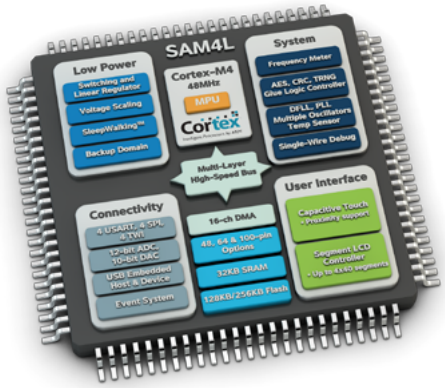
Atmel | SMART SAM4L Family MCUs

Redefining the Power Benchmark: Lowest Active and Sleep Mode Power, Shortest Wake-Up Time

Based on the powerful ARM® Cortex®-M4 processor and Atmel® picoPower® technology, the Atmel® | SMART SAM4L family redefines the power benchmark, delivering the industry's most efficient microcontroller (MCU):

- Lowest power in Active mode: 90µA/MHz
- Lowest power in Sleep mode: 1.5µA with full SRAM retention
- Shortest wake-up time: down to 1.5µs from deep-sleep mode
- Up to 28 CoreMark/mA efficiency rating
- Operating voltage: 1.68V-3.6V



Our patented picoPower technology provides innovative power-saving features:

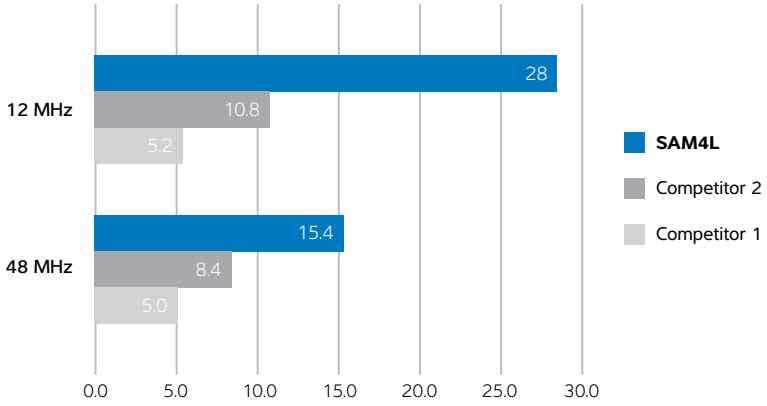
- Atmel® SleepWalking™ intelligent peripherals—allows a peripheral to qualify and evaluate incoming data without using the CPU, eliminating unneeded processor wake-ups and conserving power
- Peripheral Event System—a real-time network that allows peripherals to communicate directly with each other without using the CPU
- Unrivaled wake-up—whether on a proximity, a touch, an I^2C address match or an ADC threshold, all without using the CPU

Key Applications

Designed from the ground up to be the industry's most power-efficient Cortex-M4 processor-based MCUs, the SAM4L family is ideal for battery-powered industrial, medical and consumer devices. Examples include: sensors and detectors, glucose and blood pressure meters, remote controls and toys.

www.atmel.com/SAM4L

SAM4L Efficiency: CoreMark/mA



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Key Benefits

- **Ultra-low power consumption:** picoPower technology ensures that devices are designed to consume the lowest power possible, while delivering long battery life without any performance sacrifice.
- **Highly efficient signal processing:** Thanks to the Cortex-M4 core, the SAM4L family provides highly efficient signal processing with extended single-cycle multiply-accumulate instructions, optimized SIMD arithmetic and saturating arithmetic instructions.
- **Intelligent and efficient peripherals:** SAM4L devices offer a broad range of peripherals that are integrated into the Peripheral Event System and feature SleepWalking technology, along with other embedded power-saving features.
- **Ease of use:** Backed by an ecosystem of design tools, the SAM4L family is easy to use, facilitating faster time to market. Design with the Atmel Studio integrated development environment (IDE), which includes thousands of project examples with source code, simulation tools and a powerful editor.

Key Features

SAM4L Family			
Frequency	48MHz		
Flash	512KB	256KB	128KB
SRAM	64KB	32KB	32KB
USART	4		
SPI	4		
TWI	4		
I²S	1		
Audio DAC	1		
12-bit ADC	15 channels		
DAC	1		
Segment LCD	4 x 40 segments		
USB	FS Host/FS Dev		
picoPower	Yes		
Capacitive Touch	32 channels		
Pin count	48 – 64 –100		
Package	QFP/QFN/WLCSP/BGA		

Getting Started

Prototype your designs with the Atmel SAM4L suite of evaluation tools:

SAM4L Xplained Pro: A small-sized and easy-to-use platform for evaluation of the Atmel SAM4L capabilities. Available as an evaluation kit or a starter kit, the SAM4L Xplained PRO series also consists of a range of extension boards to create platforms for specific application development. In-circuit programmer and debugger allow seamless connection to Atmel Studio.

Evalution kit ordering code: ATSAM4L-XPRO
Starter kit ordering code: ATSAM4L-XSTK
ATSAM4L8-XPRO

SAM4L-EK: A full-featured board to quickly evaluate and develop code for applications running on Atmel SAM4L microcontrollers. The SAM4L-EK features an embedded debugger, dedicated circuitry to measure the power consumption of your application, LCD, USB and capacitive touch functionality. It also offers expansion headers to plug in Atmel extension boards so you can easily add gyrometers, accelerometers, Wi-Fi and Zigbee to your SAM4L-EK.

Ordering code: ATSAM4L-EK

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