PRODUCT BRIEF

PSOC™ Edge E81 Microcontrollers

The Next Generation of Low-Power Microcontrollers

The PSOC™ Edge E8 series of Arm® Cortex®-M microcontrollers feature high-performance, low-power, secured MCUs with integrated ML hardware acceleration, designed specifically for enabling efficient and responsive ML compute applications in edge devices. These MCUs are ideal for a variety of consumer and industrial applications including HMI, smart home, wearables, robotics, and other smart connected IoT products. In addition, PSOC™ Edge is supported by a rich set of enablement with the industry-recognized ModusToolbox™ software including integration with the DEEPCRAFT™ Studio AI solution and its off-the shelf ML models.

The PSOC™ Edge E81 microcontrollers are based on high-performance Arm® Cortex®-M55, including Helium DSP support, and also a low-power Arm® Cortex®-M33 paired with Infineon's ultra-low power NNLite hardware accelerator, while featuring always-on acoustic activity detection and wake word detection efficient HMI operations and extended battery life. The PSOC™ Edge E81 includes support for voice and audio communications with keyword spotting and wake word detection, as well as features such as anomaly detection and predictive maintenance.

Power Performance Efficiency and Next-Gen ML Acceleration

- Multi-domain architecture for high-performance and fine-grained power optimization
- High-performance Arm® Cortex®-M55 CPU with Helium DSP
- Low-power Arm® Cortex®-M33 with FPU and DSP, and NNLite for low power AI/ML hardware acceleration

Advanced HMI Interfaces

- Audio multi-microphone interface for far-field applications
- Keyword spotting and Wake word detection

State-of-the-art Security

- Lockstep secured enclave in low-power always-on domain
- Infineon Edge Protect Category 4/Platform Security Architecture (PSA) Level 4
- Off-the-shelf trusted Firmware-M enablement and Mbed-TLS for crypto operations

Ease-of-use for developers

- ModusToolbox™ software
  - Comprehensive collection of multi-platform tools and software libraries
  - Includes board support packages (BSPs), peripheral driver library (PDL), and middleware
- End-to-end ML solution with DEEPCRAFT™ Edge AI software and tools

For more information visit PSOC™ Edge E81

Key features

32-Bit MCU Subsystems
- Up to 400MHz Arm® Cortex®-M55 with Helium DSP
- Up to 200MHz Arm® Cortex®-M33

Machine Learning
- Infineon's NNLite for low-power AI/ML
- End-to-end ML with DEEPCRAFT™

Memory and SoC Integration
- High-capacity memory
- Ultra-low power RRAM
- Rich peripherals to reduce system cost
- Integrated low-power analog sub-system

Security
- Up to EPC4/PSA L4

HMI
- Keyword spotting and wake word detection

Packages
- WLB-154, BGA-220

Operating Temperature
- Ta: -20 to 70°C, -40 to 105°C

Target applications

- HMI
- Smart Home
- Wearables
- Robotics
- Security Camera

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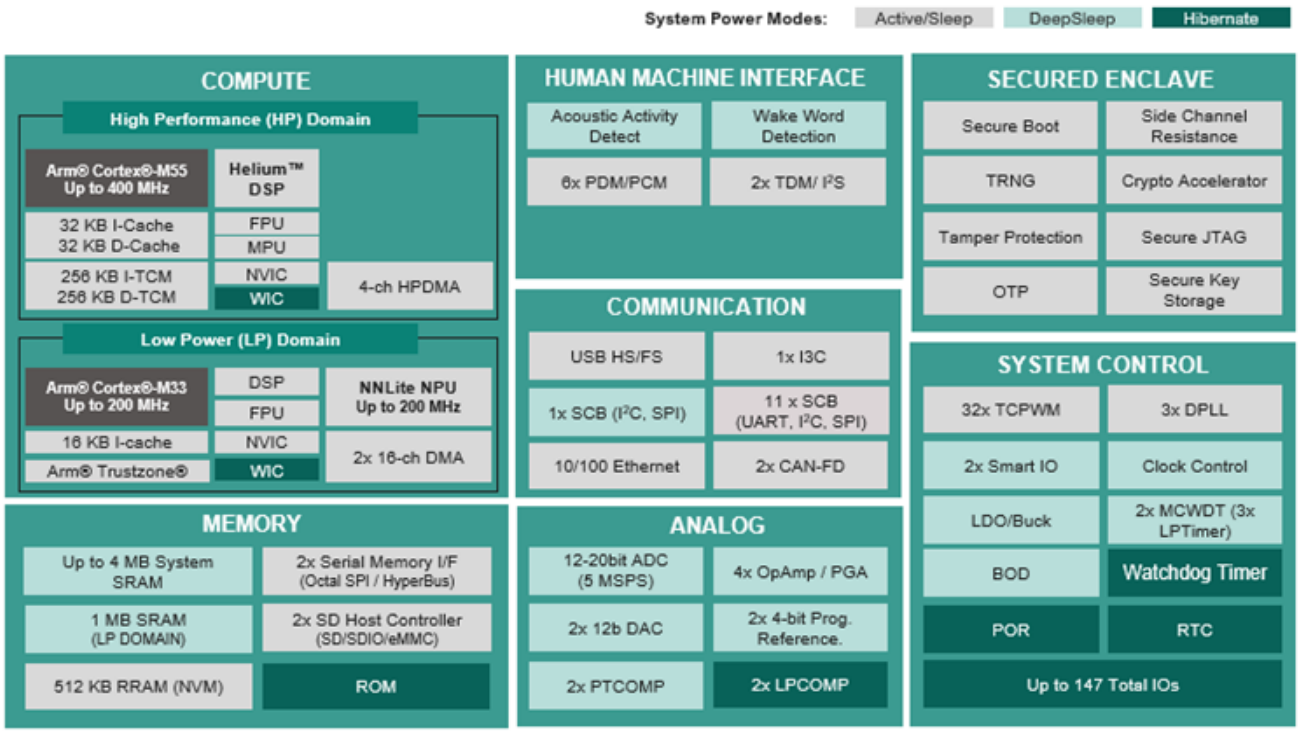
Block Diagram



Orderable Part Numbers and Kits

Kit	Function	Part Number
PSOC™ Edge E84 Evaluation Kit	General purpose evaluation kit for PSOC™ Edge with full function integration of all interfaces	KIT_PSE84_EVAL
PSOC™ Edge E84 AI Kit	Low-cost kit with multiple sensors for evaluation of AI capabilities and fast prototyping	KIT_PSE84_AI

Part Number	Package	Max Frequency	RRAM	Total SRAM	Ethernet & CAN	Security	Temp (Ta)
PSE812GOS2DFNC4T	WLB-154	400 MHz	512kB	5MB	-	PSA L2	-20 to 70 °C
PSE813GOS2DBZC4	BGA-220	400 MHz	512kB	5MB	Yes	PSA L2	-20 to 70 °C
PSE813GOS2DBZQ3	BGA-220	320 MHz	512kB	5MB	Yes	PSA L2	-40 to 105 °C

Additional parts can be found on Infineon.com/PSOCEdgeE81

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