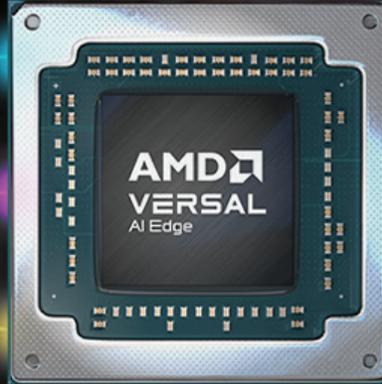


# INTRODUCING THE EMBEDDED+ ARCHITECTURE

SEAMLESSLY INTEGRATED ADAPTIVE  
COMPUTING AND X86 PROCESSING  
FOR SENSOR-RICH APPLICATIONS



## Target Applications



**IPC with Integrated Machine Vision  
Frame Grabber**



**Robot Controller with Motion  
Planning**



**IPC with Offloaded Industrial  
Networking and Control**



**Smart City, Security, Retail Systems**



**Medical PC with Connected Probes**

Industrial and medical embedded systems increasingly leverage diverse sensor data for a wide range of applications requiring ultra-low latency, deterministic responsiveness. To derive the maximum value from this sensor data, it must be processed and/or offloaded as quickly as it's generated—at real-time speeds—to enable faster, smarter decisions that enhance process efficiency, precision control, situational awareness, functional safety, security, and more.

Consequently, embedded processing engines are migrating toward the sensors themselves, adjacently integrated in compact, thermally adept enclosures to help make the most of sensor data in space- and power-constrained environments. As the processing moves closer to the sensors—at the analog-digital boundary or embedded edge—it requires flexible I/O connectivity with versatile communications and offload capabilities for enabling AI inferencing, native sensor fusion, and other key capabilities.

## Best of Both Worlds

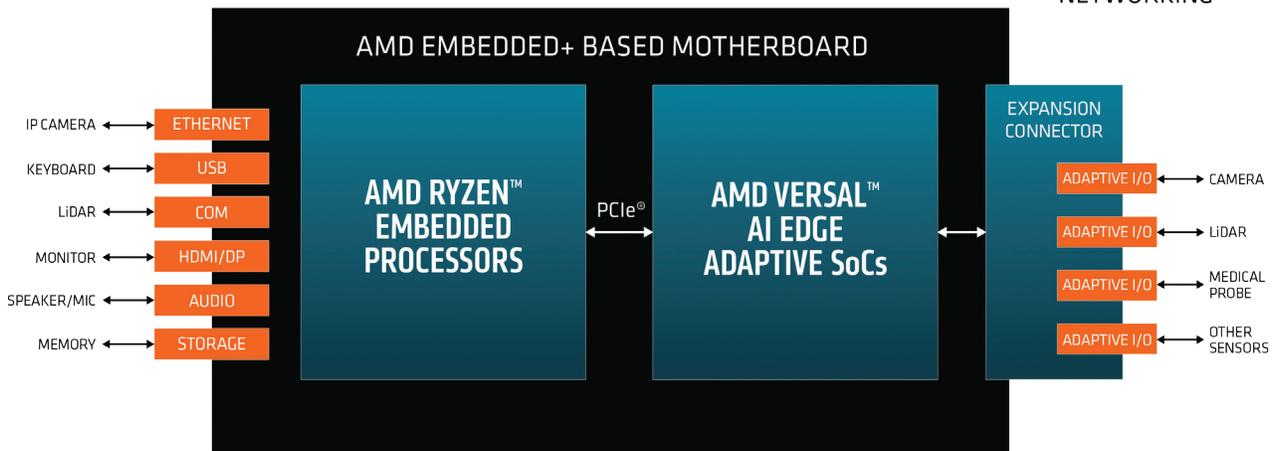
The Embedded+ architecture brings together AMD's technology leadership in adaptive computing and x86 embedded processing solutions for a new class of seamlessly integrated, scalable, cost- and power-efficient solutions designed to complement a wide breadth of sensor functionalities. Embedded+ makes the most of rich sensor data with low latency, deterministic responsiveness leveraging FPGA and x86 processing engines on an integrated compute platform.

Combining AMD Ryzen™ Embedded processing and Radeon™ graphics with Versal™ adaptive SOCs in a small form factor, single board solution, the Embedded+ architecture equips designers to minimize design complexity and costs and get to market faster with scalable, versatile computing platforms for a range of real-time applications.

Industrial PCs (IPCs) and other embedded PCs leveraging the Embedded+ architecture benefit from a best-of-both-worlds approach encompassing smooth FPGA programmability and functionality, with an efficient data pipeline from sensor to IPC, including video codecs and AI Engines for machine learning inferencing. Integrated Radeon graphics enables support for uplifted 4K multimedia experiences for IPCs, medical displays, and industrial HMIs.

### PC AND NETWORK CONNECTIVITY

### REAL-TIME SENSOR INPUT AND INDUSTRIAL NETWORKING



## Flexible Features, Rich Ecosystems

Optimized for industrial, medical, and embedded PCs, the Ryzen Embedded processor is connected to the Versal AI Edge adaptive SoC on a single PCB via PCIe® and supported by a common software infrastructure that spans across x86, Arm®, AI Engines, and programmable logic. The integrated architecture is designed to provide direct connectivity with a wide variety of sensors, with programmable I/O capable of targeting any sensor, interface, or memory configuration, per application requirements.

AMD is working collaboratively with valued ODM partners, starting with SAPPHIRE Technology at launch, to deliver the Embedded+ architecture for diverse applications in a range of small form factor motherboards and sensor expansion boards for adaptable connection to sensors. ODM pre-integration via production-ready motherboards helps accelerate design cycles, minimize development costs, and reduce requirements for bulky, add-on cards and components—backed with long lifecycle support.

The initial ODM offerings based on the Embedded+ architecture include the VPR-2616-MB, a Mini-ITX form factor motherboard from SAPPHIRE Technology (Ryzen R2314 + Versal VE2302 configuration) with total power as low as 30W, and the VPR-2616-SYS, a pre-configured and boxed solution. System designers will be able to choose from an ecosystem of small form factor ODM board offerings based on the Embedded+ architecture, scaling their product portfolios to deliver performance and power profiles best suited to customers' target applications.



## ODM Partner Profiles



### **SAPPHIRE Technology Limited**

SAPPHIRE Technology continues to be a world-leading manufacturer and global supplier of innovative graphics and mainboard products, delivering its AMD Radeon-based products to the PC market addressing gaming and performance graphics hardware enthusiasts, as well as delivering an array of embedded technology solutions and commercial graphics products.

## About AMD

AMD is the high performance and adaptive computing leader, powering the products and services that help solve the world's most important challenges. Our technologies advance the future of the data center, embedded, gaming and PC markets. Visit [www.amd.com](http://www.amd.com).

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