

STM32W 32-bit ARM Cortex™-M3 IEEE 802.15.4 SoCs



STMicroelectronics

Integrated 2.4 GHz radio microcontroller enables easy and low-cost wireless network implementation

With the STM32W, the STM32 family is expanding to the wireless network domain, bringing outstanding radio and low-power-microcontroller performances in a single system-on-chip (SoC). With a configurable total link budget of up to 109 dB and the efficiency of the ARM Cortex-M3 core, the STM32W is the perfect fit for the wireless sensor network market. Compliant with the IEEE 802.15.4 radio standard, this open and flexible platform supports the most popular protocol stacks such as RF4CE, ZigBee IP and Smart Energy Profile 2.0* and more. Coming with a complete and low-cost development tool offer, the STM32W takes full advantage of ST's unrivalled ARM Cortex-M3 portfolio.

Key features

- Outstanding 2.4 GHz radio performances to IEEE 802.15.4
- Best-in-class code density, thanks to its ARM Cortex-M3 core
- Low-power architecture
- Wide range of memory options: 64- to 256-Kbyte Flash and from 8- to 16-Kbyte SRAM
- Open platform with extra resources for application integration:
 - Configurable I/Os, ADC, timers, SPI, UART
- Main software libraries: RF4CE, IEEE 802.15.4 MAC, ZigBee IP and Smart Energy Profile 2.0*
- Available as both SoC and coprocessor, either in QFN48 or QFN40

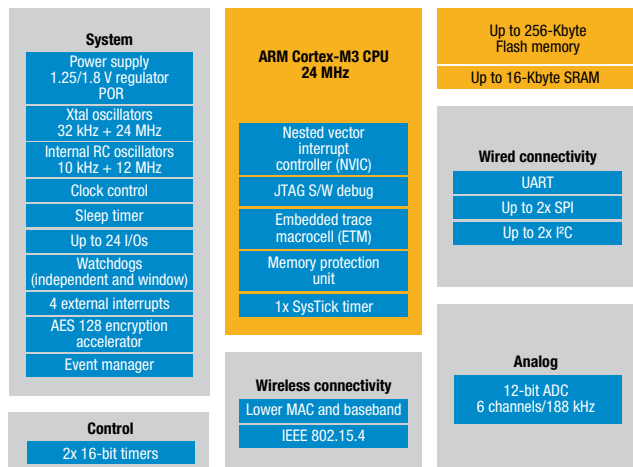
Key benefits

- Cost efficiency through a true SoC
- Open platform supporting IEEE 802.15.4 based protocol stacks
- Wide STM32 Cortex-M3 developers community
- Unmatched network throughput and latency
- Longer battery lifetime

Targeted applications

- Smart energy networks, metering
- Home automation
- Consumer electronics, remote controls
- Healthcare and medical equipment

STM32W block diagram



Development tools

As for all STM32 products, a complete development tool offer is available, including the following dedicated starter kits.

- STM32W-RFCKIT: low-cost RF control kit with 2 boards (control/receive)



- STM32W108B-SK: complete kit to evaluate and develop on the STM32W108, including 2 application boards, a USB dongle, RF network analyzer and IAR C compiler
- STM32W108B-KEXT: set of 4 additional application boards to build a mesh network (2 standard boards + 2 with power amplifiers)
- STM32W is a ZigBee RF4CE certified platform
- STM32W is an IEEE 802.15.4 certified platform
- STM32W supports ZigBee IP and Smart Energy Profile 2.0*

Device summary

Part number	Package	Flash size (Kbytes)	Internal RAM size (Kbytes)	Timer functions		ADC	I/Os	Serial interface	Supply voltage (V)	Supply current (I _{CC})		Operating temperature (°C)
				16-bit	Others					Lowest power mode (µA)	Run mode (per MHz) (µA)	
STM32W108 Wireless line – IEEE 802.15.4 – 24 MHz CPU												
STM32W108C8	VFQFPN48	64	8	2x16-bit	WDG, RTC, IEEE 802.15.4 radio	6x12-bit	24	Up to 2xI²C, up to 2xSPI, 1xUART	2.1 to 3.6	0.4	250	-40 to +85
STM32W108CB	VFQFPN48	128	8	2x16-bit	WDG, RTC, IEEE 802.15.4 radio	6x12-bit	24	Up to 2xI²C, up to 2xSPI, 1xUART	2.1 to 3.6	0.4	250	-40 to +85
STM32W108HB	VFQFPN40	128	8	2x16-bit	WDG, RTC, IEEE 802.15.4 radio	6x12-bit	18	Up to 2xI²C, up to 2xSPI, 1xUART	2.1 to 3.6	0.4	250	-40 to +85
STM32W108CZ	UFQFPN48	192	12	2x16-bit	WDG, RTC, IEEE 802.15.4 radio	6x12-bit	24	Up to 2xI²C, up to 2xSPI, 1xUART	2.1 to 3.6	0.4	250	-40 to +105
STM32W108CC	UFQFPN48	256	16	2x16-bit	WDG, RTC, IEE 802.15.4 radio	6x12-bit	24	Up to 2xI²C, up to 2xSPI, 1xUART	2.1 to 3.6	0.4	250	-40 to +105

Note:
* Available in Q2/2012



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