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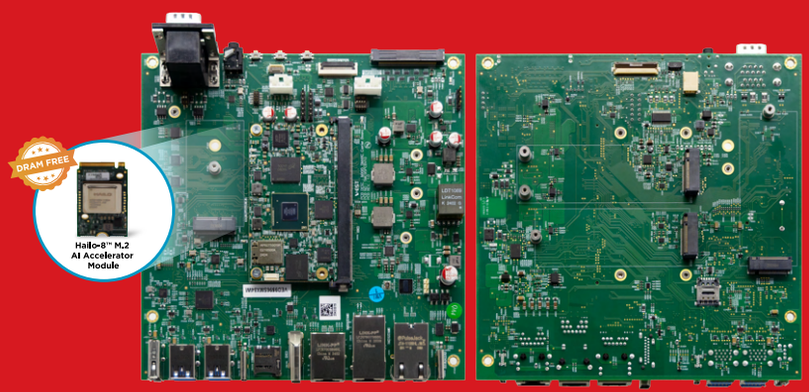
VEST SMTX i.MX95-H Edge AI Vision Kit

Accelerate your product development with a compact Mini-ITX edge computing platform. Combining the NXP i.MX95 processor with the Neutron NPU (up to 8.0 eTOPS) and Hailo-8™ AI acceleration, it provides the advanced processing power for intelligent vision applications.



High Performance CPU

Edge Neural Processing

Rich Multimedia

Industrial 4.0

ABOUT OUR PRODUCT

Introducing the VEST SMTX i.MX95-H Edge AI Vision Kit for industrial automation, smart cities, and machine vision. Combining an NXP i.MX95 SMARC 2.2 SoM, a feature-rich Mini-ITX carrier board, and the Hailo-8™ AI accelerator delivering up to 26 TOPS with fully integrated on-chip memory, it enables high-performance, low-latency AI inferencing without external DRAM, reducing system complexity and minimizing the impact of DRAM supply shortages while providing a scalable, secure, and flexible platform for next-generation intelligent edge systems.

High-Performance Processing and 3D Graphics

The VEST SMTX i.MX95-H Edge AI Vision Kit integrates the NXP i.MX95 application processor and features:

- 6x Arm® Cortex®-A55 cores for advanced-performance
- Dual Real-Time Subsystems (Cortex®-M7/M33) for low-latency control
- Arm® Mali™ GPU for smooth 3D graphics, advanced HMI and rich multimedia applications
- Supports simultaneous 4K H.264/H.265 video encoding and decoding with dual-display capability

Edge AI Capabilities

Built for intelligent Edge AI computing, featuring a Dual-NPU architecture for real-time AI inferencing:

- NXP eIQ® Neutron NPU (8.0 eTOPS at 1 GHz)
- Hailo-8™ AI accelerator delivering up to 26 TOPS via M.2 Key E 2230 with fully integrated on-chip memory and no external DRAM required
- Compatible with leading AI frameworks including TensorFlow, ONNX, Keras, PyTorch
- Supports HailoRT™, Yocto Linux and Hailo Dataflow Compiler for AI deployment and execution

Secure, Connected and Scalable

- Connectivity: Dual GbE with TSN support (one 25W PoE port) and 10 GbE for high-bandwidth data transmission
- Security: Integrated NXP EdgeLock® Secure Enclave and Safety: SIL 2 (Optional)
- Expansion: M.2 slots (Key M, Key B) for NVMe storage, LTE/5G and custom I/O

This Edge AI Vision Kit is versatile and suitable for a wide range of applications, such as:

- Smart Industrial: Industrial Automation, Smart Factory Inspection, Robotics & AMR
- Edge AI Computing: Machine Vision, Video Analytics, Edge AI Inference
- Enterprise: Smart Retail/POS, Digital Signage, Smart Building, Security & Access Control
- Specialized: Medical Devices, Test and Measurement, Smart Cities, Intelligent Transportation

Support

yocto PROJECT · debian · Zephyr™ · FreeRTOS · SMARC module

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Specifications (VEST SMTX i.MX95-H Edge AI Vision Kit)

CPU Details	
CPU	Up to 6x Cortex®-A55 @ 1.8GHz (Ind)/2Ghz (Com), 1x Cortex®-M7, 1x Cortex®-M33
GPU	Arm® Mali-G310, OpenGL® ES 3.2, Vulkan® 1.2, OpenCL 3.0
NPU	NXP eIQ® Neutron NPU up to 8.0 eTOPS at 1Ghz (eTOPS: equivalent TOPS)
Package	NXP VZ (19mm x 19mm, 0.7mm pitch)

Memory	
Memory	Up to 16GB, 6.4 GT/s × 32 LPDDR5 (with inline ECC)
Storage	Up to 256GB eMMC 5.1
External Storage	Mirco SD Slot

Operating System	
BSP	Yocto Linux, Debian, FreeRTOS, Zephyr, NXP Real Time Edge, NXP eIQ®, Matter

Security	
SOC	EdgeLock® Secure Enclave
External | Safety	SE050 (Optional), SIL-2 (IEC61508)(Optional)

Multimedia	
VPU	Decoder: H.264, H.265, 4Kp60 | Encoder: H.264, H.265, 4Kp60
Display	Dual Channel LVDS interface up to 1080p60 | 1x MIPI DSI (4-Lane) | up to 3840x1440p60 (Optional) | 7" or 10" LCD with I2C touch | 1x HDMI Type-A (Optional)
Audio	Audio Codec SGTL5000, 3.5mm Audio Jack (Line In, Mic) | 10W Max Speaker Header

Expansion Slot	
Display	M.2 Key B for Display Signal Expansion (LVDS0/DSI0. LVDS1, PWM, I2C, GPIO)
Camera	2x 4-lane MIPI CSI, Cam CLK, I2C, SPI, GPIO
M.2 Key M 2280	1x 1-lane PCIe Gen 3.0, I2C
M.2 Key B 2280 (USB 3.0, Nano SIM Card)	LTE/5G
Audio	FFC (2x I2S,I2C, 4x GPIO)

Hailo-8™ M.2 Key E 2230 Features	
AI Processor	Hailo-8™ up to 26 TOPS
Interface	PCIe Gen3 x1
Operating Temperature	-40 ~ 85°C
OS Support	Yocto Linux
AI Software	HailoRT™, Hailo Dataflow Compiler
AI Frameworks	TensorFlow, ONNX, Keras, PyTorch

Connectivity	
Wireless	Wi-Fi 6/7, Bluetooth 5.3 (Optional)
Networking	2x 1 GbE with PHY, TSN & IEEE 1588 support (1× 25W PoE) 1x 10 GbE
USB	4x Type-A USB 3.0, Type-A USB 2.0, USB 2.0 OTG Type-C
Stacked D-SUB	Upper Stack: RS-232/422/485 (Software selectable)
	Lower Stack: 2x CAN
Real Time Clock	12mm Diameter Coin Battery holder (Optional)
Debugging	2x UART, JTAG
Power	5V DC +/-5%, USB Type-C with PD (65W, 20V Maximum) or PoE (25W)

Physical	
Form Factor	Carrier Board - 170mm x 170mm (Mini ITX) | SMARC SOM - 82mm x 50mm
Buttons	Power, Reset, Force Recovery
Operating Temperature	Commercial/Industrial (Optional)

Ordering Information and Enquiries

Please contact ***sales@apc-vest.com.***

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