Atmel SAM4L Family

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 SAM4L family redefines the power benchmark, delivering the industry's most efficient MCU:

- Lowest power in active mode: 90µA/MHz
- Lowest power in sleep mode: 1.5µA with full RAM retention
- Lowest power in backup mode: 700 nA
- 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

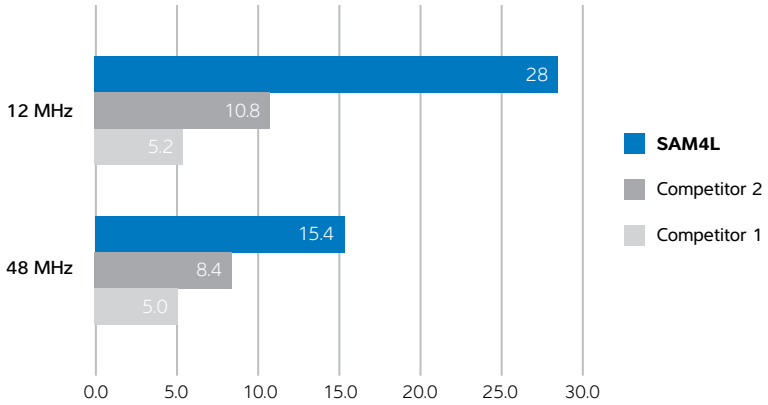
Our patented picoPower technology provides innovative power-saving features:

- 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 I²C 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.

SAM4L CoreMark Benchmark vs. Competition



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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 6 integrated development environment (IDE), which includes more than 1,500 project examples with source code, simulation tools and a powerful editor.

Key Features

SAM4L Family	
Frequency	48MHz
Flash	128KB–256KB
SRAM	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-EK evaluation kit, which includes an embedded debugger, power measurement, LCD, USB and capacitive touch functionality. Ordering code: ATSAM4L-EK
www.atmel.com/SAM4L

Enabling Unlimited Possibilities®

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