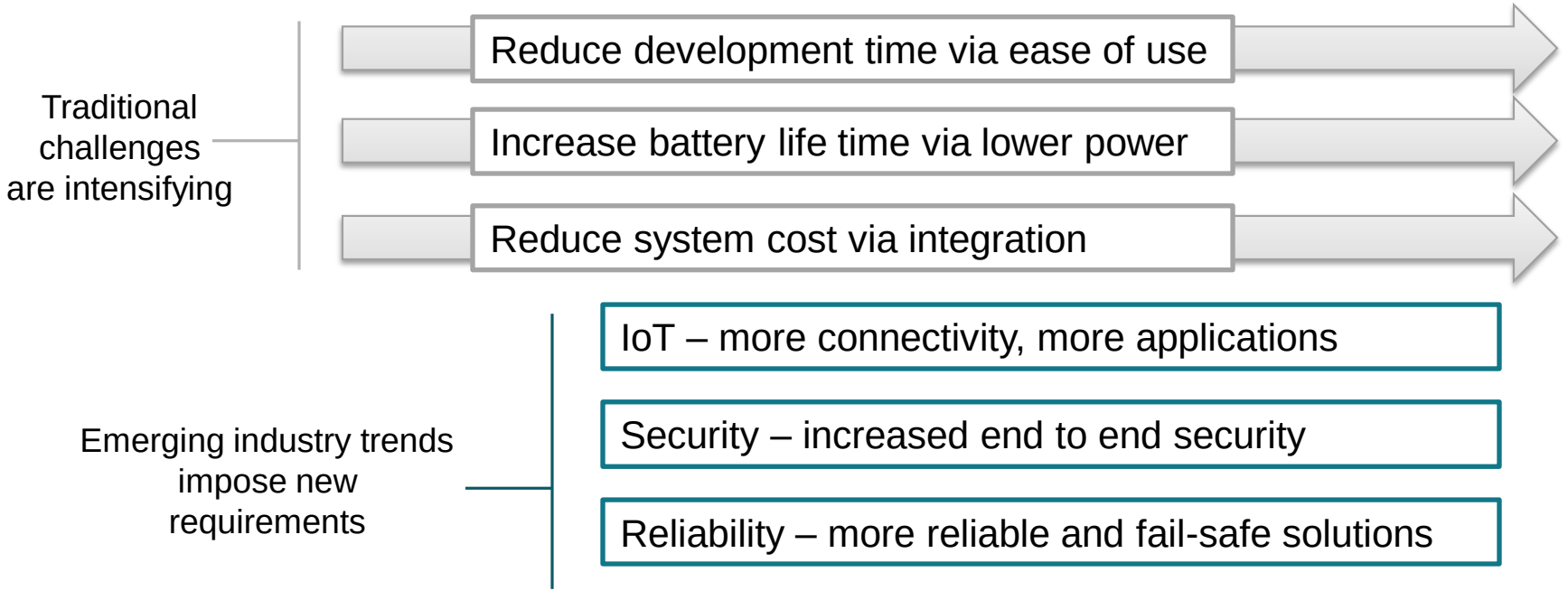
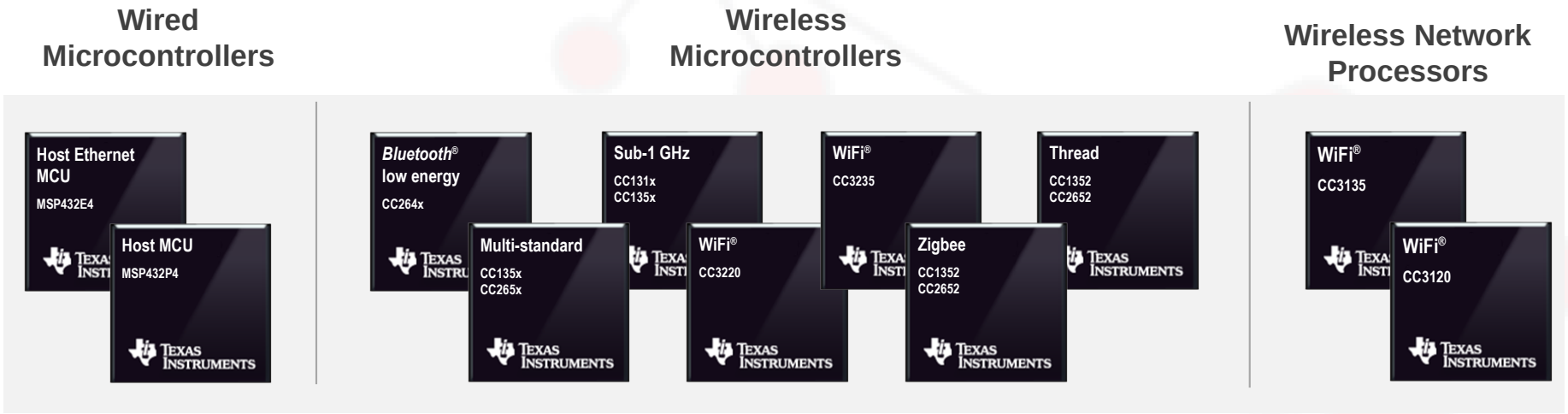
Key Market Trends



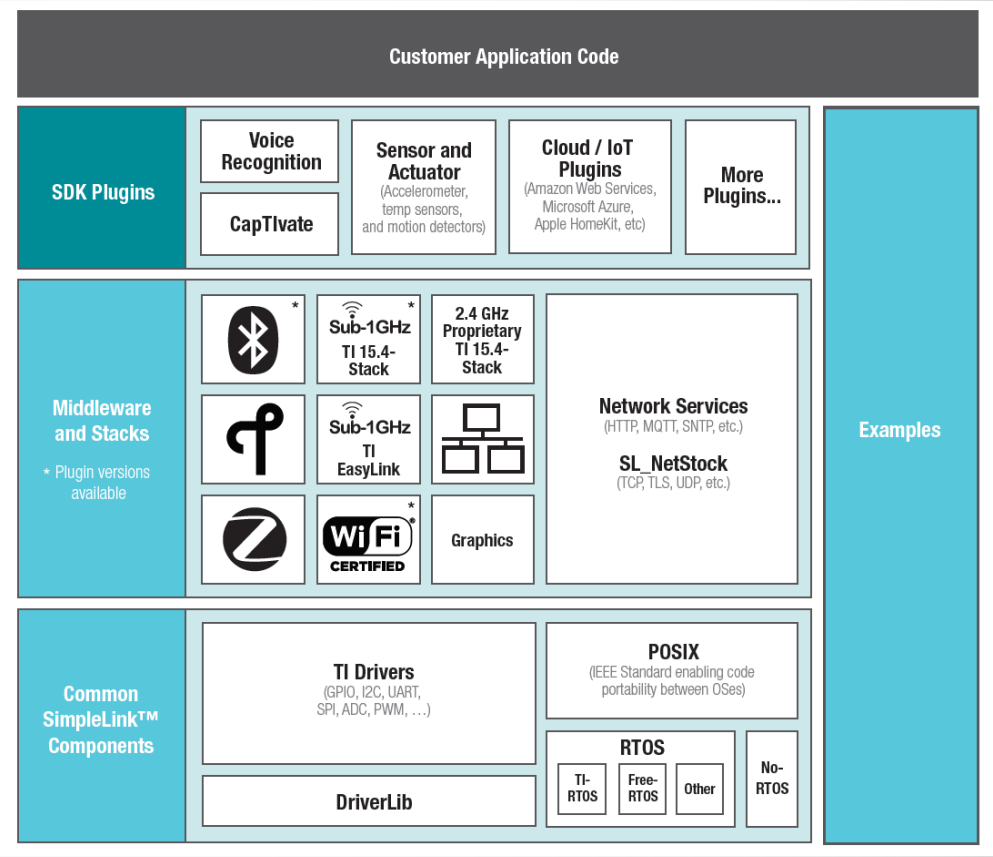
SimpleLink™ MCU platform



The SimpleLink™ SDK

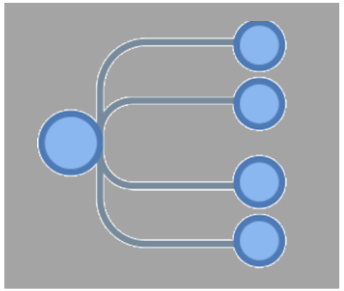
The SimpleLink SDK is designed for simplified development within one environment using industry standard APIs, TI Drivers, and TI RTOS to provide a robust foundation for application development

- 100% application code compatibility across SimpleLink MCU portfolio
- TI Drivers offers standardized set of functional APIs for integrated peripherals
- Integrated TI-RTOS, a robust, intelligent kernel for complete, out-of-the-box development
- POSIX-compatible APIs offer flexible OS/kernels support
- Encryption-enabled security features
- IoT stacks and plugins to add functionality to your design



Why TI SimpleLink™ ?

Scale



- Breadth of wireless technologies
- Concurrent multi-protocol
- Multi-band SD radio for LP IoT
- Dual-band Wi-Fi

Conserve

- Low energy radios
- Extended range
- ULP Sensor Controller
- Wi-Fi LP IoT
- Best-in-class standby

Secure

- FIPS 140-Level 1
- Offload CPU bandwidth – HW crypto accelerators
- Secure boot

Innovate

- BAW: First crystal-less wireless SoC
- WCSP: Multi-protocol in 3.1mmx3mm
- Future-proof with 5GHz Wi-Fi

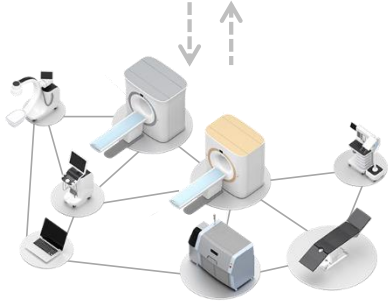
SimpleLink MCUs, IoT for every market

ASSET TRACKING

SimpleLink™
MCU Platform
One environment.
Unlimited potential.

GRID INFRASTRUCTURE

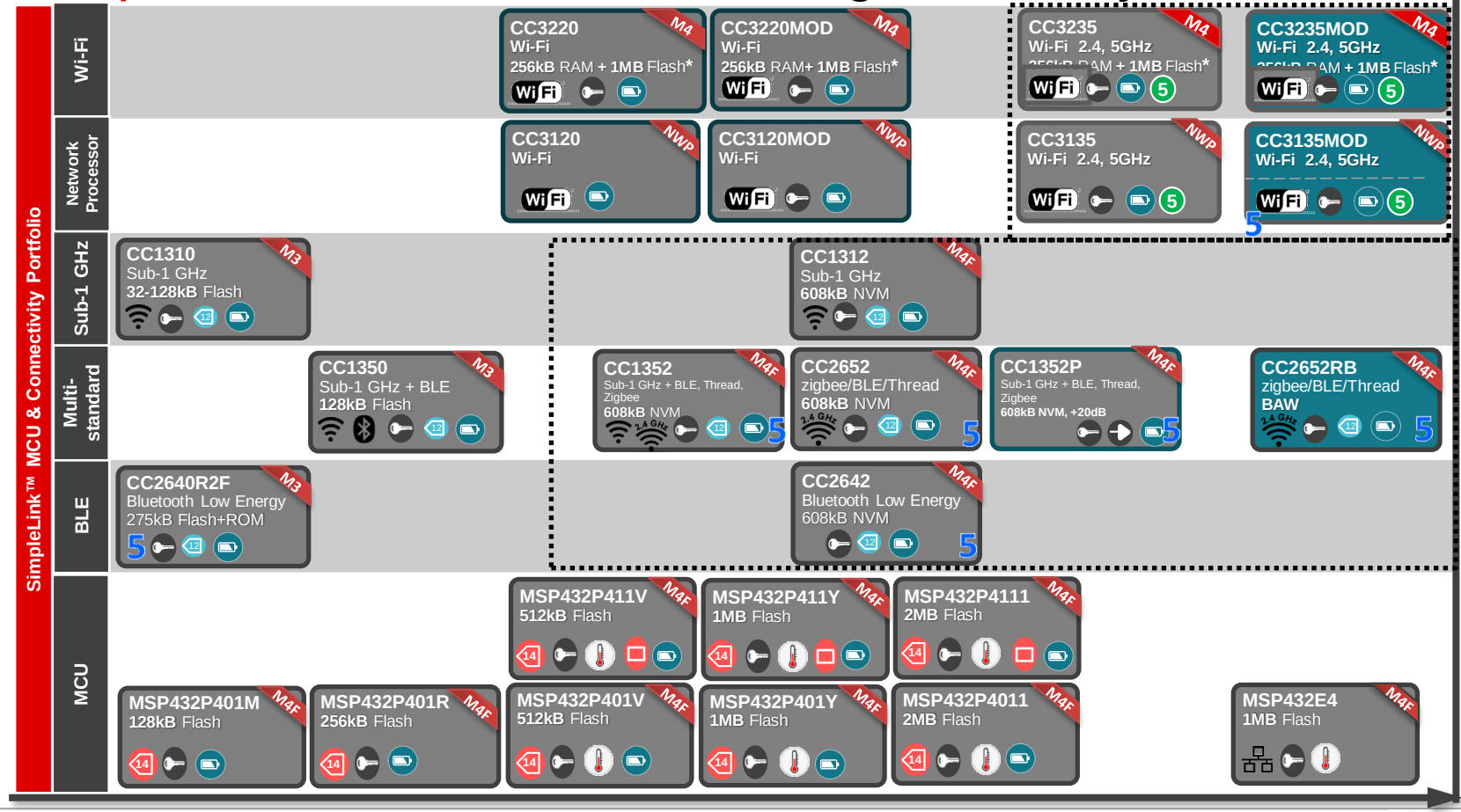
FACTORY AUTOMATION



MEDICAL

BUILDING AUTOMATION

SimpleLink™ Portfolio Redefining Scalability



More memory.
Multi-step approach from 32kB to 2MB

More integration.
Sensor controller, precision ADC, PA, coexistence and multiple wired/wireless

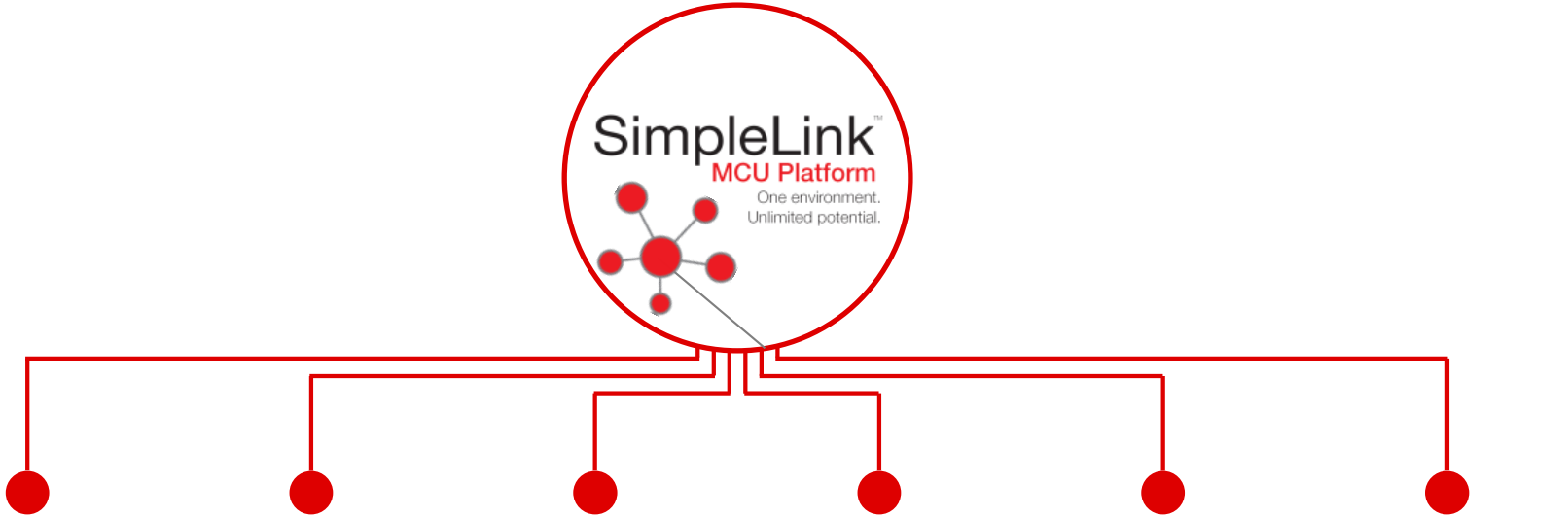
Easier to use.
Comprehensive software, complete reference designs, and SimpleLink Academy training

Key Features

- Bluetooth 5 support
- 2.4 GHz support
- Sub-1 GHz support
- Low power operation
- Security accelerators
- Wi-Fi support
- 5GHz-Dual Band
- Ethernet MAC & PHY
- 14 bit ADC
- Integrated PA
- 105 deg. C
- Display support
- 12 bit ADC

Development
Sampling
Production

End-to-end development resources



Wired & wireless Arm-based MCUs

Common software

Development Kits

TI Resource Explorer

Code Composer Studio™ IDE

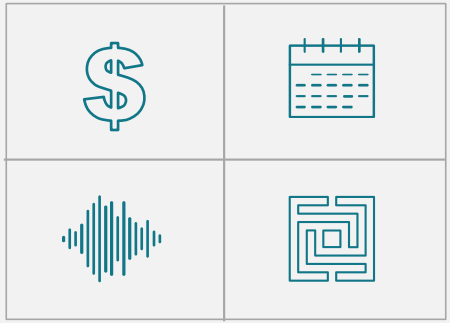
SimpleLink Academy

WHAT'S NEW?

TI BAW – Crystal-less wireless MCU

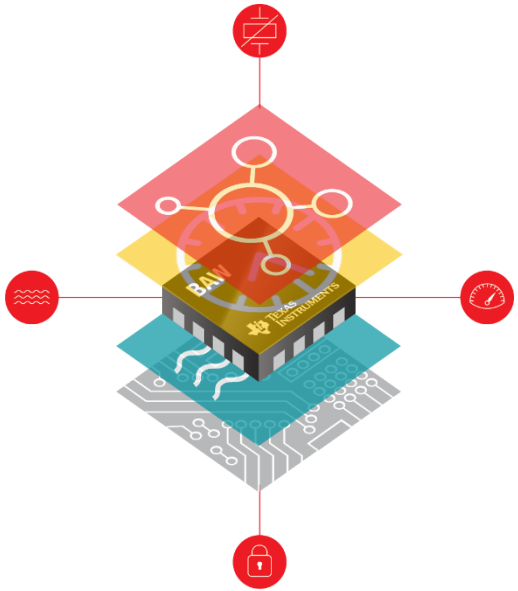
Current obstacles

Limitations of current clocking and quartz crystal devices



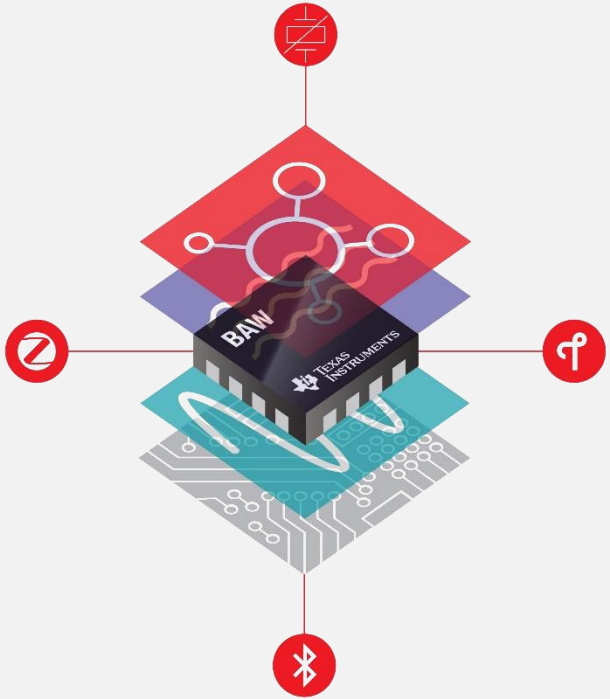
Going crystal-less is the next step in IoT evolution

Advancements in BAW technology propel us to the future

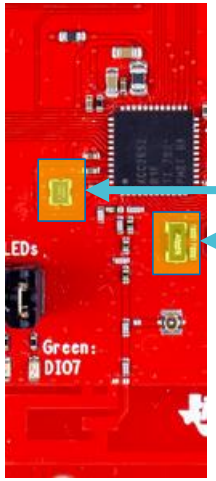


- ✓ Increased performance
- ✓ Simpler
- ✓ Lower cost
- ✓ Smaller size

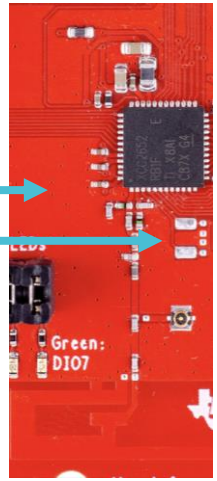
TI BAW – Crystal-less wireless MCU



Design with crystal



Design with BAW technology



12%
area savings with TI's BAW technology

ti.com/simplelink-baw

SimpleLink Wi-Fi Evolution

Gen3

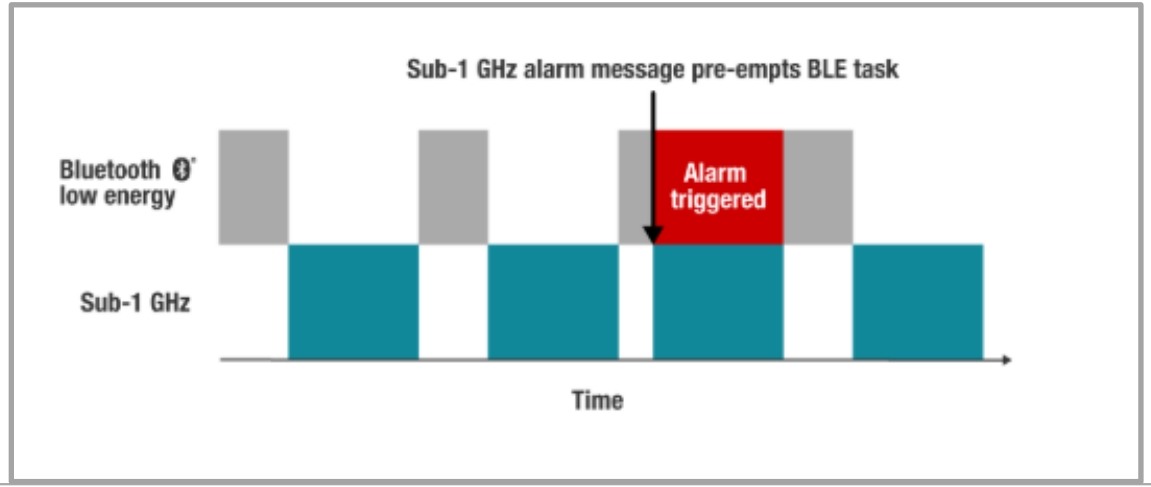
Future Generation of **SimpleLink™ Wi-Fi MCU**

- BLE Coexistence
- 256kB RAM & 1MB Flash
- Cloud Ecosystem
- Longer Battery Life (>1Yr)
  - WFA-IoT
  - Low Power (>2Yrs)
- Dual Band
  - 2.4GHz
  - 5GHz
- HomeKit
- Comprehensive Security Features
  - FIPS140-2 Validation

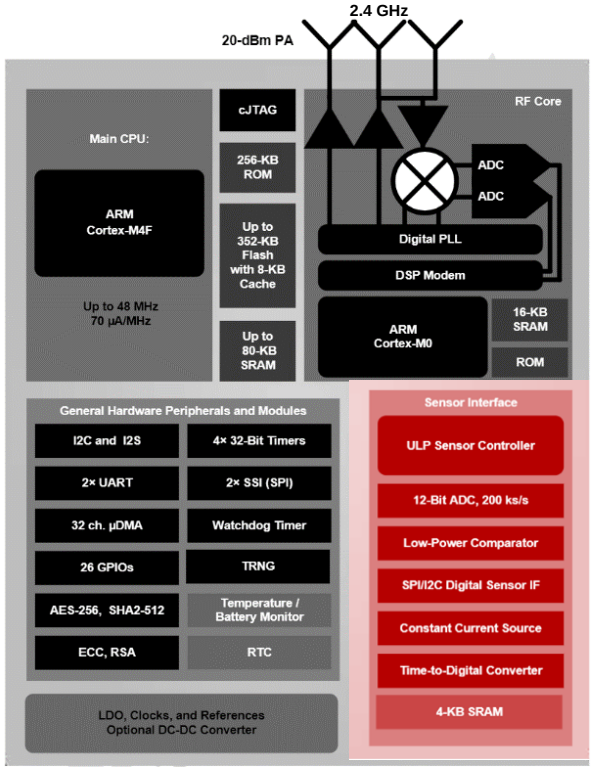
Battery life compared to previous generation of SimpleLink Wi-Fi products

Dynamic Multi-protocol Manager

- Powered by innovative software IP
- Allows multiple stacks to run on the same device running concurrently
- Uses a policy manger and scheduler to dynamically arbitrate the RF resource
- Makes scheduling decisions based on the current policy decision which the developer can change to suit their needs (simplified policy table below)



Ultra-low power Sensor Controller



SPI reading - Wake ups per second	Cortex-M4, 48 MHz	Sensor controller, 24 MHz	Sensor controller, 2 MHz
1	2.4 uA	1.5	1.0 uA
20	25.4 uA	4.0 uA	1.4 uA
100	119 uA	15.6 uA	3.0 uA

Example application	Power consumption
Flow metering	**16-Hz:** 1.7 uA
Motion detector monitoring output from a PIR	**Reading Comp A @ 100 Hz:** 1.9 uA
Thermostat external temp sensor reporting back to main thermostat	**ADC sampling @ 1Hz:** 1uA