



MLSoC™ PCIe Half-height, Half-length Production Board



Figure 1. SiMa.ai MLSoC PCIe Half-height, Half-length Production Board

Features & Highlights

The PCIe half-height, half-length production board is a versatile board that uses the SiMa.ai Machine Learning System on Chip (MLSoC) device.

Some of the key features are:

- **PCIe form factor** (68.9mm x 160mm) with standard 98-pin PCB edge connector to interface with any standard host PC or motherboard.
- **Low power board.** Typical workloads 10-15W. Supports PCIe Gen 4.0 up to x8 lanes, LPDDR4 x4, I2C x2, eMMC, µSD card, QSPI-8 x1, 1G Ethernet x2 ports via RJ45, UART x1, and GPIO interfaces.
- **Machine learning accelerator (MLA)** – providing up to 50 tera operations per second (50 TOPS) for neural network computation.
- **Application processing unit (APU)** – a cluster of four Arm Cortex-A65 dual threaded processors operating up to 1.15 GHz to deliver up to 15K Dhrystone MIPs.
- **Video encoder/decoder** – supports the H.264 compression standards HEVC (High Efficiency Video Coding) with support for baseline/main/high profiles, 4:2:0 pixels and 8-bit precision. The encoder supports rates up to 4K P30, while the decoder supports up to 4K P60.
- **Computer vision unit (CVU)** – consists of a four-core Synopsys ARC EV74 video processor supporting up to 600 16-bit GOPS.
- Designed to offer the **highest performance for low power** embedded edge machine learning applications.

- The SiMa.ai MLSoC device offers heterogeneous cores for processing **any computer vision ML workload**. Quad Arm A65 cores, a Machine Learning Accelerator (MLA) block that provides up to 50 TOPS for ML acceleration along with a Computer Vision Processor (CVP) to **any ML computational needs for any framework**.
- The SiMa.ai MLSoC device is available in industrial and consumer temperature grades.

▶ Main configuration support:

PCIe HHLH card: To function as an ML accelerator card. However, customers may use this as a stand-alone card.

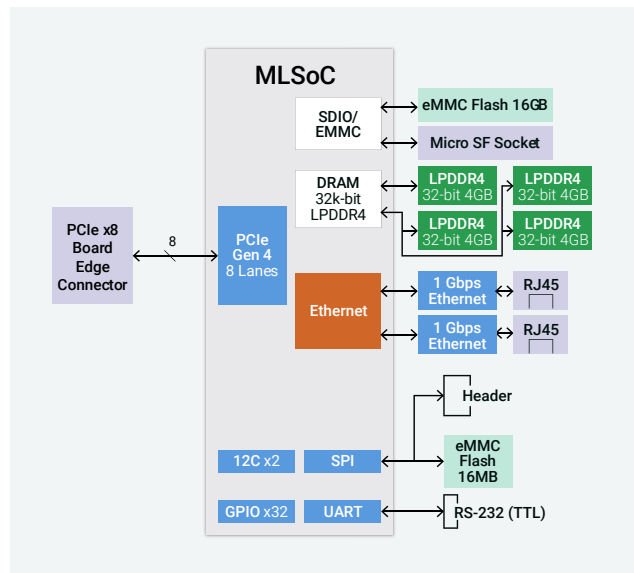


Figure 2. SiMa.ai MLSoC PCIe Half-height, Half-length Board Block Diagram

Find the Edge and Go Beyond

The SiMa.ai MLSoC device delivers high-performance effortless machine-learning for computer vision based embedded edge applications in markets such as smart vision, robotics, industry 4.0, autonomous vehicles, drones, and the government sector.

It is designed to meet the challenges of integrating machine learning into next generation edge applications.

▶ **MLSoC PCIe Half-height, Half-length Production Board ordering information:**

MLSoC-Pro-16GB-102-AD-0A (MLSoC Production Board - PCIeHHHL Industrial 50 TOPS)

MLSoC-Pro-16GB-102-AB-0A (MLSoC Production Board - PCIeHHHL Consumer 50 TOPS)



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