Processor / MCU / DSP
Memory
Analog
Logic and Interface
PLD / FPGA
Power-supply and Industrial ICs
Automotive ICs
Cellphone ICs
Consumer ICs
Computer ICs
Communication ICs (Data & Analog)
RF / Microwave
Subsystems / Boards
Reference Design
Software / Development kits
Test and Measurement
Discrete
Opto
Passives
Interconnect
Sensors
Batteries
Others

Date: 4th Nov 09

New processor cores from MIPS with 32-bit performance and 16-bit code size

MIPS has introduced the new MIPS32 M14K and M14Kc cores that provide a high level of system performance for embedded system applications such as 32-bit MCUs, home entertainment, personal entertainment and home networking.

The M14K core achieving performance of 1.5 DMIPS/MHz and 180 MHz in 130nm with features such as interrupt latency, flash acceleration, and debug features including iFlowTrace and support for AHB Lite as the interconnect interface.

The M14Kc core builds on the base M14K core with additional features for embedded applications such as home entertainment, home networking and personal mobile entertainment. These applications require a compact footprint but also the ability to execute complex software algorithms on an RTOS or Linux. The M14Kc core has a full cache controller and translation lookaside buffer (TLB) memory management unit (MMU).

The new microMIPS ISA offers 32-bit performance with 16-bit code size for most instructions. The microMIPS ISA combines recoded and new 16- and 32-bit instructions to achieve an ideal balance of performance and code density. It incorporates all MIPS32 instructions and Application Specific Extensions (ASEs) including MIPS-3D ASE, MIPS DSP ASE, MIPS MT ASE and SmartMIPS ASE, and new instructions for advanced code size reduction. The microMIPS ISA is backward compatible, enabling reuse of optimized MIPS micro-architecture. With small memory accesses and efficient use of the instruction cache, the microMIPS ISA also reduces system power consumption.

According to Art Swift, vice president of marketing at MIPS Technologies, "Growing amounts of signal processing and higher speed connectivity are driving up the performance requirements in MCUs and many cost-sensitive embedded applications, while still requiring a very small silicon footprint. We're enabling our customers to develop high-performance devices in smaller form factors to significantly decrease development costs. We're pleased to enhance and expand our offering for MCU and system designers with these groundbreaking new cores."

"MCUs continue to migrate towards 32-bit to address the needs of more sophisticated, performance-intensive applications," said Tony Massimini, chief of technology, Semico Research. "Processors that support 32-bit MCUs and other high-performance, low-footprint embedded devices must not only provide the requisite performance and right feature set, but they also need to be extremely compact to keep flash memory and silicon costs down. This enables smaller die area, which allows for further integration. The specifications of the new M14K cores suggest great promise for the next generation of these devices."

"Microchip is delighted to see continued innovation and commitment from MIPS Technologies in the 32-bit MCU market. The new M14K and M14Kc cores, and the microMIPS ISA offer enhancements important to MCU users, including even faster interrupt latency and smaller code size," said Sumit Mitra, vice president, High Performance Microcontroller Division, Microchip Technology. "Microchip is pleased with the enthusiastic acceptance of its MIPS-based PIC32 MCU family offering best-in-class performance. As with our 8-bit and 16-bit microcontroller businesses, Microchip is committed to a long term roadmap with our MIPS-based 32-bit MCU products."

"The new MIPS32 M14K and M14Kc cores and microMIPS ISA provide the ultimate platforms to leverage the low power and high performance characteristics of the Nucleus OS," said Glenn Perry, general manager of the Embedded Systems Division of Mentor Graphics. "Combining cores like the M14Kc with Mentor's multiOS solutions for Linux, Android and Nucleus will enable our mutual customers to develop innovative multi-OS solutions with world-class support and performance quality from Mentor Graphics."

Availability:
M14K and M14Kc cores: Available in the first quarter of 2010

For more details visit www.mips.com

Editorial Product Rating: Average Plus