Infineon – Powering IoT

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Driving decarbonization and digitalization. Together.

Semiconductors are crucial to solve the energy challenges of our time and shape the digital transformation.

This is why Infineon is committed to actively driving decarbonization and digitalization.

As a global semiconductor leader in power systems and IoT, we enable game-changing solutions for green and efficient energy, clean and safe mobility, as well as smart and secure IoT.

We make life easier, safer, and greener.
Together with our customers and partners.
For a better tomorrow.

Infineon is a global leader in power systems and IoT

Global leader

in automotive, power management,
energy efficient technologies and IoT

~58,600

employees[1]

Market position

Automotive	Power	Microcontroller
#1	**#1**	**#2**
TechInsights, March 2023	Omdia, September 2023	Gartner, April 2024

[1] As of 30 September 2023

Infineon at a glance

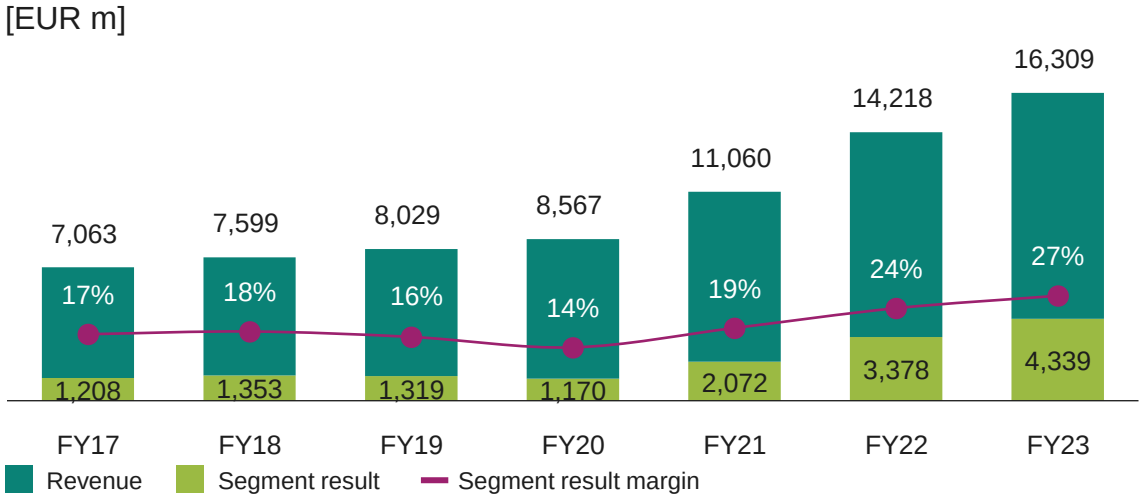
Growth areas

Energy
green and efficient

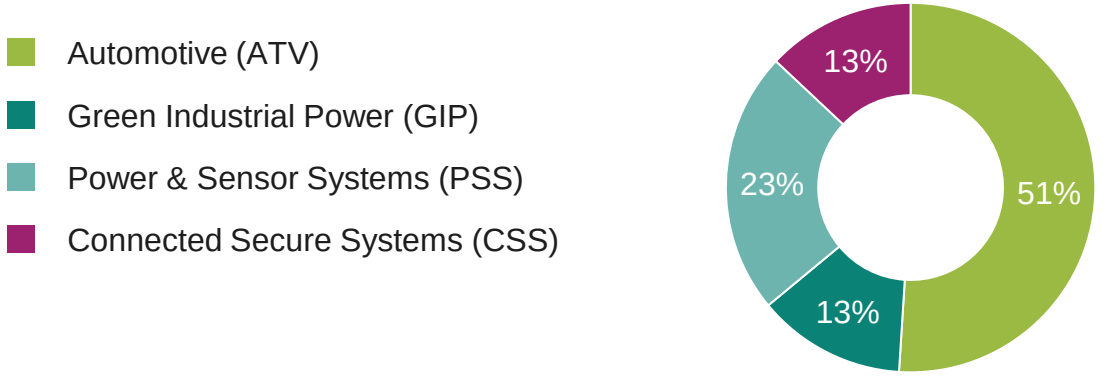
Mobility
clean and safe

IoT
smart and secure

Financials



FY23 revenue by segment[1]

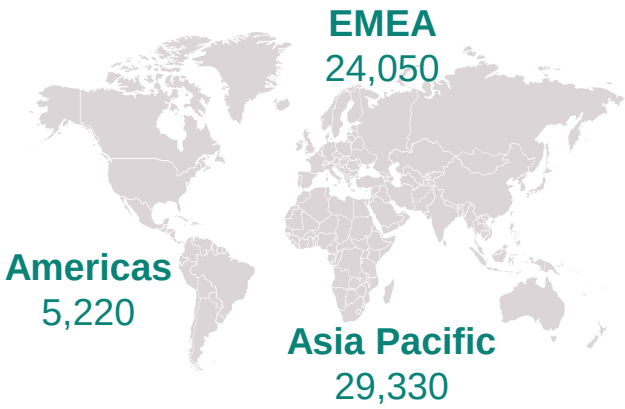


Employees[2]

58,600
employees worldwide

69
R&D and

17
manufacturing locations[2]

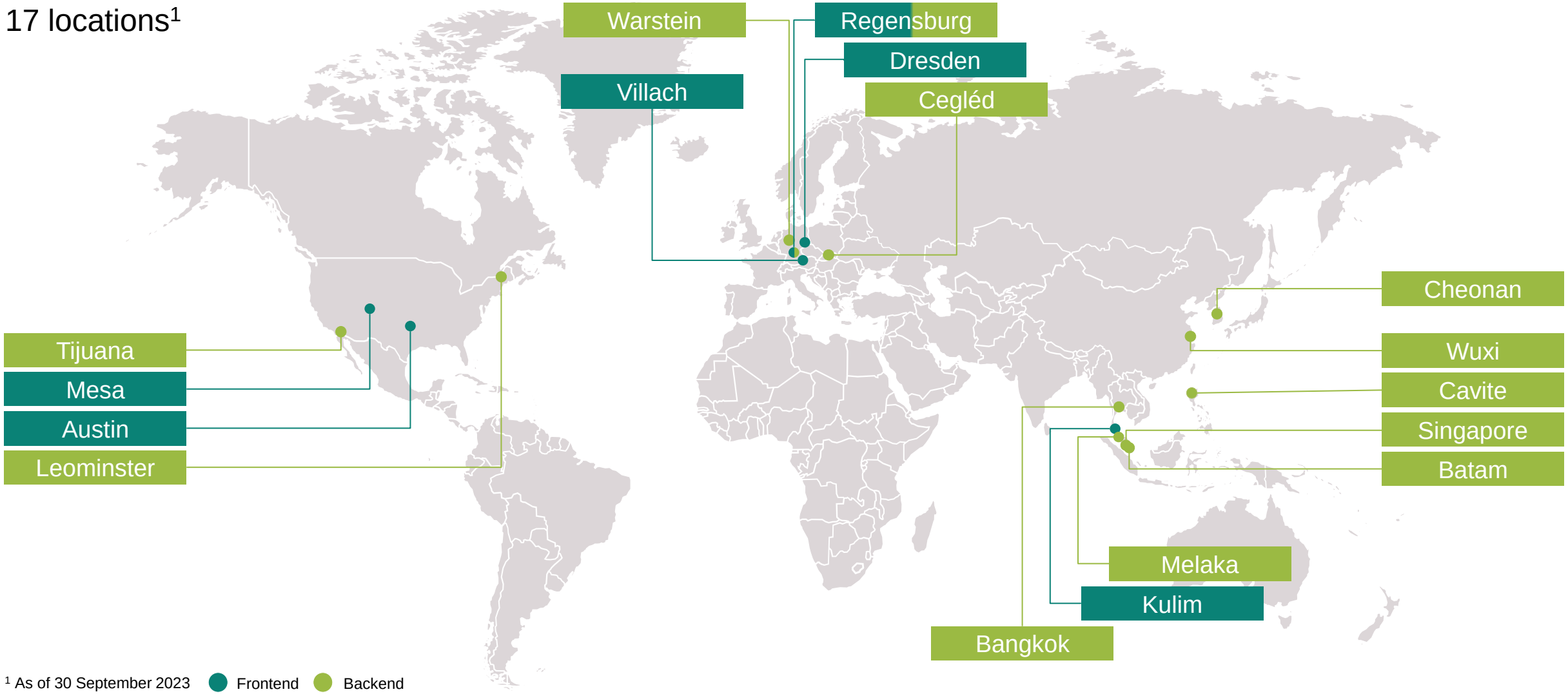


For further information: Infineon Annual Report.

[1] 2023 Fiscal year (as of 30 September 2023) | [2] As of 30 September 2023

Infineon is globally positioned with its network of Frontend and Backend manufacturing facilities

17 locations[1]



[1] As of 30 September 2023 Frontend Backend

Close customer relationships are based on system know-how and application understanding

Automotive

APTIV · Astemo · BorgWarner · BOSCH · BYD · Continental · DENSO · FORVIA · HYUNDAI MOTOR GROUP · KEBODA · Valeo · veoneer · vitesco TECHNOLOGIES · ZF

Green Industrial Power

ABB · Alpitronic · ALSTOM · Bloomenergy · 中国中车 CRRC · GOLDWIND · INOVANCE · LG · Midea · OMRON · Rockwell Automation · Schneider Electric · SEMIKRON DANFOSS · SIEMENS · SMA · SUNGROW · Vestas · YASKAWA

Power & Sensor Systems

amazon · CISCO · DELL · DELTA · ERICSSON · ENPHASE · Google · hp · LITEON · Makita · Panasonic · SAMSUNG · solaredge · ZTE

Connected Secure Systems

amazon · arlo · cpi card group · fitbit · GPO · Haier · HARMAN · hp · IDEMIA · Midea · PERFECT Plastic · Raspberry Pi · SAMSUNG · SONY · THALES

EMS-Partners

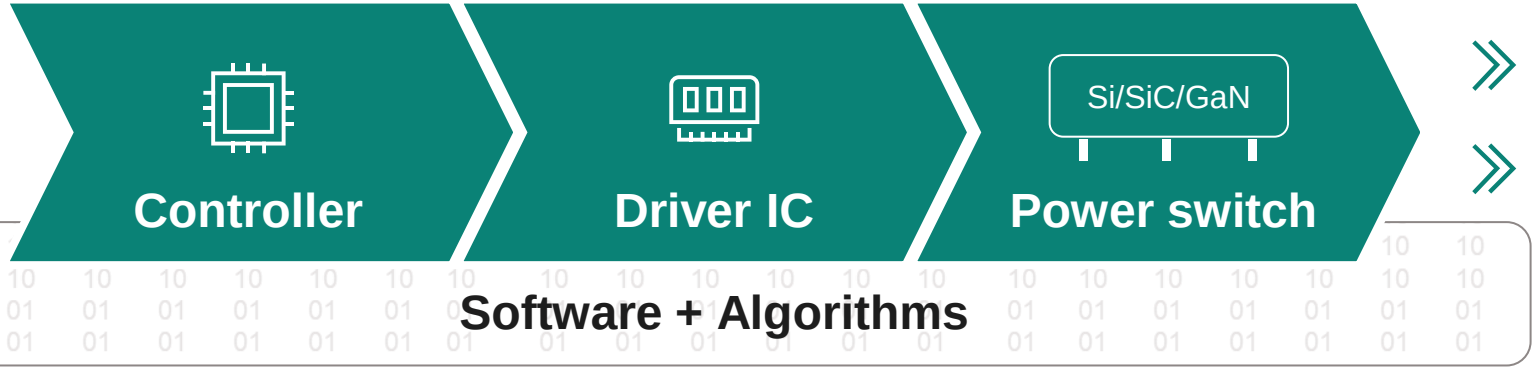
flex · JABIL

Distribution partners

ARROW · AVNET · FUTURE ELECTRONICS · intron 英恒 · Jingchuan · MACNICA · Marubun · NEXTY Electronics · 威健 WEIKENG · wpg

Infineon leading in power systems – mastering all three key materials

- Reliable multi sourcing of raw materials
- World-scale fabs



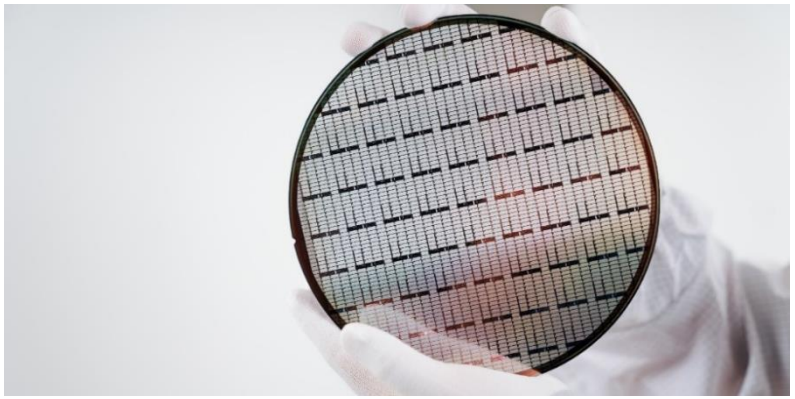
- Application understanding
- Packaging know-how and hybridization competence

Leadership in Power Systems across all materials and technologies

Silicon
Diode – MOSFET – IGBT – Driver – Controller

Silicon carbide
Diode – MOSFET

Gallium nitride
HEMT – Driver



Infineon – Potencializando o IoT

Infineon IoT Compute & Wireless (ICW)
Microcontroller Portfolio Overview

	32-bit Arm® Cortex® **M0/M0+/M23** (32–384KB Flash)	32-bit Arm® Cortex® **M4/M0+** (128KB–2MB Flash)	32-bit Arm® Cortex® **M55/M7**
IoT/Consumer MCUs	PSoC 4000/T, PSoC 4100/S, PSoC 4200, PSoC 4700/S **Flexible PSoC™ 4 MCUs** with analog sensor integration, CAPSENSE™ capacitive touch, inductive sensing, wired and wireless connectivity such as USB, CAN, and BLE	PSoC 61, PSoC 62, PSoC 64 **Ultra-low power PSoC™ 6 MCUs** with M4/M0+ dual-core and EPC security, ideal for battery powered applications **Secured PSoC™ 6 MCU** with PSA L2/EPC2 certification	PSOC Edge E84 **Cortex-M55/M33 dual-core DSP+ ML + GPU 6.5 MB SRAM, .5 MB RRAM Samples Q4 ’23 Production Q2 ‘25** PSOC Edge E83 **Cortex-M55/M33 dual-core, DSP+ ML 5.5 MB SRAM, .5 MB RRAM Samples H2 ’24 Production H1 ‘25** PSOC Edge E81 **Cortex-M55/M33 dual-core, DSP+ Peripherals 5.5 MB SRAM, .5 MB RRAM Samples H2 ’24 Production H1 ‘25**
Industrial MCUs	XMC 1100, XMC 1200, XMC 1300, XMC 1400 **XMC™ 1000 entry-level MCUs** for industrial applications like power tools, LED lightning, eBike and fan motor control	XMC 4100/4200, XMC 4300/4400, XMC 4500, XMC 4700/4800 **XMC™ 4000 MCUs** with built-in DSP instruction set, designed particularly for digital power conversion, motor control, sense & control, and IO applications **XMC™ 4300 and 4800** with integrated EtherCAT®	XMC 7100, XMC 7200 **XMC™ 7000 low-power MCUs** with single- or dual-core M7 are built on 40-nm process technology addressing high-end industrial applications

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 with NNLite 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
- Imagimob AI/ML Solution
- Hardware evaluation kit

E81

Machine Learning

- Ethos-U55 for high-performance 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
Machine Learning

- Presence/Gesture/Motion
- Predictive Maintenance
- Anomaly Detection
- Autonomous Operation

Advanced ML

- Voice & Natural Language
- Vision
- Access & Safety

Graphics

PSOC™ Edge Portfolio – Next Gen MCU based Edge Device Platform

Scalable, compatible, “future proof”* platform for your next-gen MCU based smart devices

Broad MCU Based SoC Family

PSOC™ Edge E81

Higher Performance
More Memory
More Peripheral Support
Higher Integration
Lower Power
Base Edge ML
Robust Security

PSOC™ Edge E83

Adds:

Advanced Edge ML
Audio/Voice
Vision
Presence/Gesture/Motion

PSOC™ Edge E84

Adds:

Graphics
Even More Memory

100% Pin Compatibility

System/Software Compatibility

*Ask us for industry research and OEM statements indicating rapid emergence of edge ML and robust security requirements.

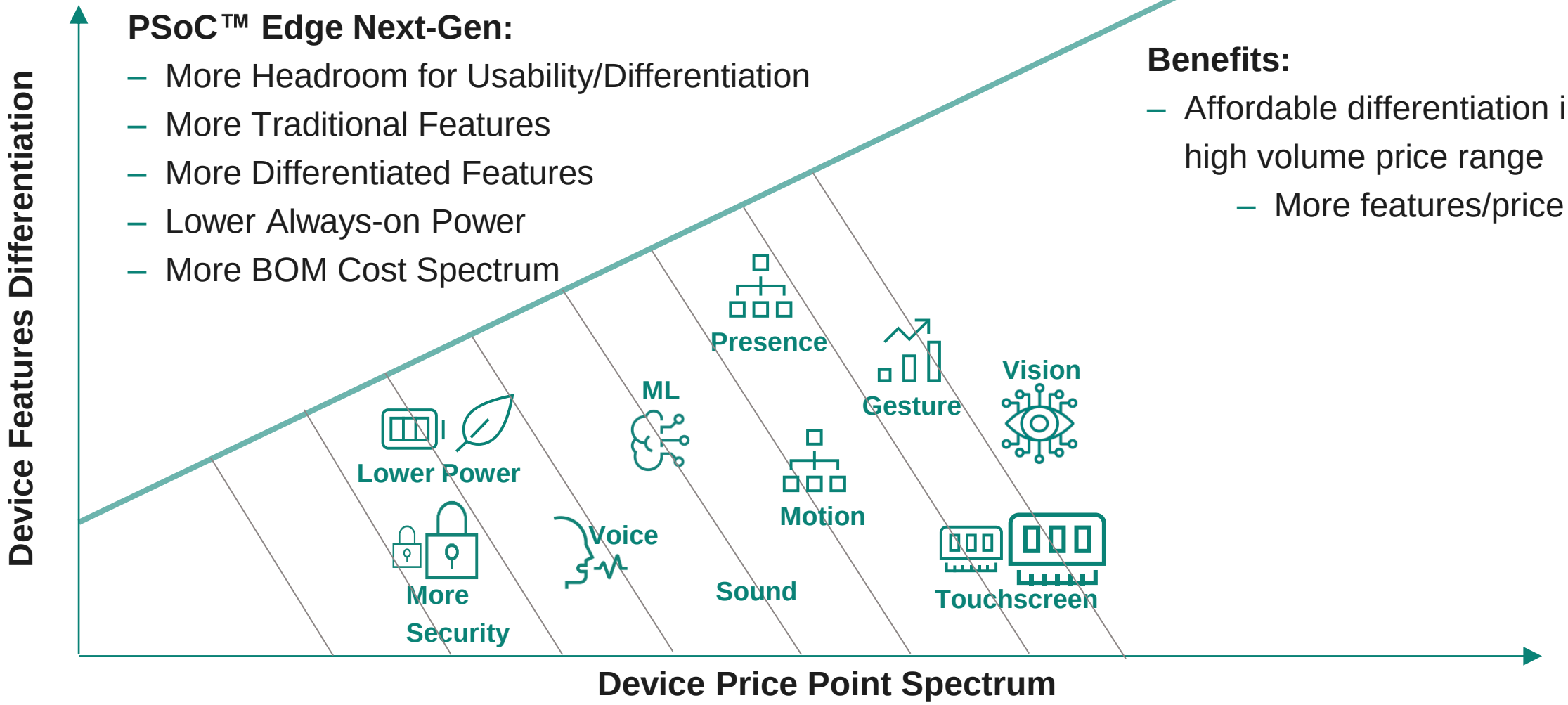
PSoC™ - Enabling the Next Gen Edge Devices

PSoC™ Edge Next-Gen:

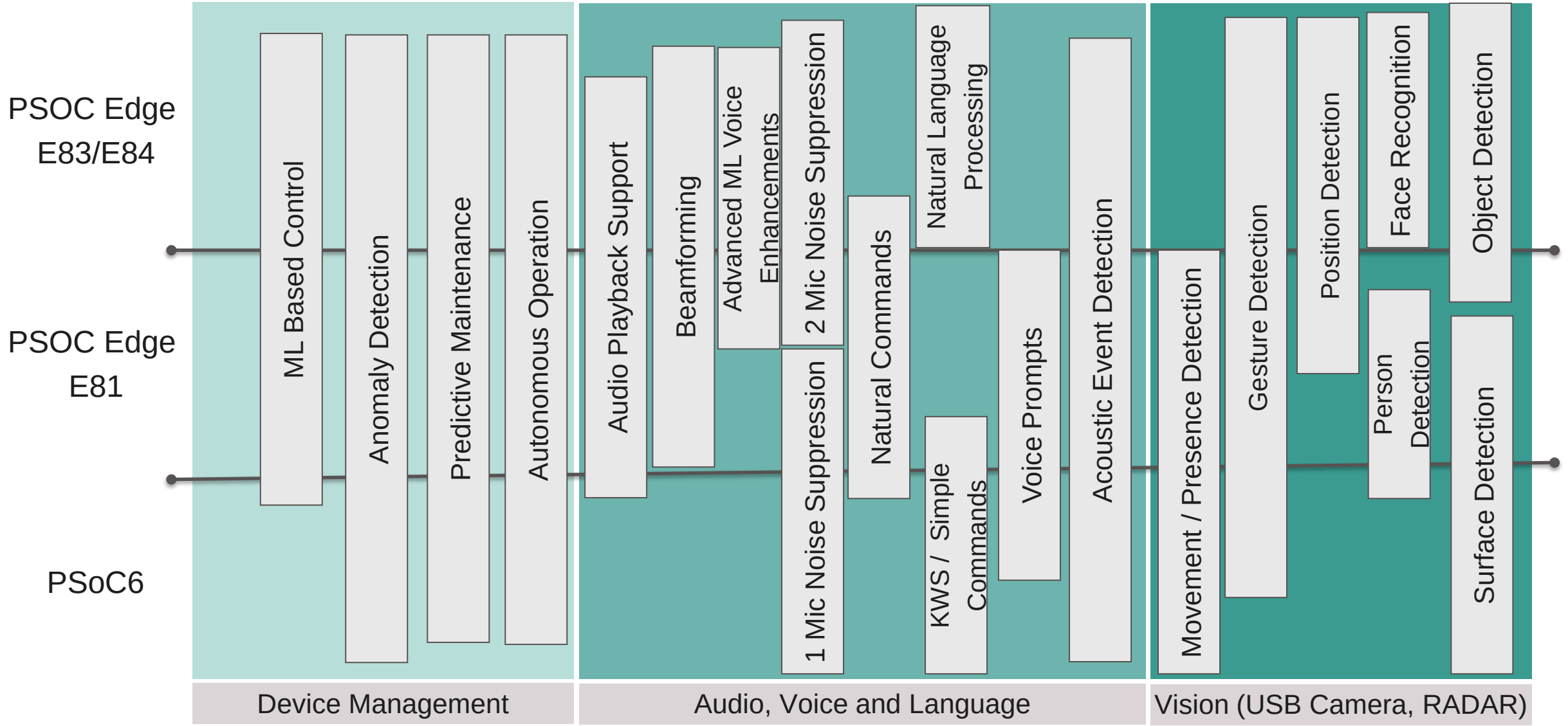
- More Headroom for Usability/Differentiation
- More Traditional Features
- More Differentiated Features
- Lower Always-on Power
- More BOM Cost Spectrum

Benefits:

- Affordable differentiation in high volume price range
  - More features/price

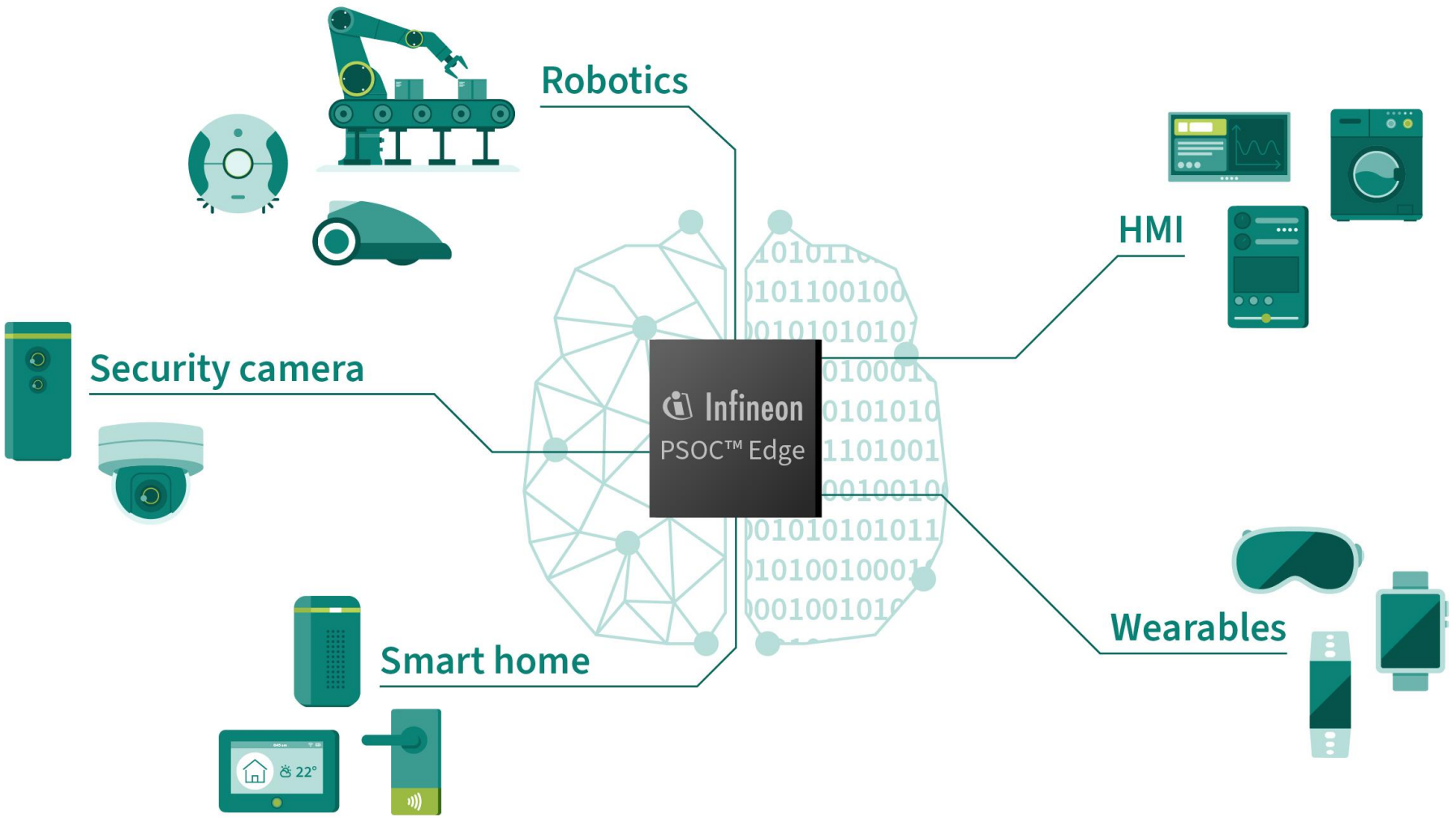


AI/ML Use Case Compute Requirements for Next Gen Devices



Any AI/ML of interest?

PSOC™ Edge Enabling a New Generation of Responsive ML Edge Devices



Human Machine Interface (HMI)

- Appliances
- Industrial Device Usability
- Factory Automation

Smart Home

- Thermostat
- Speaker
- Door lock

Robotics

- Vacuum Cleaner
- Vacuum Robots
- Service Robot
- Lawn & Garden Robotics
- Industrial Robotics

Wearables

- Fitness Watch
- AR/MR/VR Glasses & Accessories
- Audio Accessories

Security Camera

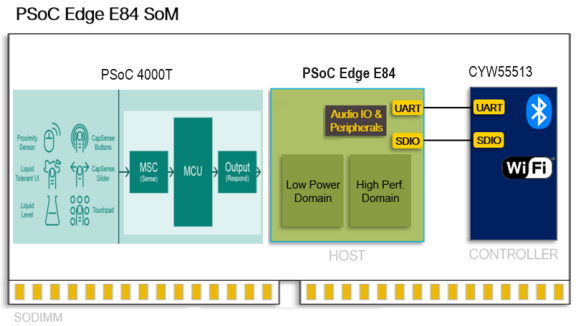
- IP Camera
- Doorbell
- Security Camera & Accessories

PSOC™ Edge Enablement

HW Enablement – EVK Base Board

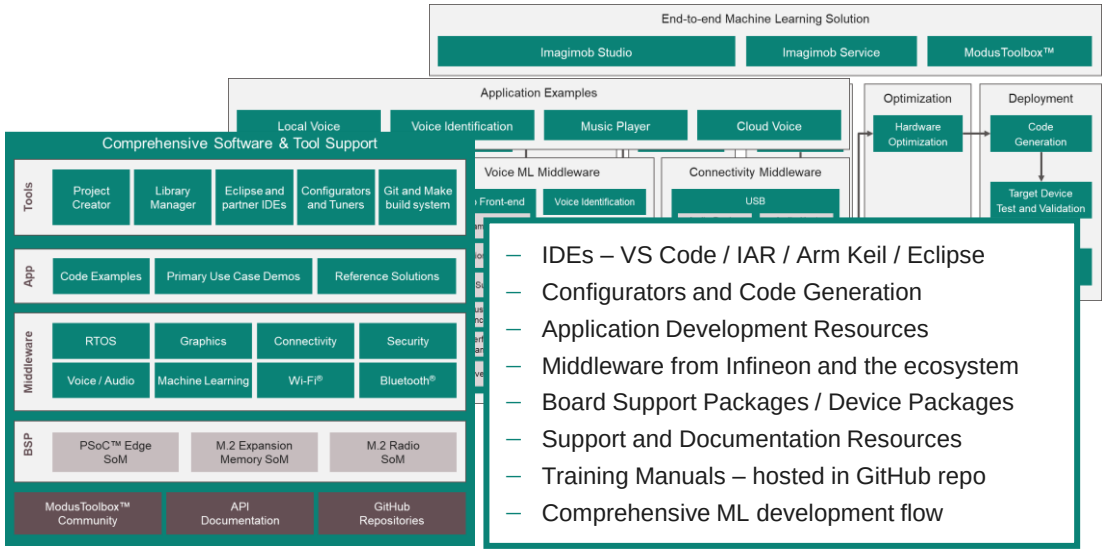
- Baseboard
  - All features supported across family on the baseboard
  - MIPI connectors (DSI and CSI)
  - Expansion Header (Arduino, I3C ++) for Sensor and Motor Control, CAN etc
  - On board programmer, Sensors, A/DMIC, USB device / host, Ethernet ++
- Edge E81/E83/E84 Processor SoM
  - On board Flash (QSPI or OSPI) and RAM
  - Tri-Band Radio with PCB and chip antenna
  - CAPSENSE™ Co-processor for PSOC Edge
- Accessories
  - USB Type C to C cable; 15V@3A

HW Enablement – SOM (PSOC™ Edge + CYW55513 + 4000T)

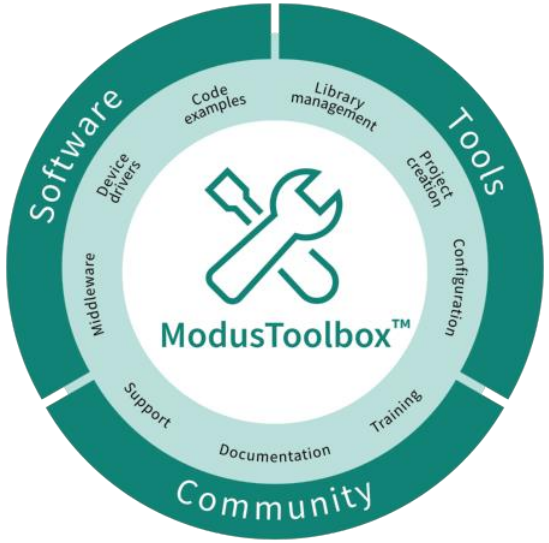


- Sample code/collateral available for evaluation of target use cases, including smart appliance connectivity support:
  - Provisioning via BLE
  - Smart phone operation over Wi-Fi
  - Cloud connectivity over Wi-Fi
  - Support for cloud voice (in addition to local voice)

Software/Tools



- IDEs – VS Code / IAR / Arm Keil / Eclipse
- Configurators and Code Generation
- Application Development Resources
- Middleware from Infineon and the ecosystem
- Board Support Packages / Device Packages
- Support and Documentation Resources
- Training Manuals – hosted in GitHub repo
- Comprehensive ML development flow



Imagimob with ModusToolbox™ from data to edge model

Build a model

Bring your own model OR

Buy a Ready Model (no optimization needed)

Optimize & validate your model

Develop your embedded product with IFX MCUs

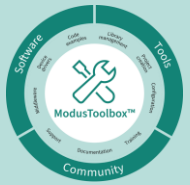
Imagimob Studio



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

Imagimob Studio + ModusToolbox™

Optimization

- Hardware Optimization

ModusToolbox™


.c .a

Deployment

- Code Generation
- Target Device Test and Validation
- Field Deployment

Acesso exclusivo - MyInfineon

My Infineon

- Sorteio exclusivo para cadastrados no My Infineon!

- Link para registro:


Infineon