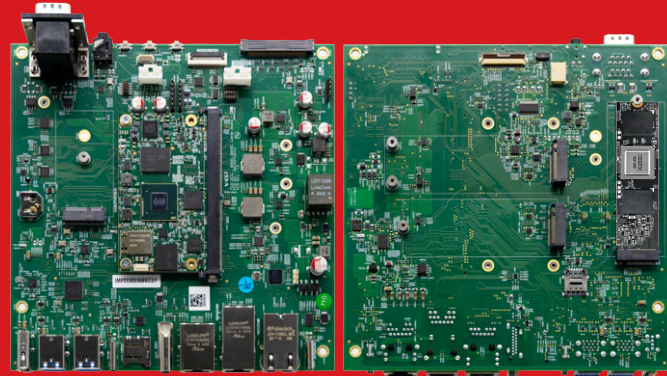


VEST SMTX i.MX95-D Development Kit

Powered by NXP i.MX95 & DeepX (D1-MX) AI Accelerator, the VEST SMTX i.MX95-D Development Kit in a compact Mini-ITX form factor, delivers high-performance Edge AI computing to accelerate your market entry and secure a competitive advantage.



High Performance
CPU



Edge Neural
Processing



Rich
Multimedia



Industrial 4.0

ABOUT OUR PRODUCT

Introducing the VEST SMTX i.MX95-D Development Kit, perfectly suited for Edge AI Vision 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 deliver 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 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 (2.0 TOPS) 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 and purpose-built for advanced Vision AI workloads

Secure, Connected and Scalable

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

This Dev Kit is versatile and ideal for a diverse range of applications, such as:

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

Support



Specifications (VEST SMTX i.MX95-D Development 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 2.0 TOPS
Package	NXP VZ (19mm x 19mm, 0.7mm pitch)

Memory	
Memory	Up to 16GB, 6.4 GT/s × 32 LPDDR4X (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®
SOC External Safety	EdgeLock® Secure Enclave 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 SGLT5000, 3.5mm Audio Jack (Line In, Mic) 10W Max Speaker Header

Expansion Slot		DeepX (DX-M1) M.2 2280 Module 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 (USB 3.0) 2280	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	Ultralytics, TensorFlow, PyTorch, ONNX, Keras

Connectivity	
Wireless	Wi-Fi 6/Bluetooth 5.3 (Optional)
Networking	1GbEthernet with PHY and support TSN, IEEE 1588 1GbEthernet with PHY support TSN, with POE (25W) 1x 10 GbEthernet
USB	4x Type-A USB 3.0, Type-A USB 2.0, USB 2.0 OTG Type-C
CAN	2x Stacked D-SUB
RS 232/422/485	1x Stacked D-SUB (Software selectable)
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

