



SAPPHIRE EDGE+ VPR-5050-MB motherboard based on the AMD Embedded+ Architecture



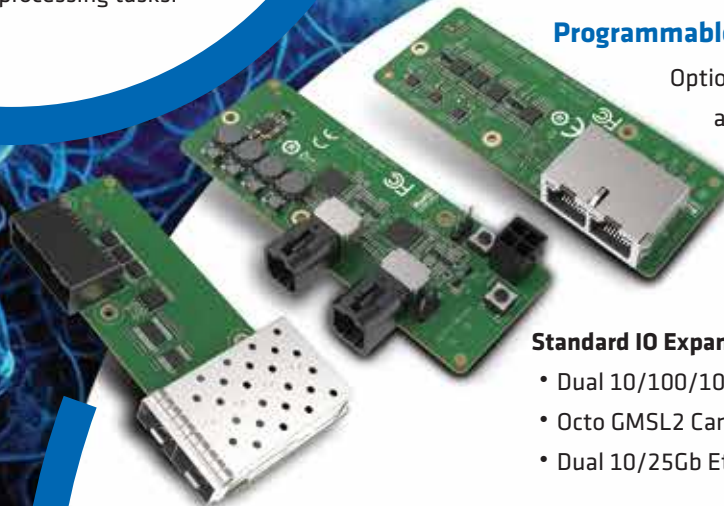
AMD Embedded+ is a new architecture that combines an AMD Ryzen™ Embedded processor and an AMD Versal™ AI Edge adaptive SoC on a single integrated compute platform. It allows developers to rapidly improve real-time sensor data processing by leveraging two scalable device portfolios for diverse performance and power profiles from edge to endpoint.

The EDGE+ VPR-5050 Mini-ITX embedded motherboard is a combination of an AMD Ryzen™ Embedded V2748 processor and an AMD Versal™ AI Edge VE2302 adaptive SoC.

The Ryzen V2748 processor uses its dedicated dual 4K displays, GbE, M.2 WIFI and storage, and USB interfaces to offload the Versal adaptive SoC of non-time critical functions. The Versal adaptive SoC has more bandwidth for deterministic, low-latency adaptive processing tasks.

Programmable IO: Optional IO Expansion

Optional plugin expansion boards are available to support a variety of sensor interfaces.



Standard IO Expansion boards include:

- Dual 10/100/1000Mb Industrial Ethernet board
- Octo GMSL2 Camera board
- Dual 10/25Gb Ethernet board with 16 GPIO

Name		SAPPHIRE EDGE+ VPR-5050-MB	
AMD Embedded+ Architecture		AMD Ryzen™ Embedded V2748 + AMD Versal™ AI Edge VE2302	
Adaptive SoC Subsystem	AMD IC	AMD Versal™ AI Edge VE2302	
	LPDDR4 Memory	2x 4GB LPDDR4	
	TPM	TPM 2.0 (Infineon OPTIGA™ TPM SLM 9670)	
	OSPI	1 Gbit NOR-Flash for Local Boot	
	EEPROM	64 Kb for Board-ID	
	LED	1x Done, 1x ERROR_OUT	
	IO Expansion Connector	160 Pin Socket	
x86 Processor Subsystem	PCIe	Gen3 x 4 (Dedicated for Processor Connection)	
	Processor IC	AMD Ryzen™ Embedded V2748	
	Processor Memory	2 x DDR4 Up to 3200 Max. 64GB (ECC& non-ECC)	
	External I/O Edge Connectors	Displays	1 x DP, 1 x HDMI
		Ethernet	1x 10/100/1000/2500 Mb Ethernet
		COM	1x RS232/422/485
		Audio	1x Line-Out, 1 x Mic-In
		USB Type A	2x USB3.2 Gen2 Type A, 2x USB2.0 Type A
		USB Type C	1x USB3.2 Gen2 Type C
	Internal I/O Headers	Front Panel	5 x 2 pins (power button)
		GPIO	8 bit GPIO
		USB	2x USB2.0
		SATA	1x SATA3 (6.0 Gb/s), 1x SATA PWR
		COM	1x RS232/422/485
	Expansion Slots		1x M.2 Key M 2580 for SSD (PCIe Gen3 x4 and SATA)
		1x M.2 Key E 2230 for Wireless/BT (PCIe Gen3 x1 and USB2.0)	
		1 xPCIe x8 expansion slot	
OS	RHEL/CentOS 5 7.9; RHEL 8.2 - 8.6; Ubuntu 22.04		
Board Features	Cooler Type	Active	
	Typical Board Power Consumption	As low as 30W	
	Power Input	DC 12V - 19V Barrel Jack or ATX 2x2 power header	
	Board Size	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	
	Operating Temperature Range	Ambient 0°C to 60°C	

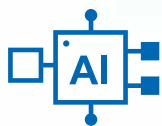
AMD Embedded+ Architecture

The Best of x86 Processors and Adaptive SoCs in an Integrated Compute Platform



SENSOR FRIENDLY

- Direct connection to variety of sensors via programmable IO
- Sensor processing at analog-digital boundary for maximum responsiveness
- Native support for sensor fusion



OFFLOADED PROCESSING

- Programmable Logic for deterministic, low-latency communications and processing
- AI Engines for high performance/watt inferencing
- Integrated Radeon™ graphics for uplifted 4k multimedia experience



FAST TIME-TO-MARKET

- Optimized for sensor fusion, AI inference, industrial networking, control, and visualization
- Common SW infrastructure across x86 and Arm® processors, AI Engines, and FPGA fabric for diverse workloads
- ODM integration enables price, lifecycle, quality advantages in as small form factor as Mini-ITX and as low power as 30W

The Embedded+ architecture combines AMD Ryzen™ processors and AMD Versal™ adaptive SoCs to deliver integrated, scalable, cost-effective and power-efficient solutions that accelerate time-to-market.

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