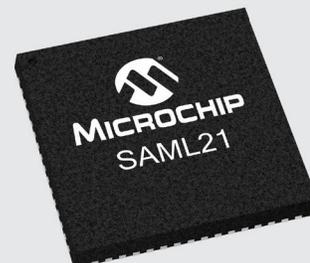


# SAML21 Microcontroller Family

## Ultra-Low-Power Microcontrollers

Consuming just one-third the power of comparable products in the market today, the SAML21 microcontroller family with picoPower® technology expands Microchip's 32-bit ARM®-based product line with industry leading ultra-low-power microcontrollers.

The SAML21 family delivers down to 35  $\mu$ A/MHz in active mode, sub 900 nA with full SRAM retention and RTC, and 200 nA in the deepest sleep mode.



With an ARM Cortex®-M0+ processor, rapid wake-up times, Event System, Sleepwalking and the innovative picoPower peripherals, the SAML21 family is ideal for handheld and battery-operated devices in a variety of markets, including Internet of Things (IoT), consumer, industrial and portable medical applications.

Architectural innovations in the SAML21 family enable low-power peripherals—including timers, serial communications and capacitive touch sensing—to remain powered and running while the rest of the system is in a reduced power mode. This further reduces power consumption for many always-on applications.

### SAML21 Device Details

The overview below shows SAML21 sub-series Flash and SRAM combinations, package options and feature sets.

	SAML21E	SAML21G	SAML21J
Flash	32–256 KB	64–256 KB	64–256 KB
SRAM	6–40 KB	12–40 KB	12–40 KB
12-bit 1 Msps ADC	10 ch.	14 ch.	20 ch.
SERCOM (UART, SPI, I <sup>2</sup> C)	6	6	6
Timer/Counter	3	3	5
Timer/Counter for Control	3	3	3
Packages	32-pin TQFP, 32-pin QFN	48-pin TQFP, 48-pin QFN	64-pin TQFP, 64-pin QFN, 64-pin WLCSP
Features in all SAML21 Devices	Event System, DMA, 12-bit DAC, AC, AES, TRNG, Full-Speed USB Host and Device, Peripheral Touch Controller, 32-bit RTC with Calendar, 48 MHz Operation		
Available Temperature Options	–40°C to 85°C, –40°C to 105°C		

## Development Tools

### SAML21 Xplained Pro Evaluation Kit (ATSAML21-XPRO-B)



The SAML21 Xplained Pro Evaluation Kit is ideal for evaluating and prototyping with the ultra-low power SAML21 ARM Cortex-M0+ based microcontrollers.

### Ultra-Low Power Connected Demo (ATULPC-DEMO)



This board driven by SAML21 MCU is packed with sensors and BTLC1000 module on a tiny form factor PCB (40 × 30 mm) to demonstrate the ultra low power capabilities of SAML21 for wearable applications. It runs on coin cell battery and comes with a free android app to provide 3D plot, step count, motion and environment sensing information.

### SAML21 Ultra-Low Power (ULP) Touch Demo

This demo showcases the ultra-low power touch capabilities of SAML21 such as wake-up on touch. It utilizes the Power Debugger Kit and Data Visualizer to analyze and monitor the power profile of the application in real-time (Please contact your local Microchip sales office for availability).

SAML21 MCUs are designed for simple and intuitive migration with identical peripheral modules, hex compatible code, identical linear address map and pin-compatible migration paths between all devices in the product series. All devices include intelligent and flexible peripherals, Event System for inter-peripheral signaling and support for capacitive touch button, slider and wheel user interfaces.