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 μA/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 LFCS and 36 in WLCS)
  - 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 LFCS and 54-lead WLCS
  - Industrial temperature range

Target IoT Applications Include:

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

Functional Block Diagram

Products

<table>
<thead>
<tr>
<th>Generic Part Number</th>
<th>SAP Part Number</th>
<th>Description</th>
<th>Package (Code)</th>
<th>Range</th>
<th>Reel Info</th>
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<tbody>
<tr>
<td>ADuCM3027</td>
<td>ADuCM3027BCBZ-RL</td>
<td>ULP ARM® Cortex®-M3 with 128 kB embedded flash</td>
<td>54-lead WLCSP (CB-54-1)</td>
<td>−40°C to +85°C</td>
<td>13”</td>
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<td>ADuCM3027BCBZ-R7</td>
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<td>ULP ARM Cortex-M3 with 128 kB embedded flash</td>
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1 = RoHS compliant part.
2 The referenced temperature is the ambient temperature. The ambient temperature is not a specification. See Operating Conditions on Page 12 of data sheet for the Tj (junction temperature) specification, which is the only temperature specification.

Evaluation Board

<table>
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<th>Price</th>
<th>RoHS</th>
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<td>EV-COG-AD3029LZ</td>
<td>Evaluation kit</td>
<td>$50.00</td>
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Tools Support

arm MBED
CrossCore
KEIL
IAR SYSTEMS

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