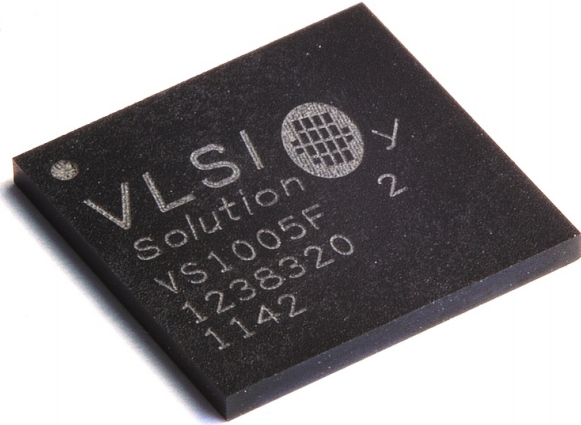# VS1005 – All-In-One MP3 Audio System-on-a-Chip

Tampere, Finland, 6th February 2012 - VLSI Solution announces VS1005 SoC, a highly integrated all-in-one chip for audio processing applications.

The VS1005 System-on-a-Chip contains an extensive set of peripheral interfaces. Included are controllers for Hi-speed USB host/slave, SD card, parallel NAND flash, SPI, Ethernet, S/PDIF, I2S master/slave and UART. VS1005 also contains 24-bit ADC's and DAC's, headphone and microphone amplifiers, linear regulators, a real-time clock, and an FM tuner with RDS. Controlled by a DSP, all these features allow for unprecedented flexibility in creating Hi-Fi stereo audio products.

The features of VS1005 are particularly suited for portable audio devices, docking stations, and portable recorder applications. To build a state-of-the-art personal music player or recorder just three additional circuits in addition to the VS1005 SoC are needed (a NAND flash, an axis accelerometer, and a power management device).

The audio signal paths of VS1005 SoC are very flexible. Digital audio inputs and outputs can be independent of analog inputs and outputs. Digital interfaces like S/PDIF allow easy and high-quality digital connectivity to home stereo systems. A digital sample rate converter allows for inputs and outputs with different sample rates.

The Hi-speed USB host function is useful in systems that require audio playback capability from external media such as USB memory sticks or drives, opening up many new applications in AV receivers and radio players. USB slave mode is also supported.

The Ethernet interface provides Internet streaming capability over wired lines. I2S extends digital connectivity with other ICs. The RTC and battery backed registers provide alarm functions as well as very low power - low speed modes for the DSP.
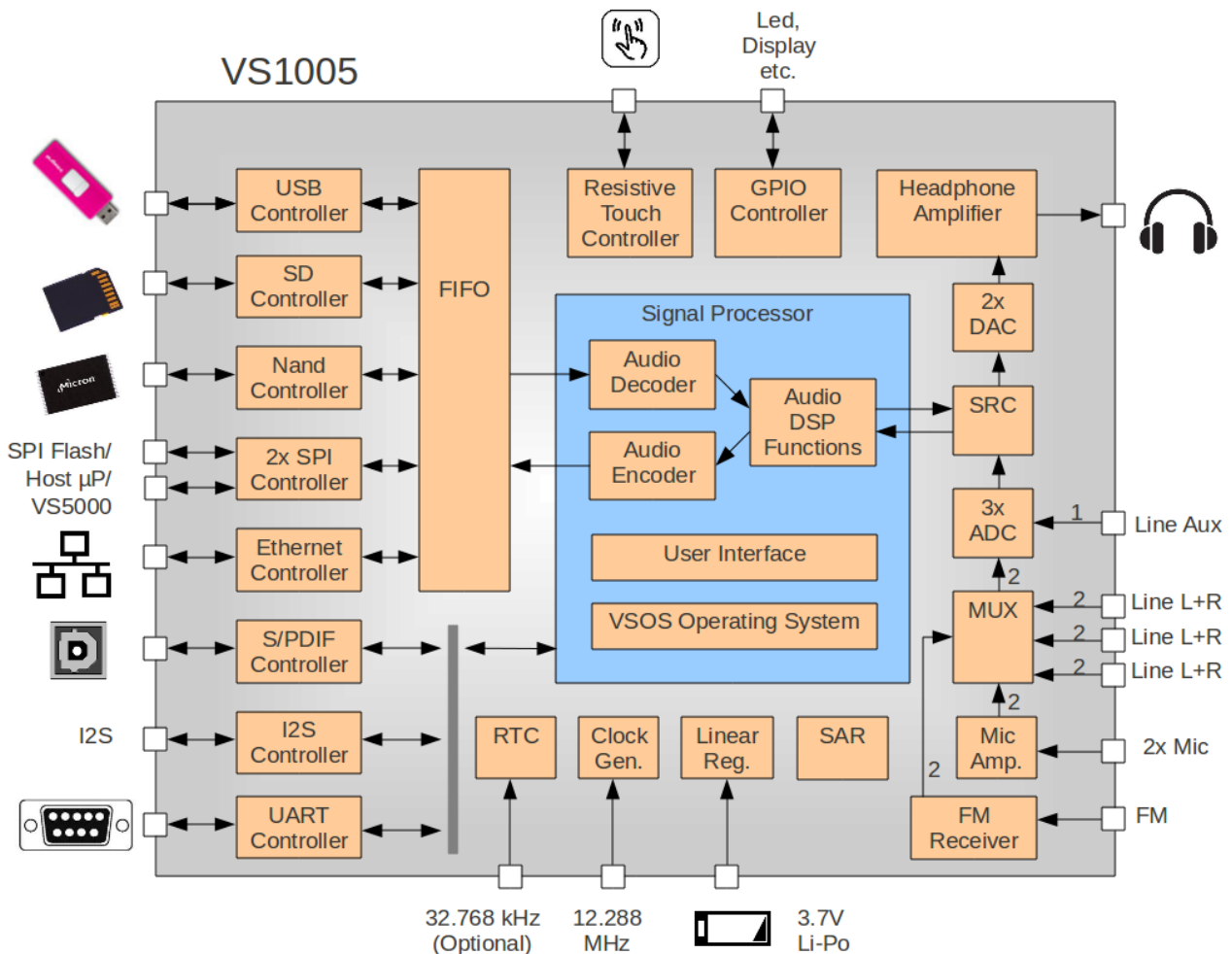
The VS1005 SoC takes a new approach in application development when compared to VLSI's earlier products. The multitasking operating system VSOS and the object code library MegaLib offer services that can be utilized with VLSI Solution's Integrated Development Environment VSIDE. This combination makes writing applications to VS1005's 256 KiB RAM memory a straightforward and intuitive process. To further extend VS1005's usability, code can be loaded dynamically from any non-volatile memory, including VS1005's optional internal 1024 KiB flash memory. The internal flash memory can be protected, making it possible for developers and third parties to protect their code.

The MegaLib library includes all VLSI Solution's existing codecs: MP3 and Ogg Vorbis encoders, MP2, MP3, WMA, OGG, LC-AAC, HC-AAC, FLAC, IMA and WAV PCM decoders, and other functions: FM including RDS, file I/O, device drivers, application loading, multitasking, graphical interface functions, audio processing, etc.

VS1005 SoC is offered in LFGA-88 10x10x0.9 RoHS compatible package.

More information is available at http://www.vlsi.fi/en/products/vs1005.html . The VS1005 Datasheet will be available in late February 2012. Two other documents, The VS1005 Hardware Guide and The VS1005 Programmer's Guide, will be available in April 2012.

VS1005 engineering samples are expected to be available in June 2012, followed by mass production devices in October 2012.

About VLSI Solution

VLSI Solution is an innovative new technology creator that designs and manufactures integrated circuits. Within its 20-year existence VLSI has built an extensive in-house IP library and has the capability to pull through complicated mixed-signal IC projects, ranging from digital audio to RF applications.

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