Application presentation
Point of Sale (POS) terminals

John Wu (CSS/ICW/AM/IOT/L2)
April 2026

Public

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Infineon is a global leader in power systems and IoT

Global leader

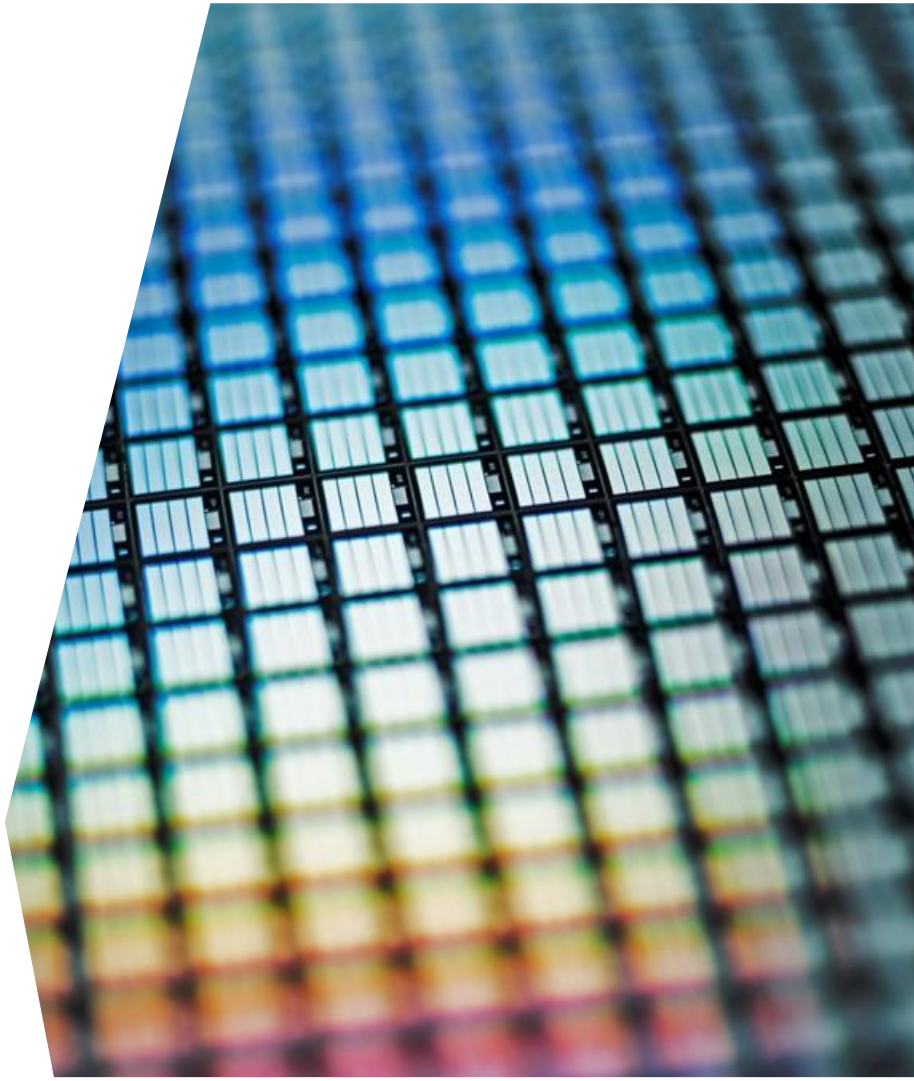
in automotive, power management,
energy efficient technologies and IoT

~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

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Infineon at a glance

Growth areas



Energy
green and efficient

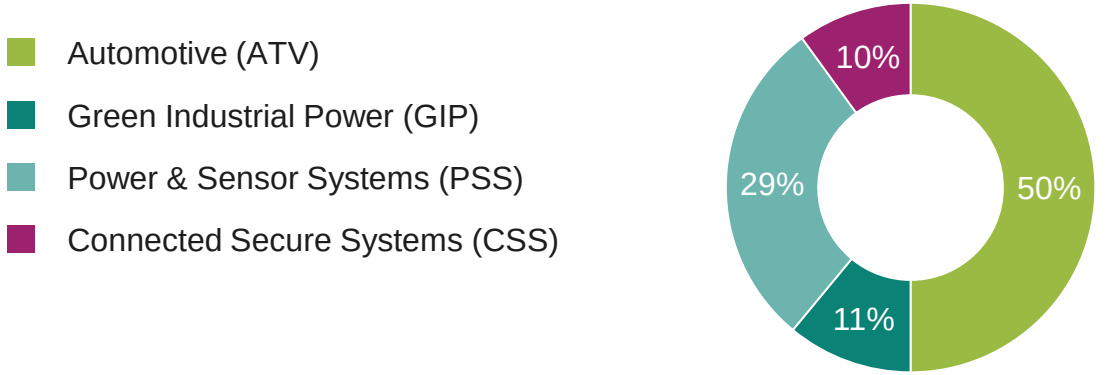


Mobility
clean and safe

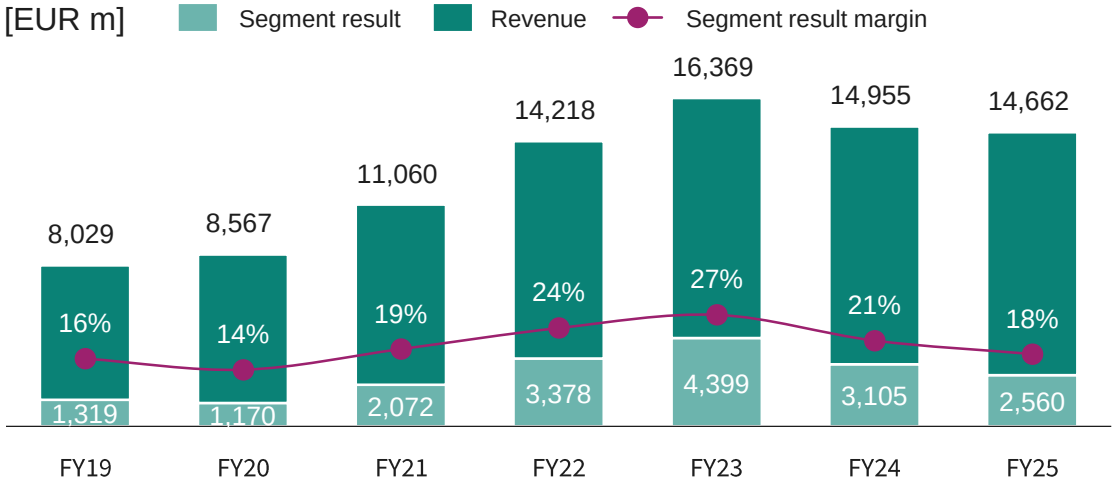


IoT
smart and secure

FY25 revenue by segment[1]



Financials

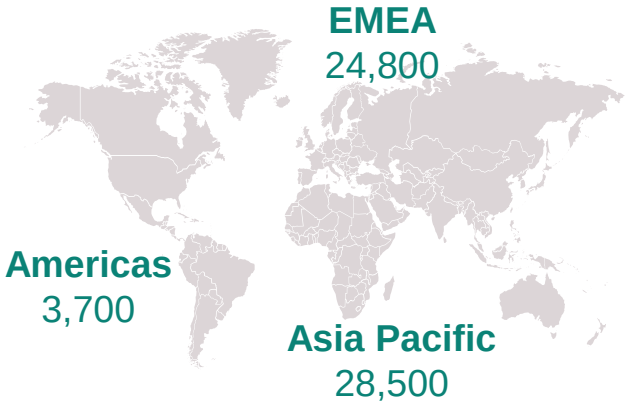


Employees[1]

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

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

Consumer IoT



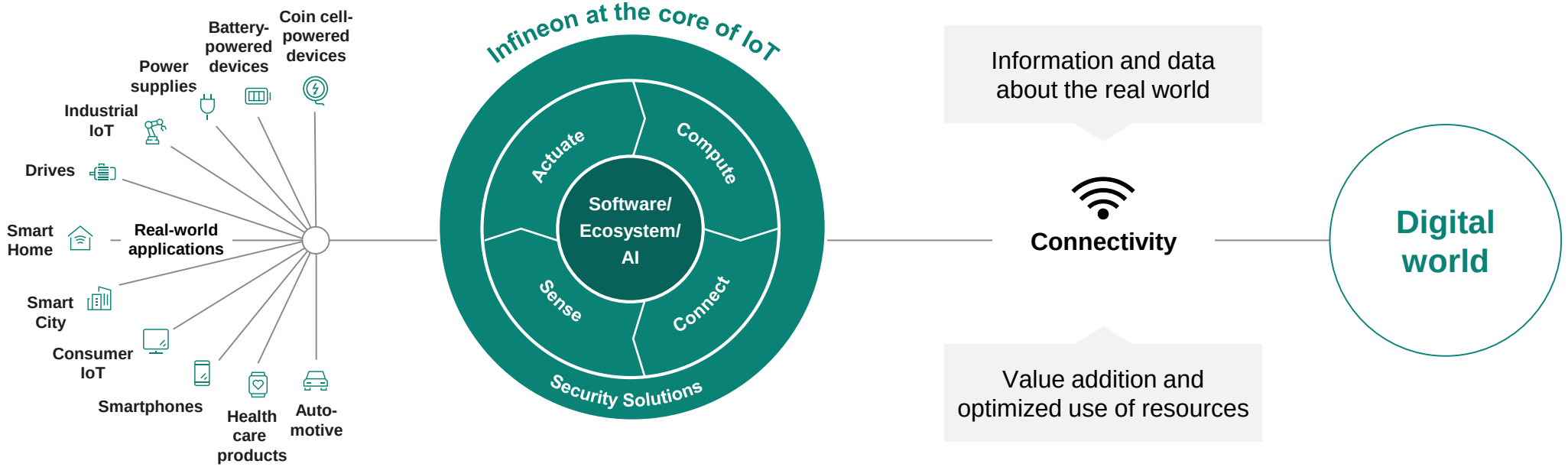
Industrial IoT



Automotive IoT



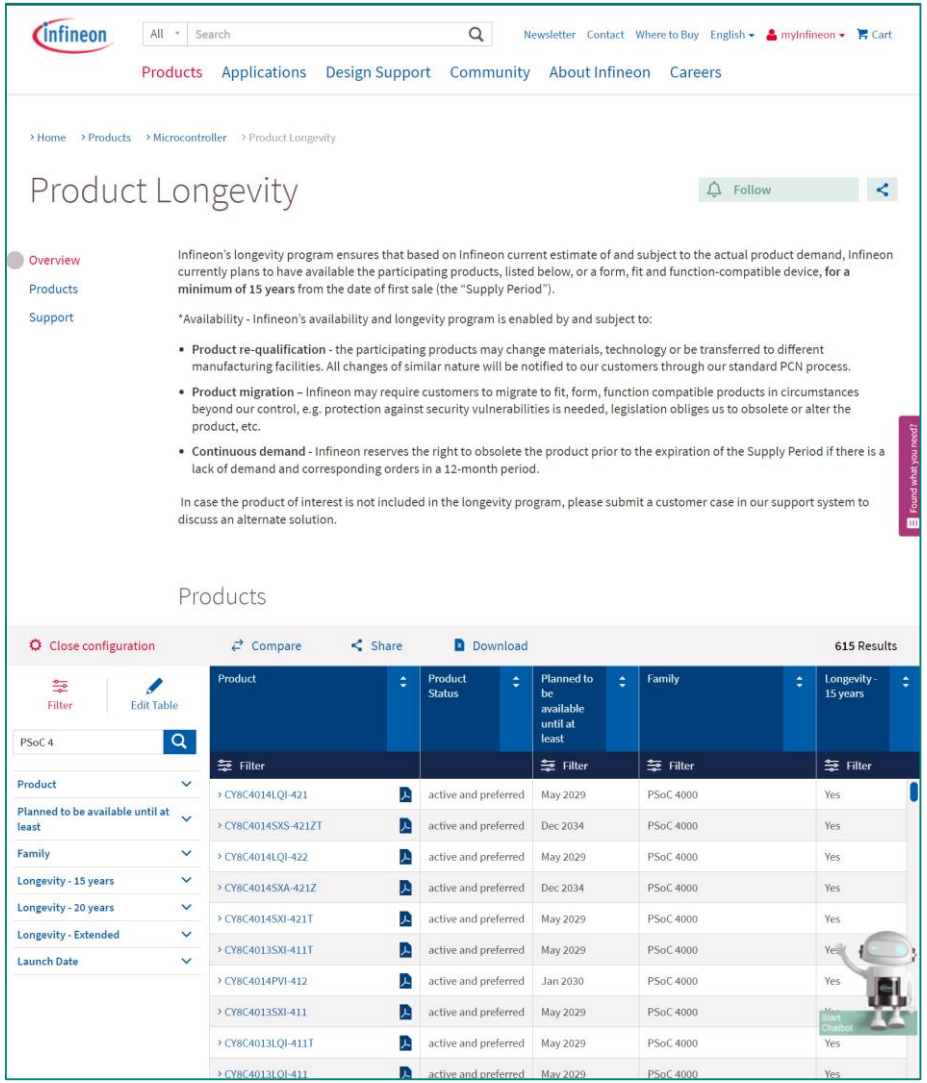
Products: MCU – Connectivity (Wi-Fi, BLE, NFC) – Sensors – Security – Power supply & switches



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Product Longevity Program - MCU

- Guaranteed for at least 15-years from first sale
- In general, most are extended (>20yrs) if:
  - Continuous demand exists
  - Manufacturability remains practical



https://www.infineon.com/cms/en/product/microcontroller/product-longevity/

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Product segments

Fixed POS

- x86 based running Windows or Multi-core A class MPU with Android support
- AC powered
- Large LCD display
- Wired connection or all-in-one integrated with barcode scanner, printer, PINPad for payment, etc
- Wi-Fi connectivity optional
- Cortex-Ax MPU + secure microcontroller for payment

PINPad terminals

- Secure microcontroller inside
- Optional Cortex-A class MPU running Android
- Wired connection with POS, via USB-C, ethernet, RS-232 and/or proprietary interfaces
- Optional Wi-Fi and/or BT/BLE connectivity
- Color or segment LCD
- DC power supply

Portable POS

- Multi-core A class MPU with Android + secure microcontroller
- Color LCD display
- Touchscreen and/or keypad
- 4G/5G, GNSS, Wi-Fi/BLE
- Front and/or rear cameras
- Printer
- Battery powered
- Optional DC power input
- Docking station for charging

Mobile POS (mPOS)

- Secure microcontroller
- Wired or BLE to connect with mobile phone or tablet
- Battery powered optional
- Optional segment LCD
- Optional keypad
- Optional DC power input

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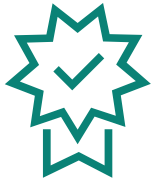
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Infineon value proposition for application Point of Sale



Industry‘s highest level security

- PSA Level 4 support in PSOC Edge
- Pre-certification letter from PCI PTS
- ISO7816 UART firmware for SmartCard support
- Internal and external tamper detection



Integrated hardware and solution

- PSOC Edge: rich peripheral set, FreeRTOS and Zephyr OS
- AI/ML in PSOC Edge for new digital payment strategies
- Seamless software integration of Wi-Fi/BLE for PSOC Edge
- Microphone and 3D magmetic sensor for tamper protection
- Secure NOR flash offering



Low power and high efficiency

- PSOC Edge with low static and dynamic power consumption
- Cortex-M55 and M33 are ARM‘s v8 high energy efficiency cores.
- Low power Wi-Fi 6/6E supporting long range
- Wi-Fi host offload features for extra power saving

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Security in POS Applications

Security Requirements in PCI PTS HSM

- Tamper detection mechanisms
- Robustness under changing environmental and operational conditions
- Protection of sensitive functions, information, or services
- Invasive attacks for cryptographic keys
- Non-invasive attacks for cryptographic keys
- Self-tests
- Logical anomalies
- Firmware updates
- Application authenticity
- Logical interfaces
- Clearing of internal buffers
- Key entry
- Random numbers
- Cryptographic algorithms
- Key management
- Cryptographic key loss
- Encryption and decryption of arbitrary data within the device
- Clear-text key security
- PIN management
- Secure logging
- Application separation
- Unique device ID
- Minimal configuration
- …



PSOC™ Edge Security

Required Security Features

- Secured lifecycles
- Secured boot
- Secured FW updates (IFX and Customer)
- Authentication
- Mutual authentication
- TRNG entropy - FIPS
- OTP Memory (IFX and customer programmable)
- Processing, memory and peripheral isolation
- Secured debug
- Secured cloud connectivity
- Secured chip to chip communications (Secure GPIO)
- Upgradeable root certs and keys
- Secured storage
- Attestation
- Key/cert generation
- Secured destruction
- Non-dedicated external tamper pins
- Key revocation
- On the fly encryption (Secured SMIF XiP)
- Protection Contexts (16 PCs)

Security Assurance

Logical SW Countermeasures

- SW Best Practices (DPA/SC/FI)
- TrustZone and TF-M Processing Isolation
- Protection Context (0-15)

Root of Trust and HW Countermeasures:

- Redundancy and Scrambling
- HW Isolation including Secure Enclave
- Signal Layout

Futureproofing

- Using the right crypto algos/keys/curves
- Standards
- Certifications
- Regulatory compliance
- Development and manufacturing processes

PCI PTS pre-certified

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PSA Certified Level 4 vs. Level 3

Higher level of protection against sophisticated attacks POS benefits

Attack Resistance:

•Level 4 offers a higher level of attack resistance (Attack Potential=25) compared to Level 3 (Attack Potential <21), making it suitable for applications requiring the highest security assurance.

Focus:

•Level 3 focuses on the overall RoT security, while Level 4, specifically for Integrated Secure Enclave(iSE)/Secure Element(SE), focuses on the security of the trusted subsystem itself.

Testing:

•Level 4 certifications are conducted by high-assurance evaluation laboratories using rigorous methodologies and advanced testing techniques.

Applicability:

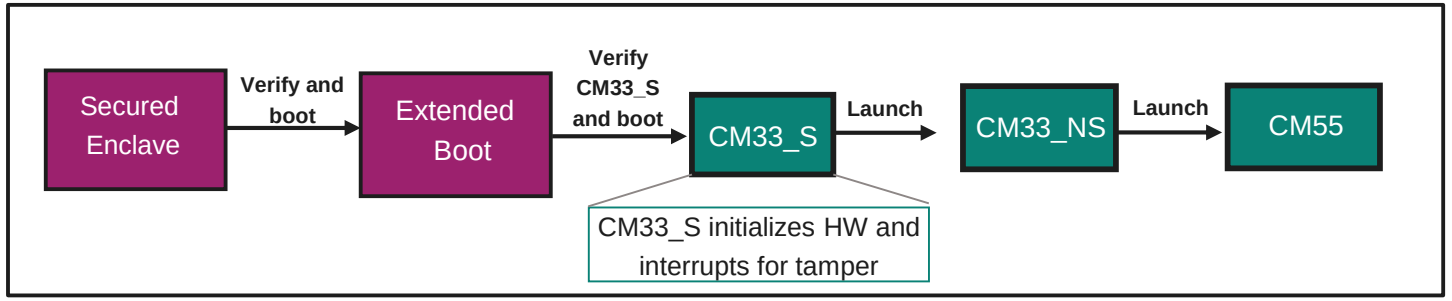
•Level 4 certification is particularly useful for applications dealing with extremely sensitive assets or those facing sophisticated adversaries.

Source: PSA website

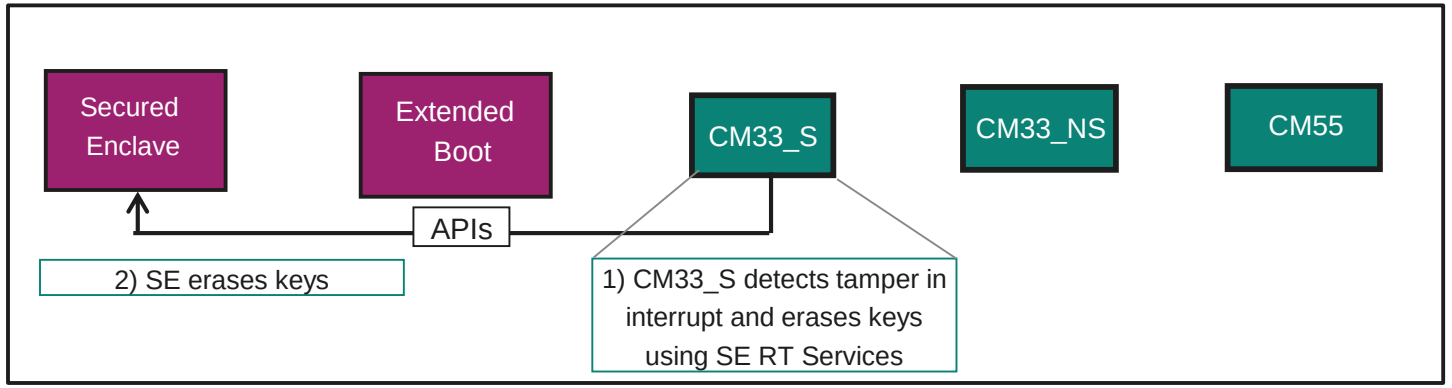
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Tamper Detection Responses

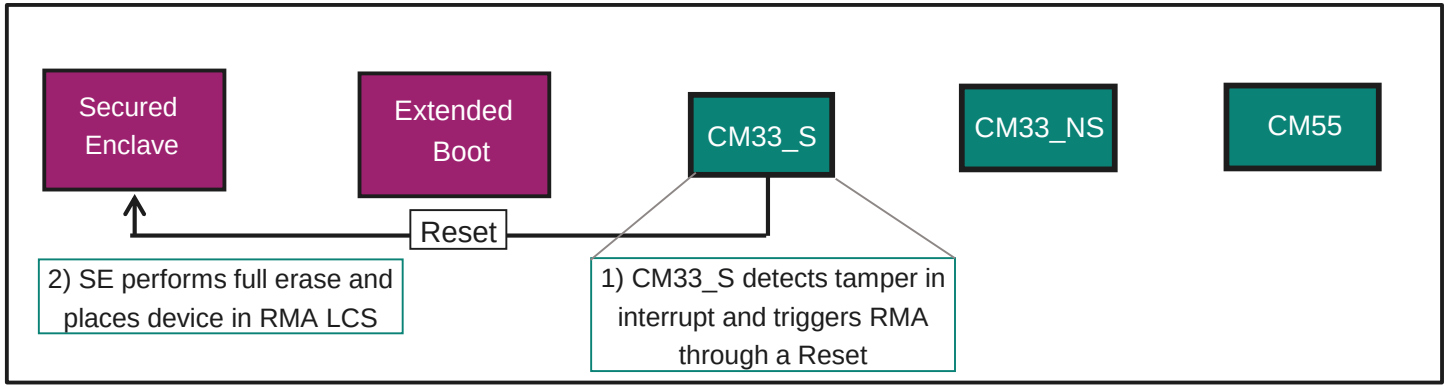
– Boot mechanism, extending RoT to CM33_S
- Note: Edge Protect Bootloader can optionally extend RoT to all Apps



– **Tamper Response Method 1: SE Key Erase**
- Keys erased by SE on request
- Takes a few ms (exact time TBD)
- Device is recoverable and keys may be reloaded

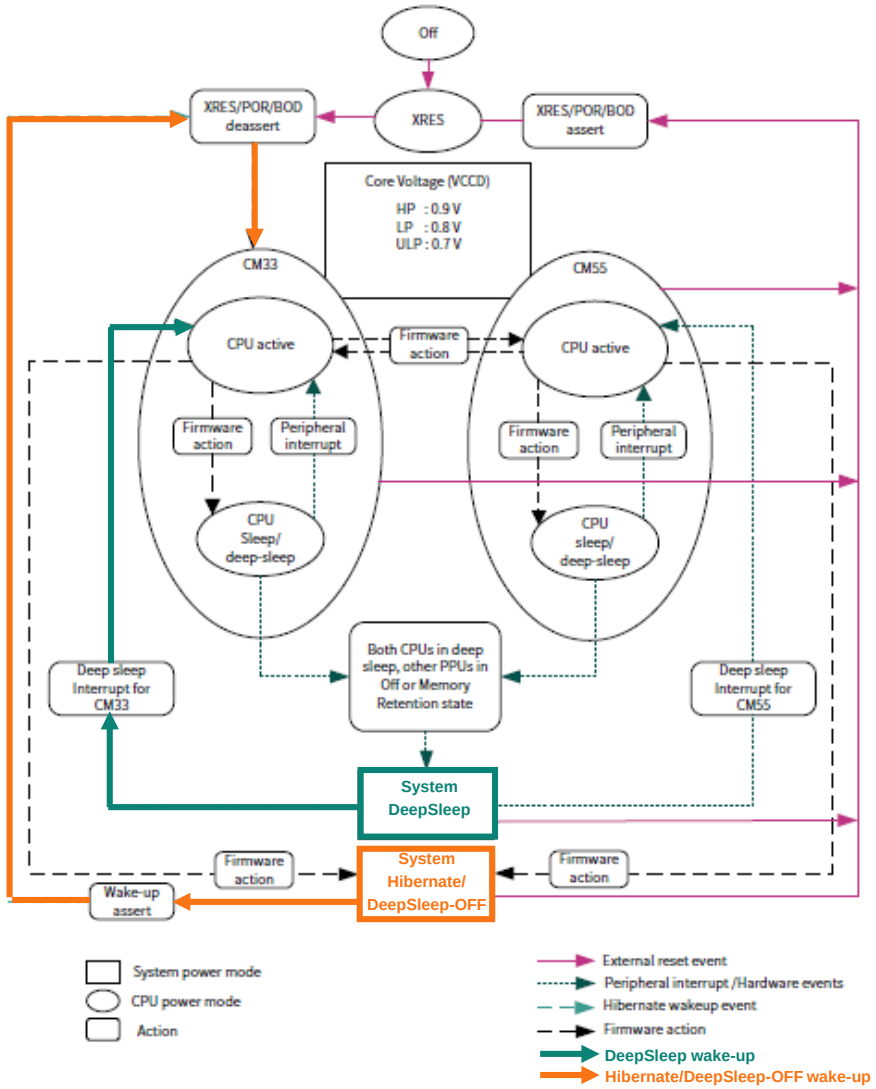


– **Tamper Response Method 2: RMA**
- Everything completely deleted, including device keys. Device can't be recovered.
- Can take ~1s (exact time TBD)



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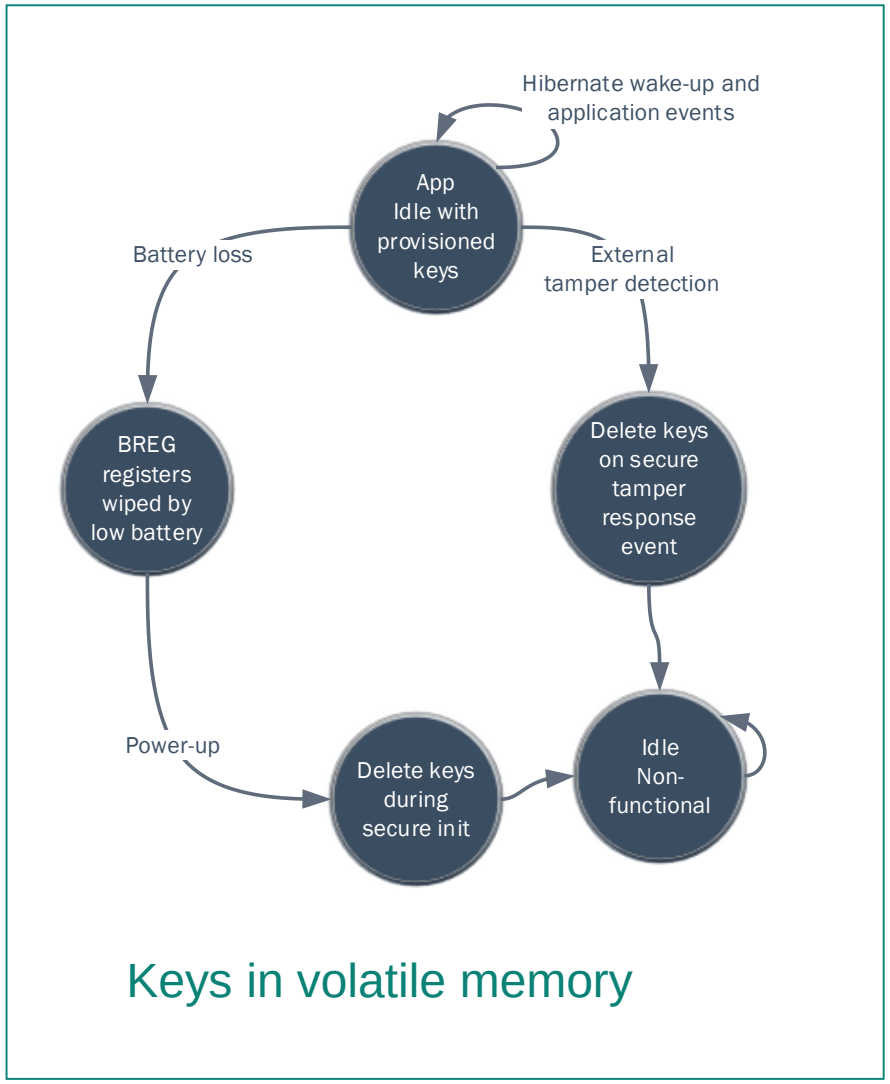
Tamper Detection Response time



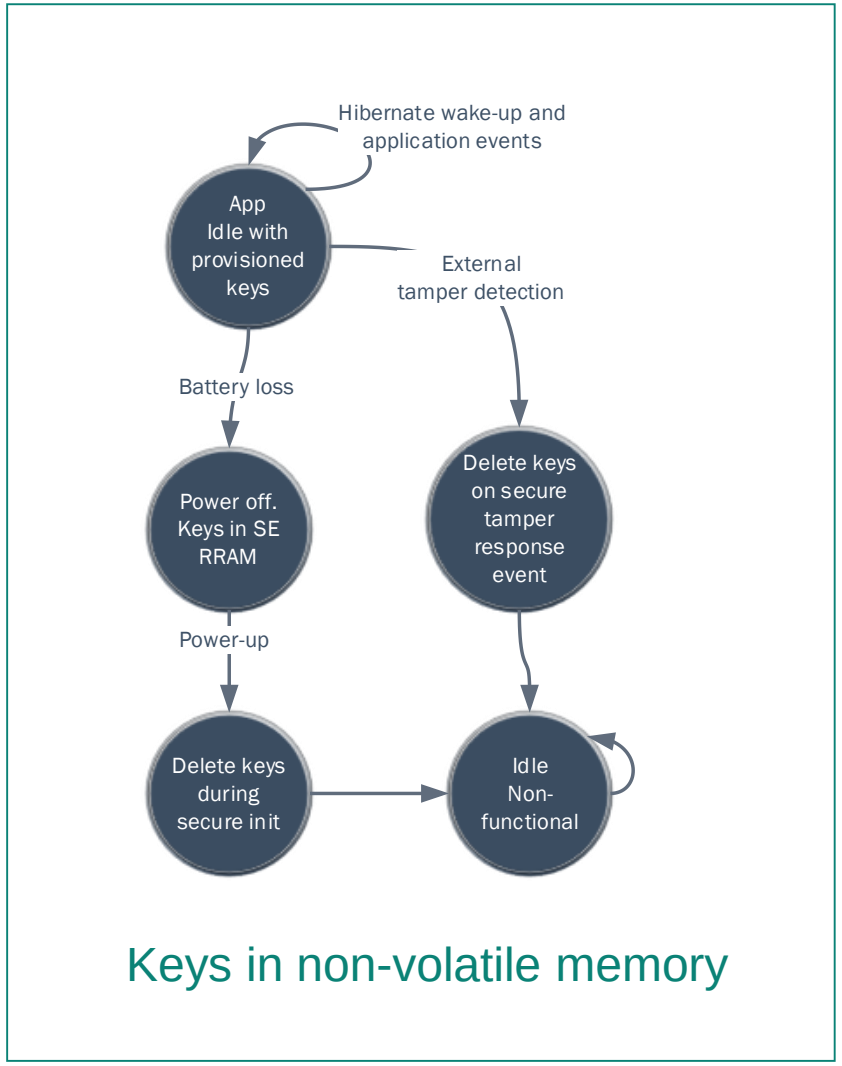
- After an event is detected by hardware, the transition time to Active mode depends on power mode and boot options:
  - DeepSleep: ~20µs (typ)
  - Hibernate/DeepSleep-OFF: Cold boot time: ~25ms to >200ms
    - Secure boot OFF:
      - 25-30ms
    - Secure boot ON:
      - 25-30ms + 170ms (ECDSA verify) + image size KB / 100 x 8ms (SHA-256)
    - EPC4 device adds +~5ms

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Key handling after tamper response



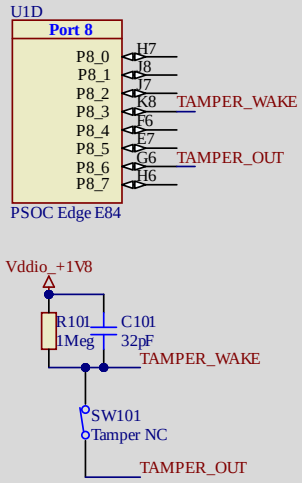
Keys in volatile memory



Keys in non-volatile memory

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External Tamper HW Passive Detection - Single line using GPIO in Hibernate mode



- TAMPER_WAKE detects when switch opens.
  + P8.3/hibernate_wakeup or P8.7/hibernate_wakeup should be used in hibernate mode. Any GPIO can be used in other modes.

- TAMPER_OUT drives a low state to activate circuit, or Hi-Z to deactivate.
  +Any GPIO can be used.
  + Alternatively, connect to GND.

- Component values can be adjusted as needed based on power and noise requirements.

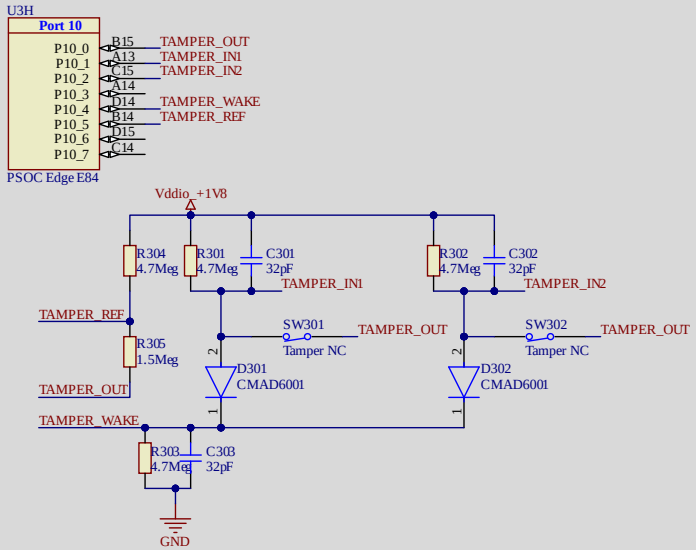
- Internal resistor can be used, allowing to control polarity, but at expense of higher power.

Tamper Mode	Passive. - Circuit shown is for normally closed tamper switch detecting high when open
Power[1]	Available in all power modes, including hibernate: - Hibernate: as low as ~3.33µW (0.3µA @ 3.3V + 1.3µA @ 1.8V) - External circuitry depends on pull-up value
Response time[1]	- DeepSleep-OFF / Hibernate: ~25ms without secure boot, to >200ms with secure boot
Number of lines[1]	- One line per input. - PSOC™ Edge has 2 inputs (P8.3/P8.7) supporting Hibernate mode (availability depends on package) - Any GPIO can be used in other modes

[1] For PSOC™ Edge E84

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External Tamper HW Passive Detection - Multiple lines using LPComp in Hibernate mode



- TAMPER_WAKE detects when switch opens.
  + P10.4/lpcomp0_in+ or P10.6/lpcomp1_in+ should be used.
- TAMPER_OUT drives a low state to activate circuit, or Hi-Z to deactivate.
  +Any pin can be used.
  + Alternatively, connect to GND.
- TAMPER_REF drives a reference voltage.
  + P10.5/lpcomp0_in- or P10.7/lpcomp1_in- should be used.
  + Alternatively, the internal reference can be used, but threshold is not adjustable.
- TAMPER_INx is optional but can be used to detect which line caused the event.
  + Any pin can be used.
- Component values can be adjusted as needed based on power and noise requirements.

- Diodes require low forward voltage and leakage current. It's recommended to simulate circuit over temperature.

Tamper mode	Passive. - Circuit shown is for 2 normally closed tamper switches detecting high when open
Power[1]	Available in all power modes, including hibernate: - Hibernate: as low as ~3.33µW (0.3µA @ 3.3V + 1.3µA @ 1.8V) - LPComp adder: 0.3µA in ULP mode @ 1.8V - External circuitry depends on pull-up/down values
Response time[1]	- DeepSleep-OFF / Hibernate: ~25ms without secure boot, to >200ms with secure boot
Number of lines[1]	- Multiple lines per LPComp. - PSOC™ Edge has 2 LPComps (availability depends on package) - Maximum number of lines depends on external circuitry. Diode selection and resistors can be adjusted for more/less lines.

[1] For PSOC™ Edge E84

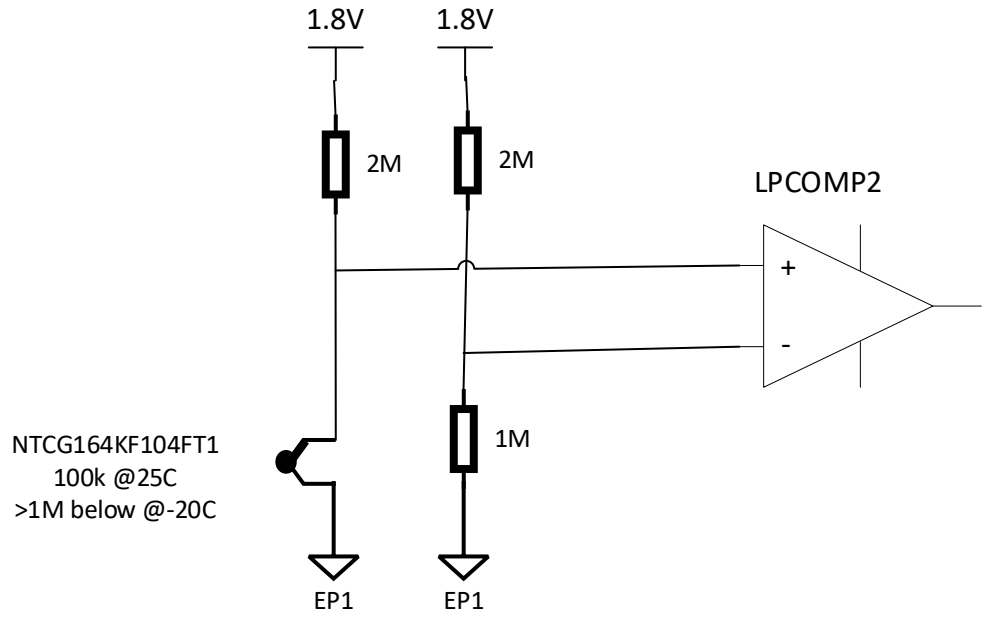
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Temperature Tamper detection support

– The sample circuit, as shown below, shows temperature tampering detection that drops below -20C. Using LPCOMP to wake system from hibernate, and this allows the CM33S to read the IO and erase the key stored in the Secure Enclave.

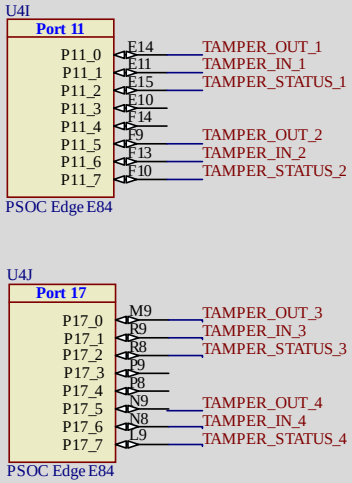
Current Consumption = 1.8V/2.1M + 1.8V/3M

= **1.45uA**



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External Tamper HW Active Detection - Multiple lines using Smart I/O in DeepSleep mode



This tamper detection implementation uses Smart I/O to detect up to 4 pairs of tamper lines driving a pre-defined pattern:
- TAMPER_OUT1 drives TAMPER_IN_1
- TAMPER_OUT2 drives TAMPER_IN_2
- TAMPER_OUT3 drives TAMPER_IN_3
- TAMPER_OUT4 drives TAMPER_IN_4

Availability of Smart I/O pins depends on device package.

This implementation can be used in any low-power mode, except hibernate. Deep-Sleep-OFF would provide lowest power consumption.

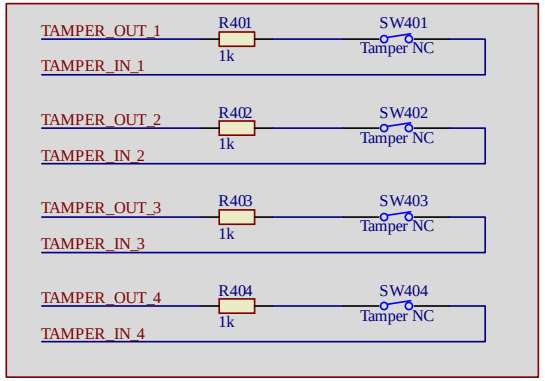
Wake-up time after a mismatch of TAMPER_OUT vs TAMPER_IN will be 1 LFCLK, plus the device wake-up time which depends on system power mode. See datasheet for specs.

The specific pins for SMART I/O based tamper detection should not move. Moving the pins will require a redesign of the SMART I/O logic.

If the pins in the circuit do need to be used for other purposes, then each circuit must remain within the group of 4 pins from the given port. For example, tamper circuit 1 OUT and IN pins must be on pins 11.0 - 11.3. This is due to the way Smart I/O fabric is implemented.

TAMPER_STATUS_1
TAMPER_STATUS_2
TAMPER_STATUS_3
TAMPER_STATUS_4

The Tamper Status pins are used to output the logic of the SMART I/O. A GPIO interrupt will be set on the falling edge of the Status pin. This interrupt is the trigger for the tamper detection. This signal is a Strong output from the device.
No external circuitry should be placed on these signals.

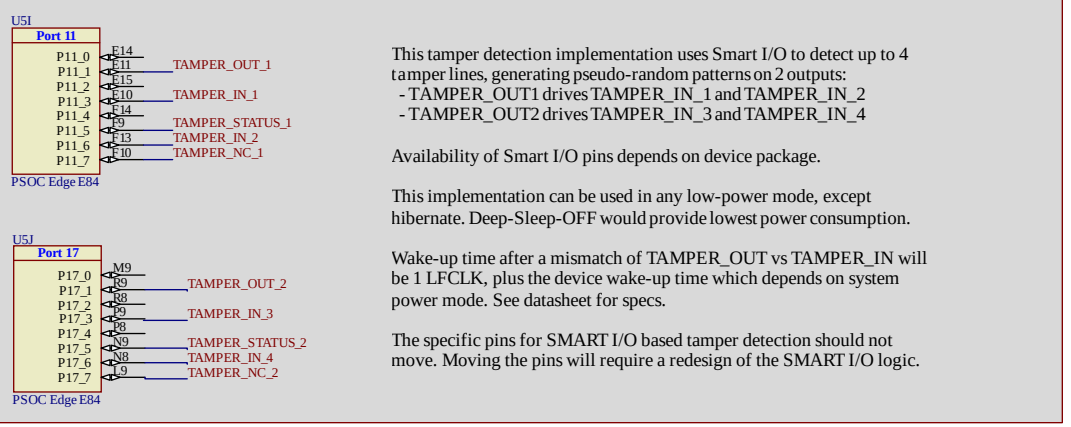


Tamper mode	Active. - Circuit shown is for 4 tamper line pairs
Power[1]	Available in DeepSleep-OFF or higher: - DeepSleep-OFF: TBD - DeepSleep with 64kB RAM retention: ~85.3µW (24µA @ 3.3V + 3.4µA @ 1.8V) - Smart I/O adder: ~2µA
Response time[1]	- DeepSleep-OFF: 25 without secure boot, to >200ms with secure boot - DeepSleep: ~20µs
Number of lines[1]	- Up to 2 line pairs per Smart I/O. - PSOC™ Edge has 2 Smart I/O = 4 line pairs total

[1] For PSOC™ Edge E84

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External Tamper HW Active Detection - Multi-lines with Smart I/O in DeepSleep mode using Pseudo-Random generation



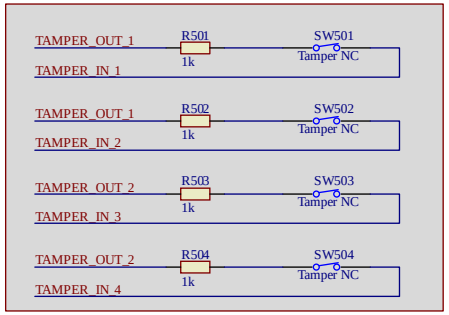
This tamper detection implementation uses Smart I/O to detect up to 4 tamper lines, generating pseudo-random patterns on 2 outputs:
- TAMPER_OUT1 drives TAMPER_IN_1 and TAMPER_IN_2
- TAMPER_OUT2 drives TAMPER_IN_3 and TAMPER_IN_4

Availability of Smart I/O pins depends on device package.

This implementation can be used in any low-power mode, except hibernate. Deep-Sleep-OFF would provide lowest power consumption.

Wake-up time after a mismatch of TAMPER_OUT vs TAMPER_IN will be 1 LFCLK, plus the device wake-up time which depends on system power mode. See datasheet for specs.

The specific pins for SMART I/O based tamper detection should not move. Moving the pins will require a redesign of the SMART I/O logic.



TAMPER_STATUS_1
TAMPER_STATUS_2

The Tamper Status pins are used to output the logic of the SMART I/O.
A GPIO interrupt will be set on the falling edge of the Status pin. This interrupt is the trigger for the tamper detection. This signal is a Strong output from the device.
No external circuitry should be placed on these signals.

TAMPER_NC_1
TAMPER_NC_2

The Tamper NC lines are used by Smart I/O and are reserved. No external circuitry should be connected.

Tamper mode	Active. - Circuit shown is for 4 tamper lines with 2 outputs patterns
Power[1]	Available in DeepSleep-OFF or higher: - DeepSleep-OFF: TBD - DeepSleep with 64kB RAM retention: ~85.3µW (24µA @ 3.3V + 3.4µA @ 1.8V) - Smart I/O adder: ~2µA + TBD pattern generation
Response time[1]	- DeepSleep-OFF: ~25ms without secure boot, to >200ms with secure boot - DeepSleep: ~20µs
Number of lines[1]	- Up to 2 lines sharing one output per Smart I/O. - PSOC™ Edge has 2 Smart I/O = 4 tamper lines with 2 outputs patterns total

[1] For PSOC™ Edge E84

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EMV Certification

– What is it ?

A global standard developed by Europay, Mastercard and Visa to ensure secured financial transactions. Payment terminals need to be tested against this standard to demonstrate ability to process EMV chip (smartcard) technology.

– What are the different levels?

1. **EMV L1: Physical and electrical + ISO7816-3 Driver**
2. EMV L2: Software and Firmware
3. EMV L3: Full transaction including payment network



What we offer

- EMV L1 Certified Source Code
- Documentation

Reduced Time-to-Market

&

Seamless Integration

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PCI-PTS (Pre)Certification

– What is it ?

PCI-PTS (Payment Card industry PIN Transaction Security) is a set of security standards ensuring that payment terminals and ATMs protect PIN codes and transaction data from fraud. It helps prevent tampering, hacking and unauthorized access to sensitive payment information.

– What is being tested?

- Non-invasive attacks for cryptographic keys
- Environmental testing
- True Random Generator (TRNG)



What we offer

PCI-PTS Pre-Certification by accredited laboratory

Reduced Laboratory time

&

Minimized Certification costs

SGS brightsight

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Power consumption in low power and active modes

Low power modes

Mode	RAM Retention	Typ (mA)	Voltage	Power (mW)
System Deep Sleep	5.5 MB	0.114	1.8	0.206
System Deep Sleep-RAM	512 KB	0.049	1.8	0.089
System Deep Sleep-OFF	-	0.036	1.8	0.065
Hibernate (RTC On)	-	0.0018	1.8	0.0033

Active modes

Core	Power	Code	MHz	VBAT	IBAT Typ (mA)	VDDD	IDDD Typ (mA)	Power (mW)	Power (uW/Mhz)
CM55	HP Mode	Dhrystone	400	3.3	13.8	1.8	2.0	49.1	123
CM55	LP Mode	Dhrystone	140	3.3	5.7	1.8	0.7	20.2	144
CM55	ULP Mode	Dhrystone	50	3.3	2.4	1.8	0.4	8.9	178
CM33	HP Mode	Dhrystone	200	3.3	4.2	1.8	1.2	16.0	80
CM33	LP Mode	Dhrystone	70	3.3	1.5	1.8	0.6	6.1	88
CM33	ULP Mode	Dhrystone	50	3.3	1.0	1.8	0.4	4.1	82

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Application Architecture:
PINPad terminals, mPOS

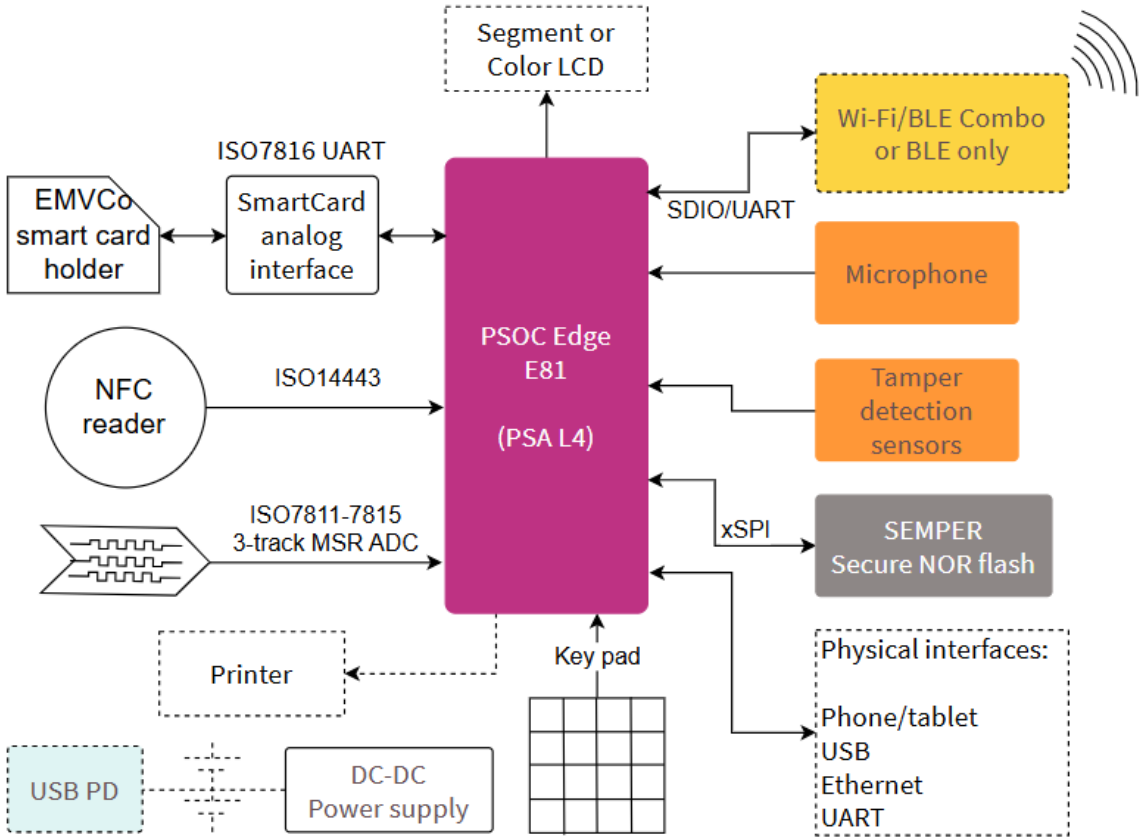
MCU
- PSOC™ Edge E81

Wi-Fi + Bluetooth®
- CYW43022 (ULP 1x1 11n DB)
- CYW5551x (1x1 11ax SB/DB/TB)
- CYW5557x (1x1/2x2 11ax DB/TB)
- CYW5591x (1x1 SB/DB/TB MCU)
- CYW20829 (Bluetooth LE LR)
- ACW740x (1x1 DB/TB Wi-Fi 7)

Memory
- SEMPER Secure NOR flash
- PSRAM

Power
- Small signal MOSFET
- ESD protection
- USB charging controller

Sensors
- Microphone



Why PSOC™ Edge E81

1. PSA Level 4 security
2. Pre-certification under PCI PTS v6.2
3. ISO7816 UART SmartCard support
4. Tamper detection mechanisms
5. Ultra-low power on both static and dynamic
6. Heterogenous Cortex-M55 and Cortex M33 architecture
7. Lowest cost member in PSOC™ Edge family
8. Rich analog and digital peripheral sets for “secure world” implementation of MSR, NFC and EMVCo card readers

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Application Architecture:

PINPad terminals and Portable POS, using high resolution color LCD

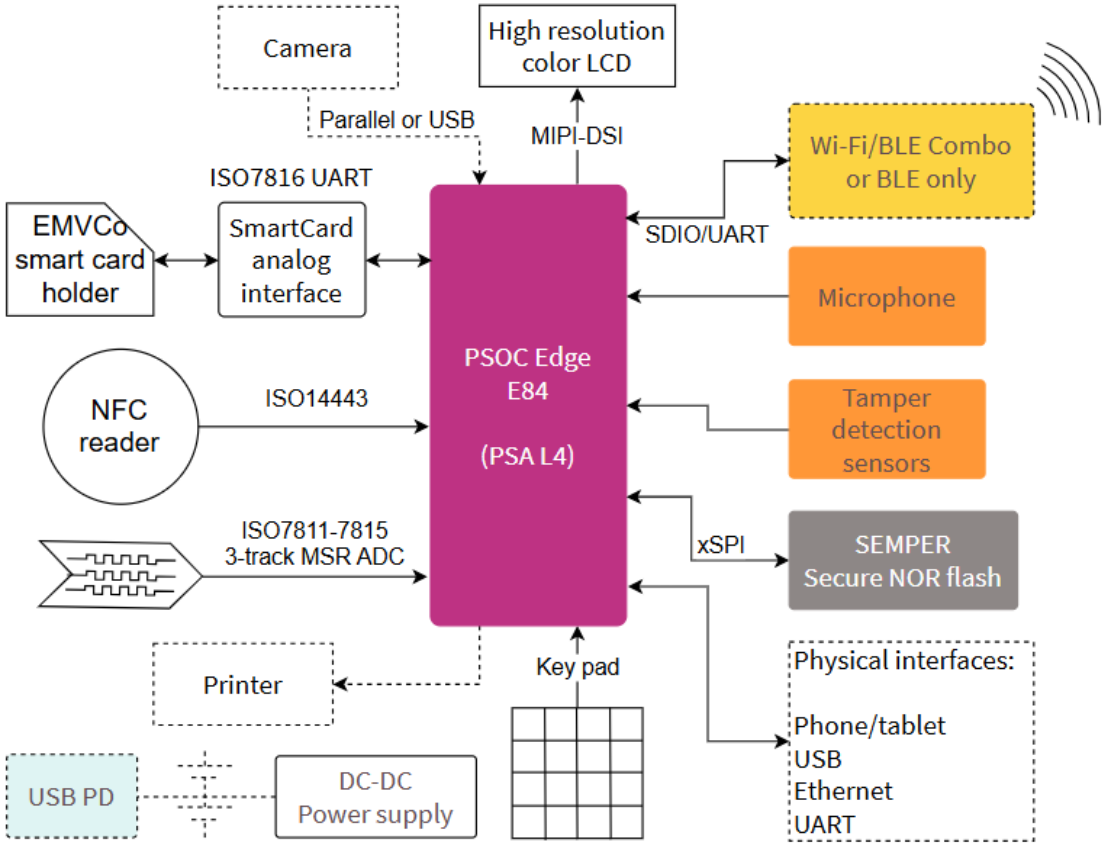
MCU
- PSOC™ Edge E82/E84

Wi-Fi + Bluetooth®
- CYW43022 (ULP 1x1 11n DB)
- CYW5551x (1x1 11ax SB/DB/TB)
- CYW5557x (1x1/2x2 11ax DB/TB)
- CYW5591x (1x1 SB/DB/TB MCU)
- CYW20829 (Bluetooth LE LR)
- ACW740x (1x1 DB/TB Wi-Fi 7)

Memory
- SEMPER Secure NOR flash
- PSRAM

Power
- Small signal MOSFET
- ESD protection
- USB charging controller

Sensors
- Microphone



Why PSOC™ Edge E82/84

1. PSA Level 4 security
2. Pre-certification under PCI PTS v6.2
3. ISO7816 UART SmartCard support
4. Tamper detection mechanisms
5. Ultra-low power on both static and dynamic
6. Heterogenous Cortex-M55 and Cortex M33 architecture
7. 2.5D GPU with MIPI-DSI support for high resolution color LCD
8. Optional Ethos-U55 for AI/ML, facial recognition, QR/barcode on camera input
9. Rich analog and digital peripheral sets for “secure world” implementation of MSR, NFC and EMVCo card readers

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Application Architecture:
Portable POS

MCU
- PSOC™ Edge E81

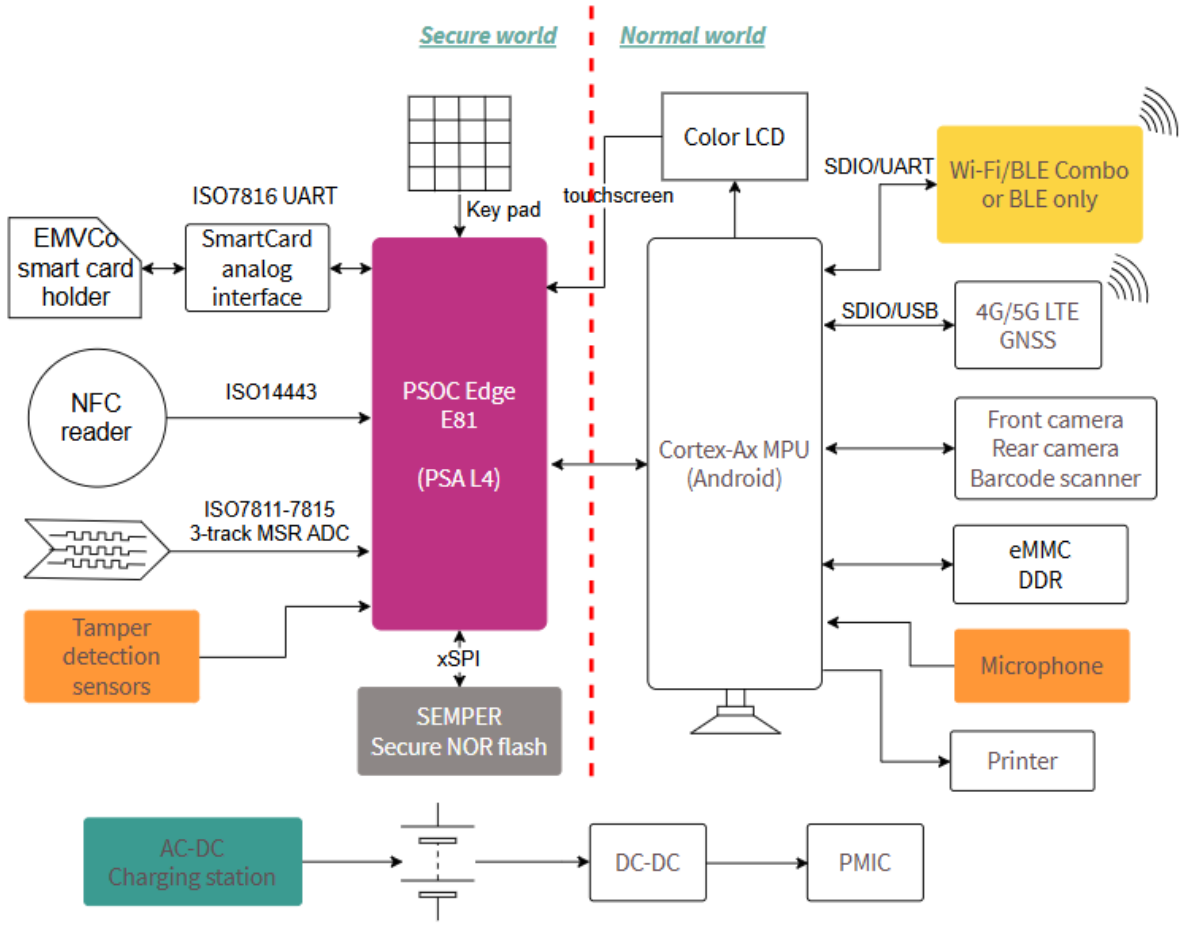
Wi-Fi + Bluetooth®
- CYW43022 (ULP 1x1 11n DB)
- CYW5551x (1x1 11ax SB/DB/TB)
- CYW5557x (1x1/2x2 11ax DB/TB)
- CYW5591x (1x1 SB/DB/TB MCU)
- CYW20829 (Bluetooth LE LR)
- ACW740x (1x1 DB/TB Wi-Fi 7)

Security
- eSIM

Memory
- SEMPER Secure NOR flash
- PSRAM

Power
- AC-DC flyback controller
- Small signal MOSFET
- ESD protection
- Schottky diodes

Sensors
- Microphone



Why PSOC™ Edge E81

1. PSA Level 4 security
2. Pre-certification under PCI PTS v6.2
3. ISO7816 UART SmartCard support
4. Tamper detection mechanisms
5. Ultra-low power on both static and dynamic
6. Heterogenous Cortex-M55 and Cortex M33 architecture
7. Lowest cost member in PSOC™ Edge family
8. Rich analog and digital peripheral sets for “secure world” implementation of MSR, NFC and EMVCo card readers

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5 **Application offering details** **26**

6 Summary 54

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PSOC™ Edge E8 MCU Family

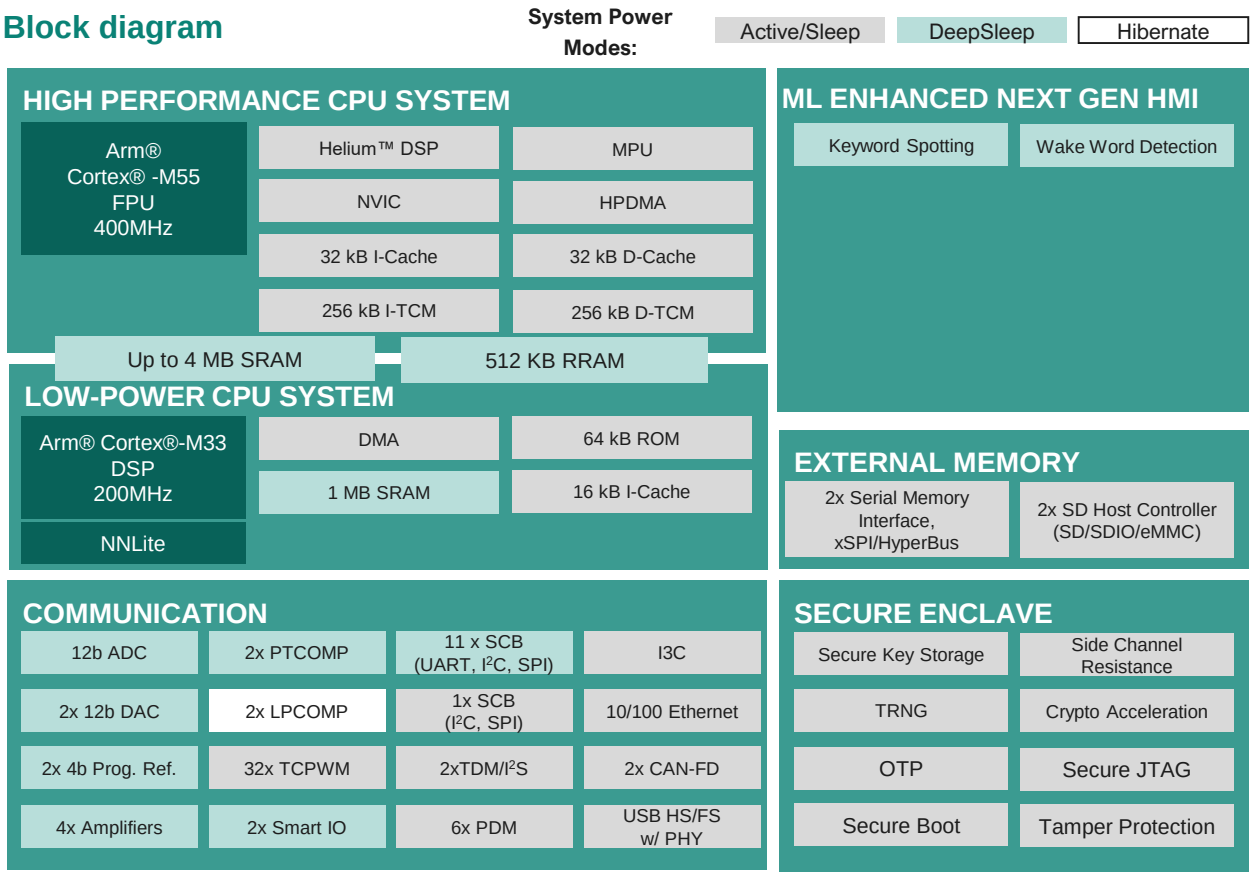
	PSOC™ Edge E81 Base	PSOC™ Edge E82 Base + GFX	PSOC™ Edge E83 Base + NPU + Vision	PSOC™ Edge E84 Base + NPU + Vision + GFX
Processor	Cortex-M55 + DSP Cortex-M33	Cortex-M55 + DSP Cortex-M33	Cortex-M55 + DSP Cortex-M33	Cortex-M55 + DSP Cortex-M33
Machine Learning	DSP NN accelerator, NNLite	DSP NN accelerator, 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

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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)

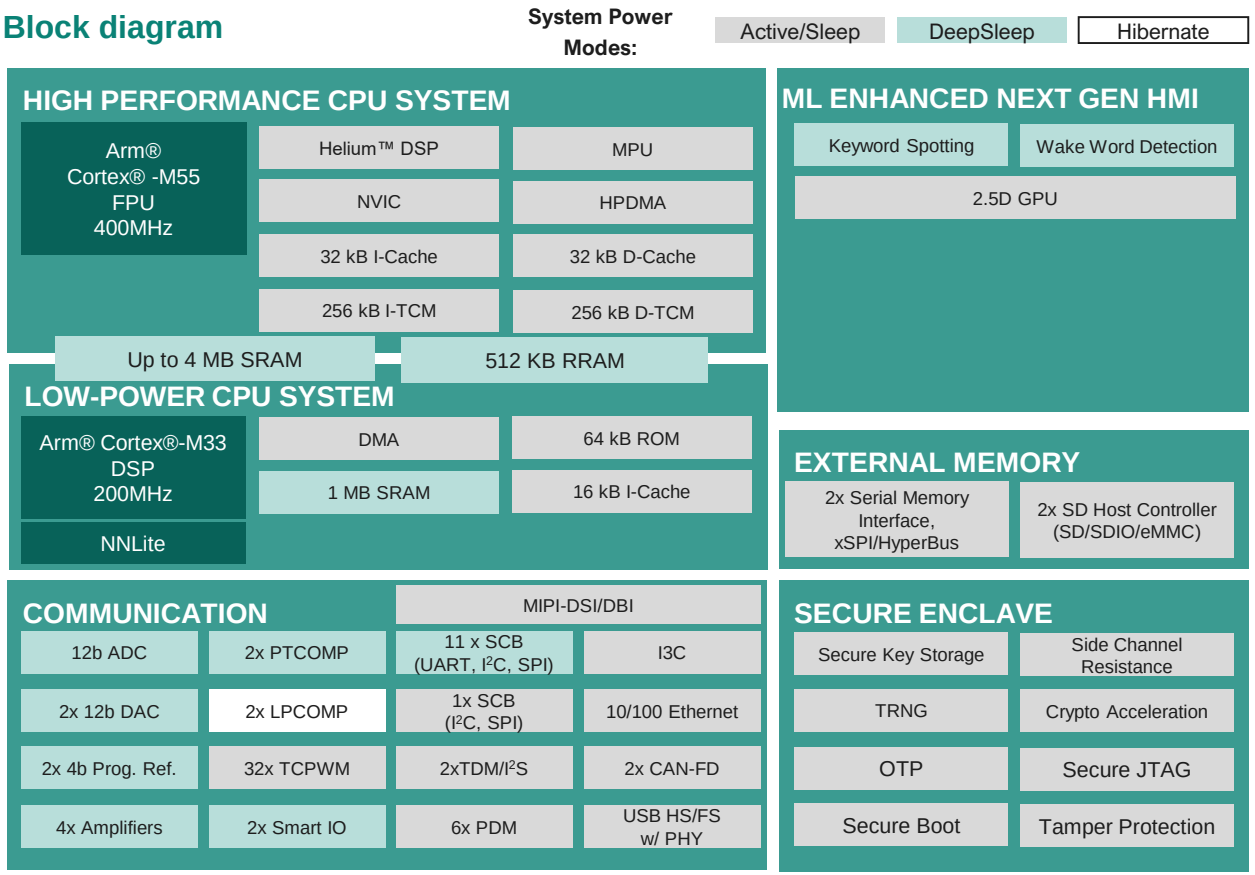
BGA220
(10x10mm, 0.65mm)

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PSOC™ Edge E82

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
  - **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)

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)

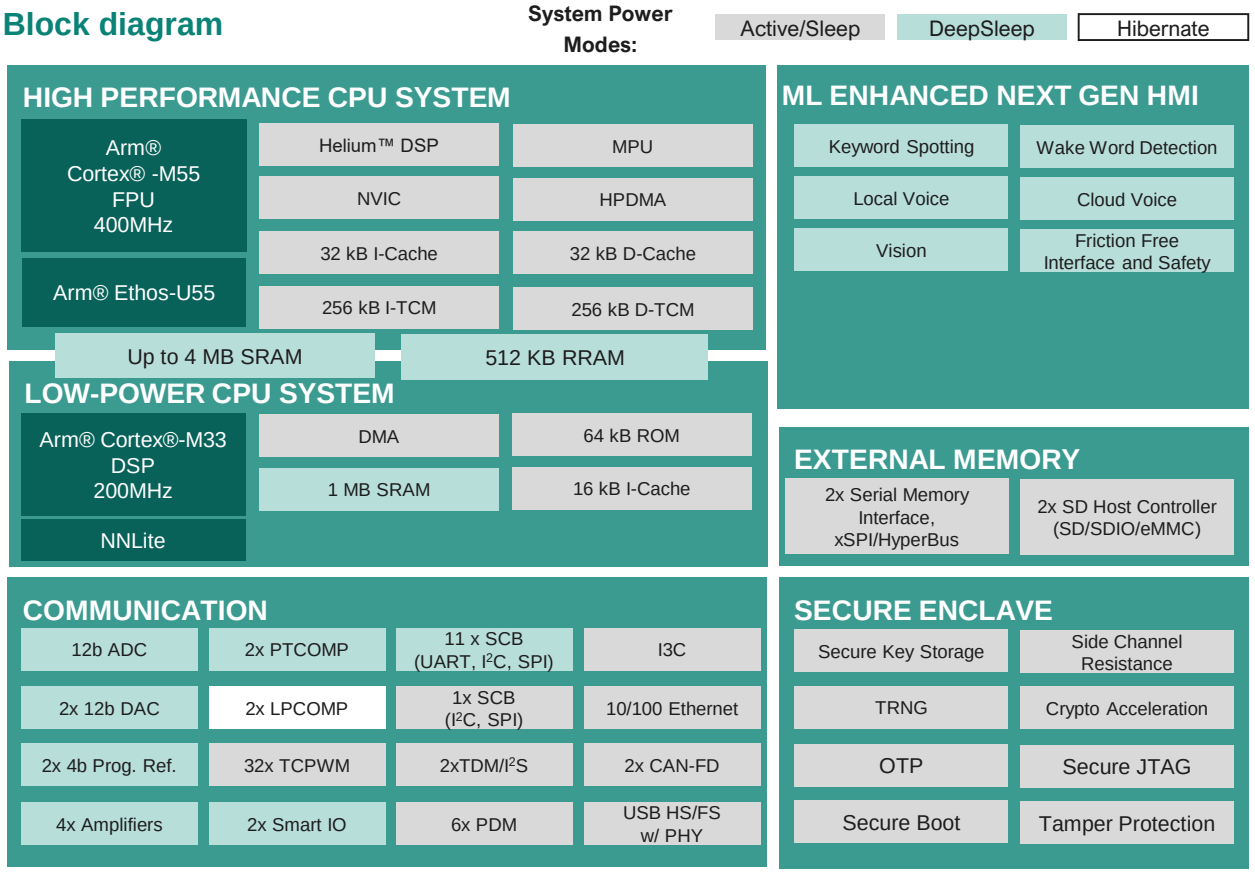
BGA220
(10x10mm, 0.65mm)

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PSOC™ Edge E83

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 + **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)

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)

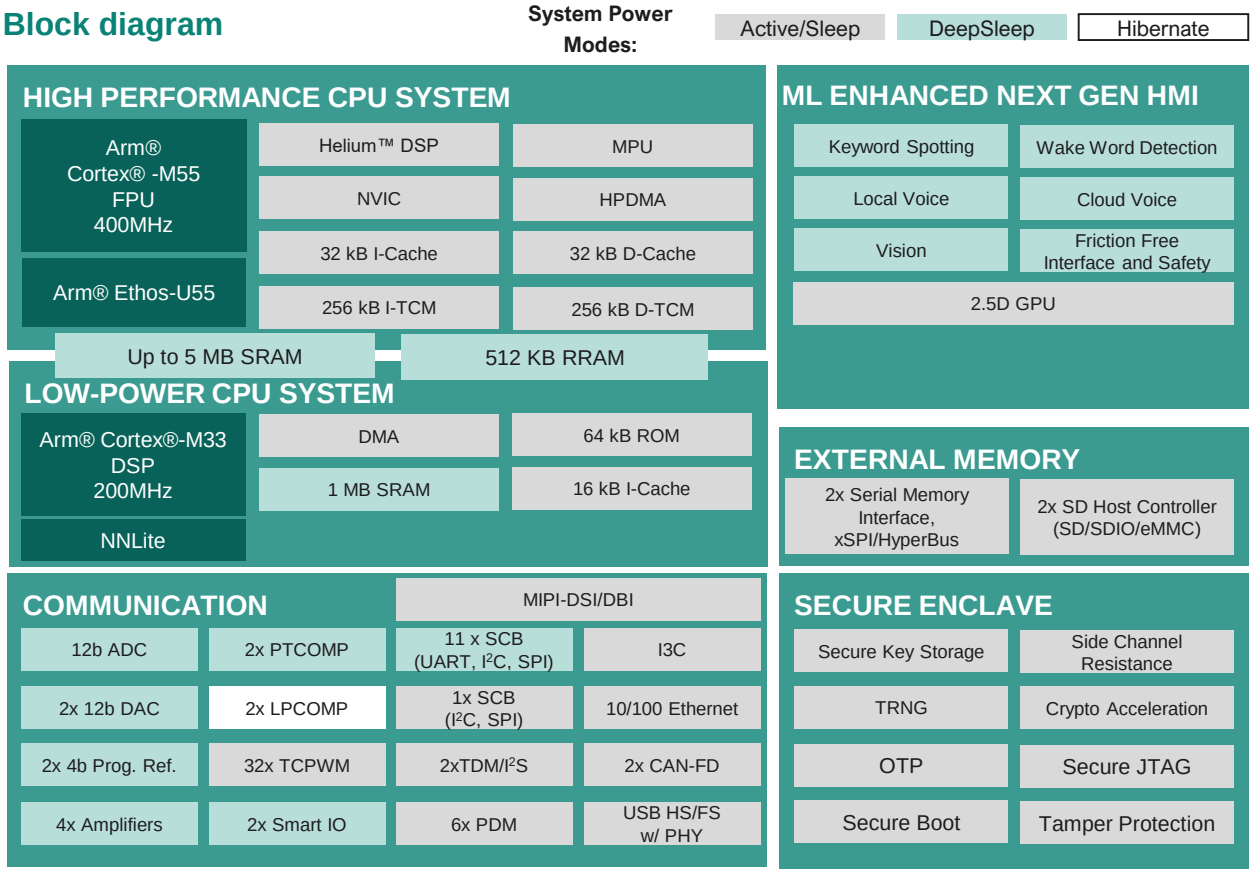
BGA220
(10x10mm, 0.65mm)

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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

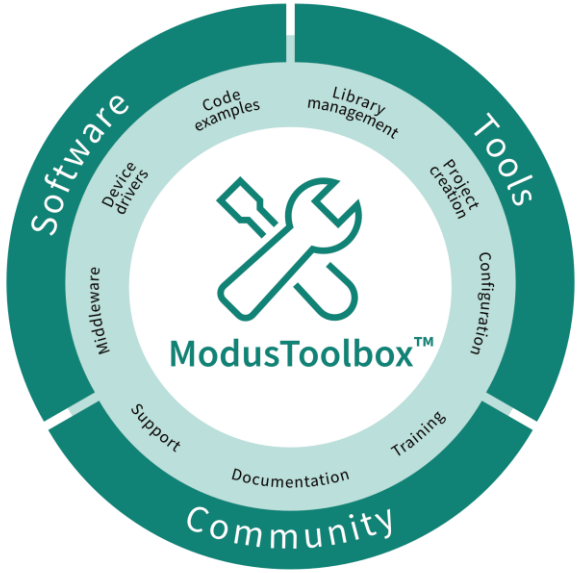
- **High performance, real-time compute domain:**
  - Cortex®-M55 w FPU + Helium™ DSP + Ethos-U55 for ML
  - **Up to 5 MB System SRAM**, 256 KB I&D TCMs
- **Low power, real-time compute domain:**
  - Cortex®-M33 and DSP + IFX NNLite for ML
  - 512 KB RRAM, 1 MB SRAM
- **HMI:**
  - Traditional MCU HMI
  - 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)

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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

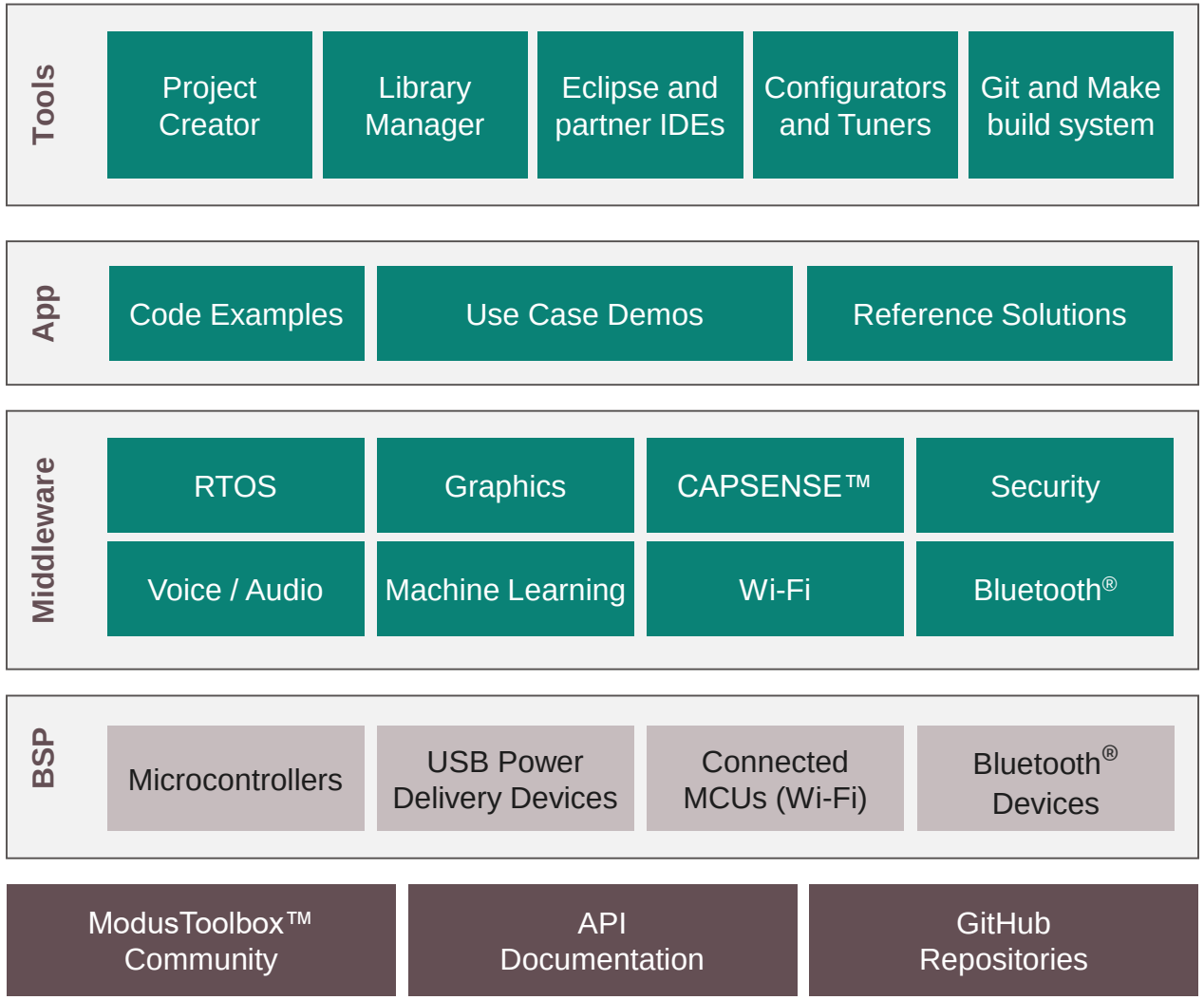
The ModusToolbox™ tools package includes desktop programs that enable the creation of new embedded applications, managing software components, configuring device peripherals and middleware, and embedded development tools for compiling, programming, and debugging.

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.

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ModusToolbox™ – Comprehensive collection of resources

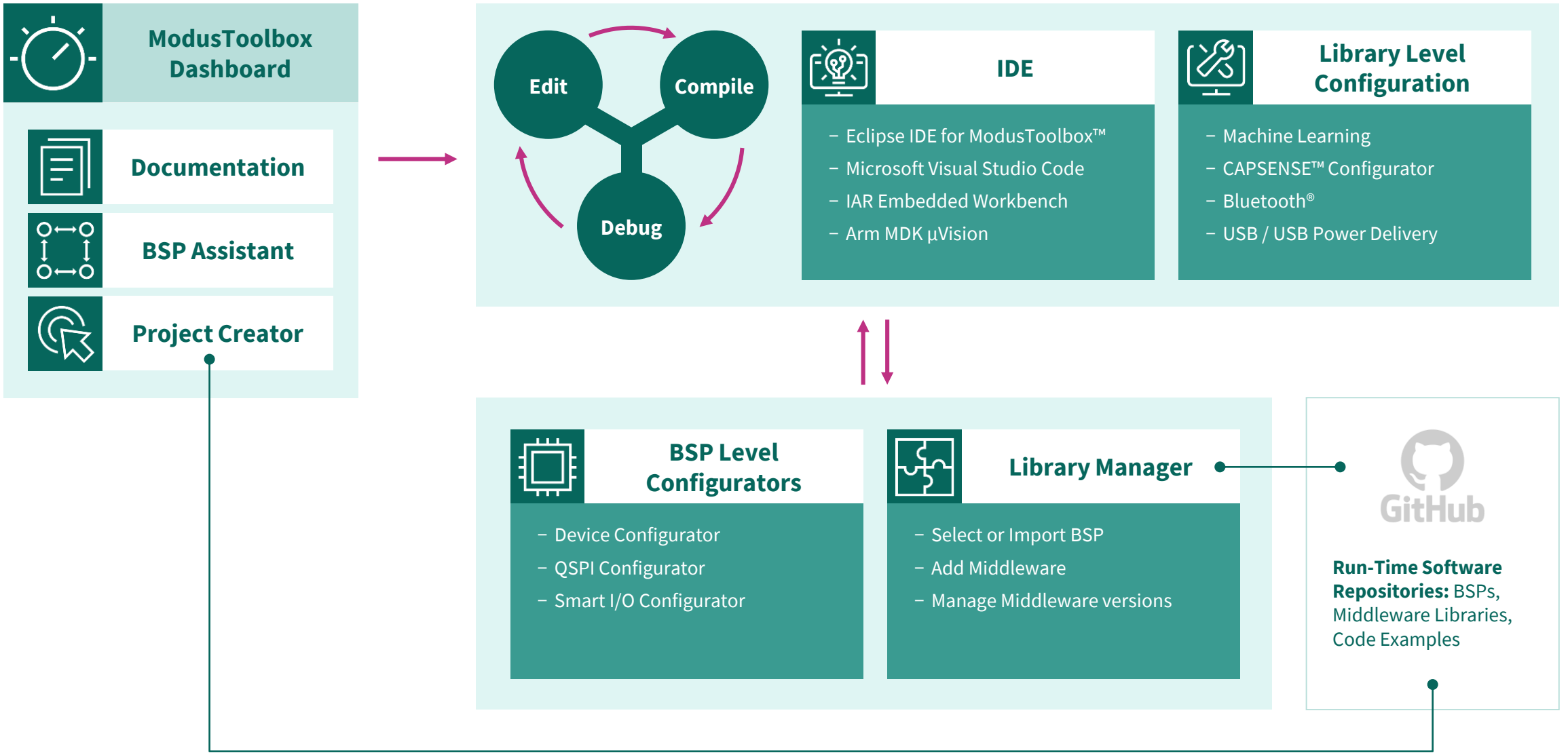


Enablement throughout the application development process

- 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

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ModusToolbox™ – Complete development workflow



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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

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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

DEEPCRAFT™ Studio

imagimob

Data Acquisition → Preprocessing → Model Training

- Data Import
- Data Capture
- Data Generation
- Data Augmentation
- Data Labeling
- Preprocessor / Feature extractor selection
- Model Selection
- Model Training
- Model Validation

DEEPCRAFT™ Studio + ModusToolbox™

Optimization

- Hardware Optimization

ModusToolbox™

Deployment

- .c
- .a
- Code Generation
- Target Device Test and Validation
- Field Deployment

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DEEPCRAFT™ Voice Assistant | Automatic speech recognition

Running on PSOC Edge E84
100% U55 NPU utilization for model acceleration.



Solution Overview

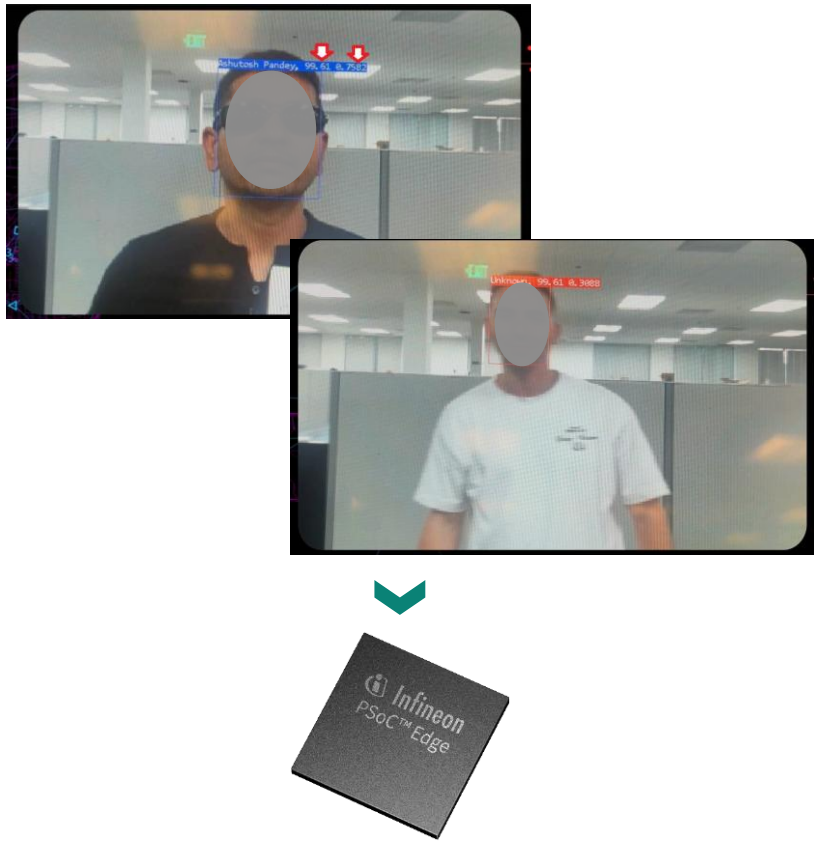
- Low Power, always-on voice chain - **accelerated on Infineon NPU's**
- **High Accuracy**, low false detects
- **Speech to intent** leveraging ML to create best-in-class performance
- Offers **lowest power without compromising user experience** through comprehensive set of voice products
- Versatile solution for **digits recognition**
- **Best solution for balanced native/non-native** talkers
- English language

Timeline: Early Access now, Customization GUI from FY25Q4

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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

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AIROC™ Wi-Fi + Bluetooth® Combo Offerings

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 PSA L1 /EPC1 security BT/LE audio
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 PSA L1/EPC1 security BT/LE audio
	Ultra Low Power		**55512/3** Hatchet-1 **Wi-Fi 6/6E DB/TB 20MHz** **BT/LE 6.0** BT/LE audio w/ embedded stack Range boost, Shared SDIO/SPI PSA L1/EPC1 security 20dBm BT/LE
	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	**55532/3** Hatchet-1 W ES: NOW MP: Q225 **Wi-Fi 6/6E DB/TB 20MHz** Range boost PSA L1/EPC1 security USB/SDIO/SPI
	Mainstream	**43439** **Wi-Fi 4 SB 20MHz** **BT/LE 5.4** Shared SDIO	

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

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

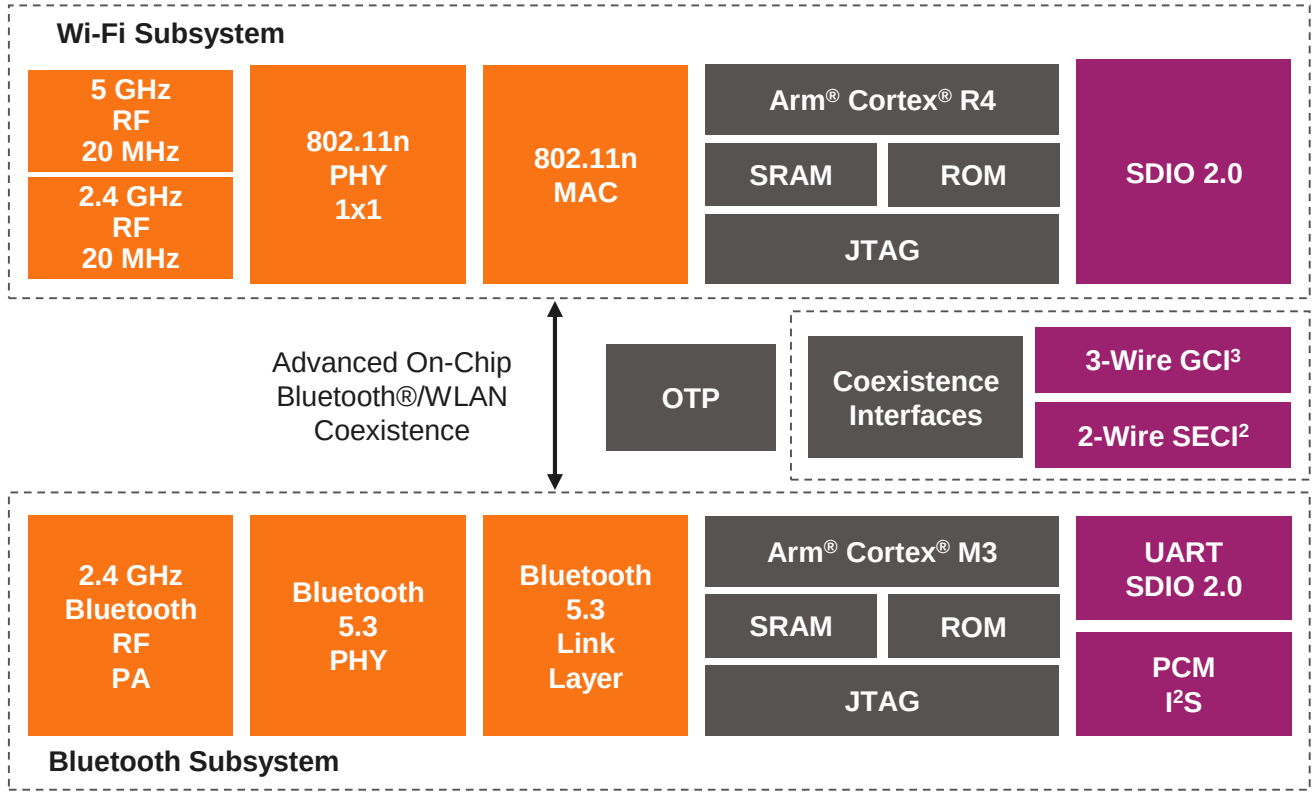
Features

- **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

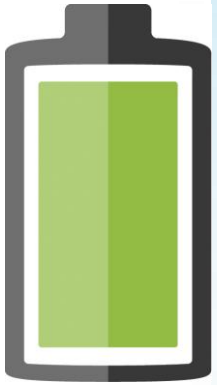


Availability

In Production

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



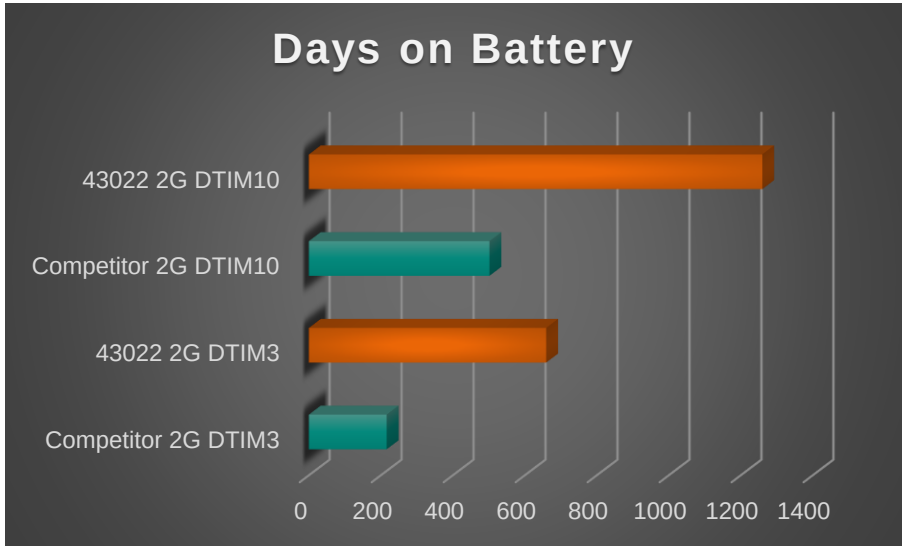
LOW POWER

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	↓70%
DTIM 1	2.4	20	0.9	1.8	mW	↓50%
DTIM 3	2.4	20	0.36	0.88	mW	↓59%
DTIM 10	2.4	20	0.13	0.37	mW	↓65%

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)

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CYW5557x: 2x2 &1x1 Wi-Fi 6/6E Tri-Band + Bluetooth® 5.3 Combo

Applications

Smart speaker, surveillance cameras, gaming console, High-definition speaker, security hub, industrial gateway , VR/ AR, AI enabled devices

Features

Wi-Fi/WLAN Features
- 802.11b/g/n/ac/ax compliant, Tri-band (55573), Dual-Band (55572)
- 5/6 GHz: 20/40/80-MHz, 1024-QAM, up to 1.2 Gbps data rate
- 2.4 GHz: 20/40-MHz, 1024-QAM, up to 287 Mbps date rate
- 802.11ax STA mode and Soft AP mode with 11ax scheduled access
- Supports 802.11d, h, k, r, v, w, ai
- WPA3: AP and STA

Bluetooth® Features
- Bluetooth® 5.3 (BR + EDR + BLE) certification
- All Bluetooth® 5.0/5.1/5.2 optional features
- Dedicated Bluetooth® path for best Coex performance

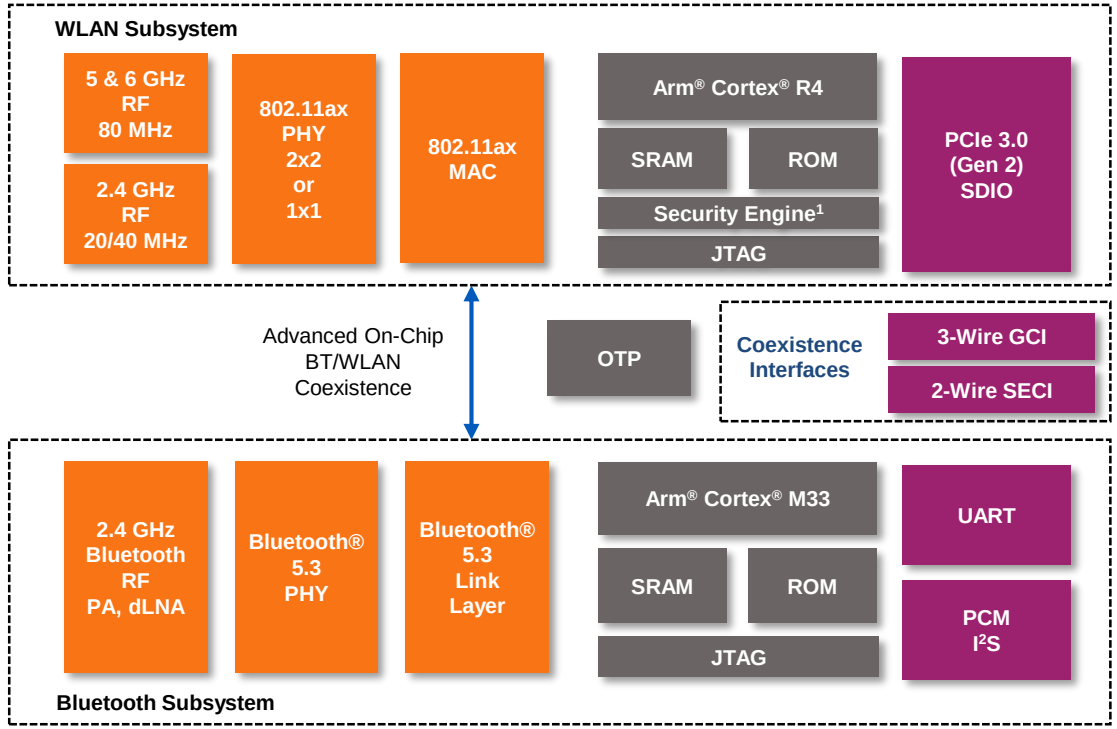
Interfaces
- PCIe Gen2 (3.0 Compliant), SDIO for WLAN
- HCI-UART, PCM/I2S for BT

Coexistence
- Built-in advanced algorithms for Bluetooth®/WLAN coexistence
- 2-wire SECI for external third-party Bluetooth®/GPS/LTE/802.15.4 radios

Package
- FCBGA 12x12 mm (0.65 mm ball pitch)
- WLCSP: small form factor (0.2mm ball pitch) for module partners
- WLBGA : small form factor (0.35mm ball pitch)

Temperature: -40°C to 85°C

Wireless Connectivity Family | 55572/3



Availability

In Production

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CYW5551x – 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

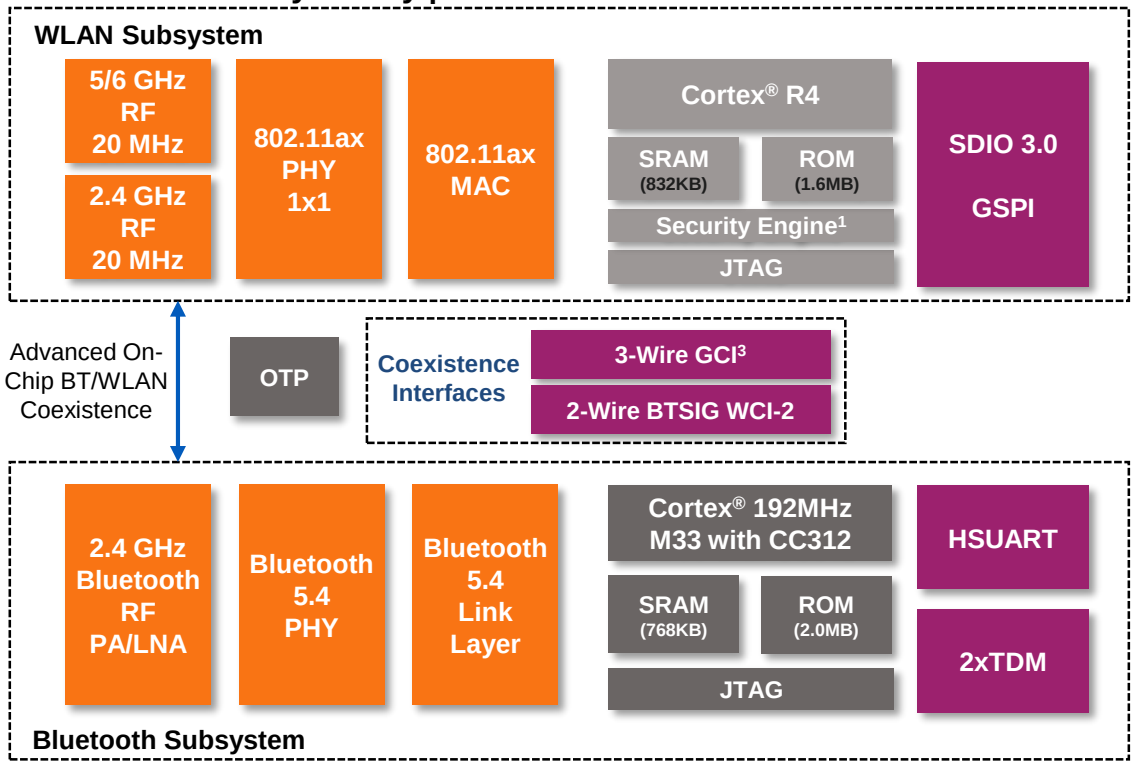
Package
- WLBGA 3.57 x 5.31 mm x 0.450 mm (max) (0.35 mm ball pitch)

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

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

ACW741x Product Overview

Tri-radio

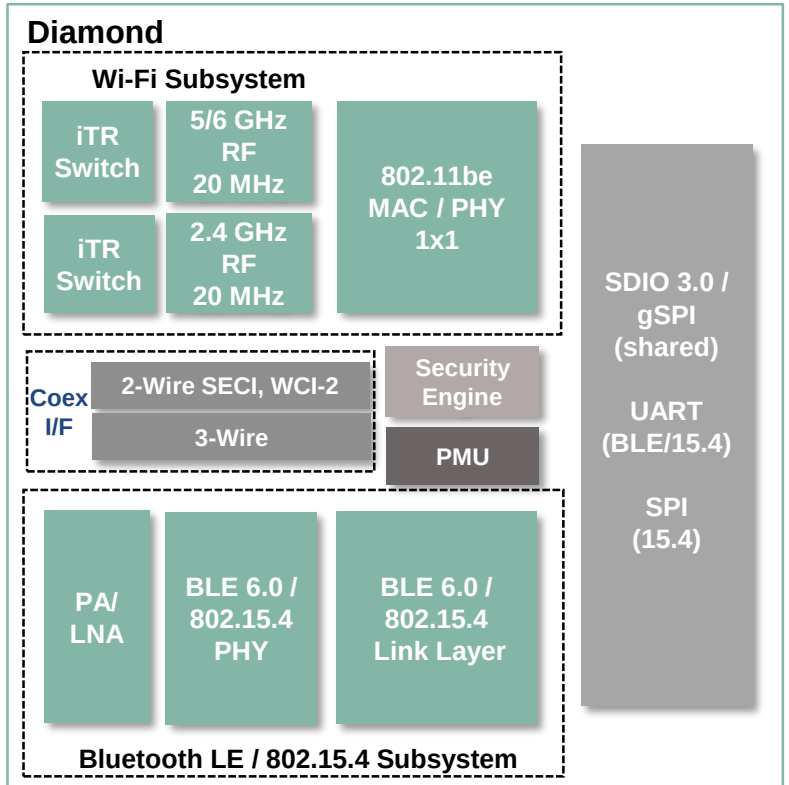
Ultra-low Power

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 +24dBm 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: Q4'25
Production: Q3'26

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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

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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

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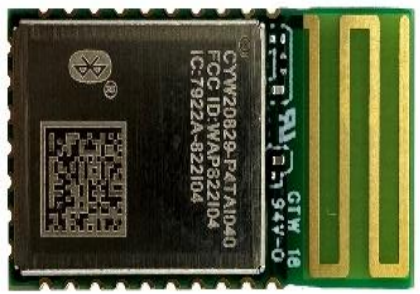
CYW20829: BLE 5.4 SoC

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

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CYW20829: Full-feature BLE 5.4 MCU with long range

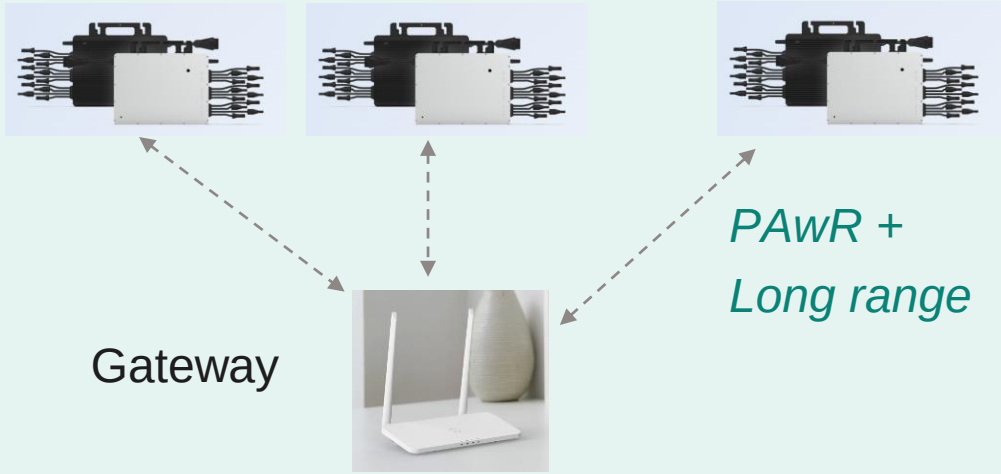
20829

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

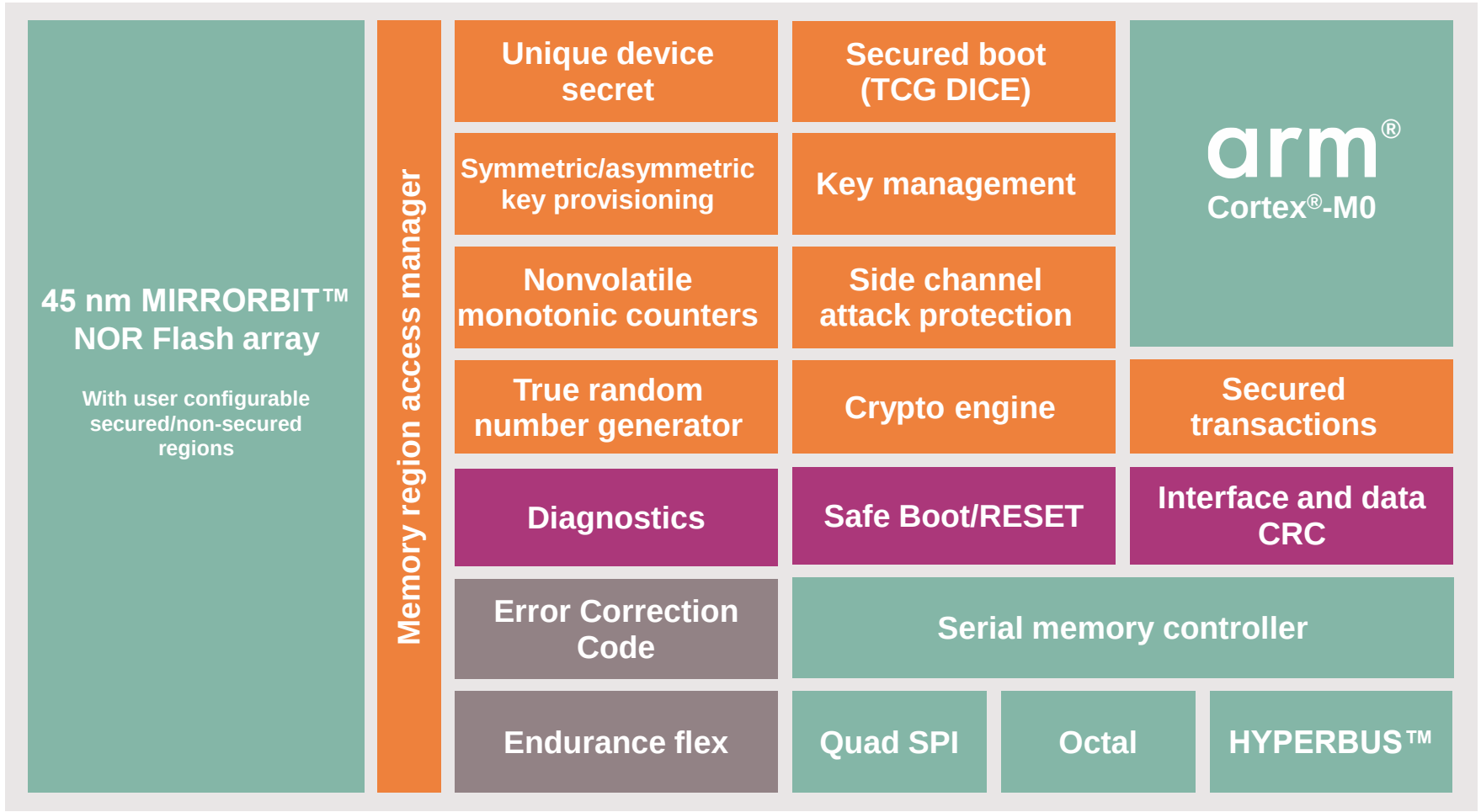


Use cases for LE Long Range and PAwR

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

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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

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XENSIV™ microphones portfolio

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

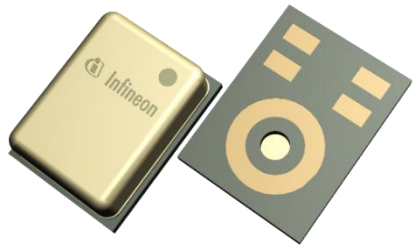
High SNR

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

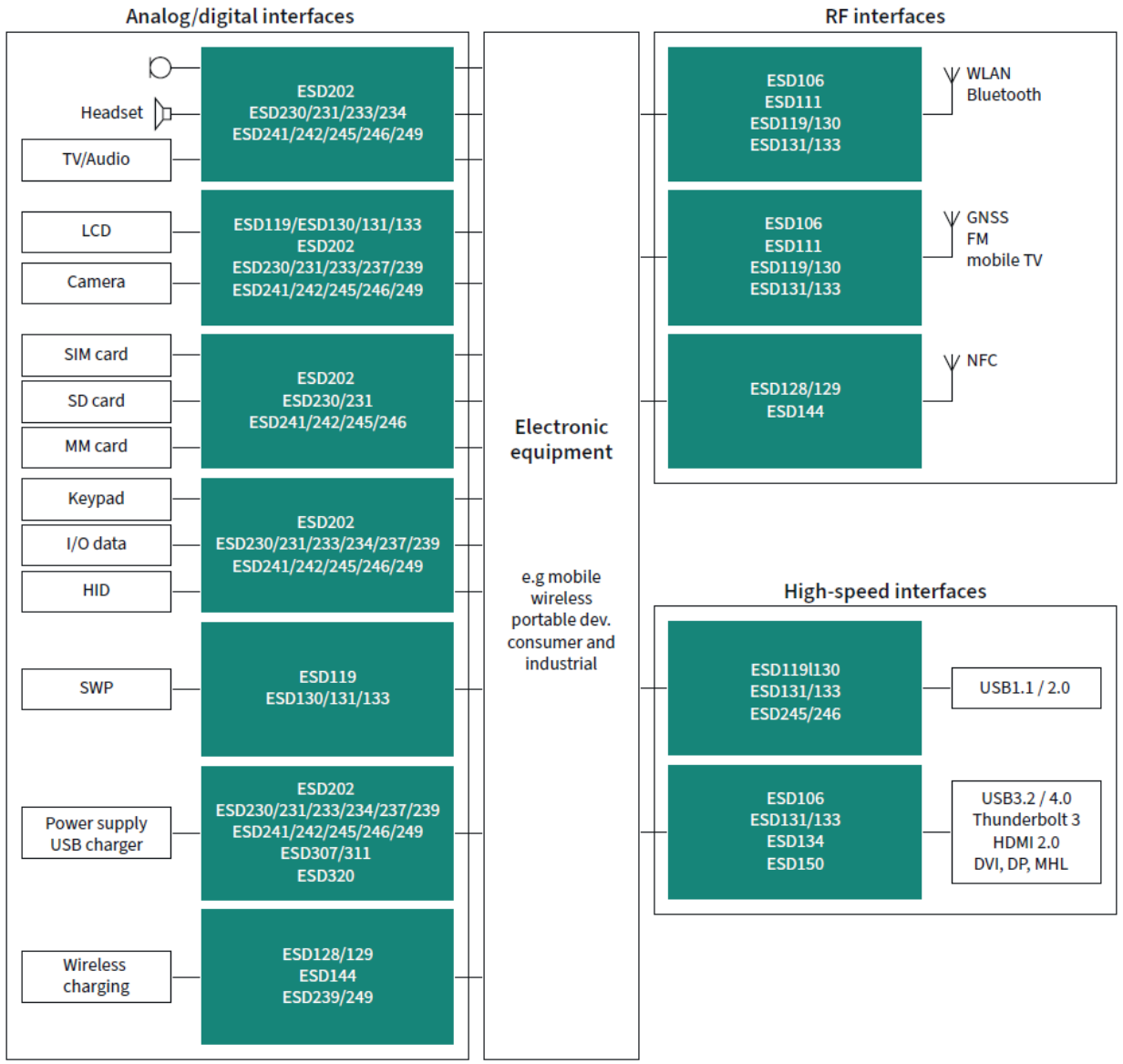
Low CF

Single Backplate
Sealed Dual Membrane



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Interface Protection with Discrete ESD



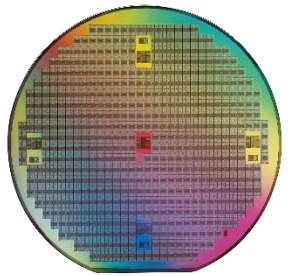
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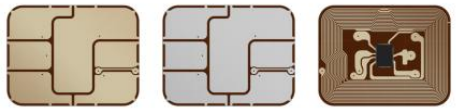
SECORA™ is in Mastercard's Greener Payments Partnership program

HW & systems

28nm SLC26 and SLC27

TEGRION™





COM (Coil on Module)

Wafer

28nm

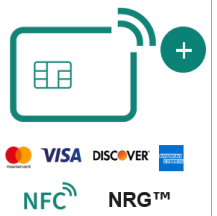
Unmatched performance

Highest security standards

Integrity Guard

Crypto Libraries

SECORA™ solutions

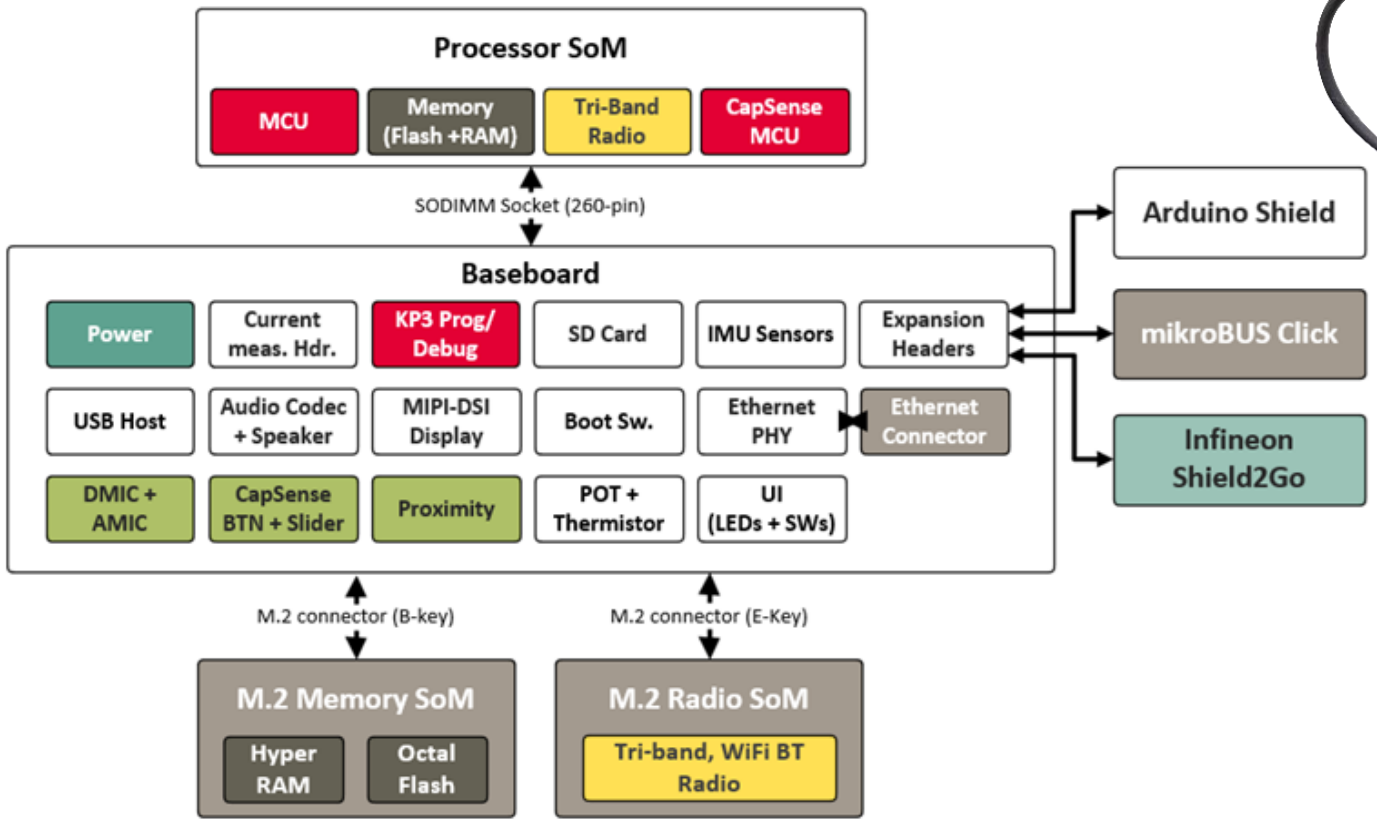
SECORA™ Pay S	SECORA™ Pay X	SECORA™ Pay W SECORA™ Connect	SECORA™ Pay Bio	SECORA™ Pay Green
Standard payment cards	Multi-application cards	Payment accessories & wearables	Next level biometric payments	Sustainable payment cards
				

Certified and ready-to-use solutions
Wide range of global and regional "flavours"
Multi-application use cases (access, transport)
Different form factors: cards, wearables, smart-watches, etc.
Customer support: tools, trainings and innovation partner

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PSOC™ Edge E84 Evaluation Kit

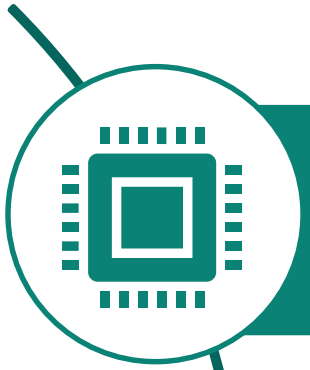






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Success Story – Mobile POS



- Mobile POS Application:
PSOC Edge E8x + CYW55572



- Power Consumption and Battery Life
- Security Certifications (PCI PTS, EMV)
- Long Range Connectivity



- PSA L4 and PCI-PTS 6.2 certification reduce TTM and development/certification costs
- Cortex M55 MCU with Edge AI capabilities delivers unparalleled performances
- Dynamic and static ultra low power numbers offer best-in-class battery life
- Seamless connectivity integration makes for a full turnkey solution

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3 Application requirements & challenges and value proposition 10

4 Application block diagram and Infineon offering 22

5 Application offering details 26

6 **Summary** **54**

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Summary

- PSOC™ Edge is PCI PTS pre-certified, meeting security requirements.
- PSOC™ Edge solution has significant advantages in POS application:
  - Ultra-low-power consumption to extend battery lifetime
  - Highly integrated for low BOM cost implementation
  - High scalability with on-chip support of graphics and secured connectivity
  - Dedicated neural network processing unit to implement AI/ML for new digital payment strategy
  - ISO7816 UART Smart Card support + EMV L1 source code
- Mastercard added Infineon to Greener Payments Partnership (GPP) with our innovative SECORA™ Pay Green technology
- Infineon offers broad portfolio for POS:
  - Wi-Fi/BLE combo, and BT/BLE
  - Secure serial flash
  - Microphone
  - ESD protection devices
  - …

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