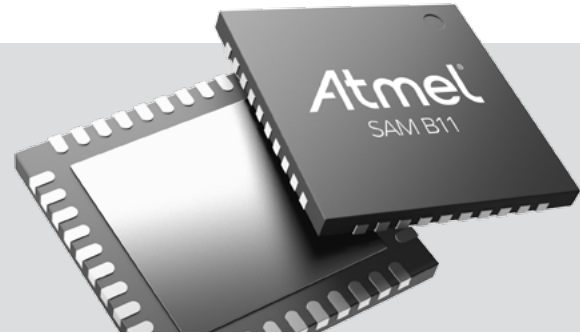




## SmartConnect SAM B11

### BLE 4.1 Wireless MCU



The Atmel® SmartConnect SAM B11 is an ultra-low-power Bluetooth® SMART (BLE 4.1) system on a chip (SoC) with integrated microcontroller (MCU), transceiver, modem, MAC, PA, TR switch, and power management unit (PMU). It is a standalone applications processor with 256KB of Flash memory and with embedded BLE connectivity.

The qualified Bluetooth Smart protocol stack is stored in dedicated ROM and includes L2CAP service layer protocol, security manager, attribute protocol (ATT), generic attribute profile (GATT) and the generic access profile (GAP). Additionally, application profiles such as Proximity, Thermometer, Heart Rate, Blood Pressure, and many others are supported and included in the protocol stack.

### SAM B11 SoC Target Applications

- Wearable with health and fitness sensors
- Smart appliances
- Security and proximity tags
- Home automation
- Smartphone accessories
- HID keyboards, mice and remote controls

The SAM B11 provides a cost-effective solution for many Bluetooth Smart based applications by integrating the Bluetooth Low Energy Radio and Baseband with an ARM® Cortex® M0-based microcontroller. The need for very few external components minimizes the total system solution cost.

### Accelerating RF Design

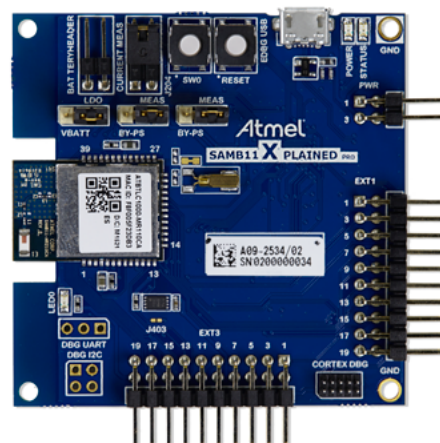
To help accelerate design development, Atmel offers the SAM B11 as a single-chip module for fast integration, and on an Xplained Pro evaluation board for fast and easy application development within Atmel Studio.

### Power Architecture and Consumption

The SAM B11 uses an innovative radio and DSP architecture that delivers extremely low power consumption along with high performance.

The SAM B11 has the lowest power consumption available in the market.

- TX peak current: < 3mA @ 3.6V, 0dBm pout
- RX peak current: < 4mA @ 3.6V
- Sleep current: < 1uA with 8KB RAM retention and RTC
- Advertise: > 4-year battery life with CR2032 coin cell battery when advertising every 1-second as a beacon



### Key Features

- BLE4.1 SoC with fully embedded stack (link and host layer, including ATT/GATT/GAP) in ROM (128KB)
- Cortex M0-based MCU with 128KB RAM and 256KB Flash (stacked die with SPI interface)
- Onboard ADC (11b) and PWM generator and general purpose timers
- Superior sensitivity (-96dBm) and range (TX pout = 4dBm max)
- Ultra-low power Consumption in advertising, connection, scanning modes
- SPI, UART and I2C as host interfaces
- Integrated PMU with buck DC/DC allows for vbat range of 2.3V-3.6V



Ordering Code	Description
Atmel SAMB11G18A-MU-T	Cortex M0 with 256KB of stacked Flash and BLE 4.1, 6x6 QFN
Atmel ATSAMB11-MR210CA	Certified Module with ATSAMB11A-MU chip and chip antenna
Atmel ATSAMB11-MR510CA	Certified Module with SAMB11 Soc, chip antenna and Crypto memory ECC508A
Atmel ATSAMB11-XPRO	Starter kit with XPlained Pro SAM B11 board, demonstrating BLE health thermometer application with LED control and temperature measurements