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Embedded Solutions

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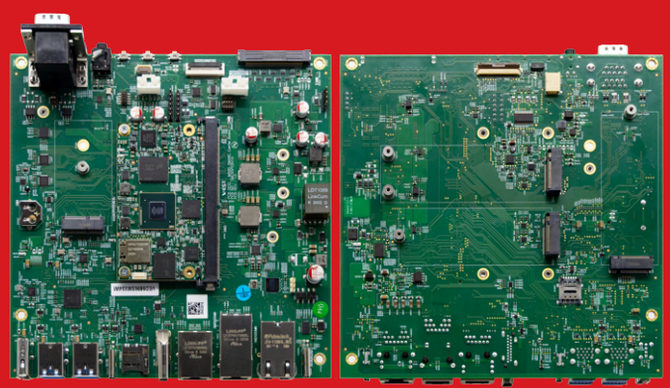
VEST i.MX95 Dev Kit (Mini ITX)

VEST is a leading embedded solutions provider, committing to excellence and innovation. VEST i.MX95 SMARC Dev Kit in SMARC 2.2 standard form factor expedite product development and manufacturing for supply resilience, enabling swift market entry for your products and ensuring a competitive advantage.



High Performance CPU

Edge Neural Processing

Rich Multimedia

Industrial 4.0

ABOUT OUR **PRODUCT**

Introducing the VEST i.MX95 SMARC Development (Dev) Kit. This next generation solution combines a high performance SMARC 2.2 System on Module (SOM) with a robust, feature rich Carrier Board, designed to unlock the full potential of NXP's most advanced application processor.

Empowered by the NXP i.MX95, featuring up to 6x ARM® Cortex® A55 cores, real-time Cortex® M7 and Cortex® M33 subsystems, and the new NXP eIQ® Neutron NPU delivering up to 2 TOPS, this platform is built for compute intensive edge applications. It offers a major leap forward in AI acceleration, advanced security using EdgeLock® Secure Enclave, next gen graphics via Arm® Mali G310 GPU, and rich multimedia capabilities with 4K video encode/decode support.

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

- Edge Computing
- Video/Audio Conferencing
- Advanced Human Machine Interface Application
- Point of Sales, Digital Signage, Smart Retail, Smart Cities
- Point of Care (Pumps, Respirators & Monitoring)
- Portable Test and Measurement Instruments
- Automation for Industry 4.0

Key Features

- Up to six Arm® Cortex®-A55 cores with Cortex®-M7 and Cortex®-M33 for high-performance, real-time processing with dual-display support.
- Integrated 2 TOPS NPU enables efficient AI/ML acceleration using the NXP eIQ® ML toolkit, optimized for high-performance embedded edge applications.
- Arm® Mali™ GPU delivers smooth 3D graphics and display capabilities up to 4Kp30 resolution, offering rich multimedia capabilities.
- Dual MIPI CSI interfaces (one shared with MIPI DSI) for high resolution camera applications.
- Dual Gigabit Ethernet with two ports for TSN collaborating with NXP Real Time Edge Software for deterministic control with precise time-synchronization.
- Enhanced security with EdgeLock® Secure Enclave and SIL 2 safety option.
- Flexible expansion with multiple M.2 slots (Key M, Key E, Key B) provide expansion for NVMe storage, high-speed wireless modules, and custom I/O.

Support

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

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Specifications (VEST i.MX95 Dev Kit - Mini ITX)

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), NXP VT (15mm x 15mm, 0.5mm 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	
BSP	Yocto Linux, Debian, FreeRTOS, Zephyr, NXP Real Time Edge, NXP eIQ®, Matter

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

Multimedia	
VPU	Decoder: H.264, H.265, 4Kp60 | Encoder: H.264, H.265, 4Kp60
Camera**	1x MIPI CSI (2-lane) shared with MIPI DSI
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 Expansion (LVDS0/DSI0. LVDS1, PWM, I2C, GPIO)
Audio	FFC (2x I2S,, I2C, 4x 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 E (2230)	1x 1-lane PCIe Gen 3.0, SDIO, USB 2.0, UART(TX,RX,CTS,RTS), I2S, I2C
M.2 Key B (USB 3.0) 2280	Nano SIM Socket

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 (only on 19x19mm package)
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	Optional, 12mm Diameter Coin Battery holder
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)
Form Factor SMARC SOM	82mm x 50mm (SMARC)
Buttons	Power, Reset, Force Recovery
Operating Temperature	Commercial/Industrial (Optional)

Ordering Information	
Part No.	VED95XXSMX84WX

Combination options due to i.MX95 multiplexing MIPI DSI and MIPI CSI. Contact* ***sales@apc-vest.com

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