METIS® M.2 MAX CARD

Optimized for LLMs and VLMs with enhanced memory bandwidth

METIS

Security

Industry 4.0

Retail

Mobility

Logistics

Robotics

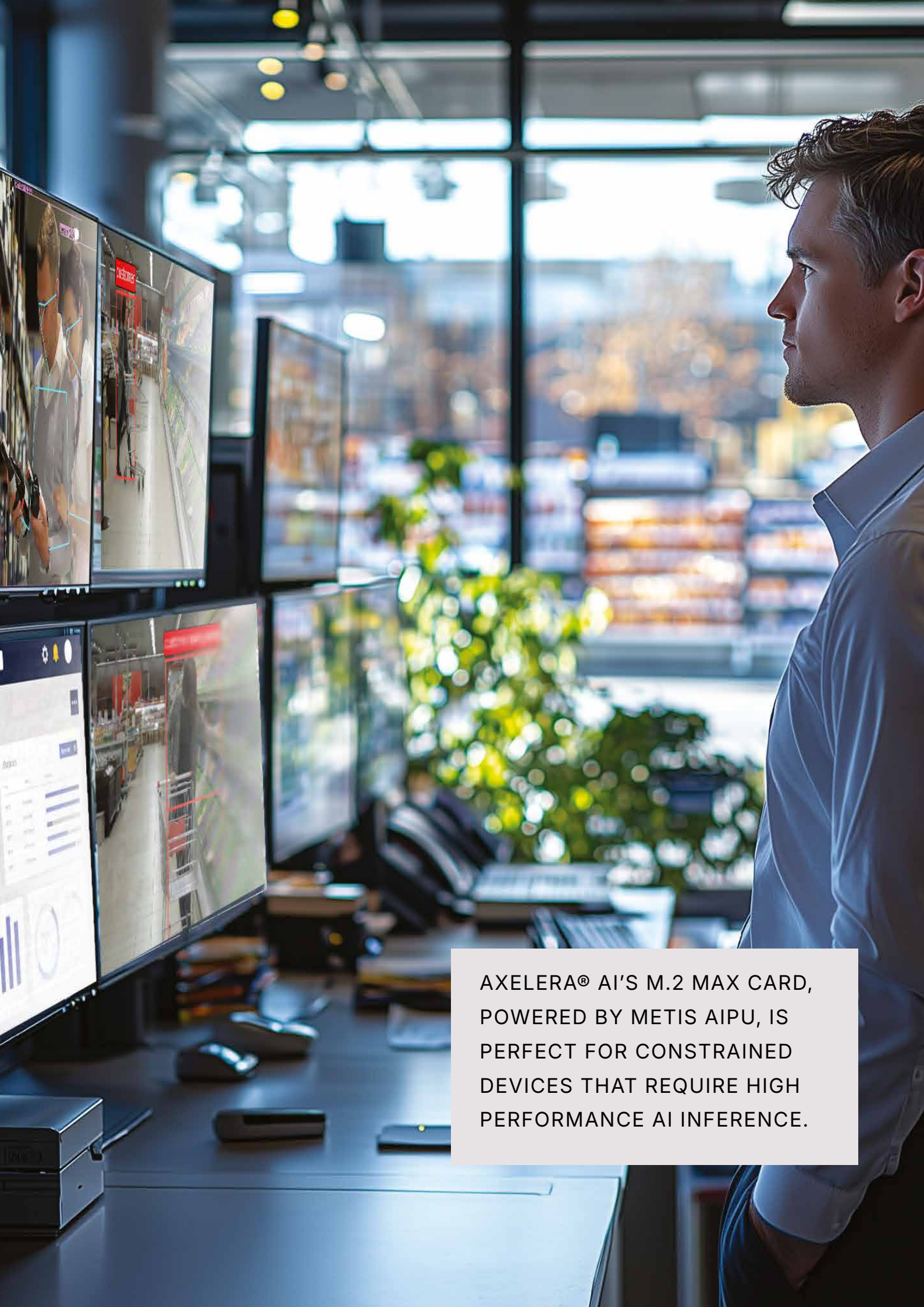
Medical

Hospitality

Utilities

Agritech

AXELERA®
ARTIFICIAL INTELLIGENCE



AXELERA® AI'S M.2 MAX CARD, POWERED BY METIS AIPU, IS PERFECT FOR CONSTRAINED DEVICES THAT REQUIRE HIGH PERFORMANCE AI INFERENCE.

METIS® M.2 MAX - KEY FEATURES

- High performance M.2 Max card features Metis AIPU to enable state-of-the-art AI inference in small footprint devices.
- A single board can run inference on multiple cameras as well as support many independent parallel neural networks.
- A wide range of end-to-end AI pipelines and models are available out of the box.
- Hassle free evaluation and software integration thanks to Voyager® SDK.
- Uncompromised prediction accuracy thanks to advanced quantization tools.

KEY TECHNICAL SPECIFICATIONS

Form Factor	M.2 2280 (Key M), requires 5.6 mm height
Host Interface	PCIe Gen3 ×4 via M.2 connector
AIPU (AI Processing Unit)	1x Metis AIPU
AIPU Memory	LPDDR4x up to 8 GB [2]
Peak INT8 TOPS	214
Operating temperature[1]	Standard −20 °C to +70 °C
Thermal solution	Offered standalone or with cooling solution
Security Features	Secure Boot, Secure Upgrade, Secure Debug, Secure PCIe

[1] Extended temperature variant [-40 to +85°C] available upon request.
[2] For configurations details contact your Axelera AI representative.

POWERING AI ACROSS DOMAINS

Metis M.2 Max delivers power-efficient acceleration for both CNN and transformer architectures and is adopted across multiple market segments.

LLM Assistant: provide voice, video and text-based LLM capabilities for smart home, elderly monitoring, and industrial machine maintenance.

Robotics: enable advanced cooperation between human and robots thanks to high resolution advanced gesture recognition, pose estimation and human intention decoding.

Medical: improve accuracy of real time diagnostics, monitoring, imaging and analysis.

Agritech: enhance precision in agricultural practices with crop analysis, smart irrigation/pest control, automated harvesting.

Drones: deliver real-time video processing for navigation, object detection and surveillance in lightweight, battery-powered UAV systems.

PERFORMANCE BENCHMARKS

See how Metis M.2 Max Card compares against other AI accelerators across real-world neural networks. Scan to view the latest results.

https://axelera.ai/ai-accelerators/metis-m2-ai-acceleration-card#benchmark2

EASY TO INTEGRATE

Axelera® AI's Metis technology integrates seamlessly with host CPUs based on both x86 and ARM architectures. Our team actively tests different systems from vendors making it easy for embedded developers to prototype AI applications.

VOYAGER SDK

Thanks to Voyager® Software Development Kit (SDK), users have a simple software integration path for AI inference at the edge:

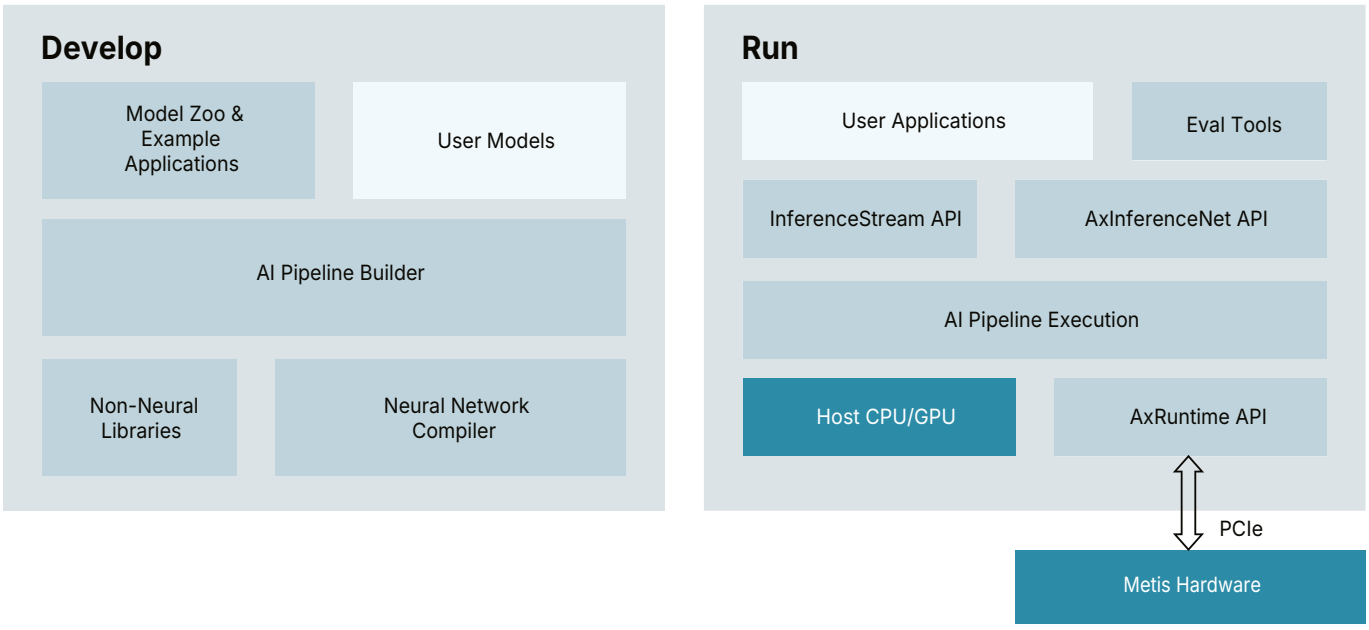
- **Great out-of-the-box experience:** The SDK's built-in tools and models allows evaluating Metis performance, accuracy and power consumption in a few minutes.
- **Fast end-to-end integration path:** The SDK provides a high-level pipeline description framework that allows building optimized end-to-end AI applications with custom inputs, datasets, models and business logic with very few lines of code.
- **Low-level knobs and APIs:** For users that have their own pipelines and software infrastructure, the SDK includes low-level APIs to directly control the inference hardware.

Voyager is a simple yet feature rich SDK:

- Large Model Zoo supporting, among others:
  - Small Language Models (Phi3-mini, Llama-3.1 8B etc.)
  - Image Classification (EfficientNet, RestNet etc.)
  - Object Detection (YOLO models, RetinaFace etc.)
  - Semantic Segmentation (U-Net FCN)
  - Instance Segmentation (YOLO models)
  - Keypoint Detection (YOLO models)
- Compiler support for models from Pytorch and ONNX. The compiler automatically manages quantization and graph optimization without user intervention and achieves optimal performance and accuracy.

PyTorch ONNX

- Libraries including all pre- and post-processing required to run end-to-end pipelines: scaling; cropping; normalization; format conversion; nonmaximal suppression (NMS) and more.
- A YAML description file is used to automatically generate the AI pipelines. The pipeline can then be run as a plugin to GStreamer or within an inference server.
- Built-in tools to test accuracy and performance of models running on Metis® AIPU.



SCAN ME

Ordering information

Part numbers are listed in the product datasheet.
To order the M.2 Max AI Accelerator Card, please visit:
https://store.axelera.ai/products/

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