

SAPPHIRE EDGE+ VPR-4616 motherboard based on the AMD Embedded+ Architecture



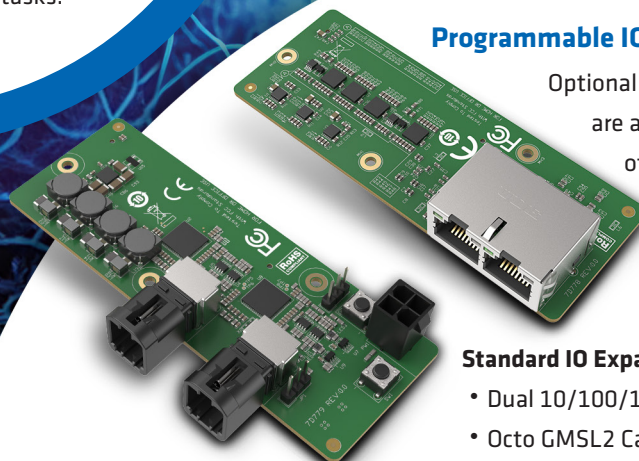
The EDGE+ VPR-4616 Mini-ITX embedded motherboard is a combination of an AMD Ryzen™ Embedded R2314 processor and an AMD Versal™ AI Edge VE2302 adaptive SoC.

The Ryzen R2314 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.

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.

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-4616-MB
AMD Embedded+ Architecture		AMD Ryzen™ Embedded R2314 Plus 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	1Gb NOR Flash for Local Boot
	EEPROM	64Kb for Board-ID
	LED	1x Done, 1x ERROR_OUT
	IO Expansion Connector	160 pin Socket
PCIe		Gen3 x4
Processor IC		AMD Ryzen™ Embedded R2314
Processor Memory		2x DDR4-Up to 2667 Max. 64GB (ECC & non-ECC)
External I/O Edge Connectors	Displays	1x HDMI, 1x DP
	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	1x USB2.0
	SATA	1x SATA3 (6.0 Gb/s), 1x SATA PWR
	COM	1x RS232/422/485
Cooler Type		Active
Typical Board Power Consumption		As low as 30W
Power Input		DC 12V - 19V, Barrel Jack or ATX 2x2 power header
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)
OS		RHEL/CentOS 7.9 ; RHEL 8.2- 8.6; Ubuntu 22.04
Board Size		Mini-ITX 6.7” x 6.7” (170mm x 170mm)
Operating Temperature Range		Ambient 0°C to 60°C

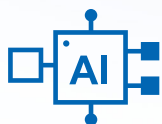
AMD Embedded+ Architecture

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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