

FoSilicon FS2101

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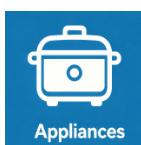
Highlights

- ✓ RISC based design
- ✓ Ultra-low-power
- ✓ Ultra-low-cost
- ✓ Enhanced RF performance
- ✓ Programmable and flexible IO mapping
- ✓ Enhanced security control

Overview

FS2101 is a highly integrated Bluetooth Low Energy (BLE) 6.0 System-on-Chip (SoC) built on a 32-bit RISC processor running at up to 64 MHz. It combines 512 KB of on-chip Flash memory with 48 KB of SRAM and an integrated DCDC or LDO power management unit, providing a complete, ultra-low-power wireless solution for cost-sensitive and battery-powered IoT applications.

Target Applications



Appliances

- remote controls
- Wearable devices
- Human-input devices
- IR + BLE dual-mode
- Wireless sensors and beacons
- dual-mode remote control solutions



Energy & Lighting

- keyboards, mice, gamepads
- Smart-home lighting
- switch control
- Smart locks
- keyboards, mice
- Smart control radiator ...



Security & Control

- access control
- Access control
- Healthcare
- anti-lost trackers
- Building automation
- Electronic shelf labels
- Smoke alarm & air quality sensor ...

Features

RF & BLE

- BLE 6.0 compliant
- 2.4 GHz BLE transceiver
- Receiver sensitivity: -96 dBm @ 1 Mbps, -93 dBm @ 2 Mbps
- output power up to +6 dBm
- AoA / AoD support
- packet-length extension

Core & Memory

- 32-bit RISC CPU, up to 64 MHz
- 512 KB Flash memory
- 48 KB SRAM
- SWD debug interface

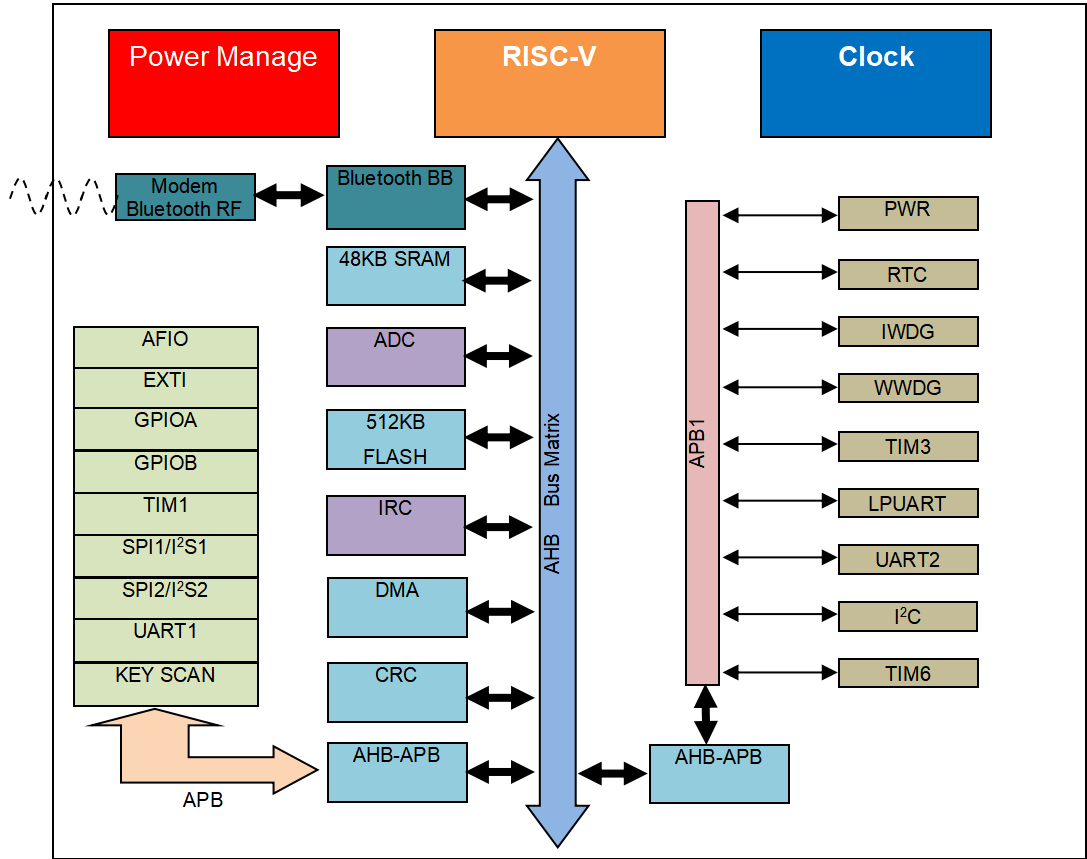
Low-Power

- DCDC and LDO power management
- RX current: 3.8 mA @ 3.3 V
- TX current: 4.2 mA @ 0 dBm, 3.3 V
- Sleep current: 1.5 μ A (typ.)
- Power Down current: 130 nA (typ.)
- Operating voltage: 1.8 V – 3.6 V

Peripherals

- 21 GPIOs
- 2× USART + 1× LPUART
- 2× SPI (master/slave, up to 16 MHz)
- 1× I2C (master/slave, up to 1 MHz)
- 5-channel high-speed DMA
- Timers: TIM1, TIM3, TIM6, SysTick
- RTC with leap-year calendar
- IWDG and WWDG
- 10-bit 1.33 Msps ADC
- (PGA up to 42 dB
- Microphone bias (MIC BIAS) output
- IR transmitter controller
- Keyboard scanner (KEYSCAN)
- CRC16 / CRC32 hardware calculator

7 Block Diagram



7 Specification

Items	Parameters
Certification	SRRC
Protocols	BLE 6.0
TX Power	+6 dBm 4.2 mA @ 0 dBm / 3.3 V
Rx Sensitivity	-96 dBm @ 1 Mbps; -93 dBm @ 2 Mbps 3.8 mA @ 3.3 V
Antenna	Monopole antenna
CPU	32-bit RISC-V, Up to 64 MHz
Operating Voltage	1.8 ~ 3.6 V
Operating Current	Sleep: Typical 1.6 μ A; PD: Typical 130 nA
Operating Temperature	-40 ~ 85 $^{\circ}$ C
Package Size	QFN32 (4x4 mm)



For more info, please
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About FS2101

With best-in-class power consumption (as low as 1.5 μ A in Sleep and 130 nA in Power Down), an exceptionally low RX current of 3.8 mA, and a rich set of analog and digital peripherals — including a 10-bit/16-bit ADC, programmable-gain amplifier (PGA), microphone bias, IR controller, and keyboard scanner — FS2101 delivers a comprehensive BLE platform for remote controls, wearables, and smart-home devices.