eIQ® Auto Machine Learning (ML) Toolkit

eIQ-AUTO-ML-TOOLKIT

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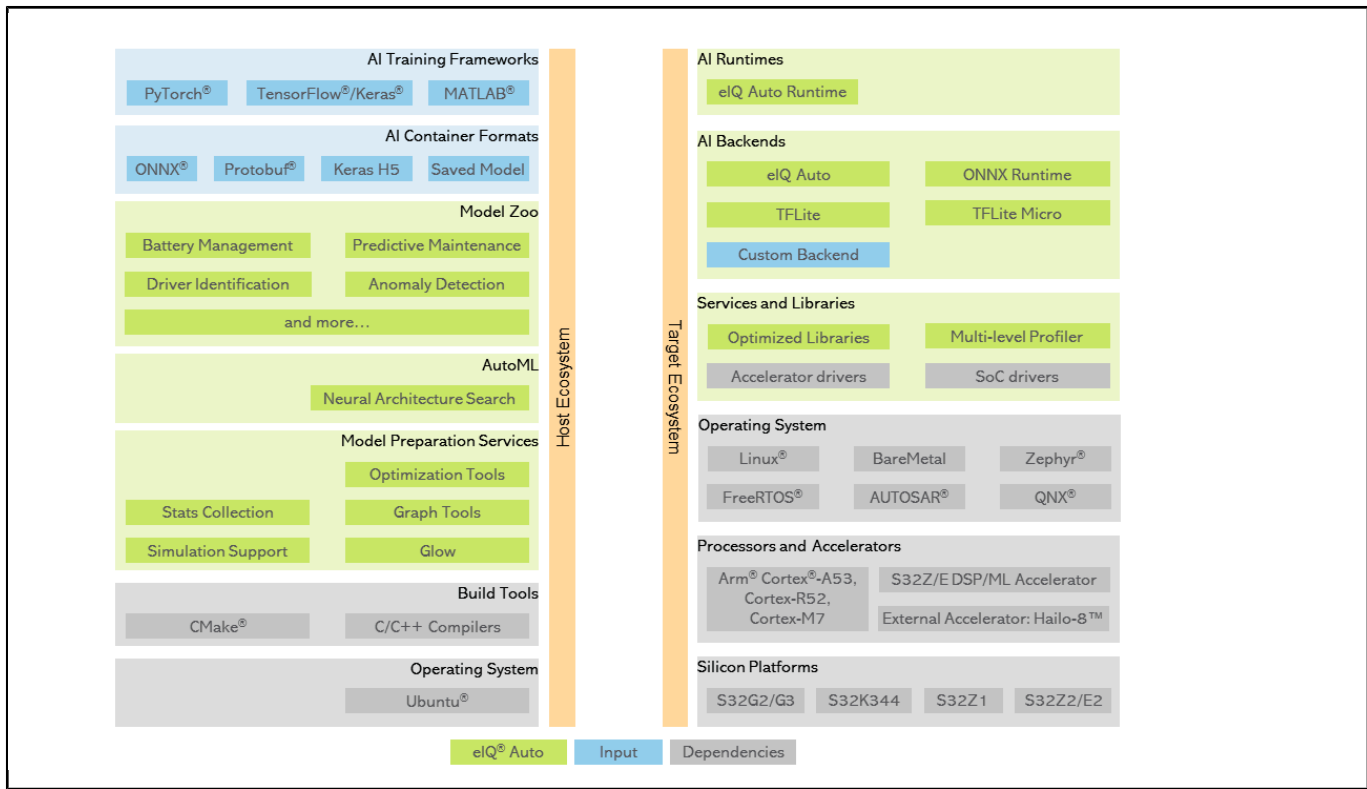
Discover AI for NXP Automotive Explore the Toolkit Now.

eIQ® Auto ML Toolkit provides high performance and fast deployment of ML algorithms on NXP automotive microcontrollers and microprocessors including S32G vehicle network processors, S32K general-purpose microcontrollers, and S32Z and S32E real-time processors.
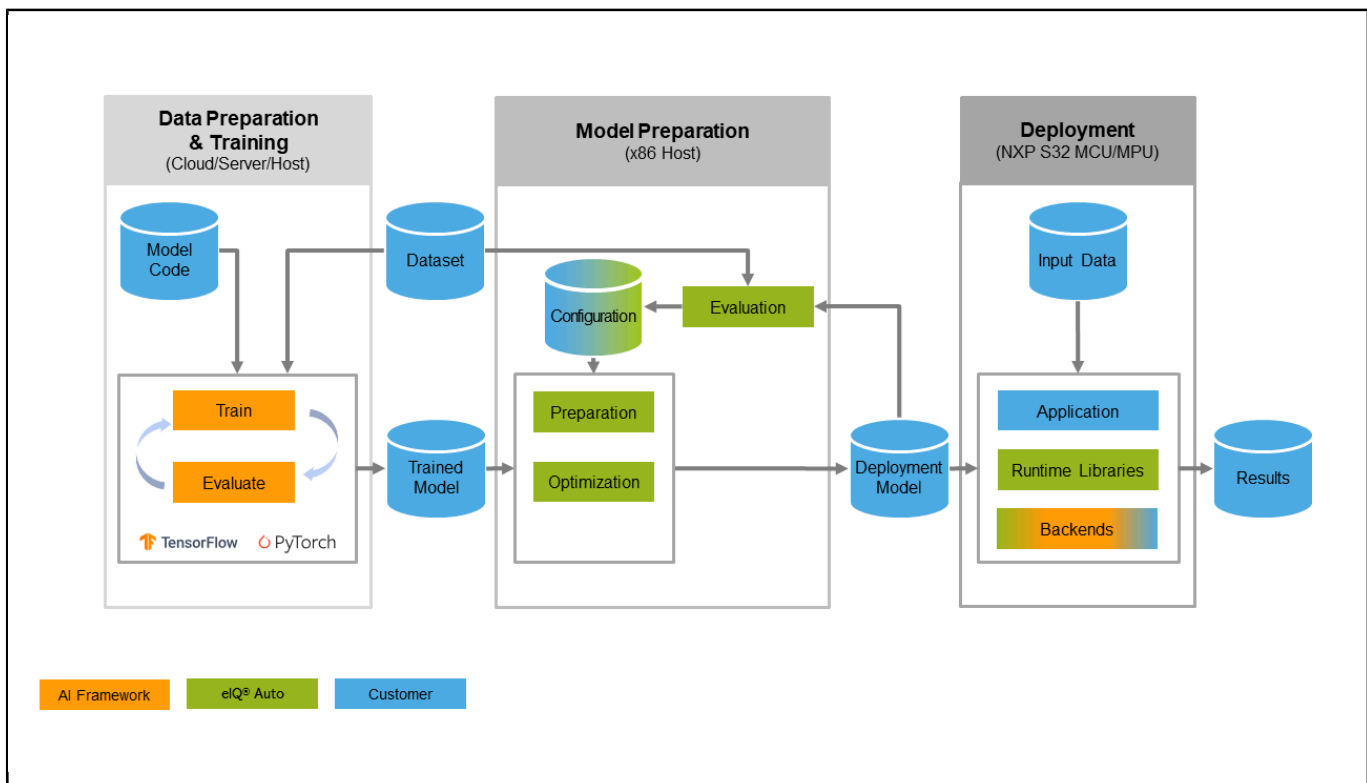
The toolkit offers large compatibility of AI container formats from diverse popular AI training frameworks. It features a wide range of evaluation models within its release package and numerous model preparation services for model optimization, maximizing the usage of S32 computing resources. The Toolkit supports a variety of AI backends including an automotive-quality compliant option.

Application integration happens through eIQ Auto runtime API, without dependencies on specific models, backends, and S32 hardware, providing full control of where and how the application is executed.

eIQ Auto ML Toolkit Block Diagram

Host Ecosystem

AI Training Frameworks
- PyTorch®
- TensorFlow®/Keras®
- MATLAB®

AI Container Formats
- ONNX®
- Protobuf
- Keras H5
- Saved Model

Model Zoo
- Battery Management
- Predictive Maintenance
- Driver Identification
- Anomaly Detection
- and more…

AutoML
- Neural Architecture Search

Model Preparation Services
- Optimization Tools
- Stats Collection
- Graph Tools
- Simulation Support
- Glow

Build Tools
- CMake®
- C/C++ Compilers

Operating System
- Ubuntu®

Target Ecosystem

AI Runtimes
- eIQ Auto Runtime

AI Backends
- eIQ Auto
- ONNX Runtime
- TFLite
- TFLite Micro
- Custom Backend

Services and Libraries
- Optimized Libraries
- Multi-level Profiler
- Accelerator drivers
- SoC drivers

Operating System
- Linux®
- BareMetal
- Zephyr®
- FreeRTOS®
- AUTOSAR®
- QNX®

Processors and Accelerators
- Arm® Cortex®-A53, Cortex-R52, Cortex-M7
- S32Z/E DSP/ML Accelerator
- External Accelerator: Hailo-8™

Silicon Platforms
- S32G2/G3
- S32K344
- S32Z1
- S32Z2/E2

Legend: eIQ® Auto | Input | Dependencies

eIQ Auto Development Block Diagram

Data Preparation & Training (Cloud/Server/Host)
- Model Code
- Dataset
- Train
- Evaluate
- TensorFlow, PyTorch
- Trained Model

Model Preparation (x86 Host)
- Configuration
- Evaluation
- Preparation
- Optimization
- Deployment Model

Deployment (NXP S32 MCU/MPU)
- Input Data
- Application
- Runtime Libraries
- Backends
- Results

Legend: AI Framework | eIQ® Auto | Customer

View additional information for eIQ® Auto Machine Learning (ML) Toolkit.

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