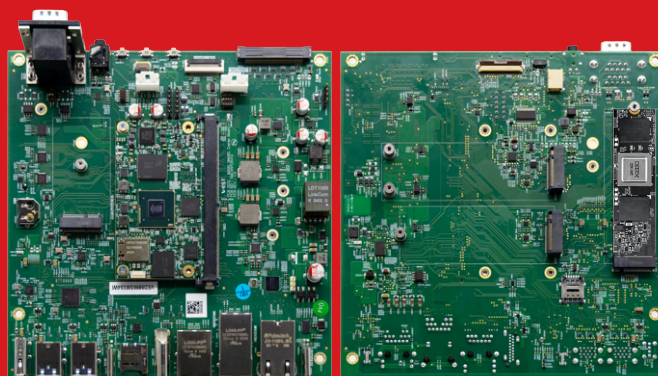


VEST SMTX i.MX95-D Vision AI Kit

Powered by the NXP i.MX95 processor with the Neutron NPU (up to 8.0 eTOPS) and the DeepX DX-M1 AI accelerator, the VEST SMTX i.MX95-D Vision AI Kit delivers high-performance Edge AI computing in a compact Mini-ITX platform.



ABOUT OUR PRODUCT

Introducing the VEST SMTX i.MX95-D Vision AI Kit, perfectly suited for applications ranging from smart retail to rugged industrial automation. This solution combines a high-performance i.MX95 SMARC 2.2 System on Module (SoM) with a feature-rich Mini-ITX carrier board. By hosting the DeepX (DX-M1) AI Accelerator delivering up to 25 TOPS, and providing all necessary peripheral connectivity, this kit offers a complete platform for your next-generation designs.

High-Performance Processing and 3D Graphics

NXP i.MX95 application processor, featuring:

- 6x Arm® Cortex®-A55 cores for advanced Edge computing
- Dual Real-Time Subsystem (Cortex®-M7/M33) for low-latency control
- Arm® Mali™ GPU delivering smooth 3D graphics for advanced Human Machine Interfaces (HMI)
- Advanced video processing with simultaneous 4K H.264/H.265 encoding and decoding, and an integrated ISP for high-resolution, secure imaging

Edge AI Vision Capabilities

Dual-NPU architecture for balanced performance and power efficiency:

- NXP eIQ® Neutron NPU (8.0 eTOPS at 1 GHz) optimized for low-latency, sensor-level inference
- DeepX (DX-M1) module delivering 25 TOPS with high power efficiency (1–5W), connected via M.2 Key M 2280 and purpose-built for advanced Vision AI workloads
- Supports DEEPIX DXNN™ SDK for streamlined AI model optimization, deployment, and accelerated inferencing

Secure, Connected and Scalable

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

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

- Smart Industrial: Industry 4.0, Robotics, Smart Factory Automation
- Vision Systems: Edge Cameras, Smart Cities, Smart Retail and POS Systems
- Enterprise: Video/Audio Conferencing, Advanced Human-Machine Interfaces (HMI)
- Specialized: Medical imaging, Test and Measurement Instruments, Smart Mobility

Support



**High Performance
CPU**



**Edge Neural
Processing**



**Rich
Multimedia**



Industrial 4.0



Specifications (VEST SMTX i.MX95-D Vision AI 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 1 Ghz (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 / Driver / Security			
BSP	Yocto Linux, Debian, FreeRTOS, Zephyr, NXP Real Time Edge, NXP eIQ®		
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 SGT5000, 3.5mm Audio Jack (Line In, Mic) 10W Max Speaker Header		
Expansion Slot		DeepX (DX-M1) M.2 Key M 2280 Features	
Display	M.2 Key B for Display Signal Expansion (LVDS0/DSI0, LVDS1, PWM, I2C, GPIO)	AI Performance	25 TOPS (INT8)
Camera	2x 4-lane MIPI CSI, Cam CLK, I2C, SPI, GPIO	Host Interface	PCIe Gen3 x1
M.2 Key E 2230	1x 1-lane PCIe Gen 3.0, SDIO, USB 2.0, UART (TX,RX,CTS,RTS), I2S, I2C	Memory Interface	4GB LPDDR5 (5600 MT/s)
M.2 Key B 2280 (USB 3.0, Nano SIM Card)	LTE/5G	Power Consumption	1W (min) ~ 5W (max)
Audio	FFC (2x I2S,I2C, 4x GPIO)	Operating Temperature	-40 ~ 85°C (Industrial)
		OS Support	Debian-based Linux, Yocto Project
		AI Frameworks/SDK	DEEPX DXNN™, TensorFlow, PyTorch, ONNX, Keras, Ultralytics
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			

