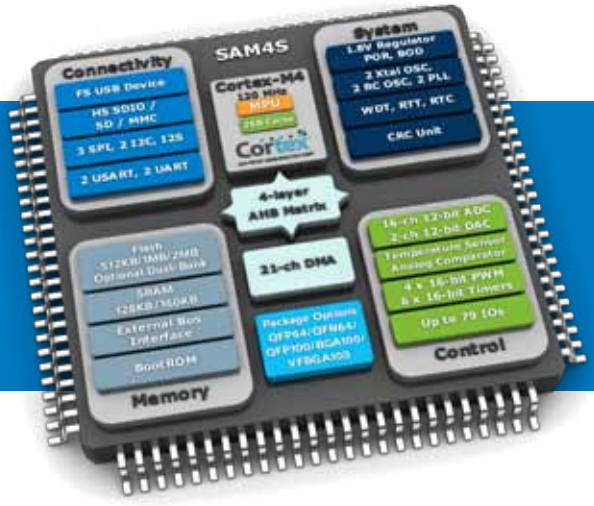
Atmel SAM4S Series

Scalable Performance and Memory Density, Power Efficiency



Based on the powerful ARM® Cortex™-M4 processor, the Atmel® SAM4S series extends the Atmel Cortex-M portfolio to offer:

- Increased performance and power efficiency
- Higher memory densities up to 2MB of Flash and 160KB of SRAM
- And a rich peripheral set for connectivity, system control and analog interfacing.

Devices are pin-to-pin and software compatible with current SAM3 Cortex-M3-based MCUs, offering a smooth upwards migration path for performance and memory size.

Key Features

- **Improved Performance Level** — Built around the ARM Cortex-M4 processor, the SAM4S operates at 120MHz and integrates Atmel's Flash read accelerator and optional cache memory to increase system performance. The SAM4S features a multi-layer bus matrix, multi-channel direct memory access (DMA) and distributed memory to support high data rate communication.
- **Low Power Consumption** — The SAM4S series achieves 200µA/MHz in dynamic mode at a low operating frequency; 30mA at 120MHz; and 1µA at 1.8V in back-up mode with the real-time clock (RTC) running. Offering some of the best power consumption/performance rates on the market for standby mode, the SAM4S series reaches 120MHz operating frequency with a RAM retention mode below 25µA.
- **Safety and Security** — Integrated best-in-class hardware code protection:
  - Prevents access to on-chip memory to protect your intellectual property (IP).
  - Supports secure device reconditioning (chip erase) for reprogramming.
  - A unique 128-bit ID and scrambled external bus interface ensure software confidentiality while the hardware CRC checks memory integrity.
- **Atmel QTouch Capacitive Touch Support** — The SAM4S series is touch-ready, offering native support for Atmel's market-leading QTouch® technology so you can easily implement buttons, sliders and wheels in your application.
- **Ease of Use** — Accelerate your development cycle with Atmel Studio 6, a seamless, easy-to-use integrated development environment (IDE). Get a jump-start on your design with dedicated evaluation kits and software packages. For rapid evaluation and code development, Atmel and industry-leading third parties provide a full range of development tools, real-time operating system (RTOS), middleware and support services to reduce time to market.

Application Areas

- Consumer goods and toys
- Industrial control
- Metering
- Medical
- Test and measurement
- 802.15.4 wireless networking
- PC, cell phone, gaming peripherals

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Evaluation Kit and Ecosystem

- Full-featured evaluation board and software library
- Supported by Atmel Studio 6 integrated development environment (IDE)
- Atmel QTouch® library support for buttons, wheels and sliders
- Worldwide support ecosystem of industry-leading suppliers of development tools, real-time operating systems and middleware products

- **Kit Ordering Code: ATSAM4S-EK**
  ATSAM4S-EK2



SAM4S Ordering Information

Atmel Ordering Code	Package	Evaluation Kit
ATSAM4S8BA-MU	QFN64	SAM4S-EK
ATSAM4S8BA-AU	LQFP64	SAM4S-EK
ATSAM4S8CA-AU	LQFP100	SAM4S-EK
ATSAM4S8CA-CU	TFBGA100	SAM4S-EK
ATSAM4S8CA-CFU	VFBGA100	SAM4S-EK
ATSAM4S16BA-MU	QFN64	SAM4S-EK
ATSAM4S16BA-AU	LQFP64	SAM4S-EK
ATSAM4S16CA-AU	LQFP100	SAM4S-EK

Atmel Ordering Code	Package	Evaluation Kit
ATSAM4S16CA-CU	TFBGA100	SAM4S-EK
ATSAM4S16CA-CFU	VFBGA100	SAM4S-EK
ATSAM4SD32BA-MU	QFN64	SAM4S-EK2
ATSAM4SD32BA-AU	LQFP64	SAM4S-EK2
ATSAM4SD32CA-CU	TFBGA100	SAM4S-EK2
ATSAM4SD32CA-CFU	VFBGA100	SAM4S-EK2
ATSAM4SD32CA-AU	LQFP100	SAM4S-EK2

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