

Palette™ Software Platform



Palette™

ML SOFTWARE DONE RIGHT

Highlights

SiMa.ai's Palette™ software platform is designed for complete ML stack application development. The platform supports any ML workflow customers plan to deploy on the edge without compromising performance and ease of use. Palette's integrated ML compiler accepts any model from any neural network framework. These models, together with optimized pre and post processing libraries, are integrated into the computer vision pipeline using GStreamer. The ML application stack utilizes a full featured embedded Linux (Yocto) run-time that manages and deploys ML use cases. The all-in-one developer platform includes model, application, debug and execution tools which targets SiMa.ai's MLSoC heterogeneous platform.

Palette Development Flow

Create a complete ML workflow involving optimized DNN models, pre & post processing libraries and application logic. Prototype pipelines quickly with Python or C++ on Linux or Windows. Develop high performance applications using GStreamer workflows with advanced scripting and automation tools.

Build integrated applications that are seamlessly compiled and mapped to the MLSoC's heterogeneous compute engines. Patented SiMa.ai ML compiler along with advanced quantization and highly optimized kernels extract optimal performance automatically. The automation of the build process takes the housekeeping away from the developer so they can focus on the ML application logic.

Deploy and easily manage application packages on the SiMa.ai MLSoC using the Palette's Device Manager. Packages enable a highly scalable workflow for both testing and operational deployment. Security options provide protection of the deployed application packages on the SiMa.ai MLSoC target hardware.

Debug sessions, generate logs and profile applications in real-time. The software platform allows evaluation of multiple applications deployed across numerous MLSoC devices.

Model Compiler

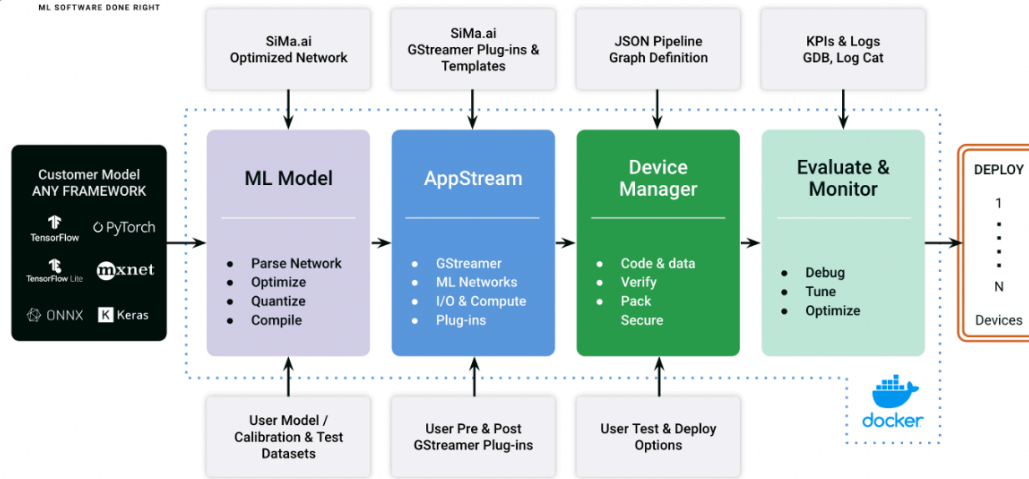
- Compile native on Linux or Windows.
- Supports and optimizes DNN models from a wide range of frameworks.
- Pushbutton compilation.
- Partition model across heterogeneous compute resources in the MLSoC.
- Python API.
- *Advanced quantization optimization options

Model Library

Palette provides a reference library of models covering common DNN topologies. Each DNN model comes with detailed information about the reference, test, and calibration data used, model accuracy metrics, and key performance indicators. External Model zoo on Github.

Application Development

- Library of application examples.
 - Examples for GStreamer pipelines.
 - Examples for Python pipelines.
 - Examples for C++ pipelines.
- Library of plugins for pre and post processing for most common use cases.
- Host side C++ APIs for co-processor operation
- Data ingestion.
- Multiple camera streams.
- Build complete workflow/application and validate on the SiMa.ai MLSoC board.
- Collect application statistics and logs.



Application Libraries

Palette features a reference library of ML applications targeting various use cases in different targeted markets. Using Palette, the user can replicate functionality and modify the workflow to quickly iterate on new ML applications.

Device Manager

- Secure communication to MLSoC boards.
- Manage I/O to Ethernet and PCIe
- Verify and package applications and all required resources.
- Execute and analyze applications on silicon.
- Deployment and maintenance.

Debug & Profiler

- Multi-core MLSoC GDB debug.
- LogCat and PerfCat options.
- Visualize application pipeline execution flow.

Palette 1.2 runs on Linux, Windows & MacOS.

See our SaaS based Palette Edgematic for cloud.

About SiMa.ai

SiMa.ai is a machine learning company delivering the industry's first software-centric purpose-built MLSoC platform. **For more information, visit www.SiMa.ai.**

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