

## **AIEC Announces World's Fastest Automotive Grade ARM Powered Embedded Flash Microprocessor**

*High-performance AIEC9 core provides ideal solution for next-generation powertrain, airbag and ABS systems.*

**Phoenix, Arizona, July 31, 2002** - Automotive Integrated Electronics Corporation (AIEC), a leading supplier of ASIC design services and custom SoC solutions to the automotive industry, today announced the AIEC9™, which AIEC believes to be the world's fastest automotive grade microprocessor core with embedded flash memory. The high-performance AIEC9™ is targeted at automotive applications, including powertrain, airbag and ABS systems.

### **System on Chip Platform**

The AIEC9™ embedded flash microprocessor core can be combined with peripherals provided by AIEC, semiconductor suppliers, third-party suppliers, or automotive OEMs to create a customized microcontroller solution, or System On Chip (SoC), to precisely meet the customer's needs.

AIEC's President and CEO Richard Gauer said, "AIEC continues to develop leading edge products that allow its customers to build high performance automotive control systems. For example, the AIEC9™ applied within an engine control unit provides new levels of throughput to accommodate advanced algorithms for increasing fuel economy while reducing emissions output".

### **Microprocessor Core**

Developed utilizing Hardware Description Language (HDL), the AIEC9™ can be implemented in virtually any CMOS technology. Utilizing 0.18um embedded flash technology, the AIEC9™ is currently capable of operating at 100 MHz across the automotive temperature range (-40°C to 125°C), making it the fastest microprocessor core in the automotive market today. By 2003, this core will extend its capabilities to speeds of 200MHz while maintaining its automotive temperature capabilities.

The AIEC9™ is powered by an ARM966E-S™ microprocessor core, which includes enhanced digital signal processing capabilities. Floating point support is provided by the ARM® VFP9-S™ vector floating point coprocessor, which is optimum for the automotive control market where large data ranges and small data values are predominant. The ARM VFP9-S™ coprocessor supports both single and double precision operations and includes vector operations for superscaler performance.

"AIEC is a leading supplier of automotive SoC solutions, and their expertise in deeply embedded systems for applications such as powertrain and transmissions, will provide a wide range of innovative, ARM Powered® solutions for OEMs," said Wolfgang Katterman, Automotive Segment Manager for ARM.

The initial AIEC9™ platform chip contains 64 Kbytes of SRAM for data store and 1.25 Mbytes of instruction flash memory with a 128-bit microprocessor interface controlled by the AIEC Memory Expander™. The instruction memory interface achieves zero wait state access for sequential

code without use of cache to ensure maximum deterministic performance for real-time applications at the lowest possible cost. Calibration support is provided by the AIEC Non-Intrusive RAM Overlay Calibration (NIROC™) macrocell with 8 Kbytes of overlay SRAM, which allows in-vehicle calibration completely transparent to the running application. Real-time trace support is provided by the "large" configuration of the ARM Embedded Trace Macrocell (ETM9™).

### **Development Systems**

The AIEC9™ is supported by the AIEC9DVB™ development board, which interfaces to the ARM Integrator series of development boards. The AIEC9DVB™ contains the 100 MHz AIEC9™ platform chip, 256 digital I/O signals that are 5 Volt capable, and 64 analog inputs, also 5 Volt capable, which are multiplexed into dual 500 Ksample/sec 12-bit ADC's. Bus interfaces and customer-specific logic are implemented in a Xilinx XC2V6000 Virtex2 FPGA, with a capacity of six million system gates of logic.

The AIEC9DVB™ allows customers to construct prototypes of the eventual SoC with a form factor that is suitable for in-vehicle mounting to enable the complete development cycle, from software development through calibration, to take place prior to receipt of the final silicon.

### **Software Support**

The AIEC9™ and AIEC9DVB™ development board is supported by the full range of ARM software development tools. The ARM Developer Suite™ tool includes an integrated development environment for Windows, instruction set simulators, code generation tools with C and embedded C++ compilers, assemblers, linkers, GUI debuggers. The real time debug features are supported by ARM's debug tools: the Multi-ICE™ tool, the MultiTrace™ tool and the Trace Debug Tools.

### **Availability**

Engineering samples of the AIEC9™ along with the AIEC9DVB™ development board will be available at the end of Q3, 2002.

### **About AIEC**

AIEC provides ASIC design services and custom SoC solutions for automotive OEMs. AIEC's platform-based architecture and rapid prototype development systems allow OEMs to quickly realize a system that is optimized for each particular application. These SoC solutions can be manufactured by multiple semiconductor suppliers of the OEMs choosing, ensuring the greatest continuity of supply and the highest levels of service at the lowest cost. Further information on AIEC is available at <http://www.aiec.com>.

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