



Atmel Releases Automotive-Qualified 32-bit AVR MCU Family for Motor Control Applications

Dual CAN Controller Combined with High-Speed PWM, ADC, DAC and Analog Comparator Channels Suited for Real-Time, Intensive Motor Control Applications

NUREMBERG, Germany, March 2, 2011 /PRNewswire/ -- **Embedded World Nuremberg 2011** -- [Atmel® Corporation](#) (Nasdaq: ATML), a leader in microcontroller and touch solutions, today announced the release of the [Atmel UC3C AT32UC3C0512C AVR® microcontroller](#) with 512KB of embedded flash memory. As a committed supplier to the automotive industry, Atmel continues to bring new automotive-qualified microcontroller (MCU) solutions to market. This device is the first member of a [32-bit AVR MCU family](#) dedicated to [motor control applications](#) such as HVAC, power window, power doors and power seats, featuring PWM controller and analog functions on-chip for direct motor control, as well as automotive interface on-chip (CAN, LIN) for in-car communication. The new [Atmel AVR UC3C family](#) will also be available as true 5V devices up to 125 degrees C.

Atmel UC3C automotive-qualified MCUs offer all the necessary features required for even the toughest motor control applications. For instance, in sensorless brushless DC motors (BLDCs), the UC3C family efficiently controls the motor by incorporating a fast 4-channel PWM controller with a 20-bit precision, dead-time generation and fault protection, a 16-channel, 12-bit pipelined analog-to-digital converter (ADC), a 4-channel 12-bit digital-to-analog converter (DAC), an embedded temperature sensor as well as four analog comparators for back-electromagnetic force (EMF) sensing.

Other features of the new UC3C family include an independent peripheral event system coupled with DMA channels to allow inter-peripheral communication without CPU intervention and to eliminate potential jitter. This guarantees a two-cycle latency between the completion of one peripheral operation and the start of another. The family also includes powerful algorithms, such as field oriented control (park and clack transformations), and includes an IEEE 754-1985-compatible floating point unit (FPU), which increases the performance, precision and dynamic range of calculations. The use of the FPU enhances signal processing, filtering and noise suppression.

With a dual CAN interface, five LIN2.1-compliant independent universal synchronous/asynchronous receiver/transmitters (USART), and five I2C-compatible two wire interfaces (TWI), the UC3 family is perfectly equipped to communicate via standard in-car networks.

"We adapted our embedded software to support the UC3C," said Holger Soehle, product manager for Embedded Software at Vector Informatik GmbH. "Already available are two operating systems: the OSEK-conformant osCAN and the AUTOSAR-conformant MICROSAR OS. Furthermore, CANbedded communication software for CAN and LIN is available—as well as a Flash Bootloader—since this is required in most modern automotive applications. Our embedded software is preferred by a large number of automotive OEMs."

"One of the critical requirements for using embedded processors in the automotive market is the availability of effective and well-supported communication software. The high-quality product portfolio of Vector's CAN and LIN stacks make this company an ideal partner for Atmel's 32-bit automotive microcontroller product line," said Stephan Thaler, MCU marketing manager, Atmel Automotive Business Unit.

The UC3C family also embeds a time division multiplexed inter-IC sound controller (I2S), an Ethernet MAC 10/100Mbps interface and a USB 2.0 interface. With an embedded flash vault code protection—a flash security technology that allows the on-chip flash to be partially programmed and locked—the device offers a secure on-chip storage for secret code and software intellectual property. These features also allow the device to carry valuable software from a trusted location to another location where the rest of the source code can be developed, debugged and programmed.

The new UC3C series has up to 512KB embedded flash, with 10,000 write cycles and 15-year data retention. It is possible to lock selected regions of the flash to secure the embedded software. The UC3C also has up to 64KB of embedded SRAM. The devices are designed for 3.0 — 5.5V operation with a true 5V operation, qualified as automotive-grade 1 products supporting a temperature range from -40 degrees C to +125 degrees C.

Availability and Pricing

Samples of the UC3C device AT32UC3C0512C are now available in 144-pin LQFP, 100-pin QFP, 64-pin QFP and QFN packages. Pricing starts at USD \$5.83 for quantities of 10,000. To simplify and accelerate product design, the [UC3C-EK evaluation kit](#), STK600 starter kit and AVR UC3C Software Framework are available.

More Information

To learn more about Atmel AVR microcontrollers, please visit www.atmel.com/AVR. To learn more about the Atmel AVR UC3 microcontrollers, please visit www.atmel.com/UC3.

To see Atmel's latest videos, visit the Atmel YouTube Channel at www.atmel.com/youtube or follow Atmel on Twitter: <http://www.atmel.com/twitter>.

About Atmel

Atmel Corporation (Nasdaq: ATML) is a worldwide leader in the design and manufacture of microcontrollers, capacitive touch solutions, advanced logic, mixed-signal, nonvolatile memory and radio frequency (RF) components. Leveraging one of the industry's broadest intellectual property (IP) technology portfolios, Atmel is able to provide the electronics industry with complete system solutions focused on industrial, consumer, communications, computing and automotive markets.

© 2011 Atmel Corporation. All Rights Reserved. Atmel®, Atmel logo and combinations thereof, AVR® and others are registered trademarks or trademarks of Atmel Corporation or its subsidiaries. Other terms and product names may be trademarks of others.

Press Contacts:

Dr. Susanne van Clewe, Marcom Director Automotive

Phone: +49 7131 67-2081, Email: susanne.van-clewe@atmel.com

Agnes Toan, Public Relations Manager

Tel: (+1) (408) 487-2963, Email: agnes.toan@atmel.com

SOURCE Atmel Corporation

News Provided by Acquire Media