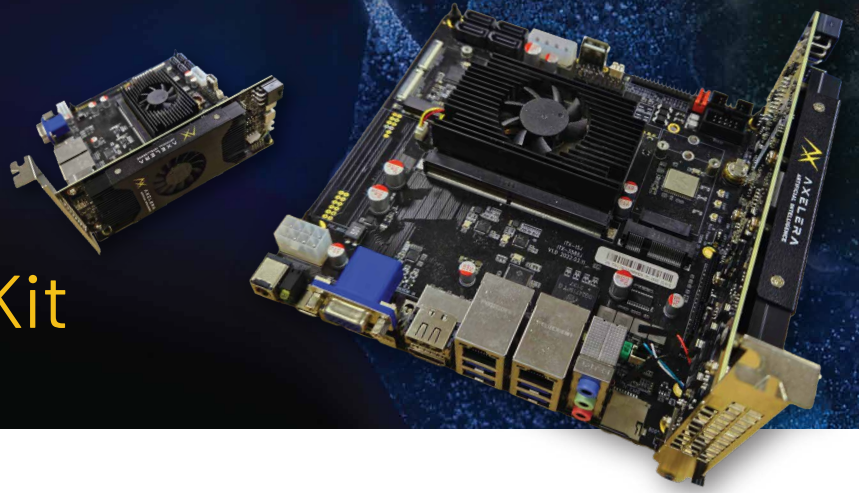




Metis PCIe ARM Evaluation Kit



Empower your embedded edge applications with State-of-the-Art AI inference capabilities

The Axelera PCIe Evaluation Kit powered by the Metis AI Processing Unit and an ARM (RK3588) single board computer, provides swift processing and exceptional accuracy for CNN-based Computer Vision applications such as video analytics, quality inspection, and people monitoring. Preloaded with State-of-the-Art detection and classification neural networks, including YOLOv5 and YOLOv7, it delivers a market-leading combination of throughput, accuracy and cost efficiency, making it an optimal solution for evaluating embedded AI.

The included Voyager SDK radically simplifies AI deployment in edge devices and ensures end-to-end integration and API compatibility with industry standards, specifically tailored for computer vision.

Developers can utilize a high-level declarative language (YAML) to design application pipelines, which include neural networks, preprocessing, and advanced image operations. The SDK manages model and dataset integration, pipeline compilation, optimization, and deployment while efficiently utilizing the host processor.

Additionally, the SDK enables flexible integration of pipelines (like GStreamer) into inference services, offering scalable solutions that span from single to multiple stream and multi-model processing.

Key Features

- ✓ Axelera Metis PCIe AI high-performance card
- ✓ Axelera Voyager Software Development Kit (SDK) for AI application deployment
- ✓ Out-of-the-box YOLOv5 and YOLOv7 with unmatched throughput and accuracy
- ✓ Octal 64-bit ARM Rockchip RK3588 motherboard
- ✓ Decoding up to 32 x 1080p30 H.265/HEVC channels
- ✓ Low power embedded system

Technical Specifications

Axelera Metis AIPU PCIe card

AI Processing Unit (AIPU)	Memory	PCIe	Size
Quad AI cores with Axelera Digital-In-Memory-Computing (D-IMC)	1GB LPDDR4x	PCIe 3.0(x4)	FHHL (full height, half length), Single slot - 168mm x 64mm x 40mm

MotherBoard : Firefly ITX-3588J with Rockchip RK3588

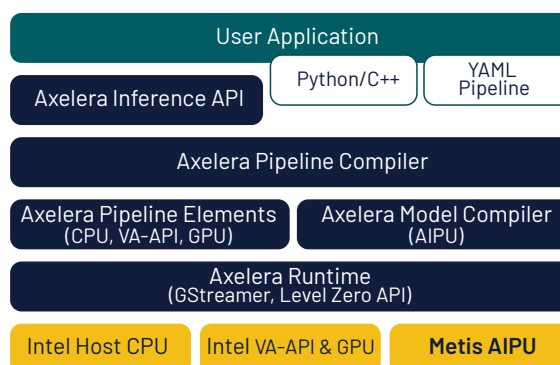
CPU	8-core 64-bit ARM (4 × Cortex-A76 + 4 × Cortex-A55), frequency up to 2.4GHz
GPU	ARM Mali-G610 MP4 quad-core GPU
Video Codec Capabilities	Video decoding: 8K@60fps H.265/VP9/AVS2 / 8K@30fps, H.264 AVC/MVC / 4K@60fps AV1 1080P@60fps MPEG-2/-1/VC-1/VP8 Video encoding: 8K@30fps encoding, Supports H.265 / H.264. 32-channel 1080P@30fps decoding and 16-channel 1080P@30fps encoding
Ethernet	2 × GbE (RJ45), one supports PoE, max output 60w
PCIe	1 × PCIe3.0 (4 lanes)
USB	4 × USB3.0 / 1 × USB-C (USB3.0 / DP1.4) / 4 × USB2.0 (3 of them are pins)
Power	DC 12V input (DC5.5 × 2.1mm) Computer power supply 12V input (standard ATX power interface - 8Pin) PoE 48V power input
Operating System	Linux: Ubuntu Desktop 20.04 with Voyager SDK in a docker platform
Size	17cm × 17cm (Mini-ITX), suitable for general ITX computer cases
Operating Temp. Range	-20°C + 60°C
Power Consumption	20W typical total system (incl. Metis PCIe card)
Accessories included	Desktop power supply, HDMI video cable, USBC cable, SATA power cable, SATA3.0 cable, FC10 to O89 cable, IPEX1 antenna cable, sdb antenna, heatsink (for METIS PCIe)

For more details on firefly -ITX3588J, please visit <https://www.firefly.store/goods.php?id=161>

VOYAGER^{SDK}

Machine Learning Framework	PyTorch / ONNX / TensorFlow (via ONNX)
Neural Network Support	YOLOv5s / YOLOv5m / YOLOv5l / YOLOv7 / Resnet 50 / MobileNetV2 / SSD-MobileNetV2 / and more

The Voyager SDK provides a full-stack, end-to-end AI solution built on common ML frameworks and powerful tools. Application logic and model development can proceed together, using separate Python/C++ source and YAML pipeline config files, combined at runtime using the Axelera Inference API. To simplify user evaluations, Voyager SDK ships with a collection of YAML reference pipelines for popular models.



Voyager SDK Software Stack

Ordering information:

Please visit:
www.axelera.ai/ai-product-solutions/

Get in touch!
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