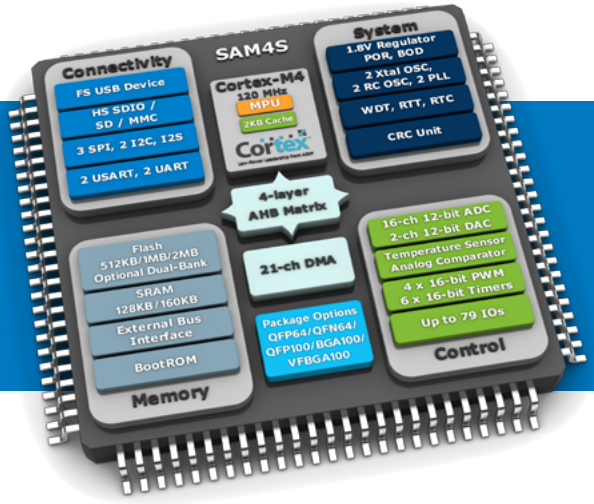
Atmel SAM4S Series

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 SAM3S 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 core, 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 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 platform (IDP). 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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Design Tools and Ecosystem

Atmel offers a full suite of hardware tools for evaluation and prototyping with the SAM4S. All SAM4S evaluation tools are supported by Atmel Studio 6 integrated development platform (IDP) and integrate Atmel QTouch® library support for buttons, wheels and sliders. They are backed by a worldwide support ecosystem of industry-leading suppliers of development tools, real-time operating systems and middleware products to make your design process easier and reduce time-to-market.

SAM4S Xplained Pro

The Xplained Pro platform is made of a main board with multiple expansion ports plus extension boards including OLED LCD displays, buttons, sensors and more. The board is available standalone or as part of a starter kit. The extension boards can also be purchased separately.

Evaluation Kit Ordering Code: ATSAM4S-XPRO
Starter Kit Ordering Code: ATSAM4S-XSTK

SAM4S-EK2

A full-featured board to quickly evaluate and develop code for applications running on Atmel SAM4S microcontrollers.

Ordering Code: ATSAM4S-EK2

SAM4S Xplained

The Xplained platform is for early evaluation of the capabilities offered by the SAM4S. Contains QTouch button sensors, LEDs, a USB port. The Xplained expansion headers provide easy access to analog and digital I/O pins. The board is powered by the USB cable and integrate a JTAG emulator with USB interface for programming and debugging.

Ordering Code: ATSAM4S-XPLD

SAM4S Wireless PIR Reference Design Kit

The SAM4S-WPIR-RD Reference Design Kit is based on the SAM4S16C device. Thanks to this reference design, you will be able to develop your own PIR motion detector camera.

Ordering Code: ATSAM4S-WPIR-RD

SAM4S Ordering Information

Atmel Ordering Code	Flash	SRAM	Cache	Package
ATSAM4SD32CA-AU	2x1MB Dual-bank	160KB	2KB	LQFP100
ATSAM4SD32CA-CFU				VFBGA100
ATSAM4SD32CA-CU				TFBGA100
ATSAM4SD32BA-AU				LQFP64
ATSAM4SD32BA-MU				QFN64
ATSAM4SD16CA-CFU	2x512KB Dual-bank	160KB	2KB	VFBGA100
ATSAM4SD16CA-CU				TFBGA100
ATSAM4SD16CA-AU				LQFP100
ATSAM4SD16BA-AU				LQFP64
ATSAM4SD16BA-MU				QFN64
ATSAM4SA16CA-CFU	1MB	128KB	2KB	VFBGA100
ATSAM4SA16CA-CU				TFBGA100
ATSAM4SA16CA-AU				LQFP100
ATSAM4SA16BA-AU				LQFP64
ATSAM4SA16BA-MU				QFN64

Atmel Ordering Code	Flash	SRAM	Cache	Package
ATSAM4S16CA-CFU	1MB	128KB	--	VFBGA100
ATSAM4S16CA-CU				TFBGA100
ATSAM4S16CA-AU				LQFP100
ATSAM4S16BA-AU				LQFP64
ATSAM4S16BA-MU				QFN64
ATSAM4S8CA-CFU	512KB	128KB	--	VFBGA100
ATSAM4S8CA-CU				TFBGA100
ATSAM4S8CA-AU				LQFP100
ATSAM4S8BA-AU				LQFP64
ATSAM4S8BA-MU				QFN64

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