

Application presentation
Smart door lock

April 2026

Table of contents

1 Company overview 3

2 Application introduction (definition, market potential, trends) 7

3 Application requirements & challenges and value proposition 11

4 Application block diagram 14

5 Application offering details 16

6 Get started today! 77

Copyright © Infineon Technologies AG 2026. All rights reserved.

Table of contents

1 **Company overview** **3**

2 Application introduction (definition, market potential, trends) 7

3 Application requirements & challenges and value proposition 11

4 Application block diagram 14

5 Application offering details 16

6 Get started today! 77

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon is a global leader in power systems and IoT

Global leader

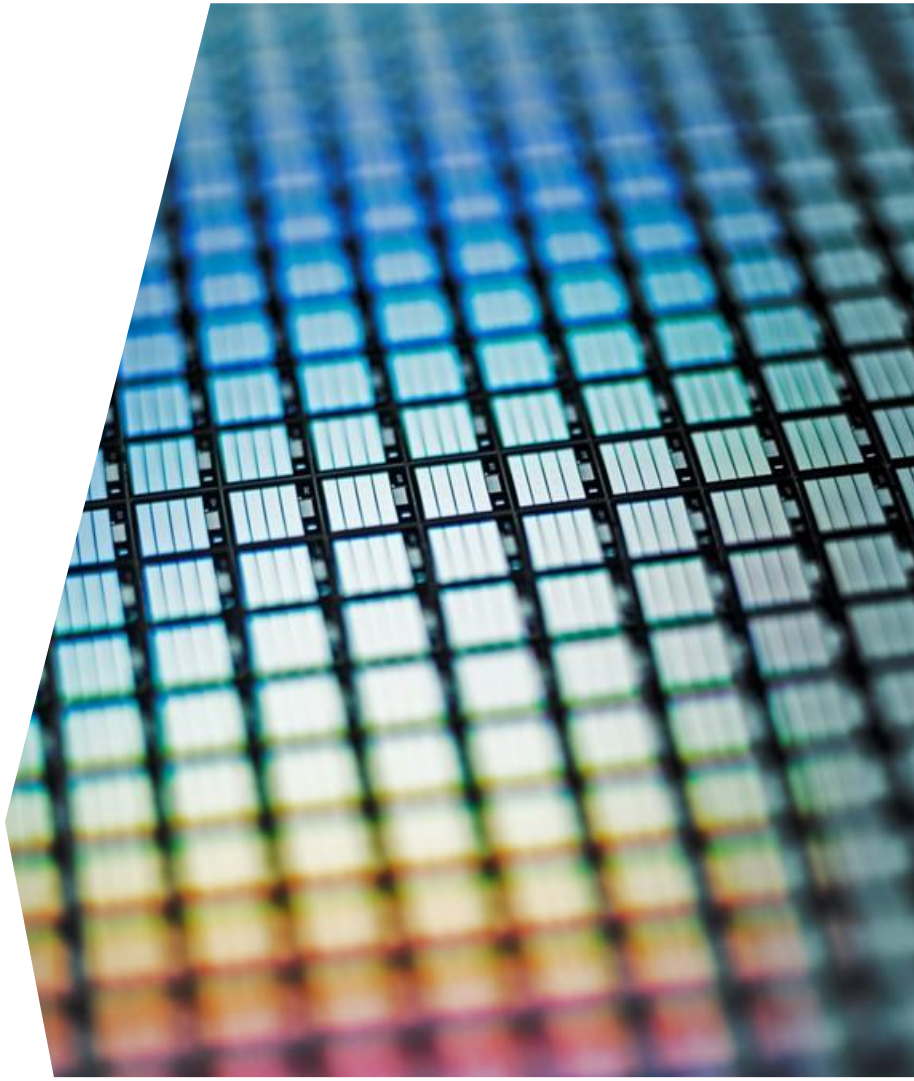
in automotive, power management,
energy efficient technologies and IoT

~57,000

employees[1]

Market position

Automotive	Power	Microcontroller
#1	**#1**	**#1**
TechInsights, March 2025	Omdia, October 2025	Omdia, November 2025



[1] As of 30 September 2025

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon at a glance

Growth areas



Energy
green and efficient

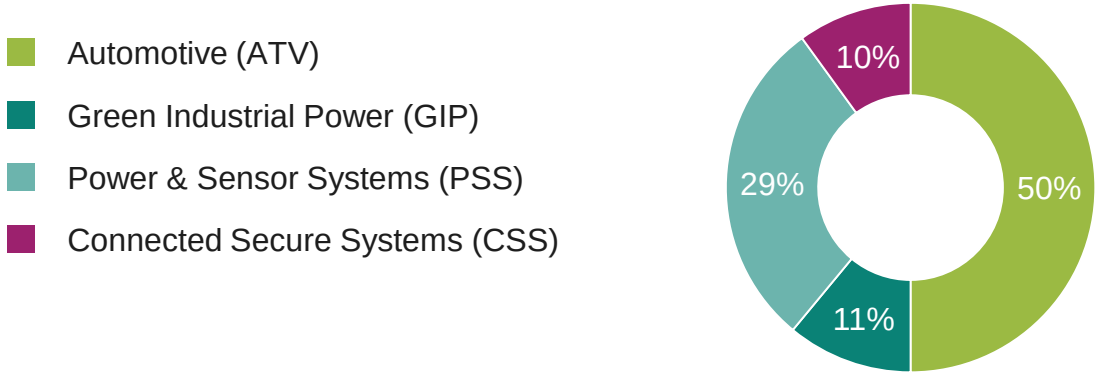


Mobility
clean and safe

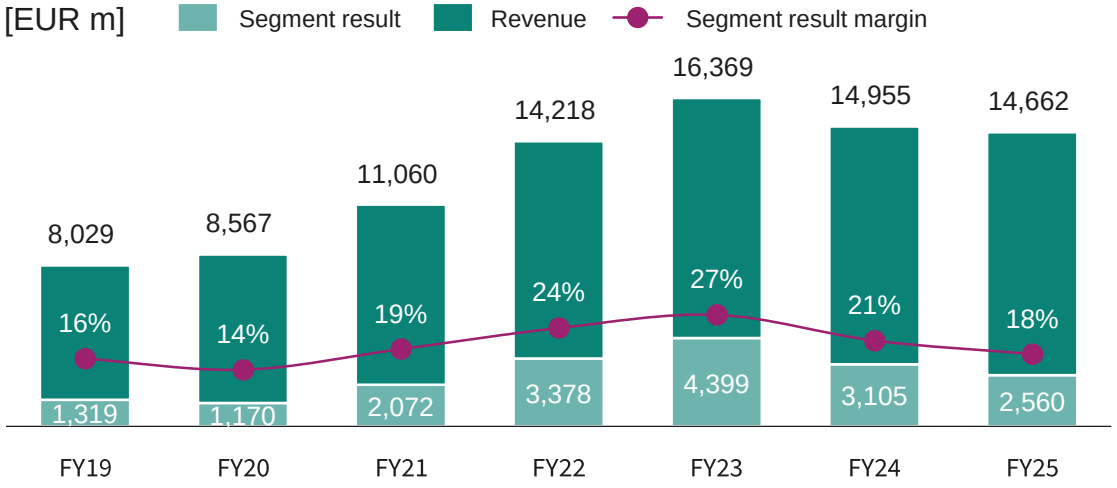


IoT
smart and secure

FY25 revenue by segment[1]



Financials

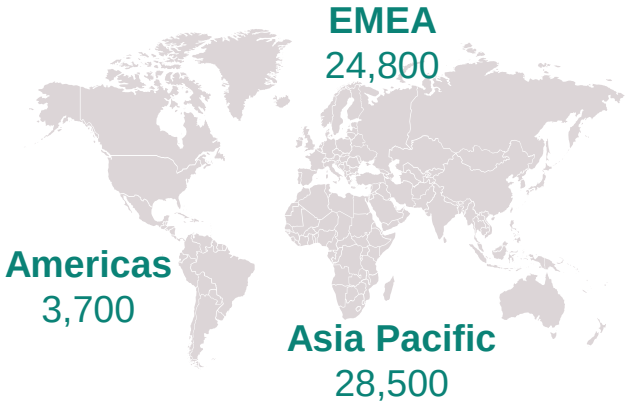


Employees[1]

57,000
employees worldwide

75
R&D and

14
manufacturing locations[2]



For further information: Infineon Annual Report.

[1] 2025 Fiscal year (as of 30 September 2025) | [2] As of 30 September 2025

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon leader in IoT – driving digitalization by serving strongly growing multi-application markets

Consumer IoT



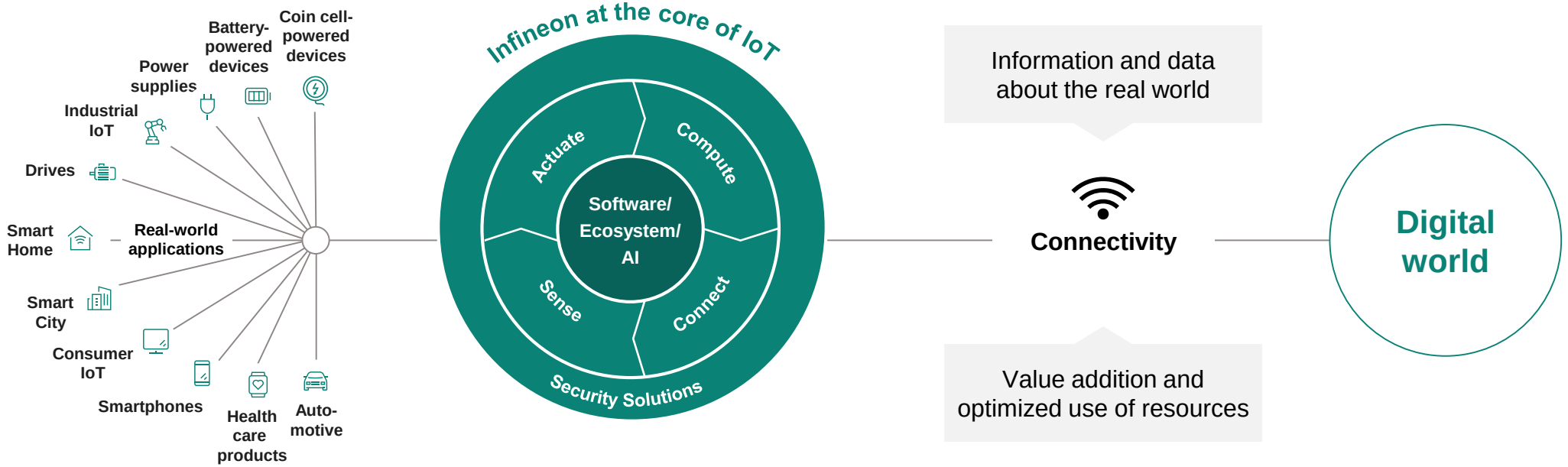
Industrial IoT



Automotive IoT



Products: MCU – Connectivity (Wi-Fi, BLE, NFC) – Sensors – Security – Power supply & switches



Copyright © Infineon Technologies AG 2026. All rights reserved.

Table of contents

1 Company overview 3

2 **Application introduction (definition, market potential, trends)** **7**

3 Application requirements & challenges and value proposition 11

4 Application block diagram 14

5 Application offering details 16

6 Get started today! 77

Copyright © Infineon Technologies AG 2026. All rights reserved.

Smart Door Lock at a glance

Market

- Smart Home & Building



- connectable devices that are used to **control access** to a specific area, without the need for a physical key

Application

- Smart Door Lock



- Residential
- Commercial
- Electronic Padlock
- Smart Locker

Challenges

- Extend battery lifetime
- Reliable connection and fast response
- Interoperability in smart home
- Accurate people presence detection
- Privacy and security

Solution

- Infineon is developing a differentiated system solution for smart door lock that accelerates time to market for our customers.
- Combining **PSOC™ HMI Microcontrollers, AIROC™ Wireless Connectivity, XENSIV™ Sensors, OPTIGA™ Security, SEMPER™ Memory** and the **right software enablement....**

Copyright © Infineon Technologies AG 2026. All rights reserved.

Product segments

Residential Smart Lock

- **Connected evolution** of traditional **residential door lock**
- Provides **secure access** while adding new levels of **convenience**
  - Flexibility through virtual keys
  - Identification<
  - Remote monitoring & control
- **Battery**-powered

Commercial Smart Lock

- Similar to Residential Smart Lock, with the following particularities:
  - Increased level of **security**
  - Focus on **wired** connectivity
  - **Tracking** for safety, first responder events
- **Mains**-powered

Pad Lock

- Connected evolution of traditional portable pad lock
- Typically use cases: to secure bicycle, changing room locker
- High focus on **miniaturization** and extended **battery life**

Adjacent Segments

- Products bearing **synergies** with the application, that can be addressed opportunistically:
  - Delivery/Smart Locker
  - Safe
  - Furniture

Copyright © Infineon Technologies AG 2026. All rights reserved.

New trends changing the business model

AI / Machine learning

- Doorbell/Keypad camera integration for Facial recognition, person/package delivery tracking
- Locks become an integral component in the Smart Home.

Advance Sensing

- Radar enabling robust presence detection and comprehension of environment
- 3D Time of Flight sensing for facial recognition
- Edge computing for advanced uses cases



Battery Locks

- Grow faster, ease of installation
- True wire-free operation
- Low power is key
- Low power island with always on co-processor

Connectivity Evolution

- Low power Wi-Fi with MCU integration
- UWB for autonomous entry/exit
- Matter for Smart Home ecosystem
- Aliro compatibility

Copyright © Infineon Technologies AG 2026. All rights reserved.

Table of contents

1 Company overview 3

2 Application introduction (definition, market potential, trends) 7

3 **Application requirements & challenges and value proposition** **11**

4 Application block diagram 14

5 Application offering details 16

6 Get started today! 77

Copyright © Infineon Technologies AG 2026. All rights reserved.

Application Requirements and Challenges

Requirements	Challenges	Infineon Enabling Technology
Longer battery life in battery operated device	- Low power consumption silicon - Method to save power in system level	- Infineon low power Wi-Fi and MCU extend battery life - Connectivity processor offload host
Robust and Reliable Connection	- Stability, low latency and broader coverage of wireless connection	- Infineon leading edge Wi-Fi 6/E solution - Infineon ePA reference design
Interaction with devices in smart home	- Interoperability between various wireless protocol	- Infineon leading solution of Matter
Accurate person presence detection	- Reduction of false positive	- Infineon Radar delivers accurate presence detection, reducing false positives with advanced use cases
Privacy and safe connection	- Turnkey embedded security solutions	- Infineon OPTIGA™ HW security - Infineon security ensure device integrity and secure channels

Copyright © Infineon Technologies AG 2026. All rights reserved.

Value Proposition

Ultra Low Power System Solutions

- Always on Wi-Fi connection
- MCU integration in Wi-Fi, for total BOM reduction
- Offloading network activities from host for system-level power saving
- NFC Energy Harvest to prolong battery life



Robust and Reliable Connection

- High performance next gen standard WiFi6/6E
- Tri-band support, higher throughput
- NFC + BLE + UWB for Homekey
- Keep alive for reliable connection and BOM saving

Matter

- Leader in CSA
- Flexibility and future-proofing: Matter over Wi-Fi and Matter over Thread
- Highest security level for device onboarding
- High performance radios (range, stability, throughput)

Advanced Radar and Sensing

- Robust presence detection (PIR sensor replacement)
- Advanced uses cases for radar (precise motion tracking, people counting, arrival direction)
- High-performance 3D Magnetic Position sensor
- Edge computing

Security

- Integrating Infineon security IP with compute and connectivity.
- Pre-provisioning for safer manufacturing in a complex value chain
- Tamper-resistance: against physical attacks
- Layered security approach for defense in depth and zero trust architecture.

Unified Developer Experience

Copyright © Infineon Technologies AG 2026. All rights reserved.

Table of contents

1 Company overview 3

2 Application introduction (definition, market potential, trends) 7

3 Application requirements & challenges and value proposition 11

4 **Application block diagram** **14**

5 Application offering details 16

6 Get started today! 77

Copyright © Infineon Technologies AG 2026. All rights reserved.

Tomorrow, Residential Smart Locks will have these functional blocks:

Technical Description

MCUs:
- Sensor hub (door front): a low-power secure microcontroller, used in battery-powered locks for sensor aggregation & HMI
- Application MCU (door back): manages secure lock activation, FWOTA, connectivity HOST

Wireless Connectivity:
- Wi-Fi/Bluetooth for direct smartphone access, lock configuration and control (local & remote)
- Bluetooth Low Energy for Wi-Fi network setup
- Matter: Locks are a supported application
- UWB (emerging) for autonomous access, Apple Home Key

Sensors:
- 3D Magnetic position sensor for door bolt position
- 3D ToF Sensor for FaceID
- RADAR for AoA, AoD, People Counting
- Microphone for 2-way communication, acoustic event detect
- Fingerprint sensor for biometric based lock actuation

Security:
- Hardware security for secure TLS connection
- Secure certificate storage (Matter), battery authentication

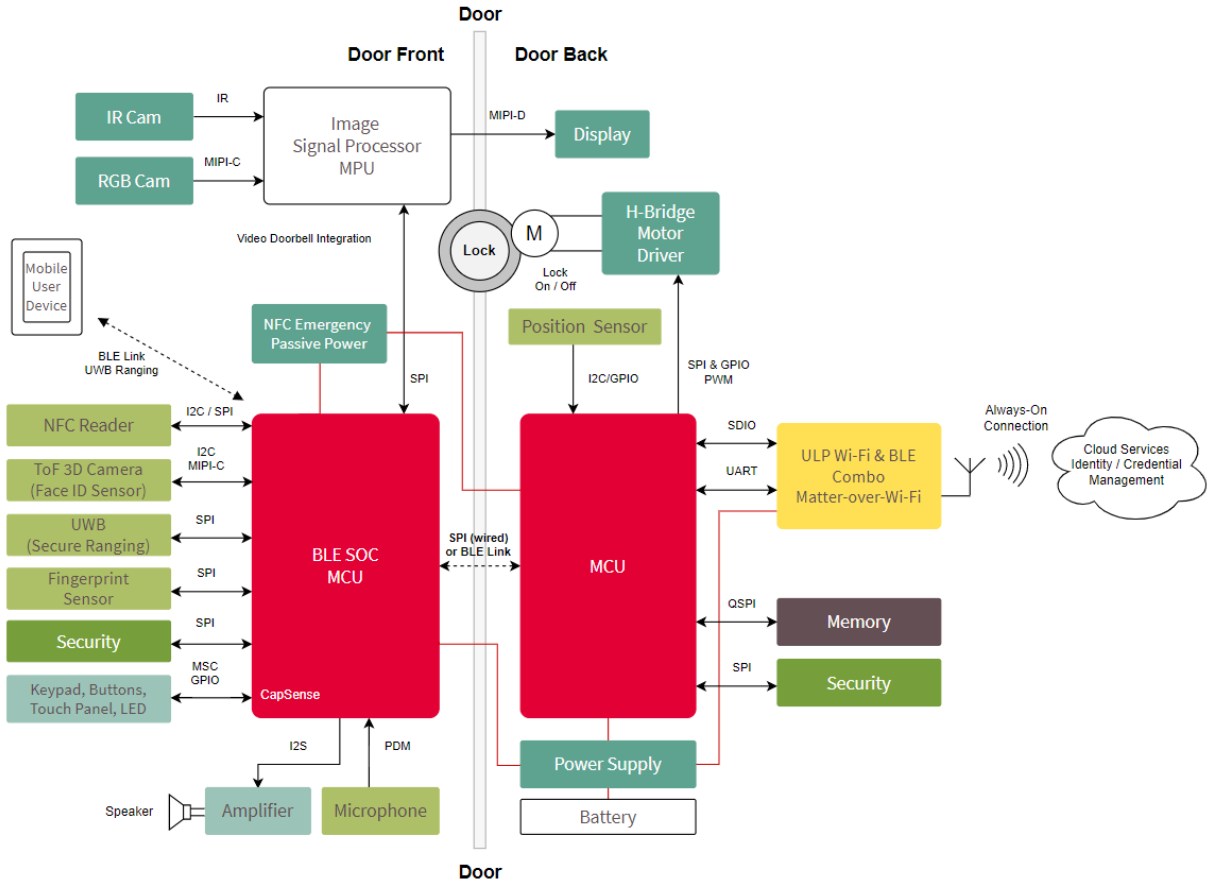
Human Machine Interface:
- CapSense/MagSense for robust keypad entry
- Lock actuation with audio and alarms

Power / Energy / Motor:
- NFC Energy Harvesting for emergency/supplemental power

Memory:
- Serial Flash for boot start up and code storage (OTA)
- NV storage for access control safety data

Cloud and Services:
- Value-added solutions like in-situ wireless performance & connection diagnosis, people counting algorithms, etc.

Functional Block Diagram



Infineon offering

- › PSOC 4 M0/M0+ processor
- › PSOC 6 M4-M0+ processor
- › PSOC Edge M55-U55 compute

- › Low power Wi-Fi/BT Combo
- › High performance Wi-Fi6/6E
- › Low power Wi-Fi/LE MCU
- › Matter over Wi-Fi/Thread

- › XENSIV™ 24/60 GHz Radar
- › XENSIV™ MEMS Microphone
- › XENSIV™ 3D Magnetic Sensor

- › OPTIGA™ Trust M/M Express
- › OPTIGA™ Authenticate S

- › Cap/MagSense™ Controllers

- › Voltage/switching regulators
- › Full/Half Bridge IC's

- › SEMPER™ Nano Flash
- › ULTREON™ RRAM

Copyright © Infineon Technologies AG 2026. All rights reserved.

Table of contents

1 Company overview 3

2 Application introduction (definition, market potential, trends) 7

3 Application requirements & challenges and value proposition 11

4 Application block diagram 14

5 **Application offering details** **16**

6 Get started today! 77

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon IoT Compute & Wireless (ICW)
Microcontroller Portfolio Overview

	Entry-level MCUs 32-bit Arm® Cortex® **M0/M0+** (32–384KB Flash)	Mid-to High-Performance MCUs 32-bit Arm® Cortex® **M33/M4/M7/M55/M85** (128KB–4MB Flash)		Crossover MCUs 32-bit Arm® Cortex® **M55/M85** (up to16MB R/SRAM)
Consumer/IoT MCUs	**PSOC 4 Series** **Flexible PSOC™ 4 MCUs** with M0/M0+, analog sensor integration, CAPSENSE™ capacitive touch, inductive sensing, wired and wireless connectivity such as USB, CAN, and BLE	**PSOC 6 Series** **Ultra-low power PSOC™ 61 & 62 MCUs** with M4/M0+ dual-core and EPC security, ideal for battery powered applications	**PSOC Edge 3/5** (2027) **Next-gen of main-line IoT/Consumer MCUs**	**PSOC Edge 8** (ES: Q423, MP: Q225) **PSOC™ Edge high performance MCUs** targeting low power, connected HMI (audio, sound, voice, graphics, vision) and ML-enhanced sensing and real-time applications. Up to PSA L4/EPC4 security
Connected MCUs	**PSOC 4 Bluetooth** **PSOC™ 4 MCU with AIROC™ Bluetooth LE** for IoT applications where ultra low sleep current, CAPSENSE™, analog IOs for sensor data acquisition along with BLE are required	**PSOC 63** **PSOC™ 63 MCU with AIROC™ Bluetooth LE** and M4/M0+ dual-core for low-power IoT devices, optimized for AI/ML Edge **55912/3** Hatchet-1 CP **AIROC™ Wi-Fi 6/6E+BLE Combo MCU** with M33 for ultra-low power with Wi-Fi Range Boost; Matter over Wi-Fi	**20829/89829** **Atomic** (2027) **Helium** (2026) **PSOC™ Connect Wi-Fi 6+BT MCUs with M33** for mainstream Matter over Wi-Fi	**Xenon** (Planned)
Industrial MCUs	**XMC 1000** **XMC™ 1000 entry-level MCUs** with M0 for industrial applications like power tools, LED lightning, eBike and fan motor control	**XMC 4000** **XMC™ 4000 MCUs** with M4F, built-in DSP instruction set, designed for digital power conversion, motor control, sense & control, and IO applications. **XMC™ 4300 and 4800** with integrated EtherCAT® **XMC 5000** **XMC™ 5000** with M4F for industrial applications, 5V high pin count and functional safety **XMC 7000** **XMC™ 7000 low-power MCUs** with single- or dual-core M7 are built on 40-nm process technology addressing high-end industrial applications	**PSOC Control C3** **PSOC™ Control C3 MCUs** with M33 single- and dual-core, real-time control with high speed control loops, analog and timers. SiC/GaN ready (high switching speeds), up to PSA L3/EPC3 security	**PSOC Control C5/8** (Planned)

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon IoT Compute & Wireless (ICW)
PSOC™ 4 Portfolio – Entry-level MCUs with superior HMI capabilities

PSOC™ 4	**32-bit Arm® Cortex® M0/M0+** 16-48MHz 16KB/2KB < **Flash/SRAM Capacity** > 384KB/32KB	Capacitive Sensing (self) / + Capacitive Sensing (mutual) / + Inductive & Liquid Sensing
PSOC™ 4700 **Sense Anything**	PSOC 4700	**3rd Gen Inductive and capacitive sensing** USB 2.0, CAN
PSOC™ 4500 **Motor & Power Control**	PSOC 4500S	**Divide and square-root compute accelerators**
PSOC™ 4200 **Programmable Digital**	PSOC 4200, PSOC 4200DS, PSOC 4200M, PSOC 4200L, PSOC 4200BL	**Intelligent analog features programmable digital blocks** USB 2.0, CAN 4200BL: On-chip Bluetooth® LE
PSOC™ 4100 **Intelligent Analog**	PSOC 4100, PSOC 4100S, PSOC 4100M, PSOC 4100BL, PSOC 4100S Plus, PSOC 4100S Max, PSOC 4100PS, PSOC 4100T Plus (MP: Q225), PSOC 4100T Plus 256KB (Planned)	**Entry-level features plus programmable analog blocks** Up to 1-Msps ADC 4100S Max and 4100T Plus : 5th gen CAPSENSE™ with Multi-Sense IP, enabled for Inductive & Liquid sensing 4100BL: On-chip Bluetooth® LE
PSOC™ 4000 **Entry-level**	PSOC 4000, PSOC 4000S, PSOC 4000T, PSOC 4000T Plus (Planned)	**Entry-level family with CAPSENSE™** 4000T: 5th gen CAPSENSE™ with Multi-Sense, supporting capacitive and inductive sensing

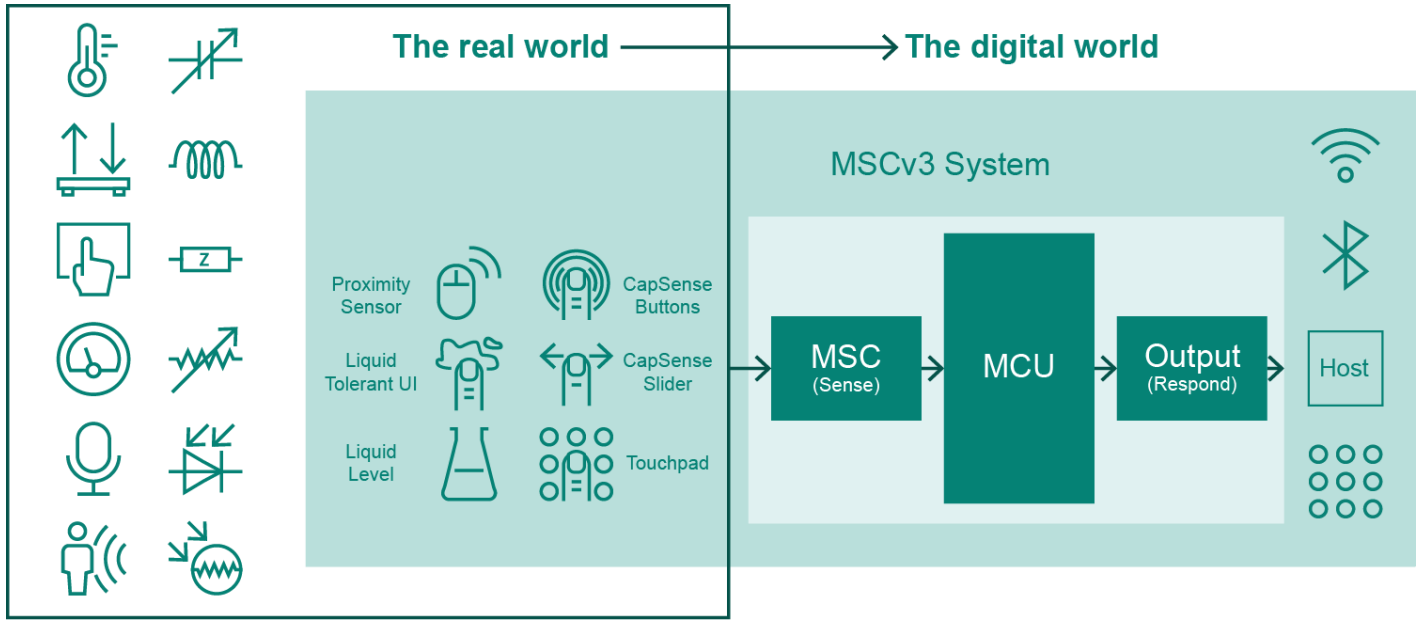
ModusToolbox™ – Easy-to-use software and tools enabling rapid development of PSOC™, covering applications from embedded sense and control to wireless and cloud-connected systems

Copyright © Infineon Technologies AG 2026. All rights reserved.

5th Generation Sensing Technology – Multi Sense Converter

Taking World Class Technology to the Next Level…

- An improved ratio-metric architecture (Output ~ Cs/Cref)
- Multi-Sense Converter:
  - Capacitive sensing (Self and Mutual)
  - Inductive sensing
  - Sensor (Impedance, Current & Resistor)
- 10x higher signal-to-noise ratio performance
  - <100aF rms noise floor for Cs=8pF
  - Supports Cs up to 200pF
- 10x lower power, Autonomous operation without CPU
  - Sensing block operation with DMA
  - Offload CPU bandwidth
- Other key enhancements
  - Flat spot reduction
  - Temperature stability
  - Multi-chip, Multi-channel & External sync



Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ 4000T

Applications

Touch controller for Wearable, Hearable, Smart devices and other consumer applications

Features

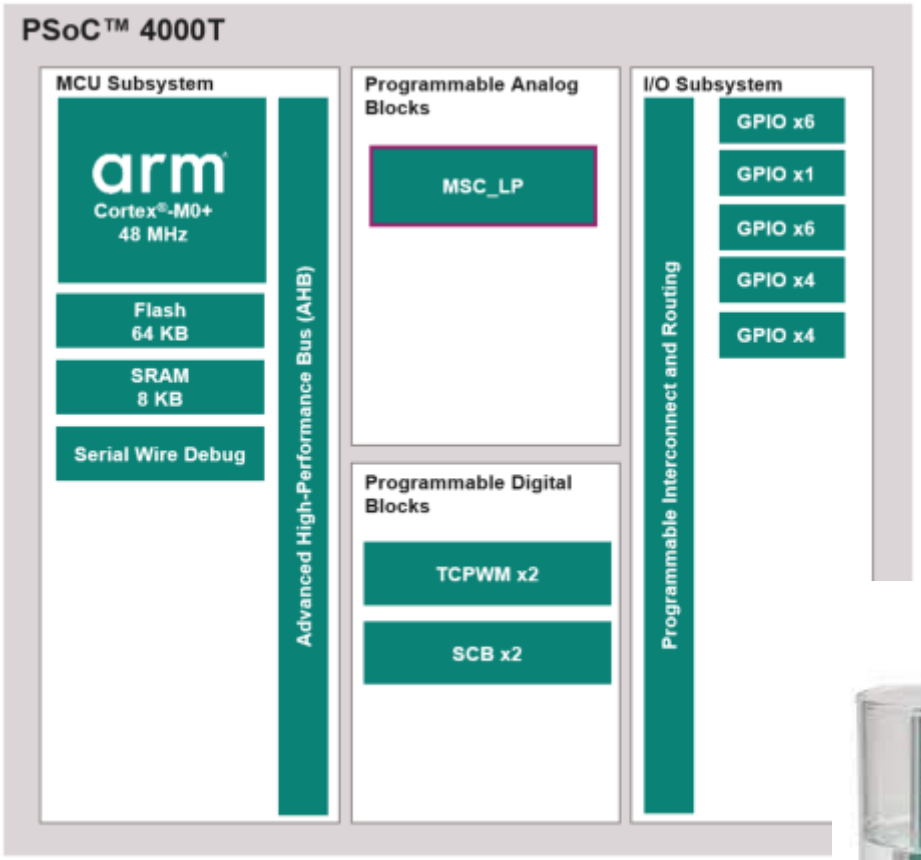
32-bit MCU Subsystem
- 48-MHz Arm® Cortex®-M0+ CPU
- 64 KB flash and 8 KB SRAM

MSC (Multi-Sense Convertor) with next-generation CapSense®
- 5th Generation CapSense sensing block
- "Always-ON" sensing enabled ultra-low power technology
- Supports self-cap, mutual-cap and inductive sensing technologies
- Supports upto 16 sensors

Programmable Digital Blocks
- Two 16-bit timer/counter/pulse-width modulator (TCPWM) blocks
- Two serial communication blocks (SCBs) that are configurable as I^2C, SPI, or UART

I/O Subsystem
- Up to 21 GPIOs, including 16 sensors

Packages
- 25-WLCSP, 24-QFN, 16-QFN





Copyright © Infineon Technologies AG 2026. All rights reserved.

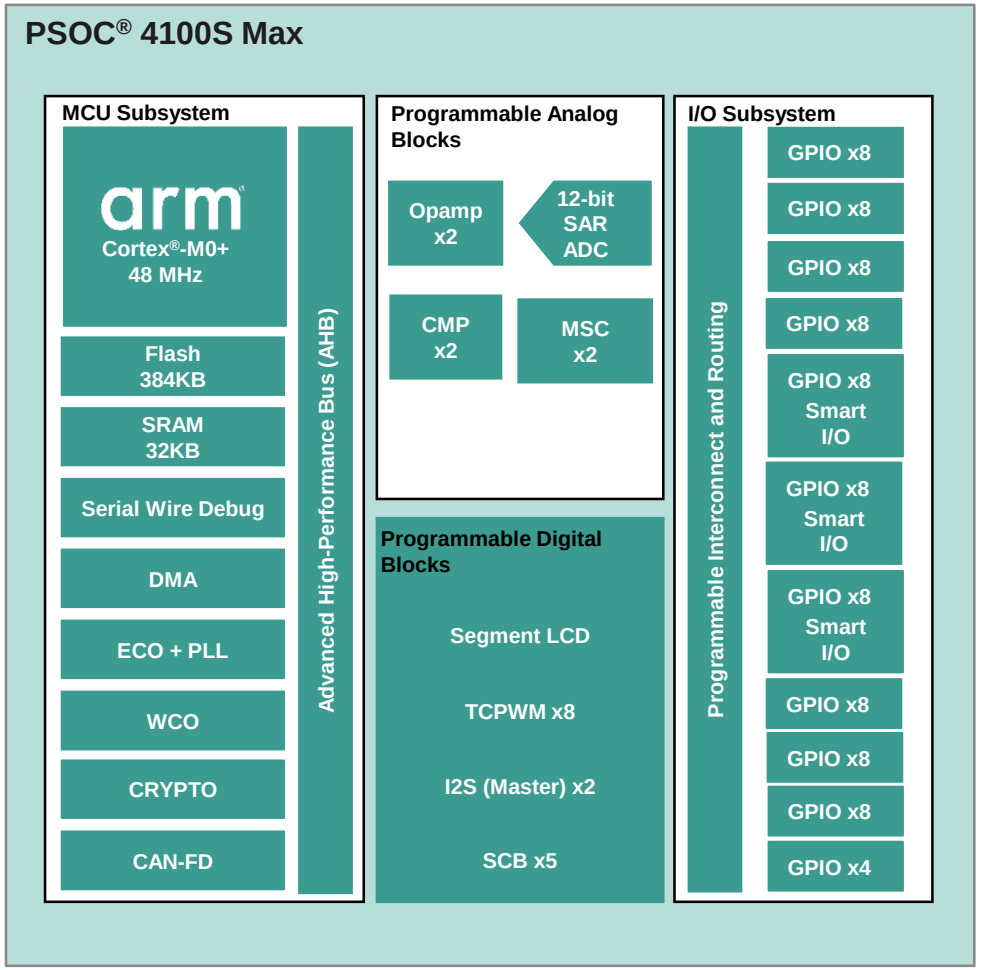
PSOC™ 4100S Max

Application

Main control and user interface for home appliance, consumer, and industrial applications

Features

- **32-bit MCU Subsystem**
  - 48-MHz Arm® Cortex®-M0+ CPU with a DMA controller
  - 384KB flash and 32KB SRAM
  - External MHz oscillator (ECO) with PLL and 32-kHz watch crystal oscillator (WCO)
  - CRYPTO block include AES, TRNG, PRNG, CRC and SHA
- **Programmable Analog Blocks**
  - One 12-bit, 1-Msps SAR ADC
  - Two opamps configurable as programmable gain amplifiers (PGAs), comparators (CMPs), etc.
  - Two low-power comparators
  - Two MSC (Multi-Sense Convertor) blocks for next-generation CapSense® technology
- **Programmable Digital Blocks**
  - Eight 16-bit timer/counter/pulse-width modulator (TCPWM) blocks
  - Five serial communication blocks (SCBs) that are configurable as I²C, SPI, or UART
  - Segment LCD
  - Two I2S Master channels
- **One CAN-FD (Controller Area Network with Flexible Data-rate) Controller**
- **Packages**
  - 48-TQFP, 64-TQFP and 100-TQFP
- **I/O Subsystem**
  - Up to 84 GPIOs, including 24 Smart I/Os[1]



Collateral

Datasheet: Contact Sales

Availability

Sampling: NOW
Production: NOW

[1] Embedded programmable digital logic in the I/O subsystem

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon IoT Compute & Wireless (ICW)
PSOC™ 6 Portfolio – Purpose-built Microcontrollers for the IoT

PSOC™ 6	**32-bit Arm® Cortex® M4/M0+/M33** 50-150MHz 256/128KB < **Flash/SRAM Capacity** > 2048/1024KB	
PSOC™ 63 **Bluetooth® LE**	PSOC 6346, PSOC 6347	**Bluetooth® Low Energy MCUs** Dual-Core 150/100MHz M4/M0+ BLE stack supporting BT5.4
PSOC™ 62 **High Performance**	PSOC 6244, PSOC 6245, PSOC 6246, PSOC 6247, PSOC 6248, PSOC 624A	**High Performance MCUs** Dual-Core 150/100MHz M4/M0+ Low-power Flash
PSOC™ 61 **Entry-level**	PSOC 6144, PSOC 6145, PSOC 6146, PSOC 6147, PSOC 6148, PSOC 614A	**M4 Entry-level MCUs** Single-Core 50-150MHz M4 Low-power Flash

ModusToolbox™ – Easy-to-use software and tools enabling rapid development of PSOC™, covering applications from embedded sense and control to wireless and cloud-connected systems

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ 6: Dual-core architecture, ideal for lock design

- Most flexible, high-performance, dual-core architecture designed specifically for the IoT
  - Optimize for system power consumption and performance
  - CPU core selection based on application needs
  - Inter-processor communication (IPC) enables the CPUs to communicate and synchronize activities
  - Dynamic voltage/frequency scaling with low power (LP) (0.9 V & 50 MHz) and ultra low power (ULP) (1.1V & 150 MHz) operating modes

Example application mapping between CPU

Cortex®-M4 Usage examples:

RTOS

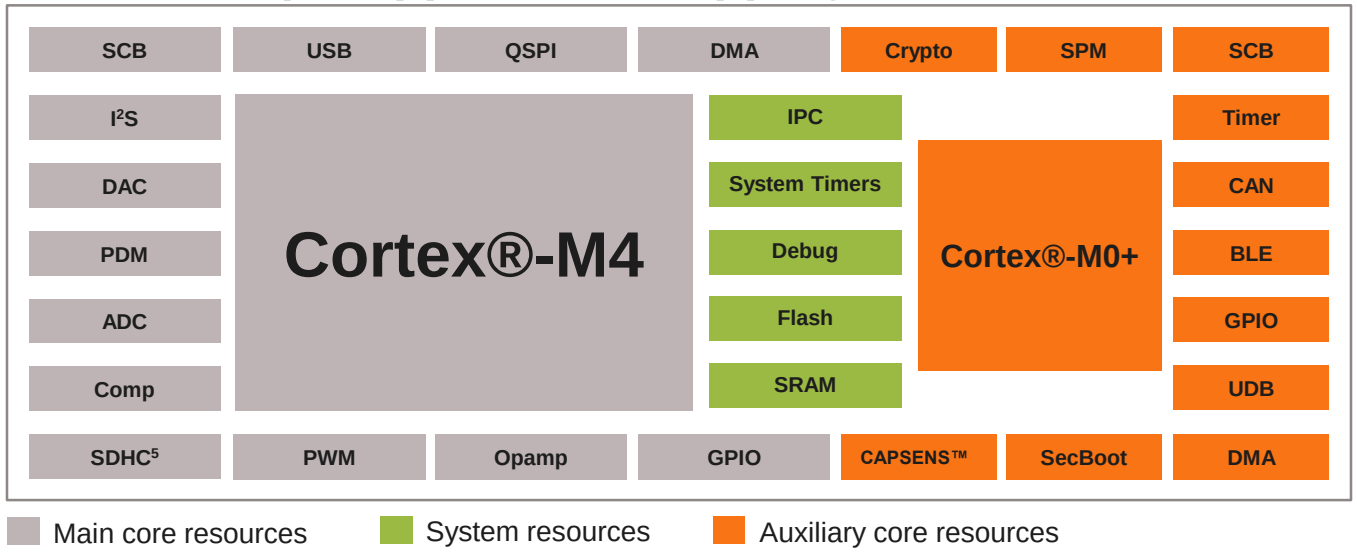
Wi-Fi stack

Displays

Sensor analytics

Audio interface

USB/BLE HCI



Cortex®-M0+ Usage examples:

BLE controller

CAPSENSE™

Secure functions

I/O data control

Sensor aggregation

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ 62 Line - Specification

NDA only

Applications

IoT gateways, smart home, home appliances, HMI, audio processing, and industrial concentrators

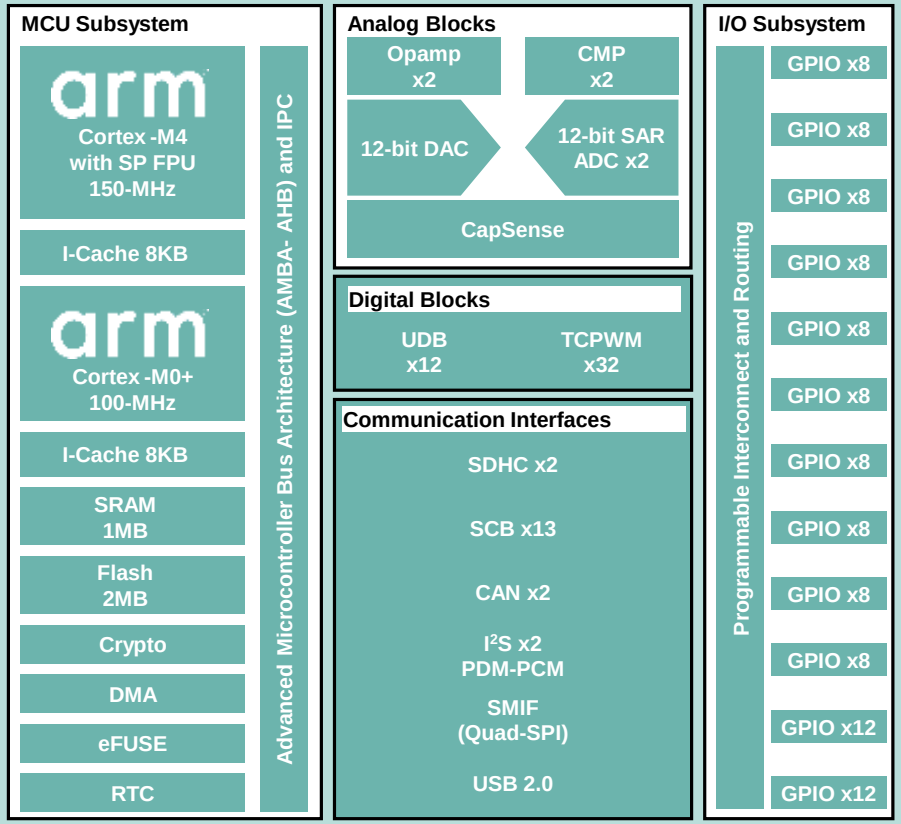
Features

- **MCU Subsystem**
  - Dual-core architecture: 150-MHz Arm® Cortex®-M4 and 100-MHz Arm Cortex-M0+
  - Ultra-low-power (0.9 V) and low-power (1.1 V) operation mode
  - Up to 2MB Flash, 1MB SRAM with DMA
- **Analog Blocks**
- **2 x opamps, 2 x low-power comparators (CMP), 2x 12-bit SAR ADC (1 Msps)**
  - 12-bit DAC, CapSense® capacitive-sensing block
- **Digital Blocks and Communication Interfaces**
  - 12 x universal digital blocks (UDBs): custom digital peripherals
  - 24 x 16-bit and 8 x 32-bit timer/counter/pulse-width modulation blocks (TCPWM)1
  - 12 x serial communication blocks (SCBs), deep-sleep SCB
  - 2 x I2S and PDM-PCM converter, SMIF, 2 x CAN
  - 2 x SDHC blocks
  - USB 2.0 (Host and Device)
- **Security Features**
  - Advanced cryptographic coprocessor (Crypto) and True random number generator
  - One-time programmable eFUSE for secure key storage
  - Secure over-the-air (OTA) firmware update with read-while-write Flash technology for firmware updates
- **I/O Subsystem: Up to 104 GPIOs**
- **Packages: 124-BGA, 100-WLCSP, 128-TQFP, 100-TQFP, 80-TQFP, 80-WLCSP, 68-QFN, 64-TQFP, 49-WLCSP**

Collateral

Datasheet: PSOC 6 Product Page

PSOC® 6200



Availability

Sampling: Now **Production**: Now

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ Edge – Next Gen MCU based Edge Device Platform

Fully Integrated MCU SoC Family with Comprehensive Tools, Software & Enablement

… enables developers of tomorrow's applications to move faster, with a richer set of capabilities, at lower system power and cost

System/Software Compatibility

100% Pin Compatibility

High Performance & Low Power Compute

- Cortex-M55 MCU core with Helium™ DSP
- Cortex-M33 MCU core for always-on operation
- Embedded ultra low-power RRAM technology

More Memory Resources & SoC Integration

- More and more memory available for next-gen apps
- Richer Peripheral set to reduce system cost

More Robust Security

- Infineon Edge Protect Technology (EPC2 or EPC4)

Enablement

- ModusToolbox: Software, tools, middleware & more
- Rich hardware platform for development & evaluation

E81

E82

Machine Learning

- Ethos-U55 and NN-Lite for AI/ML hardware NN compute

E83

Graphics

- Graphics fully synchronized with voice and smart apps

E84

Driving tomorrow's products with:

More Features
Lower Power
More Security
Motor Control
Advanced ML

- Presence/Gesture/Motion
- Predictive Mainenance
- Anomaly Detection
- Autonomous Operation
- Etc.

Voice
Vision
Access & Safety
Graphics

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ Edge E8 MCU Family

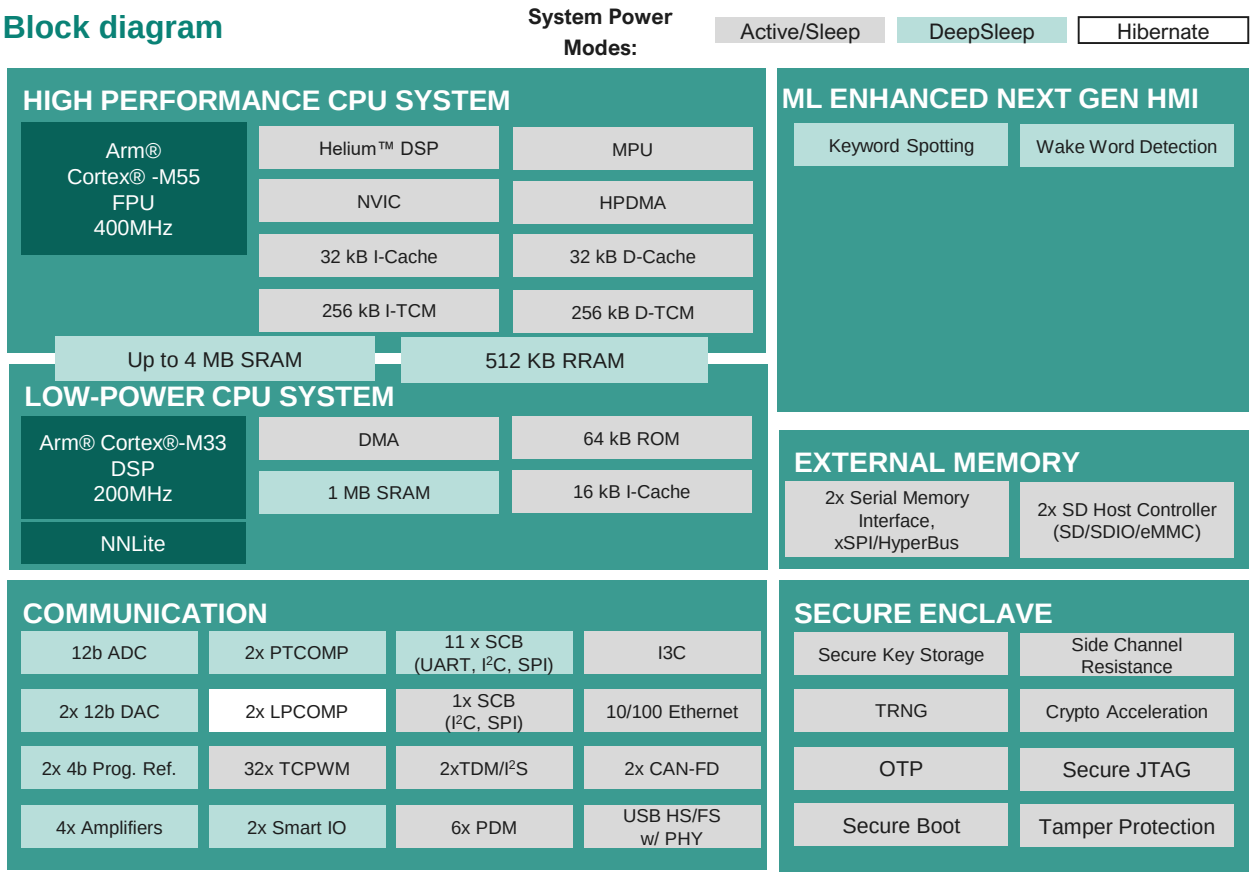
	PSOC™ Edge E81 Base	PSOC™ Edge E82 Base + GFX	PSOC™ Edge E83 Base + NPU + Vision	PSOC™ Edge E84 Base + NPU + Vision + GFX
Processor	Cortex-M55 + DSP Cortex-M33	Cortex-M55 + DSP Cortex-M33	Cortex-M55 + DSP Cortex-M33	Cortex-M55 + DSP Cortex-M33
Machine Learning	DSP NN accelerator, NNLite	DSP NN accelerator, NNLite	DSP NN accelerator, NNLite, U55-128	DSP NN accelerator, NNLite, U55-128
SRAM	Up to 4 MB (System RAM) Up to 1 MB (Low-Power Domain)	Up to 4 MB (System RAM) Up to 1 MB (Low-Power Domain)	Up to 4 MB (System RAM) Up to 1 MB (Low-Power Domain)	Up to 5 MB (System RAM) Up to 1 MB (Low-Power Domain)
RRAM / NVM	512 kB	512 kB	512 kB	512 kB
External Memory	2x SMIF, 2x SD Host Controller	2x SMIF, 2x SD Host Controller	2x SMIF, 2x SD Host Controller	2x SMIF, 2x SD Host Controller
Audio/Voice	ULP Always ON prog. analog for voice, audio, sensing 4x Analog Mic, 6x Digital Mic Acoustic Activity Detection & NNLite Wake Word	ULP Always ON prog. analog for voice, audio, sensing 4x Analog Mic, 6x Digital Mic Acoustic Activity Detection & NNLite Wake Word	ULP Always ON prog. analog for voice, audio, sensing 4x Analog Mic, 6x Digital Mic Acoustic Activity Detection & U55 ML-based Wake Word & Full Voice Inferencing	ULP Always ON prog. analog for voice, audio, sensing 4x Analog Mic, 6x Digital Mic Acoustic Activity Detection & U55 ML-based Wake Word & Full Voice Inferencing
Graphics	No	LP 2.5D GPU Up to 1024 x 768, MIPI-DSI/DBI formats	No	LP 2.5D GPU Up to 1024 x 768, MIPI-DSI/DBI formats
Vision	No	No	Position Detection/Face Recognition/Object Detection (VGA) via USB	Position Detection/Face Recognition/Object Detection (VGA) via USB
Peripherals & IO	USB, 10/100 Ethernet, CAN, SPI, UART, I2C, I3C, I2S	USB, 10/100 Ethernet, CAN, SPI, UART, I2C, I3C, I2S	USB, 10/100 Ethernet, CAN, SPI, UART, I2C, I3C, I2S	USB, 10/100 Ethernet, CAN, SPI, UART, I2C, I3C, I2S
Security	Secured Enclave, Edge Protect Category 2 and 4	Secured Enclave, Edge Protect Category 2 and 4	Secured Enclave, Edge Protect Category 2 and 4	Secured Enclave, Edge Protect Category 2 and 4
Packages	BGA-220, 10x10, 0.65p WLB-154, 4.3x5.3, 0.35p	BGA-220, 10x10, 0.65p WLB-154, 4.3x5.3, 0.35p	BGA-220, 10x10, 0.65p WLB-154, 4.3x5.3, 0.35p	BGA-220, 10x10, 0.65p eWLB-235, 7x7, 0.4p WLB-154, 4.3x5.3, 0.35p
Availability	Samples – Q2-2025 Production – Q2-2025	Samples – Q2-2025 Production – Q2-2025	Samples – Q2-2025 Production – Q2-2025	Samples – Now Production – Q2-2025

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ Edge E81

Next Generation, Low-Power MCU

Block diagram



Applications and Target Markets

- Smart Home, Appliances, Residential AC, Wearables, Industrial HMI, Smart Speakers, Point of Sale (POS), etc.

Product Highlights

- **High performance, real-time compute domain:**
  - Cortex®-M55 w FPU + Helium DSP
  - Up to 4 MB System SRAM, 256 KB I&D TCMs
- **Low power, real-time compute domain:**
  - Cortex®-M33 and DSP + IFX NNLite for ML
  - 512 KB RRAM, 1 MB SRAM
- **HMI:**
  - Traditional MCU HMI
  - Keyword Spotting & Wake Word Detection
- **ML:** NNLite, Advanced ML leveraging U55 and NNLite
- **Peripherals & IO:**
  - USB, 10/100 Ethernet, CAN, SPI, UART, I2C, I3C, I2S
  - Ultra-low-power always-on analog
- **Security:** Secured Enclave @ 25 JIL pts, fit for ARM PSA L2/L4

Operating Range

- -20 to 85°C Ta (Consumer), -40 to 105°C Ta (Industrial)

Status/Availability

- **In Development, prelim. DS available**
- **Samples & EVK** available (Edge E84)
- **Qualified samples** Q2 2025
- **SOP:** Q2 2025

Packages

WLB154
(4.3x5.3mm, 0.35mm)

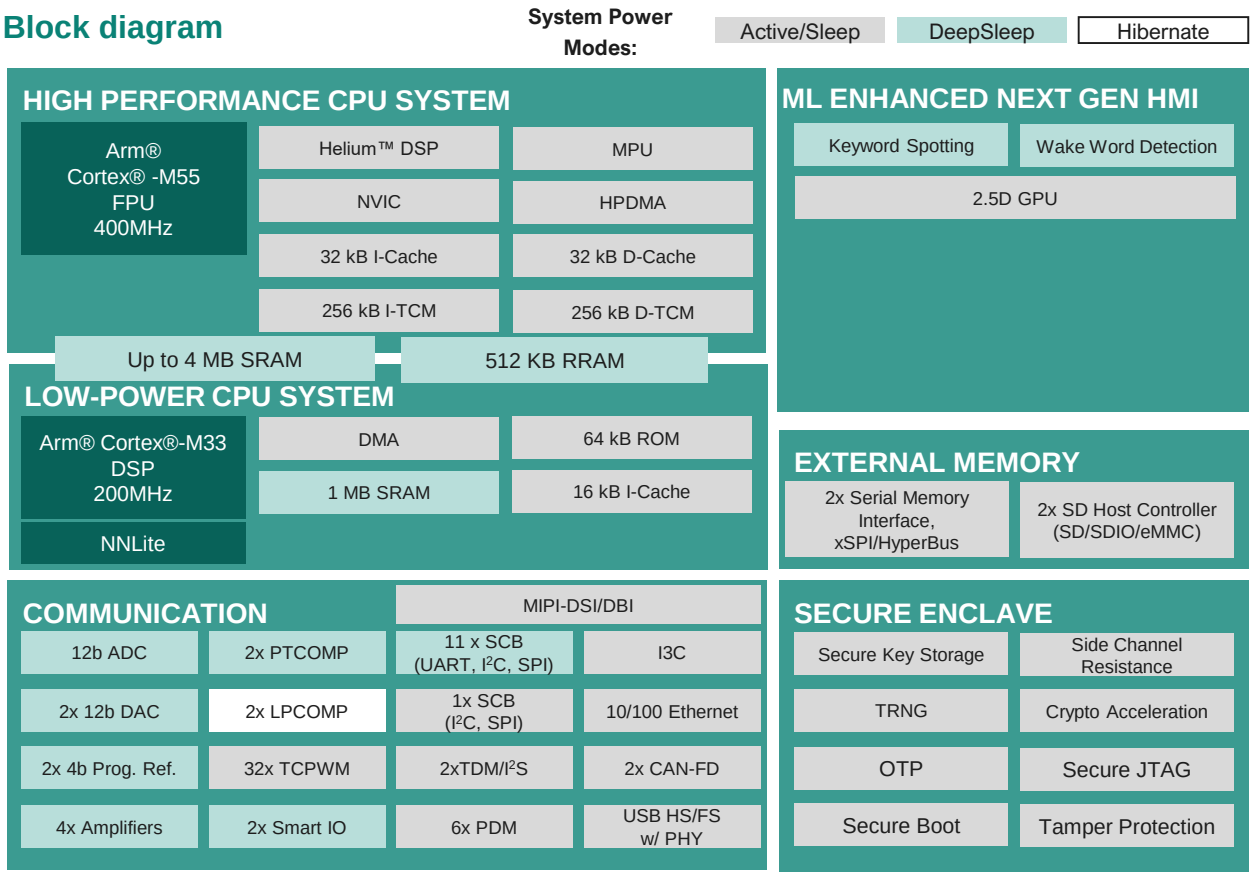
BGA220
(10x10mm, 0.65mm)

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ Edge E82

Next Generation, Low-Power MCU

Block diagram



Status/Availability

- **In Development, prelim. DS available**
- **Samples & EVK** available (Edge E84)
- **Qualified samples** Q2 2025
- **SOP:** Q2 2025

Packages

WLB154
(4.3x5.3mm, 0.35mm)

BGA220
(10x10mm, 0.65mm)

Applications and Target Markets

- Smart Home, Appliances, Residential AC, Wearables, Industrial HMI, Smart Speakers, Point of Sale (POS), etc.

Product Highlights

- **High performance, real-time compute domain:**
  - Cortex®-M55 w FPU + Helium DSP
  - Up to 4 MB System SRAM, 256 KB I&D TCMs
- **Low power, real-time compute domain:**
  - Cortex®-M33 and DSP + IFX NNLite for ML
  - 512 KB RRAM, 1 MB SRAM
- **HMI:**
  - Traditional MCU HMI
  - Keyword Spotting & Wake Word Detection
  - **Low power Graphics, up to 1024x768, MIPI-DSI/DBI**
- **ML:** NNLite
- **Peripherals & IO:**
  - USB, 10/100 Ethernet, CAN, SPI, UART, I2C, I3C, I2S
  - Ultra-low-power always-on analog
- **Security:** Secured Enclave @ 25 JIL pts, fit for ARM PSA L2/L4

Operating Range

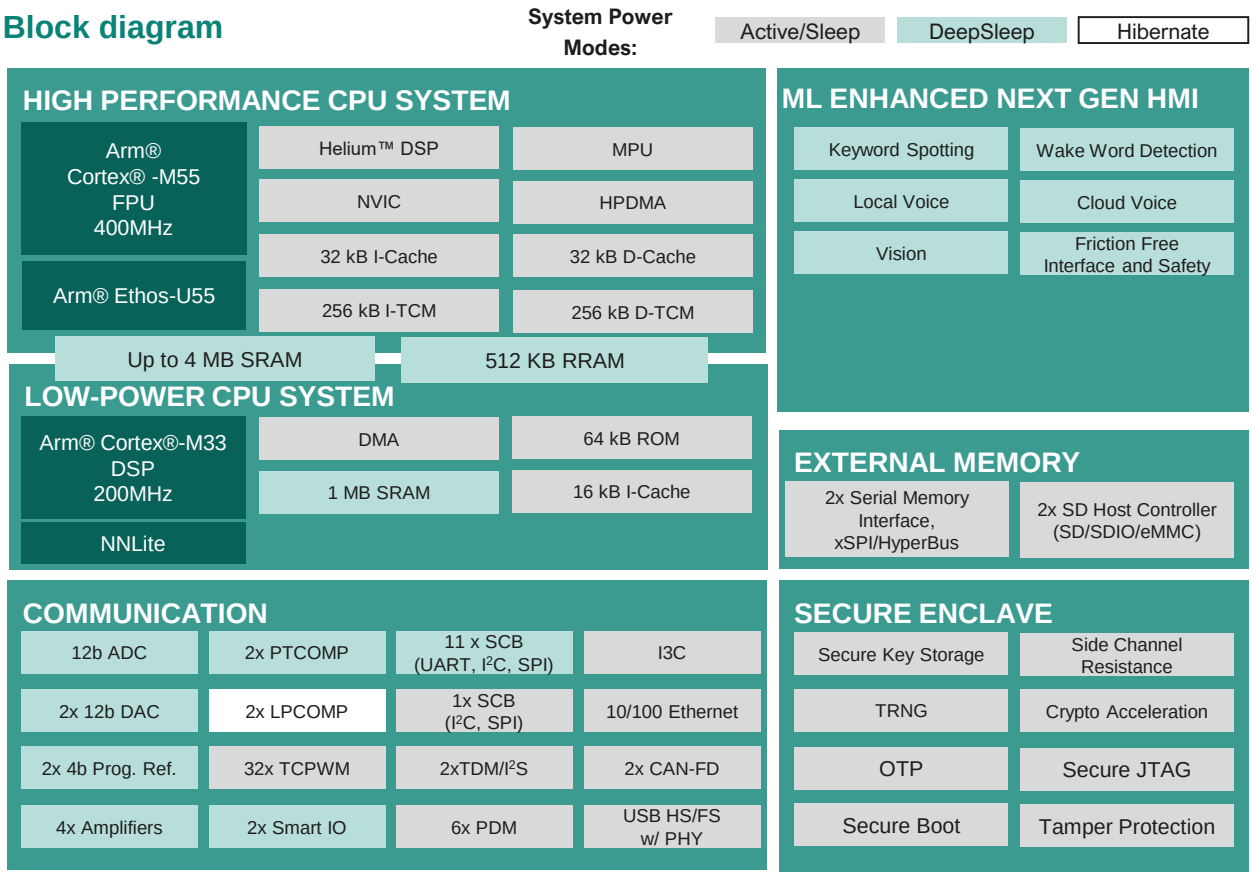
- -20 to 85°C Ta (Consumer), -40 to 105°C Ta (Industrial)

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ Edge E83

Next Generation, Low-Power MCU

Block diagram



Status/Availability

- **In Development, prelim. DS available**
- **Samples & EVK** available (Edge E84)
- **Qualified samples** Q2 2025
- **SOP:** Q2 2025

Packages

WLB154
(4.3x5.3mm, 0.35mm)

BGA220
(10x10mm, 0.65mm)

Applications and Target Markets

- Smart Home, Appliances, Residential AC, Wearables, Industrial HMI, Smart Speakers, Point of Sale (POS), etc.

Product Highlights

- **High performance, real-time compute domain:**
  - Cortex®-M55 w FPU + Helium DSP + **Ethos-U55 for ML**
  - Up to 4 MB System SRAM, 256 KB I&D TCMs
  - Low power, real-time compute domain
  - Cortex®-M33 and DSP + IFX NNLite for ML
  - 512 KB RRAM, 1 MB SRAM
- **HMI:**
  - Traditional MCU HMI
  - **Local voice, cloud voice**
  - **Vision for friction free interface & safety**
- **ML:** Advanced ML leveraging Ethos-U55 and NNLite
- **Peripherals & IO:**
  - USB, 10/100 Ethernet, CAN, SPI, UART, I2C, I3C, I2S
  - Ultra-low-power always-on analog
- **Security:** Secured Enclave @ 25 JIL pts, fit for ARM PSA L2/L4

Operating Range

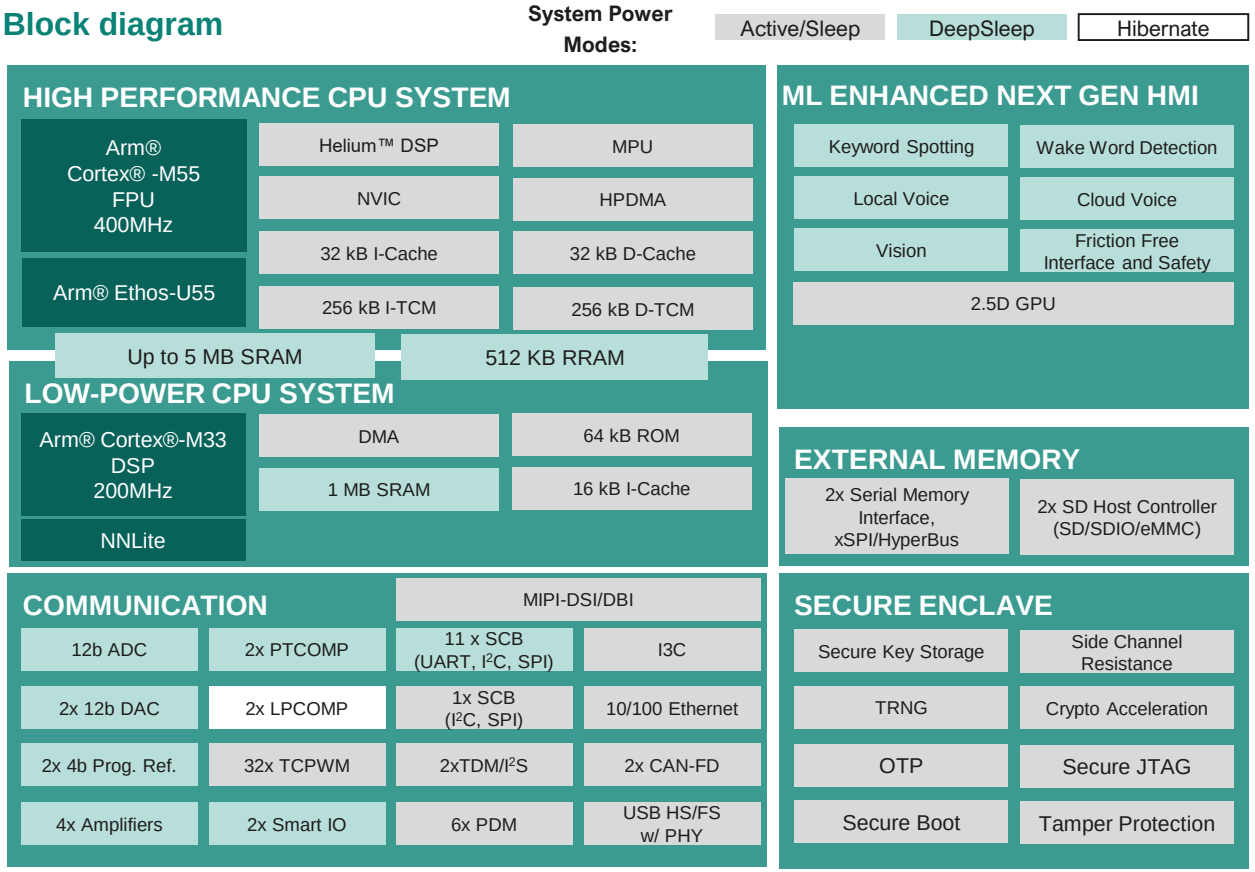
- -20 to 85°C Ta (Consumer), -40 to 105°C Ta (Industrial)

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ Edge E84

Next Generation, Low-Power ML MCU Adds Graphics

Block diagram



Status/Availability

- **In Development, prelim. DS available**
- **Samples & EVK** available (Edge E84)
- **Qualified samples** Q2 2025
- **SOP:** Q2 2025

Packages

WLB154
(4.3x5.3mm, 0.35mm)

eWLB235
(7x7mm, 0.4mm)

BGA220
(10x10mm, 0.65mm)

Applications and Target Markets

- Smart Home, Appliances, Residential AC, Wearables, Industrial HMI, Smart Speakers, Point of Sale (POS), etc.

Product Highlights

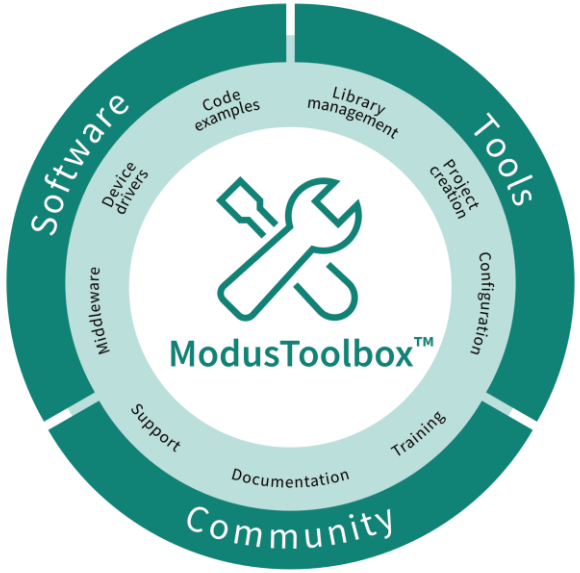
- **High performance, real-time compute domain:**
  - Cortex®-M55 w FPU + Helium™ DSP + Ethos-U55 for ML
  - **Up to 5 MB System SRAM**, 256 KB I&D TCMs
- **Low power, real-time compute domain:**
  - Cortex®-M33 and DSP + IFX NNLite for ML
  - 512 KB RRAM, 1 MB SRAM
- **HMI:**
  - Traditional MCU HMI
  - Local voice, cloud voice
  - Vision for friction free interface & safety
  - **Low power Graphics, up to 1024x768, MIPI-DSI/DBI**
- **ML:** Advanced ML leveraging Ethos-U55 and NNLite
- **Peripherals & IO:**
  - USB, 10/100 Ethernet, CAN, SPI, UART, I2C, I3C, I2S
  - Ultra-low-power always-on analog
- **Security:** Secured Enclave @ 25 JIL pts, fit for ARM PSA L2/L4

Operating Range

- -20 to 85°C Ta (Consumer), -40 to 105°C Ta (Industrial)

Copyright © Infineon Technologies AG 2026. All rights reserved.

ModusToolbox™ – Development ecosystem



- ModusToolbox™ Software is a modern, extensible development ecosystem supporting a wide range of Infineon microcontroller devices.
- Provided as collection of development tools, libraries, and embedded runtime assets architected to provide a flexible and comprehensive development experience.

Development Tools

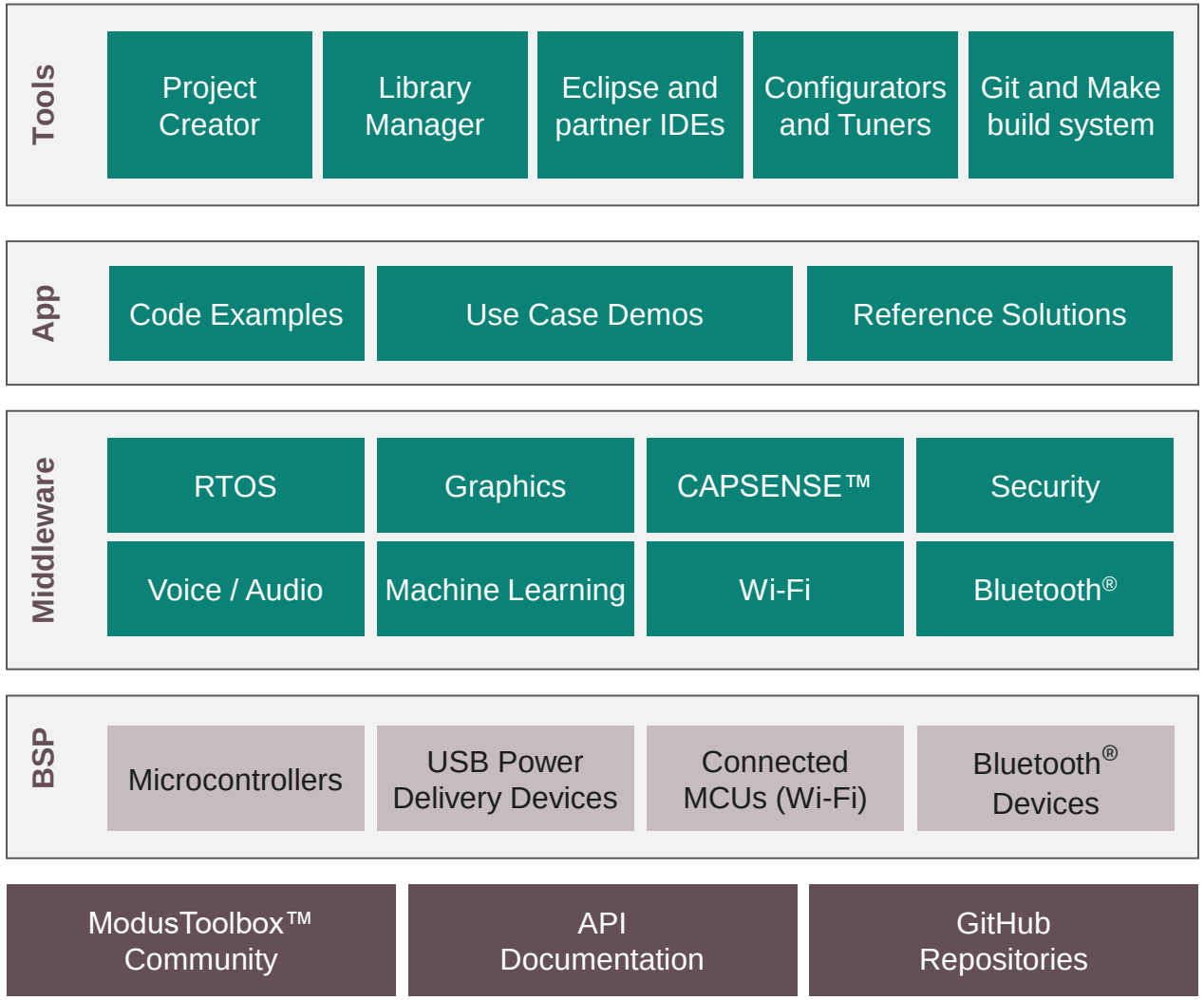
The ModusToolbox™ tools package includes desktop programs that enable the creation of new embedded applications, managing software components, configuring device peripherals and middleware, and embedded development tools for compiling, programming, and debugging.

Run-Time Software

The ModusToolbox™ software includes an extensive collection of GitHub-hosted repositories comprised of code examples, board support packages, middleware, and application support.

Copyright © Infineon Technologies AG 2026. All rights reserved.

ModusToolbox™ – Comprehensive collection of resources

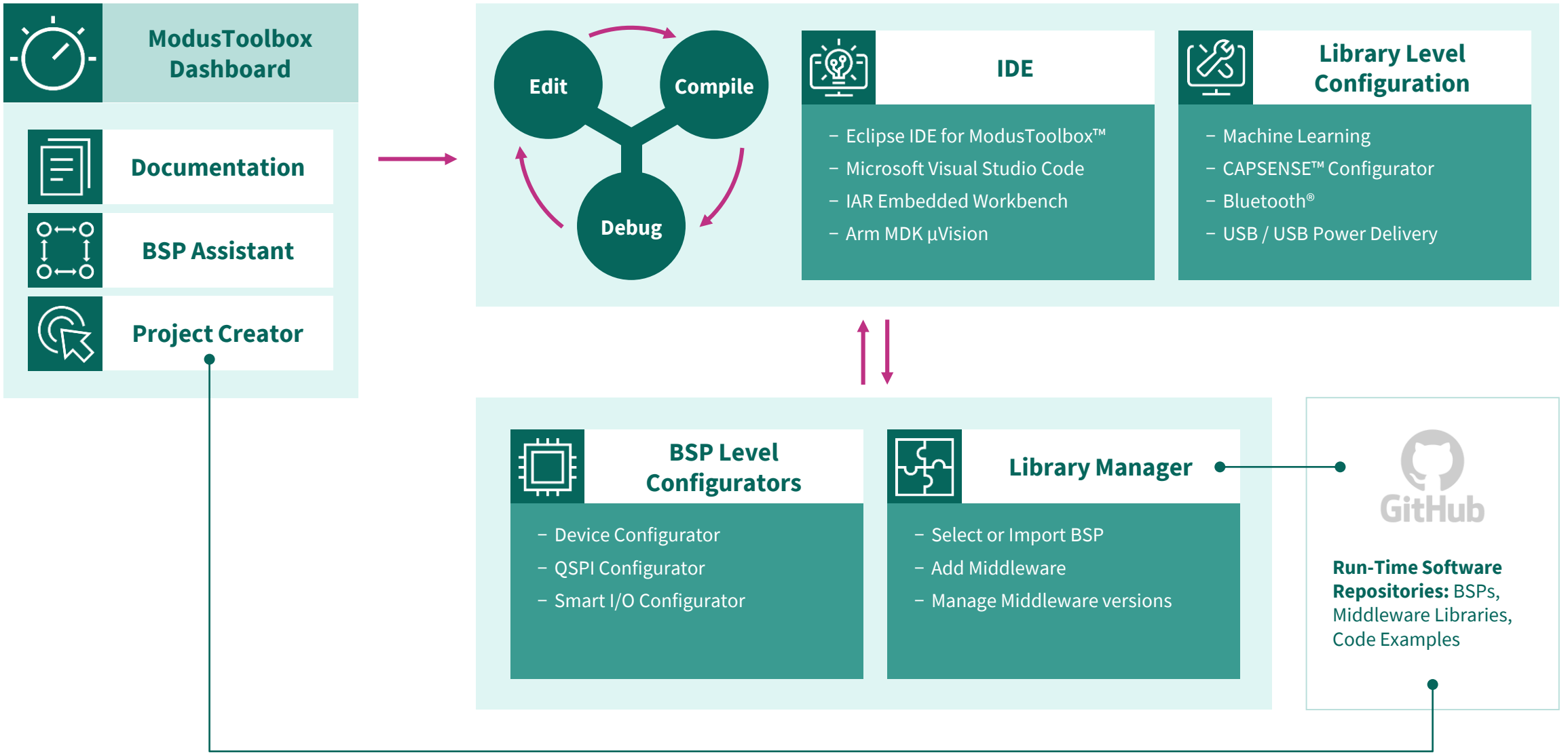


Enablement throughout the application development process

- IDEs – VS Code / IAR / Arm Keil / Eclipse
- Configurators and Code Generation
  - Device Configuration (Pins / Clocks)
  - CAPSENSE Configuration and Tuning
- Application Development Resources
- Middleware from Infineon and the ecosystem
- Board Support Packages / Device Packages
- Support and Documentation Resources
- Training Manuals and How-To Videos

Copyright © Infineon Technologies AG 2026. All rights reserved.

ModusToolbox™ – Complete development workflow



Copyright © Infineon Technologies AG 2026. All rights reserved.

ModusToolbox™ – Flexible Development Environment



Supported IDEs

- Eclipse IDE w/ Arm GCC
  (included with ModusToolbox™ installation)
- Microsoft Visual Studio Code
- IAR Embedded Workbench
- Arm Microcontroller Developers Kit – µVision

Command-line Interface

- Make based build system with full CLI
- Scriptable build environment
- Integrable into Continuous Integration (CI) and source code management systems

Copyright © Infineon Technologies AG 2026. All rights reserved.

DEEPCRAFT™ Studio + ModusToolbox™: from ML model development to embedded software

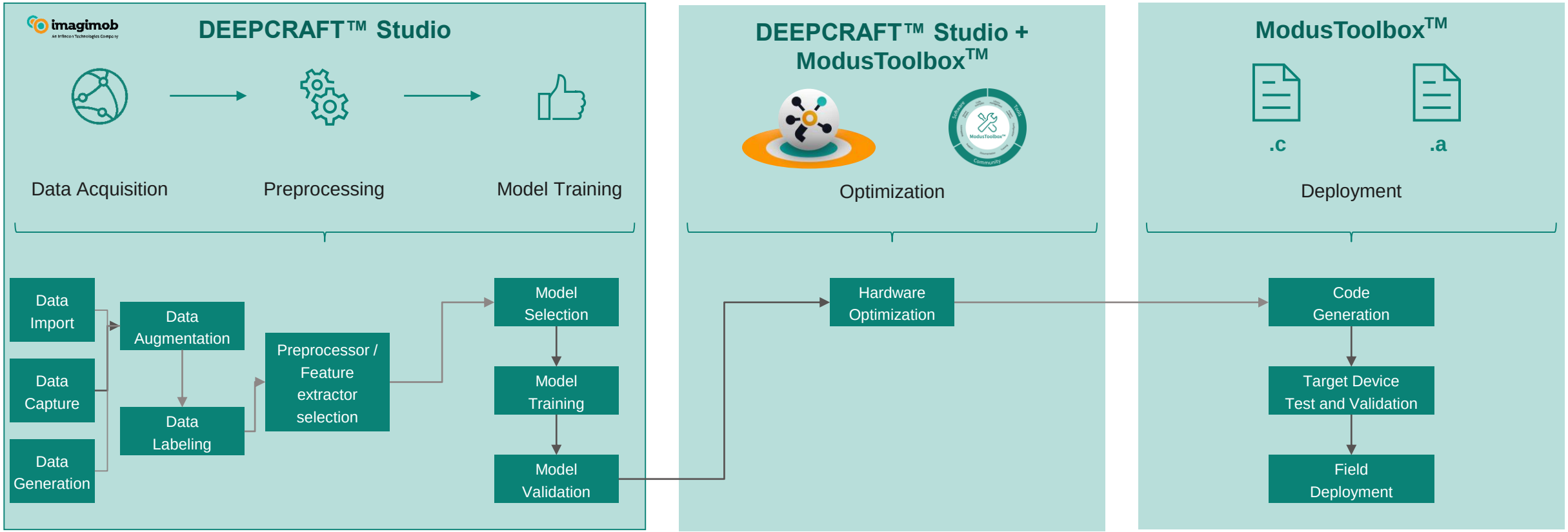
Bring your own data

Bring your own model — OR

Buy a Ready Model

Optimize & validate your model

Develop your embedded product with IFX MCUs



Copyright © Infineon Technologies AG 2026. All rights reserved.

Add AI to your devices easily with DEEPCRAFT™ Ready Models

DEEPCRAFT™ Ready Models

- These off-the-shelf models are the **fastest way to take Edge AI into production**
- Every model is **designed for the edge, with low memory and power consumption, and fast inference times**
- Trained by **our machine learning experts**
- **Comprehensively tested** on a large library of different datasets to ensure they work in all intended scenarios
- **Optimized for Infineon MCUs**, available for other MCUs

DEEPCRAFT™ Ready Models enable Edge AI solutions for wearables, smart homes, industrial, automotive and more!

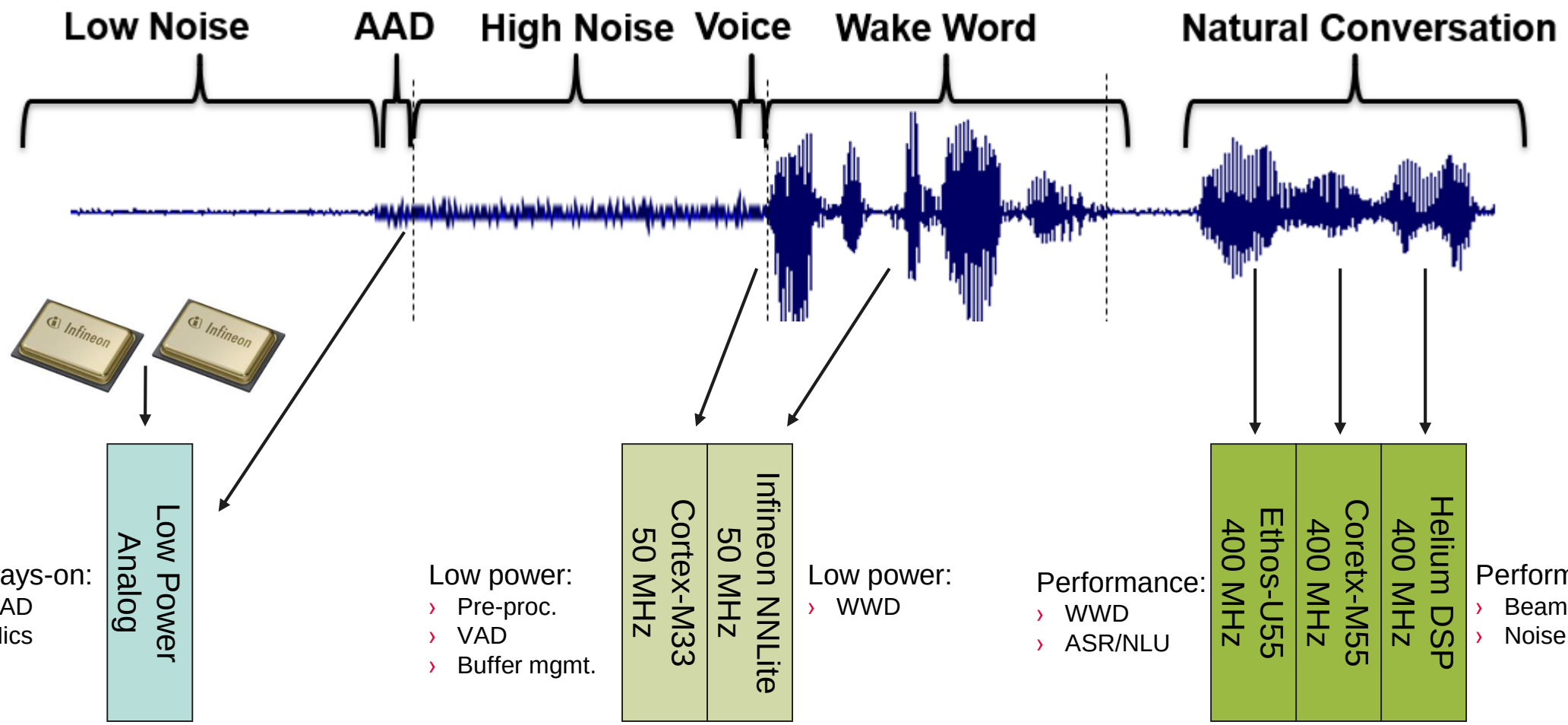
- Baby Cry Detection
- Cough Detection
- Direction of Arrival
- Fall Detection
- Factory Alarm Detection
- Siren Detection
- Snore Detection
- Gesture Detection

Audio
Radar
Accelerometer

Copyright © Infineon Technologies AG 2026. All rights reserved.

Always-on Natural Conversation

High performance at low power



Always-on:
- AAD
- Mics

Low power:
- Pre-proc.
- VAD
- Buffer mgmt.

Low power:
- WWD

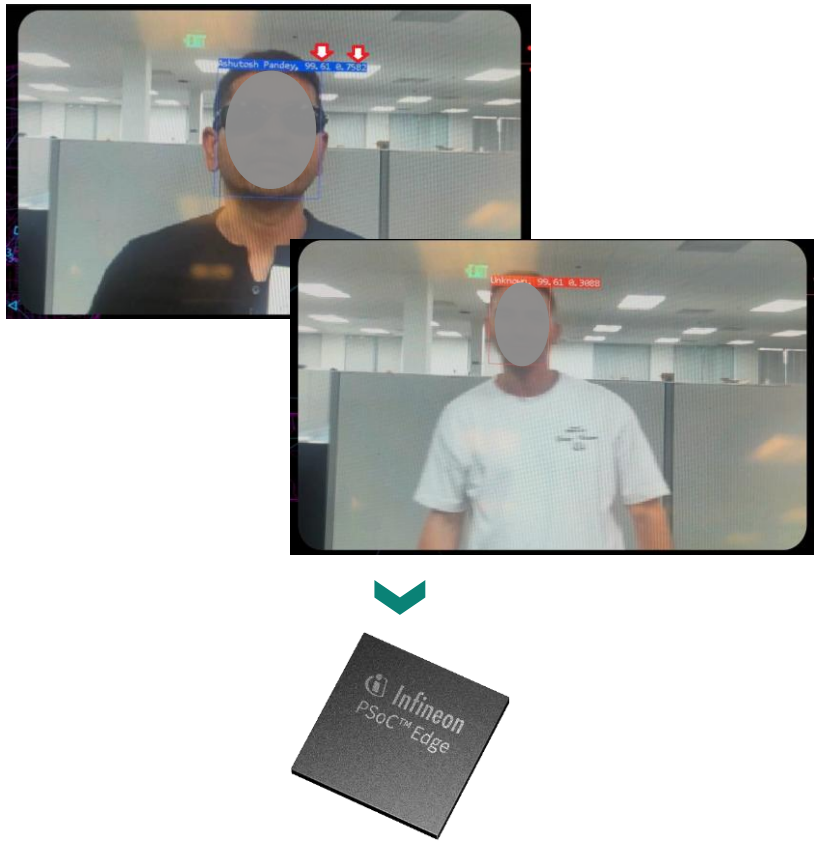
Performance:
- WWD
- ASR/NLU

Performance:
- Beam forming
- Noise suppression

Copyright © Infineon Technologies AG 2026. All rights reserved.

DEEPCRAFT™ Face ID Solution

Ultra low power through full acceleration of Neural Network models on PSOC™ Edge



Solution Overview

- **Unparalleled Accuracy:** State-of-the-art cascaded neural network architecture delivers exceptional accuracy (>96%) with extremely low false positives (1 in 1 million)
- **Multi-Face Detection:** Recognize and track multiple faces simultaneously
- **Scalable Enrollment:** Designed to handle large numbers of face enrollments, with testing up to 1,500 unique faces
- **Real-Time Performance:** Achieve low latency face recognition at speeds over 25 FPS
- **Efficient Power Consumption:** Ultra-low power face identification, accelerated by built-in Neural Processing Unit (NPU)
- **Enhanced Privacy:** Built-in privacy features ensure encoded user representation for secure face recognition
- **Streamlined Enrollment:** Tooling for fast and accurate face enrollment, simplifying the onboarding process

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon IoT Compute & Wireless (ICW)

AIROC™ Wi-Fi + Bluetooth® Combo Roadmap (NDA)

Wi-Fi Combos		Wi-Fi 4 5	Wi-Fi 6 6E
2x2 AIROC™	High Performance	**54590/1** **Wi-Fi 5 DB 80MHz** **BT/LE 5.1** 2x2 MIMO (54590) 1+1 RSDB (54591) PCIe/SDIO	**55572/3** Hatchet-2 **Wi-Fi 6/6E DB/TB 80MHz** **BT/LE 6.0** 2x2 MIMO Range boost, PCIe/SDIO BT/LE audio PSA L1/EPC1 security
1x1 AIROC™	High Performance	**4373/E** **Wi-Fi 5 DB 80MHz** **BT/LE 5.4** PCIe/SDIO/USB -40 to 85C	**55570/1** Hatchet-2 **Wi-Fi 6/6E DB/TB 80MHz** **BT/LE 6.0** Range boost, PCIe/SDIO BT/LE audio PSA L1/EPC1 security
	Ultra Low Power	**43022** **Wi-Fi 5 DB 20MHz** **BT/LE 5.4** Embedded BT/LE stack Secure boot + FW auth 20dBm BT, shared SDIO/SPI 65% lower sleep power Pin to Pin with 43012	**55512/3** Hatchet-1 **Wi-Fi 6/6E DB/TB 20MHz** **BT/LE 6.0** Range boost, shared SDIO/SPI BT/LE audio w/ embedded stack PSA L1/EPC1 security
			6413 Diamond ES: Q126 MP: Q226 **Wi-Fi 7 DB/TB 20MHz, LE 6.0/CS 15.4/Thread** 1x1 MLSR Range boost shared SDIO/SPI 18dBm LE/15.4 PSA L1/EPC1
	Mainstream	**43439** **Wi-Fi 4 SB 20MHz** **BT/LE 5.4** Shared SDIO	**55532/3** Hatchet-1 W **Wi-Fi 6/6E DB/TB 20MHz** Range boost, USB/SDIO/SI PSA L1/EPC1 security

SB: 2.4GHz Single-Band; **DB:** 2.4/5GHz Dual-Band; **TB:** 2.4/5/6GHz Tri-Band

Linux, Android, RTOS – Low Power, Robust Wireless, RF Coexistence, Network Offload, Context Aware, Advanced Security

Copyright © Infineon Technologies AG 2026. All rights reserved.

CYW43022: Ultra Low-Power 1x1 DB Wi-Fi 5 + Bluetooth® 5.3 Combo

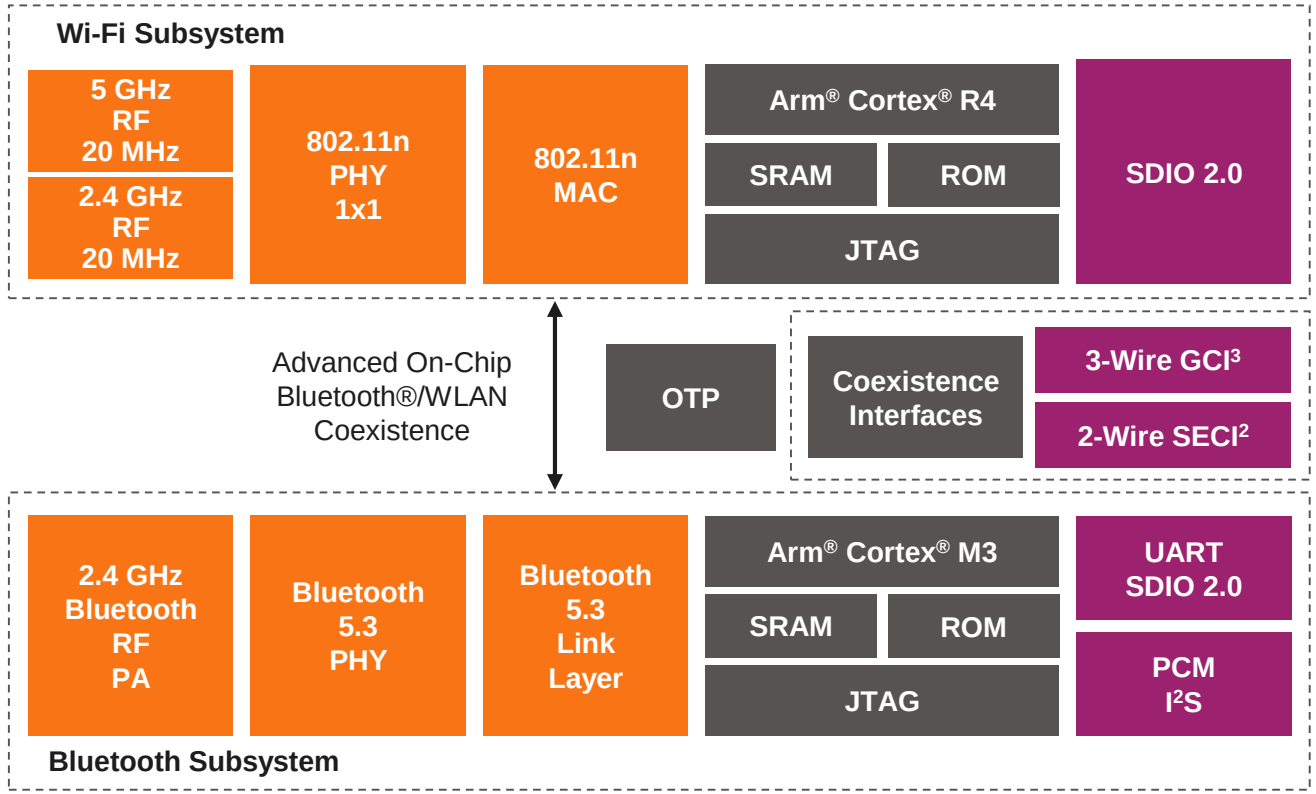
Features

- **802.11n-compliant Wi-Fi**
  - Up to 72.2-Mbps data rate
  - Dual band (2.4/5 GHz) with on-chip PAs and LNAs
  - SDIO 3.0 interface (up to 50 Mbps)
- **Low-power 802.11ac compliance in 5 GHz**
  - 256-QAM support on 20-MHz channels in the 5-GHz band
  - MCS8 enables up to 78-Mbps data rate
- **New Deep Sleep mode enabling improved DTIM power states**
  - Wi-Fi Host Offloads
  - ~100ms additional recovery time from deep sleep
- **Bluetooth® 5.3 Compliant**
  - All Bluetooth® 4.2 optional features and Bluetooth® 5.3 2-Mbps LE, 2Mbps
  - Class 1 (100 m) and Class 2 (10 m) operation
  - **Class 1 BT PA +20dBm Transmit Power with updated output power control**
  - Host controller interface (HCI)-over-UART
  - SDIO Shared with Wi-Fi
- **Security**
  - Secure boot with FW Image authentication using signed firmware
  - Access restriction
  - Memory/Trust Protection
  - Remote Procedure Execution Avoidance
- **Packages (Pin-for-Pin Drop In for CYW43012)**
  - WLBGA, WLCSP

Applications

IP Cameras, Door-Bells, Thermostats, Smart Door Bells, Battery Powered IoT

Wireless Connectivity Family | CYW43022

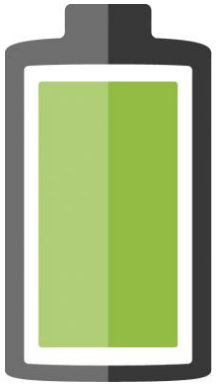


Availability

In Production

Copyright © Infineon Technologies AG 2026. All rights reserved.

43022 Ultra-Low Power Wi-Fi Design Enables Longer Battery Life



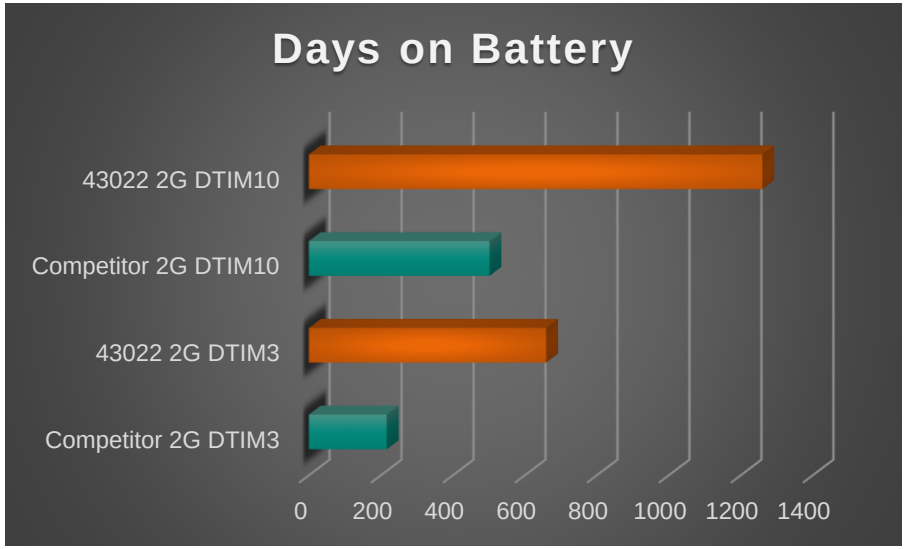
Low power

70% ↓ Sleep power consumption than competitor Wi-Fi products

>50% ↓ Idle connected power consumption than competitor Wi-Fi products

Mode	Band (GHz)	Channel (MHz)	CYW43022	Competitor 28nm 1x1 20MHz Device	Units	Power Savings Advantage
Sleep	2.4	20	0.05	0.17	mW	ê70%
DTIM 1	2.4	20	0.9	1.8	mW	ê50%
DTIM 3	2.4	20	0.36	0.88	mW	ê59%
DTIM 10	2.4	20	0.13	0.37	mW	ê65%

43022 enables 2-3x longer Battery life



10 data exchanges per day, 100Kb TX, 10Kb RX for each exchange
Based on CR123A battery (1550mAh / 3V)

Copyright © Infineon Technologies AG 2026. All rights reserved.

CYW55513/2/1 – Low Power 1x1 Wi-Fi 6/6E Tri-Band + BT 5.4 Combo

Features

Wi-Fi/WLAN Features
- 20MHz channel BW with support for 11ax 2/4/8MHz OFDMA Channels
- 11ax Range Improvements: ER-PPDU, Longer Guard Intervals, 6E Band
- **+24dBm** at DSSS-1Mbps/11Mbps and Legacy Pre-Amble Boost
- **-101.5dBm sensitivity at 1Mbps for improved range**
- 11ax Target Wake Time (TWT) saves power and improves coexistence
- High network efficiency/reduced contention w/ BSS Color and Dynamic CCA
- **Support for internal or external LNA/PA and antenna diversity**

Bluetooth Features
- Low Power Bluetooth / BLE 5.4
- **Embedded or Hosted Bluetooth/BLE Airoc Stack**
- **Embedded LE Isochronous Channels w/LC3 CODEC for BLE Audio**
- **LE 2M, LE LR, ADV Extensions,**
- 3 output power paths optimized for best efficiency: **0/ +13/ +19dBm**
- **Support Bluetooth antenna shared with Wi-Fi or dedicated Bluetooth Ant**

Interfaces
- SDIO 3.0, Shared SDIO, GSPI interfaces for WLAN
- HSUART or Shared SDIO for Bluetooth, Audio: **2xTDM (I2S/PCM), DMIC**
- Supports **internal 1% accuracy 32.7kHz LPO (Wi-Fi)** or external crystal LPO

Coexistence
- Advanced coexistence 2-Wire BTSIG WCI-2 (LTE) and 3-Wire (ZigBee)

Security
- Lifecycle Management, Secure Boot, FW authentication and encryption, Crypto Key Establishment and Management, Crypto Offloads, Anti-Rollback
- Arm Trustzone Crypto-Cell 312 → PSA Level 1 Certifiable

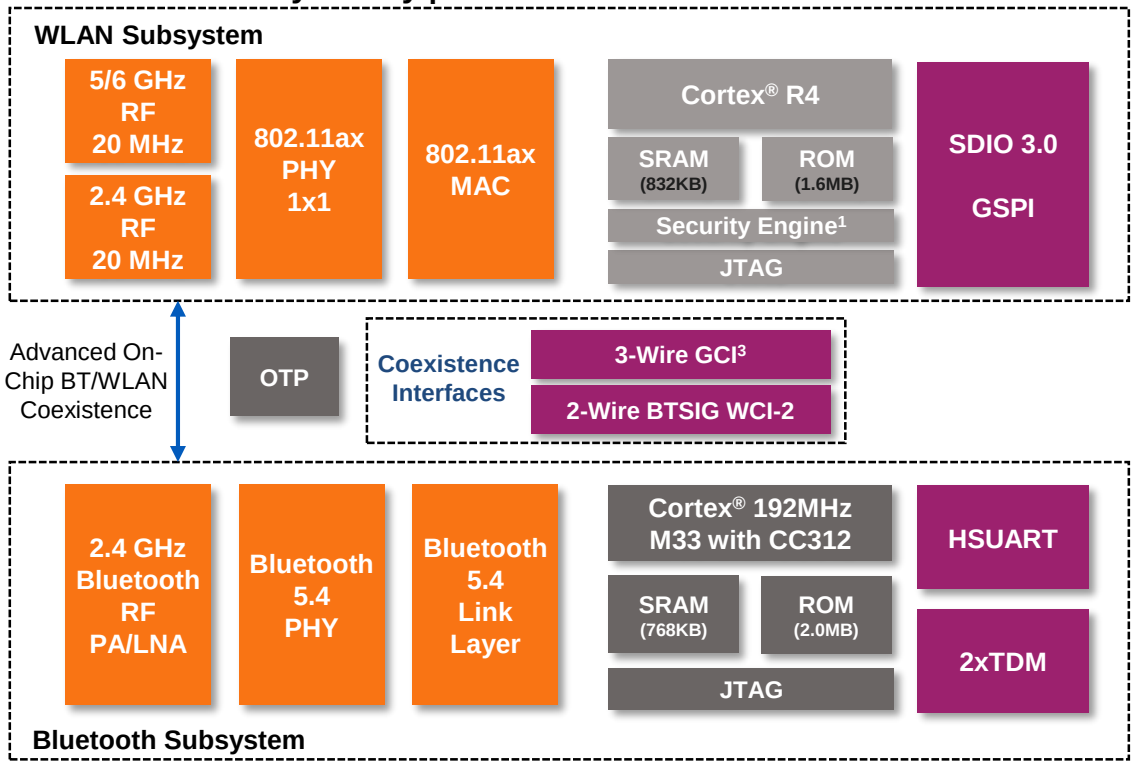
Package
- WLBGA 3.57 x 5.31 mm x 0.450 mm (max) (0.35 mm ball pitch)

Temperature: -40°C to 85°C

Applications

Smart Watches, Smart Home, IP Cameras, Door Locks, Appliances, Printers, Industrial, Audio, Smart Speakers, Speakers, Conference Systems, Gaming Controllers, Cameras

Wireless Connectivity Family | 5551x



Availability

In Production

Copyright © Infineon Technologies AG 2026. All rights reserved.

Ultra-Low-Power 1x1 20Mhz Tri-band Wi-Fi 7 + Bluetooth LE 6.0 + 802.15.4

Diamond Product Overview

Tri-radio

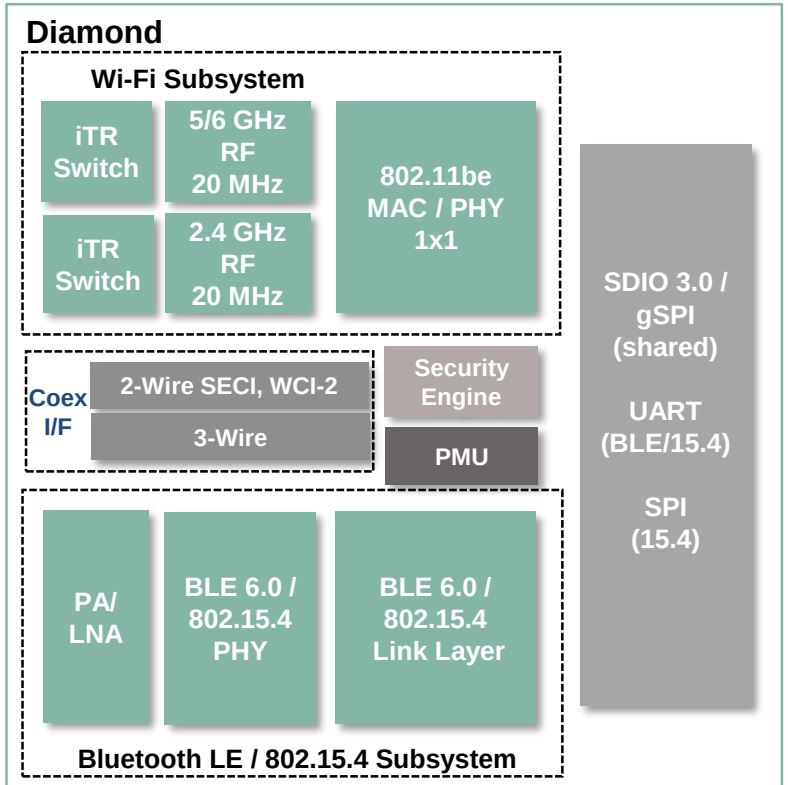
Ultra-low Power

Sensing

Low-cost package

- ✓ **Wi-Fi 7 Tri-band optimized for IoT**
  - 1x1 20MHz MLSR (Multi Link Single Radio)
  - Best in class range performance with +23dBm Tx power, Range boost w/ ER-PPDU, Longer GI, DCM
  - Extended range with ePA and eLNA support
  - Matter over Wi-Fi and Thread
- ✓ **802.15.4/Thread and Bluetooth LE 6.0**
  - +20/13/4 dBm enhanced Tx power
  - LE-LR, LE1M, LE2M, BT5.x and 6.0 features
  - Bluetooth LE, 802.15.4, Wi-Fi coexistence
- ✓ **Ultra-low-power 22nm design with industry's lowest power consumption**
  - Wi-Fi low power standby DTIM10 90uW (2GHz) and 71uW (5GHz)
  - Bluetooth LE Slow advertisement (1.28s) – 73 uW
  - System level power optimization with extensive network offloads
- ✓ **Sensing/Ranging/Contextual Awareness**
  - Wi-Fi 802.11bf CSI presence detection
  - Bluetooth LE Channel Sounding
- ✓ **Optimized BOM / QFN package for low-cost PCBs**
  - 7x7 60QFN (0.4mm pitch)
  - Shared SDIO/SPI host I/F for easier routing
  - Internal Wi-Fi 2.4 & 5/6GHz LNA, PA and TR switches
  - Internal LPO for sleep operation

Tri-radio Wi-Fi 7 / Bluetooth LE 6.0 / 802.15.4

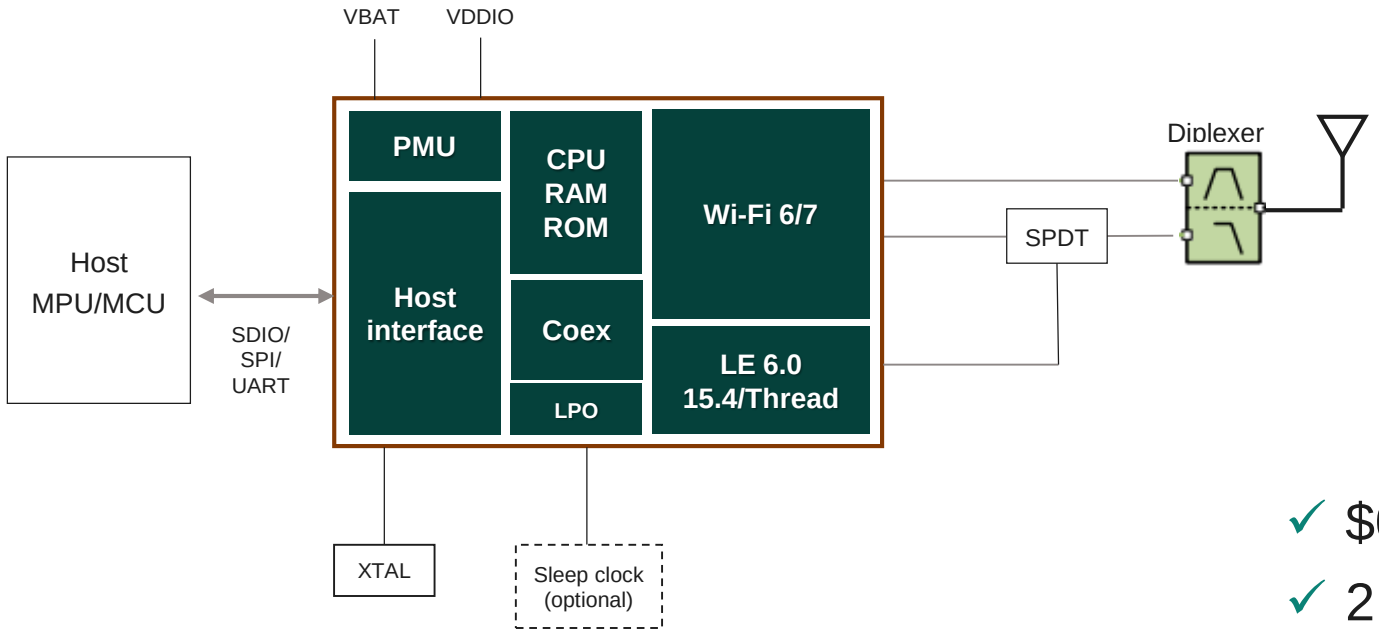


Availability

Samples: Q1'26
Production: Q2'26 DB, Q4'26 TB

Copyright © Infineon Technologies AG 2026. All rights reserved.

High Integration Enables Lower RBOM and System Cost



RBOM	Quantity
Xtal	1
2GHz SPDT (Shared LNA mode)	1
Diplexer	1
Passives	
RBOM ~$0.24	

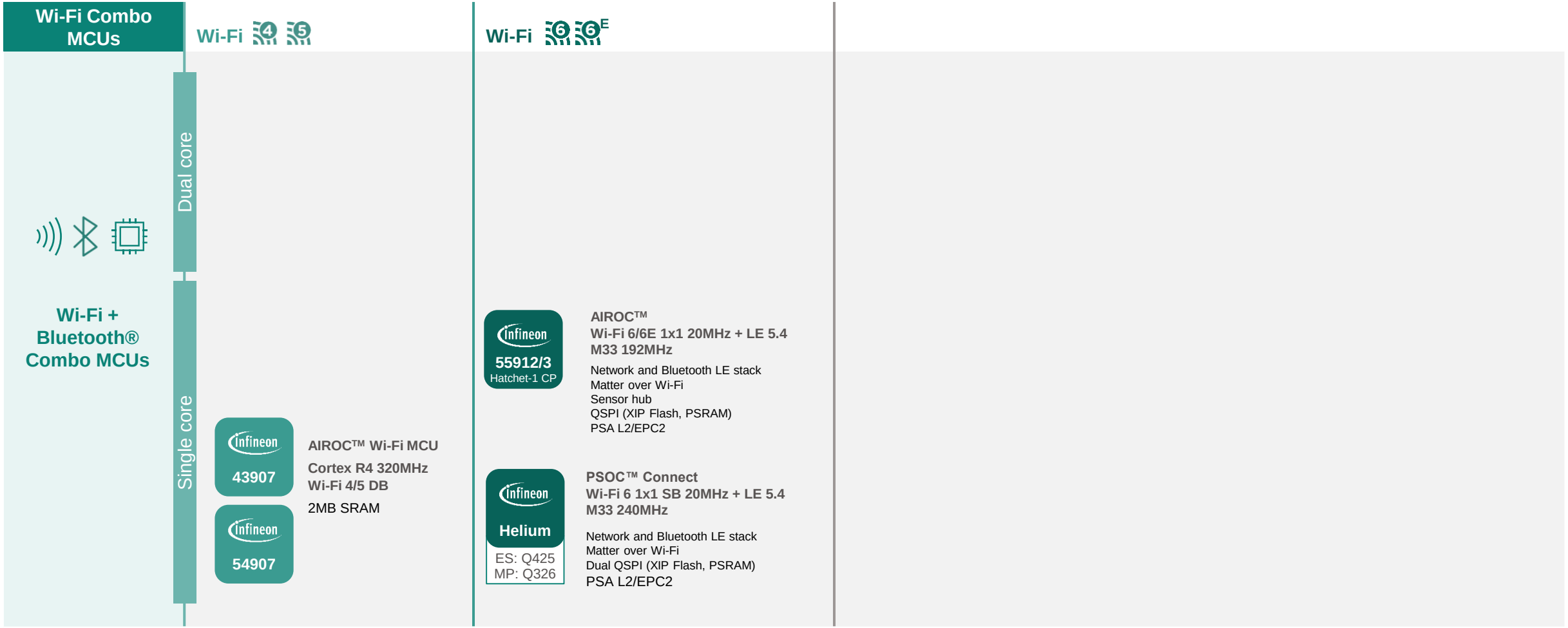
- ✓ $0.24 optimized BOM
- ✓ 2L PCB - Single Row QFN, 0.4mm pitch
  - No blind and buried vias
- ✓ COB design support package

Pin and software compatible upgrade path between Wi-Fi 6 & Wi-Fi 7

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon IoT Compute & Wireless (ICW)

PSOC™ Connect and AIROC™ Wi-Fi + Bluetooth® MCU Roadmap (NDA)



ModusToolbox™

- Extensive Application code examples, middleware, BSPs in GitHub repository
- Rich set of tools: HMI, Machine Learning, Security, Voice/Audio, and more
- Community support and documentation resources

Copyright © Infineon Technologies AG 2026. All rights reserved.

CYW55913/2/1 - 1x1 Wi-Fi 6/6E Tri-Band Connected MCU w/BLE 5.4

Features

Wi-Fi/WLAN Features
- Best in class Wi-Fi 6/6E + BLE 5.4 RF performance (same as 55513)

Arm Cortex 192MHz M33 Connected MCU with Arm Trustzone CC312
- Stand alone or offloads host saving system power and easing implementation
- Cortex M33 192MHz runs Wi-Fi and Networking Stacks from Arm CM33 ROM
  - Modus Toolbox supporting Azure ThreadX RTOS
  - TCP/IP (NetX Duo), TLS 1.3 (NetX Secure) , HTTP(S), MQTT
- 300KB+ for user code in CM33 SRAM
- Option to Boot and XiP from external Flash/PSRAM On-the-Fly AES encryption

Bluetooth Low Energy 5.4 Radio not shared with Wi-Fi
- LE 2M, LE LR, ADV Extensions, LE Iso Channels (Non-Audio)
- 3 output power paths optimized for best efficiency: 0/+13/+19dBm

Peripherals
- SDIO 3.0 (>40Mbps w/TLS), GSPI (>20Mbps w/TLS), UART (4Mbps w/TLS)
- IOs: 3x SCB (I2C/SPI/UART), 1xDigital Mic/PDM (L&R), 1xAnalog Mic, 7 ch 12b ADC, 2x Comparator, 2x TDM (I2S/PCM), TCPWM, QSPI (Flash/ PSRAM)
- 3-Wire and 2-Wire Coexistence Interface for 802.15.4/Cellular/GPS

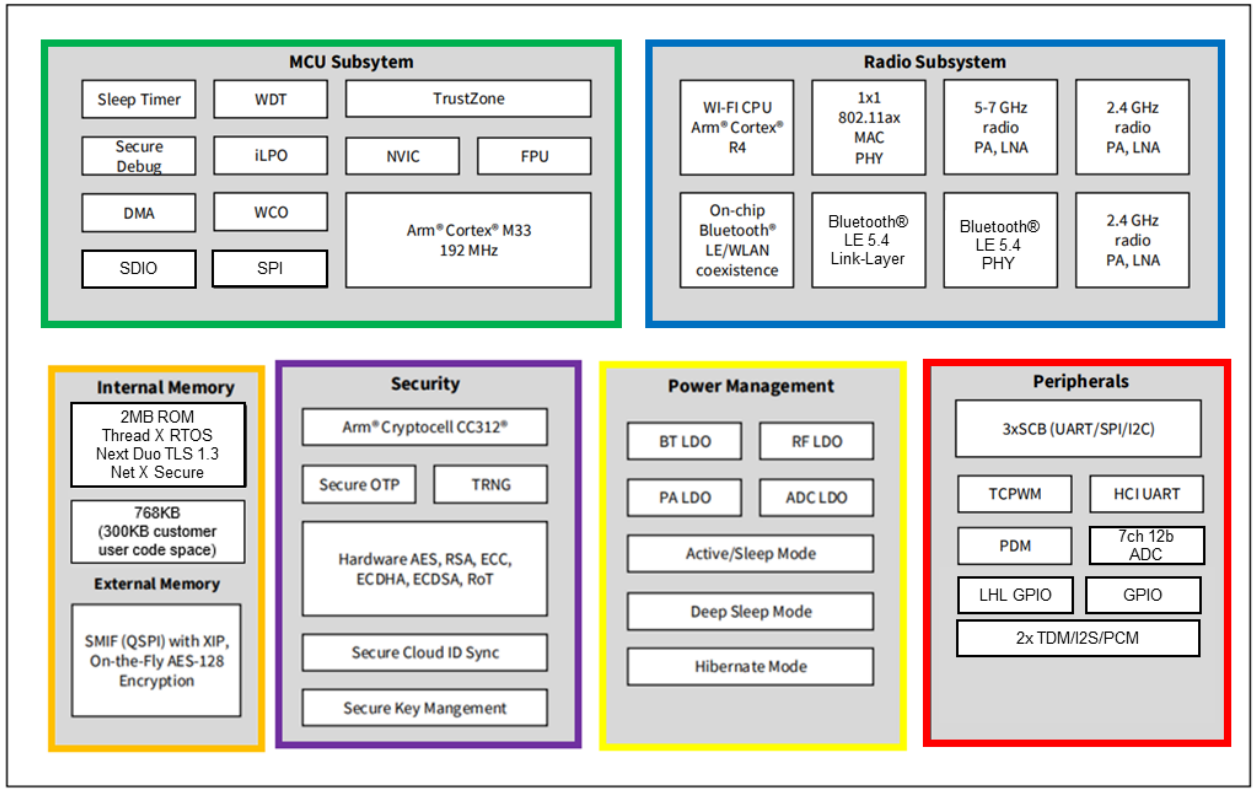
Security
- Lifecycle Management, Secure Boot, FW authentication and encryption, Crypto Key Establishment and Management, Crypto Offloads, Anti-Rollback
- Arm TRNG, Trustzone Crypto-Cell 312
- PSA Level 2 Certifiable

Power Supply
- VBAT: 3.3V; VDDIO: 1.8V

Package
- WLBGA 3.57 x 5.31 x 0.45mm (0.35 mm ball pitch) – P2P w/ 55513

Applications

Smart Home, IPcams, Door Bell Cameras, Smart Locks, Thermostats, Appliances, Door Locks, Wi-Fi Speakers, Smart Hubs/Gateways, Industrial,



Availability

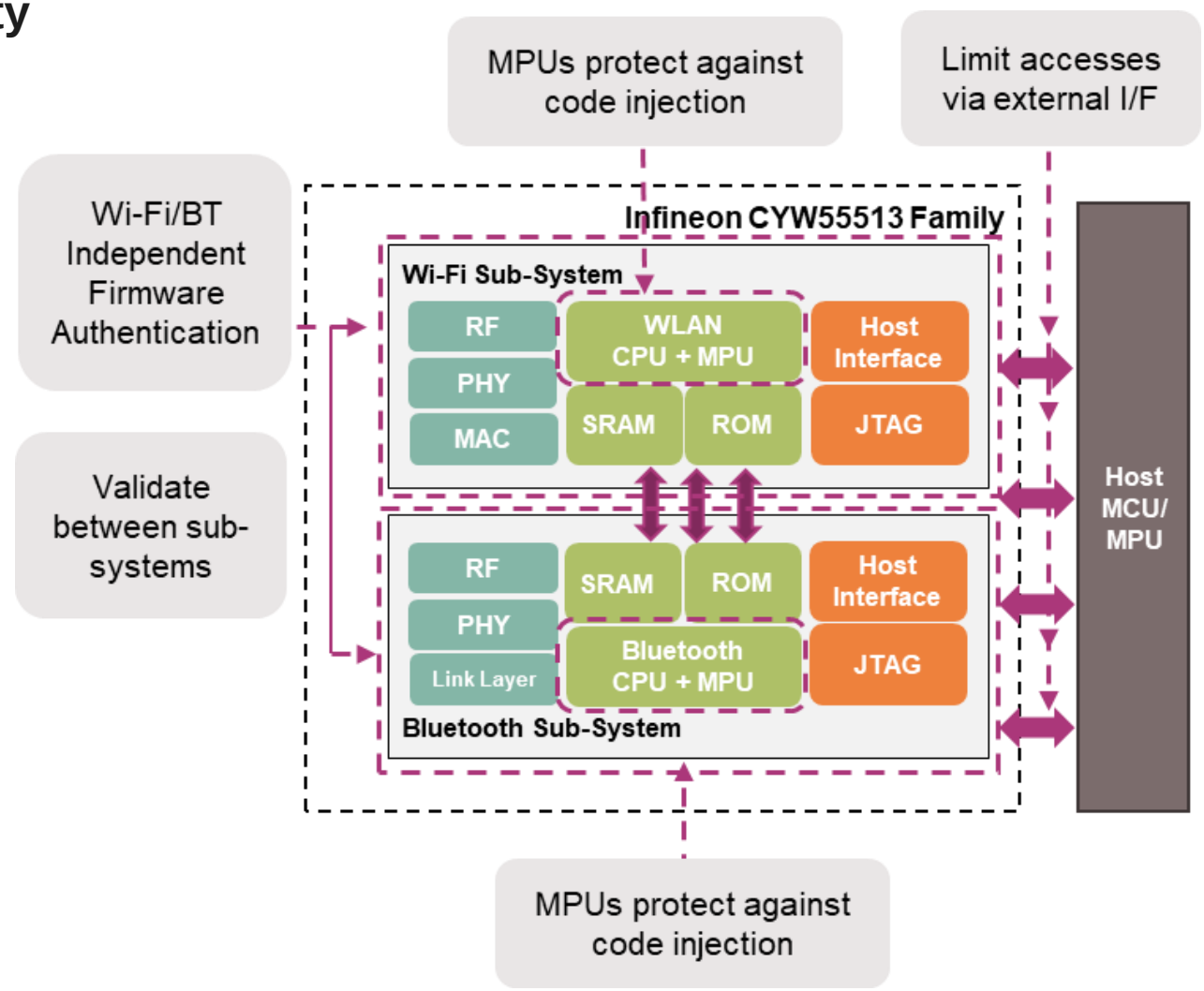
In production

Copyright © Infineon Technologies AG 2026. All rights reserved.

AIROC™ Security Features

CYW55513/55913 Advanced Multi-Layer Security

- Lifecycle management
- Crypto key establishment & management
- Multiple redundant levels of defense
- Crypto offloads
- Secure boot
- Firmware authentication
- Firmware encryption
- Anti-rollback prevention



Copyright © Infineon Technologies AG 2026. All rights reserved.

Wi-Fi Network Stack Host Offloads

Offload Feature	Description
ARP Offload (AOE)	WIFI chip handles ARP request and reply traffic without having to wake up the host.
DHCP Lease Time Renew Offload (DLTRO)	WIFI Chip takes care of renewing the DHCP lease renewal process without disturbing the host.
GTK Offload (GTKOE)	GTK Rekey which initiated by Access point is responded by WIFI chip itself.
TCP Keepalive Offload (TKO/TCPKA)	WIFI Chip sends periodic TCP keepalives and response to TCP keepalives while host is sleeping to maintain the connection with TCP server.
Neighbor Discovery Offload Engine (NDOE)	WIFI Chip handles Neighbor Solicitation request and reply with Neighbor Advertisement, without having to wake up the host.
Preferred Network Offload (PNO)	Minimizes hosts WLAN Management roles especially for scanning by doing background scanning on its own and only inform/wake the host when certain events occur.
Keep Alive (L2 KA/NAT KA)	Layer2 (WIFI NULL data) or Layer3 keep alive sent when Access point/Server expects keep alive messages.
Packet Filters/Wake-on-wireless (wowlpf)	Packet filter determines whether packets received by the dongle are forwarded to the host processor or dropped by dongle based on filter criteria specified by the host application.
ROAM offload	Roaming done by WIFI chip to find the better AP.
Matter offload (mDNS/IPV6) – In development	WIFI chip be able to take care of responding/skipping the mDNS frames to avoid disturbing the host Packet filter can be configured to skip the frames not intended for “my” device.
MQTT offload	Very similar to TCP Keep alive, to keep the MQTT connection alive when host is sleeping. MQTT keep alive request and response sent from WIFI Chip
ICMP offload	Ping reply to ping request from peer is sent by WIFI chip.
TLS offload	TLS offload

Copyright © Infineon Technologies AG 2026. All rights reserved.

1x1 Wi-Fi Comparison: CYW55913/55571/4373/43012/43022

Device Type/Features			Wi-Fi + Bluetooth® Combo Devices for iPA/iLNA					
			11ac 1x1	11n 1x1	11n 1x1	11ax 1x1	11ax 1x1	
Device	Band (GHz)	BW (MHz)	CYW4373/43455	CYW43012	CYW43022	CYW55571	CYW55913	Unit
2.4GHz 1Mbps Sensitivity	2.4	20	-98.8	-98	-98	**-101.5**	**-101.5**	dBm
5GHz 6 Mbps OFDM Sensitivity	5	20	-95	-95	-95	**-96**	**-94.5**	dBm
2.4GHz 1Mbps Transmit Power	2.4	20	+20	+20	+20	**+23**	**+24 @ 3.3V**	dBm
5GHz 6 Mbps Transmit Power	5	20	+19	+20	+20	**+20**	**+20.5 @ 3.3V**	dBm
Sleep	-	-	0.47	0.17	0.04	0.27	0.27	mW
DTIM 1 (~100ms)	2.4	20	6.1	1.80	0.87	4.5	2.2	mW
DTIM 3 (~300ms)	2.4	20	2.4	0.72	0.32	1.4	0.94	mW
DTIM 10 (~1 sec)	2.4	20	1.1	0.32	0.12	0.69	0.48	mW
Rx Power 1Mbps, 100% Duty Cycle	2.4	20	292 (MCS7)	75	75	124	96	mW
Rx Power 6Mbps, 100% Duty Cycle	5	20	378 (MCS7)	79	79	155	126	mW
Tx Power Consumption 1Mbps 100% Duty Cycle iPA	2.4	20	1152 @ 19dBm	675 @ 18dBm	675 @ 18dBm	691 @ 20.5 dBm	855 @ 22.5 dBm	mW
Tx Power Consumption 6Mbps 100% Duty Cycle iPA	5	20	1332 @ 17dBm	957 @ 18dBm	957 @ 18dBm	866 @ 18 dBm	851 @ 19 dBm	mW

Copyright © Infineon Technologies AG 2026. All rights reserved.

Broad portfolio of Wi-Fi/BT Products for IoT and Automotive

5557x
Industry's best range Wi-Fi 6/6E + LE-Audio
>40% better than standard Wi-Fi 6/6E

5551x
IoT Optimized Wi-Fi 6/6E + LE-Audio
>40% better than standard Wi-Fi 6

5551x
Low Power Wi-Fi 6/6E + LE connected MCU
Best range performance + rich peripherals

5459x
Reconfigurable 2x2 MIMO and RSDB
High-performance, whole home coverage

4373
Best general-purpose Combo
Industrial temp. qualified, USB/PCIe/SDIO

43022
Industry's lowest power
>70% battery life vs. closest competitor

43439
Best entry-level Wi-Fi/BT Combo
Family shipped over 300Mu

Enabled by module partners…

muRata INNOVATOR IN ELECTRONICS
USI
AzureWave
QUECTEL
ezurio
u-blox

Software ported and optimized on…

Linux, Android

NVIDIA — Jetson, Xavier, Orin
Rockchip — PX30, RK3308, RK3399, RK3566, RK3568, RK3588
Ambarella — CV2x, CV22, CV25, CV28, CV3, CV5
iCatch 芯鼎科技 — Vi37, Vi57, Vi77 (Q124)
STM32 MP15x/13x
STM32 MP2 (Q423)
NXP — i.MX6, i.MX7, i.MX8 i.MX9

RTOS

STM32H7, H5, U5, L5
NXP — I.MX RT1050/1060 I.MX RT500/600 I.MX RT1160/1170
OmniVision — OA804/805, OA8000/7000 OA8100/7100

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon + Matter – Delivers Matter Compliance for Your Application

Matter over Thread

- **Future Proof Design**- CYW30739 w. 2MB ROM pre-programmed with BT core stack frees up flash for application code. Matter code is growing in size, but we will put more of it into ROM when it is more stable.
- **User Experience - Best interoperability** with installed base of Access Points and phones sharing IP heritage
- **Memory efficient program execution** Code runs in RAM at full processor speed (96MHz).





Matter over Wi-Fi

- **Flexible scalable secure platform** - PSOC6 + CYW43xxx Wi-Fi/BT Combo family
- **Ultra low power by design** – very low sleep, transmit, and receive current
- **Low power system architecture** – host offloads for keep-alive functions allowing host processor to sleep for longer periods
- High-performance RF ensures the **most robust connection** which substantially reduces power consumption





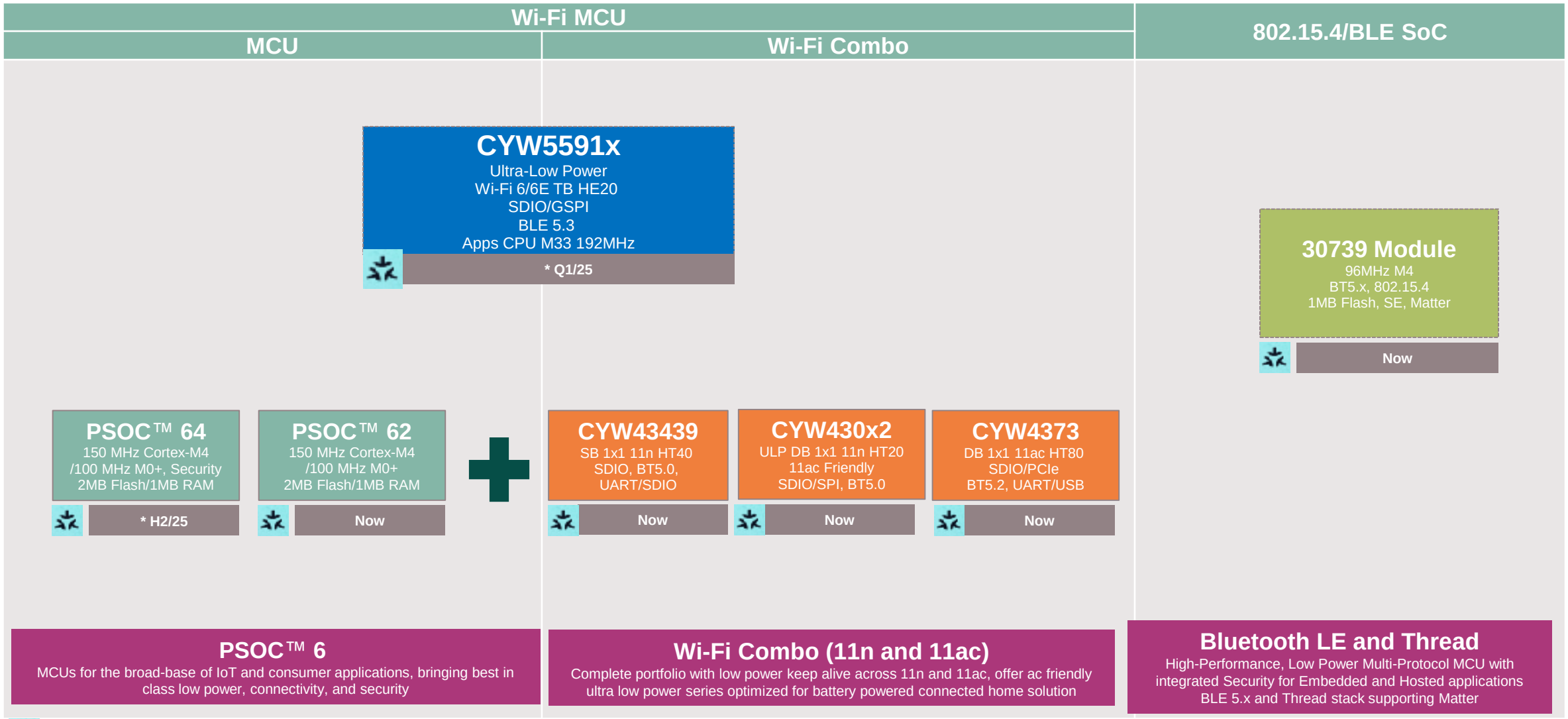
Enhanced Security

- Any Matter certified device needs to be provisioned with the set of credentials, **OPTIGA Trust M** will act as (productive) Trust Anchor for customer specific Matter credentials
- Certificates / keys need to be personalized and securely stored in a trust anchor, Infineon will provide a **Matter certified Root CA* and PKI* infrastructure** for customers
- Trust anchor for higher cryptographic operations required, OPTIGA™ Trust M **hardware cryptographic accelerators** will **support Host MCU with Matter onboarding**

PKI – Private Key Injection CA – Certificate Authority

Copyright © Infineon Technologies AG 2026. All rights reserved.

Matter Connectivity Roadmap Summary



For Wi-Fi Combo the SW API hooks into Matter stack in HOST MCU

Matter stack | MCU | Wi-Fi combo | Wi-Fi MCU | Thread/Matter BLE combo | Availability

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon IoT Compute & Wireless (ICW)
PSOC™ Connect & AIROC™ BT/BLE/15.4 Roadmap

BT/BLE/15.4 MCUs		32-bit Arm® Cortex® M0/M0+/M3 Single Core	32-bit Arm® Cortex® M4/M33 Single Core	32-bit Arm® Cortex® M4/M33 Dual Core
PSOC™ Connect	BLE 6 / 15.4			
AIROC™ Bluetooth LE MCU	BLE 5.x	PSOC 4 BLE LE 4.2/5.1 Cortex M0 Up to 256K Flash 32KB RAM CAPSENSE™	20835 LE 5.2 Cortex M4 SoC 384KB RAM	PSOC 63 BLE LE 5.2 Dual M4 & M0+ Up to 1M Flash 288K RAM CAPSENSE™ ZEPHYR 20829 / 89829 LE 5.4 Dual M33 1MB/2MB Flash 256K+96K RAM ZEPHYR PSA L1/EPC1  Full featured 64 BGA, **4.5 x 4.5 mm**, 26x GPIOs **Physical security for flash**
AIROC™ Bluetooth Dual Mode SoCs	Classic & LE	207XX/ 89072 BT 5.2/LE Cortex M3 352KB RAM	20721 20819/ 820 89820 BT 5.2/LE Cortex M4 819/820: 256K Flash, 176K RAM 721: 1M Flash 512K RAM	

Software & Tools – AIROC™ Bluetooth stack, BLE libraries, Security, MCU Middleware and ModusToolbox™ and AIROC™ Connectivity Apps for iOS/Android

Bluetooth Ecosystem – Matter, Amazon Sidewalk, Apple FindMy, Quupa Locationing and others

Copyright © Infineon Technologies AG 2026. All rights reserved.

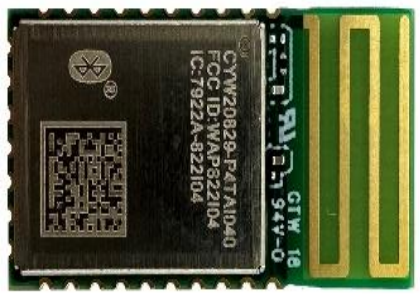
CYW20829: BLE 5.4 SoC

Key specifications

Cost optimal, high performance chassis:
- Arm® Cortex®-M33 (96 MHz), built in BLE controller
- Full featured BLE 5.4 & pre-spec ULL HID over ISoC
- CAN-FD, LIN & SMIF w/XIP for external Flash
- Integrated PA with 10 dBm RF out
- Secure boot & secure execution environment

Performance
- Sub-5.5 mA Tx/Rx LE at 0 dBm
- –98 dBm LE Rx sensitivity*
- 4.5 uA for deep sleep with 64 KB retention

Packages
- 6x6 QFN-56 with 2-layer design support



SMT Package
14.5 x 19 x 1.95 mm

Software and Ecosystem

amazon sidewalk · freeRTOS · Zephyr · Works with Apple Find My

- AIROC Bluetooth stack
- MCU middleware (Graphics, drivers, ML)

Smart Peripherals

- SPI or UART
- I2C or SPI
- UART or I2C
- SMIF/SPI With encrypted XIP
- I2S (w TDM Mode)
- 2x PDM
- CAN-FD
- 1x 11b ADC (Sigma Delta)
- 7x TCPWM
- 2x 32-bit Timers
- 7x 16-bit Timers
- Watch Dog Timer
- 32x GPIO (2 OVT)

App System

Arm® Cortex® M33 96 MHz

32k cache	1kbit-eFuse
256K RAM	64 KB ROM

BLE System

Arm® Cortex® M33 48 MHz

96 KB RAM	448 KB ROM

- RX-Chain
- TX-Chain
- Baseband
- MAC

Security

Cryptography HW	TRNG

Secure boot

Copyright © Infineon Technologies AG 2026. All rights reserved.

CYW20829: Full-feature BLE 5.4 MCU with longe range

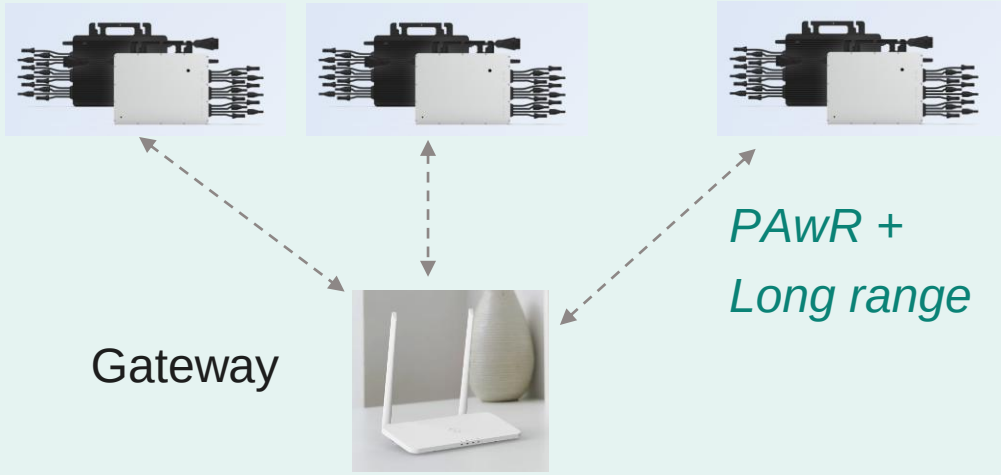
20829

Product Overview

✓ **Industry's best range and noise immunity**	– Measured **max. 2.3km range** without ePA – Tx output power of +10dBm – Best Rx blocker for noise immunity
✓ **Future proof your designs and unlock new use cases with Bluetooth LE 5.4**	– Supports all Bluetooth LE features up to 5.4 – Periodic Advertisement with Response (PAwR)
✓ **Reduce system cost with highly integrated MCU and "right sized" external flash**	– Dedicated M33 application core @96 MHz with Generous 256KB SRAM – CAN-FD, and only single crystal needed
✓ **Longer battery life with low power connection**	– Best in class packet rate leading to less retransmissions – Low active (Rx/Tx) and deep sleep currents
✓ **No dongle for ultra low latency HID**	– Average 1 msec per connection

Unlock new use cases in industrial, retail, smart home

Microinverter nodes: 20~100+ nodes



Use cases for LE Long Range and PAwR

- Electronic Shelf Labeling
- Smart Home
- Asset tracking
- Industrial sensor network
- Solar farms

Copyright © Infineon Technologies AG 2026. All rights reserved.

The impact of security threats in a smart home

Unauthorized access

Unauthorized monitoring, theft of personal information, physical harm

Data privacy

Ranging from targeted advertising to identity theft

Malware and cyberattacks

Infiltration of home networks; launch attacks on other systems



Potential impacts on users

- Personal safety
- Invaded privacy
- Disrupted services

Potential impacts on brands

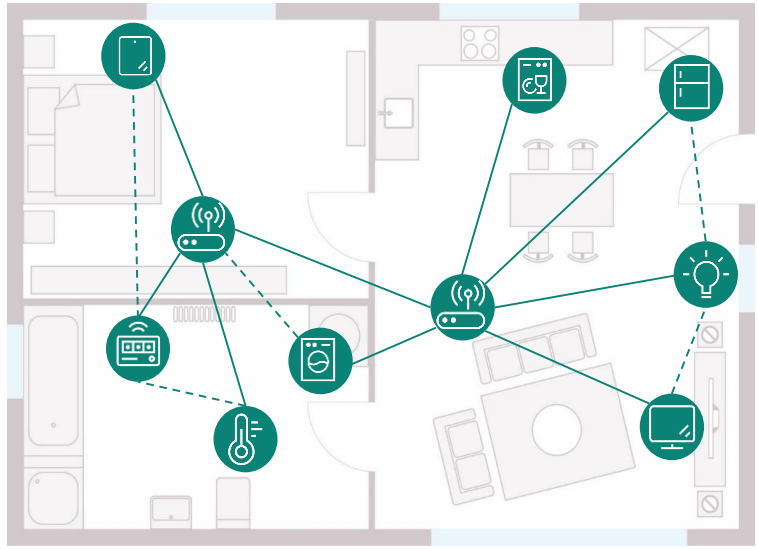
- Reputation damage
- Financial loss
- Liability

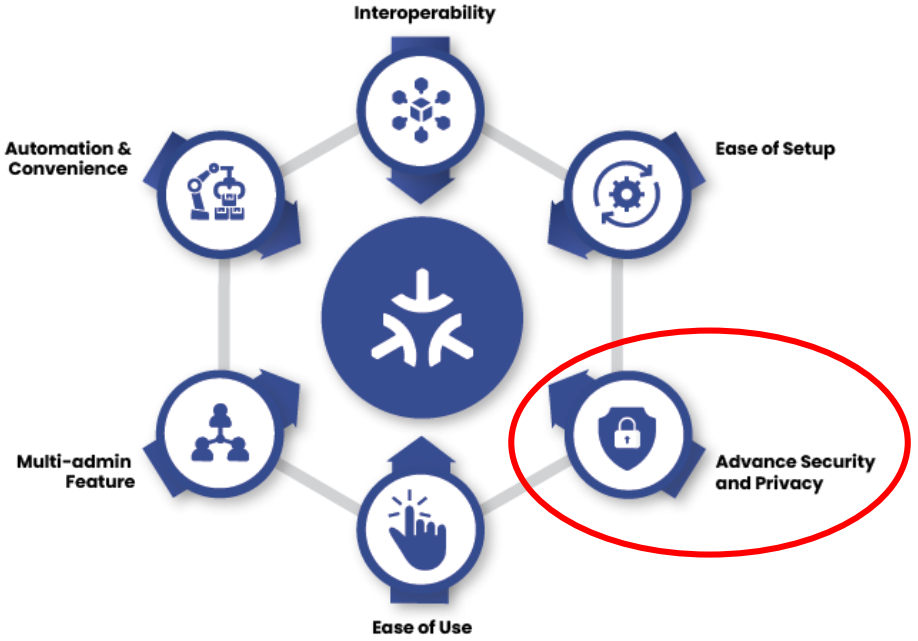
Copyright © Infineon Technologies AG 2026. All rights reserved.

Security and Matter go hand-in-hand

Matter raises the bar for IoT security and privacy*

1. Easy, secure, and flexible device commissioning
2. **Validation that each device is authentic and certified**
3. **Up-to-date info via Distributed Compliance Ledger**
4. **Strong device identity so only your devices can join your smart home**
5. Secured unicast communications
6. Secured group communications
7. Multiple administrators and controllers, maximizing choice
8. Verified access controls to prevent unauthorized actions
9. Secured, standard software updates
10. Verification of software integrity





*Source: Connectivity Standards Alliance (CSA)

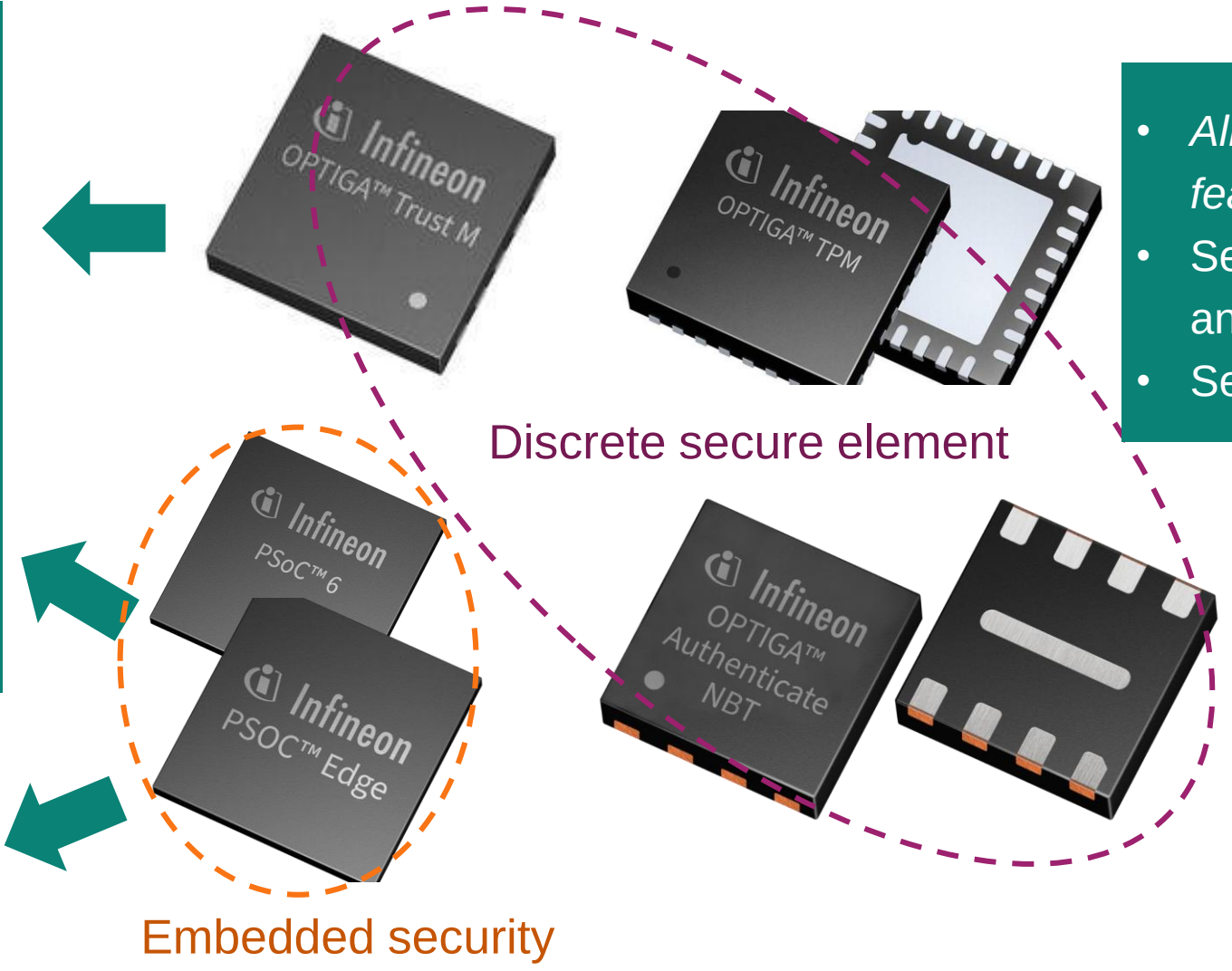
Copyright © Infineon Technologies AG 2026. All rights reserved.

IFX offerings for a secure system

Trust M features:

- Secure boot
- Hardware security
- Secure firmware updates
- Authentication
- Data encryption
- Lifecycle management

- Security monitoring and analysis



- *All Trust M features +*
- Secure cloud and networks
- Secure storage

- Secure update
- Authentication
- Secure commissioning

Copyright © Infineon Technologies AG 2026. All rights reserved.

OPTIGA™ Trust-M Matter Ready - Matter Provisioning

Main Features

- **Pre-provisioned** with root certificates and keys for secured provisioning of Matter certifications
- **Matter credential generation** and pre-injection in factory
- **CC EAL 6+ (high)** certified security controller
- **Cryptographic Toolbox** for SHA, ECC and RSA® Feature, AES, HMAC and Key derivation
- OPTIGA™ Shielded Connection
- Evaluation kit and product documentation available on **GitHub**

Availability

- Package: **USON-10 3mm x 3mm**
- MOQ: 4000
- Available now

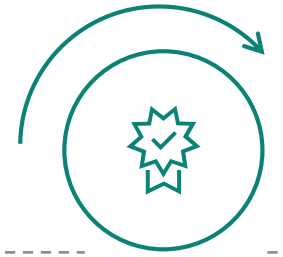
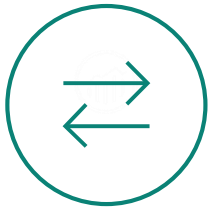


Benefits

- **Full turnkey solution** for faster go to market
- **Easy provisioning of Matter certificates** into smart home devices
- Unique and immutable identity provisioned in a **CC-certified facility**
- **Extensive use case ranging** from Mutual Authentication, Secure Communication, Data Store Protection, Power Management, Secure Update, Platform Integrity Protection

Copyright © Infineon Technologies AG 2026. All rights reserved.

OPTIGA™ Trust M MTR for Matter implementation

Challenges		Solution
Provisioning of Matter certificates		OPTIGA™ Trust M MTR is a pre-provisioned discrete SE which simplifies the process of adding Matter certificates to your devices.
Time to market		OPTIGA™ Trust M MTR allows to keep your existing design as it can be inserted into any MCU/SoC design
Flexibility		With OPTIGA™ Trust M MTR DACs can be downloaded right up until the start of production. This gives OEMs the flexibility to decide on product variants after ordering the security chips.
Security of smart home devices		With its Common Criteria (CC) EAL6+ certified hardware, OPTIGA™ Trust M MTR can achieve consistent tamper-resistant protection supported by the Matter standard.

Copyright © Infineon Technologies AG 2026. All rights reserved.

The right combination of MCU and dSE enables system design with the right modularity and efficiency

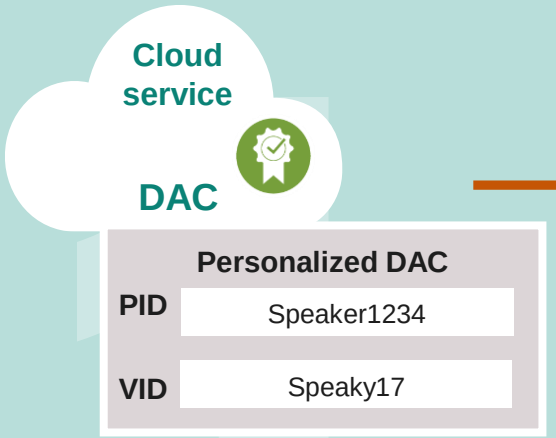
	EPC 1 MCU		EPC 2 MCU		EPC 3 MCU		EPC 4 MCU	
Security features	Minimum MCU Requirements CRA/RED PSA L1v2	+ dSE	Additional wireless connectivity security services | SESIP/PSA L2	+ dSE	Hardened Crypto and Fault, Glitch mitigation SESIP/PSA L3	+ dSE	Hardware isolated, lockstep Secure Enclave (SE) | SESIP/PSA L3+SE	+ dSE
Cryptography	✓	+	✓	+	✓	+	✓	+
Secure Boot	✓		✓		✓		✓	
Secure FW Update	✓		✓		✓		✓	
Processing isolation	✓		✓		✓		✓	
Compliance with CRA/RED	✓		✓		✓		✓	
Prebuilt security stack with secured key storage		+	✓	+	✓	+	✓	+
Physical glitch hardening					✓		✓	
Security fault management system					✓		✓	
Hardware isolated Secure Enclave		+		+		+	✓	+
Pre-configured credentials		+		+		+	✓	+
Value-adds (FIPS, TPM, NFC, Payment, …)		+		+		+	✓	+
Late-stage provisioning, machine ID, and key injection in secured environment		+		+		+		+
High-security anti-cloning and device identity protection		+		+		+		+

Copyright © Infineon Technologies AG 2026. All rights reserved.

OPTIGA™ Trust M Matter Ready User Journey

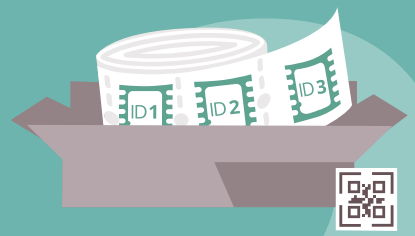
Pre-Production

- Create and configure personalized DAC using CSA certified PKI-as-a service
- Test on Eval kit & Prototypes



Production Order

Order reel(s) with pre-provisioned Infineon keys (DAC not included)



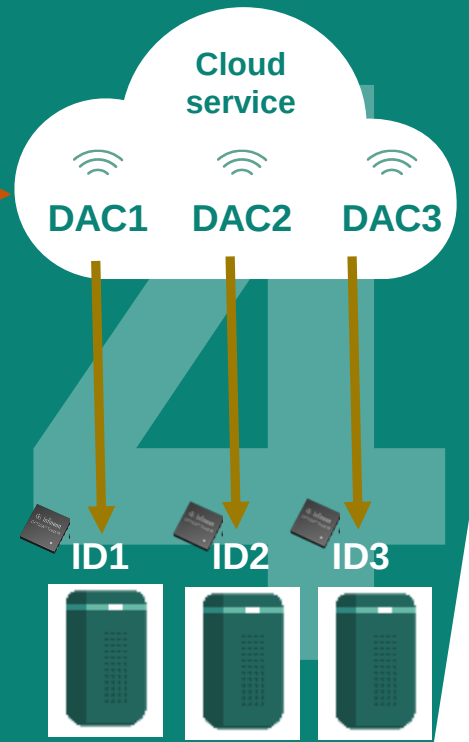
Claim

Claim the reel (device IDs) by scanning the QR code via cloud service



Transfer DAC*

Download personalized DAC from cloud and transfer into Trust-M at factory level



* DAC= Device attestation certificate

Copyright © Infineon Technologies AG 2026. All rights reserved.

Your 4-step CRA preparation plan



Understand

- CRA scope, definitions
- Exemptions
- Compliance requirements

Identify

- Affected products
- Components
- Dependencies (build SBOM)

Assess

- Gaps and risk analysis vs CRA Annex I/II
- Plan mitigations

Implement

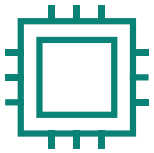
- Security-by-design
- Vulnerability management
- CE documentation, security tests

Copyright © Infineon Technologies AG 2026. All rights reserved.

How Infineon can help with CRA compliance



- **Security-by-design:** Infineon security products have this as a core requirement
- **Keys and certificates** provisioned at Infineon's secured, Common Criteria-certified site



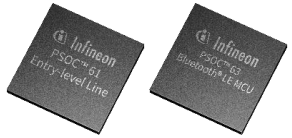
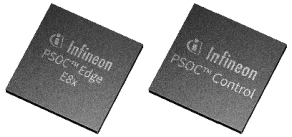
- **Security solutions for CRA compliance:** best-fit security solutions to meet CRA security outcomes from a broad range of security products: microcontroller, wireless MCU, discrete secure element, secure memory
- **Software tools:** Infineon's software tools and development platforms facilitate secure development, such as ModusToolbox™, Edge Protect Security Suite
- **Third-party certification:** independent evaluation and certification for standards, such as SESIP, CC, PSA-certified
- **Security lifecycle support for manufacturers:** to address the full product lifecycle, incl. risk assessment, vulnerability management, and reporting.
- **Evaluation platforms:** providing evaluation boards, reference designs, and software/hardware trainings to support design



- **Active in EU CRA standardizations**: contributing and leading EU standardization working groups in CENELEC
- **Decades-long expertise:** knowledge of regulatory requirements and variance of CRA compliance requirements
- **Training support:** Infineon provides resources like webinars to help customers understand and prepare for CRA
- **Implementation collaterals:** security-specific resources, such as, product documentation, security guidance manuals

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon products mapping across (indicative) CRA category**
subject to device's risk-assessment

Secured Memory DICE-based, secured logging, secured boot	Edge Protect Category (EPC)*				Discrete Secure Element Hardware Root-of-Trust
	EPC 1 baseline secured boot/ update, logging readiness	**EPC 2** hardened wireless security services	**EPC 3** Hardened accelerated crypto, glitch mitigation	**EPC 4** Hardware isolated, lockstep Secure Enclave	
SEMPER™ Secure	PSOC™ 61 PSOC™ 62 PSOC™ 63 with BLE AIROC™ CYW20829 AIROC™ CYW5557x AIROC™ CYW5551x	PSOC™ Edge8x EPC2 PSOC™ Control C3 EPC2 AIROC™ CYW5591x	PSOC™ Control C3 Performance Line	PSOC™ Edge8x EPC4	OPTIGA™ TPM OPTIGA™ Trust M standard OPTIGA™ Trust MTR OPTIGA™ Trust M - Express
					
PSA L1v1	PSA L1v2	SESIP L2 or PSA L2	SESIP L3 or PSA L3	SESIP/PSA3 + L4 iSE	Common Criteria
✓ **Important Class I** ✓ **Default (low risk)**	✓ **Important Class I** ✓ **Default (low risk)**	✓ **Important Class I** ✓ **Default (low risk)**	✓ **Important Class II** ✓ **Important Class I** ✓ **Default (med. risk)**	✓ **Important Class II** ✓ **Important Class I** ✓ **Default (med. risk)**	✓ **Critical** ✓ **Important Class II** ✓ **Important Class I** ✓ **Default (high risk)**

*More information on Infineon's Edge Protect Category here, https://www.infineon.com/promo/edge-protect
**Disclaimer: this is preliminary guidance and subject to changes based on CRA harmonized standards (in-development), CRA (future) implementation Acts, and any EU Commission- or ENISA- issued CRA guidance. For accuracy kindly refer to EU Commission resources on CRA.

Copyright © Infineon Technologies AG 2026. All rights reserved.

Choosing the right security controller for your CRA device

PSOC™ Edge 8x "secured compute for Edge-AI"

- Secured boot with protected root of trust and cryptographic verification.
- Hardware cryptography accelerators (e.g., AES, SHA, ECC) and TRNG.
- Secured lifecycle states and controlled debug; anti-rollback counters.
- Trusted execution capabilities (e.g., memory protection, privilege separation).
- OTA update enablement with authentication and integrity checks.

OPTIGA™ TPM "platform integrity & attestation"

- Ease of provisioning and lifecycle management with SE
- Secured by design/default with TCG 2.0-compliant TPM; measured boot with PCRs; remote attestation.
- Strong key storage and crypto operations offload.
- Device identity anchored in hardware root-of-trust. Support for secured communication (TLS).
- Anchor SBOM integrity via sealed hash.

OPTIGA™ Trust M "IoT security made easy"

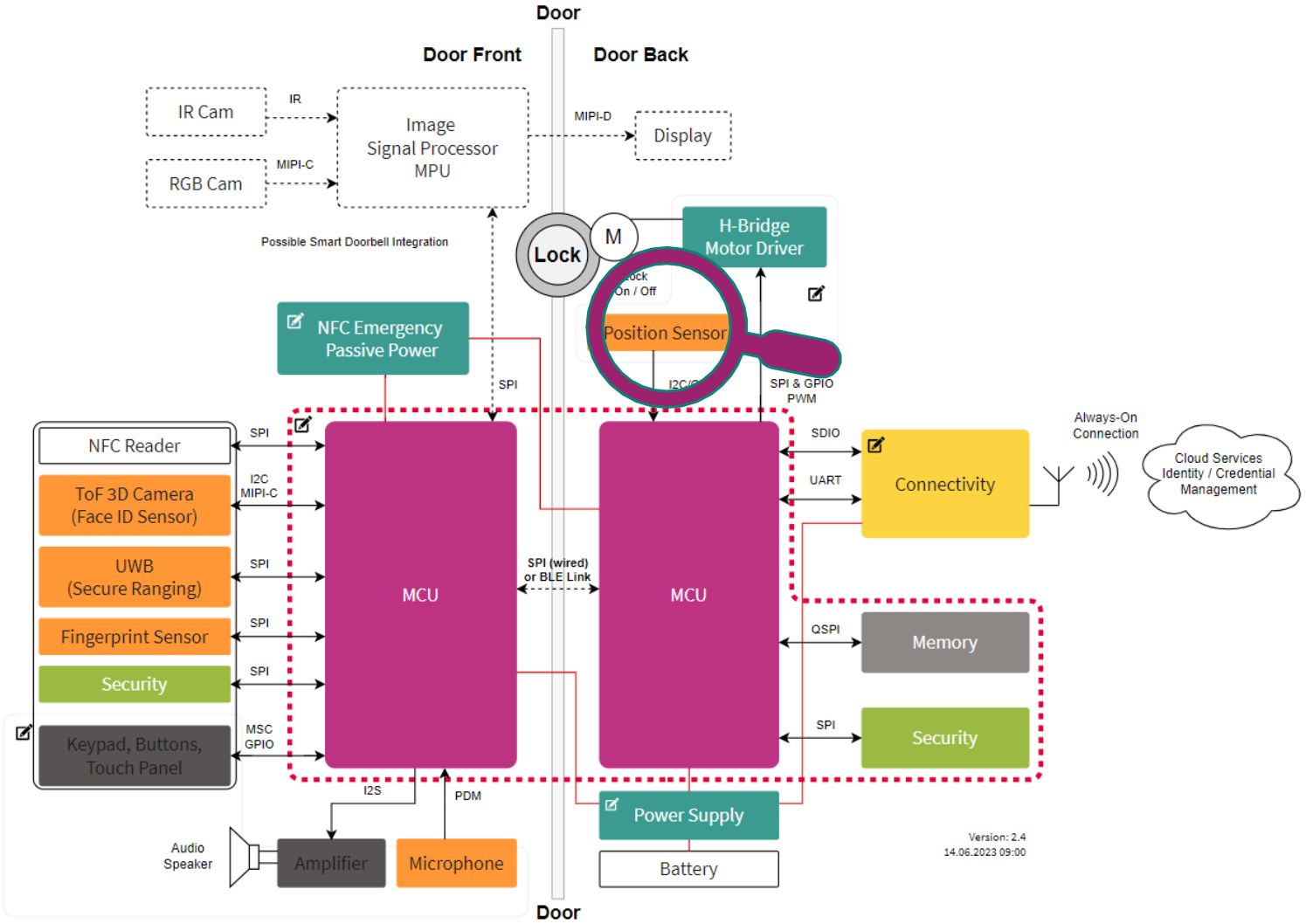
- Secure Element (SE) with ECC, symmetric crypto, secured key storage.
- Trust M Express: pre-provisioned certificates to accelerate cloud onboarding and manufacturing.
- Offload TLS mutual authentication; protects credentials from firmware exposure.
- Confidentiality and integrity for keys/operations- supports lightweight integrity checks.

... to enable EU CRA Security outcomes

- Security by design/default, secured update, integrity protection, documentation-friendly features.
- Integrity and authenticity of platform state; secured credentials; supports logging and incident response posture.
- Strong device identity, secured communication, simplified provisioning and update pathways.

Copyright © Infineon Technologies AG 2026. All rights reserved.

Sensor for smart locks….



Position sensing

- Magnetic Switch
- 3D Magnetic
- Angle Sensor

Focus

Cross-Selling

… sell a sensor

– do it NOW!

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon position sensor solutions – the place to shop for unique customer values

Application / use case	Product recommendation		Customer values
– Bolt position detection (of locking bolt)	Hall Switch: TLE4913 3D Hall: TLI493D-W2BW Angle Sensor: TLI5012B		– Robust and reliable Hall Switch – Very low power consumption (typ 4µA) – long battery runtime
– Detection of door position (open/close)	Hall Switch: TLE4913 3D Hall: TLI493D-W2BW		– Very small package size – flexible and compact application design – Low power consumption - TLI493D-W2BW featuring wake-up functionality to wake up application or display upon touching)

[1] SOP Q2/2025

Copyright © Infineon Technologies AG 2026. All rights reserved.

XENSIV™ microphones portfolio & roadmap

Single Backplate
Sealed Dual Membrane

Digital

IM69D127

3.6 x 2.5 x 1.0 mm

SEN	-34 dBFS
AOP	127 dBSPL
SNR	69 dB(A)
IDD	820/300 µA
CF	40 Hz

Small size

IM72D128

4 x 3 x 1.2 mm

SEN	-36 dBFS
AOP	128 dBSPL
SNR	**72 dB(A)**
IDD	980/280 µA
CF	20 Hz

High SNR

IM69D128S

3.5 x 2.65 x 0.98 mm

SEN	-37 dBFS
AOP	128 dBSPL
SNR	69 dB(A)
IDD	**520/180 µA**
CF	30 Hz

Low power

IM72D128VV11

4 x 3 x 1.2 mm

SEN	-36 dBFS
AOP	128 dBSPL
SNR	**72 dB(A)**
IDD	**420/120 µA**
CF	**11 Hz**

High SNR, low power, low CF

IM73D122

4 x 3 x 1.2 mm

SEN	**-26 dBFS**
AOP	122 dBSPL
SNR	**73 dB(A)**
IDD	980/280 µA
CF	20 Hz

High sensitivity

IM70D122

3.5 x 2.65 x 0.98 mm

SEN	**-26 dBFS**
AOP	122 dBSPL
SNR	70 dB(A)
IDD	980/280 µA
CF	30 Hz

High sensitivity

IM69D128FV11

3.5 x 2.65 x 1.0 mm

SEN	-37 dBFS
AOP	128 dBSPL
SNR	69 dB(A)
IDD	**450/140 µA**
CF	**11 Hz**

Low power, low CF

Analog

IM70A135

3.5 x 2.65 x 1.0 mm

SEN	-38 dBV
AOP	135 dBSPL
SNR	**70 dB(A)**
IDD	170/70 µA
CF	37 Hz

Small size

IM73A135

4 x 3 x 1.2 mm

SEN	-38 dBV
AOP	135 dBSPL
SNR	**73 dB(A)**
IDD	170/70 µA
CF	20 Hz

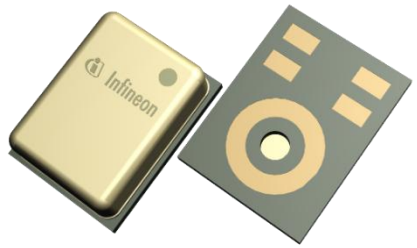
High SNR

IM68A130

3.35 x 2.5 x 0.98 mm

SEN	-38 dBV
AOP	130 dBSPL
SNR	68 dB(A)
IDD	110 µA
CF	10 Hz

Low CF



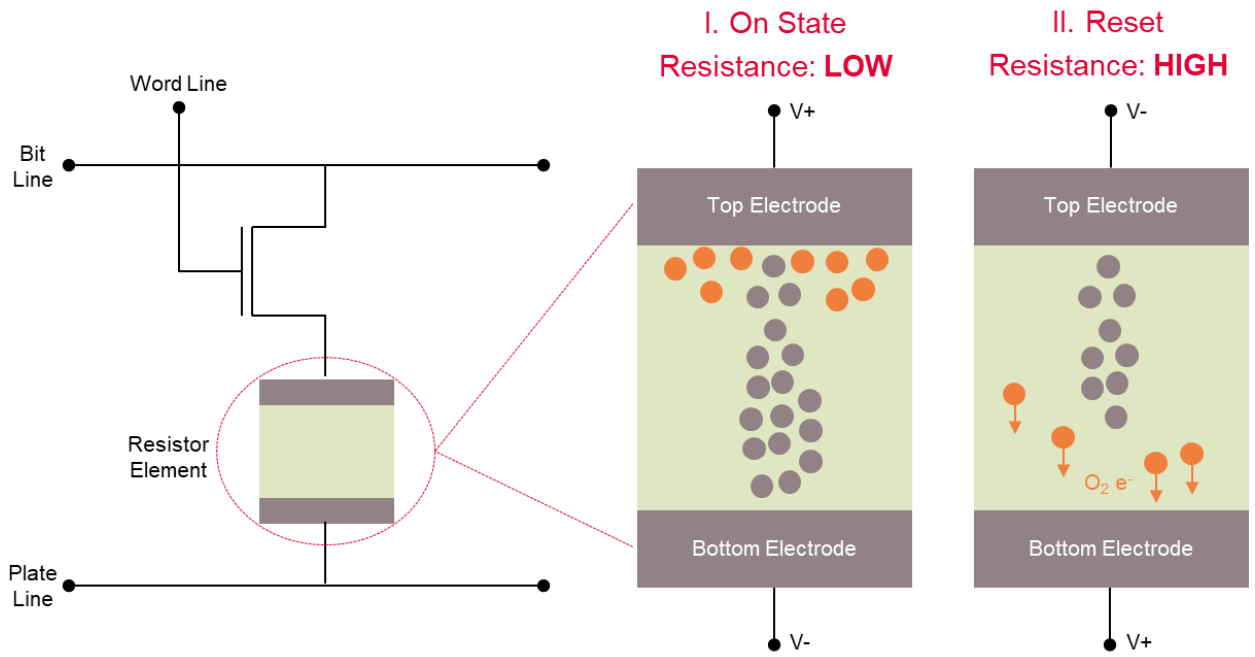
Copyright © Infineon Technologies AG 2026. All rights reserved.

What is Resistive RAM?

- Nonvolatile memory
  - Better endurance, retention than NOR Flash

- Technology vs NOR Flash
  - Store bit information as resistance/filament, not charge as in Flash
  - Standard CMOS process, BEOL technology
  - Scalable beyond 28nm
  - Byte unit programming

- Benefits vs NOR Flash
  - Lower power consumption
  - Higher radiation tolerance
  - Byte addressability
  - No erase needed
  - Higher radiation tolerance



Copyright © Infineon Technologies AG 2026. All rights reserved.

Introducing ULTREON™ LP RRAM: low power and efficient

LOW POWER

Ultra low power

- Low read current: < 0.3mA @10-MHz (x1 SPI interface)
- Low standby current: ~ 10uA; ultra deep power down current: < 0.4uA
- 1.8V, 3.0V, or 1.65 V ~ 3.6 V (wide range) supply
- 1.2V I/O option for WLCSP, KGW packages

HIGH PERFORMANCE

High performance

- Up to 400MB/s (Octal interface) and 200MB/s (QSPI with data strobe)
- Direct Byte Write and Read While Write modes
- Fast writes (no erase cycle)

EASY TO ADOPT

Easy to adopt

- KGW option enables SiP for tiny form factor designs
- ULTREON™ Solutions Hub (SDK and development platforms)
- NOR Flash compatibility mode

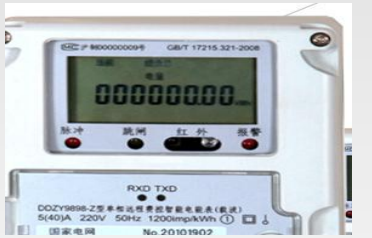
Target Applications



Portable devices



Industrial IoT



Metering



Smart Home



Hearing Aids

Copyright © Infineon Technologies AG 2026. All rights reserved.

ULTREON™ LP RRAM key features

Density & Voltage

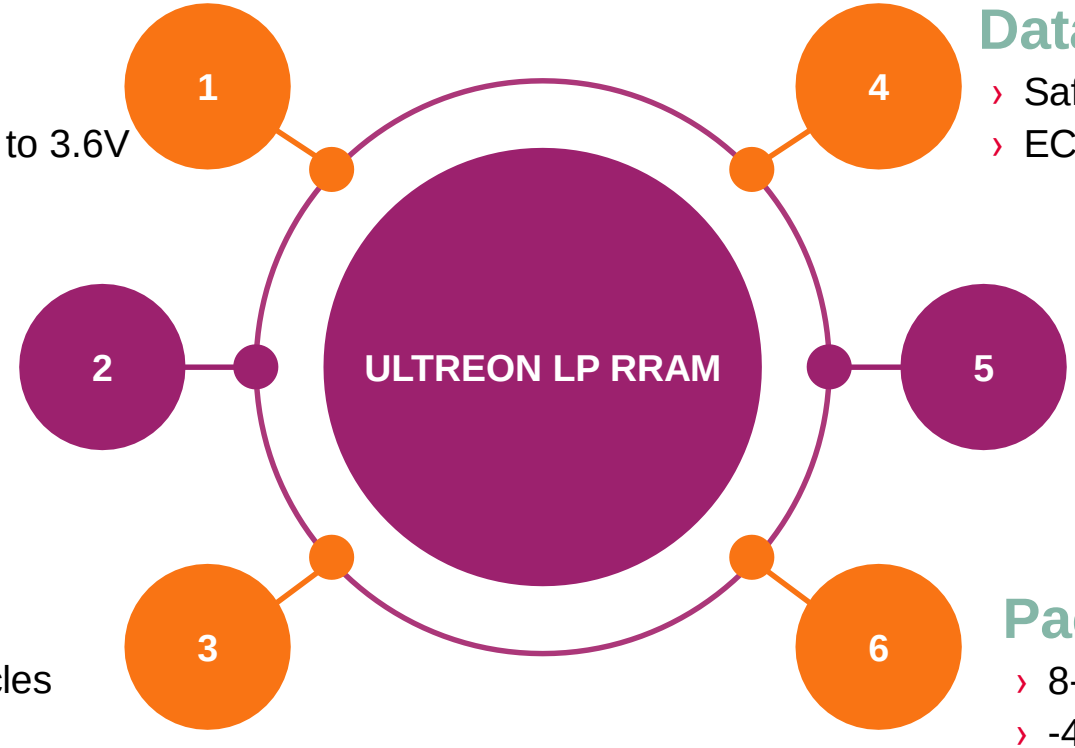
- 8Mb, 16Mb, 32Mb, 64Mb
- 1.8V and 3.0V; WR[1]:1.65V to 3.6V

Low Power

- Read: 0.3mA (SPI), 8.7mA (QSPI, Octal)
- Standby: 10uA; UDPD: 0.4uA

Reliability

- 200K endurance write cycles
- 20 years retention



Data integrity

- SafeBoot
- ECC

Interface & Performance

- QSPI: 200Mhz DDR w/data strobe
- Octal: 200Mhz DDR

Packages & Temp

- 8-SOIC, WSON, WLCSP, KGW
- -40°C to 105°C

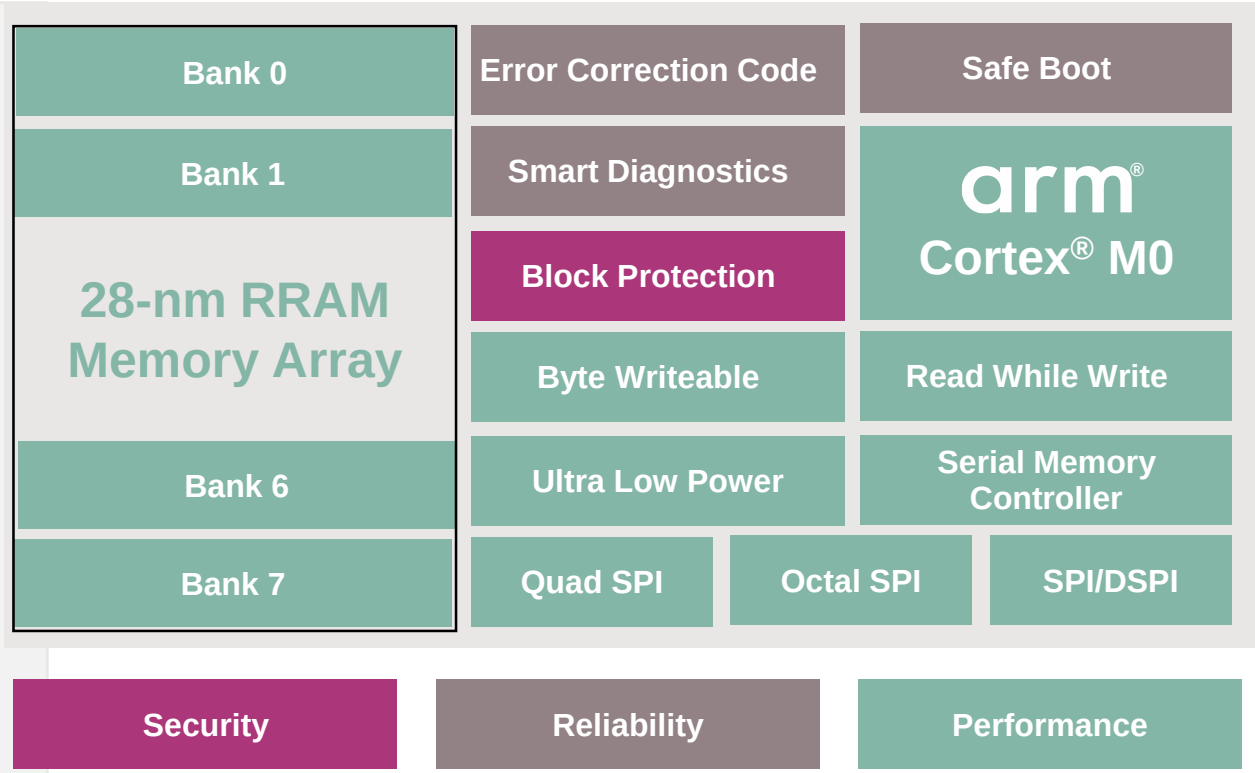
[1] Wide range voltage

Copyright © Infineon Technologies AG 2026. All rights reserved.

ULTREON™ LP RRAM Product Overview

Features

- **Operating Voltage Range**
  - 1.8 V; 3V;1.65 V to 3.6 V (Wide Range)
  - 1.2V I/O option (BGA, WLCSP, KGD)
- **Density**
  - 8Mb (1MB) ~ 64Mb (8MB) (SPI/QSPI)
  - 32Mb (4MB) ~ 64Mb (8MB) (Octal/XSPI)
- **Performance**
  - Octal SPI: 200-MHz DDR with 400-MB/s read bandwidth
  - QSPI: 200-MHz DDR with 200-MB/s read bandwidth with data-strobe
  - SPI/DSPI: 50-MHz SDR
  - Page Write (256B) with 604-KB/s write bandwidth
- **Additional Features**
  - Direct Byte Write Capability
  - Read While Write Capability (16Mb~64Mb)
  - On-chip Error Correcting Code (ECC)
- **Reliability**
  - 200K Writes (Endurance), 20 Years (Data Retention)
- **Lowest Power**
  - <0.5mA (Typ) @ 10-MHz Read Current (SPI/DSPI)
  - 5.5mA (Typ) @ 166-MHz Read Current
  - 12mA (Typ) Write (Program) Current
  - 10 µA (Typ) Standby; 0.4uA (Typ) Ultra Deep Power Down Current
- **Temperature Range**
  - 0°C ~ +70°C (Commercial); -40°C ~ +85°C (Industrial); -40°C ~ +105°C (Industrial+)
- **Packages**
  - SOIC*, WSON*, BGA, WLCSP, KGD (*: SPI/QSPI)



Availability

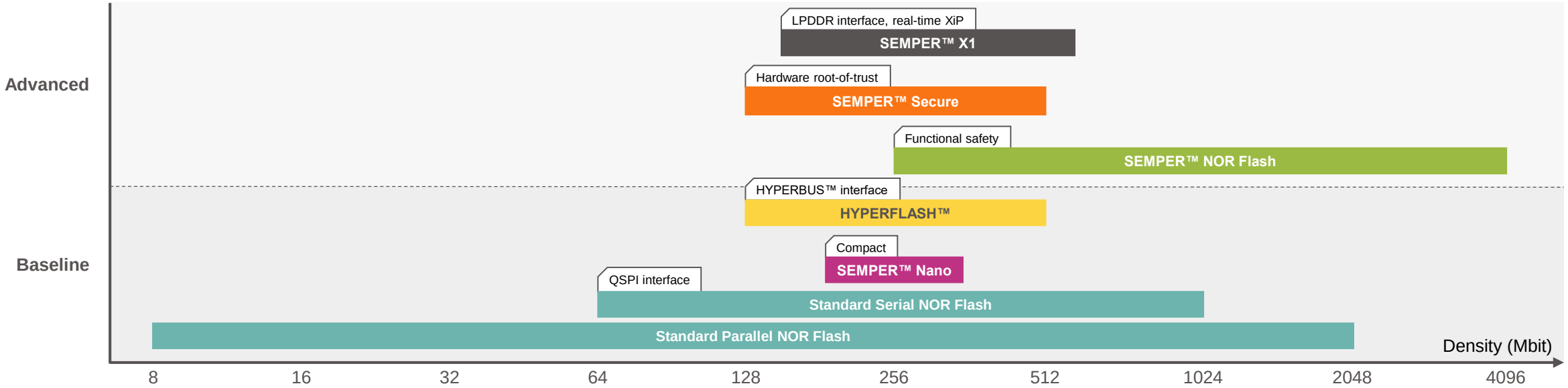
Samples: 64Mb (Q323)
Samples: 32Mb (Q224)
Samples: 16Mb (Q324)*
Samples: 8Mb (Q424)*

Production: 64Mb (Q124)
Production: 32Mb (Q424)
Production: 16Mb (Q125)*
Production: 8Mb (Q225)*

*: SPI/QSPI

Copyright © Infineon Technologies AG 2026. All rights reserved.

NOR Flash product portfolio summary



Standard

Parallel NOR Flash
8Mb – 2Gb

Serial NOR Flash
64Mb – 1Gb

Wide range of industry-proven solutions

SEMPER™ Nano

SEMPER Nano
256Mb

Tiny footprint for small form-factor products

HYPERFLASH™

HYPERFLASH™
128Mb – 512Mb

For systems tailored to the HYPERBUS™ interface

SEMPER™

SEMPER NOR Flash
256Mb – 4Gb

Architected and designed for functional safety

SEMPER™ Secure

SEMPER Secure
256Mb – 512Mb

Where safety and security are paramount

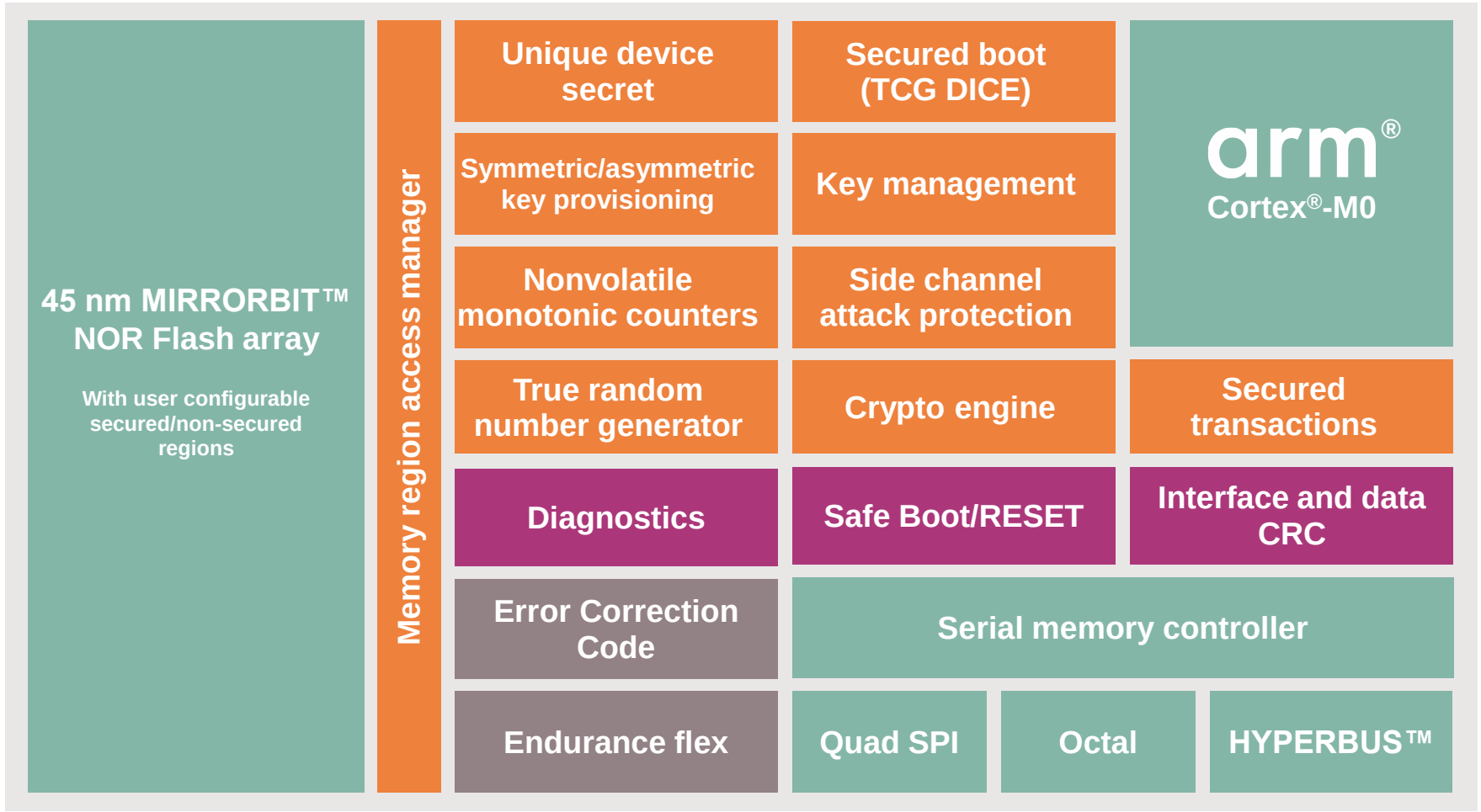
SEMPER™ X1

SEMPER X1
144Mb – 576Mb

World's first LPDDR Flash enables real-time XiP

Copyright © Infineon Technologies AG 2026. All rights reserved.

Adding security to trusted SEMPER™ NOR Flash family architecture



Density
Lead: 256Mb
Concept: 128Mb, 512Mb, 1Gb

Voltage
1.8V and 3.0V

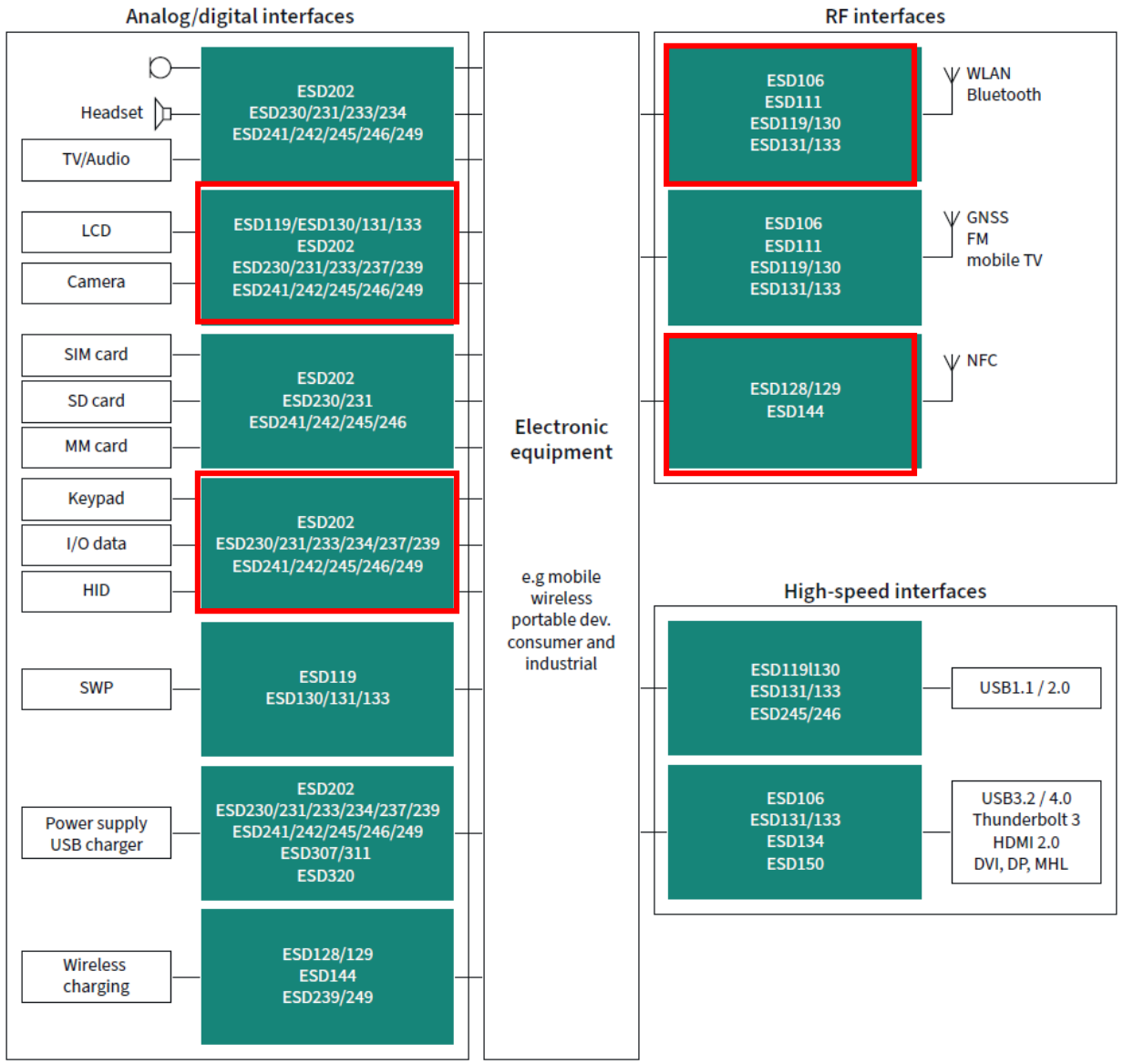
Performance
JEDEC xSPI: 400MB/s
QSPI: 102 MB/s

Reliability
500K+ cycles endurance
25 years retention

Package & Temp
BGA, SOIC, WSON
-40°C to 125°C
AEC-Q100 available

Copyright © Infineon Technologies AG 2026. All rights reserved.

Interface Protection with Discrete ESD



Copyright © Infineon Technologies AG 2026. All rights reserved.

Table of contents

1 Company overview 3

2 Application introduction (definition, market potential, trends) 7

3 Application requirements & challenges and value proposition 11

4 Application block diagram 14

5 Application offering details 16

6 **Get started today!** **77**

Copyright © Infineon Technologies AG 2026. All rights reserved.

Infineon Smart Lock Reference Platform

Accelerates time-to-market and new technology adoption for the broad market

Low power processing

- PSOC™ 6 microcontroller

Low power connectivity

- CYW43012 BT/Wi-Fi/Combo ICs
- RF switches, LNAs & antenna tuners
- Connectivity and Wi-Fi onboarding analytics

Human-Machine Interface

- PSOC™ 4 Touch

Supports matter over Wi-Fi



Memory

- NOR flash

Device protection

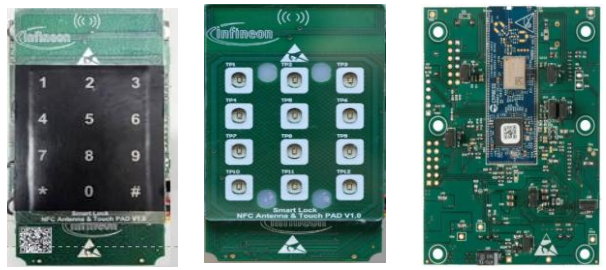
- ESD protection
- Battery authentication

Sensing & control

- H bridge motor driver

Security

- OPTIGA™ Trust M
- Secure element + NFC
- Secured-zero-touch provisioning
- Smart Access with CIPURSE™ compliant secure token

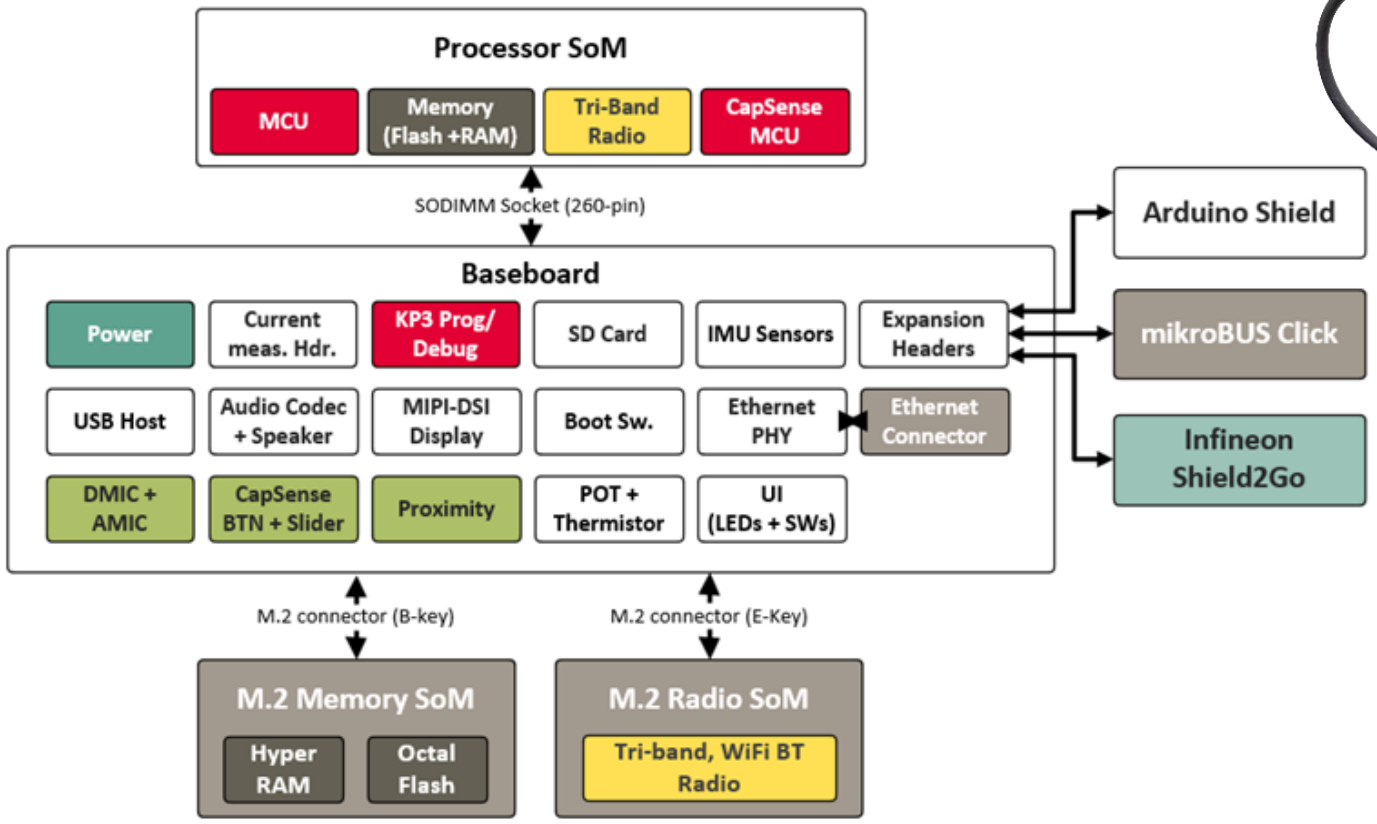


Smart Lock PCB

Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ Edge E84 Evaluation Kit







Copyright © Infineon Technologies AG 2026. All rights reserved.

PSOC™ Edge E84 HMI Kit
KIT_PSE84_HMI

Coming Soon!

Kit Content
- **PSOC™ Edge E84 HMI Kit with enclosure, sensors, and 4-inch touch display**
- **USB Type-C to Type-C cable**

Highlights
- **4-inch Touchscreen**: Resolution: 480x480 (1:1 aspect ratio) with capacitive touch
- **Digital and Analog Microphones**: 4 digital microphone arrays and 2 analog microphones capable of supporting near-field and far-field local voice commands
- **60GHz RADAR**: for touchless gestures and proximity sensing
- **USB Camera**: 0.3MP VGA 640x480 @ 30fps for interactive computer vision applications
- **Included Sensors:** PAS CO2, 6-axis accelerometer & gyroscope, humidity and temperature
- **Expansion Capability**: 2x mikroBUS™ expansion slots, SD card slot
- **Application-Centric Form Factor**: Resembles end-products, helping customers develop and visualize or easily demonstrate target Edge AI/ML application use cases of end products

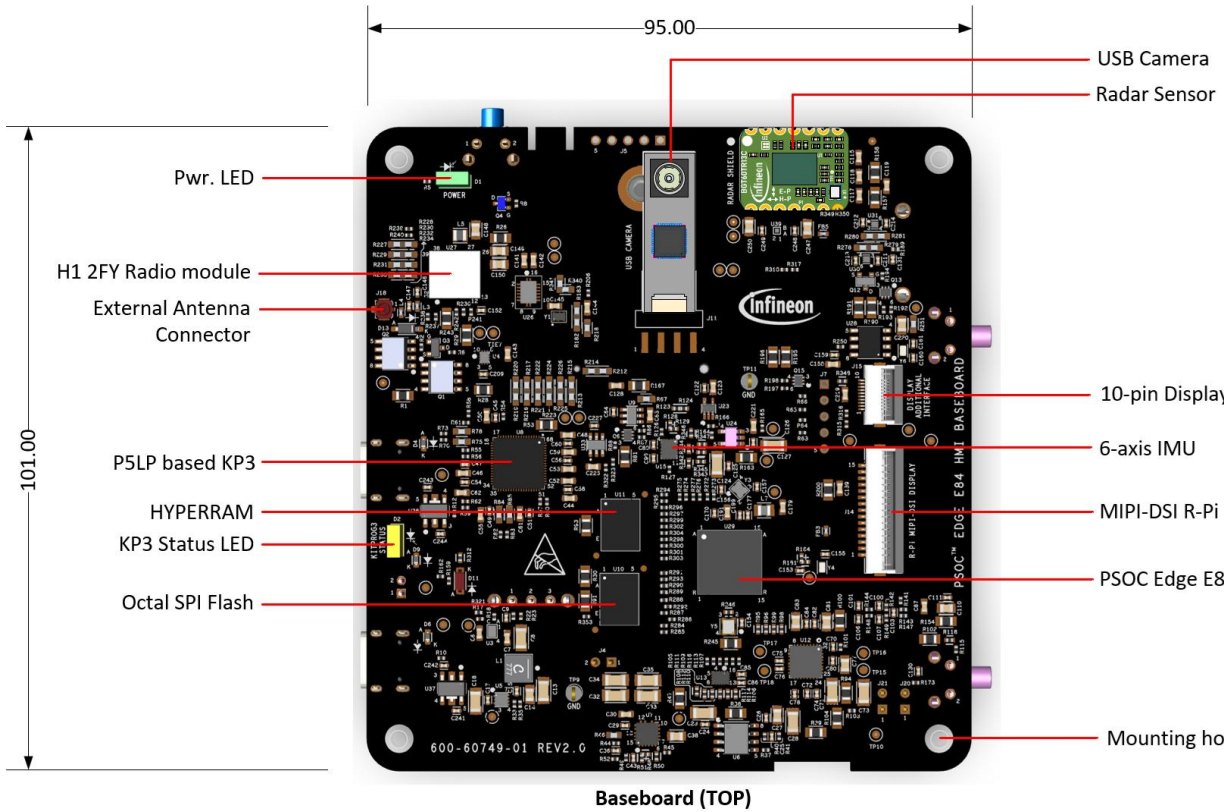
Featured Components
- **PSE846GPS2DBZC4 PSOC™ Edge E84 MCU**
- **AIROC™ CY55513 Wi-Fi + Bluetooth® combo chip w/ external antenna**
- **BGT60TR13C 60GHz Radar**
- HBVCAM-1939V11 USB camera (OV7675 sensor)
- **2x IM73A135V01 Analog Microphone**
- **4x IM73D122V01 Linear Digital Microphone array for far-field voice**
- BMI270 6-axis Accelerometer & Gyroscope
- SHT40-AD1B-R2 Humidity and Temperature sensor
- **PASCO2V15 PAS CO2 sensor**
- **S80KS5123GABHI023 64MB Octal-SPI HYPERRAM**
- **S28HS01GTGZBHI030 128MB Octal-SPI NOR Flash**
- Audio Amplifier with Speaker



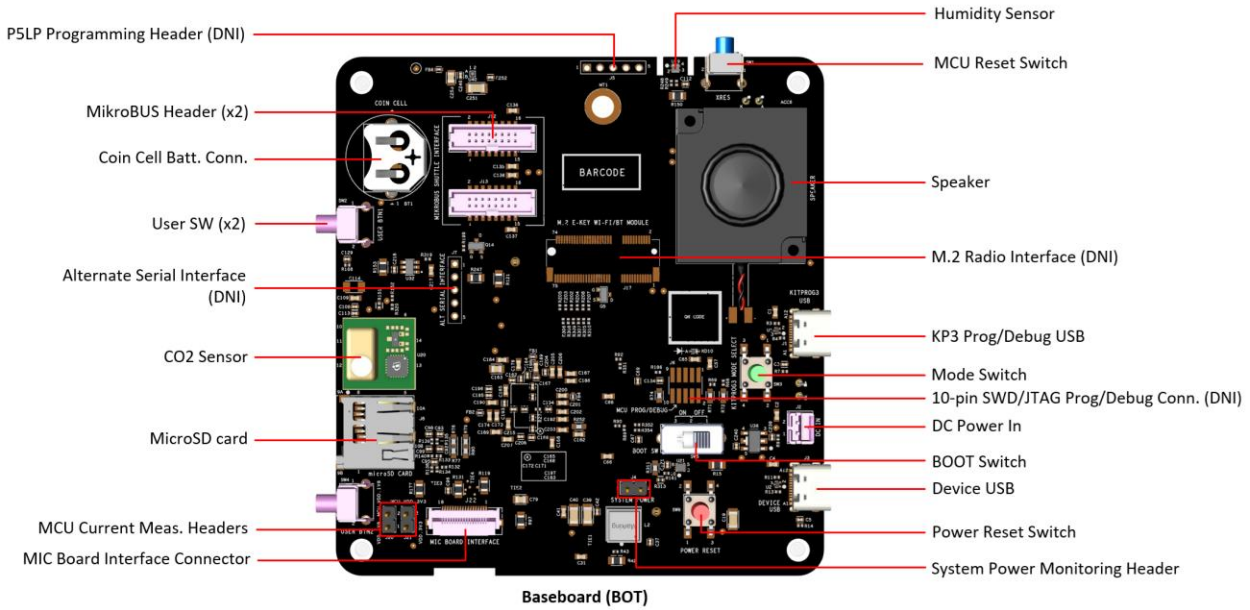
Kit Status
- **Availability: Feb 2026**
- **Orderable P/N**: KIT_PSE84_HMI

Copyright © Infineon Technologies AG 2026. All rights reserved.

Inside of HMI Kit



Baseboard (TOP)



Baseboard (BOT)

Copyright © Infineon Technologies AG 2026. All rights reserved.


Infineon