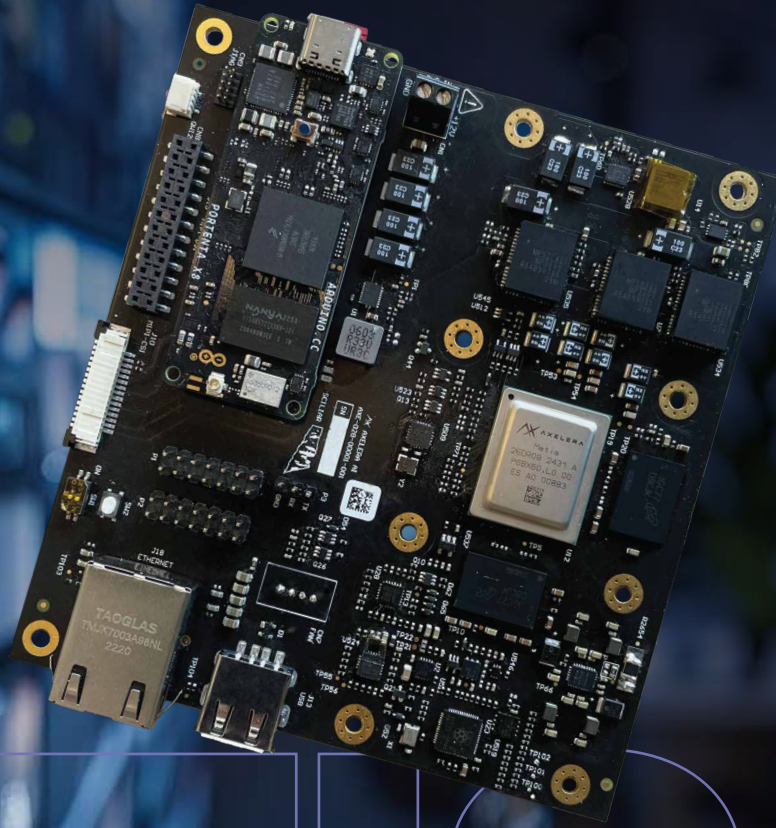


METIS[®] DEV SYSTEM

with Arduino Portenta X8



METIS



Security



Industry 4.0



Retail



Mobility



Logistics



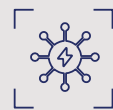
Robotics



Medical



Hospitality



Utilities

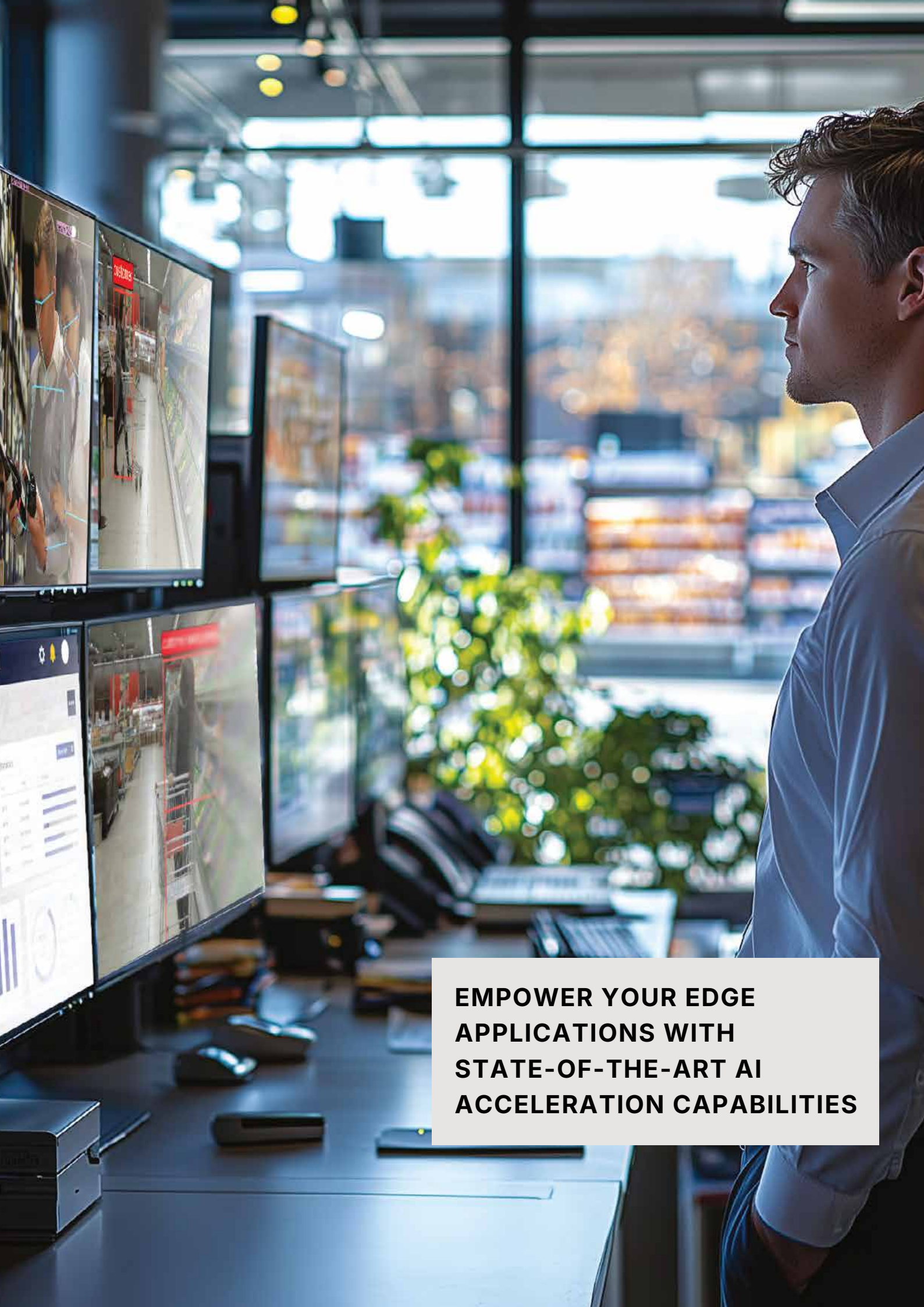


Agritech



AXELERA[®]
ARTIFICIAL INTELLIGENCE





**EMPOWER YOUR EDGE
APPLICATIONS WITH
STATE-OF-THE-ART AI
ACCELERATION CAPABILITIES**

KEY FEATURES

- Supported by Arduino Portenta X8 for energy-efficient edge AI applications in a small form factor leveraging Metis® AIPU's 214 TOPS AI inference performance.
- A platform for prototyping generative AI applications using Small Language Models Phi3-mini 4k instruct, Llama-3.1 8B, Llama-3.2 1B and Llama-3.2 3B supported in Voyager® SDK.
- A growing Model Zoo with a broad coverage of computer vision networks for object detection, image classification, pose estimation and segmentation.

This is a limited series board for development purposes only. It is not intended for use in production environments or end products.

KEY TECHNICAL SPECIFICATIONS

Arduino Portenta X8 Host Processor

Processor	Arduino Portenta X8 with NXP® i.MX 8M Mini MPU with 4x ARM® Cortex®-A53 and 1x Cortex-M4
Memory	2 GB LPDDR4
Storage	16 GB eMMC
Operating System	Yocto-based Linux OS

More info: <https://docs.arduino.cc/hardware/portenta-x8/>

Metis Development Board

AI Accelerator	Metis AIPU with 16 GB of LPDDR4X
Networking	1x Gigabit Ethernet (RJ45)
Connectivity	USB 2.0
Storage	SD card
Operating Temp	Room temperature
Dimensions	110x120 mm

PROVEN IN KEY MARKETS

Companies in multiple market segments have already adopted Metis Cards for AI acceleration for different applications such as:



Security: reducing the time to detect and resolve incidents (abandoned baggage, intrusion, fall) thanks to high resolution, high throughput processing of tens of camera feeds.



Retail: improve operational efficiency and customer experience with in-store customer behavior, stock monitoring and automated checkout systems.



Logistics: monitor the movement of goods and personnel to improve operational efficiency and safety of logistic centers by improving resource allocation and detecting safety hazards.



Industry 4.0: improve accuracy and speed in defect detection and quality control. Increase worker safety with automated PPE control.

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:

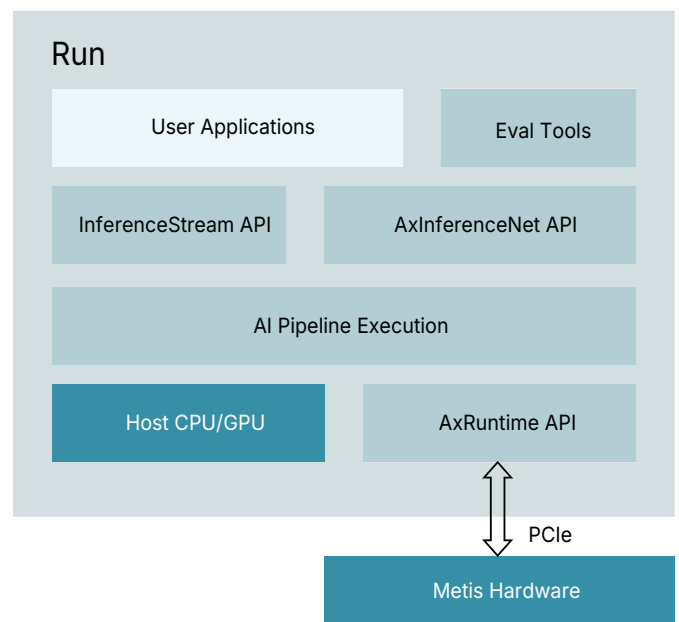
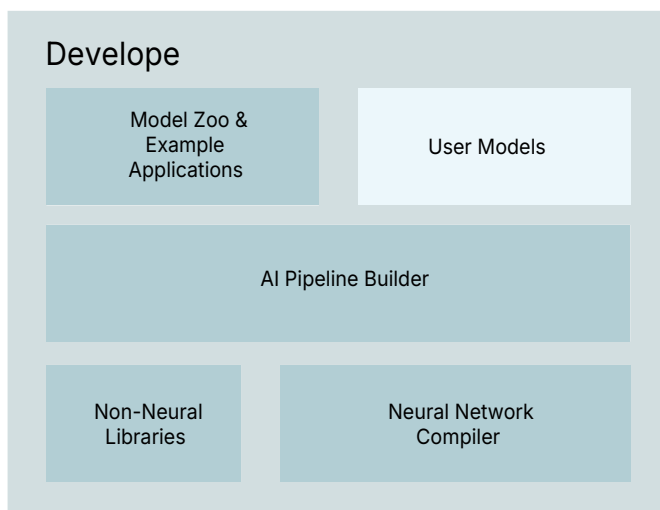
- Great out-of-the-box experience: The SDK's built-in tools and models allows evaluating Metis® performance, accuracy and power consumption in a few minutes.
- Fast end-to-end integration path: The SDK provides a high-level pipeline description framework that allows building optimized end-to-end AI applications 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, ResNet 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.



- Libraries including all pre- and post-processing required to run end-to-end pipelines: scaling; cropping; normalization; format conversion; non-maximal 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.



Ordering information

To order the Metis Dev System with Arduino Portenta X8, please visit: axelera.ai/contact-sales