



AHEAD OF WHAT'S POSSIBLE™

ADuCM3027/ADuCM3029

Ultra Low Power Microcontrollers

10× Lower System-Level Power Using SensorStrobe



EEMBC ULPMark™-CP
Score* (3 V):

245

At Analog Devices, we make technologies that sense, measure, interpret, and connect—bridging the physical and digital worlds to form the foundation of the Internet of Things. Our technologies are designed to maximize system-level intelligence and reliability, enabling applications where the quality and integrity of data and insights are mission critical. The brain of the connected solution—processors—combines hardware and advanced algorithms to interpret data to deliver intelligence, functionality, and localized decision making for IoT solutions. The ultra low power microcontrollers, [ADuCM3027](#) and [ADuCM3029](#), are two of our interpreting solutions. They offer class leading, ultra low power active and hibernate modes for IoT applications where power consumption, security, and robustness are key requirements.

Features

- ▶ Up to 26 MHz with serial wire debug interface
- ▶ Power
 - Active (full-on mode) <30 $\mu\text{A}/\text{MHz}$ (typical)
 - Flexi™ (core in sleep, peripherals active) <300 μA (typical)
 - Hibernate (with SRAM retention) <750 nA (typical)
 - Shutdown (optional RTC active) <60 nA (typical)
 - Built-in power management with single-supply operation (VBAT): 1.74 V to 3.6 V
- ▶ ADC
 - 12-bit, 1.8 MSPS SAR ADC for housekeeping functions
 - Built-in power monitoring capability
- ▶ Memory
 - Options for 128 kB or 256 kB of embedded flash memory with ECC
 - 64 kB of configurable system SRAM with parity
 - 4 kB of cache memory to reduce active power when executing from flash
 - Up to 32 kB of SRAM retained in hibernate mode
- ▶ Security
 - A hardware crypto accelerator supporting AES-128, AES-256, and SHA-256
 - Support for ECB, CBC, CTR, CBC-MAC, CCM, and CCM*
 - True random number generator (TRNG)
 - User code protection for protecting customer IP software
 - Prevents repurposing the part with secure software upgrade via UART
- ▶ Digital peripherals
 - Three SPI interfaces with hardware flow control to enable glueless interface to sensors, radios, and converters
 - I²C and UART interfaces
 - SPORT for natively interfacing with converters and radios
 - Programmable GPIOs (44 in LFCSP and 36 in WLCSP)
 - Three general-purpose timers with PWM support
 - One standard RTC
 - One FLEX_RTC with SensorStrobe™ for precise, time-synchronized sampling of external sensors
 - Programmable beeper
 - 25-channel DMA controller with dedicated channels for each peripheral
 - Flexible interrupt sources for wake-up from hibernate
 - Four external interrupts
- ▶ Packages and operating range
 - 64-lead LFCSP and 54-lead WLCSP
 - Industrial temperature range

Target IoT Applications Include:

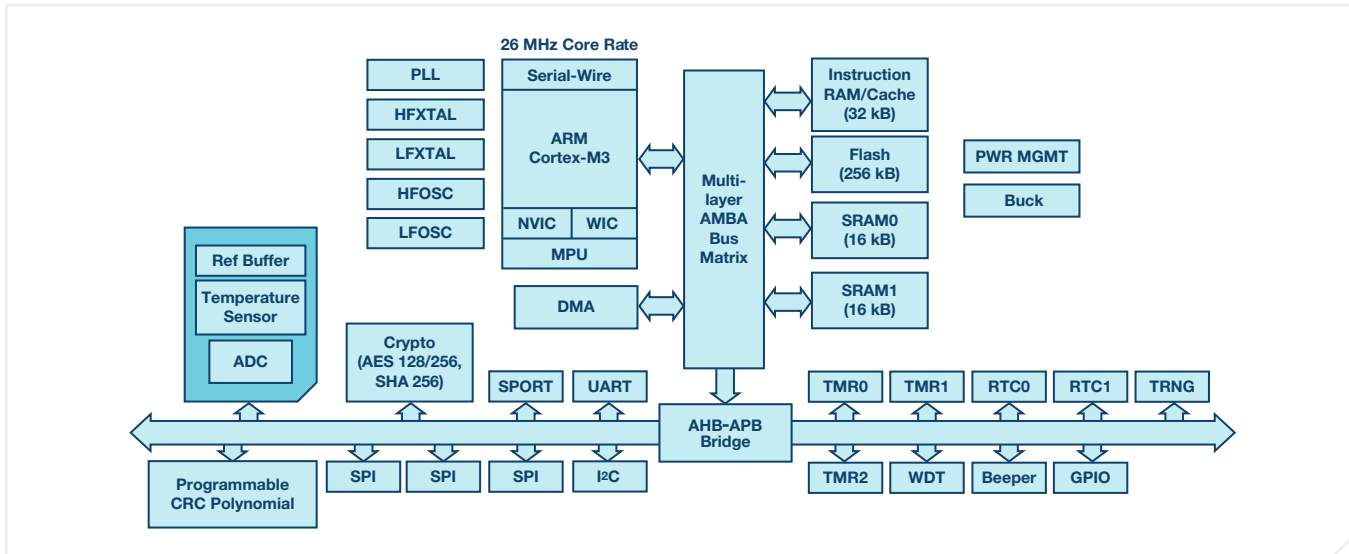
- ▶ Smart health
- ▶ Smart building
- ▶ Smart agriculture
- ▶ Smart city
- ▶ Smart factory
- ▶ Smart energy

*More information available at www.eembc.org.



Visit analog.com/ADuCM3029 or analog.com/ADuCM3027

Functional Block Diagram



Products

Generic Part Number	SAP Part Number ¹	Description	Package (Code)	Range ²	Reel Info
ADuCM3027	ADuCM3027BCBZ-RL ADuCM3027BCBZ-R7	ULP ARM [®] Cortex [®] -M3 with 128 kB embedded flash	54-lead WLCSP (CB-54-1)	-40°C to +85°C	13" 7"
	ADuCM3027BCPZ ADuCM3027BCPZ-RL ADuCM3027BCPZ-R7	ULP ARM Cortex-M3 with 128 kB embedded flash	64-lead LFCSP (CP-64-16)	-40°C to +85°C	Individual 13" 7"
ADuCM3029	ADuCM3029BCBZ-RL ADuCM3029BCBZ-R7	ULP ARM Cortex-M3 with 256 kB embedded flash	54-lead WLCSP (CB-54-1)	-40°C to +85°C	13" 7"
	ADuCM3029BCPZ ADuCM3029BCPZ-RL ADuCM3029BCPZ-R7	ULP ARM Cortex-M3 with 256 kB embedded flash	64-lead LFCSP (CP-64-16)	-40°C to +85°C	Individual 13" 7"

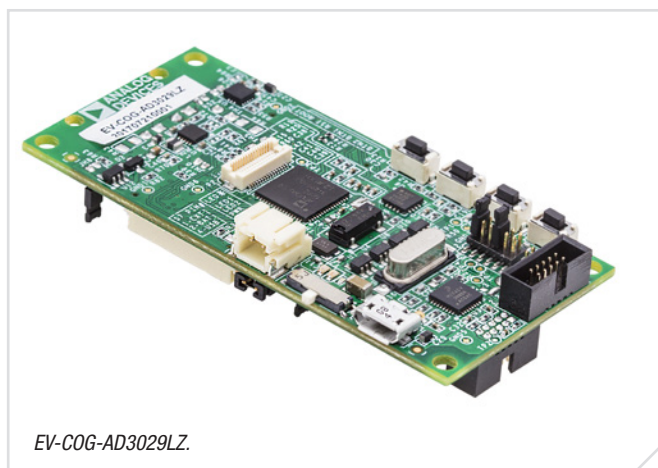
¹Z = RoHS compliant part.

²The referenced temperature is the ambient temperature. The ambient temperature is not a specification. See Operating Conditions on Page 12 of data sheet for the T_j (junction temperature) specification, which is the only temperature specification.

Evaluation Board

Model	Description	Price	RoHS
EV-COG-AD3029LZ	Evaluation kit	\$50.00	Yes

Tools Support



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