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BCDMOS Fail-safe System IC, ATA6814, Designed for Safety-critical Automotive Applications



Atmel has released a new monolithically integrated fail-safe system IC, the ATA6814, manufactured using Atmel's state-of-the-art 0.8- μ m BCDMOS technology. With its built-in driver functions and complete monitoring system, the ATA6814 is a unique solution beneficial for all safety-relevant automotive electronics, such as DC motor controls that can be found in electric parking brake systems, power steering, chassis and powertrains. The ATA6814 combines various functions into one single IC, an improvement over competing solutions requiring the addition of several standard components such as stand-alone voltage regulators and watchdogs. This leads to significant board space reduction and smaller, more cost-efficient designs.

The ATA6814 is ideally suited to safety-critical automotive applications, since the watchdog is completely separate from the system microcontroller and operates with its own dedicated oscillator, which in turn is monitored by a second oscillator.

The fail-safe system IC ATA6814 is highly integrated, including voltage regulators, driver stages, an SPI interface, as well as watchdog and monitoring functional blocks. Two separate voltage regulators and band gaps enable high flexibility, while still maintaining a high safety level, thanks to the mutual monitoring. Power consumption reduction down

to 80 μ A in standby mode is achieved since one of the voltage regulators can be switched off. The fully integrated, 250 mA low-side relay drivers do not need any additional external circuitry and thus help to further save cost and space on the PC board.

The independent watchdog circuitry – the heart of the fail-safe concept – monitors the microcontroller's operation. In addition, the monitoring function covers the battery voltage, all internally generated voltages, and the chip temperature in two stages, and it can disable the different IC blocks.

Samples of the new fail-safe system IC ATA6814 in RoHS-compatible QFN48 (7 mm x 7 mm) packages are available now. Pricing starts at US \$2.70 (10 k)

Product information on Atmel's new BCDMOS Fail-safe System IC ATA6814 may be retrieved at: http://www.atmel.com/dyn/products/product_card.asp?part_id=3770

BCDMOS = Mixed-signal technology with Bipolar, CMOS and DMOS components

DC = Direct Current

PC board = Printed Circuit board

SPI = Serial Peripheral Interface

RoHS = Restriction of the Use of Certain Hazardous Substances

Industry's First Multiple Smart Card Reader Interface IC for POS and Health Card Reader

The AT83C26 is the industry's first multiple analog smart card interface which can physically handle up to 5 smart cards. It powers the smart cards with the appropriate supply voltage and enables data transfer between the host controller and the smart cards. System designers can use a single chip to develop readers requiring multiple cards, thus reducing system size and cost. The AT83C26 is the ideal solution for Point of Sales (POS) Terminals that typically involve one user card and up to 4 SAM cards, and Health Card Readers that require 2 user cards and 1 SAM card.



The device can interface with any host controller featuring an ISO7816 UART such as Atmel's ARM7, ARM9 and ARM SecurCore™ (AT91SO100) devices. Featuring two DC/DC converters and low drop out regulators to power independently each smart card, the AT83C26 is compliant with the EMV and ISO7816 standards.

"It is clear that the need to handle multiple smart cards during various forms of secure transaction will become the norm in the future and the AT83C26 has already been adopted by a major POS manufacturer for its new applications," said Manish Vadher, Marketing Director for Microcontroller products with Atmel.

Samples are available now in VQFP48 and QFN48 packages. Full production will start in January 2006 with pricing starting at \$1.95 each for 10K units.

Atmel's AT83C26 product information may be retrieved at: http://www.atmel.com/dyn/products/product_card.asp?PN=AT83C26



Highly Integrated RoHS-compliant SiGe Front-end IC for Private Mobile Radios (PMR)

A new Silicon Germanium (SiGe) based front-end IC, ATR0981, from Atmel, makes the new device easy to use, highly efficient, and extremely flexible. The use of SiGe technology, the simple yet flexible application circuit, and the device's wide operating frequency range (300 MHz to 500 MHz) make possible a broad range of applications, from hand-held family radios (private mobile radios, PMR) to meter readers. It is easy to design applications with low external component counts using this front-end device because of its high level of integration, including a very efficient power

amplifier (PA) and a low-noise amplifier (LNA) for the receive path.

In contrast to most competitors' family-radio front-end solutions, which are designed as discrete solutions, this device is an integrated circuit manufactured using Atmel's innovative Silicon Germanium (SiGe) technology, providing many advantages over discrete or non-SiGe solutions. SiGe ensures high reliability and robustness due to low temperature dependency; plus, the cost savings of using the ATR0981 IC go beyond sim-

ply the component cost – lower component count also equals decreased design effort, failure risk and assembly cost.

What is more, SiGe offers increased efficiency – the PAE value is as high as 55%, typically, helping to ensure the low current consumption of the PA. The overall current consumption can be reduced even further by shutting down the PA, providing extended battery life. The output power can reach 29 dBm and the PA has a power gain of 34 dB, controllable within a range of 3 dB. ATR0981's LNA offers excellent noise performance, with a noise figure of 1.5 dB and a power gain of 19 dB. Samples of the ATR0981 are available now in PSS020 packages, which are both Pb-free and green. Atmel is the one of very few suppliers offering this type of product as an RoHS-compliant device. Pricing for the ATR0981 starts at 1.20 US\$ in quantities of 10k.

Atmel's front-end IC ATR0981 product information may be retrieved at: http://www.atmel.com/dyn/products/product_card.asp?part_id=3765

LNA = Low Noise Amplifier

PA = Power Amplifier

PAE = Power Added Efficiency

PMR = Private Mobile Radio

RoHS = Restriction of the Use of Certain Hazardous Substances

SiGe = Silicon Germanium



Atmel's FingerChip Featured in FingerGear's Computer-On-a-Stick Biometric Edition

Atmel, and FingerGear, the consumer products division of biometrics leader Bionopoly LLC, announced today the release of its groundbreaking Bio Computer-On-a-Stick™ USB Flash Drive now with fingerprint security. The Computer-On-a-Stick is the world's first bootable USB flash drive. The OS and all Desktop Software applications come preinstalled and occupy as little as 200Mb of flash memory. The device also features Atmel's FingerChip® sensor for convenient and accurate one-swipe secure data access, and a large font LCD display for the ultimate user-friendly experience.

The FingerGear Computer-On-a-Stick also includes an Office Productivity Suite, along with many of the most commonly used home and office applications. The Office Suite, developed by OpenOffice.org, is compatible with Microsoft Office™ applications,

including Word™, Excel®, PowerPoint®, and Outlook®. The Computer-On-a-Stick also bundles the increasingly popular Mozilla Firefox® web browser, now at a 25% market share*, as well as a PDF Creator, a zip compression utility, and an Instant Messenger which communicates with Yahoo® IM, MSN® Messenger, AIM, and Napster®, among others.

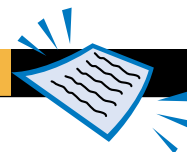
The Bio Computer-On-a-Stick includes a USB 2.0 extension cable, a neck lanyard, and a mini boot CD. The device is bootable from any PC using an x86 processor, which can be found on nearly every Windows and Linux desktop shipped over the past 5 years. Recent PCs allow the user to configure their system to boot directly from a USB Flash Drive without the need for a CD. The Computer-On-a-Stick Standard and Biometric Editions are currently in stock and shipping now. The Computer-On-a-Stick

pricing starts at only \$99, and the Biometric Edition starts at \$149.

"The USB standard has experienced one of the fastest adoption rates in the history of consumer electronics," said Bionopoly C.E.O. Jon Louis, "The next wave of USB devices, led by FingerGear, now allows you to carry not only your files, but also your entire Desktop Software Environment as well, essentially replacing your hard drive. The Computer-On-a-Stick, and now the Biometric edition, offer the ultimate combination of desktop portability and advanced security."

For further information on Atmel's FingerChip®, go to: <http://www.atmel.com/products/Biometrics/>.

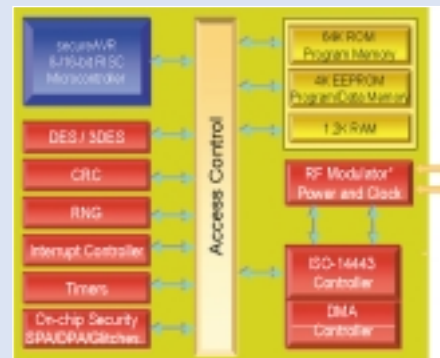
*According to W3Schools.com.



Contactless Credit Card Markets Targeted with SecureAVR μ C

Atmel's secureAVR 8-/16-bit RISC microcontroller provides 16-bit CPU performance while offering state of the art security features. It is now available as a contactless only product, optimizing performance with smaller die size for price sensitive contactless applications. These features include DFA/DPA/SPA resistant, DES/TDES processor, true RNG (Random Number Generator), firewalls, and environmental protections. The AT90SC6404RFT,

comprising of 64K ROM, 4K EEPROM and 1.2K RAM is a derivative of the popular AT90SC12872RCFT dual-interface chip targeted at e-Passport and ID applications, but having only a single RF ISO-14443 contactless interface. It is ideally suited to the emerging USA Contactless Card Payment market based on the standard Credit/Debit magnetic stripe profile offerings from "American Express (ExpressPay)", MasterCard® (PayPass™) and Visa®.



The ROM/EEPROM memory sizes provide sufficient capacity to allow additional applications, such as Loyalty or Mass Transit or alternatively as a Physical or Logical Access contactless card.

Ian Duthie, Atmel's Smart Card IC Marketing Manager, commented "The success of our first PayPass product, which established Atmel as a leading IC vendor in the USA Contactless Card

Payment market, convinced us of the potential growth and need for further product development to serve the USA payment industry. The customer interest in the AT90SC6404RFT bears this out; we are sampling now and planning volume production capability for 1Q 2006. Preliminary estimates from our customers indicate that the USA Contactless Card Payment market will grow from several million cards this year to 25M+ next year and 40M+ by end 2007."

For further information on Atmel's secureAVR family: <http://www.atmel.com/products/SecureAVR>

Atmel Achieves Higher Resolutions with 2.5M Pixel CMOS Industrial Camera

Atmel has announced the introduction of a new member of the ATMOS™ area scan CMOS camera family dedicated to industrial machine-vision applications. The additional members ATMOS 2M30 and ATMOS 2M60 are fast CMOS area scan cameras able to work in 8, 10 or 12 bits that offers an excellent dynamic range. Specific CommCam software, also developed by Atmel, renders camera configuration easy.

ATMOS 2M30 and 2M60 are composed of a 2.5 million pixels CMOS sensor featuring high sensitivity and high quality even at maximal speed. The region of interest (R.O.I.) allows the end-user to implement infinite resolutions and to increase frame rate such as: 48 fps full resolution at 2.5M pixels, 60 fps at 2M pixels and 160 fps in VGA format (640X480 pixels) for the 2M60 model (half-speed for the 2M30). Furthermore, the ATMOS 2M30 and ATMOS 2M60 cameras comprises an electronic shutter and Camera Link® interface suitable for those wanting to upgrade from analog to digital modes while offering cost effective solutions.

The two ATMOS cameras are delivered in a 44 mm



square section design with a C-mount adapter, among the smallest in the market. The performance, versatility and adaptability of the compact mechanical body give OEM and integrators an optimum solution to space saving in systems. It also allows an implementation into multiple configurations. The camera can be uploaded remotely.

"With these new members, ATMOS™ camera family

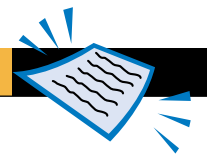
offers an exciting alternative to CCD base cameras," said Christophe Robinet, Camera Marketing Manager of Atmel's Professional Imaging. "These cameras allow for customized solutions on request."

The ATMOS 2M30 and 2M60 cameras are at sample stage now and will enter their production phase in April 2006. Pricing starts at \$2500 and \$3000 respectively for a quantity of 100 pieces.

Atmel's product ATMOS 2M30 may be retrieved at: http://atmel.com/dyn/products/product_card.asp?part_id=3802

Atmel's product ATMOS 2M60 may be retrieved at: http://atmel.com/dyn/products/product_card.asp?part_id=3803

For further information on Atmel's Camera products, go to: <http://atmel.com/products/Cameras/>



New Generation of Secure Microcontrollers Released for Trusted Electronic Transaction Terminals

The AT91SO100, a new high-end 32-bit secure microcontroller for electronic transaction terminals improves security and level of integration for POS, PINPads and health card reader applications.

Based on the ARM® SecurCore™ SC100 CPU core, the AT91SO100 achieves an outstanding level of integration. This chip featuring 256 Kbytes EEPROM for program and data, 32 Kbytes ROM and 100 Kbytes RAM, provides also USB, SPI, USARTs, I/O ports, magnetic stripe card interfaces plus a secured external bus interface. In addition, Atmel offers a smart card interface integration through a single package solution in BGA 256 embedding two chips,

the AT91SO100 and the AT83C26, which physically interface with up to 5 smart cards.

Herve Roche, Atmel's Smart Card IC Marketing Manager stated, "To comply with EMV standard, VISA® PED and others, terminals and readers industry require higher security and more performance. Atmel leverages its design expertise in highly secure smart card ICs by providing to its customers the most efficient secure product for EMV migration."

The AT91SO100 hosts strong security mechanics, including intrusion sensors, dedicated hardware protections, real-time clock and battery backup. It also

has an impressive set of cryptography features, hardware DES/TDES, hardware AES, hardware SHA-n, hardware cryptography accelerator for asymmetric algorithms (RSA, Elliptic curves, Key generation) and a true random number generator. Implemented in 0.18-micron embedded technology, this secure chip runs a RSA 2048-bit decryption in less than 150 ms. It is targeted to achieve Common Criteria EAL4+ certification. Complete sets of documentation and development tools are available.

For further information on Atmel's ARM SecurCore™ family, go to: <http://www.atmel.com/products/SecureARM>

Avnet, Atmel Supercharge Battery Technology Inc.'s Design Process

When Battery Technology Inc. (aka Battery Tech) began working on its next-generation of batteries, it enlisted engineering aid from the silicon chip expertise of Avnet Electronics Marketing, a division of Avnet, Inc. (NYSE:AVT) and Atmel® Corporation (Nasdaq: ATML). Together, Avnet and Atmel field application engineers (FAEs), in conjunction with Battery Tech's internal engineering department, created a new line of batteries for laptop computers that rely on Atmel's AVR® line of microcontrollers. The AVR features an award winning RISC-based processor core and is the world's highest performance, low power 8-bit Flash memory microcontroller.

"With help from Avnet and Atmel, we brought engineering in-house and now we control our own design destiny," says Andy Tong, Battery Tech, vice president of research and development.

The collaborative group effort also resulted in a design that uses fewer components, has a smaller form factor, and features improved performance. "We created a total team effort between Atmel, Avnet and Battery Tech," says Andy Barbosa, Avnet account manager. Rodney McCray, Atmel's field application engineer, added, "All of this was done to make Battery Tech more competitive. We looked at everything to help them

become more competitive – from performance and power consumption to cost and flexibility."

Tapping Avnet's supply chain expertise, Battery Tech was also able to speed the product's time-to-market. By using Avnet's Point of Use Replenishment System (POURS), Battery Tech is assured of the right amount of inventory at exactly the time it's needed on the production floor. Today, Battery Tech has plans to migrate additional products to the same microcontroller platform, and it continues to rely on its relationship with Avnet and Atmel in bringing new products to life.

JOURNAL

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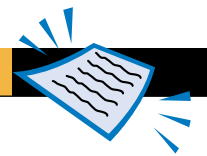
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Atmel Introduces First Power Management IC for Handset Add-on Modules

Add-on modules are a key factor in the marketing strategy of handset manufacturers. Mobile phones, music players, digital still cameras, PDAs and multimedia devices can add GSM/GPRS, 3G, WLAN, Bluetooth®, GPS, image capture, music playback and other features by simply adding plug-in modules to existing devices. These modules require a specific regulated power supply interface from the main supply.

Manufactured using Atmel's low-cost mainstream CMOS process, the AT73C211 is designed to supply the digital, analog, interface, and, if required, the Radio Frequency (RF) and backup sections of add-on modules used in hand-held products such as PDAs and mobile phones. The AT73C211 integrates a high-performance DC to DC converter with integrated switches to supply digital cores at 1.9V, delivering up to 300mA. Additionally, three high-current Low Drop Out (LDO) linear voltage regulators supply analog, interface and RF portions of typical multimedia or wireless communication applications, with voltage from 2.7 to 2.8V and current up to 130 mA. An ultra low-power LDO and a back-up battery or supercap charger are also provided to supply the Real-Time Clock (RTC) section that is usually present inside the application processor core. This achieves the lowest current consumption possible in standby mode. A reset generator and a voltage supervision function complete the integration of the AT73C211.

"Our AT73C211 is a first in its market," said Michele Casetta, Marketing Manager for Atmel's Power Management and Audio Analog Companion PMAAC™ Product Line. "The integration of various power supply



channels and an ultra-low-power backup supply channel with a power controller circuit for startup and shutdown, it makes it an ideal companion for every application where power consumption, cost and space are key."

Atmel offers the AT73C211 in a 5 x 5 mm, 25-ball ultra-thin BGA package in order to satisfy portable device manufacturers' minimum space requirements. It is available now mounted on a reference design board or as engineering samples. Production quantities

are also available, with a reference price below \$1.00 in large quantities.

Atmel's Power Management product information may be retrieved at: <http://www.atmel.com/products/PowerManage/>

For more information about AT73C211 go to: http://www.atmel.com/dyn/products/datasheets.asp?family_id=639

Atmel's New 200 MIPS ARM9 MCU Draws Only 2.5 μ A Standby, and 350 μ A/MHz at Maximum Performance

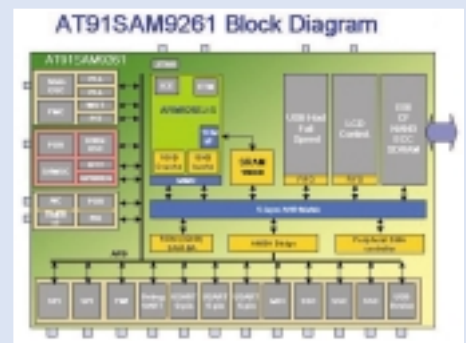
Atmel has announced the industry's first ultra-low-power, deterministic microcontroller, the AT91SAM9261 Smart ARM Microcontroller (SAM), based on the ARM926EJ-S processor.

Targeted at low power, high throughput wireless handheld applications, such as wireless PoS devices, the AT91SAM9261 consumes only 2.5 μ A in standby mode. Operating at 500 Hz it draws 400 μ A. In industrial temperature range, its current consumption at 200 MIPS with all peripherals turned on is just 65 mA. The AT91SAM9261's through-

put and its extended instruction set with DSP extensions allow complex DSP functions, such as biometrics, voice recognition, software modems, or encryption/decryption algorithms like RSA, to be executed very quickly in burst mode, so the system can be shut down much of the time.

In a typical PoS application with a four-hour battery life, such as a rental car-return processing module, these new MCUs can extend battery life by as much as a factor of 4 to 16 hours.

Packaging and Availability: The AT91SAM9261 is available now in a 217-ball LFBGA RoHS-compliant package and is priced at sub \$10 in high volume.



Atmel's AT91SAM9261 product information is available at <http://www.atmel.com/products/AT91/> or by email from at91support@atmel.com.