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Analog Devices' Analog Microcontroller with ARM Cortex M3 and Dual 24-Bit Sigma-delta A/D Converters Offers Highest Accuracy, Lowest Power

ADuCM360 draws 1-mA operating current for full operation of processor and analog front-end to enable 4- to 20-mA loop-powered smart sensor applications.

NORWOOD, Mass.--(BUSINESS WIRE)-- Analog Devices, Inc. ([NASDAQ: ADI](#)), the data converter market share leader*, today introduced the ADuCM360, a fully integrated, 4-kSPS, 24-bit data acquisition system-on-a-chip incorporating dual, high-performance, multi-channel sigma-delta A/D converters, a 32-bit ARM Cortex™ M3 MCU, and flash/EE memory. This device draws 1-mA of operating current and is designed for direct interfacing to external 4- to 20-mA loop-powered precision sensors in industrial process control. Low sleep current further enhances ADuCM360 use in battery powered applications.

The ADuCM360 microcontroller core is a low power 32-bit ARM RISC machine and incorporates a flexible 11-channel DMA (direct memory access) controller supporting wired (SPI, UART, I²C) communication peripherals. In addition there are 128k bytes of non-volatile flash/EE and 8k bytes of SRAM, all integrated on-chip.

The ADuCM360 analog sub-system consists of two A/D converters connected to a flexible input multiplexer (with up to 11 input channels) and each with its own programmable gain amplifier. Both converters can operate in fully differential or single-ended modes. The ADuCM360 is ideal for applications where the second A/D converter is needed for temperature compensation on the sensor or for dual-sensor applications. Available in August will be the ADuCM361, which contains all the features of the ADuCM360 but includes only one A/D converter.

- View the ADuCM360 product page, order samples, and download the data sheet: <http://www.analog.com/en/processors-dsp/analog-microcontrollers/aducm360/processors/product.html>.
- Access the Circuits from the Lab™ reference circuit note to learn how to integrate the ADuCM360 into your design, visit <http://www.analog.com/en/circuits-from-the-lab/CN0221/vc.html>.
- Get support at ADI's EngineerZone™ online technical support community: http://www.analog.com/ezone_precision_adcs.

"The ADuCM360 consumes just 1 mA in full operation, with both A/D converters and programmable gain amps active, making them ideal for use in 4- to 20-mA loop-powered systems," said Leo McHugh, director Precision A/D Converters, Analog Devices. "The ADuCM360/361 delivers the industry's highest accuracy analog conversion and more processing-per-mW of power than any other analog microcontroller solution for industrial smart sensor applications."

ADuCM360 Analog Microcontroller Key Features and Benefits

- A complete, single-chip analog front-end including input signal conditioning, dual PGAs, voltage reference, dual 24-bit sigma-delta A/D converters and a buffered voltage-output D/A converter resulting in higher accuracy, reduced board space and lower power consumption.
- An integrated, low power, 32-bit, 20-MIPs ARM Cortex M3 core enables advanced diagnostics at a sensor node — wired or wireless — for higher accuracy measurements.
- Up to 12 programmable sensor excitation current sources from 10µA to 1mA can be used with bridge sensors and resistive temperature sensors.
- The on-chip D/A converter that can be used for 4- to 20-mA loop control.
- Supported with the low-cost QuickStart™ Development Kit, which includes sample code, function libraries, compilers and emulators for faster and less expensive software development.
- Specified for a wide industrial temperature range of —40°C to +125°C.

On-chip factory firmware supports in-circuit serial download via a serial wire interface (2-pin JTAG system) and UART while non-intrusive emulation is also supported via the serial wire interface. These features are incorporated into a low-cost QuickStart™ Development Kit supporting this precision analog microcontroller family.

This new data acquisition system is available in a 48-lead, 7mm x 7mm LFCSP package and operates from a 1.8-V to 3.3-V supply.

Pricing, Availability and Complementary Products

Samples and the QuickStart™ Development Kits are currently available.

Part No.	Availability	A/D Converter Resolution (Bits)	ADCs	Pricing (1K)
ADuCM360	Now	24	2	\$7.26
ADuCM361	August	24 or 16	1	\$3.95
EVAL-ADuCM360	Now	QuickStart Software development system		\$119

Complementary components include ADI's [AD5700](#) HART modem IC, a single-chip implementation for encoding and decoding the HART communications protocol, and the [AD5421](#) 16-bit D/A converter for loop-powered smart transmitter applications.

About Analog Devices

Innovation, performance, and excellence are the cultural pillars on which Analog Devices has built one of the longest standing, highest growth companies within the technology sector. Acknowledged industry-wide as the world leader in data conversion and signal conditioning technology, Analog Devices serves over 60,000 customers, representing virtually all types of electronic equipment. Analog Devices is headquartered in Norwood, Massachusetts, with design and manufacturing facilities throughout the world. Analog Devices is included in the S&P 500 Index. <http://www.analog.com>

* Analog Devices, Inc. leads the worldwide data converter market with a 48.5 percent share, according to industry analyst firm Databeans, Inc. in its market research report titled "2011 Data Converters." Analog Devices' 48.5 percent share is larger than the combined market share of the nearest eight competitors.

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