

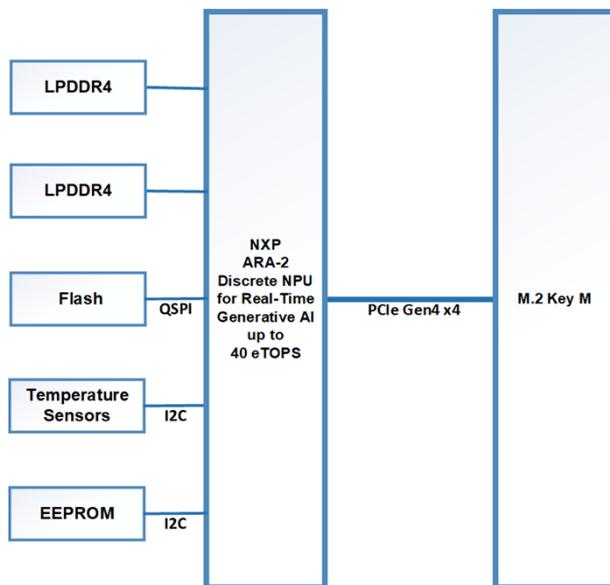
FS-M2-AI (preliminary)

M.2 AI Accelerator with NXP Ara-240

Characteristics

- **NXP Ara-240 Edge AI Processor:**
8x NNP (up to 40 eTOPS), 2x VPU, Secure Boot & Root-of-Trust Processor
- **High-performance Edge AI acceleration:**
Real-time execution of Generative AI, LLMs, VLMs and transformer-based models
- **2x LPDDR4:**
Up to 16 GByte DRAM (64 bit) enabling large AI models and high-bandwidth data processing
- **M.2 Key M:**
2280 form factor, 1x-4x PCIe Gen4
- **Target applications:**
High-performance edge AI, machine vision, multimodal AI and secure networked systems with real-time decision-making.

Block Diagram



Description

The FS-M2-AI is a high-performance M.2 AI accelerator designed to enable next-generation edge AI in embedded and industrial systems.

Based on the NXP Ara-240 DNPU, the module delivers up to 40 eTOPS and is optimized for demanding workloads such as generative AI, large language models (LLMs) and multimodal inference.

As a scalable AI companion, it offloads compute-intensive workloads from the host processor, enabling low-latency and power-efficient real-time inference while maintaining a compact and standardized M.2 form factor.

In combination with F&S SMARC modules based on NXP i.MX 95 or i.MX8M Plus, the accelerator forms a powerful heterogeneous computing platform, combining high-performance application processing with dedicated AI acceleration. This enables advanced use cases such as machine vision, intelligent HMI and secure edge computing with real-time decision-making.

Software Support

F&S provides comprehensive software support for rapid AI deployment and system integration.*

- NXP eIQ® AI development environment for model deployment on Ara-2
- Support for TensorFlow, PyTorch and ONNX
- Tools for model optimization (quantization, compilation)
- Linux-based host integration
- Evaluation software, demos and benchmarking tools
- F&S engineering support and AI workshops*

Starterkit

To facilitate the implementation of the module in the target application, F&S offers a Starterkit*, including:

- M.2 AI Accelerator (FS-M2-AI-V11)
- SMARC module based on NXP i.MX 95 or i.MX8M Plus
- Baseboard
- Cable Kit
- Cooling Solution

Order Notations

FS-M2-AI-V11
8GB LPDDR4
-25°C +85°C

FS-M2-AI-V21
16GB LPDDR4
-25°C +85°C

In addition to the standard version(s) listed on our homepage, F&S also offers and supports customer-specific configurations.***

FS-M2-AI-V11-SKIT

Starterkit with SMARC 8M Plus.

Technical Data (Quickfacts)

Power Supply	3.3 V
Power Consumption	Typ. 6.5 W
Processors	NXP Ara-240
Memory	2x LPDDR4 up to 16 GB (overall) 32 Mbit Flash
Interfaces	PCIe Gen3/Gen4 (up to 4 lanes)
I/O voltage	1.8 V
Form Factor	M.2 Key M 2280
Temperature Range	-40°C ... +85°C
Size (L x B x H)	(22 x 80 x 3) mm

* You can find detailed information on our website.

*** Please contact us for further information.

