Modalix Development Kit 3.0

Product Brief

Overview

The **SiMa.ai Modalix DevKit 3.0** is a complete hardware and software Development Kit for evaluating and prototyping intelligent Physical AI applications using the latest 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. With best-in-class performance-per-watt in a compact form factor it is Ideal for industrial, robotics, vision and LLM-based applications needing real-time inferencing across computer vision, transformer models, and GenAI workloads.

The Development Kit includes a carrier board with an NVMe mass storrage device and the Modalix SoM and provides a broad set of interfaces such as HDMI, USB, Ethernet, UART, I2C, SPI, NVME, GPIO, CSI Camera.

Development Flow

Evaluate. Prototype. Demonstrate.

Evaluate
Use Palette software to compile and run models, assess performance (FPS, latency, compute utilization), and monitor system metrics.

The kit provides:

- Docker-based toolchain
- ARM cross-compiler
- 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 CSI-2, IP, and high-speed USB 3 allowing developers to demonstrate real-time vision AI applications via an HDMI display with minimal latency.

Powered by Modalix MLSoC

The Modalix SoM combines the power and performance of Modalix MLSoC™ with extended peripherals, in a compact form factor designed to scale Physical AI deployments. Built on the field-proven Modalix MLSoC, with its rich peripherals and unique architecture, delivers exceptional performance for **multimodal transformers**, **LLMs**, **LMMs**, and **GenAI** in addition to legacy **CNN and computer vision algorithms** workloads.

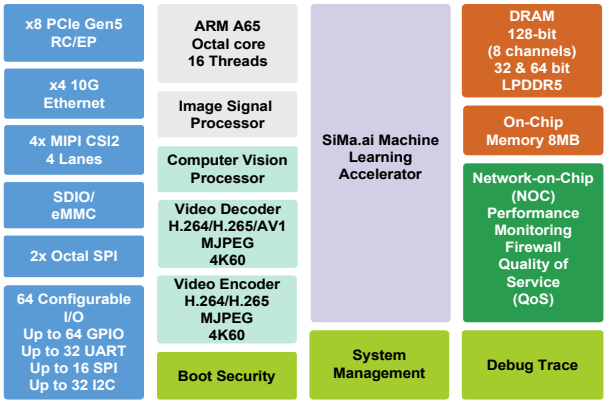
The Modalix SoM offers the best-in-class performance per watt.

What's Included:

- DevKit with enclosure
  (Modalix SoM and Carrier Board)
- Universal power adaptor
  (DC 12V @ 5A)
- M.2 500GB NVMe mass storage

Universal power adaptor
(DC 12V @ 5A)

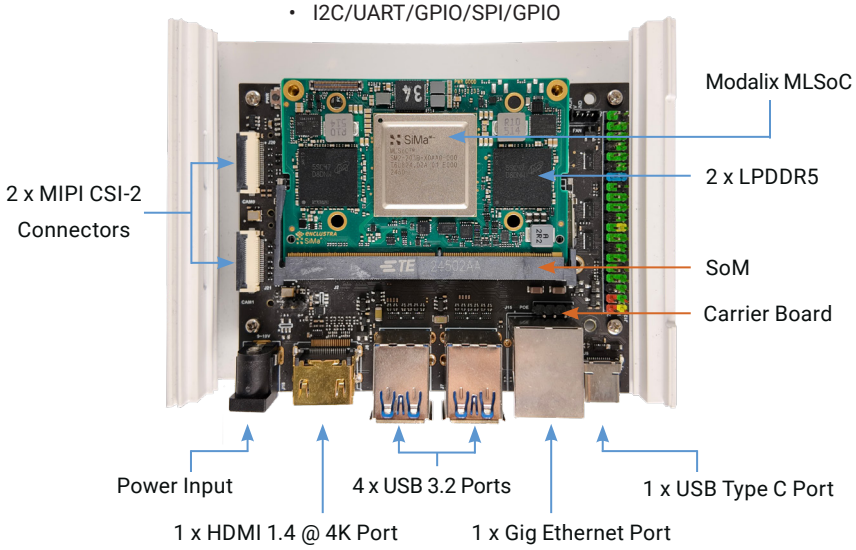
M.2 500GB SSD



Modalix Block Diagram

Plus:

- M.2 M 4x PCIe Gen4 RC
- I2C/UART/GPIO/SPI/GPIO



Subsystem	Specifications
MLSoC Modalix with 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	16GB 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 Mali-C71 @ 1.2 GHz; supports RAW up to 24-bit, RGGB, RCCG, RCCB, RGBIR, WDR
Storage	16GB eMMC, 64MB QSPI, 128Kb EEPROM
Advanced Security	Secure boot, encryption, key storage, user code API
Operating Temperature Range	0-35°C”

Ordering Information

Product Description	Part Number
Modalix DevKit 16GB with HDMI	Modalix-SoMDev-Pro-16GB-404-ABA

Note: The Modalix DevKit provides limited PCIe (Gen4 only) and Ethernet (1G only) functionality due to the limitations of the carrier board capabilities.

SiMa.ai

About SiMa.ai

SiMa.ai is a leader in Physical AI, delivering a purpose-built, software-centric platform that brings best-in-class performance, power efficiency, and ease of use to Physical AI applications. The company is focused on scaling Physical AI across robotics, automotive, drones, industrial automation, aerospace and defense, smart vision, and healthcare. Learn more at www.sima.ai.