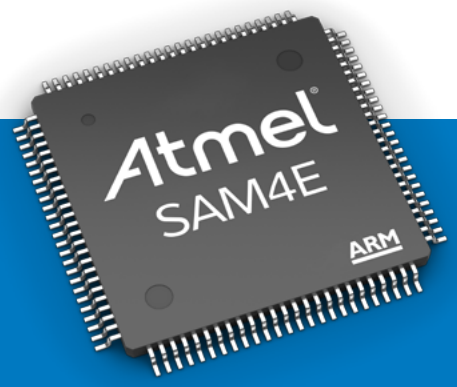
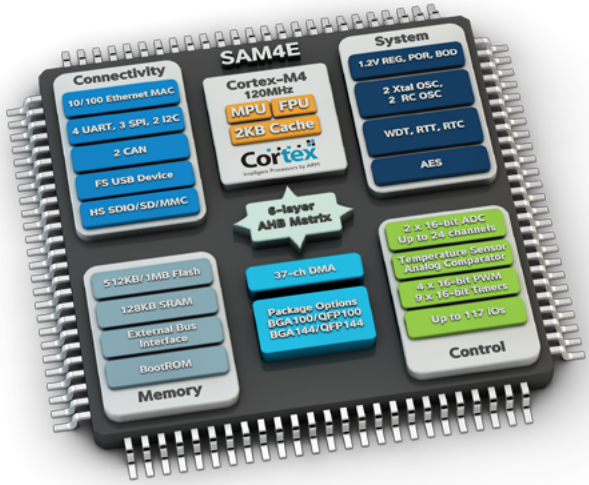
Atmel | SMART SAM4E Series MCUs

ARM Cortex-M4 Processor-Based Devices for Industrial Automation and Building Control Applications



The Atmel® | SMART SAM4E family of microcontrollers (MCUs) delivers a rich set of advanced connectivity peripherals and a floating point unit (FPU). Based on the 32-bit ARM® Cortex®-M4 processor, SAM4E devices operate up to 120MHz and offer up to 1024KB of Flash, 2KB of cache memory and up to 128KB of SRAM. The family further extends a growing Atmel portfolio of ARM processor-based devices.



The SAM4E family offers a rich set of advanced connectivity peripherals such as a 10/100Mbps Ethernet MAC supporting IEEE 1588 and dual CAN. With a single-precision FPU, advanced analog features as well as a full set of timing and control functions, SAM4E MCUs are ideal for industrial automation, home and building control, machine-to-machine communications, automotive aftermarket and energy management applications.

- **High Performance**
  - ARM Cortex-M4 processor running at 120MHz
  - Floating point unit
  - 2KB cache providing zero wait state flash access at full speed
- **Connectivity**
  - 10/100 Ethernet MAC, supporting IEEE1588
  - Dual CAN
  - USB 2.0
- **Advanced Analog**
  - Two 16-bit analog-to-digital converters (ADCs) with up to 24 channels
  - Programmable gain amplifier
  - Offset error correction
  - Gain error correction
- **Real Time Event**
  - No CPU intervention
  - No latency

SAM4E Key Features			
Frequency	120MHz	I²C	2
Flash	512KB - 1MB	Crypto	AES
SRAM	128KB	Parallel Capture (CMOS int.)	Yes
EMAC	1	2x16-bit ADC	Up to 24 Channels
USB	FS Device	12-bit DAC	Up to 2 Channels
CAN	2	Timers/ PWMs	9/4
USART	4	GPIO	Up to 117
MCI/SDIO	Yes	Pin Count	100 - 144
Ext Bus Interface	Yes	Package	QFP, BGA
SPI	3		

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Key Applications

- **Industrial Automation and Machine-to-Machine**
  - Programmable logic controllers
  - Drive control
  - Robotics
- **Building and Home Control**
  - Concentrator
  - Access control
  - Control panels
  - Room control unit
- **Energy Management**
  - Power supplies communication
  - Switch breakers communication
  - Inverters communication
- **Automotive Aftermarket**
  - Fleet management
  - Telematics

Faster Development with Integrated Platform

As with all of Atmel's AVR® and ARM Cortex-M processor-based devices, the SAM4E family is supported by the Atmel Studio Integrated Development Environment (IDE). Available as a free download, Atmel Studio includes the Atmel Software Framework, a complete library of source code, project examples, drivers and stacks. The IDE also features the Atmel Gallery apps store for embedded tools and extensions and the Atmel Spaces collaborative workspace for software and hardware projects based on Atmel microcontrollers.

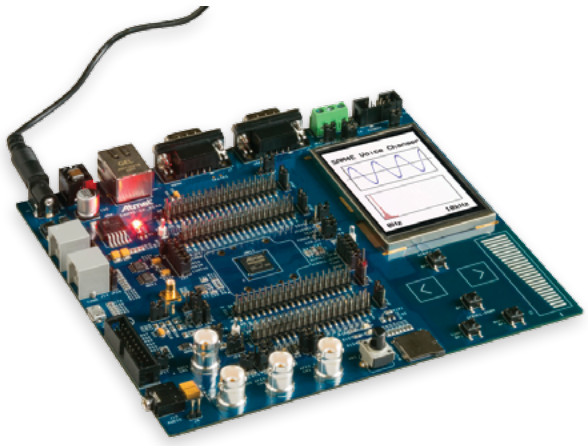
Head Start on Your Designs

Get a fast start on your designs with the SAM4E-EK evaluation kit, featuring a SAM4E16EA microcontroller. The SAM4E-EK board is based on the integration of an ARM Cortex-M4 processor with on-board NAND Flash and a set of popular peripherals. It is designed to provide a high-performance, highly flexible processor evaluation platform for a wide range of applications.

Kit Ordering Code: ATSAM4E-EK

Device Ordering Information

Device Ordering Code	Flash	Package
ATSAM4E16EA-AU	1MB	LQFP144
ATSAM4E16EA-CU	1MB	LFBGA144
ATSAM4E16CA-AU	1MB	LQFP100
ATSAM4E16CA-CU	1MB	LFBGA100
ATSAM4E8EA-AU	512KB	LQFP144
ATSAM4E8EA-CU	512KB	LFBGA144
ATSAM4E8CA-AU	512KB	LQFP100
ATSAM4E8CA-CU	512KB	LFBGA100



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