

# MX3 Edge AI Accelerator

The MemryX MX3 Edge AI Accelerator is architected for simplicity and scalability. Running AI models at the Edge has never been easier with amazing results.

MemryX uses an innovative pure dataflow architecture, with programmable hardware mirroring the data-driven design of AI algorithms. MemryX's proprietary 1-click compilation and mapping software optimizes the performance of any AI model on MX3 without requiring any retraining or software tuning. This ease-of-use accelerates development cycles and offers seamless upgradability for Edge AI computing.

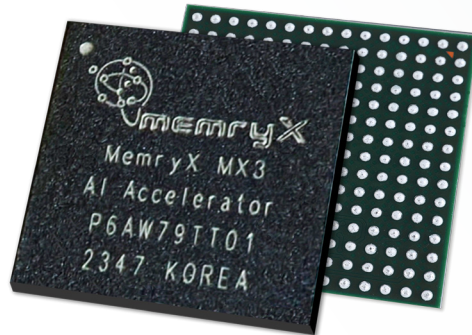
Supplementing or complete offloading AI inference processing from an Application Processor to a dedicated AI accelerator maximizes efficiencies and lowers costs. MX3 supports major AI frameworks and interoperability across operating systems.

## Edge AI Architecture

At-memory computing and innovative dataflow architecture results in the **highest** throughput and **lowest** energy optimizing streaming inputs.

## Scalability

The same software is used for multiple small AI networks in one MX3 accelerator as is used in large models across multiple modules.



## Simplicity

With more than **50%** chip utilization, **1-click** performance and power optimization of trained models compile with no retraining, hand-tuning, or quantization necessary.

## Deterministic/Consistent

With low latency (Batch=1) pipelined dataflow design, all memory is included on the accelerator, fully mitigating system bottlenecks and placing no host processing requirements.

Video Management Systems

Industry 4.0 & Robotics

AgTech

Automotive

IoT

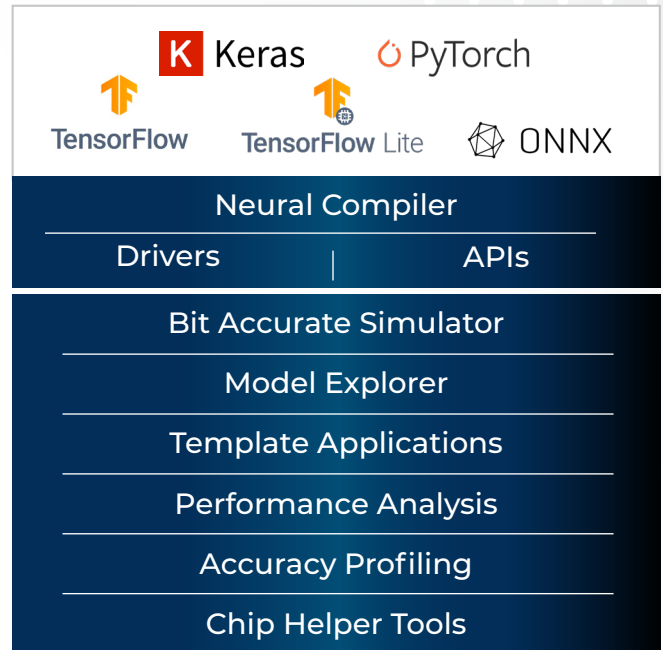
Medical



The MemryX Software Developer Hub (SDK) is a comprehensive software solution including a 1-click compiler, bit-accurate simulator, and a suite of utility and runtime tools to ease development. MemryX's compiler has been tested on over a thousand standard and custom AI models for computer vision and sensor processing in a variety of applications (classification, object detection, segmentation, pose & depth estimation, OCR, GAN, etc.).

### SDK Benefits

- Supports all common frameworks
- Support for multiple HW and OS platforms
- Bit Accuracy that aligns with the deterministic HW platform performance
- Scalable for any # of models across any number of MX3 chips
- Available code samples, tutorials, and user guides



## Technical Specifications

Performance TOPS	>5 TFLOPs / chip (>50% utilization)
Model size	10M parameters (8-bit) / chip
Performance (Batch=1)	SSDMobilenet (224x224): 1403 fps (x1) SqueezDet (353x1248): 185 fps (x1) YOLOv7 tiny (416x416): 375 fps (x2) CenterNet (ResNet) (512x512): 64 fps (x4) YOLOv4 (416x416): 150 fps (x8)
Operations	Activations: 16-bit floating point (default) Weights: 4/8/16-bit (default = 8 bit)
Frameworks	TensorFlow, Tensorflow-lite, PyTorch, ONNX, Keras
Operating System Support	linux (Ubuntu, Yocto, etc. ), Android, Windows
Interface	USB 3.2 Gen1 x1 (5 Gbps) PCIe Gen3 x2
Temperature	-40C – 105C
Package size	9mm x 9mm FCCSP

Specifications subject to change without notice



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MemryX Inc. is a fabless semiconductor company that designs Edge AI processing solutions powered by a proprietary compute-at-memory technology and dataflow architecture. By combining high performance and accuracy with low system power and a high-performance architecture, MemryX solutions are able to power AI needs for a number of industries, including transportation, IoT, and a wide range of industrial and consumer applications. MemryX is backed by leading investors including HarbourVest, Arm IoT Fund, eLab Ventures, M Ventures, and Motus Ventures. MemryX has headquarters in Ann Arbor, Mich., with offices in Bangalore, India, Taipei and Hsinchu, Taiwan.

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