sales of $6.2 billion (USD) for the most recently reported four quarters. www.freescale.com

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