

SAPPHIRE EDGE+ VPR-4616 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.

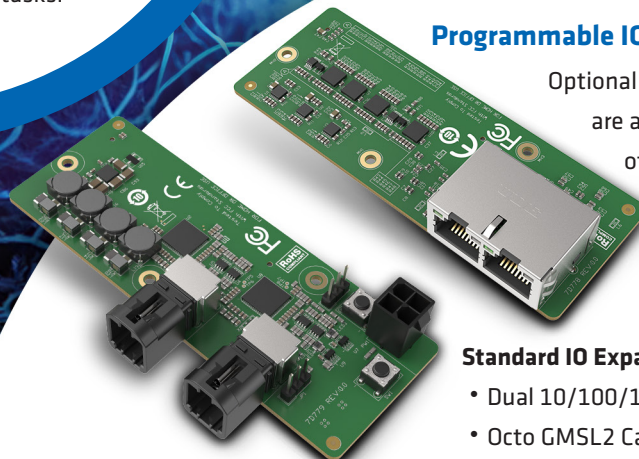


The EDGE+ VPR-4616 Mini-ITX embedded motherboard is a combination of an AMD Ryzen™ Embedded R2314 processor and an AMD Versal™ AI Edge VE2302 adaptive SoC.

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.

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 |

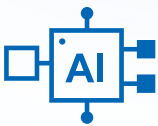
AMD Embedded+ Architecture

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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