

## **Coresonic Announces Break-through Programmable Baseband Processor for Multimode Modems**

*LeoCore-1 – offering low-cost programmable baseband solution for multimode wireless communication with complete development package*

**Linköping, Sweden, 5 September 2006:** Coresonic AB, a leading provider of baseband processor technology, today announced the LeoCore-1 Programmable Baseband Processor SIP Core. With a new type of processor architecture, Coresonic has developed a programmable baseband that revolutionizes the communication industry. The LeoCore technology enables the developers of communication semiconductors to build more flexible solutions with less silicon area than fixed-function solutions. Coresonic licenses the technology as a Silicon Intellectual Property (SIP) Core thereby enabling communication semiconductor vendors and module developers to implement this powerful technology in their designs.

“After years of research we have presented an architecture that achieves the best of two worlds, the flexibility of a programmable processor with the low cost and low power consumption of a fixed-function ASIC”, says Dr. Dake Liu, CTO and Co-founder of Coresonic. “This technology is truly a revolution for the industry.”

Coresonic today also released the Coresonic Developer Studio, a fully-fledged software development package that enables the designers to quickly acquaint themselves and develop with the LeoCore architecture.

### **Enabling unparalleled flexibility**

The flexibility of the LeoCore technology makes it a great solution of a wide variety of wireless communication applications, including cellular handsets and modems for laptops

and PDAs. LeoCore-1 supports WLAN standards 802.11 a/b/g, GSM/GPRS/EDGE, Bluetooth 1 and EDR, WiMAX and DVB-T.

Apart from enabling multimode devices, the flexibility of the LeoCore technology also shortens time-to-market for the customers who can integrate the LeoCore SIP Core and develop software in the matter of months. The technology further eases maintenance with the capability of firmware upgrades instead of hardware changes. Firmware upgrades also allows for longer product life-times.

"Data-rate and mobility tradeoffs and different standards like 2G, 3G, Bluetooth, WLAN, GPS and digital-video broadcasting, are leading to multimode requirements, and topics such as the coexistence of different technologies must be solved. One crucial element for such a platform is a low power programmable modem processor", says Prof Dr Hermann Eul, President of Communication Solutions Group, Infineon Technologies.

### **Breakthrough Architecture**

The Coresonic LeoCore technology is based on a breakthrough processor architecture called SIMT (Single Instruction stream Multiple Tasks). The architecture allows parallel tasks to be controlled by a single instruction flow, achieving a large degree of parallelism while reducing both hardware- and programming complexity compared to other parallel architectures. Compared to VLIW-SIMD architectures the same performance is reached with much smaller program size and simpler control hardware.

Coresonic combines the revolutionary SIMT principle with an instruction set optimized for baseband processing. An integral part of the architecture is a programmable on-chip network which secures efficient use of data memory as well as efficient integration of hardware acceleration blocks. All in all, this has allowed Coresonic to build a processor highly optimized for baseband processing with a small silicon area and power consumption.

“A key point in our design philosophy has been to start from baseband processing algorithms and requirements, not from traditional computer architectures”, Dake Liu adds.

For a WLAN a/b/g application, the LeoCore technology typically reduces the silicon area to between half the area to two thirds of the area and utilizes a fourth of the power in comparison to other leading programmable solutions. In comparison to a fixed-function solution the power consumption is similar but the silicon area is reduced to a third with Coresonic’s solution.

### **Development Tools**

Coresonic offers a set of development tools to ease evaluation and development with the LeoCore technology. The Coresonic Developer Studio (CDS) is a development platform including a cycle-true and bit-true simulator as well as assembler and debugger. In combination with libraries and firmware examples, this is a very good starting point for any customer interested in the LeoCore technology. The CDS for LeoCore-1 can be licensed today.

A demonstrator board, based on an FPGA-implementation of the LeoCore-1, is also available for evaluation and development.

### **Application Areas**

The LeoCore technology is best suited for multimode, mobile, wireless communication. One typical application is a multimode laptop/PDA/cell phone modem capable of GSM/GPRS audio/data communication, Bluetooth, WLAN and WiMAX. The LeoCore-1 programmable baseband processor, together with an RF front-end, an ADC/DAC converter and the MAC are all components needed for a complete multimode wireless communication solution.

### **Proven Solution**

Coresonic's ambition is to provide well-tested and verified IP blocks and are continuously working to improve the technology. The LeoCore-1 IP Core is fully synthesizable for most process technologies and delivered as a net list.

A prototype of the LeoCore-1 IP Core has confirmed the low silicon area and power consumption. In a 0.18 CMOS process the complete baseband from ADC/DAC to MAC (excluding Viterbi accelerator) used 2.9 mm<sup>2</sup> silicon area and had an average power consumption at full load of 80 mW for WLAN 802.11 a/b/g. The technology has also been tested and verified based on commercial C-level baseband algorithms from a tier 1 customer.

The LeoCore-1 Programmable Baseband Processor SIP Core is now available for licensing and implementation by key customers.

#### About Coresonic

*Coresonic AB is a privately owned Swedish company developing and market semiconductor intellectual property for baseband processor technology. Coresonic has developed a novel, patent pending, processor architecture enabling flexible multimode communication applications at low cost and low power consumption. The technology is suited for all types of mobile wireless devices from mobile phones and PDAs to wireless networking and digital broadcasting. The company was founded in 2004 to commercialize a programmable baseband processor technology from a research project at Linköping University. Coresonic's main office is in Linköping, Sweden. Read more at [www.coresonic.com](http://www.coresonic.com).*

#### **Press Contact:**

Daniel Svensson, CEO

+46 709 781248

[daniel.svensson@coresonic.com](mailto:daniel.svensson@coresonic.com)