MLSoC Modalix Development Kit

Product Brief

Overview

The SiMa.ai MLSoC Modalix Development Kit is a complete hardware and software platform for evaluating and prototyping intelligent Edge AI applications using the latest MLSoC Modalix™ System-on-Module (SoM).

Designed for rapid deployment, this kit enables seamless development, benchmarking, and proof-of-concept creation with SiMa.ai's Palette™ software, offering best-in-class performance-per-watt in a compact footprint. Ideal for industrial, robotics, and vision-based use cases, this kit supports real-time inferencing across computer vision, transformer models, and GenAI workloads.

The Development Kit includes two populated PCBs: the MLSoC Modalix SoM and a carrier board that exposes all key interfaces.

Development Flow: Evaluate. Prototype. Demonstrate.

Evaluate

Use Palette to compile and run models, assess performance (FPS, latency, compute utilization), and monitor system metrics.
The kit provides:

- Docker-based toolchain
- ARM cross-compilation
- Platform image build & deploy tools
- Integrated KPIs and performance feedback

Prototype

Developers can rapidly prototype functional pipelines using SiMa.ai's Python APIs, enabling fast bring-up of custom ML workflows directly on the hardware without complex embedded optimization.

Demonstrate

The Devkit supports multi-camera input via MIPI and high-speed USB 3.2, allowing developers to demo real-time vision AI applications with HDMI display output and minimal latency.

About SoM

The MLSoC Modalix SoM combines the power and performance of Modalix with extended peripherals, all in a compact form factor designed to accelerate Edge
AI deployments.

Built on the field-proven MLSoC, Modalix with its rich peripherals and unique architecture delivers exceptional performance for multimodal Transformers, LLMs, LMMs, and GenAI workloads, while also supporting legacy CNN and computer vision algorithms. The SoM offers the best-in-class performance per watt.

What's Included

- Devkit with enclosure
- Universal power adaptor (DC 12V @ 5A)
- MIPI camera (Limited / optional)
- Ethernet cable
- M.2 500GB SSD

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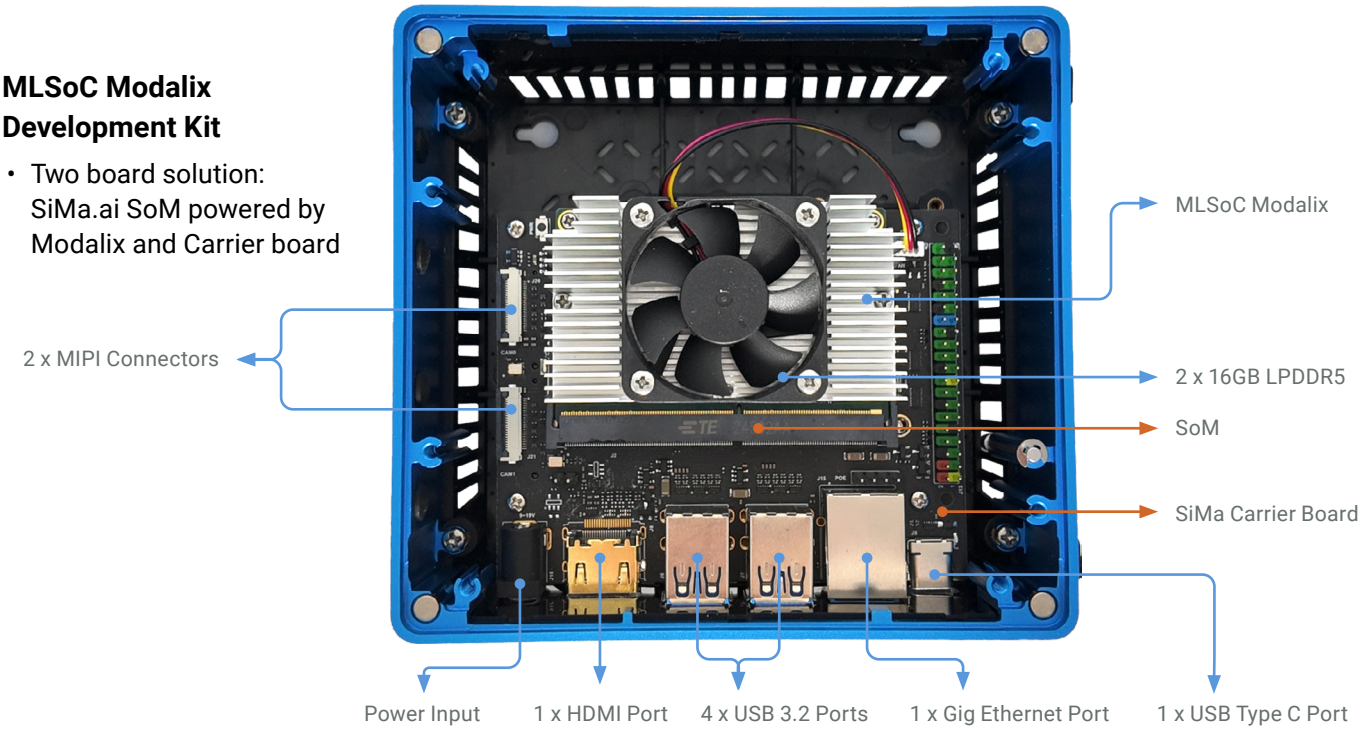
- Two board solution: SiMa.ai SoM powered by Modalix and Carrier board



Key Specifications

Subsystem	Specifications
ML Accelerator (MLA)	50 TOPs (BF16, INT8, INT16); supports GenAI and neural networks
Application Processor	8x Arm Cortex-A65 @1.4–1.5 GHz; 32k Dhrystone MIPS
Memory	32 GB 128-bit LPDDR5, 128-bit @ 6400 Mbps
Video Codec	H.264/H.265/AV1 Decode 4K@60; H.264/H.265 Encode 4K@60
Computer Vision (CVU)	4-core Synopsys EV74 @ 1 GHz; 720 16-bit GOPS
Image Signal Processor	ARM C-71 @ 1.2 GHz; supports RAW up to 24-bit, RGGB, RCCG, RCCB, RGBIR, WDR
Display	1x HDMI 1.4 4K
Peripherals	4x2 MIPI CSI-2, 4x PCIe Gen4 RC/EP, 3x USB 3.2, 1GbE, I2C/UART/GPIO/SPI, SDIO
Storage	16GB eMMC, 64MB QSPI, 128Kb EEPROM
Security	Secure boot, encryption, key storage, user code API
Power Input	Universal power adaptor (DC 12V @ 5A)
Temperature Range	0 to +75 °C

About SiMa.ai

SiMa.ai is the software-centric, embedded edge machine learning system-on-chip (MLSoC) company. SiMa.ai's hardware to software stack flexibly adjusts to any framework, network, model, sensor, or modality all in ONE Platform. Edge ML applications that run completely on the SiMa.ai MLSoC see a tenfold increase in performance and energy efficiency, bringing higher fidelity intelligence to ML use cases spanning computer vision to generative AI, in minutes. With SiMa.ai, customers unlock new paths to revenue and significant cost savings to innovate at the edge across industrial manufacturing, retail, aerospace, defense, agriculture, and healthcare. For more information, visit www.SiMa.ai